00020.150.139
:jeh
05/10/05

ORDINANCE NO. 2259

AN ORDINANCE OF THE CITY OF REDMOND, WASHINGTON ADOPTING FINDINGS OF FACT; AMENDING THE NATURAL ENVIRONMENT ELEMENT OF THE REDMOND COMPREHENSIVE PLAN IN ORDER TO UPDATE THE CITY'S GOALS AND POLICIES RELATING TO CRITICAL AREAS; ADDING AND AMENDING VARIOUS DEFINITIONS IN CHAPTER 20A.20 OF THE REDMOND COMMUNITY DEVELOPMENT GUIDE RELATING TO CRITICAL AREAS; AMENDING CHAPTER 20D.140 OF THE REDMOND COMMUNITY DEVELOPMENT GUIDE IN ORDER TO UPDATE THE CITY'S CRITICAL AREAS REGULATIONS AND INCORPORATE THE BEST AVAILABLE SCIENCE; PROVIDING FOR SEVERABILITY AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the Growth Management Act requires the City to update its critical areas designations and regulations in order to include the best available science; and

WHEREAS, through the adoption of Ordinance 2177, the Redmond City Council adopted an updated Goals, Vision and Framework Policy Element to provide the basis and direction for updates to specific policies in the Redmond Comprehensive Plan and specific regulations in the Redmond Community Development Guide, including those policies and regulations relating to critical areas; and

WHEREAS, pursuant to Ordinance 2177 and the Growth Management Act, updates to the Natural Environment Element of the Redmond Comprehensive Plan and the Definitions and Critical Areas Chapters of the Redmond Community

Development Guide have been prepared and presented to the Redmond Planning Commission and Redmond City Council for review and approval; and

WHEREAS, a SEPA Determination of Non-Significance was issued for the proposed amendments on October 21, 2004; and

WHEREAS, as a result of the City's community outreach, the public has had extensive opportunities to participate throughout the consideration of the proposed amendments, including opportunities to identify issues for update and to comment on the proposed policies and regulations; and

WHEREAS, the Redmond Planning Commission held two public hearings on the proposed amendments, one on November 10, 2004 and the other on January 19, 2005 and numerous study sessions, and after deliberations recommended that the proposed amendments be approved; and

WHEREAS, the Redmond City Council also held numerous study sessions on the proposed amendments, as well as a public hearing on May 17, 2005, and after deliberations has determined to adopt the amendments set forth in this ordinance; and

WHEREAS, through the enactment of Ordinance 2156, the City Council set the content of the current Annual Comprehensive Plan Amendment Package, which includes the proposed amendments to the Natural Environment Element; and

WHEREAS, the Comprehensive Plan amendments set forth in this ordinance are the final amendments authorized and contemplated by the Ordinance 2156 and the Annual Comprehensive Plan Package described in said ordinance, NOW, THEREFORE,

THE CITY COUNCIL OF THE CITY OF REDMOND, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. Findings and Conclusions. After carefully reviewing the record and considering the evidence and arguments in the record and at public meetings, the City Council hereby adopts the findings, analysis, and conclusions in the Findings of Fact attached to this ordinance as Exhibit 1 and incorporated herein by this reference as if set forth in full.

Section 2. Natural Environment Element. The Natural Environment Element of the Redmond Comprehensive Plan is hereby amended to read as set forth on Exhibit 2 to this ordinance, which exhibit is hereby incorporated into this ordinance by reference as if fully set forth.

Section 3. Definitions. Chapter 20A.20 of the Redmond Municipal Code and Community Development Guide is hereby amended by adding certain new definitions and amending certain other definitions relating to critical areas, which new and amended definitions are attached to this ordinance as Exhibit 3 and incorporated herein by this reference as if set forth in full.

Section 4. Critical Areas Regulations. Chapter 20D.140 of the Redmond Municipal Code and Community Development Guide is hereby amended to read as set forth on Exhibit 4 to this ordinance, which exhibit is hereby incorporated into this ordinance by this reference as if set forth in full.

Section 5. Severability. If any policy, section, sentence, clause, or phrase of this ordinance, or any policy adopted or amended hereby, should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or

unconstitutionality shall not affect the validity of any other policy, section, sentence, clause, or phrase of this ordinance or any policy adopted or amended hereby.

Section 6. Effective Date. This ordinance, being an exercise of a power specifically delegated to the city legislative body, is not subject to referendum, and shall take effect five days after passage and publication of an approved summary thereof consisting of the title.

CITY OF REDMOND

ROSEMARIE IVES, MAYOR

ATTEST/AUTHENTICATED:

MALISA FILES, CITY CLERK

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY:

By:

FILED WITH THE CITY CLERK:	May 11, 2005
PASSED BY THE CITY COUNCIL:	May 17, 2005
SIGNED BY THE MAYOR:	May 17, 2005
PUBLISHED:	May 23, 2005
EFFECTIVE DATE:	May 28, 2005
ORDINANCE NO.:	2259

Exhibit 1

Critical Areas Ordinance Update
Findings of Fact

The Growth Management Act requires the adoption of development regulations that protect critical areas designated in accordance with RCW 36.70A.170.

RCW 36.70A.172 requires local governments to give special consideration to the conservation and protection measures necessary to preserve or enhance anadromous fisheries.

Critical areas include: Fish and Wildlife Habitat Conservation Areas, Frequently Flooded Areas, Wetlands, Critical Aquifer Recharge Areas, and Geologically Hazardous Areas.

Development may result in cumulative impacts to those functions and values of critical areas that contribute to and are necessary for a healthy natural environment and perceived quality of life.

The development of residential and non-residential structures has the potential of adversely and significantly impacting the functions and values of critical areas.

The unwise development of areas susceptible to natural hazards may lead to inefficient use of limited public resources, jeopardize environmental resource functions and values, subject persons and property to unsafe conditions, and affect the perceived quality of life.

It is more costly to remedy the loss of critical area functions and values than to conserve and protect them from loss or degradation.

In determining what critical areas are to be afforded a particular degree of protection, the City of Redmond has evaluated a wide range of best available science with respect to the critical areas to make informed decisions that meet the intent of the Growth Management Act and that are also reflective of local needs.

The sources of this best available science that were evaluated and included in this ordinance are listed below:

- Adolfson Associates, Inc. City of Redmond Wildlife Habitat Plan. Seattle, WA. November 2002.

- Azerrad, J.M., editor. Management Recommendations for Washington's Priority Species. Volume V: Mammals. Washington Department of Fish and Wildlife. Olympia, WA. 2004.

- Bolton, S. and J. Shellberg. Ecological Issues in Floodplain and Riparian Corridors. Center for Streamside Studies, University of Washington. Seattle, WA. July 2001.

- Copsey, Alan G. "The Designation and Protection of Critical Areas Under the Growth Management Act." Growth Management Workshop. May, 2002.

- Donnelly, Roarke and John M. Marzluff. "Importance of Reserve Size and Landscape Context to Urban Bird Conservation." Conservation Biology. June 2004. pp. 733-745.

- Fuerstenburg, R., S. Brewer, D. Concannon, H. Haemmerle, K. O. Richter, and J. Thomas. 2002. King County Aquatic Conservation Strategy (Draft). King County Dept. Natural Resources and Parks. Seattle, WA. 05/09/02.

- Ingram, Paul. "Applying Best Available Science to Local Stream Regulations." Puget Sound Section and Washington Chapter APA Planning Law Conference. March 2003.

- King County Department of Natural Resources and Parks, Water and Land Resources Division. Best Available Science: A Review of Literature and Assessment of the Proposed Critical Areas, Clearing and Grading, and Stormwater Ordinances. Seattle, WA. October 2003.

- King County Dept. Natural Resources and Parks (R. Fuerstenberg, et al). An Aquatic Conservation Strategy. Seattle WA. 2002.

- Knutson, K.L., and V.L. Naef. Management Recommendations for Washington's Priority Habitats: Riparian. Washington Department of Fish and Wildlife. Olympia, WA. 1997.

- Kockelman, W.J. "Techniques for Reducing Earthquake Hazards." Editors Rogers, Albert M., Walsh, Timothy J., Kockelman, William J., and Priest, George R. In Assessing Earthquake Hazards and Reducing Risk in the Pacific Northwest. U.S. Geological Survey Professional paper 1560. Volume 2 pp. 479-496. Washington. 1998.

- Larsen, E.M., E. Roderick, and R. Milner, eds. Management Recommendations for Washington's Priority Species. Volume I: Invertebrates. Washington Department of Fish and Wildlife. Olympia, WA. 1995.

- Larsen, E.M., E. Roderick, and R. Milner, eds. Management Recommendations for Washington's Priority Species. Volume 1: Invertebrates. Washington Department of Fish and Wildlife. Olympia, WA. 1995

- Larsen, E.M., J.M. Azerrad, and N. Nordstrom, eds. Management Recommendations for Washington's Priority Species. Volume IV: Birds. Washington Department of Fish and Wildlife. Olympia, WA. 2004.

- May, Peter J. "Earthquake Risk-Reduction Prospects for the Puget Sound and Portland, Oregon Areas." Editors Rogers, Albert M., Walsh, Timothy J., Kockelman, William J., and Priest, George R. In Assessing Earthquake Hazards and Reducing Risk in the Pacific Northwest. U.S. Geological Survey Professional paper 1560. Volume 2 pp. 497-515. Washington. 1998.

- Parametrix, Inc. Bear Creek Habitat Inventory and Assessment. Kirkland, WA. May 2002.

- Parametrix, Inc. Wellhead Protection Report: City of Redmond. Kirkland, WA. October 1997.

- RCW 36.70A.172 Critical Areas – Designation and Protection – Best Available Science to be Used.

- Restoration Logistics. Stream Reconnaissance Project: Summary Report. Redmond, Washington. Seattle, WA. June 2002.

- Roderick, E. and R. Milner, editors. Management Recommendations for Washington's Priority Habitats and Species. Washington Department of Fish and Wildlife. Olympia, WA. 1991.

- Semlitsch, Raymond D. and J. Russell Bodie. "Biological Criteria for Buffer Zones Around Wetlands and Riparian Habitats for Amphibians and Reptiles." Conservation Biology. October 2003. pp. 1219-1228.

- Spence, B.C., et al. An Ecosystem Approach to Salmonid Conservation. Prepared for NOAA, USEPA, and USDF&W by Management Technology. Corvallis OR. 1996.

- Tetra Tech Inc. Sammamish River Corridor Action Plan. Seattle, WA. August 2002.

- WAC 222-16-010 General Definitions.

- WAC 222-16-030 Water Typing System.

- WAC 222-16-031 Interim Water Typing System.

- WAC 365-190-080 Critical Areas.

- WAC 365-195-900 Best Available Science.

- Washington State Department of Community, Trade, and Economic Development. Critical Areas Handbook: Protecting Critical Areas Within the Framework of the Washington Growth Management Act. Olympia, WA. November 2003.

- Washington State Department of Ecology. Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances. Olympia, WA. June 2000.

- Washington State Department of Ecology. A Framework for Delineating Channel Migration Zones. Olympia, WA. November 2003.

- Washington State Department of Ecology. Washington Wetlands Identification and Delineation Manual, Ecology Publication No. 96-94. Olympia, WA. March 1997.

- Washington State Department of Ecology. Freshwater Wetlands in Washington State, Volume 1 – A Synthesis of the Science (Draft). Olympia, WA. August 2003

- Washington State Department of Ecology. Freshwater Wetlands in Washington State, Volume 2 – Managing and Protecting Wetlands. Olympia, WA. August 2004.

- Washington State Department of Ecology. Washington Model Flood Damage Prevention Ordinance. Olympia, WA. 2000.

- Washington Department of Fish and Wildlife. Salmon and Steelhead Habitat Inventory and Assessment Program (SSHIAP).

- Washington Department of Fish and Wildlife. Salmon and Steelhead Statistical Inventory (SASSI).

- Washington State Office of Community Development. Citations of Recommended Sources of Best Available Science For Designating and Protecting Critical Areas. Olympia, WA. March 2002.

- Washington State Office of Community Development. Model Code Recommendations for Designating and Protecting Critical Areas. First Edition (2nd Draft). Olympia, WA. May 2002.

- WRIA 8 Service Provider Team. WRIA 8 Chinook Salmon Conservation Plan: June 30, 2004 Draft Work Product. Seattle, WA. June 2004.

Protection standards for one critical area often provide protection for one or more other critical areas.

Critical areas may also be protected by other actions by the City of Redmond, such as stormwater management standards, clearing and grading regulations, critical area restoration, capital improvement projects, and public education; and from other regulations such as the Shoreline Management Act and the State Environmental Policy Act.

The U.S. Constitution prohibits the taking of private property without just compensation.

Fish and Wildlife Habitat Conservation Areas

Fish and Wildlife Habitat Conservation Areas perform many important physical and biological functions that benefit the City of Redmond and its residents, including but not limited to: maintaining species diversity and genetic diversity; providing opportunities for food, cover, nesting, breeding, and movement for fish and wildlife; serving as areas for recreation, education and scientific study and aesthetic appreciation; helping to maintain air and water quality; controlling erosion; and providing neighborhood separation and visual diversity with urban areas.

Streams are environmentally sensitive and serve numerous natural functions and values. These functions include: wildlife and fisheries habitat; water quality protection; flood protection; shoreline stabilization; stream flow; and groundwater recharge and discharge. In many situations, these functions cannot be adequately replicated or replaced.

The scientific literature supports the inclusion of protective buffers from streams to provide sediment control, nutrient inputs to downstream waters, large woody debris, and other functions important to riparian areas.

The Washington Department of Fish and Wildlife (WDFW) has prepared management recommendations for the preservation of priority habitats and species, which are based on the best available science, and include, in some instances, recommended protective buffer distances.

Salmonid and anadromous fish may be more impacted by development and human activity during some times than others. Such times are referred to as “fish windows”, which have been documented by WDFW.

WAC 365-190-080(5) grants the City of Redmond the flexibility to make decisions in the context of local circumstances, and specifically excuses local jurisdictions from being required to protect “all individuals of all species at all times.”

Wetlands

Wetlands are environmentally sensitive and serve numerous natural functions and values. These functions include: wildlife and fisheries habitat; water quality protection; flood protection; shoreline stabilization; stream flow; and groundwater recharge and discharge. In many situations, these functions cannot be adequately replicated or replaced.

The scientific literature supports the inclusion of protective buffers from wetlands to provide sediment control and nutrient inputs to wetlands, and to protect important wetland functions.

Wetlands are identified and rated according to the *Washington State Wetland Identification and Delineation Manual* and *Wetland Rating System for Western Washington*, prepared by the Washington State Department of Ecology.

The scientific literature supports protective buffers ranging from 25 to 300 feet of relatively intact native vegetation to adequately protect wetland functions and values.

Appropriate wetland mitigation ratios, ratios of areas of wetland replacement and enhancement to that altered or destroyed, are established in *Appendix 8-C, Guidance on Buffers and Ratios – Western Washington*, of *Wetlands in Washington State: Protecting and Managing Wetlands, Vol. 2*, prepared by the Washington State Department of Ecology.

Scientific literature does not support the exemption of small wetlands from protection. However, the City finds it administratively difficult to regulate development on small wetlands and justify buffers that could potentially encompass more land area than the wetland itself. The potential to miss small, isolated wetlands exists. Having an exemption for small wetlands helps further GMA goal RCW 36.60A.020 (7), *Permits*. This goal states that applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability. The City has determined as a policy that hydrologically isolated Category IV wetlands 250 square feet or less in size will not be regulated. This helps provide predictability for sites that may contain small wetlands with the potential to be missed during a formal wetland delineation.

Frequently Flooded Areas

Frequently Flooded Areas are subject to periodic inundation that 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 development in areas prone to inundation that increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately flood proofed, elevated, or otherwise protected from flood damage also contribute to flood loss.

Floodplain and stream connectivity are major elements in maintaining healthy, riparian habitat and off-channel habitats for the survival of fish species and conveyance of floodwaters. If river, floodplains, and other systems are not viewed holistically as biological, geomorphological units, this can lead to serious degradation of habitat and increase flood hazards, which in turn can contribute to listing of various fish species as threatened or endangered and result in extraordinary public expenditures for flood protection and relief

Frequently Flooded Areas, including the 100-year floodplain and the floodway, area mapped on flood insurance maps, commonly known as Flood Insurance Rate Maps, or FIRMs.

Critical Aquifer Recharge Areas

WAC 365-190-080 defines wellhead protection areas, sole source aquifers, special protection areas, and other areas that are susceptible or vulnerable to groundwater contamination as areas with a critical recharging effect on aquifers used for potable waters (also referred to as Critical Aquifer Recharge Areas).

Potable water is an essential life-sustaining element.

Roughly half of the City's drinking water comes from groundwater supplies.

Once groundwater is contaminated it is difficult, costly, and sometimes impossible to clean up.

Preventing groundwater contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people.

Guidance Document for Establishment of Critical Aquifer Recharge Areas Ordinances, by Ecology, 2000, includes scientific recommendations for protection of groundwater, including limiting certain uses and the intensity of development in critical aquifer recharge areas.

Geologically Hazardous Areas

Geologically Hazardous Areas are subject to periodic geologic events that result in loss of life and property, health, and safety hazards, disruption of commerce

and governmental services, extraordinary public expenditures, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

Geologic hazards may be exacerbated by development and human activity in sensitive areas, and impacts resulting from geologic hazards may be reduced by limiting development and human activity within or adjacent to the geologic hazard.

Some geologic hazards may be intensified during periods of consistent or heavy rainfall that results in ground saturation or surface water drainage flows.

Exhibit 2

NATURAL ENVIRONMENT ELEMENT (SMP)

Future Vision for Redmond – Natural Environment

Redmond in 2022 has maintained a very green character. The City is framed within a beautiful natural setting, with open spaces and an abundance of trees continuing to define Redmond's physical appearance. A system of interconnected open spaces provides habitat for a variety of wildlife. The City prides itself for its environmental stewardship, including an emphasis on sustainable land use and development patterns, landscaping that requires little watering, and other techniques to protect and conserve the natural environment, while flourishing as a successful urban center. Lake Sammamish and the Sammamish River, noted for their water quality, are used for boating, swimming and other types of recreation. Through many cooperative efforts, the improved water quality is demonstrated annually in the increasing salmon runs. Public access to shorelines has been enhanced while protecting the natural environment and property owners' rights.

Organization of this Element

Introduction

A. Environmental Stewardship Policies

B. Environmentally Critical Areas Policies

Geologically Hazardous Areas
Critical Aquifer Recharge Areas
Frequently Flooded Areas
Wetlands
Water Quality and Basin Planning
Fish and Wildlife Habitat

C. Tree Preservation and Landscape Enhancement Policies

D. Air Quality Policies

E. Noise Policies

F. Light Pollution Policies

Introduction

The Natural Environment Element implements the vision of Redmond as a city enriched with valued natural features that enhance the quality of life for the community. This element provides policies to maintain key natural processes and functions that provide the natural physical foundation for the community while acknowledging the need to accommodate growth.

The "green infrastructure" of the City provides the backbone on which physical development occurs. Key strategies to maintaining the City's environmental assets are summarized below:

- Maintain a green infrastructure map to determine how all of the City's environmental assets interact;
- Work actively to address informational gaps in the environmental network;
- Use a science-based approach to ensure no net loss of critical areas' significant ecological functions;
- Maintain and strive to enhance a healthy natural ecosystem;
- Monitor and report on the effectiveness of Redmond's environmental protection programs, policies, and regulations;
- Foster a high quality of life by retaining trees, promoting clean air, limiting noise and light pollution, and maintaining scenic vistas; and
- Strive towards becoming a sustainable community.

A. Environmental Stewardship

The environmental stewardship policies address the need to consider the long-range implications of City policies upon the environment, to conduct City operations in a manner that protects the environment, and to provide education on how the City, its businesses, and residents can improve the quality of the environment.

NE-1 Consider the immediate, long range and cumulative environmental impacts of policy, regulatory and service decisions. Consider these impacts in the context of the City's commitment to provide for the public safety, public facilities and services, a high quality of life, and economic vitality in a sustainable environment.

NE-2 Utilize Best Management Practices (BMPs) and technology in City projects and practices to achieve effective environmental stewardship while striving towards long-term fiscal responsibility.

NE-3 Conduct City operations in a manner that provides quality municipal services to the community while encouraging resource conservation and minimizing adverse environmental impacts.

NE-4 Minimize and, where practical, eliminate the release of substances into the air, water, soil and groundwater that may degrade the quality of these resources or contribute to global atmospheric changes.

NE-5 Encourage the judicious use of renewable natural resources and conserve nonrenewable resources.

NE-6 Reduce waste, reuse and recycle materials, and dispose of all wastes in a safe and responsible manner.

