

Natural Environment

The Natural Environment Element reflects the following framework goals that are highlighted in black.

FRAMEWORK GOALS

- FG1: Promote a sense of place by requiring quality building and development that is not just compatible with the surrounding environment, but enhances the Community spirit.
- FG2: Promote quality building and development that is compatible with the surrounding environment.**
- FG3: Support a variety of housing opportunities for Edgewood's diversifying population that are affordable, enhance a safe and livable community, and prepare and protect our families for life in the 21st Century.
- FG4: Pursue a strong and diverse economy and assure economic development that creates a "Heart" for Edgewood and balances regional objectives, while complementing the unique neighborhood character.
- FG5: Protect the natural environment and preserve environmentally sensitive areas.**
- FG6: Promote improvements to human services as the Community changes and diversifies.
- FG7: Assure effective and efficient public investment for quality public services, facilities, and utilities.
- FG8: Balance the transportation needs of the Community with regional objectives through improvement of both street and multimodal transportation systems for Edgewood's present and future population.
- FG9: Provide for inclusive and meaningful citizen involvement in community planning decisions.

Intent

The Natural Environment Element is intended to guide the formation of regulations to protect and enhance the natural environment for present and future residents. This will be accomplished by identifying critical areas, preserving significant natural areas, regulating development to better integrate the built environment with natural features and conditions, and educating the public about the potential impacts of development on natural systems. This Element provides a framework to achieve land use and development practices that are compatible with the natural environment.

The Natural Environment Element is intended to meet the objectives of the State Growth Management Act (GMA), Endangered Species Act (ESA), State Environmental Policy Act (SEPA), County-Wide Planning Policies for Pierce County, and other federal, state, and county policies. It also affirms the City's role to regulate land use, implement federal and state statutes, obtain funding from state and local jurisdictions, and consistently manage impacts to the natural environment.

The following goals in the State Growth Management Act relate to the natural environment:

“Encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks.”

“Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.”

In addition, the Growth Management Act requires the adoption of development regulations that protect critical areas (RCW 36.70A.060) and the inclusion of the best available science in developing policies and development regulations to protect the functions and values of critical areas (RCW 36.70A.172).

Background and Context

Environmental goals, objectives, and policies contained in this element address substantive issues, such as potential development on steep slopes and within wetlands. They also address procedural issues by outlining the steps the City should take towards establishing policy direction and regulatory authority on environmental issues. One example of this is to encourage the retention of large, mature trees. These goals and policies will be implemented through such measures as: sensitive area regulations, development review guidelines, storm water ordinances and programs, economic incentives for environmental protection, and economic development decisions.

Edgewood's environment is comprised of both natural and built features. Scenic views, mature trees, rugged slopes, plentiful groundwater reserves, natural vegetation, streams, wetlands, and depressional potholes are just some of the aspects of the natural environment that Edgewood citizens value. The relationships between these features, development, natural processes, and the quality of the resulting environment, have profound impacts on the quality of life in Edgewood. Edgewood's very name reflects the importance of the natural environment to the Community identity. Preserving the quality of the

environment depends on government, corporate, and individual decisions, and coordinated actions to minimize adverse environmental impacts.

As pressure for increased residential and commercial development intensifies in Edgewood, the protection of the natural environment becomes more challenging. The City must continually evaluate the relationship between the natural and built environments. In order to do this, the City must evaluate the potential impacts of development with consideration for slope stability and erosion; susceptibility to contamination of air, water, and soil; amounts of noise, emissions, and waste generated; rate of resource consumption; automobile dependence; and open space, wildlife habitat, and recreation opportunities provided.

Existing Conditions

Edgewood is a Community that has been primarily an agricultural and wooded area in the past, and is now in a slow transition to becoming urban. It is now developing mostly as a residential area with an associated mix of commercial centers, parks, schools, and natural areas. Natural areas are comprised of depressional potholes, steep slopes, ravines, natural reserves, wetlands, streams, native growth easements, and stands of mature trees. These natural areas are found on both private and public property.

Edgewood is known to have the following critical areas (also known as sensitive areas): landslide hazard areas, erosion hazard areas, seismic hazard areas, depressional potholes, flood hazard areas, steep slopes, streams, wetlands, and critical wildlife habitats. Some of these features have been identified and mapped, but mapping, to date, is known to be incomplete. Features that meet sensitive area definitions are regulated as critical areas. Edgewood has adopted the Pierce County Critical Areas Ordinance, Title 18E, to protect these areas. With the Comprehensive Plan completed, the City will revise these regulations. The resulting critical areas ordinance will consist of the existing regulations and additional or modified regulations developed under the guidance of the Comprehensive Plan.

The City contains critical aquifer recharge areas that supply potable water to its residents and businesses. The City's depressional potholes and wetlands contribute to aquifer recharge.

