

9.0 ENVIRONMENTAL

Introduction

This element addresses community goals for maintaining its urban forest, critical areas, shorelines, and other open spaces that contribute to Woodinville's northwest woodland character and a clean environment. This element provides a summary overview of current environmental conditions and trends in Woodinville, as well as local and cooperative objectives, goals and policies, and actions designed to:

- Retain open space, conserve fish and wildlife habitat, and protect wetlands, and
- Protect the environment, including air and water quality, and
- Protect health, safety, and property through management of activities in frequently flooded areas and geologically hazardous areas, and
- Promote preferred uses, public access, and ecological function of shorelines, and
- Encourage energy conservation and low impact design.

Conditions and Trends

Critical Areas

The Washington State Growth Management Act (GMA) and implementing rules require cities and counties to "include the 'best available science' [BAS] when developing policies and development regulations to protect the functions and values of critical areas and must give "special consideration" to conservation or protection measures necessary to preserve or enhance anadromous fisheries." (WAC 365-195-900) Critical areas include fish and wildlife habitat conservation areas, wetlands, frequently flooded areas, critical aquifer recharge areas used for potable water, and, geologically hazardous areas (RCW 36.70A.030(5)). The City has commissioned a Draft Existing Conditions and Inventory Report (December 2013), Draft BAS Report (December 2013) and a Draft Critical Areas Ordinance Gap Analysis (May 2014). This section presents summary information from those evaluations, which are available under separate cover. Maps are presented as references but are not intended to identify precise locations of critical areas or environmental features; rather, at the time of development, best available information including site specific analysis will determine presences or absence of such features.

Fish and Wildlife Habitat Conservation Areas

According to State rules (WAC 365-190), fish and wildlife habitat conservation areas [FWHCAs] are "...areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness."

Known FWHCAs in the City of Woodinville include, the Sammamish River, Little Bear Creek, Lake Leota, and various native growth protection areas / native growth protection easements (NGPA/NGPE). See

Woodinville Comprehensive Plan Update

TEMPLATE DRAFT: May 29, 2014

Environment in Woodinville Vision

Woodinville's vision statement has a strong linkage between community character and the natural environment:

- ▶ We have preserved our Northwest woodland character, our open space, and our clean environment.



Exhibit 9-1. The City of Woodinville's rivers, streams, and lakes provide habitat for fish species of regional, State, and Federal significance. The value of riparian zones as terrestrial habitat is particularly high in fragmented urban habitats because they facilitate travel among habitat patches for wildlife. The City has undertaken river and creek restoration activities to help improve environmental conditions. See Exhibit 9-2.

Exhibit 9-1. Identified Critical Areas: Hydrologic Features.