NE-7 Promote and lead education and involvement programs to raise public awareness of environmental issues, encourage respect for the environment and show how individual actions and the cumulative effects of a community's actions can have significant effects on the environment.

NE-8 Support sustainable development and strive towards becoming a sustainable community.

NE-9 Encourage environmentally friendly construction practices such as the build green program and low impact development.

NE-10 Encourage projects which utilize alternative technologies, engineering, and plans which emphasize Low Impact Development strategies through incentives and flexibility in application of regulatory requirements.

Environmental issues often extend beyond governmental boundaries. Cooperation between governments is essential to address many environmental problems. Redmond should continue its policy of working cooperatively with others to address environmental issues.

NE-11 Cooperate with other local governments, state, federal and international agencies and nonprofit organizations to protect and enhance the environment, especially for issues that affect areas beyond Redmond's boundaries.

B. Environmentally Critical Areas

The Environmentally Critical Areas policies provide for the protection of designated critical areas identified in the Growth Management Act. This includes Fish and Wildlife Habitat Conservation Areas, Wetlands, Frequently Flooded Areas, Critical Aquifer Recharge Areas, and Geologically Hazardous Areas.

Environmentally critical areas are important contributors to Redmond's high quality of life. Some natural features are critical to protect because of the hazards they present to public health and safety, some because of the values they represent. Those that present a hazard are protected to prevent loss of property and human life caused by inappropriate

development in these areas. Other critical areas are protected to preserve and maintain their ecological functions, and the quality of life and livability for humans. Some species, such as salmon, are considered keystone species and are a commonly used as benchmark indicators of overall environmental health of a region.

Science plays a central role in delineating critical areas, identifying functions and values, and identifying protection strategies. The state's Best Available Science (BAS) Rule requires the integration of science into the establishment and update of Critical Areas Ordinances.

NE-12 Use Best Available Science to preserve and enhance the functions and values of critical areas through policies, regulations, programs, and incentives.

NE-13 Implement an adaptive management program based on Best Available Science to revise policies, regulations, and programs as needed to reflect changes in scientific advancement and local circumstances.

NE-14 Use science-based mitigation to offset unavoidable adverse impacts to critical areas.

NE-15 Implement monitoring and adaptive management programs for critical areas mitigation projects to ensure that the intended functions are retained and, when required, enhanced over time.

NE-16 Use the precautionary principle when there is an absence of valid scientific information or incomplete scientific information accompanying a development application. Limit development and land uses activities until the uncertainty is sufficiently resolved.

One of the best opportunities to protect critical areas while allowing an appropriate level of development is to avoid development in critical areas. Another way of protecting critical areas while providing for appropriate levels of development is to focus development on the areas of the site best suited to development while leaving critical areas undeveloped, through clustering or density transfers.

NE-17 Conserve and protect environmentally critical areas from loss or degradation. Maintain as open space hazardous areas and significant areas of steep slopes, undeveloped shorelines and wetlands.

NE-18 Allow modification of critical areas where they have low ecological value and the function and values will be fully replaced. Avoid land uses and developments that are incompatible with environmentally critical areas.

NE-19 Avoid, where possible, the creation of new parcels with buildings sites entirely within wetlands, streams, steep slopes, frequently flooded areas and

their associated buffers where possible. Configure future parcels to have a building site outside of these areas.

NE-20 Encourage use of creative and appropriate site design and housing types to balance environmental protection and achievable density. Encourage Planned Residential Developments (PRDs), Planned Commercial Developments (PCDs), clustering, and density transfers for both commercial and residential development to help retain significant natural features and critical areas as open space.

While protection of critical areas is important to the Redmond community, allowing all properties some reasonable economic use also is important. This policy does not guarantee that each property will be able to be used for its theoretically highest and best use or that all portions of a property can be used for development. Rather, the policy provides that the critical areas regulations be administered so that each property has some economic use.

NE-21 Ensure critical area regulations provide some reasonable economic use for all property within Redmond when taking into account the entire property.

Consistency between jurisdictions can help citizens and the development community work more efficiently with sensitive areas regulations. While local variations need to be accommodated, the local governments in King County are committed to making critical areas regulations more consistent.

NE-22 Work cooperatively with other jurisdictions in King County to develop and implement critical area regulations, designations, and education programs that meet the goals of the Redmond community and provide for optimal consistency among jurisdictions.

Geologically Hazardous Areas

Geologic hazards include areas susceptible to erosion, sliding, earthquake, or other geologic events. They pose a threat to health and safety to citizens when incompatible residential and non-residential development is sited in areas of significant hazards.

Erosion hazard is a measure of the susceptibility of an area of land to prevailing agents of erosion. Factors such as grain-size, soil cohesion, slope gradient, rainfall frequency and intensity, surface composition and permeability, and the type of cover help determine the severity of the erosion hazard. Erosion Hazard Areas are those areas where there is a severe hazard.

Landslide Hazard Areas are potentially subject to significant or severe risk landslides based on a combination of geologic, topographic, and hydrologic factors. Examples of Landslide Hazard Areas include areas of historic failures; areas designated as such on

maps published by the United States Geologic Survey; areas containing slopes steeper than 15 percent; springs or groundwater seepage, and hillside intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; slopes that are parallel or subparallel to planes of weakness in subsurface materials; areas potentially unstable as a result of rapid stream incision or stream bank erosion; and any area with a slope greater than 40 percent.

Seismic Hazard Areas are those areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, surface faulting, or subsidence and uplift. Severe risk of damage is loosely defined as damage that is structural rather than cosmetic. Because of its geologic structure and history of earthquake activity, the region has been designated as a Class III seismic risk zone, the highest rating given by the United States Geologic Survey.

NE-23 Avoid and/or minimize potential impacts to life and property from geologic hazards such that the site is rendered as safe as one not containing such hazard.

NE-24 Require appropriate levels of study and analysis as a condition to permitting construction within Geologically Hazardous Areas, ensure sound engineering principles are used based on the associated risk in these areas, and appropriately limit land uses in areas of Geologically Hazardous Areas.

NE-25 Strictly limit disturbance in Landslide Hazard Areas.

NE-26 Direct uses that require substantial improvements, clearing and grading, or structures away from Geologically Hazardous Areas.

NE-27 Manage development in Erosion Hazard Areas to minimize erosion during both construction and use.

NE-28 Promote soils stability by the use of natural drainage systems and retention of existing vegetation in Geologically Hazardous Areas..

NE-29 Promote sound development practices, including Best Management Practices (BMPs), to limit erosion and sedimentation during construction.

NE-30 Establish setbacks around the perimeter of site specific Landslide Hazard Areas to avoid the potential to undermine these areas, cause erosion and sedimentation problems to downstream or downhill land uses and avoid the risk to human life and safety.

NE-31 Require that construction, maintenance, and operation of development in Seismic Hazard Areas minimizes hazards to persons, property, and natural resources within the Seismic Hazard Area and the entire community.

NE-32 Require site specific seismic hazard preparedness studies for essential public facilities and lifelines.

Critical Aquifer Recharge Areas

A significant portion of the City's water supply is obtained from wells. Once groundwater is contaminated it is difficult, costly, and sometimes impossible to clean up. Preventing contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people.

Critical Aquifer Recharge Areas are areas where an aquifer used for drinking water is both highly susceptible and vulnerable to contamination from surface activities. An aquifer is a sizable and continuous body of porous material composed of sand, gravel or silt saturated with water and capable of producing usable quantities of water to a well. As required by federal law, this water is monitored and tested to ensure that it meets the high standards required for drinking water.

The risk of groundwater contamination depends on two main sets of conditions. One set of conditions relates to the ground itself and how easy it is for water to pass through to groundwater. This is what is meant by hydrologic susceptibility. The other set of conditions relate to how likely it is for potential contaminants to reach groundwater. This is known as contaminant loading potential or source loading. Vulnerability is the combined effect of these two conditions.

NE-33 Protect the quality of ground water used for public water supplies to ensure adequate sources of potable water for Redmond and the region. Ensure that the level of protection provided corresponds with the potential for contaminating the municipal water supply aquifer.

NE-34 Ensure degradation of ground water quality does not occur.

NE-35 Prohibit discharge of waste water and potentially contaminated stormwater to groundwater.

For water to be pumped on a sustainable basis, new water must enter the aquifer. The best available data indicates the aquifer is recharged by rain water infiltrating into the ground through permeable soils and by recharge from rivers, streams and lakes. Wetlands and natural area-wide landscape depressions that allow water to stand also may aid in ground water infiltration by slowing runoff and allowing it to seep into the ground when located in suitable areas. Development can lessen the water entering the aquifer by covering recharge areas with impervious surfaces or filling wetlands and natural depressions that contain standing water. Important ground water recharge areas that are planned for rural or natural resource uses should be retained in these uses. These areas include the northern Sammamish Valley and the Bear Creek and Evans Creek valleys.

NE-36 Retain aquifer recharge capacity in areas that have not already been committed to urban uses.

In urbanized areas, maintaining open space, areas of natural vegetation and wetlands also can help recharge aquifers. Many developments include some open spaces or recreation areas. By siting these areas on lands with the highest potential for ground water recharge they can do double duty, providing both aesthetic and recreational functions and ground water recharge. These areas must be carefully located to minimize the potential for contaminated water to enter the aquifer.

NE-37 Encourage retention of open spaces, tree protection areas and other areas of protected native vegetation with a high potential for ground water recharge and which can be protected from contaminated stormwater runoff.

Hazardous material cleanups also have the potential to protect and improve ground and surface water quality. State and federal programs require that certain properties contaminated with hazardous materials be cleaned up. In addition, many property owners voluntarily cleanup contaminated land. Redmond does not have many contaminated sites, but the City should encourage cleanups. Redmond also should work with property owners and state and federal agencies to ensure that sites that may affect ground water supplies are cleaned up thoroughly so they do not present a future threat to ground water quality.

NE-38 Encourage cleanup of contaminated sites within the City. To encourage such cleanups, ensure regulations and standards are performance based, do not duplicate state and federal requirements, and provide for expeditious approval were local review is required.

NE-39 Clean up contaminated sites that may affect Redmond's ground water supplies to such a standard that the sites will not present a risk to drinking water supplies.

Frequently Flooded Areas

Frequently Flooded Areas are open channel and overbank areas within the 100 year floodplain that are frequently inundated with floodwater. Floodplains are generally flat, low-lying areas adjacent to rivers or streams that periodically flood during storm events. These areas move large volumes of water and debris downstream during storms.

The Federal Emergency Management Agency (FEMA) delineates flood hazards along major river and stream corridors to identify areas at risk from floodwater. This information is used for both floodplain management and insurance rating.

Flooding can damage structures in the floodplain. Persons living or working within a floodplain are at risk of injury from floods and the disease that can spread from flood waters.

NE-40 Employ no net impact floodplain management to avoid impacts to both upstream and downstream properties.

NE-41 Strive towards no net loss of the structure, value, and functions of natural systems constituting Frequently Flooded Areas.

NE-43 Regulate development in the 100-year floodplain to avoid substantial risk and damage to public and private property and loss of life. Ensure these regulations, as a minimum, comply with state and federal requirements for floodplain regulations.

NE-43 Direct uses that require substantial improvements or structures away from areas within the 100-year floodplain.

NE-44 Locate public facilities outside of the 100-year floodplain unless needed to serve development within areas characterized by urban development or because efficiencies from locating near existing public facilities already within the 100-year floodplain would clearly outweigh the risk of damage to the facility.

NE-45 Require that construction, maintenance, and operation of development in the 100-year floodplain minimizes hazards to persons and property within the 100-year floodplain and the entire community.

NE-46 Update policies and development regulations to incorporate more detailed data on the extent of flood hazards as it becomes available.

NE-47 Cooperate with flood hazard reduction planning carried out by King County and update policies and development regulations to incorporate appropriate recommendations from these studies.

NE-48 Require compensatory floodplain storage for all projects constructed within the 100 year floodplain, except for Downtown development in the 100 year floodplain of the Sammamish River.

NE-49 Include areas where compensatory floodplain storage is not required when the hydraulics and hydrology of the Sammamish River are reanalyzed.

As development occurs within a basin, the 100-year floodplain will expand, exposing some properties that were previously outside the floodplain to potential flood damage. These effects occur because as a basin develops the amount of impervious surfaces increase, increasing runoff and therefore flood depths. While the stormwater

management policies in this element and in King County will reduce these effects, they will not prevent them entirely. One way of anticipating and responding to these changes is to identify the future-conditions floodplain. The future-conditions floodplain is the area that will be inundated by a 100-year flood when the basin is fully developed. FEMA flood hazard maps are based on current and historic conditions, not buildout. Additional work is needed to identify the future-conditions floodplain.

NE-50 Include flood flow estimates representing future conditions build-out into the City's floodplain regulations as it becomes available.

NE-51 Consider reductions in the FEMA floodway only if future flows have been considered and adequately accommodated.

Properties outside the 100-year floodplain also can aggravate flooding and flood damages. Development in landslide or erosion prone areas can lead to the clogging of streams and drainage systems, increasing flooding within and outside the 100-year floodplain. As areas outside the 100-year floodplain develop, increased impervious surfaces may increase runoff during storms and thus increase flood heights within the 100-year floodplain and cause flooding outside the existing 100-year floodplain. Increased stormwater runoff can significantly impact salmon and steelhead habitat by literally washing it away. Reducing the amount of impervious surfaces and implementing stormwater detention can help reduce these impacts, but not eliminate them entirely.

NE-52 Limit impervious surfaces outside the Downtown to reduce the possibility of flooding, to protect the environment, and to allow for ground water recharge.

NE-53 Explore new methods to limit impervious surface to protect environmental resources such as streams and allow for groundwater recharge, allow for efficient land use, and accommodate the level of development intensity planned for the area.

Clearing and grading for developments also can increase stormwater runoff by removing vegetation and organic soils that absorb rain water. Excessive erosion can be very damaging to water quality on adjacent and downstream waterbodies, including those that support salmonid fish and other fish species. To prevent these negative impacts, Redmond should continue to adopt and enforce clearing and grading requirements to minimize runoff and erosion.

NE-54 Maintain and update clearing and grading regulations to minimize the overall impact of the activity on the environment. Generally, limit clearing to the parts of site that will be developed.

Wetlands

Wetlands are areas that are inundated by ground or surface water frequently enough to support vegetation typically adapted to live in saturated soils. They perform many ecological functions, including flood control, reductions of erosion and siltation, water storage, groundwater recharge, water quality maintenance, nutrient absorption, and fish and wildlife habitat. Additionally, wetlands provide opportunities for research and scientific study, outdoor education, and open space.

Wetlands can be hazardous areas to develop. Their organic soils are generally poorly suited for development and may not support foundations, streets or utilities.

It is the City's goal to achieve no net loss of wetlands through retention of function, value, and acreage of wetlands. Mitigation sequencing is used to ensure impacts to wetlands are avoided, where possible, and mitigated, when necessary.

NE-55 Preserve wetlands to achieve no net loss of wetlands function and value. Use size and value of the wetlands to determine the amount of development allowed, if any. Seek to maintain wetlands acreage over the long-term.

NE-56 Require buffers adjacent to wetlands to protect the ecological functions integral to healthy wetland ecosystems.

NE-57 Use federal mitigation sequencing guidelines when reviewing projects impacting wetlands. This involves, in the following order: avoiding the impact altogether by not taking a certain action or parts of actions; minimizing the impact by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating or restoring the effected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

NE-58 Ensure the amount of mitigation required reflects the value and function of the wetlands affected by the project, the risk that the mitigation may fail, the temporal loss of wetlands functions and values, the spatial locations of the mitigation and the difficulty of replacing many wetlands functions and values. For these reasons, require in general a significantly larger area of mitigation than the area of wetlands impacted.

NE-59 Pursue opportunities to enhance and restore degraded wetlands.

NE-60 Implement effective ways of wetland mitigation such as mitigation banking for capital improvements projects that are linear, such as road and utility projects.

Water Quality and Basin Planning

Development in the watersheds of rivers, streams and lakes must be carefully managed to retain water quality and prevent flooding.

Water Resources Inventory Area 8 represents the salmon recovery planning area of the Lake Washington/Cedar/Sammamish watershed. Chinook salmon are listed as threatened under the Endangered Species Act. In WRIA 8, citizens, scientists, businesses, environmentalists and governments are cooperating on protection and restoration projects and on developing a science-based plan to conserve salmon today and for future generations. Funding for the salmon conservation plan is provided by the 27 local governments, including Redmond, in the watershed.

NE-61 Maintain surface water quality meeting state and federal standards over the long term. Restore surface water that has become degraded to provide for fish, wildlife, plants, and environmentally-conscious human use of the water body.

NE-62 Restore and protect the biological health and diversity of Water Resource Inventory Area (WRIA) 8 within the City.

NE-63 Work with regional agencies to monitor surface water quality and implement measures to identify and address any sources of contamination.

NE-64 Control the flow of nutrients (especially phosphorus), heavy metals and other pollutants into streams, rivers, Lake Sammamish and other area lakes, and natural wetlands. Require treatment measures where the development results in discharges to surface or ground waters.

The Puget Sound Water Quality Plan encourages the preparation of basin plans to address water quality issues for all watersheds that drain to Puget Sound, including the Sammamish River basin in which Redmond is located. The Puget Sound Water Quality Plan refers to these plans as Watershed Action Plans.

NE-65 Cooperate with King County and other local governments and state agencies in developing and implementing Watershed Action Plans, Water Quality Management Plans, and other types of basin plans for basins which include or are upstream or downstream from the City of Redmond.

NE-66 Complete and maintain Watershed Action Plans for all watersheds in the City. Address water quality, stormwater runoff and flooding issues. Review each plan for effectiveness at least once each five years.

NE-67 Incorporate the applicable and effective recommendations of Watershed Action Plans (basin plans) into the City's Comprehensive Plan, development regulations and capital facilities plans.

The habitat in Redmond's rivers, streams and lakes is important to protecting the area's high quality of life, valuable aquatic resources, and the area's natural beauty. The Sammamish River, with its trail and parks, is an important focal point for Redmond and ties the City into a regional recreational network. All of these areas are important to salmon migration.

NE-68 Protect and enhance rivers, streams and lakes, including riparian and shoreline habitat, to protect water quality, reduce public costs, protect fish and wildlife habitat and prevent environmental degradation. Protect both perennial and intermittent streams to preserve natural hydraulic and ecological functions, fish and wildlife habitat, recreational resources and aesthetics.

NE-69 Protect the near shore habitat of Lake Sammamish by avoiding bulkheads within the 100 year floodplain elevation.

Riparian corridors consist of vegetation along river and stream banks that are influenced by the surface waters. Ecological processes of riparian corridors include waterflow, sediment routing, vegetation succession, woody debris recruitment, and plant and animal speciation.

NE-70 Avoid development impacts to riparian corridors. Protect riparian vegetation within stream buffers to maintain ecological functions. Enhance and rehabilitate these areas if they are impacted by development and encourage this when development takes place on adjacent uplands. Establish stream buffers to protect riparian ecological functions that contribute to healthy stream systems.

NE-71 Preserve and enhance the natural appearance of stream corridors.

The Sammamish River and some area streams have been channelized and adversely impacted by other forms of development. Channelization reduces the habitat values of rivers and streams and increases the speed at which water flows through, potentially increasing downstream flooding. While it is not always possible to return these water bodies to their original condition, restoring rivers and streams can improve fish and wildlife habitat, environmental functions, recreational uses and aesthetics. It also can reduce flood damage.

NE-72 Encourage restoration and enhancement of the Sammamish River, Lake Sammamish, riparian stream corridors, wetlands, and associated buffers with priority given to areas associated with listed species. Explore actively and pursue a variety of funding mechanisms for enhancement and restoration work.

NE-73 Encourage improvements to the fisheries habitat of watercourses when abutting properties are developed.

Public education is an important component in efforts to protect surface and ground waters. Surface and ground water quality can be adversely affected by individual choices that people make regularly. Education can help residents and businesses choose options that meet their needs and desires while protecting surface and ground water quality.

NE-74 Support public education to protect and improve surface and ground water resources by:

- Increasing the public's awareness of potential impacts on water bodies and water quality;
- Encouraging proper gardening and farming practices including the use of environmentally appropriate fertilizers and chemicals;
- Encouraging proper disposal of materials;
- Educating businesses on surface and ground water protection best management practices in cooperation with other government agencies and other organizations; and
- Educating the public and businesses on how to substitute materials and practices with a low risk of surface and ground water contamination for materials and practices with a high risk of contamination.

Natural drainage courses both within and outside the 100-year floodplain can function to lessen flood damages. Properly functioning natural streams and drainage ways include pools and overflow areas that slow stormwater runoff. Retaining natural drainage courses also helps to accommodate stormwater flows from upstream properties. Placing streams in culverts may not accommodate flood flows, reduces their value to fish and wildlife habitat, and may create barriers to fish passage.