Citizens, City decision-makers and staff have expressed concerns throughout the planning process about the relationship between the built and natural environments and the elements of those natural environments that may sustain impacts from growth and development. These concerns have been grouped into the following environmental areas: natural resources and open spaces, air quality, water quality, noise, and vegetation and wildlife habitat. These environmental areas organize the Natural Environment goals, objectives, and policies. These policies are intended to ensure that the City acts to protect and enhance the natural environment enjoyed by the entire Community.

Geographical Context

The City of Edgewood is located in north central Pierce County. It is primarily an upland area overlooking the Puyallup and White River Valleys, but also includes a portion of the Puyallup River valley floor. The City of Edgewood is surrounded by other incorporated cities. The City of Puyallup is located to the south, Sumner to the southeast, Pacific to the east, and the

cities of Milton and Fife to the west. The unincorporated area of King County lies immediately north of the City limits and has been included in the urban growth areas for both Milton and Pacific. Edgewood is part of the Puyallup River and White River watersheds.

Elevations within the City begin at 20 feet above sea level and rise to approximately 500 feet. The highest elevations are found in the southeast corner of the City. There are several topographic depressions throughout the City, locally known as “potholes”. The southern, eastern, and western edges of the City are characterized by prominent slopes that form portions of the Puyallup and White River valley sidewalls. The geology of the area is glacial in origin, which accounts for the near surface soil characteristics as well as the gravel resources found in places along the perimeter slopes.

The City experiences a typical maritime climate of mild, wet winters and relatively cool, dry summers. The average precipitation rate for the area is 38.3 inches per year, with the average annual temperature for the area being 50.8 degrees Fahrenheit. The annual precipitation occurs primarily in an eight-month period beginning in October and ending in May.

Earth Resources and Geologic Hazards

Edgewood is located mostly on an upland plateau bordered by steep valley walls to the east, west, and south. Geologic processes, including weathering, erosion, sedimentation, and landslides are on-going. Human activity influences, and sometimes accelerates these processes. Development on or adjacent to severe slopes with high erosion hazard may have a negative impact on slope stability. Geologic hazard concerns identified in the City of Edgewood include landslide hazards and volcanic mudflow hazards.

Soil type and degree of slope affect the suitability of a site for development. The soils of Edgewood are in the Alderwood-Everett Association on the plateau and the Puyallup-Sultan association in the Puyallup and White River valleys in the eastern and southern portions of the City. On the plateau, the predominant soil is Alderwood, with large areas of Kapowsin. The plateau soils also contain large pockets of Everett, Indianola, and Neilton soils. The valley areas in the southern and eastern portions of the City contain primarily Snohomish, Briscot, Puyallup, Shalcar, and Sultan soils.

Near surface soil within Edgewood has varying runoff potential and infiltration rates, and thus varying degrees of suitability for development. The higher the runoff potential and the lower the infiltration rate, the less suitable an area may be for development. Everett, Indianola, and Neilton soils have low runoff potential and high infiltration rates. Puyallup soil has moderately low runoff potential and moderate infiltration rates. Alderwood and Sultan soils have moderately high runoff potential and low infiltration rates. Briscot, Kapowsin, Shalcar, and Snohomish soils have high runoff potential and low infiltration rates. Many exceptions to these classifications exist.

Therefore, development potential is typically based on parcel-specific findings. Policies that specify the type, place, and manner of development on or adjacent to geologic hazard areas provide a framework for specific development regulations in the Critical Areas Ordinance and other sections of the Edgewood Municipal Code.

Steep Slopes/Landslide Hazards

The steepest slopes in the City are typically found along the southern, eastern, and western hillsides, and particularly Jovita Canyon near the Edgewood City Limits, exceeding 30 percent in places. Potentially unstable slopes are a major hazard to people, structures, and other land uses and infrastructure. The identification of areas susceptible to landslides is necessary to effectively regulate grading, building, foundation design, housing density, drainage, and vegetation removal. It is also necessary to implement other regulations to reduce or eliminate the risk of property damage and personal injury.

Landslide and steep slope hazards were evaluated in the City of Edgewood Surface Water Management Plan (SWMP, January 1997). The SWMP documented the observed presence of landslide features, soil conditions that are conducive to landslides, and slope inclination.

Seismic and Volcanic Mudslide Hazards

Seismic hazard areas are those areas subject to severe risk of earthquake damage as a result of settlement, lateral spreading, slope failure, or soil liquefaction. These conditions occur in areas underlain by soils with low cohesion and density, usually in association with a shallow groundwater table. When shaken by an earthquake, certain soils lose their ability to support a load. Some soils will actually flow like a fluid; this process is called liquefaction. Loss of soil strength can also result in failure of the ground surface and damage to structures supported in or on the soil. Loose, water-saturated materials are the most susceptible to ground failure due to earthquakes. The primary areas of seismic hazards within the City of Edgewood are those along steep slopes, within valley bottoms, atop alluvial fans (for example, the mouth of Jovita canyon), and some areas of filled/graded land.