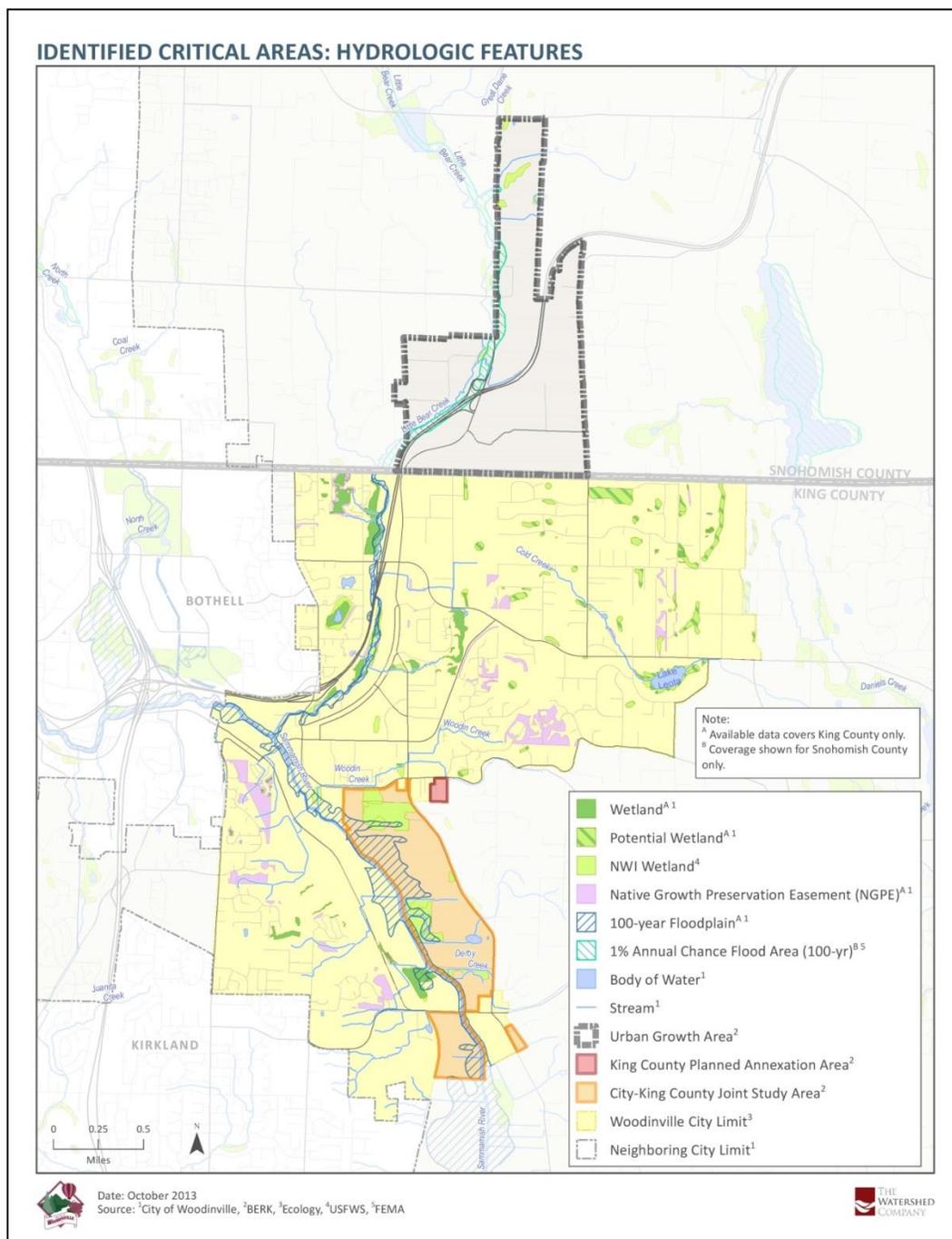


Exhibit 9-2. Restoration Examples

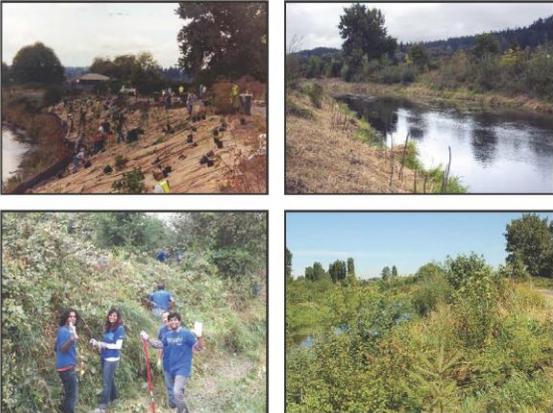
NATURAL ENVIRONMENT: HABITAT RESTORATION

Sammamish River and Little Bear Creek Restoration Projects

The City of Woodinville oversees restoration efforts on the Sammamish River and Little Bear Creek, including:

- ▶ Riparian vegetation restoration,
- ▶ Fish passage improvements, and
- ▶ Invasive species removal.

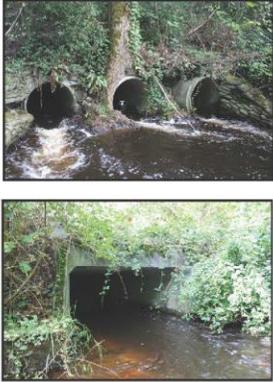
Vegetation Restoration on the Sammamish River at NE 145th St.



Fish Passage Improvements on Little Bear Creek at NE 205th St.