NE-75 Avoid alteration of riparian stream corridors to the maximum extent possible. Whenever possible, avoid reduction in the capacity of natural drainage courses and minimize enclosures of natural drainage ways. Discourage relocation. Replace and enhance the flood control and habitat values of drainage courses when relocation or alteration is necessary for public benefit. Require enhancement when alteration of a stream to increase the usability of a site is permitted.

NE-76 Use bridges as the preferred method of crossing a watercourse that has habitat suitable for fish use or may be rehabilitated for fish use in the future. Prohibit the use of culverts where a fish barrier would result. Consider allowing culvert systems that would provide stream beds similar to natural channels where loss of habitat would not be significant and the cost of a bridge does not justify its benefits to fish passage, flood control or other resources.

NE-77 Stabilize streambanks and shorelines, if necessary, by bioengineering techniques except where unique factors make this approach infeasible.

NE-78 Restore natural drainage channels that have been placed within culverts and have had their capacity or habitat value reduced as development or

redevelopment occurs. Allow retention of existing culverts for stream crossings where they do not result in a fish barrier in a stream that contains or has the potential to contain fisheries habitat.

Fish and Wildlife Habitat

Fish and wildlife enhance the quality of life of a community. The salmon and steelhead are enduring symbols of the Northwest. Birds are valued for their songs and appearance. Other wildlife is attractive and helps maintain the valued character of the area. Wildlife diversity is often an indicator of environmental health. There is growing evidence that people living in metropolitan areas are interested in wildlife. Wildlife provides for human recreation and relaxation and wildlife has aesthetic and education values. Studies have shown that viewing wildlife has aided in the recovery of sick people as it aids in the recovery of one's mental health.

Under the Growth Management Act, Fish and Wildlife Habitat Conservation Areas include:

- areas with which endangered, threatened, sensitive, and candidate species have a primary association;
- state priority habitats and areas associated with state priority species;
- habitats and species of local importance when designated by the City Council;
- naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat;
- waters of the state;
- areas critical for habitat connectivity; and
- aquatic areas such as rivers, steams, lakes, ponds, and wetlands.

Wildlife habitats are characterized by a variety of internal (site specific) and external (contextual) habitat conditions. Internal conditions include: structural diversity (horizontally and vertically) of habitat; edge conditions; presence of snags or large trees; presence of downed logs; and presence or nearness of water and its safe accessibility. External conditions include: the size of the habitat patch; ability of the habitat to serve as a corridor or link to otherwise isolated natural areas, parks, preserves, or open spaces; the area is surrounded by a buffer or serves as a buffer; and the surrounding habitat types or land uses.

NE-79 Maintain a rich ecosystem supporting a variety of wildlife as well as opportunities for education and appreciation of native habitats.

The central planning concept for wildlife habitat in urban environments is to create an integration of habitat reserves and interconnecting corridors. Habitat reserves are generally considered to be areas of differing sizes that meet the basic needs of wildlife. Corridors are regarded as narrow, linear strips of habitat that have wildlife value. The corridors serve as interconnecting links between or along the habitat reserves.

Many of the critical lands conserved offer wildlife habitat as well, but riparian systems and streams are especially important. Natural riparian corridors are essential for wild fish populations. Reduced large woody debris is deemed a major reason for salmonid decline in Pacific Northwest streams. Healthy riparian zones are dynamic ecosystems that perform various functions that form salmonid habitat. Some of the major functions include:

- producing and delivering large and small woody debris to shorelines and stream channels;
- shoreline streambank protection and habitat formation;
- removing sediments and dissolved chemicals from water;
- moderating water temperature;
- providing favorable microclimate (humidity, temperature, and wind speed);
- providing habitat for terrestrial animals;
- providing proper nutrient sources for aquatic life;
- allowing exchange of water between the ground and the waterbody;
- providing flux of gravel between stream beds and banks; and
- providing light patterning which salmonids use for concealment.

Core Preservation Areas form the backbone of the habitat areas within the city. These areas are already protected through other regulatory mechanisms. They include Native Growth Protection Easements, Class I streams and their buffers, and Class II – IV streams and other areas similarly protected. The Core Preservation Area includes wetlands and streams and their associated buffers as they become identified at a site specific level.

Quality Habitat Areas provide significant wildlife value by virtue of their characteristics. These characteristics include several parameters indicative of habitat quality, including size, community diversity, interspersion (spatial patterns), continuity, forest vegetation layers, forest age, and invasive plants.

NE-80 Protect Core Preservation Areas within the City.

NE-81 Restore and enhance degraded or lower quality habitat within Core Preservation Areas.

NE-82 Pursue opportunities to preserve Quality Habitat Areas especially those which extend and connect to Core Preservation Areas.

NE-83 Design developments, parks, and recreation areas to minimize impact to, and retain the character of Quality Habitat Areas.

Species protection is identified and accomplished during a site specific study. Development is regulated through a series of management recommendations. Species protection applies to Species of Concern, Priority Species, and Species of Local Importance. Species of Concern includes those federally and state listed endangered, threatened, sensitive, or candidate, as well as those species listed or proposed for listing by the federal government.

NE-84 Protect natural resources having a primary association with Species of Concern, Priority Species, and Species of Local Importance.

NE-85 Participate in regional efforts to recover species listed under the Endangered Species Act (ESA).

NE-86 Develop and implement local response plans, policies, and programs to protect Redmond's wildlife targeting recovery of ESA listed species.

NE-87 Modify City plans, programs, and policies such as public projects, private development standards, maintenance standards, and utility practices to be consistent with regional and local ESA policies and requirements.

NE-88 Protect salmon, steelhead and other fish, plants and wildlife that rely on the aquatic environment by protecting and improving water quality.

NE-89 Give special consideration to conservation and protection measures to preserve and enhance anadromous fisheries.

As a community develops, the available wildlife habitats become separated from each other. In part, this is a natural consequence of the development of urban areas. This is called habitat fragmentation. Where sections of critical habitat are linked, populations can move between the habitat areas. This lessens the dangers of interbreeding and allows plants and animals to recolonize the underused habitats.

NE-90 Minimize habitat fragmentation by linking wildlife habitats via corridors. Connect wildlife habitats with each other within the City and the region to achieve a continuous network. Wildlife corridors include, but are not limited to, parklands usable by wildlife, protected or reserved (Native Growth Protection Easements) open space, utility rights-of-way, riparian corridors, wetland buffers and protected sensitive areas.

NE-91 Consider impacts City projects have on wildlife corridors and connectivity.

Many species of fish and wildlife are quite mobile and move from jurisdiction to jurisdiction during their life or with the seasons. This mobility requires a regional approach to their management.

NE-92 Coordinate land use planning and management of fish and wildlife resources with other local governments within the region, affected state and federal agencies, and Native American Nations and Tribes.

It is important to monitor and manage urban wildlife habitats to maintain their integrity to numerous outside influences and managed landscapes surrounding them. A management strategy is needed for the maintenance of wildlife habitat.

NE-93 Develop a wildlife habitat management strategy and well-defined goals to monitor and maintain wildlife habitat, with mechanisms for City and volunteer support.

Pesticides can kill birds and decimate prey populations of several city priority species. Usage of these substances to maintain city-owned rights-of-way, parklands, and public spaces should be discouraged.

NE-94 Minimize impacts to wildlife and water quality by using organic fertilizers and organic pesticides as much as possible and by restricting use of inorganic fertilizers and inorganic pesticides in its daily operations. Implement public outreach and educational opportunities to inform residents of the impacts of pesticides on wildlife.

Weeds can be a problem because they are detrimental to wildlife by replacing native plant species and providing little to no value in terms of forage, cover or nest sites for the wildlife community. These weeds spread quickly from one area to another. Noxious weeds already adversely affect most habitat areas. Currently, the most prevalent problem weeds for wildlife in the city include blackberry species, Scot's broom, reed canarygrass, English ivy, and holly.

NE-95 Use native vegetation on City capital projects, prevent the continued spread of invasive and noxious weeds to habitat areas, maintain a long-term management strategy to prevent noxious weeds, and manage these weeds where they are present on City-owned properties.

NE-96 Use a majority of native vegetation that is supportive of wildlife instead of non-native plant species and avoid the use of invasive species when landscaping for new developments adjacent to wildlife habitats.

NE-97 Ensure management of noxious weeds and invasive species are an integral part of landscape plans for new development.

Non-regulatory measures are a key component of a comprehensive wildlife habitat management strategy. Several organizations have urban or backyard wildlife certification programs, including the National Wildlife Federation, the National Institute for Urban Wildlife, and the Washington Department of Fish and Wildlife. The National Institute for Urban Wildlife will certify city parks as urban wildlife sanctuaries when certain criteria are met. The National Wildlife Federation can certify a city as a Community Wildlife Habitat.

NE-98 Promote public education and outreach on wildlife habitat in the City and provide information to residents on how they can participate in the Backyard Wildlife Sanctuary program.

City certification as a Community Wildlife Habitat involves the entire community. This designation may include certified backyard sites, certified school sites, a public demonstration garden, participation by the business community, and related projects such as wildlife surveys, sensitive areas mapping, and creation of wildlife corridors.

NE-99 Support urban wildlife habitat management through education, city actions, and demonstration projects.

Education is a key non-regulatory component towards embracing wildlife habitat management. Wildlife habitat restoration and demonstration projects show residents how habitat can be created or improved in their own backyard. Restoration projects need not be limited to plant installations. Other features important to wildlife can be added to the habitat area depending upon site conditions. These features can include nest boxes, bat boxes, snags, brush piles, ponds, reptile and amphibian mounds, and other constructed and natural features. Habitat enhancement efforts need not be expensive. Limiting mowing to heavily used areas and allowing grassy meadows to grow along forest edges and in other low intensity use areas can provide additional habitat for numerous wildlife species. Rotational mowing can increase habitat value for some species.

NE-100 Employ wildlife habitat friendly practices in designing and maintaining City parks.

King County has a Native Plant Salvage Program. County staff and volunteers salvage native understory plants on sites where development plans have been approved. The plant material is kept at a holding facility. Plants are typically used on county volunteer projects.

NE-101 Coordinate with King County's Native Plant Salvage Program to facilitate the identification of potential sites for plant salvage.

C. Tree Preservation and Landscape Enhancement

The Tree Preservation and Landscape Enhancement policies address the value of protecting trees and enhancing the placement of trees within the City.

Trees aid in stabilizing the environment's ecological balance by helping to purify the air, generating oxygen, slowing and absorbing stormwater runoff, stabilizing slopes, reducing erosion, masking noise, containing glare and conserving energy. They enhance the community's appearance, identity and natural beauty. Trees also provide habitat for birds and animals.

NE-102 Preserve the natural environment and Redmond's forested appearance.

NE-103 Maintain no net loss of significant trees within the City over the long term..

NE-104 Maximize tree retention and a treed appearance when development occurs through the following:

- Require the retention of viable tree clusters, forested slopes, treed gullies and specimen trees that are of species that are long-lived, not dangerous, well-shaped to shield wind and located so that they can survive within a development without other nearby trees.
- Design and construct developments to retain these trees.
- Identify and protect these trees during land divisions and site plan review.
- Allow removal of other trees to provide for project construction.
- Plant replacement trees on appropriate areas of the site to replace significant trees removed during construction.

NE-105 Design City capital improvement projects to preserve trees to the maximum extent possible.

Some areas, such as gullies and steep slopes, are poorly suited for development because of their natural limitations and potential hazards. They typically are also expensive to serve with public facilities. These areas often include significant numbers of trees. If these areas are designated for low intensity uses by the Comprehensive Plan, potential negative impacts on the community from developing these hazardous areas can be prevented and trees retained. This can help the property owners as well. By matching the Comprehensive Plan designation to the suitability of the land, expensive measures that to try to compensate for these natural limitations and try to serve intense uses with the needed infrastructure are avoided. These areas retain their character and are sensitively developed, making them valuable sites for appropriate uses.

NE-106 Implement Comprehensive Plan designations and zoning for forested slopes and treed gullies consistent with the goal of retaining tree cover in these areas.

Trees along waterways, wetlands and lakes provide many important functions. Along streams and rivers, trees shade the water, which reduces temperatures in the summer and helps salmon, steelhead and other fish to survive. Trees in gullies and along streams help slow stormwater and reduce erosion. The root systems of trees can also help stabilize streams, reducing erosion and stream migration. Leaves and insects falling from trees into streams, wetlands and lakes provide important food sources for fish and other aquatic creatures. The trees also provide habitats for birds and animals.

NE-107 Preserve trees within stream, wetlands, and their associated buffers, and lake building setbacks.

NE-108 Plant suitable native trees and native vegetation within degraded stream, wetlands and lake buffers. Encourage planting suitable native trees and native vegetation within steep slopes.

Street trees provide an important visual amenity to the community. They provide a unifying look within diverse areas of the City and integrate buildings with each other and the landscape. Street trees help to develop a sense of place. Many streets are remembered because of their trees. Street trees also shade streets and parking areas in summer, reducing temperatures and building cooling loads conserving energy.

NE-109 Require street trees along all arterial streets and along local streets designated in neighborhood policies. Where street trees are not practical, consider designating areas through neighborhood policies where trees will be required to be planted on developable lots.

NE-110 Plant street trees in planter strips or tree wells located between the curb and any sidewalk where feasible. Select tree species and planting techniques to create a unified image for the street, provide an effective canopy, avoid sidewalk and utility damage and minimize water consumption. Require deciduous shade trees that are well suited to the climate and to planting along streets and sidewalks.

Another method of encouraging trees in the City is to make it easy for property owners to plant trees on their property or in planting strips adjacent to their property. Over the years, these voluntary efforts can result in many trees in the community. Maintaining lists of suitable trees, telling Redmond residents how to find good locations for trees and informing Redmond residents how to have underground utilities located so they will not be damaged during tree planting can help encourage community members to plant trees on their own.

NE-111 Provide information to community residents and property owners to encourage them to plant trees on their properties.

Ensuring that Redmond remains a City with many trees requires that they be managed and maintained. The City maintains street trees in many areas. Property owners also must properly maintain trees to provide for their future.

NE-112 Maintain and enhance a street tree maintenance program on arterial streets and City-owned trees.

NE-113 Establish private maintenance provisions for the trees that will be retained within developments.

D. Air Quality

Clean air quality contributes to the quality of life. Clean air is healthful and it helps to keep the mountains, Lake Sammamish, Sammamish River and other areas visible from many areas in Redmond. These are views that the community values. Continued federal funding for transportation improvements is dependent on complying with federal air quality standards.

While other agencies regulate air quality, Redmond and other cities have an important role to play in maintaining high air quality. This includes transportation planning to reduce emissions and land use planning to internalize trips and reduce emissions.

NE-114 Promote compliance with federal and state air pollution control laws and improvements to regional air quality in cooperation with the Puget Sound Air Pollution Control Agency and the Puget Sound Regional Council.

NE-115 Maintain high air quality through land use and transportation planning and management.

NE-116 Continue implementing and enforcing Commute Trip Reduction programs as a means to limit or reduce vehicle trips as a key strategy for reducing vehicle-related air pollution.

NE-117 Reduce the amount of air-borne particulates through a street sweeping program, dust abatement on construction sites, covered loads of hauled materials, and other methods to reduce the dust sources.

E. Noise

Noise is a pollutant that can have significant negative impacts on human health. Excessive noise also makes neighborhoods less desirable places to live and can contribute to deterioration of those areas. The Washington State Department of Ecology has adopted noise standards, but does not enforce them. Redmond should continue to enforce noise regulations.

NE-118 Maintain noise regulations to limit noise to levels that protect the public health and that allow residential, commercial and manufacturing areas to be used for their intended purposes. Provide flexibility in the regulations to allow construction at night when necessary to protect worker safety while maintaining the tranquility of the City.

NE-119 Provide noise reduction and mitigation measures to reduce the noise and visual impacts of freeways and arterials on residential areas. Ensure the Washington State Department of Transportation provides appropriate levels of noise suppression when expanding or improving state highways.

NE-120 Require buffering or other noise reduction and mitigation measures to reduce noise impacts from commercial and industrial zones on residential areas.

NE-121 Assure that mixed-use developments are designed and operated to minimize noise impacts. Measures may include provisions controlling uses, design and construction measures, and timing requirements.

F. Light Pollution

Light Pollution policies address the protection of the community from excessive glare and promote the concept of "dark skies".

Glare is strong, steady light that shines away from the area that is meant to be illuminated. Glare interferes with views and, in extreme cases, may interfere with the normal use of nearby properties. Inappropriate overhead lighting along the Sammamish River can interfere with the feeding and spawning activities of salmon and trout. Night lighting is an important safety feature and should be allowed, but lighting should be designed and directed to minimize glare.

NE-122 Design and construct night lighting to minimize excessive glare and to avoid spill over onto nearby properties.

NE-123 Minimize overhead lighting that would shine on the water surface of the Sammamish River. Encourage the use of pedestrian level or shaded lighting when providing lighting along the river.

The "dark skies" policy seeks to reduce glare and maintain views of stars and planets. Redmond recognizes that night lighting is needed, but seeks to maintain dark skies in the residential and semi-rural areas of the community.

NE-124 Encourage dark night skies in Redmond's residential neighborhoods, in the Sammamish Valley, in the Bear Creek Valley, and over Lake Sammamish in development regulations, design standards, and development review.

O:\Cathy\CAO Update\Natural Environment Element

Exhibit 3

20A.20.010 "A" Definitions.

Anadromous Fish.
Fish that spawn and rear in freshwater and mature in the marine environment.

Aquifer Recharge Area.
Areas where water infiltrates into the subsurface and travels downward through the soil to a ground water aquifer.

20A.20.020 "B" Definitions.

Base Flood.
A flood having a one percent chance of being equaled or exceeded in any given year, also referred to as the 100-year flood which is based upon built-out conditions. The base flood will be determined through hydrologic modeling, and will assume fully developed land use conditions in tributary basins, such as defined in the Bear Creek Basin Plan. If the City has not modeled the base flood, the applicant shall be responsible for doing so, consistent with the assumptions set forth in this ordinance and the Bear Creek Basin Plan. (Ord. 1693(035))

Best Available Science
Current scientific information used in the process to designate, protect, or restore critical areas, that is derived from a valid scientific process as defined by WAC 365-195-900 through 925.

Buffer or Buffer Area.
A zone surrounding a critical area that protects the critical area from adverse impacts to its integrity, functions, and values, or is an integral part of the resource's ecosystem. The buffer shall consist of a naturally vegetated and undisturbed, enhanced, or revegetated zone for Streams, Wetlands, and the top of slope for Landslide Hazard Areas. The buffer shall be a vegetated zone (may include grass) and free of permanent structures for the toe of slope for Landslide Hazard Areas. For the purpose of Class I and II streams, **inner buffer** refers to that portion of the buffer closest to the stream whose distance is established in RCDG 20D.140.20-020, *Stream Buffers*. This area is to be treated the same as a buffer as defined above in this definition. The **outer buffer** is that portion of the buffer furthest away from the stream, whose distance is established in RCDG 20D.140.20-020, *Stream Buffers*. Disturbance is permitted in the outer buffer as defined in RCDG 20D.140.20-020(8). Otherwise these areas are to remain as a naturally vegetated zone.(Ord. 1693(045))

20A.20.030 "C" Definitions.

Candidate Species.
Fish and wildlife species that the Washington State Department of Fish and Wildlife will review for possible listing as endangered, threatened, or sensitive.

Channel Migration Zone.
The lateral extent of likely movement along a stream or river during the next one hundred years as determined by evidence of active stream channel movement over the past one hundred years. The time span typically represents the time it takes to grow mature trees that can provide functional large woody debris to streams.

Clearing – Critical Areas.
For the purposes of administering Chapter 20D.140 RCDG, *Critical Areas*, "clearing" is the removal of timber, brush, grass, ground cover or other vegetative matter from a site which exposes the earth's surface of the site or any actions which disturb the existing ground surface. (Ord. 1954; Ord. 1693(055))

Core Preservation Area.
These areas form the backbone of habitat areas within the City. They are those areas of the City which are already protected through other regulatory mechanisms. They include Native Growth Protection Easements/Areas, Class I streams and their buffers, Class II through IV streams, and other areas similarly protected. They may also include lands where development rights have been sold and some lands with recorded open space easements, depending on the purpose of the easement. These areas include wetlands and streams and their associated buffers as they become identified at a site specific level.