In addition, some of the areas within Edgewood are prone to volcanic mudslide hazards. A major landslide on Mount Rainier, southeast of Edgewood, could effect some areas in the southwestern parts of the City.

Erosion

Erosion is a natural process where rain, running water, and wind loosen and transport soil from one location to another. Of these natural forces, erosion by rain and running water is by far the most common within the Puget Sound region. The susceptibility of any soil type to erosion depends upon the physical and chemical characteristics of the soil, its protective vegetative cover, slope length and gradient, intensity of rainfall, and the velocity of water runoff. The City contains areas that are prone to erosion activity. Steep slope areas and areas cleared of vegetation are the most susceptible to erosion.

Vegetation and Wildlife Habitat

Residents characterize the City of Edgewood as a wooded, as well as agricultural area. This is often cited as a key reason for locating in the City. Large evergreen trees can be seen rising above residential neighborhoods, on hilltops, and even on the periphery of Meridian East. As the City has become more populated, the area covered by native ground cover and/or shaded by native trees has been reduced.

Forested open space, wetlands, and native vegetation found on steep slopes and larger residential lots are important resources that should be preserved. Trees help stabilize soil

on steep slopes and act as barriers to wind and sound. Plants replenish the soil with nutrients and generate oxygen and clean pollutants from the air. The native vegetation found near creeks, lakes, wetlands, and depressional potholes offer habitats for a wide variety of migrant and resident wildlife. Less developed wooded areas associated with stream courses and steep slopes also provide habitats for many birds and mammals.

In addition, wetlands, depressional potholes, and riparian vegetation provide surface water storage and help clean surface water of pollutants and sediment, preventing pollution in nearby river systems, including habitat for salmon species regulated under the Endangered Species Act. Forest cover also protects riparian habitat by allowing water temperatures to stay cool.

Aerial photos show that the Community is a mosaic of various types of vegetation. The largest, most contiguous areas of native vegetation in Edgewood are primarily found on the southern, western, and eastern hillsides. These areas, together with wetlands and depressional areas, provide the highest quality wildlife habitat found in the City. However, areas of less intensive residential development also contain mature trees and other native vegetation, which provide secondary wildlife habitat and substantially contribute to the quality of life in our City. Residential areas, which may be subdivided or more intensely developed, are at the greatest risk of losing native vegetation. Vegetation removal reduces the ability of soil to absorb water, allows for increased erosion, and can promote increased geologic hazard due to the elimination of root structures.

Environmentally based development standards and incentives would help protect native vegetation during the development process. For example, these standards could include a requirement that the developer file a vegetation management plan that specifies how vegetation removal will be minimized and where replacement trees will be planted. Incentives should include density bonuses or expedited permit review for housing that protects areas of undisturbed open space, especially when significant vegetation is preserved. Other tools which can be used to protect vegetation include public education, habitat enhancement assistance, conservation easements, open space designation and property tax reductions, transfer or purchase of development rights, and outright acquisition. The goals and policies contained in this Plan will be used to develop specific regulations, incentives, and programs, which will be identified in the Municipal Code.

The process of urbanization results in the conversion of wildlife habitat to other uses. The loss of certain types of habitat can have significant, adverse effects on the health of certain species. These types of habitat are referred to as critical wildlife habitats. Critical wildlife habitats include lands important for the protection, management, or public enjoyment of certain wildlife species. These include habitats or species designated by state or federal agencies as endangered, threatened, sensitive, candidate, or priority species. Other critical natural resources include anadromous fish habitat, waterfowl and raptor nests, heron rookeries and habitats of local importance that are identified and designated through a wildlife conservation plan.

Under the federal Endangered Species Act, Chinook salmon and bull trout have been listed as threatened species and Coho salmon are a candidate for listing. Salmon runs throughout the Puget Sound and the Northwest are critically depressed. All local governments that border the Puget Sound or that contain streams flowing to the Sound will be affected by federal fisheries management in the near future. To help restore healthy salmon runs, local governments and the State government must work proactively to address salmon habitat

protection and restoration. Issues of storm water run-off, and associated erosion, sedimentation, and pollution, will be affected by the Endangered Species Act.

The Washington Department of Fish and Wildlife (WDFW) has developed the Priority Habitats and Species (PHS) program to help guide growth in a manner that will preserve the best and most important habitats and provide for the life requirements of fish and wildlife. Priority species are fish and wildlife species that require protective measures and/or management guidelines to ensure their perpetuation. Priority habitats are habitat types with unique or significant value to many species. The WDFW has documented the locations of priority habitats and species within the City. These PHS areas include wetlands, natural open space, habitat for a priority bird species, and the point location of priority bird species sightings. PHS areas are considered critical wildlife habitats.

Washington Department of Fish and Wildlife (WDFW) management recommendations are intended to assist landowners, users, and managers in conducting land-use activities in a manner that incorporates the needs of fish and wildlife. Management recommendations are developed through a comprehensive review and synthesis of the best scientific information available. The City may review the PHS management recommendations developed by WDFW and adapt these to fit the existing conditions and limitations of our unique environmental conditions. Management guidelines for priority habitats and species may be established in the Municipal Code.