Culvert Replacement on Little Bear Creek

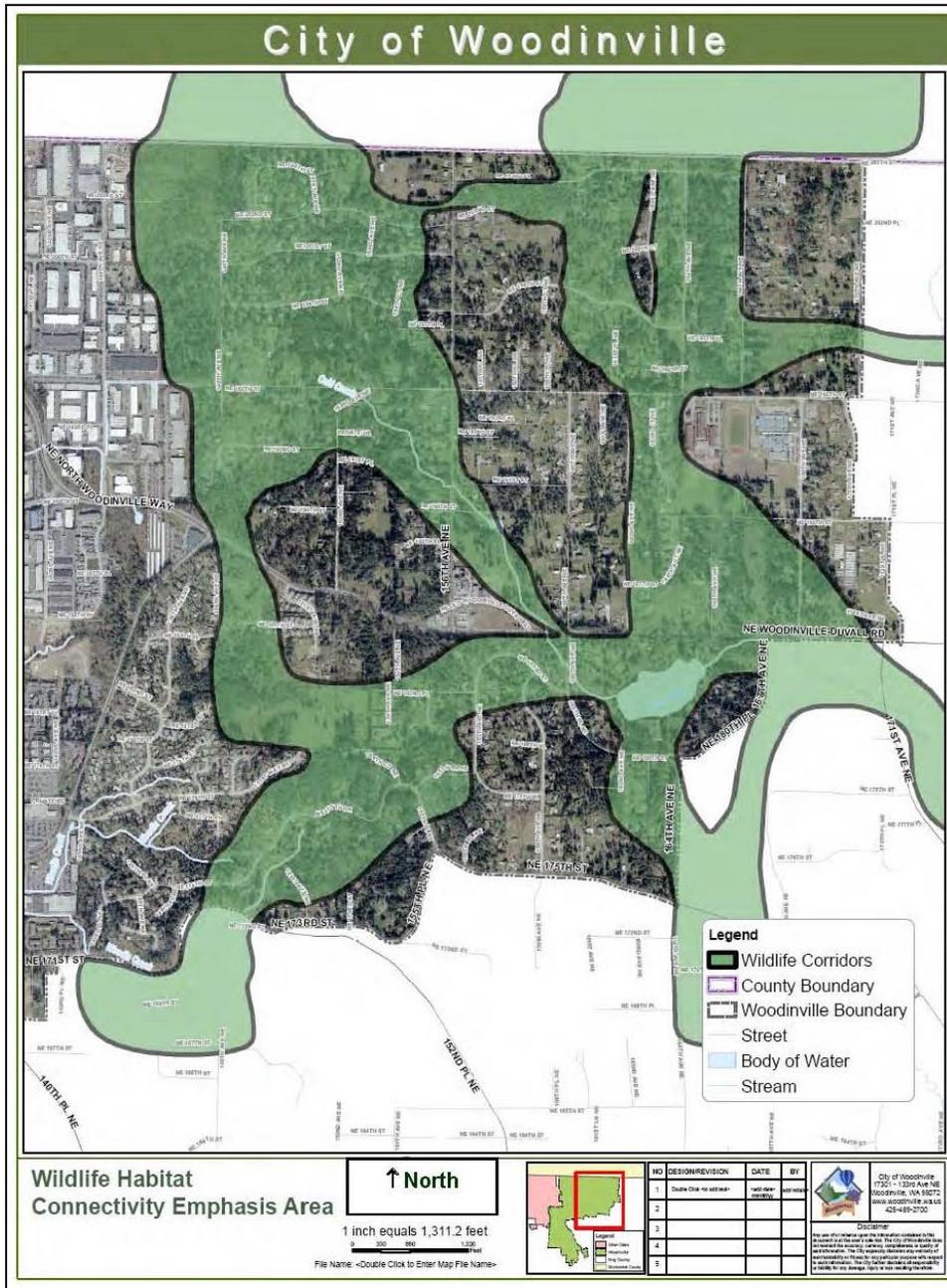


CITY OF WOODINVILLE COMPREHENSIVE PLAN UPDATE
VISIONING WORKSHOP



Wildlife corridors have also been mapped in the City in the R-1 zoned areas; see the Sustainable Development Study (2007) and Exhibit 9-3.

Exhibit 9-3. Wildlife Corridors – Eastern Woodinville



Wetlands

The commonly used wetland definition as issued by the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (Corps), Shoreline Management Act (SMA), Growth Management Act (GMA) and recorded in the Washington Administrative Code (WAC 173-22-030(10)) is:

“Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil

conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.”

Wetland scientists generally acknowledge that wetlands perform the following eight functions: 1) flood/storm water control, 2) base stream flow/groundwater support, 3) erosion/shoreline protection, 4) water quality improvement, 5) natural biological support, 6) general habitat functions, 7) specific habitat functions, and 8) cultural and socioeconomic values (Cooke Scientific Services 2000).