Creation of Critical Areas.
The purposeful and legally authorized or accidental producing or forming of a wetland or stream from an upland (nonwetland or dry) site through artificial means. (Ord. 1693(080))

Critical Areas.
Critical areas include any of the following areas or ecosystems: Fish and Wildlife Habitat Conservation Areas, Wetlands, Frequently Flooded Areas, Critical Aquifer Recharge Areas, and Geologically Hazardous Areas, as defined in RCW 36.70A and RCDG 20D.140, *Critical Areas*.

20A.20.040 "D" Definitions.

20A.20.050 "E" Definitions.

Ephemeral Stream
A stream that forms on a temporary basis following a rainstorm or snowmelt. An ephemeral stream is above the ground water table.

Erosion Hazard Areas.
Lands or areas underlain by soils identified by the U.S. Department of Agriculture Soil Conservation Service (SCS) as having "severe" or "very severe" rill and inter-rill erosion hazards. This includes, but is not limited to, the following group of soils when they occur on slopes of 15 percent or greater: Alderwood-Kitsap (AkF), Alderwood gravely sandy

loam (AgD), Kitsap silt loam (KpD), Everett (EvD) and Indianola (InD). (Ord. 1693(090))

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

20A.20.060 "F" Definitions.

FEMA (Federal Emergency Management Association) Floodway. The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the FEMA base flood flow without increasing the FEMA base flood elevation more than one foot. (Ord. 1693(180))

Fish and Wildlife Habitat Conservation Areas.
Areas necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolates subpopulations are not created as designated by WAC 365-190-080(5). These areas are further defined in 20D.140.20-010, *Classification and Rating of Fish and Wildlife Habitat Conservation Areas*.

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

Flood Insurance Rate Map.
The official map on which the Federal Emergency Management Administration has delineated some areas of flood hazard. (Ord. 1693(185))

Floodplain.
The total area subject to inundation by the base flood.

Frequently Flooded Areas.
Floodplains and other areas subject to flooding and perform important hydrologic functions. Frequently Flooded Areas include floodplains and floodways.

Functions and Values.
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, wave attenuation, protection from hazards, historical and archaeological and aesthetic value protection, and recreation. These beneficial roles are not listed in order or priority.

20A.20.070 "G" Definitions.

Geologically Hazardous Areas.
Lands or areas characterized by geologic, hydrologic and topographic conditions that render them susceptible to potentially significant or severe risk of landslides, erosion, or seismic activity. (Ord. 1693(195))

Grading – Critical Areas.
For the purposes of administering Chapter 20D.140 RCDG, *Critical Areas*, "grading" is any excavating, filling, clearing, leveling, or contouring of the ground surface by human or mechanical means. (Ord. 1954; Ord. 1693(200))

20A.20.080 "H" Definitions.

Headwater
A stream that is in the uppermost regions of a watershed or catchment area.

High Impact Land Use.
Land uses which are likely to have a significant adverse impact on wetlands because of the intensity of the use and levels of human activity High impact land uses include the following: commercial, urban, industrial, institutional, retails sales, residential (more than one unit per acre), new agriculture (high-intensity processing such as dairies, nurseries, greenhouses, raising and harvesting crops requiring annual tilling, raising and maintaining animals), high-intensity recreation (golf courses, ball fields), and hobby farms. (Ord. 1693(210))

Hyporheic Zone.
The saturated zone located beneath and adjacent to streams that contains some portion of surface waters, serves as a filter for nutrients, and maintains water quality.

20A.20.090 "I" Definitions.

In-Kind Mitigation.
Replacement of critical areas with substitute critical areas whose characteristics closely approximate those destroyed or degraded by a regulated activity. (Ord. 1693(215))

Intermittent Stream.
A stream that flows only part of the year after precipitation events and receives some water during that time from groundwater sources.

20A.20.100 "J" Definitions.

20A.20.110 "K" Definitions.

20A.20.120 "L" Definitions.

Landslide Hazard Areas.

Lands or areas potentially subject to significant or severe risk of landslides based on a combination of geologic, topographic, and hydrogeologic factors. They include areas susceptible because of any combination of bedrock, soil, slope, slope aspect, structure, hydrology, or other factors. They are areas of the landscape that are at a high risk of failure or that presently exhibit downslope movement of soil and/or rocks and that are separated from the underlying stationary part of the slope by a definite plane of separation. The plane of separation may be thick or thin and may be composed of multiple failure zones depending on local conditions including soil type, slope gradient, and groundwater regime. (Ord. 1693(230))

Low Impact Land Use.
Land uses which are not likely to have a significant adverse impact on wetlands because of the intensity of the use and levels of human. Low impact land uses include the following: forestry (cutting trees only), low-intensity open space (such as passive recreation and natural resources preservation), and unpaved trails. (Ord. 1693(235))

20A.20.130 "M" Definitions.

Mitigation – Critical Areas.
For the purposes of administering Chapter 20D.140 RCDG, *Critical Areas*, "mitigation" includes:
(1) Avoiding the impact altogether by not taking a certain action or parts of actions.
(2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
(3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(5) Compensating for the impact by replacing or providing substitute resources or environments.
While monitoring without additional actions is not considered mitigation for the purposes of these regulations, it may be part of a comprehensive mitigation program. (Ord. 1954; Ord. 1693(240))

Moderate Impact Land Use.
Land uses which are likely to have a moderate impact on wetlands because of the intensity of the use and levels of human activity. Moderate impact land uses include the following: residential (one unit per acre or less), moderate-intensity open space (parks), new agriculture (moderate-intensity such as orchards and hay fields), paved trails, and building of logging roads.

20A.20.140 "N" Definitions.

Native Growth Protection Area (NGPA).
An area where native vegetation is preserved for the purpose of preventing harm to property and the environment, including but not limited to, providing open space,

maintaining wildlife corridors, maintaining slope stability, controlling runoff and erosion, and/or any other purpose designated by approval. (Ord. 1998)

20A.20.150 "O" Definitions.

Out-of-Kind Mitigation.
Replacement of critical areas with substitute critical areas whose characteristics do not closely approximate those destroyed or degraded by a regulated activity. (Ord. 1693(250))

20A.20.160 "P" Definitions.

Priority Habitat/Species, or Priority Wildlife Habitat/Species.
Habitats and species of local importance and concern in urban areas, as identified by the Washington Department of Wildlife Priority Habitat and Species (PHS) program. "Priority species" are wildlife species of concern due to their population status and their sensitivity to habitat alteration. "Priority habitats" are areas with one or more of the following attributes: comparatively high wildlife density; high wildlife species richness; significant wildlife breeding habitat; significant wildlife seasonal ranges; significant movement corridors for wildlife; limited availability; or high vulnerability. General types of priority habitat identified in the PHS program potentially found in Redmond include meadows, old-growth/mature forests, riparian areas, snag-rich areas, urban natural open space, and wetlands. (Ord. 1693(265))

20A.20.170 "Q" Definitions.

Quality Habitat Areas.
These areas provide significant wildlife value by virtue of their characteristics. These characteristics include several parameters indicative of quality habitat, including size, community diversity, interspersion (spatial patterns), continuity, forest vegetation layers, forest age, and invasive plants.

20A.20.180 "R" Definitions.

Re-establishment.
The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former critical area. Re-establishment is a type of restoration.

Regulated Activity.
Activities that have a potential to significantly impact a sensitive area that is subject to the provisions of Chapter 20D.140 RCDG, *Critical Areas*. Regulated activities generally include but are not limited to any filling, dredging, dumping or stockpiling, draining, excavation, flooding, clearing or grading, construction or reconstruction, driving pilings, obstructing, shading, or harvesting. (Ord. 1693(275))

Rehabilitation.
The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions of a degraded critical area. Rehabilitation is a type of restoration.

Restoration – Critical Areas.
The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded critical area.

Riparian Stream Corridor.
Areas adjacent to stream systems that contain elements of both aquatic and terrestrial ecosystems that mutually influence each other. The width of these areas extends to that portion of the terrestrial landscape that directly influences the aquatic ecosystem by providing shade, fine or large woody material, nutrients, organic and inorganic debris, terrestrial insects, or habitat for riparian-associated wildlife. These areas provide a myriad of functions to support a healthy stream system.

20A.20.190 "S" Definitions.

Salmonids.
Fish of the family Salmonidae, including salmon, trout, and char.

Seismic Hazard Areas.
Lands or areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting. (Ord. 1693(290))

Site – Critical Areas.
For the purposes of administering Chapter 20D.140 RCDG, *Critical Areas*, "site" is any parcel or combination of contiguous parcels where the proposed project impacts a sensitive area. (Ord. 1954; Ord. 1693(295))

Species of Concern.
Those species listed as State Endangered, State Threatened, State Sensitive, or State Candidate, as well as species listed or proposed for listing by the US Fish and Wildlife Service or the National Marine Fisheries Service.

Species of Local Importance.
Species identified by the City of Redmond, including those that possess unusual or unique habitat warranting protection because of qualitative species diversity or habitat system health indicators. It may also include species which are culturally important to the City. Species of Local Importance are designated through the Development Guide Amendment process.

20A.20.200 "T" Definitions.

20A.20.210 "U" Definitions.

20A.20.220 "V" Definitions.

20A.20.230 "W" Definitions.

Water Resource Inventory Area (WRIA).
One of sixty-two watershed in the state of Washington, each composed of the drainage area of a stream or streams, as established in Chapter 173-500 WAC as it existed on January 1, 1997. The City of Redmond is located in WRIA 8.

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

20A.20.240 "X" Definitions.

20A.20.250 "Y" Definitions.

20A.20.260 "Z" Definitions.

Zero-Rise Floodway.
The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation. The zero-rise floodway will always include the FEMA floodway.

THE FOLLOWING EXISTING DEFINITIONS IN 20A ARE REPEALED AS PART OF THIS UPDATE:

Critical Erosion Hazard Area
Critical Geologic Hazard Area
Critical Habitat, or Critical Wildlife Habitat
Critical Landslide Hazard Areas
Critical Seismic Hazard Areas
Flood Hazard Areas
Wetlands
Wildlife Habitat

O:\Cathy\CAO Update\Definitions - Final

Exhibit 4

20D.140 Critical Areas. (SMP)

20D.140.10-010 Purpose and Intent.

(1) The City finds that Redmond contains certain areas that can be identified and characterized as environmentally sensitive or critical. Such areas within the City include Fish and Wildlife Habitat Conservation Areas, Wetlands, Frequently Flooded Areas, Geologically Hazardous Areas, and Critical Aquifer Recharge Areas, and their associated buffers.

(2) The City finds that past growth patterns have in some cases resulted in natural disasters which threaten public health and safety, and that by preventing development on certain critical areas the City can better maintain public health, safety and welfare. In addition, by preserving features that provide for clean water, fisheries, and wildlife, the City can help maintain a positive ecological balance that provides for the immediate and long-term public welfare. This chapter is intended to preserve the City's important environmental features while allowing development to occur if compatible with and in consideration of these critical areas.

(3) The classification and designation of these critical areas is intended to assure the conservation and protection of critical areas from loss or degradation, and to restrict land uses and development which are incompatible with environmentally critical areas. It is the intent of this chapter to designate and protect critical areas.

(4) The City finds that these essential critical areas perform a variety of valuable and beneficial biological and physical functions that benefit the City and its residents. Some types of critical areas may also pose a threat to human safety or to public and private property. The City further finds that the functions of critical areas include the following:

(a) Fish and Wildlife Habitat Conservation Areas. Wildlife areas are ecosystems composed of unique interacting systems of soils, geology, topography, and plant and animal communities. They consist of land based areas and aquatic areas.

Wildlife habitat provides opportunities for food, cover, nesting, breeding and movement for fish and wildlife within the City; maintains and promotes diversity of species and habitat within the City; helps to maintain air and water quality; controls erosion; serves as areas for recreation, education and scientific study and aesthetic appreciation; and provides neighborhood separation and visual diversity within urban areas.

Riparian corridors are essential for wild fish populations. Healthy riparian zones are dynamic ecosystems that perform various functions that form salmonid habitat. Some of the major functions include: producing and delivering large and small woody debris to shorelines and stream channels;

shoreline protection and habitat formation; removing sediments and dissolved chemicals from water; moderating water temperature; providing favorable microclimate; providing habitat for terrestrial animals; and providing proper nutrient sources for aquatic life. Additionally, aquatic areas and their associated buffers store and convey stormwater and floodwater; recharge groundwater; and serve as areas for recreation, education and scientific study and aesthetic appreciation. The City's overall goal shall be no net loss of riparian corridor functions and values.

The primary purpose of Fish and Wildlife Habitat Conservation Areas regulations is to achieve no net loss of Core Preservation Areas, which includes riparian corridors, minimize impact to and retain character of Quality Habitat Areas, and protect Species of Concern, Priority Species, and Species of Local Importance.

(b) Wetlands. Wetlands are fragile ecosystems which serve a number of important beneficial functions. Wetlands assist in the reduction of erosion, siltation, flooding, ground and surface water pollution, and provide wildlife, plant, and fisheries habitats. Wetlands destruction and impairment may result in increased public and private costs or property losses.

The City's overall goal shall be to achieve no net loss of wetlands. This goal shall be implemented through retention of the function, value and acreage of wetlands within the City. Wetland buffers serve to moderate runoff volume and flow rates; reduce sediment, chemical nutrient and toxic pollutants; provide shading to maintain desirable water temperatures; provide habitat for wildlife; protect wetland resources from harmful intrusion; and generally preserve the ecological integrity of the wetland area.

The primary purpose of the wetland regulations is to avoid wetland impacts and achieve a goal of no net loss of wetland function, value and acreage; and where possible enhance and restore wetlands.

(c) Frequently Flooded Areas. Floodplains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property. Floodplains help to store and convey storm water and flood water; recharge ground water; provide important areas for riparian habitat; and serve as areas for recreation, education, and scientific study. Development within floodplain areas can be hazardous to those inhabiting such development, and to those living upstream and downstream. Floods also cause substantial damage to public and private property that result in significant costs to the public and individuals.

The primary purpose of Frequently Flooded Areas regulations is to strive towards no net loss of structure, value, and functions of natural systems within Frequently Flooded Areas and to employ no net impact floodplain

management in order to avoid impacts to upstream and downstream properties and substantial risk and damage to public and private property and loss of life.

(d) Critical Aquifer Recharge Areas. Potable water is an essential life sustaining element. Aquifer recharge areas provide a source of potable water and contribute to stream discharge during periods of low flow. The City finds that certain portions of its planning area are susceptible to contamination of drinking water and watercourse supplies through rapid infiltration of pollutants through the soil to ground water aquifers.

The primary purpose of aquifer recharge area regulations is to protect critical aquifer recharge areas by avoiding land use activities that pose potential contamination; and to minimize impacts to recharge areas through the application of strict performance standards.

Wellhead Protection Zones 1, 2, and 3 are designated as Critical Aquifer Recharge Areas under the provisions of the Growth Management Act (Chapter 36.70A RCW) and are established based on proximity to and travel time of groundwater to the City's public water source wells.

(e) Geologically Hazardous Areas. Geologically Hazardous Areas include areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in or near areas of significant hazard. Some geological hazards can be reduced or mitigated by engineering, design, or modified construction so that risks to health and safety are acceptable. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas should be avoided.

The primary purpose of Geologically Hazardous Areas regulations is to avoid and minimize potential impacts to life and property from geologic hazards such that sites are rendered as safe as one not containing such hazard through appropriate levels of study and analysis, application of sound engineering principles, and regulation or limitation of land uses.

The City finds, therefore, that identification, regulation and protection of critical areas are necessary to protect the public health, safety and general welfare.

(5) This section of the Redmond Community Development Guide contains standards, guidelines, criteria and requirements intended to identify, analyze, preserve and mitigate potential impacts to the City's critical areas and to enhance and restore degraded resources, such as wetlands, riparian stream corridors or habitat, where possible. The intent of these regulations is to avoid impacts to critical areas and preserve the functions of critical areas. In appropriate circumstances, impacts to specified critical areas resulting from regulated activities may be minimized, rectified, reduced and/or compensated for, consistent with the requirements of this chapter.

(6) By limiting development and alteration of critical areas, this Chapter seeks to:

(a) Protect members of the public and public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, or flooding;

(b) Protect unique, fragile, and valuable elements of the environment, including ground and surface waters, wetlands, and fish and wildlife and their habitats;

(c) Direct activities not dependent on critical area resources to less ecologically sensitive sites and mitigate unavoidable impacts to critical areas by regulating alterations in and adjacent to critical areas; and

(d) Prevent cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat, and the overall net loss of wetlands, frequently flooded areas, and habitat conservation areas.

(7) It is the further intent of this section to:

(a) Provide standards, guidelines, and criteria to guide application of these critical areas goals and policies when considered with other goals and policies of the Redmond Community Development Guide, including those pertaining to natural features and environmental protection;

(b) Serve as a basis for exercise of the City's substantive authority under the State Environmental Policy Act (SEPA) and the City's SEPA rules;

(c) Protect critical areas in accordance with the Growth Management Act and through the application of best available science, as determined according to WAC 365-195-900 through 365-195-925, and in consultation with state and federal agencies and other qualified professionals; and

(d) Coordinate environmental review and permitting of proposals to avoid duplication and delay.

(8) For the purposes of this division, "department" shall mean the City of Redmond Department of Planning and Community Development and "committee" shall mean the City of Redmond Technical Committee. (Ord. 2180; Ord. 1693. Formerly 20C.40.010)

20D.140.10-020 Applicability – Regulated Activities.

(1) The provisions of this chapter shall apply to any activity that has a potential to significantly adversely impact a critical area or its established buffer unless otherwise exempt. Such activities include but are not limited to:

(a) Removing, excavating, disturbing or dredging soil, sand, gravel, minerals, organic matter or materials of any kind;

(b) Dumping, discharging or filling with any material;

(c) Draining, flooding or disturbing the water level or water table;

(d) Driving pilings or placing obstructions;

(e) Constructing, reconstructing, demolishing or altering the size of any structure or infrastructure that results in disturbance of a critical area or the addition of any impervious surface coverage to a site;

(f) Destroying or altering vegetation through clearing, grading, harvesting, shading or planting vegetation that would alter the character of a critical area;

(g) Activities that result in significant changes in water temperature, physical or chemical characteristics of water sources, including quantity and pollutants; and

(h) Any other activity that has a potential to significantly adversely impact a critical area or established buffer not otherwise exempt from the provisions of this chapter.

(i) With regard to Frequently Flooded Areas, the provisions of this chapter shall apply to any activity that would result in change to the flood storage capacity of a floodplain or flood fringe area, or cause an increase in the base flood elevation, unless otherwise exempt.

(2) To avoid duplication, Types I, II, III, IV, V, & VI Permits shall be subject to and coordinated with the requirements of this chapter.

20D.140.10-030 Exemptions.

(1) The following activities shall be exempt from the provisions of this chapter:

(a) Existing and ongoing agricultural activities provided no alteration of flood storage capacity or conveyance occurs and the activity does not adversely affect critical areas, or existing and on-going agricultural activities identified in a Farm Plan approved by both the King Conservation District and the City;

(b) Activities involving artificially created wetlands or streams intentionally created from nonwetland sites, including but not limited to grass-lined swales, irrigation and drainage ditches, detention facilities, and landscape features,

except wetlands, streams or swales created as mitigation or that provide habitat for salmonid fishes;

(c) Activities occurring in areas of 40 percent slope or greater with a vertical elevation change of up to ten feet based upon City review of a soils report prepared by a geologist or geotechnical engineer which demonstrates that no significant adverse impact will result from the exemption;

(d) Normal and routine maintenance, operation and reconstruction of existing roads, streets, utilities and associated rights-of-way and structures, provided that reconstruction of any structures may not increase the impervious area, remove flood storage capacity, or further encroach into a critical area or its buffer;

(e) Normal maintenance and repair, and reconstruction or remodeling of residential or commercial structures, or legal pre-existing and on-going uses of the site, provided that reconstruction of any structures may not increase the size of the previously approved building footprint (see subsection (5) below);

(f) Site investigative work and studies necessary for preparing land use applications, including soils tests, water quality studies, wildlife studies and similar tests and investigations, provided that any disturbance of the critical area shall be the minimum necessary to carry out the work or studies and provided that the area is restored to its previous condition;

(g) Educational activities, scientific research, and outdoor recreational activities, including but not limited to interpretive field trips, and birdwatching that will not have a significant adverse effect on the critical area;

(h) Emergency activities necessary to prevent an immediate threat to public health, safety or property;

(i) Normal and routine maintenance and operation of existing landscaping and gardens provided they comply with all other regulations in this chapter;

(j) Construction of pedestrian trails which are permeable, have a maximum width of six feet, and are located in the outer 25% of the buffer;

(k) Minor activities not mentioned above and determined by the Department to have minimal impacts to a critical area;

(l) Previously legally filled wetlands or wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street or highway, or wetlands accidentally created by other human actions within 20 years of the date the development application is filed. The latter shall be

documented by the applicant through photographs, statements, and/or other evidence;

(m) Activities affecting Category IV wetlands which are 250 square feet in size or smaller and hydrologically isolated.