Additional priority habitats and species may occur in areas not currently known to WDFW biologists or in areas for which comprehensive surveys have not been conducted. PHS data can only confirm that a species or habitat type may be present. This data does not confirm that a species or habitat type is not present. Site-specific surveys may be necessary to rule out the presence of priority species and priority habitats on an individual project site. WDFW has established guidelines, which enable local governments to designate and protect species of local importance. The City will work with WDFW, residents and other interested parties to identify and protect native wildlife species and habitats from the adverse impacts of current land use and future development.

Air Quality

One of the basic characteristics of a livable city is clean air. Numerous federal, state, regional, and local agencies enact and enforce legislation to protect air quality. Good air quality in Edgewood, and in the region, requires controlling emissions from all sources, including: internal combustion engines, industrial operations, indoor and outdoor burning, and wind-borne particles from land clearing and development. In the Puget Sound region, vehicle emissions are the primary source of air pollution. Local and regional components must be integrated in a comprehensive strategy designed to improve air quality through transportation system improvements, vehicle emissions reductions, and demand management strategies.

Air quality is measured by the concentration of chemical compounds and particulate matter in the air outside of buildings. Air that contains carbon monoxide, ozone, and particulate matter can degrade the health of humans, animals, and plants. Human health risks from poor air quality range in severity from headaches and dizziness to cancer, respiratory disease, and other serious illnesses, to premature death. Potential ecological impacts include damage to trees and other types of vegetation. Quality of life concerns include degradation of visibility and deposit of soot and other particulate matter on homes and other property.

The City seeks long-term strategies to address air quality problems, not only on the local level, but also in the context of the entire Puget Sound Basin with coordination and major direction from the Puget Sound Air Pollution Control Agency.

Stormwater and Drainage

Drainage basins in the City include closed depressions, creeks, steep slopes and year round water bodies. Some of the closed depressions, locally known as potholes, are identified in the City of Edgewood Surface Water Management Plan. These are known as the Edgewood Bowl, the 108th Avenue pothole, the 114th Avenue pothole, the 122nd Avenue pothole, the Surprise Lake pothole, and many smaller potholes. The creeks are Jovita, Simons, Wapato East, Wapato West, and Surprise Lake Creek that drains Surprise Lake. The eastern slope steep ravines can be distinguished as the Northeast, East central, and Southeast steep ravines. Year round water bodies consist of Lake Chalet and the creeks. Nearby Surprise Lake, located within the City of Milton, is a drainage basin for some areas within the City Limits of Edgewood.

As development continues in Edgewood, it will affect stormwater quality and quantity. New development can cause or aggravate drainage problems by increasing impervious area, reducing vegetative cover, changing runoff routes, accelerating runoff rate, and in other ways. By increasing stormwater quantity and velocity, development can diminish water quality. If no improvements are made to existing conditions and no mitigation is included in future development, the following changes may be expected:

Depressional Potholes-High flood levels in the potholes will continue, overtopping and closing roads, damaging homes and property, and inundating septic systems. Over time, flood levels may rise, causing additional damage and further reducing water quality. Road closures may become more frequent and of longer duration.

Steep Slopes-Erosion and landslides may increase in size and frequency. The sediment introduced into downslope watercourses may result in water quality mandates from the Department of Ecology.

Creeks-Streambeds will scour and erode at an increasing rate as flood flows increase the velocity and volume of water in the creeks. This may result in degradation and loss of fish and wildlife habitat and possible violations of the Endangered Species Act. Creeks may overflow their banks, damaging adjacent properties. Increased water velocity and volume will deepen the creeks, triggering additional landslides. In the Jovita Creek and Surprise Lake Creek canyons, road closures due to slides and washouts may become more frequent and severe.

Frequently Flooded Areas

The surface drainage system of the City of Edgewood includes many creeks, drainage ways, depressional potholes, wetlands (and their associated floodplains). Floodplains are identified on the Flood Insurance Rate Maps (FIRMs) for Edgewood that were prepared by the Federal Emergency Management Agency (FEMA). These maps illustrate the predicted flood area in a 100-year and 500-year storm event. The City has designated the 100-year flood hazard areas as its frequently flooded areas.

Wetlands

Wetlands within the City are part of a Palustrine System. Palustrine systems include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity, due to ocean-derived salts, is below 0.5 percent. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries, on river floodplains, or on slopes.

When planning the future of the Community, it is important to consider the specialized functions that wetlands perform as part of the natural ecosystem. To maintain water quality, support groundwater, vegetation, and wildlife, it is imperative that wetlands be preserved. Clearing of vegetation, grading, filling and draining, and other activities associated with land development, may decrease the ability of the zone to provide drainage, stabilize stream banks, provide wildlife habitat, and filter pollutants from the water. Wetlands receive surface water from surrounding areas and filter pollutants by a combination of physical, chemical, and biological processes.