Major wetlands within the Woodinville Comprehensive Plan Update Study Area include Lake Leota and associated fringe wetlands, wetlands along the Sammamish River and Little Bear Creek, and wetland pockets across the landscape. See Exhibit 9-1.

Frequently Flooded Areas

Frequently flooded areas (FFA) are regulated to manage potential risks to public safety. Such areas also provide valuable instream habitat benefits, such as recruitment of large woody debris. The City of Woodinville defines flood hazards as: “Flood hazard areas: those areas in City of Woodinville subject to inundation by the base flood including, but not limited to, streams, lakes, wetlands and closed depressions” (WMC 21.06.245). FFAs are mapped along the Sammamish River and Little Bear Creek (see Exhibit 9-1).

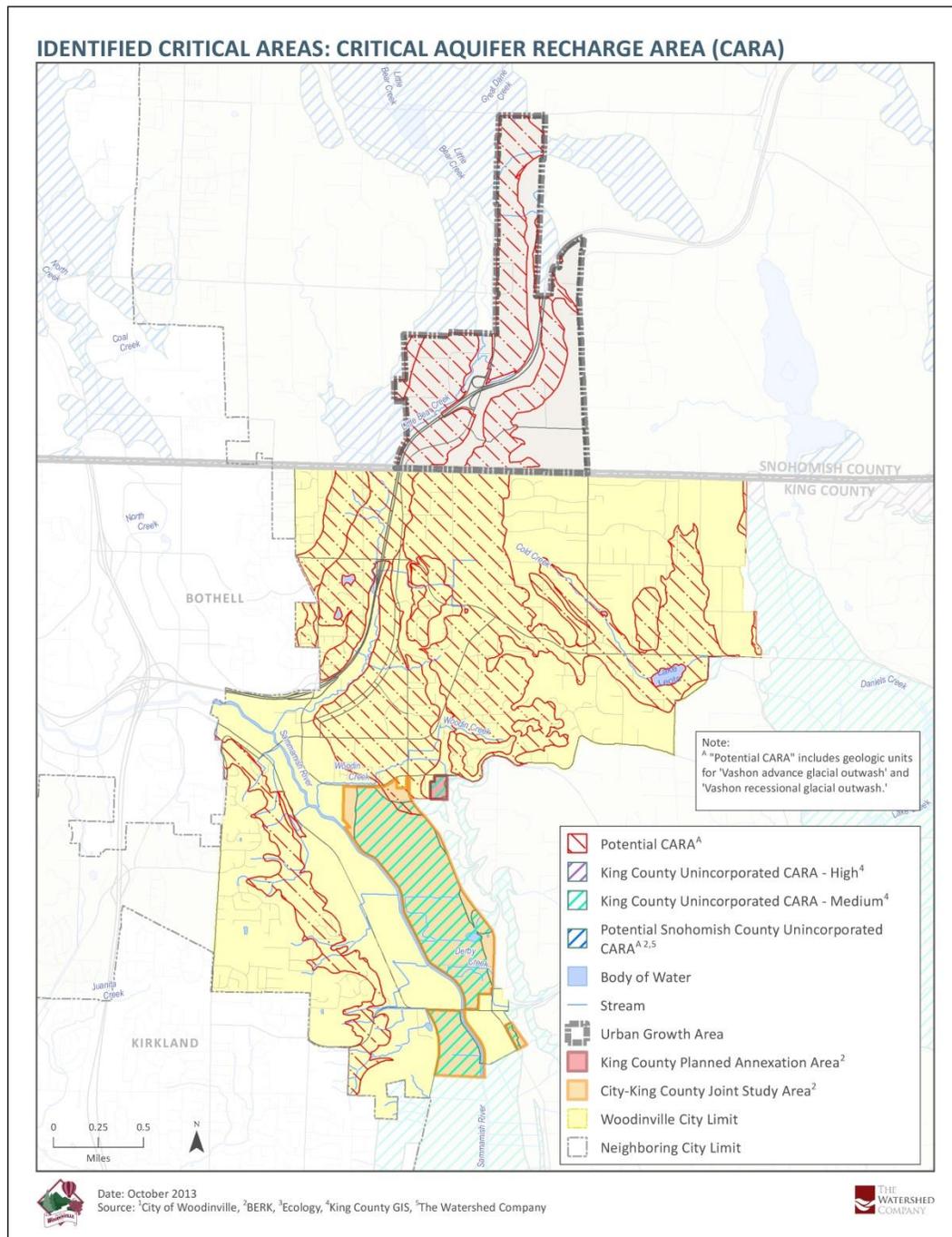
The City of Woodinville adopted a Comprehensive Stormwater Management (CSWM) Plan in December 2010. This document is designed manage stormwater in compliance with Ecology requirements and regional goals, including the Puget Sound Action Agenda. The CSWM plan contains a process for evaluating drainage capacities, ranking flood problem areas, and initiating capital improvement projects.