(n) Installation, construction, replacement, repair or alteration of utilities and their associated facilities, lines, pipes, mains, equipment or appurtenances in improved City road rights-of-way and provided that the area is restored to its previous condition;

(o) Removal of non-native vegetation providing removal is accomplished using hand methods and that removal is in compliance with this Chapter. Hand removal does not include using mechanical equipment such as weed wackers, mowers, power hedges, or other similar devices. This does not include the use of herbicides.

(2) Notwithstanding the exemptions provided by this subsection, any otherwise exempt activities occurring in or near a critical area should meet the purpose and intent of RCDG 20D.140.10-010 and should consider on-site alternatives that avoid or minimize significant adverse impacts.

(3) Exempt activities occurring in Flood Hazard Areas shall not alter flood storage capacity or conveyance.

(4) With the exception of subsections (1)(a), (1)(g), (1)(h), and (1)(i), and normal maintenance and repair of residential and commercial structures as in subsection (1)(f) above, no property owner or other entity shall undertake exempt activities prior to providing 10 days notice to the Department. In case of any question as to whether a particular activity is exempt from the provisions of this section, the Department's determination shall prevail and shall be confirmed in writing within 10 days of receipt of the owner's or applicant's letter. Those activities falling under subsection (1)(h) above shall provide telephone or written communication with the Department within 48 hours of the activity notifying such emergency activity was taken.

(5) Structures shall be allowed to be reconstructed if destroyed more than 50 percent of its assessed or appraised value (whichever is greater) if located in a buffer. Reconstruction of the structure shall not further encroach into the buffer area or increase the building footprint. Structures that are nonconforming solely due to the provisions of this chapter shall not be governed by RCDG 20F.10.50, Nonconformances. (Ord. 1929; Ord. 1693. Formerly 20C.40.040)

20D.140.10-040 Critical Areas Maps.

Critical Areas Generally. Critical areas maps are included as a part of this division and listed as follows:

(1) Fish and Wildlife Habitat Conservation Areas;

(2) Streams;

(3) Wetlands;

(4) Frequently Flooded Areas;

(5) Wellhead Protection Zones;

(6) Landslide Hazard Areas;

(7) Erosion Hazard Areas; and

(8) Seismic Hazard Areas.

20D.140.10-050 Relationship to Other Regulations.

(1) These critical area regulations shall apply as an overlay and in addition to zoning, land use and other regulations established by the City of Redmond. In the event of any conflict between these regulations and any other regulations of the City, the regulations which provide greater protection to environmentally critical areas shall apply.

(2) Areas characterized by particular critical areas may also be subject to other regulations established by this chapter due to the overlap or multiple functions of some sensitive or critical areas. Wetlands, for example, may be defined and regulated according to the Wetland and Fish and Wildlife Habitat Conservation Area provisions of this chapter. In the event of any conflict between regulations for particular critical areas in this chapter, the regulations which provide greater protection to environmentally critical areas shall apply. (Ord. 1693. Formerly 20C.40.060)

(3) Compliance with the provisions of this Chapter does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required.

20D.140.10-060 Permit Process and Application Requirements.

(1) Pre-Application Conference. All applicants are encouraged to meet with the City prior to submitting an application subject to this section. The purpose of this meeting shall be to discuss the City's critical area requirements, processes and procedures; to review any conceptual site plans prepared by the applicant; to identify potential impacts to critical areas and appropriate mitigation measures; and to generally inform the applicant of any Federal or State regulations applicable to the subject critical area.

Such conference shall be for the convenience of the applicant and any recommendations shall not be binding on the applicant or the City.

(2) Application Requirements.

(a) Timing of Submittals. A critical area report, if applicable, must be submitted to the City during application submittal. This is a required component of determining application completeness. The purpose of the report is to determine the extent, characteristics and functions of any critical areas located on or that have a potential to be significantly adversely impacted by activities on a site where regulated activities are proposed. The report will also be used by the City to assist in the determination of the appropriate critical area rating and establishment of appropriate buffer requirements in accordance with this Chapter.

(b) Critical Areas Report Contents. Reports and studies required to be submitted by this chapter shall contain the information indicated in Appendix 20D-2 of the RCDG, *CAO Reporting Requirements*, applicable to each critical area.

(3) Consultant Qualifications and City Review. All reports and studies required of the applicant by this section shall be prepared by a qualified consultant as that term is defined in the RCDG 20A.20, *Definitions*. The City may, at its discretion, retain a qualified consultant to review and confirm the applicant's reports, studies and plans.

(4) Permit Process. This section is not intended to create a separate critical areas permit process for development proposals. The City shall consolidate and integrate the review and processing of critical areas aspects of proposals with other land use and environmental considerations and approvals. (Ord. 1693. Formerly 20C.40.070)

20D.140.10-070 Alteration or Development of Critical areas – Standards and Criteria.

Standards and criteria are set forth in RCDG 20D.140.10-080 through 100, 20D.140.20-030 through 050, 20D.140.30-030, 20D.140.40-020 through 030, 20D.140.50-020 through 030, and 20D.140.60-030 through 040. (Ord. 1693. Formerly 20C.40.100)

20D.140.10-080 General Mitigation Standard.

All significant adverse impacts to critical areas functions and values shall be mitigated. Mitigation actions by an applicant or property owner shall occur in the following sequence:

(1) Avoiding the impact altogether by not taking a certain action or parts of actions;

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

(3) Rectifying the impact to the critical area by repairing, rehabilitating, or restoring the affected environment to the conditions existing at the time of the initiation of the project

(4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

(5) Compensating for the impact by replacing or providing substitute resources or environments; and/or (Ord. 1693. Formerly 20C.40.100(05))

(6) Monitoring the hazard or other required mitigation and taking remedial action when necessary.

20D.140.10-090 Other Appropriate Mitigation Actions.

Where impacts cannot be avoided, and the applicant has exhausted feasible design alternatives, the applicant or property owner shall seek to implement other appropriate mitigation actions in compliance with the intent, standards and criteria of this chapter. In an individual case, these actions may include consideration of alternative site plans and layouts, reductions in the density or scope of the proposal, and/or implementation of the performance standards listed in RCDG 20D.140.10-070 through 100, 20D.140.20-030 through 050, 20D.140.30-030, 20D.140.40-020 through 030, 20D.140.50-020 through 030, and 20D.140.60-030 through 040; and 20D.140.10-120 through 140, 20D.140.20-060 through 070, 20D.140.30-040, 20D.140.50-040, and 20D.140.60-050. (Ord. 1693. Formerly 20C.40.100(10))

20D.140.10-100 Proposed Developments.

Development proposed in critical areas shall incorporate and reflect the performance standards contained in RCDG 20D.140.10-110 through 140, 20D.140.20-060 through 070, 20D.140.30-040, 20D.140.50-040, and 20D.140.60-050. (Ord. 1693. Formerly 20C.40.100(20))

20D.140.10-110 Mitigation Standards, Criteria and Plan Requirements.

(1) Mitigation Performance Standards. Significant adverse impacts to critical area functions and values shall be mitigated. Mitigation actions shall be implemented in the preferred sequence identified in RCDG 20D.140.10-080. Proposals which include less preferred and/or compensatory mitigation shall demonstrate that:

(a) All feasible and reasonable measures will be taken to reduce impacts and losses to the critical area, or to avoid impacts where avoidance is required by these regulations; and

(b) The restored, created or enhanced critical area or buffer will be as viable and persistent as the critical area or buffer area it replaces; and

(c) In the case of wetlands and riparian stream corridors, no overall net loss will occur in wetland or riparian stream corridor functions and values.

(2) Location and Timing of Mitigation.

(a) Mitigation shall be provided on-site, unless on-site mitigation is not scientifically feasible due to physical features of the property. The burden of proof shall be on the applicant to demonstrate that mitigation cannot be provided on-site.

(b) When mitigation cannot be provided on-site, mitigation shall be provided in the immediate vicinity of the permitted activity on property owned or controlled by the applicant, such as an easement, provided such mitigation is beneficial to the critical area and associated resources.

(c) In-kind mitigation shall be provided except when the applicant demonstrates and the Department concurs that greater functional and habitat value can be achieved through out-of-kind mitigation.

(d) Only when it is determined by the Department that subsections (2)(a), (b), and (c) above are inappropriate and impractical shall off-site, out-of-kind mitigation be considered.

(e) When wetland or riparian stream corridor mitigation is permitted by these regulations on-site or off-site, the mitigation project shall occur near an adequate water supply (river, stream, ground water, stormwater facility outfall) with a hydrologic connection to the critical area to ensure successful development or restoration.

(f) Any agreed upon mitigation proposal shall be completed concurrently with project construction, unless a phased schedule, that assures completion prior to occupancy, has been approved by the Department.

(g) Wetland acreage replacement ratios shall be as specified in subsection 20D.140.30-030(7)(b) of this section.

(h) Restored or created riparian stream corridors, where permitted by these regulations, shall be an equivalent or higher riparian stream corridor value or function than the altered riparian stream corridor.

20D.140.10-120 Performance Standards for Mitigation Planning.

The performance standards in RCDG 20D.140.20-070 through 080, 20D.140.30-040, 20D.140.50-050, and 20D.140.60-050, and the standards contained in RCDG 20D.140.10-080 through 110, 20D.140.20-040 through 060, 20D.140.30-030, 20D.140.40-020 through 030, 20D.140.50-030 through 040, and 20D.140.60-030 through 040 shall be incorporated into mitigation plans submitted to the City for impacts to critical areas. Mitigation plans shall contain the information indicated in RDCG Appendix 20D-2, *Critical Areas Reporting*. (Ord. 1693. Formerly 20C.40.120(05))

20D.140.10-130 Approved Mitigation Projects – Signature.

On completion of construction, any approved mitigation project must be signed off by the applicant's qualified consultant and approved by the Department. Signature will indicate that the construction has been completed as planned. (Ord. 1693. Formerly 20C.40.120(10))

20D.140.10-140 Approved Mitigation Projects – Contingency Planning.
Approved mitigation projects shall implement the monitoring and contingency planning requirements of RCDG 20D.140.10-150. (Ord. 1693. Formerly 20C.40.120(15))

20D.140.10-150 Monitoring Program and Contingency Plan.

(1) A monitoring program shall be implemented by the applicant to determine the success of the mitigation project and any necessary corrective actions. This program shall determine if the original goals and objectives are being met.

(2) A contingency plan shall be established for indemnity in the event that the mitigation project is inadequate or fails. A performance and maintenance bond or other acceptable security device is required to ensure the applicant's compliance with the terms of the mitigation agreement. The amount of the performance and maintenance bond shall equal 125 percent of the cost of the mitigation project for a minimum of five years. This amount includes installation, maintenance and monitoring over the five-year period. The bond may be reduced in proportion to work successfully completed over the period of the bond. The bonding period shall coincide with the monitoring period.

(3) Monitoring programs prepared to comply with this chapter shall reflect the following guidelines:

    (a) Use scientific procedures for establishing the success or failure of the project;

    (b) For vegetation determinations, permanent sampling points shall be established;

(c) Vegetative success equals 80 percent per year survival of planted trees and 80 percent cover of shrubs, groundcover and emergent species and less than 20 percent cover of invasive species;

(d) Submit monitoring reports on the current status of the mitigation project to the Department. The reports are to be prepared by a qualified consultant and reviewed by the City's and shall be produced on the following schedule: at the time of construction; 30 days after planting; early in the growing season of the second year; end of the growing season of second year; and annually thereafter;

(e) The monitoring reports shall contain the following information on monitoring method and monitoring components, as relevant:

(i) Vegetation Monitoring: Methods shall include counts, photopoints, random sampling, sampling plots, transects, visual inspections, and/or other means deemed appropriate by the Department and a qualified consultant. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, invasive weeds, and/or other components deemed appropriate by the Department and a qualified consultant.

(ii) Water Quantity Monitoring: Methods shall include piezometers, sampling points, stream gauges, visual observation, and/or other means deemed appropriate by the Department and a qualified consultant. Water quantity monitoring components shall include water level, peak flows, soil saturation depth, soil moisture within root zone, inundation, overall water coverage, and/or other components deemed appropriate by the Department and a qualified consultant.

(iii) Water Quality Monitoring: Methods shall include testing, plant indicators, and/or other means deemed appropriate by the Department and a qualified consultant. Water quality monitoring components shall include temperature, pH, dissolved oxygen, total suspended solids, total metals, herbicides, pesticides, and/or other components deemed appropriate by the Department and a qualified consultant.

(iv) Wildlife Monitoring: Methods shall include visual sightings, aural observations, nests, scat, tracks, and/or other means deemed appropriate by the Department and a qualified consultant. Wildlife monitoring components shall include species counts, species diversity, breeding activity, habitat type, nesting activity, location, usage, and/or other components deemed appropriate by the Department and a qualified consultant.

(v) Geomorphic Monitoring: Methods shall include cross-sectional surveys, profile surveys, point surveys, photo-monitoring, and/or other means deemed appropriate by the Department and a qualified consultant. Monitoring components shall include location and affect of large woody debris, depth and frequency of pools, bank erosion, channel migration, sediment transport/deposition, structural integrity of weirs, and/or other components deemed appropriate by the Department and a qualified consultant.

(f) Monitoring programs shall be established for a minimum of five years;

(g) If necessary, correct for failures in the mitigation project;

(h) Replace dead or undesirable vegetation with appropriate plantings;

(i) Repair damages caused by erosion, settling, or other geomorphological processes to all affected properties and structures, both on and off the property;

(j) Redesign mitigation project (if necessary) and implement the new design; and

(k) Correction procedures shall be approved by a qualified consultant and the Department. (Ord. 1693. Formerly 20C.40.130)

20D.140.10-160 Buffer Areas.

(1) The establishment of buffer areas may be required for development proposals and activities in or adjacent to critical areas. The purpose of the buffer shall be to protect the integrity, function, value and resource of the subject critical area, and/or to protect life, property and resources from risks associated with development on unstable or sensitive lands. Buffers shall consist of an undisturbed area of native vegetation established to achieve the purpose of the buffer. If the site has previously been disturbed, the buffer area shall be revegetated pursuant to an approved planting plan. Buffers shall be protected during construction by placement of a temporary barricade, on-site notice for construction crews of the presence of the critical area, and implementation of appropriate erosion and sedimentation controls.

(2) Required buffer widths shall reflect the sensitivity of the particular critical area and resource or the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the critical area.

(3) See individual critical areas regulations in 20D.140.20-020, 20D.140.30-020, and 20D.140.50-020 for required buffer widths.

20D.140.10-170 Buffer Width Variances.

A variance from buffer width requirements may be granted by the City subject to the variance criteria set forth in RCDG Title 20F and upon a showing by the applicant that:

(1) There are special circumstances applicable to the subject property or to the intended use such as shape, topography, location or surroundings that do not apply generally to other properties and which support the granting of a variance from the buffer width requirements; and

(2) Such buffer width variance is necessary for the preservation and enjoyment of a substantial property right or use possessed by other similarly situated property but which because of special circumstances is denied to the property in question; and

(3) The granting of such buffer width variance will not be materially detrimental to the public welfare or injurious to the property or improvement;

(4) The granting of the buffer width variance will not significantly impact the subject critical area; (Ord. 1693. Formerly 20C.40.090(20))

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

(6) The granting of the variance is consistent with the general purpose and intent of the Comprehensive Plan and adopted development regulations.

20D.140.10-180 General Critical Area Protective Measures

(1) Critical Area Markers and Signs

(a) The boundary at the outer edge of critical area tracts and easement shall be delineated with permanent survey stakes, using iron or concrete markers as established by local survey standards.

(b) The boundary at the outer edge shall be identified with temporary signs prior to any site disturbance. The temporary signs shall be replaced with permanent signs prior to occupancy or use of the site. The number and spacing of permanent signs shall be designated by the Planning Department.

(2) Critical Area Fencing. In order to inform subsequent purchasers of real property of the location of the critical area buffer boundaries and to discourage encroachment into that buffer, the developer of the property shall install split-rail fencing or a similar fencing approved by the Department, along the boundary of the critical area.

(3) Notice on Title

(a) In order to inform subsequent purchasers of real property of the existence of critical areas, the owner of any property containing a critical area or buffer on which a development proposal is submitted shall file a notice with King County Department of Records and Elections. The notice shall state the presence of the critical area or buffer on the property, of the application of the Critical Areas Ordinance to the property, and the fact that limitations on actions in or affecting the critical area or buffer may exist. The notice shall run with the land.

(b) The applicant shall submit proof that the notice has been filed for public records before the city approves a building permit or, in the case of subdivision of land or binding site plans, at or before recording.

(4) Critical Areas Tracts

(a) Critical areas tracts, or other mechanisms as deemed appropriate by the Department, shall be used to delineate and protect contiguous critical areas and buffers. Areas in critical areas tracts can be included in determining gross site density, floor area ratios, and other area and dimensional regulations.

(b) Critical area tracts shall be recorded on all documents of title or record for all affected lots.

(c) Critical area tracts shall be designated on the face of the plat or recording drawing in a format provided by the city attorney.

(d) The City may require that any required critical areas tract be held in an undivided interest by each owner of a building lot within the development with the ownership interest passing with the ownership of the lot, or held by an incorporated homeowner's association, or other legal entity which assures the ownership, maintenance, and protection of the tract.

20D.140.10-190 Reasonable Use Provision.

(1) These standards and regulations are not intended, and shall not be construed or applied in a manner, to deny all reasonable economic use of private property. If an applicant demonstrates to the satisfaction of the Hearing Examiner that strict application of these standards would deny all reasonable economic use of their property, development may be permitted subject to appropriate conditions.

(2) Anyone applying for relief from strict application of these standards must demonstrate the following:

(a) No reasonable use with less impact on the critical area and the buffer is feasible and reasonable; and

(b) There is no feasible and reasonable on-site alternative to the activities proposed. The application for an exception shall include an analysis of whether there is any practicable on-site alternative to the proposed development with less impact, including other allowed uses, reduction in density, phasing of project implementation, change in timing of activities, revision of lot layout, or related site planning considerations that would allow a reasonable use with less adverse impacts to the critical area; and

(c) The proposed activities, as conditioned, will result in the minimum possible impacts to affected critical areas; and

(d) The proposed development does not pose an unreasonable threat to the public health, safety or welfare on or off the development proposal site and is consistent with the public interest; and

(e) All reasonable mitigation measures have been implemented or assured; and

(f) Any development permitted in the critical area is the minimum necessary to allow for reasonable use of the property; and

(g) The inability to derive reasonable economic use is not the result of the applicant's actions. (Ord. 1693. Formerly 20C.40.150)

(3) The applicant shall provide an analysis of mitigation opportunities in order to evaluate whether the proposal minimizes the impact on the critical area.

(4) If a reasonable economic use of a parcel cannot exist without modification of required setbacks, building height and/or lot coverage limits, buffers, landscape widths, the Department shall modify the fixed regulations only to the extent necessary to provide for reasonable use of the property while providing as much critical area protection as is possible under the circumstances and while maintaining appropriate public health and safety standards.

(5) Adequate mitigation and monitoring shall be required to address the adverse impacts on critical areas and their ecological functions and values of any modification of the required regulations under the reasonable use exception. The Department may also require the property owner to provide mitigation for the adverse effects of the development under an approved mitigation plan.

(6) Any proposed structures requiring a reduction of the standards applicable within a critical area in order to provide for reasonable use of the property shall be located as far from the critical area as practical. Total building coverage and all other impervious surfaces shall be minimized, as appropriate, to limit intrusion into the critical area.

(7) The development shall use, to the maximum extent possible, the best available construction, design, and development techniques that result in the least impact to ecological functions and values of the critical area.

(8) Any net loss of function of the critical area on the site and adverse impacts to wetland or riparian stream corridor functions upstream or downstream from the site shall be minimized to the maximum extent practicable.

20D.140.10-200 Public Project Reasonable Use Provision.

(1) If the public agency or City department demonstrates to the satisfaction of the Technical Committee that strict application of these standards would deny construction of a public project, the project may be permitted subject to appropriate conditions.

(2) The public agency or appropriate City department proposing the public project shall demonstrate the following:

(a) There is no feasible and reasonable on-site alternative to the activities proposed. The application for an exception shall include an analysis of whether there is any practicable on-site alternative to the proposed development with less impact, including: reduction or revision of project scope, phasing of project implementation, change in timing of activities, or related site planning considerations that would allow a project design with less adverse impacts to the critical area; and

(b) The proposed public project, as conditioned, will result in the minimum possible impacts to affected critical areas; and

(c) The proposed public project does not pose an unreasonable threat to the public health, safety or welfare on or off the project site and is consistent with the public interest; and

(d) All reasonable mitigation measures have been implemented or assured; and

(e) Any development permitted in the critical area is the minimum necessary to construct and operate the public project.

