DRAFT

Chapter 6 – Environment

Introduction

The City of Battle Ground's environmental goals and objectives recognize that a healthy environment is essential to creating a livable community. Residents and businesses are attracted to Battle Ground, in part, because of the healthy and clean natural environment that it offers. Environmental conservation will continue to be important to Battle Ground's long-term economic prosperity for generations to come. This Element reaffirms Battle Ground's desire to take actions that contribute to environmental sustainability and to support good development decisions. This Element is optional under the GMA. The GMA requires that the information within this Element be addressed, but indicates that it can be addressed in the Land Use Element of the Plan. Battle Ground has chosen to create a separate Environment Element due to the extent of critical areas within the City and the need to balance protection of these critical areas with the goals and objectives found within other parts of the Plan.

Growth Management Act

The GMA defines critical areas as wetlands, aquifer recharge areas, fish and wildlife habitat, frequently flooded areas, and geologically hazardous areas. The City of Battle Ground amended its critical area regulations in 2004 to reduce impacts caused by development in environmentally sensitive areas, pursuant to the GMA (RCW 36.70A.060). These regulations are contained in the Battle Ground City Code.

The GMA also requires the protection of resource lands. Resource lands are defined as land related to resource-based industries, including productive timber, agriculture, fisheries and mineral extraction. Battle Ground does not contain such lands; therefore, policies related to their conservation are not addressed in the Plan.

The GMA contains goals that are applicable to the Environment Element, including:

- Maintain and enhance natural resource-based industries, including productive timber, agricultural and fisheries industries; and,

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

County-Wide Environment Policies

Clark County's Comprehensive Plan establishes countywide policies for the conservation and protection of natural resources. The County has responded to similar GMA mandates, and provides for the protection of critical areas within the unincorporated area of the county. Development of this element is based on the same environmental concepts expressed in the Clark County Comprehensive Plan. The County's environmental goals are summarized below:

- Protect and conserve environmentally critical areas;
- Protect and recover endangered species within Clark County;

- Protect, conserve, and recover salmonids within Clark County;
- Require sewer service within urban growth areas and discourage septic use;
- Provide a long-range stormwater management program to minimize impacts from stormwater discharge from existing and new development;
- It is important for Clark County citizens' health and the community's economic development prospects to have the region achieve and maintain clean, healthy air;
- Minimize property damage from geological hazards and flooding;
- Clark County will conduct its operations in a manner that meets all National Pollutant Discharge Elimination System (NPDES) and Endangered Species Act (ESA) requirements; and,
- Clark County shall carry out its activities in a manner that can serve as an example of environmentally sustainable practices.

Endangered Species Act

Battle Ground and the surrounding areas contain critical habitat that is needed for endangered anadromous fish species (fish that are born and return to spawn in fresh water, but live most of their lives in the ocean), including several types of salmon. Critical habitat areas include the East Fork of the Lewis River, and Woodin and Salmon creeks. The Endangered Species Act of 1973 was passed to protect plant and animal species that could be placed on the threatened or endangered list by the Secretary of the Interior. The listing process for endangered anadromous fish species is based on population data, and enforcement is handled by the National Oceanic and Atmospheric Administration (NOAA) Fisheries. NOAA Fisheries is responsible for protecting endangered species against further take (killing or harming), creating plans for the recovery of each species and determining critical habitat. The critical habitat is the area that is required by the species for its survival and conservation. Even though a designated critical habitat does not need to be presently occupied by the species, it can still be deemed necessary for its conservation. The process of authorizing a critical habitat includes NOAA Fisheries placing the information in the Federal Register and then soliciting public opinion for consideration in the decision. The City of Battle Ground responds to ESA mandates through a variety of regulatory and action-based mechanisms, most importantly through the designation and protection of critical habitat for ESA-listed fish species.

Section 404 of the Clean Water Act

Battle Ground contains federally regulated wetlands areas, protected under Section 404 of the Clean Water Act (CWA). Wetlands dredge and fill activities are regulated at the federal level by the U.S. Army Corps of Engineers (the Corps). A person or agency wanting to impact wetlands must submit a permit application to the Corps for review. The Corps also has the authority to issue general permits that provide authorization on a national, state, or regional level for activities that have minimal adverse impacts on the environment. There are general authorizations for wetlands restoration and enhancement, and for minimal fill in wetlands where streams and rivers begin. The Washington Department of Ecology (Ecology) also reviews permit applications for compliance with Section 404 of the CWA. The City of Battle Ground is mandated to comply with Section 404, and protects wetland areas through a variety of mechanisms including critical areas designations.