Critical Aquifer Recharge Areas (CARAs)

An aquifer is a geologic formation that readily transmits water to wells or springs. Where the surficial geology consists of glacial deposits, aquifers are typically the sand and gravel-dominated deposits where there is ample pore space for infiltrated water to be stored and discharged. The functions and values of CARAs are to provide clean drinking water and to contribute clean cool water to streams and wetlands that support wildlife. The Identified Critical Areas: CARA map (See Exhibit Exhibit 9-4), shows potential CARAs based on surficial geology.

The City of Woodinville defines CARAs as “...areas designated by WAC 365-190-080(2) that are determined to have a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2)” (WMC 21.06.135). The Woodinville Water District does have several wells in the aquifer, but the District obtains all municipal water supplies from Seattle Public Utilities. The Cross Valley Water District, which serves the proposed UGA in Snohomish County, does depend on a sole source aquifer for municipal water. Regional aquifers release cold water to Bear Creek and the Sammamish River; these are highly productive salmonid-bearing stream systems, dependent on clean cold water.

Exhibit 9-4. Potential Critical Aquifer Recharge Areas



Geologically Hazardous Areas

According to RCW 36.70A.030, Geologically Hazardous Areas are “those areas that are susceptible to erosion, sliding, earthquake, or other geological events and are not suited to the siting of commercial, residential, or industrial development consistent with public health and safety concerns”. The four main types of geologically hazardous areas recognized in the GMA and Woodinville Code (WMC 21.24.290)

are 1) erosion hazard areas; 2) landslide hazard areas; 3) seismic hazard areas, and 4) areas subject to other geologic events such as coal mine hazards and volcanic hazards.

In contrast to most other GMA-mandated critical areas, where the goal is to protect a valued resource, the purpose of regulating activities in geologically hazardous areas is not to protect the area, but to protect the public from the hazard represented by the area.

The geology and topography within the Woodinville study area combine to create several of the types of geologically hazardous areas including landslide, erosion, and seismic hazard areas. The City is conducting additional analysis of geologic hazards that will be presented at a future date.

Shorelines

The City of Woodinville Shoreline Master Program (SMP), adopted in 2008 and amended in 2009, regulates development activities along the Sammamish River and Little Bear Creek in compliance with the Shoreline Management Act of 1971. Development activities proposed within the shoreline jurisdiction must comply with the policies and development regulations established in the SMP. Goals and policies of the SMP are considered a part of this Comprehensive Plan (RCW 36.70A.480) and are hereby incorporated by reference.

Tree Canopy

The City of Woodinville is known for its residential neighborhoods developed in an urban forest setting. The tree canopy is particularly prevalent in eastern Woodinville. Tree planting and stewardship can provide opportunities for energy conservation, habitat, and air and water quality benefits.

Western Washington and Oregon communities can promote energy efficiency through tree planting and stewardship programs that strategically locate trees to save energy... These same trees can provide additional benefits by reducing stormwater runoff, improving local air, soil, and water quality, reducing atmospheric carbon dioxide (CO₂), providing wildlife habitat, increasing property values, enhancing community attractiveness and investment, and promoting human health...¹

The City has established a Tree Board and Community Urban Forestry Plan.

Climate Change

Regional agencies and institutions have identified climate change effects on the Puget Sound region:

Glaciers in the Cascade and Olympic Mountains have been retreating for 50-150 years. Pacific Northwest temperatures are rising faster than the global average. Puget Sound waters are warming, and river and stream flows are changing.²

¹ Center for Urban Forest Research. 2002. Western Washington and Oregon Community Tree Guide: Benefits, Costs and Strategic Planting. USDA Forest Service, Pacific Southwest Research Station.