Wetlands also play a significant role in flood control. During flooding, streams overflow their banks and spread out across the floodplain. Wetlands attenuate the peak flows from storm events by storing water during wet periods and discharging the stored water during dryer periods. Wetlands are delineated in the National Wetland Inventory (NWI) and the Pierce County Comprehensive Drainage Program Maps.

Some of the wetlands within the City of Edgewood have been identified and delineated on the Pierce County Comprehensive Drainage Program Maps. However, other wetlands have not been identified and will be identified during development review. Several wetland areas exist in the depressional potholes. Stream corridors in Edgewood are generally too steep to contain continuous wetlands. However, isolated wetlands can develop in these areas.

Groundwater and Aquifer Recharge Areas

When precipitation occurs, rainwater infiltrates the soil and percolates to the water table. This action recharges the groundwater system. Groundwater moves down a hydraulic gradient to where the water table either coincides with or lies above the land surface – this is the discharge area. Areas of permeable soil and areas where surface water accumulates are likely to be aquifer recharge areas. These recharge areas will affect the quantity and quality of groundwater.

Rainfall and topography have an impact on groundwater quantity and rate of flow. Man-made developments also impact groundwater, by cultivating land, removing vegetation, or compacting soil. Groundwater impacts such as hazardous waste and pollutants are detrimental to the groundwater supply, and affect its quality for years.

Impervious area is a measure of the percentage of area covered by roofs, streets, sidewalks, driveways, etc. Any future development will increase these impervious areas. Increased impervious area can result in decreased groundwater recharge. Even lawn areas allow only a fraction of groundwater infiltration permitted by natural forest cover. Since a larger percentage of the precipitation volume is going directly to runoff, there is less available surface water for soil moisture replenishment and groundwater storage.

The Growth Management Act requires that cities and counties identify and regulate these “areas with a critical recharging effect on aquifers used for potable water.” Land uses and

densities in these areas can affect the quality of the groundwater. Aquifer recharge areas exist throughout the City. Studies have not been conducted to determine the exact locations of critical recharge areas. However, the depressional potholes act as aquifer recharge areas by concentrating runoff. In addition, upland deposits of sand and gravel provide important storage and likely function as recharge areas.

The City contains many observed springs and seeps along the hillsides to the east, southeast, and southwest from the upland plateau, which attests to one or more water bearing zones above the valley floors.

Streams and Creeks

Numerous small streams and creeks are found within or adjacent to the City of Edgewood. Many of these streams have been placed in culverts, channels, or otherwise altered. Jovita Creek flows eastward into the White River. Surprise Lake Creek begins within the City limits of Milton, flows through Edgewood, then out through Edgewood's western boundary. Wapato Creek flows through the southwestern corner of Edgewood, then westward into the City of Fife. Before leaving Edgewood, Wapato Creek is joined by Simons Creek. Coho salmon, steelhead, and cutthroat are present in Jovita Creek, Simons Creek, and Wapato Creek. Coho and steelhead spawn in Simons Creek and Jovita Creek.

Some portions of the watersheds drained by creeks in the City have been paved or otherwise developed. This development dramatically increases the volume of water in the creeks during storm surges and reduces in-stream flows during drier periods of the year. This combination of more intense storm surges and overall lower flows causes numerous environmental problems, including: increased stream bank erosion, scouring and deepening of the stream channel, reduced water quality, sedimentation of gravel, damage to stream-side vegetation, and reduction or elimination of habitat for wildlife, fish, and the insects on which fish feed.

Creeks can be damaged as a result of large quantities of storm water as well as by pollutants they may contain. Policies related to streams and creeks have been developed to address the following concerns: increased data collection and monitoring of water quality, the protection of buffer areas, the importance of natural vegetation in riparian zones, preservation of natural function and habitat, and the appropriate restoration of creeks that have been modified for surface water management and/or development.

Goals and Policies

Goal NE I: Lead and support efforts to protect and improve the natural environment.

Policies

NE1: *Take a proactive role in addressing issues of the Endangered Species Act.*

Discussion: The City is approaching issues that may impact salmon-bearing streams due to its unique location. The

City will enforce federal, state, county, and City environmental policies and regulations to advance the goals of the federal Endangered Species Act (ESA).

NE2: *Consider and evaluate the immediate, long-range, and cumulative environmental impacts of policy and development decisions.*

Discussion: The City should be careful not to overlook long-term and cumulative impacts when making such decisions.

NE3: Conduct all City operations in a manner that minimizes adverse environmental impacts to the Community and promotes a safe workplace for employees.

Discussion: The City can implement this policy by reducing its consumption and waste of energy and materials, minimizing its use of toxic and polluting substances, reusing and recycling, and disposing of all waste in a safe and responsible manner. The City should give preference to recycled products, within budget constraints.

NE4: Support, promote, and lead public education and involvement programs.