Wellhead Protection Plan

The City of Battle Ground adopted a Wellhead Protection Plan in 2000 to ensure that drinking water extracted from underground aquifers will be safe for present and future generations. The purpose of the plan is to protect water-supply sources from becoming contaminated and to develop emergency response procedures in case one or more sources are lost due to contamination. The plan meets the necessary state requirements found in Washington Administrative Code 246-290.135 (4), and the 1974 Federal Safe Water Drinking Act and subsequent amendments.

Critical Areas Ordinance

The City of Battle Ground adopted a Critical Areas Ordinance (CAO) in 2004 to protect the functions and values of sensitive natural resources. The purpose of the CAO was to identify and provide protections for critical aquifer recharge areas (CARA), sensitive wetlands, frequently flooded areas, geologic hazard zones, and fish and wildlife habitat. The CAO was developed according to the Revised Code of Washington 36.70A.

Shorelines Master Program

The City of Battle Ground adopted its first Shorelines Master Program (SMP) Ordinance in 2012 under the authority granted by the Shoreline Management Act of 1971 Revised Code of Washington (RCW 90.58) and Chapter 173-26 of the Washington Administrative Code (WAC) as amended. The purpose of the SMP is to guide future development of shorelines in the City in a positive, equitable and consistent manner to ensure at a minimum no net loss of shoreline ecological functions and to plan for restoring shorelines that have been impaired or degraded by adopting and fostering the policies contained in RCW 90.58.020, Legislative Findings for Shorelines of the state.

Environment Element Goals and Objectives

Environment Goal 1:

The City will pursue conservation of energy.

Objectives

EO1.1 The City will encourage the development of energy efficient housing using passive and active designs (HO1.4).

EO1.2 The City will investigate energy savings measures in all City operations and encourage energy efficiency by city contractors.

Environment Goal 2:

The City will promote sustainable building and development practices.

Objectives

EO2.1 The City will encourage sustainable development practices for private development within the city.

EO2.2 The City will explore the use of sustainable purchasing practices for City projects and operations.

Environment Goal 3:

The City will advance environmental education and stewardship.

Objectives
EO3.1 The City will explore a variety of environmental education opportunities.

EO3.2 The City will explore a variety of environmental stewardship opportunities.

Environment Goal 4:
The City will encourage protection, preservation and enhancement of Critical Areas within the city and its UGA.

Objectives
EO4.1 The City will identify Critical Areas as practical and necessary to assist with the development of a Critical Areas ordinance.

EO4.2 The City will strive to protect Critical Areas from further loss or degradation and to protect human safety and infrastructure investments (LUA2.1.6, LUA3.2.6, LUA3.4.9, HA1.4.1).

EO4.3 The City will encourage the enhancement and protection of Critical Areas through appropriate development actions and the work of non-profits and community groups.

EO4.4 The City will explore way to maximize public ownership or other permanent protection of Critical Areas.

EO4.5 The City will coordinate with other local jurisdictions, including Clark County and special districts to protect critical areas.

Environment Goal 5:
The City will protect and improve the quality, and quantity of drinking water resources.

Objectives
EO5.1 The City will work to provide adequate quantity and quality of drinking water for city use.

EO5.2 The City will encourage the conservation and efficient use of drinking water.

Environment Goal 6:
The City will enhance and protect water quality.

OBJECTIVES
EO6.1 The City will strive to reduce the quantity of stormwater runoff through improved development practices.

EO6.2 The City will work to treat stormwater on site if possible and in all cases treat to meet, at minimum, state requirements.

EO6.3 The City will work to reduce the impacts of construction on water quality and quantity, particularly related to erosion and sedimentation.

Environment Goal 7:
The City will work for the protection of endangered and threatened species.

Objectives

EO7.1 The City will work with NOAA Fisheries, U.S. Fish and Wildlife (USFWS) and other public agencies and non-profit organizations to identify how federal endangered and threatened species, and state species of concern and sensitive species can be protected.

EO7.2 The City will work to restore the habitat of threatened and endangered species to aid the recovery of the species.

Environment Goal 8:

The City will encourage the protection and improvement of air quality within the City and its UGA.

Objectives

EO8.1 The City will encourage and provide facilities for the use of alternative modes of transportation to reduce air pollution.

EO8.2 The City will seek to attract clean industries that do not adversely impact air quality.