² Snover, A. K., P. W. Mote, L. Whitely Binder, A.F. Hamlet, and N. J. Mantua. 2005. Uncertain Future: Climate Change and its Effects on Puget Sound. A report for the Puget Sound Action Team by the Climate Impacts Group (Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, Seattle).



The Puget Sound Clean Air Agency has identified particular sources of emissions that could be managed to reduce effects: “The bulk of our greenhouse gas pollution comes from transportation and electricity generation. Reducing emissions from these sectors – such as by driving less, choosing cleaner cars and fuels, or increasing the energy efficiency of our homes and offices - can make a big difference.”

The Puget Sound Clean Air Agency, Puget Sound Regional Council and King County Growth Management Planning Council have developed regional policies regarding reducing greenhouse gas emissions and adapting to climate change.

Challenges and Opportunities

The primary challenge for Woodinville as an incorporated community with responsibilities for its fair share of growth over the next 20 years is balancing such growth with Woodinville’s environmental features in a way that preserves environmental values and the community’s quality of life.

The City’s approach is to manage its shoreline for a balance of uses with incentives for restoration, identify critical areas and protect them through regulations, to protect significant trees and promote urban forestry, to promote low impact development patterns through its stormwater manual, and to model sustainability through energy conservation, mixed use development promoting transit usage and reduced greenhouse gas emissions, and to establish a parks, recreation, and open space network that connects to the regional network.

Environmental Objectives

Striving for balance and sustainability, the City has developed several measurable objectives and tools. See Exhibit 9-5.

Exhibit 9-5. Environmental Objectives and Tools

Outcomes	Indicators	Example Tools
Preserve Woodinville's Northwest woodland character.	Maintain or increase the City's overall tree canopy.	Heritage Tree Program Tree Tribute Program Community Urban Forestry Plan Tree Retention and Protection Regulations
Protect and maintain ecological systems, and restore them where feasible.	Provide for no net loss of wetland and riparian areas, fish and wildlife habitat, and shoreline ecological functions.	Critical Areas Regulations Shoreline Master Program River and Creek Restoration
Protect the community's health and safety from natural hazards.	Households and businesses educated regarding preparedness for natural hazards. New infrastructure designed for adaptation to potential hazards.	Critical Areas Regulations Shoreline Master Program FEMA Biological Opinion Implementation Zoning and Building Codes
Promote conservation and sustainability practices.	Increased participation in energy conservation practices. Reduction in vehicle miles travelled. Increased implementation of low impact development practices.	Energy Code Stormwater Management Plan Zoning / Mixed Use Development Commute Trip Reduction Ordinance Transportation Plan

Goals and Policies

Goal E-1. To preserve and enhance aquatic and wildlife habitat.

- Policy E-1.1.** Identify and ensure the protection of fish and wildlife habitat conservation areas.
- Policy E-1.2.** Protect the functions and values of critical areas, including wetlands, streams, and lakes.
- Policy E-1.3.** Maintain a standard of no net loss of shoreline ecological functions.
- Policy E-1.4.** Support water-based salmon recovery efforts and compliance with the requirements of the Endangered Species Act (ESA).
- Policy E-1.5.** Encourage conservation of sites that protect fish and wildlife habitat conservation areas through incentives or acquisition.
- Policy E-1.6.** Encourage the restoration of ecological functions and the natural environment in environmentally damaged areas through incentives.
- Policy E-1.7.** Participate in efforts to minimize drawdowns and warming of the Sammamish River.
- Policy E-1.8.** Encourage preservation of the urban forest, and promote the use of native plants in residential and commercial landscapes.
- Policy E-1.9.** Encourage public access where appropriate to critical areas, shorelines, and natural lands that are unique to Woodinville.
- Policy E-1.10.** Update fish and wildlife habitat conservation, wetlands, and critical aquifer recharge areas mapping and regulations in accordance with best available science and local conditions.
- Policy E-1.11.** Implement Woodinville's Shoreline Master Program to promote no-net-loss of ecological function, preferred uses, and public access.

Goal E-2. To protect the public from natural hazards resulting from the disturbance of the environment.