Discussion: Public education and involvement raises public awareness about environmental issues, encourages individual and Community efforts to protect the environment, and provides opportunities for citizens and visitors to respect and enjoy Edgewood's unique natural features.

NE5: Cooperate with local, state, and federal governments, tribal governments, international agencies, business groups, and non-profit organizations to protect and enhance the environment.

Discussion: Many environmental issues affect areas beyond Edgewood's boundaries. The City needs to negotiate, communicate, and cooperate with other organizations in order to address these issues. The City should also participate in local and regional programs to protect environmentally sensitive areas, such as the conservation efforts of the Land Conservancy of Pierce County and Pierce County's Public Benefit Rating System.

NE6: Encourage the use of a variety of technologies that minimize

environmental degradation and protect public health.

Discussion: In working with developers, the City has a wide variety of possible options available to mitigate the impacts of new development. For example, the use of vegetation or grinding of sewage may allow for more development than would be otherwise allowed for certain areas. The City can implement this policy by revising its codes to recognize options for complying with regulations and mitigating environmental impacts.

<p>Goal NE II: Protect the natural environment in the Community.</p>

NE7: The following shall be considered critical areas and regulated through the Edgewood Municipal Code: flood hazard areas, depression potholes, landslide hazard areas, steep slopes, wetlands, streams, and critical wildlife habitat areas.

Discussion: The critical areas ordinance will define the categories of critical areas and specify how each category will be regulated.

NE8: Direct development to areas where adverse impacts on natural resources can be minimized.

Discussion: Some parts of the City contain more critical areas than others. By focusing more intense development in locations with fewer large critical areas, the City can minimize the impacts of development on erosion, surface water, water quality, and other environmental impacts. The City will implement this policy through the Land Use Element.

NE9: Conserve and protect critical areas from loss or degradation.

Discussion: The City can protect critical areas through standards in the subdivision code, open space designations, critical areas ordinance, or buffer requirements.

NE10: *Provide incentives for development that is designed, sited, and constructed to minimize environmental impacts.*

Discussion: Incentives may include density bonuses for cluster development, open space tax incentives, incentives for design, and a transfer of development rights (TDR) program. Incentives may also include reduced mitigation requirements for reduced impacts.

NE11: *Require mitigating measures for new development that creates environmental impacts.*

Discussion: Mitigation measures should be appropriate for the type of impact and proportionate to the amount of impact. They may involve the retention or restoration of significant habitats or other critical areas. They can also include the construction or improvement of private capital facilities.

NE12: *Establish management policies that control the operation of sand and gravel pits in the Community.*

Discussion: Gravel resources are necessary for the development of roads, public works, and private construction. Some sand and gravel pits are operating under previously authorized County or City permits.

NE13: *Encourage private open space preservation in the City.*

Discussion: See the Parks, Recreation, and Open Space Element for more detailed policies and discussion.

Goal NE III: Reduce potential hazards associated with earthquakes and steep slopes.

NE14: *The City will require appropriate standards for site development in areas with moderate and steep slopes based upon site specific information. (See Chapter 5, pages 3 through 5)*

Discussion: Development review for buildings on slopes will require site specific information on soil type and water content, as well as the degree of slopes.

NE15: *Regulate land clearing and other significant removal of vegetation on steep slopes greater than 30% and in identified landslide hazards.*

Discussion: The City will implement this policy through a critical areas or significant tree ordinance and/or applicable development regulations. In an October 1999 Community Survey, 68% of respondents favored limiting vegetation removal on slopes greater than 8%, and 86% favored limiting vegetation removal on slopes greater than 15%.

NE16: *Require mitigating measures for new development on steep slopes.*

Discussion: Development on steep slopes causes impacts to surface water, erosion, and increased probability of landslide hazards. Mitigating measures for such development can include clustering development, decreasing the amount of impervious surface, or planting trees and other vegetation.

NE17: *Enforce building codes to minimize the risk of structural damage, fire, injury to occupants, and prevent post-seismic collapse in areas subject to severe seismic hazard.*

Discussion: Steep slopes may be subject to seismic ground movement. The best available methods should be used to identify and evaluate seismically hazardous areas. Requiring the use of appropriate soils analysis and construction methods can minimize the hazard and avoid seismic-related structural damage and injuries.

NE18: *Promote educational efforts to inform landowners about site development, drainage, and yard maintenance practices that impact slope stability.*

Discussion: Washington State Department of Ecology Publications 93-30, 93-31, and 95-107 are useful for this purpose.

Goal NE IV: Encourage environmentally responsible land management practices that are compatible with other land uses.

NE19: *Encourage fencing of pastures or other methods to keep animals from properties, roads, and watercourses, and promote implementation and maintenance of other proper land management practices.*

NE20: *Require appropriate engineering and institutional controls in flood hazard areas.*

Discussion: The City shall not allow development within flood hazard areas without proper engineering and institutional controls.

Goal NE V: Protect and improve local and regional air quality by reducing or eliminating sources of air pollution.