(3) The public agency or appropriate City department shall provide an analysis of mitigation opportunities in order to evaluate whether the proposal minimizes the impact on the critical area.

(4) If a public project cannot be constructed without modification of required setbacks, building height and/or lot coverage limits, buffers, landscape widths, the public agency or Department shall modify the fixed regulations only to the extent necessary to allow construction of the public project while providing as much critical area

protection as is possible under the circumstances and while maintaining appropriate public health and safety standards.

(5) Adequate mitigation and monitoring shall be required to address the adverse impacts on critical areas and their ecological functions and values of any modification of the required regulations under this provision.

(6) Any public project requiring a reduction of the standards applicable within a critical area in order to provide the necessary public project shall be located as far from the critical area as practical. Total building coverage and all other impervious surfaces shall be minimized, as appropriate, to limit intrusion into the critical area.

(7) The public project shall use, to the maximum extent possible, the best available construction, design, and development techniques that result in the least impact to ecological functions and values of the critical area.

(8) Any net loss of function of the critical area on the site and adverse impacts to wetland or riparian stream corridor functions upstream or downstream from the site shall be minimized to the maximum extent practicable.

20D.140.20 Fish and Wildlife Habitat Conservation Areas

20D.140.20-010 Classification and Rating of Fish & Wildlife Habitat Conservation Areas.

The Growth Management Act identifies Fish and Wildlife Habitat Conservation Areas. These areas include

- Areas with which Species of Concern have a primary association.

    - Federally designated endangered and threatened species are those fish and wildlife species identified by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service that are in danger of extinction or threatened to become endangered. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted as necessary for current listing status.

    - State designated endangered, threatened, and sensitive species are those fish and wildlife species native to the State of Washington identified by the Washington State Department of Fish and Wildlife, that are in danger of extinction, threatened to become endangered, vulnerable, or declining and are likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. State designated endangered, threatened, and sensitive species are periodically recorded in WAC 232-12-014 (state endangered species), and WAC 232-12-011 (state threatened and sensitive species). The Washington State Department of Fish and Wildlife

maintains the most current listing and should be consulted as necessary for current listing status. Included, also, are State Candidate Species which include fish and wildlife species that the Washington Department of Fish and Wildlife will review for possible listing as endangered, threatened, or sensitive.

- State priority habitats and areas associated with state priority species. Priority habitats and species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the Washington State Department of Fish and Wildlife.

- Habitats and species of local importance. Habitats and species of local importance are those identified by the City of Redmond, including those that possess unusual or unique habitat warranting protection because of qualitative species diversity or habitat system health indicators. The City Council shall formally designate habitats and species of local importance, if any, through the Development Guide Amendment process.

- Naturally occurring ponds under twenty (20) acres. Naturally occurring ponds are those ponds under twenty (20) acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds, and landscape amenities, unless such artificial ponds were intentionally created for mitigation.

- Waters of the State. Waters of the state includes lakes, rivers, ponds, streams, inland waters, underground waters, and other surface waters and watercourses within the jurisdiction of the State of Washington, as classified in WAC 222-16-031.

- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.

- Land essential for preserving connections between habitat blocks and open spaces.

To promote consistent application of the standards and requirements of this chapter, Fish and Wildlife Habitat Conservation Areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

(1) Core Preservation Areas. Core Preservation Areas include those areas of the City which are already protected through other regulatory mechanisms. They include Native Growth Protection Easements, Class I streams and their buffers, and Class II-IV streams and other areas similarly protected. They may also include lands where development rights have been sold and some lands with recorded open space easements, depending on the purpose of the easement. The Core Preservation Area includes wetlands and streams and their associated buffers as they become identified at a site specific level.

(2) Species Protection. Species of Concern, Priority Species, and Species of Local Importance shall be protected through management recommendations. Species of Concern includes those species listed as state endangered, threatened, sensitive, or candidate, as well as those species listed or proposed for listing by the federal government. Priority Species are those species considered to be priorities for conservation and management and are identified in the Washington Department of Fish and Wildlife Priority Habitat and Species (PHS) List. In Redmond, Species of Local Importance refers to the Great Blue Heron.

(3) Quality Habitat Areas. As sites are assessed for development, the Department shall evaluate each site for the presence of Quality Habitat using the following methodology. Sites will be qualitatively scored based upon several parameters indicative of habitat qualities. These parameters include size, community diversity, interspersion (spatial patterns), continuity, forest vegetation layers, forest age, and invasive plants. This assessment will allow the City to identify remaining Quality Habitat in the City, to protect remaining Quality Habitat by imposition of the performance standards outlined in Section 20D.140.20-070 so long as there is no significant adverse economic impact to the developer, and to provide incentives to preserve such Quality Habitat.

(4) Riparian Stream Corridors. Riparian stream corridors include Class I-IV streams and adjacent Riparian Habitat Areas (Stream Buffers). Streams shall be designated Class I, Class II, Class III, and Class IV according to the criteria in this section. When more than one classification is present in short alternating segments on the property in question it will be classified according to the stream class which is more restrictive.

(a) "Class I" are those streams identified as "Shorelines of the State" under the City of Redmond Shoreline Master Program.

(b) "Class II" are those natural streams that are not Class I and are either perennial or intermittent and have salmonid fish use or the potential for salmonid fish use.

(c) "Class III" are those natural streams that are not Class I or Class II and are either perennial or intermittent and have one of the following characteristics:

(i) Non-salmonid fish use or the potential for non-salmonid fish use; or

(ii) Headwater streams with a surface water connection to salmon bearing or potentially salmon bearing streams (Class I or II).

(d) "Class IV" are those natural streams that are not Class I, Class II, or Class III. They are either perennial or intermittent, do not have fish or the potential for fish, and are non-headwater streams.

(e) Intentionally Created Streams. These are manmade streams defined as such in these regulations, and do not include streams created as mitigation. Purposeful creation must be demonstrated to the Committee through documentation, photographs, statements and/or other evidence. Intentionally created streams may include irrigation and drainage ditches, grass-lined swales, or other artificial watercourses unless they are used by salmonid fish or created for the purpose of stream mitigation

(5) Classification of Fish and Wildlife Habitat Conservation Areas shall be determined by the Department based consideration of the following factors:

(a) Maps adopted pursuant to this chapter, including the Fish and Wildlife Habitat Conservation Area Core Preservation Areas map and Stream Classification map;

(b) Department of Fish and Wildlife Priority Habitat and Species Maps;

(c) Anadromous and resident salmonid distribution maps contained in the Habitat Limiting Factors Reports published by the Washington Conservation Commission;

(d) Federal and State information and maps related to Species of Concern;

(e) Application of the criteria contained in these regulations; and

(f) Consideration of the technical reports submitted by qualified consultants in connection with the applications subject to these regulations. (Ord. 2180; Ord. 1693. Formerly 20C.40.080)

20D.140.20-020 Stream Buffers.

(1) Stream buffers shall be sufficiently wide to achieve the full range of riparian and aquatic ecosystem functions, which include, but are not limited to protection of instream fish habitat through control of temperature and sedimentation in streams; preservation of fish and wildlife habitat; and connection of riparian wildlife habitat to other habitats.

(2) Stream buffers shall be measured from the ordinary high water mark.

(3) The following stream buffers are established for streams:

Riparian Stream Corridor Classification	Stream Buffer Width (feet)
Class I ▪ Sammamish River north of PSE powerline crossing ▪ Sammamish River south of PSE powerline crossing ▪ Bear Creek west of Avondale Road ▪ Bear Creek east of Avondale Road ▪ Evans Creek	 ▪ 150' inner buffer + 50' outer buffer ▪ 150' ▪ 150' ▪ 150' inner buffer + 50' outer buffer ▪ 150' inner buffer + 50' outer buffer
Class II	100' + 50' outer buffer
Class III	100'
Class IV ▪ Perennial ▪ Intermittent	 ▪ 36' ▪ 25'

(4) Increased stream buffer widths. The recommended stream buffer widths may be increased as follows:

(a) When the Department determines that the recommended width is insufficient to prevent habitat degradation and to protect the structure and functions of the habitat areas;

(b) When the Frequently Flooded Area exceeds the recommended stream buffer width, the stream buffer shall extend to the outer edge of the Frequently Flooded Area;

(c) When the stream buffer is within a Landslide Hazard Area or its buffer, the stream buffer shall be the recommended distance, or the Landslide Hazard Area buffer, whichever is greater. Similarly if the stream buffer is within an Erosion Hazard Area, the stream buffer shall be the recommended distance or the extent of the Erosion Hazard Area.

(5) Reduced stream buffer widths. Stream buffer widths must meet the required width as described in the table above. This does not refer to stream buffer width averaging. See below provisions under which stream buffer width averaging is permitted.

(6) Stream buffer width averaging. The Director may allow the recommended stream buffer width to be reduced in accordance with best available science only if:

(a) The width reductions will not reduce stream or habitat functions, including those of nonfish habitat;

(b) The width reduction will not degrade the habitat, including habitat for salmonid fisheries;

(c) The proposal will provide additional habitat protection;

(d) The total area contained in the stream buffer area after averaging is no less than that which would be contained within the standard stream buffer area; and

(e) The buffer width is not reduced to less than twenty-five percent (25%) of the standard stream buffer width or twenty-five (25) feet, whichever is greater.

(7) For Class I and II streams, buffer averaging may be applied to the inner buffer. The following provisions apply to the inner buffer:

(a) The width of the inner buffer shall not be reduced below 75% of the required inner buffer width at any point;

(b) Encroachment shall not occur into the buffer of an associated wetland;

(c) The area of the inner buffer after averaging shall be equivalent to the area of the inner buffer prior to averaging;

(d) There is a net improvement in overall buffer ecological functions; and

(e) Averaging shall not preclude the opportunity for future recovery of structure and function.

(8) For Class I and II streams, maximum clearing and grading within the outer 50-foot buffer is thirty-five percent (35%) of the outer buffer area. Nothing in this provision shall be construed to require remediation of existing situations where the current clearing and grading is in excess of thirty-five percent (35%). No net effective impervious surface may be created within this area.

(9) No structures or improvements shall be permitted within the stream buffer, including buildings, decks, docks, except as otherwise permitted or required under the City's adopted Shoreline Master Program, or under one of the following circumstances:

(a) When the improvements are part of an approved rehabilitation or mitigation plan; or

(b) For construction of new roads and utilities, and accessory structures, when no feasible alternative location exists; or

(c) Trails, according to the following criteria:

(i) Constructed of permeable materials;

(ii) Designed to minimize impact on the stream system;

(iii) Of a maximum trail corridor width of 6 feet; and

(iv) Located within the outer half of the buffer, i.e., the portion of the buffer that is farther away from the stream; or

See also RCDG 20D.150.180, *Shoreline Access*, for trail construction in Shorelines of the State.

(d) Footbridges; or

(e) Minor educational facilities, such as informational signs; or

(f) Stormwater conveyance systems.

(10) Businesses currently located in the stream buffers may continue to operate. A non-conforming use may be expanded provided the expansion does not create significant additional impacts to the stream buffers. Non-conforming structures may be maintained and repaired and may be enlarged or expanded provided said enlargement does not extend the structure closer to the riparian stream corridor.

(11) Nothing in this section shall be construed to require the removal of existing structures within stream buffers.

20D.140.20-030 Alteration of Fish and Wildlife Habitat Conservation Areas.

Alteration of Fish and Wildlife Habitat Conservation Areas may only be permitted subject to the criteria in RCDG 20D.140.20-050 through 060, 20D.140.30-030, 20D.140.40-030, 20D.140.50-030, and 20D.140.60-040. (Ord. 1693. Formerly 20C.40.100(15))

20D.140.20-040 Alteration of Riparian Stream Corridors.

(1) Relocation of a Class I, II, or III riparian stream corridors in order to facilitate general site design will not be allowed. Relocation of these riparian stream corridors may take place only when it is part of an approved mitigation or rehabilitation plan, and will result in equal or better habitat and water quality, and will not diminish the flow capacity of the stream.

(2) Bridges shall be used to cross Class I streams.

(3) Culverts are allowable only under the following circumstances:

(a) Only in Class II, III, and IV streams;

(b) When fish passage will not be impaired;

(c) When the design criteria of the Washington State Dept. of Fish and Wildlife, *Design of Road Culverts for Fish Passage, 2003*, are met; and

(d) The applicant or successors shall, at all times, keep any culvert free of debris and sediment to allow free passage of water and, if applicable, fish.

(4) Streambank stabilization to protect new structures from future channel migration is not permitted except when such stabilization is achieved through bioengineering or soft armoring techniques in accordance with an approved critical area report.

(5) Construction of roads and minor road bridging may be permitted in accordance with an approved critical area report subject to the following:

(a) There is no other feasible alternative route with less impact on the environment;

(b) The crossing minimizes interruption of downstream movement of wood and gravel;

(c) Roads in riparian habitat areas shall not run parallel to the water body;

(d) Crossings, where necessary, shall only occur as near to perpendicular with the waterbody as possible;

(e) Mitigation for impacts is provided pursuant to an approved mitigation plan; and

(f) Road bridges are designed according to the Department of Fish and Wildlife *Design of Culverts for Fish Passage, 2003*, and the National Marine Fisheries Service *Guidelines for Salmonid Passage at Stream Crossings, 2000*.

(6) The City may require that a stream be removed from a culvert as a condition of approval, unless the culvert is not detrimental to fish habitat or water quality, or removal would be detrimental to fish or wildlife habitat or water quality. (Ord. 1693. Formerly 20C.40.100(15)(b))

20D.140.20-050 Alteration of Fish and Wildlife Habitat Conservation Areas.

(1) Alterations of Core Preservation Areas shall be avoided, subject to RCDG 20D.140.10-190, *Reasonable Use Provision* and RCDG 20D.140.10-200, *Public Project Reasonable Use Provision*.

(2) Species Protection. Species management recommendations for development impacting Species of Concern, Priority Species, and Species of Local Importance shall be implemented. Management recommendations are based on the following factors: species recommendations on the Washington State Department of Fish and Wildlife; recommendations contained in the wildlife study submitted by a qualified consultant; and the nature and intensity of land uses and activities occurring on the site and on adjacent sites.

(3) Alteration of Quality Habitat Areas. *Fish and Wildlife Habitat Conservation Area Performance Standards*, RCDG 20D.140.20-070, shall apply to Quality Habitat Areas unless application of such standards would result in a significant adverse economic impact on the owner or developer.

20D.140.20-060 Riparian Stream Corridor Performance Standards.

(1) Use plants indigenous to the region (not introduced or foreign species);

(2) Use plants adaptable to a broad range of water depths;

(3) Plants should be commercially available or available from local sources;

(4) Plant species high in food and cover value for fish and wildlife must be used;

(5) Plant mostly perennial species;

(6) Avoid committing significant areas of the site to species that have questionable potential for successful establishment;

(7) Plant selection must be approved by a qualified consultant;

(8) Substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals or solid/hazardous wastes) inorganic/organic materials;

(9) Planting densities and placement of plants should be determined by a qualified consultant and shown on the design plans;

(10) The planting plan must be approved by the Department;

(11) Confine stockpiling to upland areas and ensure contract specifications should limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless otherwise approved by the Committee;

(12) Planting instructions shall be submitted which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;

(13) Apply controlled release non-phosphorus fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);

(14) Install an irrigation system, if necessary, for the initial establishment period;

(15) Construction specifications and methods must be approved by a qualified consultant and the Department; and

(16) Construction management should occur by a qualified consultant and be inspected by the City. (Ord. 1693. Formerly 20C.40.120(05)(a))

(17)Limit the use of pesticides near streams.

20D.140.20-070. Fish and Wildlife Habitat Conservation Area Performance Standards.

The following standards shall apply to all sites where a species protected under this Chapter has been identified. These standards shall also apply to sites where Quality Habitat has been identified unless application of any of these standards would result in a significant adverse economic impact on the owner or developer.

(1) Relevant performance standards from RCDG 20D.140.20-060 and 20D.140.30-040, as determined by the Department, shall be incorporated into mitigation plans.

(2) The following additional mitigation measures shall be reflected in mitigation planning:

(a) Consider habitat in site planning and design;

(b) Locate buildings and structures in a manner that preserves and minimizes adverse impacts to important habitat areas;

(c) Integrate retained habitat into open space and landscaping, consistent with the provisions of RCDG 20D.80.10;

(d) Where possible, consolidate habitat and vegetated open space in contiguous blocks;

(e) Locate habitat contiguous to other habitat, open space or landscaped areas to contribute to a continuous system or corridor that provides connections to adjacent habitat areas;

(f) Use native species in any landscaping of disturbed or undeveloped areas and in any enhancement of habitat or buffers;

(g) Emphasize heterogeneity and structural diversity of vegetation in landscaping;

(h) Remove and/or control any noxious weeds or animals as defined by the City; and

(i) Preserve significant trees, preferably in groups, consistent with RCDG 20D.80.10-060 and with achieving the objectives of these standards.

(3) Landscape plan shall be submitted consistent with the requirements of RCDG 20D.80.10-040 and with the goals and standards of this chapter. The plan shall reflect the report prepared pursuant to RCDG 20D.140.10-060. (Ord. 1693. Formerly 20C.40.120(05)(b))

20D.140.30 Wetlands

20D.140.30-010 Classification and Rating of Wetlands.

To promote consistent application of the standards and requirements of this chapter, wetlands within the City of Redmond shall be classified according to their characteristics, function and value, and/or their sensitivity to disturbance. Wetlands shall be rated and regulated according to the categories defined by the Washington State Department of Ecology *Wetland Rating System for Western Washington* (Ecology Publication #04-06-025) as revised. This document contains the methods for determining the wetland category.

(1) Wetland Classification. Wetlands, as defined by this chapter, shall be designated Category I, Category II, Category III, and Category IV.

(a) Category I Wetlands are those wetlands that represent a unique or rare wetland type, 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. All wetlands with one or more of the following criteria shall be considered a Category I wetland:

(i) Wetlands that are identified by scientists of the Washington Natural heritage Program/DNE as high quality, relatively undisturbed wetlands, or wetlands that support State listed threatened or endangered plants.; or

(ii) Bogs; or

(iii)Mature and old-growth forested wetlands over one acre in size; or

(iv) Wetlands that provide a very high level of functions as evidenced by a score of 70 points or more on the Western Washington Rating System form.

(b) Category II Wetlands are those wetlands that provide high levels of some functions which are difficult to replace. Category II wetlands meet the following criteria:

(i) Wetlands scoring between 51-69 points on the Western Washington Rating System form; or

(ii) Wetlands that do not meet the criteria of Category I.

(c) Category III Wetlands are those wetlands that provide a moderate level of functions. They are typically more disturbed and have less diversity or are more isolated from other natural resources in the landscape. Category III Wetlands meet the following criteria:

(i) Wetlands scoring between 30-50 points on the Western Washington Rating System form; or

(ii) Wetlands that do not meet the criteria of Category I.

(d) Category IV Wetlands are those wetlands that provide the lowest level of function. These wetlands score less than 30 points on the Western Washington Rating System form.

(2) Classification of wetlands shall be determined by the Committee based on consideration of the following factors:

(a) Maps adopted pursuant to this chapter, including the Wetland map, which identifies the approximate location and extent of wetlands. This map shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of wetlands shall be determined in the field by a qualified consultant according to the procedures, definition, and criteria established by this Chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;

(b) National Wetlands Inventory Maps prepared by the US Fish and Wildlife Service;

(c) Application of the criteria contained in these regulations; and

(d) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations. (Ord. 2180; Ord. 1693. Formerly 20C.40.080)

20D.140.30-020 Wetland Buffers.

(1) Required buffer widths shall reflect the sensitivity of the particular wetland or the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the critical area.

(2) Wetland buffers shall be measured from the wetland edge as delineated and marked in the field using the DOE Wetland Manual. Wetland buffers shall be established as follows:

Wetland Category and Characteristics	**Buffer Width (feet) by Impact of Land Use* (see below)**	**Other Measures Recommended for Protection**
Category I		
Forested	Buffer size to be based on score for habitat functions or water quality functions	If forested wetland scores high for habitat, need to maintain connectivity to other natural areas. Restore degraded parts of buffer.
High level of function for habitat (score for habitat 29-36 pts.)	Low: 150 Moderate: 225 High: 300	Maintain connectivity to other natural areas. Restore degraded parts of buffer.
Moderate level of function for habitat (score for habitat 20-28 pts.)	Low: 75 Moderate: 110 High: 150	No recommendations at this time.
High level of function for water quality improvement (24-32 pts.) and low for habitat (less than 20 pts.)	Low: 50 Moderate: 75 High: 100	No additional discharges of untreated runoff.
Not meeting any of the above criteria	Low: 50 Moderate: 75 High: 100	No recommendations at this time.
Category II		
High level of function for habitat (score for habitat 29-36 pts.)	Low: 150 Moderate: 225 High: 300	Maintain connectivity to other natural areas.
Moderate level of function for habitat (score for habitat 20-28 pts.)	Low: 75 Moderate: 100 High: 150	No recommendations at this time.