- Policy E-2.1.** Protect public safety in potential frequently flooded areas, and geologically hazardous areas such as seismic and landslide hazard areas.
- Policy E-2.2.** Minimize the adverse effects of development on topographic, geologic, and hydrologic features, and native vegetation.
- Policy E-2.3.** Manage the quantity and velocity of surface water runoff.
- Policy E-2.4.** Update critical area mapping and regulations addressing natural hazards based on the best available science and regional planning efforts.

Goal E-3. To protect and improve water quality.

- Policy E-3.1.** Protect the quality and quantity of water in waterways, wetlands, floodplains, and watersheds from degradation.

Policy E-3.2. Promote the enhancement or restoration of shorelines and waterways as adjacent development activities occur.

Policy E-3.3. Protect aquifer-recharge areas and associated stream base flow and temperatures.

Policy E-3.4. Promote Low Impact Development techniques as an alternative to standard development practices such as, using natural systems to maintain and enhance environmental quality by having them perform such functions as cleaning air and water, and controlling storm water runoff.

Policy E-3.5. Reduce effective impervious surface areas by minimizing impervious areas, such as through narrowing residential streets and encouraging the use of shared driveways, cul-de-sacs planters, rain gardens, and porous pavement.

Goal E-4. To promote the preservation of Woodinville's Northwest woodland character.

Policy E-4.1. Protect and conserve open space, including transition buffers between urban and rural areas.

Policy E-4.2. Preserve and protect public views of mountains and valley corridors.

Policy E-4.3. Practice land cover management with includes forest and topsoil preservation, native growth protection easements, dense vegetative zones, and preservation of tree canopy zones.

Policy E-4.4. Protect significant trees and promote tree replanting, and encourage the use of native plants.

Policy E-4.5. Minimize artificial light pollution.

Goal E-5. To protect and promote air quality, reduce greenhouse gas emissions, and adapt to climate change.

Policy E-5.1. Promote regional air quality standards in coordination with the Puget Sound Clean Air Agency and the Puget Sound Regional Council.

Policy E-5.2. Encourage the reduction of greenhouse gases through energy conservation and reduction in vehicle emissions.

Policy E-5.3. Formulate and implement climate change adaptation strategies that address the impacts of climate change to public health and safety, the economy, public and private infrastructure, water resources, and habitat.

Goal E-6. To promote environmental sustainability and conservation in Woodinville and the Puget Sound Region.

Policy E-6.1. Coordinate approaches and standards for defining and protecting critical areas especially where such areas and impacts to them cross jurisdictional boundaries.

Policy E-6.2. Coordinate land use and transportation plans and actions for the benefit of Puget Sound and its watersheds.

Policy E-6.3. Address environmental justice when implementing public actions that could affect low-income or minority populations.

Policy E-6.4. Consistent with state and federal laws, require clean-up of contaminated sites for redevelopment.

Action Plan

The Natural Environment Element is implemented by:

- Woodinville’s Comprehensive Land Use Plan that provides for more intense development in areas where environmental sensitivity is lower or can be more effectively protected and incentivized for enhancement and lower densities where environmental quality and the urban forest canopy is prioritized.
- Woodinville’s Zoning Code that addresses critical areas and tree protection.
- Woodinville’s Shoreline Master Program that promotes no-net- loss of shoreline ecological functions, preferred shoreline uses, and public access along the Sammamish River and Little Bear Creek.
- Woodinville’s Parks and Recreation Plan that guides parks and recreation acquisition and improvements helping facilitate space conservation.
- Woodinville’s Transportation Plan that provides non-motorized pedestrian, bicycle, trail plans and promotes coordination of transit with regional providers to reduce vehicle miles travelled and air quality emissions.
- Woodinville’s Stormwater Management Plan addressing water quantity and quality.

This Element also includes policies promoting new initiatives during the regular eight-year Growth Management Act Comprehensive Plan review cycle.

Exhibit 9-6. Natural Environment Action Plan: New Initiatives

Topic	Action	Lead & Partners
Critical area protection	Update mapping and regulations in accordance with best available science.	City of Woodinville – Fish and Wildlife Habitat, Wetlands, Aquifers King County and City of Woodinville – Natural Hazards
Stormwater Management	Update manual per Ecology requirements.	City of Woodinville
Formulate climate adaptation strategies	Consider developing a climate action plan consistent with community needs and values and regional plans such as VISION 2040 and Countywide Planning Policies	City of Woodinville