NE21: *Encourage the use of landscaping and the retention of*

existing vegetated areas to provide for filtering of suspended particulate.

Discussion: Retention of trees and other vegetation is vital to maintaining good air quality. Vegetation filters out suspended particles and purifies the air.

NE22: *Encourage non-motorized and public transportation and provide opportunities for reduced automobile travel.*

Discussion: Vehicle emissions are a major local source of air pollution. Reducing the number of trips made by motor vehicles will reduce emissions. The City can implement this policy by encouraging non-motorized transportation projects in capital facilities programs, and by providing for the town center and mixed use areas in the zoning ordinance.

NE23: *Establish and support dust abatement activities and regulations.*

Discussion: These standards will apply to new development.

NE24: *Support federal, state, and regional policies intended to protect clean air in the Puget Sound area.*

Discussion: State and regional agencies, such as Puget Sound Air Pollution Control Agency, the Puget Sound Regional Council, and the Washington State Department of Transportation, generally administer air quality regulations. The City will implement this policy by working with these agencies and by supporting public education regarding these issues.

NE25: *Consider the use of roundabouts and traffic circles to reduce the need for stop signs and traffic signals.*

Discussion: The City may wish to investigate the impact of roundabouts and traffic circles on vehicle emissions in comparison to traffic signals and stop

signs. Please see the Transportation Element for more information.

Goal NE VI: Preserve and enhance water quality.

NE26: *The City should assert its interests to neighboring jurisdictions to exercise their responsibilities in promoting water quality.*

Discussion: The City can implement this policy by participating in the environmental review process and submitting information regarding water quality impacts.

NE27: *Prevent pollution of both surface and groundwater resources.*

Discussion: Whether it is located in streams, depressional potholes, wetlands, or underground sources of water supply, clean water is one of Edgewood's important characteristics. The City can protect surface and groundwater resources through some of the following methods:

1. Control development in areas of high water table.
2. Encourage the retention of vegetation along waterways.
3. Reduce or control surface water runoff from paved and other impervious surfaces.
4. Encourage the use of properly designed ditches and swales.
5. Encourage innovative ditch maintenance activities, such as the rotation of segments for ditch cleanings in adjacent areas.
6. Require the use and maintenance of sedimentation traps and filters to prevent the movement of silt and other materials into the surface water system.
7. Emphasize public education on how to maintain water quality.

8. Consider water quality issues in planning for parks and open space.

NE28: *Work with neighboring jurisdictions and other agencies and organizations to enhance and protect water quality in the region.*

Discussion: Enhancing and protecting clean water throughout a watershed often requires joint efforts between different jurisdictions. For example, preserving water quality in the City of Edgewood will have a positive impact on the water quality of Hylebos Creek, the Puyallup River, the White River, and the water quality in the Cities of Sumner, Pacific, Puyallup, Fife, and Milton.

NE29: *Protect areas that are critical for aquifer recharge.*

Discussion: Recharge actually occurs via the depressional potholes through slow percolation. Areas of highly permeable soil are vulnerable and the potential for contamination of perched groundwater is greater in these areas. Planning should consider the types of development permitted in certain areas of the City. For example, a gas station or an industrial site with potential contaminants could pose a significant risk.

NE30: *Actively pursue funding for baseline monitoring and improvement of water quality in streams in the City.*

Discussion: Streams connected to salmon-bearing waters should receive priority for funding.

Goal NE VII: Encourage measures that improve surface water management.

NE31: *Prohibit development in areas where frequent surface flooding occurs, unless adequate engineering and institutional controls are implemented.*

Discussion: All new structures within the flood hazard areas decrease flood storage capacity. Therefore, increasing building density in these areas results in a larger area threatened by seasonal flooding. The City may require a “no net loss” approach to maintaining floodwater storage capacity.

NE32: Continue development review for surface water compliance. All costs associated with surface water review shall be recovered from development applicants.

Discussion: Surface water review is needed to ensure that the use of one property does not unreasonably infringe upon the use of neighboring properties. Surface water can be retained on site or managed through community surface water systems.

NE33: Strive to minimize impervious surfaces in the City.

Discussion: Prevention of surface water issues is generally less expensive than curing them. The City of Olympia’s Impervious Surface Reduction Study, conducted in 1996, contains many excellent recommendations for minimizing impervious area. The City can implement this policy by working with property owners.

NE34: Continue to study the issues concerning depressional potholes and develop a management plan for these natural resources.

Discussion: The following issues should be considered when formulating plans and implementing projects which have the potential to impact the potholes: scenic value, respect for private property, groundwater, wildlife habitat, fish habitat in the White and Puyallup Rivers, and Hylebos Creek, geologic stabilization, and the continued use of these features for stormwater management. The Endangered

Species Act will be considered as part of the analysis of any development plans.

NE35: Ensure that erosion control measures are functional during and after construction, and that surface water management and septic systems are installed as approved.

Discussion: This policy will be implemented by conducting routine building and development review inspections.