Wetland Category and Characteristics	**Buffer Width (feet) by Impact of Land Use* (see below)**	**Other Measures Recommended for Protection**
High level of function for water quality improvement and low for habitat (score for water quality 24-32 pts.; habitat less than 20 pts.)	Low: 50 Moderate: 75 High: 100	No additional discharges of untreated runoff.
Not meeting above criteria	Low: 50 Moderate: 75 High: 100	No recommendations at this time.
Category III		
Moderate level of function for habitat (score for habitat 20-28 pts.)	Low: 75 Moderate: 110 High: 150	No recommendations at this time.
Not meeting above criteria	Low: 40 Moderate: 60 High: 80	No recommendations at this time.
Category IV		
Score for functions less than 30 pts.	Low: 25 Moderate: 40 High: 50	No recommendations at this time.

* Consistent with the Department of Ecology classification system identified above, high, medium and low impact land uses are defined as follows:

(a) High impact land uses include: commercial, industrial, institutional, retail sales, high-intensity recreation (golf courses, ball fields), and residential uses with a density of more than one dwelling unit per acre.

(b) Medium impact land uses include residential uses with a density of one unit per acre or less, moderate-intensity open space (parks), and paved trails.

(c) Low impact land uses include: low-intensity open space (such as passive recreation and natural resources preservation) and unpaved trails.

(3) The buffer for a wetland created, restored, or enhanced as compensation for approved wetland alterations shall be that required for the category of the wetland.

(4) Increased buffer widths. The Department may extend the width of the buffer in accordance with the recommendations of a qualified wetland professional and the best available science on a case-by-case basis when a larger buffer is necessary to protect wetland functions and values based on site-specific characteristics.

(5) Reduction of buffer widths. The Department may allow the standard wetland buffer width to be reduced in accordance with the best available science on a case-by-case basis when it is determined that a smaller area is adequate to protect the wetland functions and values based on site-specific characteristics.

(a) Reduction in buffer width based on reducing the intensity of impacts from proposed land uses. The buffer widths recommended for land uses with high-intensity impacts to wetlands can be reduced to those widths recommended for moderate-intensity impacts under the following conditions:

(i) For wetlands that score moderate or high for habitat (20 points or more), the width of the buffer around the wetland can be reduced if both the following criteria are met:

(A) A relatively undisturbed vegetated corridor at least 100 feet wide is protected between the wetlands and any other Priority Habitats as defined by the Washington State Department of Fish and Wildlife. The corridor must be protected for the entire distance between the wetland and the Priority Habitat via some type of legal protection such as a conservation easement; and

(B) Measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied.

(ii) For wetlands that score less than 20 points for habitat, the buffer width can be reduced to that required for moderate land use impacts if measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied.

(b) Reductions in buffer widths where existing roads or structures lie within the buffer. Where a legally established, non-conforming use of the buffer exists, proposed actions in the buffer may be permitted as long as they do not increase the degree of non-conformity. In terms of wetlands, this means no increase in the impacts to the wetland from activities in the buffer.

(6) Wetland buffer width averaging. Wetland buffer widths may be modified by averaging buffer widths as set forth herein. The Department may allow modification of the standard wetland buffer width in accordance with the best available science on a case-by-case basis by averaging buffer widths. Averaging buffer widths may only be allowed where a qualified wetland professional demonstrates that:

(a) It will not reduce the functions or values;

(b) The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation, and the wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places.

(c) The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer; and

(d) The buffer width is not reduced more than twenty-five (25) percent of the width or fifty (50) feet, whichever is less, except for buffers between Category IV wetlands and low or moderate intensity land uses.

(7) Buffer widths may be reduced by buffer width reduction or buffer width averaging as stated above. However, the use of either of these mechanisms or a combination of these mechanisms shall not result in a buffer width less than 75% of the standard buffer required as identified in 20D.140.30-020(2) above.

(8) Storm water management facilities, such as biofiltration swales and outfalls, may be located within the outer twenty-five (25) percent of the buffer, provided that no other location is feasible, and the location of such facilities will not degrade the functions or values of the wetland. Stormwater ponds must be located outside of the required buffer.

20D.140.30-030 Alteration of Wetlands.

(1) Wetland alteration shall result in no net loss of wetland area, except where the following criteria are met:

(a) The lost wetland area provides minimal functions and the mitigation action(s) results in a net gain in wetland functions as determined by a site-specific assessment; or

(b) The lost wetland area provided minimal functions as determined by a site-specific functional assessment and other replacement habitats provide greater benefits to the functioning of the watershed, such as riparian habitat restoration and enhancement.

(2) Category I Wetlands: Alterations of Category I wetlands shall be prohibited subject to the reasonable use provisions of this chapter.

(3) Category II, III, and IV Wetlands.

(a) Any proposed alteration and mitigation shall comply with the mitigation performance standards and requirements of these regulations; and

(b) No net loss of wetland function and value may occur.

(c) Where enhancement or replacement is proposed, ratios shall comply with the requirements of RCDG 20D.140.30-030(7). (Ord. 1693. Formerly 20C.40.100(15)(a))

(4) Mitigation for alterations to wetlands shall achieve equivalent or greater biological functions. Mitigation plans shall be consistent with the Department of Ecology *Guidance on Wetland Mitigation In Washington State, Part 2: Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals*, April, 2004, as revised.

(5) Mitigation actions shall address functions affected by the alteration to achieve functional equivalency or improvement, and shall provide similar wetland functions as those lost except when:

(a) The filled/impacted wetland provides minimal functions as determined by a site-specific function assessment and the proposed mitigation action(s) will provide equal or greater functions or will provide functions shown to be limiting within a watershed through a formal watershed assessment plan or protocol, or

(b) Out-of-kind replacement will best meet formerly identified regional goals, such as replacement of historically diminished wetland types.

(6) Mitigation actions that require compensation by replacing, enhancing, or substitution shall occur in the following order of preference:

(a) Preserving high-quality wetlands that are under imminent threat.

(b) Restoring wetlands on upland sites that were formerly wetlands.

(d) Creating wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of exotic introduced species.

(c) Enhancing significantly degraded wetlands.

(7) Wetland Replacement Ratios.

(a) Where wetland alterations are permitted by the City, the applicant shall restore or create areas of wetlands in order to compensate for wetland losses. Equivalent areas shall be determined according to acreage, function, type, location, timing factors, and projected success of restoration or creation.

(b) When creating or enhancing wetlands, the following acreage replacement ratios shall be used:

Category and Type of Wetland	Creation or Re-Establishment	Rehabilitation (Restoration)	Re-Establishment or Creation (R/C) and Enhancement	Enhancement Only
Category I Forested	6:1	12:1	1:1 R/C and 10:1 E	24:1
Category I based on score	4:1	8:1	1:1 R/C and 6:1 E	16:1
Category II	3:1	8:1	1:1 R/C and 4:1 E	12:1
Category III	2:1	4:1	1:1 R/C and 2:1 E	8:1
Category IV	1.5:1	3:1	1:1 R/C and 2:1 E	6:1

(c) Increased replacement ratio. The Department may increase the ratios under the following circumstances:

(i) Uncertainty exists as to the probable success of the proposed restoration or creation; or

(ii) A significant period of time will elapse between impact and replication of wetland functions; or

(iii) Proposed mitigation will result in a lower category wetland or reduced functions relative to the wetland being impacted; or

(iv) The impact was an unauthorized impact.

(d) Decreased replacement ratio. The Department may decrease these ratios under the following circumstances:

(i) Documentation by a qualified wetland specialist demonstrates that the proposed mitigation actions have a very high likelihood of success.

(ii) Documentation by a qualified wetland specialist demonstrates that the proposed mitigation actions will provide functions and values that are significantly greater than the wetland being impacted; or

(iii) The proposed mitigation actions are conducted in advance of the impact and have been shown to be successful.

(e) Enhanced and created wetlands shall be appropriately classified and buffered. (Ord. 1693. Formerly 20C.40.110)

20D.140.30-040 Wetlands Performance/Design Standards.

(1) Use plants indigenous to the Pacific Northwest region (not introduced or foreign species);

(2) Use plants adaptable to a broad range of water depths;

(3) Plants should be commercially available or available from local sources;

(4) Plant species high in food and cover value for fish and wildlife must be used;

(5) Avoid committing significant areas of the site to species that have questionable potential for successful establishment;

(6) Plant selection must be approved by a qualified wetland specialist;

(7) Water depth is not to exceed six and one-half feet (two meters);

(8) The grade or slope that water flows through the wetland is not to exceed six percent for wetland creation sites;

(9) Slopes within the wetland basin and the buffer zone may not be steeper than 3:1 (horizontal to vertical) for wetland creation sites;

(10) Substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals or solid/hazardous wastes) inorganic/organic materials for wetland creation sites;

(11) Planting densities and placement of plants should be determined by a qualified wetland professional and shown on the design plans;

(12) The planting plan must be approved by the Department;

(13) Confine stockpiling to upland areas and ensure contract specifications limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless otherwise approved by the Committee;

(14) Planting instructions shall be submitted which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;

(15) Apply controlled release non-phosphorus fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);

(16) Install an irrigation system, if necessary, for the initial establishment period;

(17) Construction specifications and methods must be approved by a qualified consultant and the Department; and

(18)Construction management should occur by a qualified consultant and be inspected by the City. (Ord. 1693. Formerly 20C.40.120(05)(a))

20D.140.40 Frequently Flooded Areas

20D.140.40-010 Classification and Rating of Frequently Flooded Areas.

To promote consistent application of the standards and requirements of this chapter, Frequently Flooded Areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

(1) Frequently Flooded Areas Classifications. Frequently Flooded Areas shall be classified according to the criteria in this section.

(a) Floodplain. The total area subject to inundation by the base flood (the flood that has a one percent chance of occurring in any given year).

(b) Flood Fringe. The portion of the floodplain outside of the floodway which is generally covered by flood waters during the base flood; it is generally associated with standing water rather than rapidly flowing water.

(c) FEMA Floodway. The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the FEMA base flood flow without increasing the FEMA base flood elevation more than one foot.

(d) Zero-Rise Floodway. The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation. The zero-rise floodway will always include the FEMA floodway.

(2) Classification of Frequently Flooded Areas shall be determined by the Committee based on consideration of the following factors:

(a) Maps adopted pursuant to this chapter including the Frequently Flooded Areas map, which identified the approximate location and extent of the 100 year floodplain. This map shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of Frequently Flooded Areas shall be determined in the field by a qualified consultant according to the procedures, definition, and criteria established by this Chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail.

The City will employ hydrologic models to define the extent of the zero-rise floodway. If the zero-rise floodway has not yet been defined for the property in question, the applicant will be responsible for modeling the base flood elevation and delineating the extent of the zero-rise floodway, consistent with the assumptions in the Bear Creek Basin Plan as adopted by the City. In the absence of a City hydrologic model, FEMA data will be acceptable. (Ord. 2180; Ord. 1693. Formerly 20C.40.050);

(b) Flood Insurance Rate Maps published by the Federal Emergency Management Agency;

(c) Application of the criteria contained in these regulations; and

(d) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations. (Ord. 2180; Ord. 1693. Formerly 20C.40.080)

20D.140.40-020 Alteration of Frequently Flooded Areas.

Alteration of Frequently Flooded Areas may only be permitted subject to the criteria in RCDG 20D.140.20-040 through 050, 20D.140.30-030, 20D.140.40-030, 20D.140.50-030, and 20D.140.60-040. (Ord. 1693. Formerly 20C.40.100(15))

20D.140.40-030 Flood Hazard Areas – Development Standards.

(1) Flood Hazard Areas Generally. For all new structures or substantial improvements, the applicant must provide certification by a qualified consultant of the actual as-built elevation of the lowest floor, including basement, and, if applicable, the actual as-built elevation to which the structure is flood-proofed. If the structure has a basement, this must be indicated.

(2) The Flood Fringe Outside the Zero-Rise Floodway.

(a) Except for downtown development along the Sammamish River in the 100 year floodplain from the Puget Sound Energy transmission line crossing to SR 520, development shall not reduce the effective base flood storage volume of the floodplain. Grading or other activity which would reduce the effective storage volume must be mitigated by creating compensatory storage on the site. Off-site compensatory storage may be permitted if binding legal arrangements assure that the effective compensatory storage volume will be preserved over time.

(b) No structure shall be allowed which would be at risk due to stream bank destabilization including that associated with channel relocation or meandering.

(c) All elevated construction must be designed and certified by a professional structural engineer registered in the State of Washington and must be approved by the City prior to construction.

(d) Subdivisions, short subdivisions, binding site plans, site plan review, special development permits, and general development permits shall follow the following requirements:

(i) New building lots shall contain 3,600 square feet or more of buildable land outside the zero rise floodway and building setback lines shall be shown on the face of the plat to restrict permanent structures to the area so defined;

(ii) All utilities and facilities such as a sewer, gas, electrical, telephone, cable communications and water systems shall be located and constructed consistent with paragraph (2)(i) below;

(iii) Base flood data and flood hazard notes shall be shown on the face of the recorded plat, including, but not limited to, the base flood elevation, required flood protection elevations, and the boundaries of the floodplain and the floodway, if determined; and

(iv) The following note shall be recorded with the King County Department of Records and Elections for all affected lots:

NOTICE

Lots and structures located within flood hazard areas may be inaccessible by emergency vehicles during flood events. Residents and property owners should take appropriate advance precautions.

(e) New residential construction and substantial improvement shall meet the following criteria:

(i) The lowest floor shall be elevated to the flood protection elevation.

(ii) Portions of the building that are below the flood protection elevation shall not be fully enclosed. The areas below the lowest floor shall be designed to automatically equalize hydrodynamic flood forces on exterior walls by allowing the entry and exit of floodwaters. Designs for meeting this requirement must meet or exceed the following minimum criteria:

(A) Minimum of two openings on opposite walls having a total open area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;

(B) The bottom of all openings shall be no higher than one foot above grade.

(iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the unrestricted entry and exit of floodwaters.

(f) New nonresidential construction and substantial improvement of any existing commercial, industrial, or other nonresidential structure shall meet the elevation requirements of residential construction.

(g) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

(h) For all mobile and manufactured homes, all standards for flood hazard protection for conventional residential construction shall apply. All manufactured and mobile homes must be anchored and shall be installed using methods and practices that minimize flood damage. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

(i) Utilities shall meet the following criteria:

(i) All new and replacement utilities, including sewage treatment facilities, shall be flood-proofed to, or elevated above, the flood protection elevation.

(ii) New on-site sewage disposal systems shall be located outside the limits of the 100-year floodplain. The installation of new on-site sewage disposal systems in the floodplain is prohibited.

(iii) Sewage and agricultural waste storage facilities shall be flood-proofed to the base flood elevation plus three feet.

(iv) Above-ground utility transmission lines, other than electrical transmission lines, shall only be allowed for the transport of nonhazardous substances.

(v) Buried utility transmission lines transporting hazardous substances (as defined by the Washington State Hazardous Waste Management Act in RCW 70.105.005) shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood predicted by a professional civil engineer licensed by the State of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.

(j) Critical facilities may be allowed within the flood fringe of the floodplain. All such proposed uses shall be evaluated through a special development permit. Critical facilities constructed within the flood fringe shall have the lowest floor elevated to three or more feet above the base flood elevation. Flood-proofing and sealing measures must be taken to ensure that hazardous or toxic substances will not be displaced by or released into floodwaters. Access routes elevated to the flood protection elevation shall be provided to all critical facilities to the nearest maintained public street or roadway located outside of the floodplain.

(k) The Committee shall review all development permits to determine that all necessary permits have been obtained as required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, as required by Section 60.3(a)(2) of 44 CFR.

(l) Storage and containment of hazardous or dangerous chemicals, substances or materials, as those terms are determined by applicable State and Federal regulations, shall be prohibited provided that existing uses involving storage, etc., shall conform to the flood protection elevation when applying for any permit.

(3) Development in the Zero-Rise Floodway.

(a) Activities allowed within the zero-rise floodway must conform to the requirements of this section, as well as the requirements that apply to the flood fringe outside the zero-rise floodway as identified in subsection (2).

(b) No development activity shall reduce the effective storage volume of the floodplain.

(c) No development, including permitted new construction or reconstruction, shall cause any increase in the zero rise base flood elevation.

(d) No temporary structures or storage of materials hazardous to public health, safety and welfare shall be permitted in the zero-rise floodway.

(e) Construction of new residential or nonresidential structures is permitted in the zero-rise floodway only in the following circumstances:

(i) The structure must be on a lot legally in existence at the time the ordinance codified in this chapter becomes effective;

(ii) The structure must be on a lot that contains less than 3,600 square feet of buildable land outside the zero-rise floodway; and

(iii) The structure must meet the construction standards set forth in subsections (2) and (3)(b), (3)(c), and (3)(d).

(f) New lots that include part of the zero-rise floodway may be created only if the lots meet the requirements of subsection (2)(d) and administrative rules, or are declared as nonbuilding lots on the face of the plat.

(g) The following circumstances are presumed to produce no increase in base flood elevation and shall not require special studies to establish this fact:

(i) Substantial improvement on existing residential structures outside the zero-rise floodway where the building footprint is not increased.

(ii) Substantial improvement of an existing residential structure shall meet the requirements for new residential construction set forth in subsection (2)(e).

(h) Reconstruction of an existing residential structure shall meet the requirements for new residential construction set forth in subsection (2)(e).

(i) Utilities and roads are permitted in the zero-rise floodway only when no other location is practicable, or when mitigating measures achieve zero-rise floodway elevations, and shall meet the minimum criteria set forth in subsection (2)(i) and the following requirements:

(i) Construction of sewage treatment facilities shall be prohibited.

(ii) Utility transmission lines transporting hazardous substances shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood as predicted by a professional civil engineer licensed by the State of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.

(j) Critical facilities shall not be constructed in the zero-rise floodway.

(k) Floodway Dependent Structures: Installations or structures that are floodway dependent may be located in the floodway provided that the development proposal receives approval from all other agencies with jurisdiction and meets all standards in RCDG 20D.140.20-040 and 20D.140.30-030. Such installations include but are not limited to:

(i) Dams or diversions for water supply, flood control, hydroelectric production, irrigation or fisheries enhancement;

(ii) Flood damage reduction facilities such as levees and pumping stations;

(iii) Stream bank stabilization structures where no feasible alternative exists to protecting public or private property;

(iv) Stormwater conveyance facilities subject to the requirements of the development standards for streams and wetlands, and other relevant City of Redmond development standards;

(v) Boat launches, docks and related recreation structures;

(vi) Bridge piers and abutments; and

(vii) Fisheries enhancement or stream restoration projects.

(l) Development of the area located downstream of Redmond Way on Bear Creek may be allowed when (a) mitigating measures achieve zero-rise floodway elevations, or (b) when surface water elevations are not increased over one foot provided no significant unmitigated upstream, downstream, or on-site environmental impacts are created.

(4) Development in the FEMA Floodway.

(a) Construction or placement of new residential or nonresidential structures is prohibited within the FEMA floodway. Shoreline protective structures, bridges, roads, trails and railroads are permitted within the FEMA floodway.

(b) No development subject to these regulations, including permitted new construction or reconstruction, shall cause any increase in the FEMA base flood elevation.

(c) Substantial improvement of an existing residential structure located in the floodway must meet the requirements set out in WAC 173-158-070 as amended. Such substantial improvement is presumed to produce no increase in base flood elevation and shall not require special studies to establish this fact. (Ord. 1955; Ord. 1693. Formerly 20C.40.100(15)(f))

20D.140.50 Critical Aquifer Recharge Areas

20D.140.50-010 Classification and Rating of Critical Aquifer Recharge Areas.

To promote consistent application of the standards and requirements of this chapter, Critical Aquifer Recharge Areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

(1) Critical Aquifer Recharge Areas Classification. Critical Aquifer Recharge Areas are those areas with a critical recharging effect on aquifers used for potable water. Wellhead protection involves the management of activities that have a potential to degrade the quality of groundwater produced by a supply well. The City of Redmond is classified into four wellhead protection zones based on proximity to and travel time of groundwater to the City's public water source wells, and are designated using guidance from the Washington Department of Health Wellhead Protection Program pursuant to Chapter 256-290 WAC.