Goal NE VIII: Provide for the protection of wetlands.

NE36: Implement a ranking and classification system for wetlands which rates wetlands based on size, vegetative complexity, ecological and hydrological function, and presence of threatened or endangered species.

Discussion: To implement this policy, the City should work with other jurisdictions to establish a consistent regional classification system for wetlands that allows for the designation of both regionally important and locally unique wetlands.

NE37: Identify and classify the diverse functions and values of wetlands in the City.

Discussion: The City can implement this policy by identifying all wetlands on public property and establishing a voluntary program to identify wetlands on private land.

NE38: Preserve and maintain wetlands in a natural state.

Discussion: Wetlands have a diverse range of functions and values. They help manage stormwater, protect natural water quality, and provide wildlife habitat.

Wetland buffers facilitate infiltration, protect natural vegetation and stabilize water temperatures. The City can implement this policy by establishing wetland regulations that recognize these functions and values. The City can also encourage non-regulatory approaches for wetland protection, such as land trusts, and an adopt-a-wetland program.

NE39: Achieve a “no net loss” of wetland acreage, function, and value within each drainage basin over the long term.

Discussion: "No net loss" means that total wetland acreage, function, and value is preserved over the long term. The City should encourage educational opportunities that increase public understanding and appreciation for the values of wetlands. It should advise citizens of measures they could take to maintain wetlands on their properties. Off-site mitigation for wetlands, such as creating a new wetland, should be considered only within the same drainage basin within the City of Edgewood and should be consistent with the most current findings.

NE40: Existing degraded wetlands should be restored where practicable.

Discussion: Restoration of degraded wetlands may be required as a condition of new development or redevelopment.

Goal NE IX: Minimize excessive noise and light emitted from commercial land uses, industrial land uses, and new construction.

NE41: Reduce, and where possible, eliminate problems associated with major noise and light generating uses, especially when located near residences. Establish standards for noise and light generating land uses.

Discussion: Natural or manmade barriers should be placed between noise and light

sources and residential land uses. Trees and natural vegetation should be retained along the perimeter of new subdivisions and along arterial streets to filter noise and light. Noise and light control ordinances shall be enforced. Standards for noise and light shall address acceptable amounts of noise, light, and time and frequency of activities.

NE42: Implement measures to reduce traffic noise and impacts.

Discussion: Examples of measures to reduce traffic noise include: traffic dispersion, traffic reduction, round-a-bouts, traffic circles, alternative paving materials, or routing of vehicles away from residential areas. The City should work with the State Department of Transportation and other appropriate organizations to mitigate noise from traffic and continue to support the construction of SR 167 prior to the widening of SR 161.

Goal NE X'S: Protect fish and wildlife habitat and native vegetation.

NE43: Develop a vegetation preservation and enhancement program.

Discussion: Vegetation in the City of Edgewood provides and protects habitat for fish and wildlife. Vegetation also plays an important role in surface water management and stabilizing soils in critical areas. The City can preserve and enhance vegetation through some of the following methods:

1. Encourage the use of native vegetation as an integral part of development plans.
2. Limit the removal of healthy trees in critical areas and critical area buffers.
3. Encourage the use of native and low maintenance vegetation in

residential and commercial landscapes.

4. Require tree replacement on private property as project mitigation.
5. Replace removed trees on public land.

NE44: *Implement measures to provide appropriate protection of fish and wildlife habitat.*

NE45: *Plan for and protect wildlife corridors as part of the open space and parks master plan.*

Discussion: Maintenance of wildlife corridors provides feeding areas and escape routes for animals. The City can implement this policy through public education, land use designations, incentives, regulation, and code enforcement.

NE46: *Actively participate in regional species protection efforts, including salmon habitat protection and restoration.*

Discussion: The City will implement this policy by working with citizen volunteers, county, state and federal agencies, and tribal governments to identify, prioritize, and eliminate barriers to anadromous fish spawning and rearing habitat.

NE47: *Preserve critical wildlife habitat.*

Discussion: Critical wildlife habitat refers to areas identified as priority habitats by the Washington Department of Fish and Wildlife or by the City of Edgewood. The City can implement this policy through regulation, code enforcement, acquisition, incentives, and other techniques.

NE48: *Establish buffers to preserve aquatic and riparian habitats in a natural state.*

Discussion: Buffers around wetlands, lakes, creeks, and streams protect native vegetation, water quality, habitat for fish and wildlife, and hydrologic function. They provide greater areas of habitat for fish and wildlife and natural undisturbed areas for public enjoyment. Buffer widths for surface water features will be specified in Edgewood's critical areas ordinance.

NE49: *Prohibit alterations to streams unless they are part of approved restoration efforts.*

Discussion: Stream alterations, such as filling or redirection of watercourse, are likely to result in adverse impacts to the natural environment. Impacts can include sediment transport and flooding on adjacent properties. Where practical, streams should be allowed to return to natural channel migration patterns. The City will implement this policy through code enforcement.