(a) Wellhead Protection Zone 1 represents the land area overlying the six-month time-of-travel zone of any public water source well owned by the City.

(b) Wellhead Protection Zone 2 represents the land area that overlies the one-year time-of-travel zone of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zone 1.

(c) Wellhead Protection Zone 3 represents the land area that overlies the five-year and 10-year time-of-travel zones of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zones 1 or 2.

(d) Wellhead Protection Zone 4 represents all the remaining land area in the City, not included in Wellhead Protection Zones 1, 2, or 3.

(2) Classification of wellhead protection zones shall be determined in accordance with the City's adopted Wellhead Protection Zone Map, which serves to designate Zones 1 through 4. The Committee, at its discretion, may consider the following factors:

(a) Maps adopted pursuant to this chapter;

(b) Application of the criteria contained in these regulations; and

(c) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations. (Ord. 2180; Ord. 1693. Formerly 20C.40.080)

20D.140.50-020 Alteration of Critical Aquifer Recharge Areas.

Alteration of Critical Aquifer Recharge Areas may only be permitted subject to the criteria in RCDG 20D.140.20-040 through 050, 20D.140.30-030, 20D.140.40-030, 20D.140.50-030, and 20D.140.60-040. (Ord. 1693. Formerly 20C.40.100(15))

20D.140.50-030 Prohibited Activities in Wellhead Protection Zones.

(1) Land uses or activities for new development or redevelopment that pose a significant hazard to the City's groundwater resources resulting from storing, handling, treating,

using, producing, recycling, or disposing of hazardous materials or other deleterious substances shall be prohibited in Wellhead Protection Zones 1 and 2. These land uses and activities include, but are not limited to:

(a) On-site community sewage disposal systems, as defined in Chapter 248-272 WAC;

(b) Hazardous liquid pipelines as defined in Chapter 81.88 RCW and Chapter 20A.20 RCDG;

(c) Solid waste landfills;

(d) Solid waste transfer stations;

(e) Liquid petroleum refining, reprocessing, and storage;

(f) Bulk storage facilities as defined in Chapter 20A.20 RCDG;

(g) The storage or distribution of gasoline treated with the additive MTBE;

(h) Hazardous waste treatment, storage, and disposal facilities except those defined under permit by rule for industrial wastewater treatment processes per WAC 173-303-802(5)(c);

(i) Chemical manufacturing, including but not limited to organic and inorganic chemicals, plastics and resins, pharmaceuticals, cleaning compounds, paints and lacquers, and agricultural chemicals;

(j) Dry cleaning establishments using the solvent perchloroethylene;

(k) Primary and secondary metal industries that manufacture, produce, smelt, or refine ferrous and non-ferrous metals from molten materials;

(l) Wood preserving and wood products preserving;

(m) Mobile fleet fueling operations;

(n) Class I, Class III, Class IV and the following types of Class V wells: 5F1, 5D3, 5D4, 5W9, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 as regulated under Chapter 90.48 RCW, and Chapters 173-200 and 173-218 WAC as amended; and

(2) Other land uses and activities that the City determines would pose a significant groundwater hazard to the City's groundwater supply.

(3) Wellhead Protection Zones. Development within the City of Redmond shall implement the performance standards contained in RCDG 20D.140.50.050 that apply to the zone in which it is located. (Ord. 2180; Ord. 1693. Formerly 20C.40.100(15)(e))

20D.140.50-040 Wellhead Protection Zone Performance Standards.

Any uses or activities locating in the City of Redmond which involve storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances shall comply with the following standards that apply to the zone in which they are located. Residential uses of hazardous materials or deleterious substances are exempt from the following standards.

If a property is located in more than one Wellhead Protection Zone, the Director of Public Works shall determine which standards shall apply based on an assessment evaluation of the risk posed by the facility or activity. The assessment evaluation shall include, but not be limited to: (a) the location, type, and quantity of the hazardous materials or deleterious substances on the property; (b) the geographic and geologic characteristics of the site; and (c) the type and location of infiltration on the site.

(1) Development within Wellhead Protection Zones 1 or 2 shall implement the following performance standards:

(a) Secondary Containment.

(i) The owner or operator of any facility or activity shall provide secondary containment for hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid or in quantities specified in the Redmond Fire Code (Chapter 20E.100 RCDG), whichever is smaller.

(ii) Hazardous materials stored in tanks that are subject to regulation by the Washington State Department of Ecology under Chapter 173-360 WAC (Underground Storage Tank Regulations) are exempt from the secondary containment requirements of this section; provided, that documentation is provided to demonstrate compliance with those regulations.

(b) Vehicle Fueling, Maintenance, and Storage Areas. Fleet and automotive service station fueling, equipment maintenance, and vehicle washing areas shall have a containment system for collecting and treating all runoff from such areas and preventing release of fuels, oils, lubricants, and other automotive fluids into soil, surface water, or groundwater. Appropriate emergency response equipment shall be kept on-site during transfer, handling, treatment, use, production, recycling or disposal of hazardous materials or other deleterious substances.

(c) Loading and Unloading Areas. Secondary containment or equivalent best management practices, as approved by the Director of Public Works, shall be required at loading and unloading areas that store, handle, treat, use, produce, recycle, or dispose of hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid.

(d) Storm Water Infiltration Systems. Design and construction of new storm water infiltration systems must address site-specific risks of releases posed by all hazardous materials on-site. These risks may be mitigated by physical design means or equivalent best management practices in accordance with an approved Hazardous Materials Management Plan. Design and construction of said storm water infiltration systems shall also be in accordance with RCDG 20E.90.10-020 and the City of Redmond Technical Notebook and shall be certified for compliance with the requirements of this section by a professional engineer or engineering geologist registered in the State of Washington.

(e) Well construction and operation shall comply with the standards in RCDG 20E.90.10-095.

(f) Protection Standards During Construction. The following standards shall apply to construction activities occurring where construction vehicles will be refueled on-site and/or the quantity of hazardous materials that will be stored, dispensed, used, or handled on the construction site is in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid, exclusive of the quantity of hazardous materials contained in fuel or fluid reservoirs of construction vehicles. As part of the City's project permitting process, the City may require any or all of the following items:

(i) A development agreement;

(ii) Detailed monitoring and construction standards;

(iii) Designation of a person on-site during operating hours who is responsible for supervising the use, storage, and handling of hazardous materials and who has appropriate knowledge and training to take mitigating actions necessary in the event of fire or spill;

(iv) Hazardous material storage, dispensing, refueling areas, and use and handling areas shall be provided with secondary containment adequate to contain the maximum release from the largest volume container of hazardous substances stored at the construction site;

(v) Practices and procedures to ensure that hazardous materials left on-site when the site is unsupervised are inaccessible to the public. Locked storage sheds, locked fencing, locked fuel tanks on construction vehicles, or other techniques may be used if they will preclude access;

(vi) Practices and procedures to ensure that construction vehicles and stationary equipment that are found to be leaking fuel, hydraulic fluid, and/or other hazardous materials will be removed immediately or repaired on-site immediately. The vehicle or equipment may be repaired in place, provided the leakage is completely contained;

(vii) Practices and procedures to ensure that storage and dispensing of flammable and combustible liquids from tanks, containers, and tank trucks into the fuel and fluid reservoirs of construction vehicles or stationary equipment on the construction site are in accordance with the Redmond Fire Code (Chapter 20E.100 RCDG); and

(viii) Practices and procedures, and/or on-site materials adequate to ensure the immediate containment and cleanup of any release of hazardous substances stored at the construction site. On-site cleanup materials may suffice for smaller spills whereas cleanup of larger spills may require a subcontract with a qualified cleanup contractor. Releases shall immediately be contained, cleaned up, and reported if required under Section 13.07.120 of the Redmond Municipal Code. Contaminated soil, water, and other materials shall be disposed of according to state and local requirements.

(g) Fill Materials. Fill material shall comply with the standards in RCDG 20E.90.10-095.

(h) Cathodic Protection Wells. Cathodic protection wells shall be constructed following the standards in RCDG 20E.90.10-095.

(i) Underground Hydraulic Elevator Cylinders. All underground hydraulic elevator pressure cylinders shall be constructed following the standards in RCDG 20E.90.10-095.

(j) Best Management Practices. All development or redevelopment shall implement best management practices (BMPs) for water quality and quantity, as approved by the Technical Committee, such as biofiltration swales and use of oil-water separators, BMPs appropriate to the particular use proposed, clustered development, and limited impervious surfaces.

(2) Development within Wellhead Protection Zone 3 shall implement the following performance measures:

(a) Compliance with the performance standards for vehicle fueling, maintenance and storage areas; loading and unloading areas; well construction and operation; cathodic protection wells; underground hydraulic elevator cylinders, and best management practices in subsections (1)(b), (c), (e), (h), (i), and (j) of this section; and

(b) Fill materials shall not contain concentrations of contaminants that exceed cleanup standards for soil specified in WAC 173-340-740, Model Toxics Control Act, regardless of whether all or part of the contamination is due to natural background levels at the fill source site.

(3) Development within Wellhead Protection Zone 4 shall implement best management practices (BMPs) for water quality and quantity as approved by the Technical Committee.

(4) An incremental environmental improvement to a system protective of groundwater shall not alter, expand, or intensify an existing nonconformance but may proceed without having to meet the following City codes, with prior approval from the Director of Public Works or his/her designee:

(a) Restrictions associated with critical areas and critical area buffers, if the footprint of the original system protective of groundwater is located within the same critical area buffer and it can be demonstrated through best available science that there will be no significant adverse impacts to the critical area and its buffer;

(b) Any requirement to bring a portion of the facility up to current building, fire, or land use codes that is triggered by the value or design of the incremental environmental improvement to a system protective of groundwater;

(c) The incremental improvement shall not qualify as a redevelopment that would otherwise be prohibited by RCDG 20D.140.50-030(1). (Ord. 2180; Ord. 1693. Formerly 20C.40.120(05)(d))

20D.140.60 Geologically Hazardous Areas

20D.140.60-010 Classification and Rating of Geologically Hazardous Areas.

To promote consistent application of the standards and requirements of this chapter, Geologically Hazardous Areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

(1) Geologically Hazardous Area Classifications. Geologically Hazardous Areas shall be classified according to the criteria in this section.

(a) Erosion Hazard Areas. Erosion Hazard Areas are lands or areas underlain by soils identified by the U.S. Department of Agriculture Soil Conservation Service (SCS) as having "severe" or "very severe" rill and inter-rill erosion hazards. This includes, but is not limited to, the following group of soils when they occur on slopes of 15 percent or greater: Alderwood-Kitsap (AkF), Alderwood gravely sandy loam (AgD), Kitsap silt loam (KpD), Everett (EvD) and Indianola (InD).

(b) Landslide Hazard Areas. Landslide Hazard Areas are areas potentially subject to significant or severe risk of landslides based on a combination of geologic, topographic, and hydrogeologic factors. They include areas susceptible because of any combination of bedrock, soil, slope, slope aspect, structure, hydrology, or other factors. They are areas of the landscape that are at a high risk of failure or that presently exhibit downslope movement of soil and/or rocks and that are separated from the underlying stationary part of the slope by a definite plane of separation. The plane of separation may be thick or thin and may be composed of multiple failure zones depending on local conditions including soil type, slope gradient, and groundwater regime.

Landslide Hazard Areas include:

(i) Areas of historic failures, such as

(A) areas designated as quaternary slumps or landslides on maps published by the United States Geologic Survey (USGS); or

(B) Those areas designated by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) as having a "severe" limitation for building site development.

(ii) Areas containing a combination of slopes steeper than fifteen percent (15%), springs or groundwater seepage, and hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock;

(iii) Areas that have shown movement during the Holocene epoch (from 10,00 years ago to the present) or which are underlain or covered by mass wastage debris of that epoch;

(iv) Slopes that are parallel or subparallel to planes of weakness in subsurface materials;

(v) Slopes having gradients steeper than eighty percent (80%) subject to rockfall during seismic shaking;

(vi) Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action; or

(vii) Any area with a slope forty percent (40%) or steeper with a vertical relief of ten (10) feet or more.

(c) Seismic Hazard Areas. Seismic Hazard Areas are lands subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting.

(2) Classification of Geologically Hazardous Areas shall be determined by the Committee based on consideration of the following factors:

(a) Maps adopted pursuant to this chapter; including the Landslide Hazard Area, Erosion Hazard Area, and Seismic Hazard Areas maps, which identified the approximate location and extent of these hazard areas. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of Geologically Hazardous Areas shall be determined in the field by a qualified consultant according to the procedures, definition, and criteria established by this Chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;

(b) Maps published by other governmental agencies; such as

(i) USGS landslide hazard and seismic hazard maps;

(ii) Department of Natural Resources (DNR) seismic hazard maps for western Washington and slope stability maps.

(c) Application of the criteria contained in these regulations; and

(d) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations. (Ord. 2180; Ord. 1693. Formerly 20C.40.080)

20D.140.60-020 Landslide Hazard Area Buffers.

(1) Landslide Hazard Area buffers shall be measured from the top and toe and along sides of the slope (Ord. 1955; Ord. 1693. Formerly 20C.40.090(05), (10))

(2) Minimum Landslide Hazard Area Buffer. Required buffers shall be 50 feet. The width of the buffer shall reflect the sensitivity of the Landslide Hazard Area in question and the types and density of uses proposed on or adjacent to the geologic hazard. In determining the appropriate buffer width, the Committee shall consider the

recommendations contained in any technical report required by these regulations and prepared by an applicant's qualified consultant.

(3) Buffer Reduction. Buffers may be reduced to a minimum of 15 feet when a qualified professional demonstrates through technical studies that the reduction will adequately protect the proposed and surrounding development from the critical landslide hazard. (Ord. 1693. Formerly 20C.40.090(15)(d))

(4) Increased Buffer. The buffer may be increased where the Technical Committee determines a larger buffer is necessary to prevent risk of damage to proposed and existing development.

20D.140.60-030 Alteration of Geologically Hazardous Areas.

Alteration of Geologically Hazardous Areas or their established buffers may only be permitted subject to the criteria in RCDG 20D.140.20-040 through 050, 20D.140.30-030, 20D.140.40-030, 20D.140.50-030, and 20D.140.60-040. (Ord. 1693. Formerly 20C.40.100(15))

20D.140.60-040 Alteration of Geologically Hazardous Areas.

(1) The City shall approve, condition or deny proposals in a Geologically Hazardous Area as appropriate based upon the effective mitigation of risks posed to property, health and safety. The objective of mitigation measures shall be to render a site containing a Geologically Hazardous site as safe as one not containing such hazard. Conditions may include limitations of proposed uses, modification of density, alteration of site layout and other appropriate changes to the proposal. Where potential impacts cannot be effectively mitigated, or where the risk to public health, safety and welfare, public or private property, or important natural resources is significant notwithstanding mitigation, the proposal shall be denied.

(2) Landslide Hazard Areas. Development shall be prohibited in Landslide Hazards Areas except for the installation and construction of streets and/or utilities, subject to the criteria below. The Technical Committee shall refer the proposed project to the Hearing Examiner for review and approval.

    (a) The proposed street and/or utility is identified in an adopted plan as of October 1, 1997, such as the Comprehensive Plan, Capital Facility Plan, Transportation Improvement Plan or other Utility Facility Plan. As new or amended plans are prepared and adopted, streets and utilities shall be located to avoid impact to Landslide Hazard Areas. Where no reasonable alternative to locating in Landslide Hazard Areas exists, review and approval of the plan shall include a discussion of alternatives and rationale for planning streets and utilities in Landslide Hazard Areas.

(b) Alternative locations, which avoid impact to landslide hazard areas are evaluated and are determined to be economically or functionally infeasible.

(c) There is a geotechnical evaluation to identify the risks of damage from the proposal, both on-site and off-site, to ascertain that the proposal will not increase the risk of occurrence of the potential geologic hazard; and to identify measures to eliminate or reduce risks.

When no alternative exists, the impact shall be minimized by limiting the magnitude of the proposed construction to the extent possible. Any impacts shall be rectified by repairing, rehabilitating, restoring, replacing or providing substitute resources consistent with the mitigation and performance standards contained in RCDG 20D.140.10-110 and 20D.140.10-120.

(3) Erosion Hazard Areas. Alteration of an Erosion Hazard Area may only occur for activities for which a geotechnical analysis is submitted and certified that:

(a) The development will not increase surface water discharge or sedimentation to adjacent properties beyond pre-development conditions;

(b) The development will not decrease slope stability on the subject and adjacent properties; and

(c) Such alterations will not adversely impact other critical areas.

(4) Seismic Hazard Areas.

(a) For one-story and two-story residential structures, the applicant shall conduct an evaluation of site response and liquefaction potential based on the performance of similar structures under similar foundation conditions; and

(b) For all other proposals, the applicant shall conduct an evaluation of site response and liquefaction potential including sufficient subsurface exploration to provide a site coefficient (S) for use in the static lateral force procedure described in the International Building Code.

(5) When development is permitted in Geologically Hazardous Area by these regulations, an applicant and/or its qualified consultant shall provide assurances which include the following:

(a) A letter from the geotechnical engineer and/or geologist who prepared the studies required by these regulations that risks of damage from the proposal, both on-site and off-site, are minimal subject to the conditions set forth in the report, that the proposal will not increase the risk of occurrence of the potential geologic hazard, and that measures to eliminate or reduce risks have been incorporated into its recommendations; and

(b) A legal statement which shall be recorded and noted on the face of the deed or plat, and executed in a form satisfactory to the City, characterizing the site as being located in a Geologically Hazardous Area and that there may or may not be risks associated with development of such site.

20D.140.60-050 Geologically Hazardous Area Performance Standards.

(1) Relevant performance standards from RCDG 20D.140.20-060 through 070 and 20D.140.30-040, as determined by the Committee, shall be incorporated into mitigation plans.

(2) Development within a Geologically Hazardous Area 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 equivalent or greater long-term slope stability. The following performance standards shall be reflected in proposals within Landslide and Erosion Hazard Areas:

(a) Geotechnical studies shall be prepared by a qualified consultant to identify and evaluate potential hazards and to formulate mitigation measures;

(b) Construction methods will reduce or not adversely affect geologic hazards;

(c) Structures and improvements shall minimize alterations to the natural contour of the slope and foundations shall be tiered where possible to conform to existing topography;

(d) Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

(e) Structures and improvements shall be clustered to avoid Geologically Hazardous Areas;

(f) Unless otherwise provided or as part of an approved alteration, removal of vegetation from an Erosion or Landslide Hazard Area or related buffer shall be prohibited;

(g) Development shall be designed to minimize impervious surface coverage;

(h) Disturbed areas should be replanted as soon as feasible pursuant to an approved landscape plan;

(i) Clearing and grading regulations as set forth by the City shall be followed;

(j) Use of retaining walls that allow maintenance of existing natural slope areas are preferred over graded artificial slopes;

(k) Temporary erosion and sedimentation controls, pursuant to an approved plan, shall be implemented during construction;

(l) A master drainage plan shall be prepared for large projects as required by the City Engineer;

(m) A monitoring program shall be prepared for construction activities permitted in Geologically Hazardous Areas;

(n) Development shall not increase instability or create a hazard to the site or adjacent properties, or result in a significant increase in sedimentation or erosion; and (Ord. 1693. Formerly 20C.40.120(05)(c))

(o) Point discharges from surface water facilities and roof drains onto or upstream from an Erosion or Landslide Hazard Area shall be prohibited except as follows:

(i) Conveyed via continuous storm pipe downslope to a point where there are no Erosion Hazard Areas downstream from the discharge;

(ii) Discharged at flow durations matching predeveloped conditions, with adequate energy dissipation, into existing channels that previously conveyed stormwater runoff in the predevelopment state; or

(iii) Dispersed discharge upslope of the steep slope onto a low-gradient undisturbed buffer demonstrated to be adequate to infiltrate all surface and stormwater runoff, and where it can be demonstrated that such discharge will not increase the saturation of the slope.

20D.140.70-010 Procedural Provisions.

(1) Interpretation and Conflicts. Any question regarding interpretation of these regulations shall be resolved pursuant to the procedures set forth in RCDG Title 20F.

(2) Penalties and Enforcement. Compliance with these regulations and penalties for their violation shall be enforced pursuant to the procedures set forth in RCDG Title 20F.

(3) Appeals from Permit Decisions. Appeals from permit decisions shall be governed by the procedures set forth in RCDG 20F. (Ord. 1693. Formerly 20C.40.140)

20D.140.70-020 Severability.

If any provision of these regulations or its application to any person or circumstance is held invalid by a court of competent jurisdiction, the remainder of these regulations or the

application to other persons or circumstances shall not be affected. (Ord. 1693. Formerly 20C.40.160).