EO8.3 The City will work to locate new business and industries so that the adverse impacts on air quality are minimized.

EO8.4 The City will work with property owners and construction companies to lessen air quality impacts from new construction and daily living.

Environment Goal 9:

The City will encourage the minimization of noise impacts from all types of uses within the City and its UGA.

Objectives

E09.1 The City will work with property owners and construction companies to lessen noise impacts from new construction.

E09.2 The City will endeavor to reduce noise impacts through effective ordinances and a program of enforcement that is affordable to administer.

Environment Goal 10:

The City will encourage the reduction of light pollution to maintain, safety, views and enjoyment of the night sky.

Objectives

EO10.1 The City will endeavor to reduce light pollution through effective ordinances and affordable enforcement.

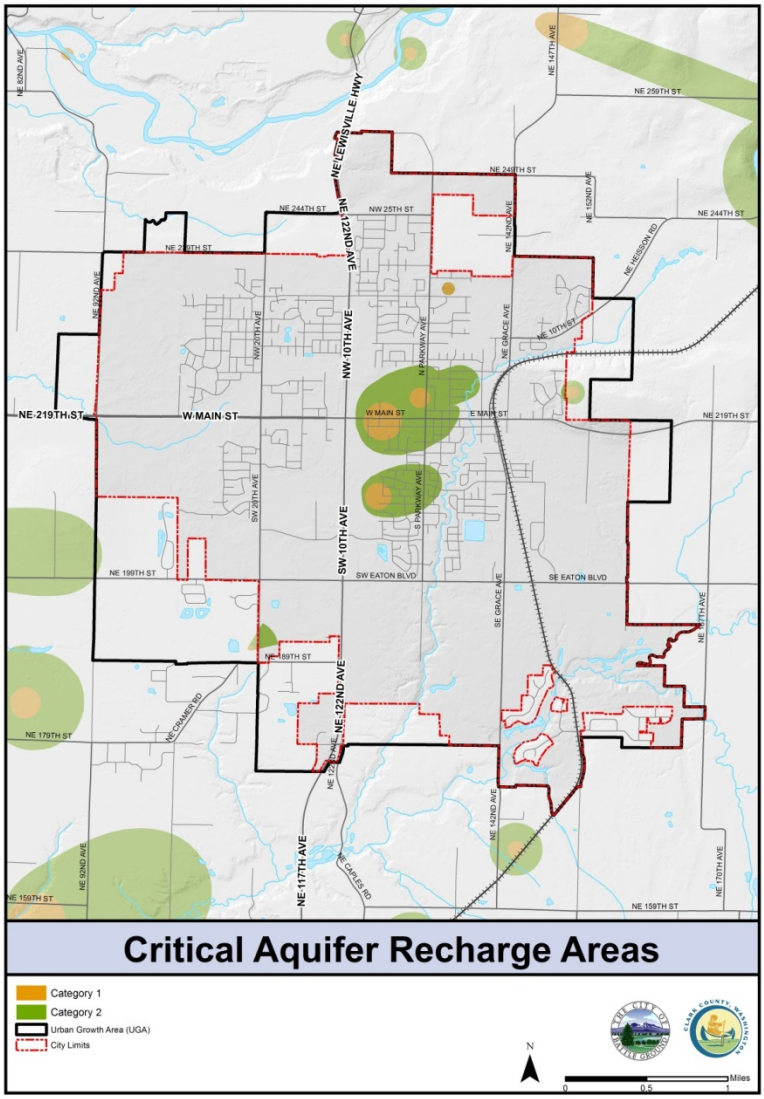
Critical Aquifer Recharge Areas (CARA)

Battle Ground is dependent on clean and safe groundwater as its primary source of drinking water. The City currently owns seven wells that supply drinking water. Four of these (Wells 1, 2, 4, and 5) produce water from a shallow aquifer. Three (Wells 6, 7, 8) produce water from a deeper aquifer. The deep wells are now used as the primary supply source because their yields are significantly higher than the shallow wells. In addition, the City also obtains backup supplies from two other sources: the Battle Ground High

School Well, and through connections with the Clark Public Utilities system. The City plans to install an additional deep backup supply source, Well 9, in the near future.

Wellhead delineations were prepared for the City wells and for the High School Well. These areas are referred to as CARA. These delineations represent the extent of the area that feeds water into the underground aquifer for each well under average pumping conditions, also known as the well capture zone (see Figure 6-1). The capture zones for the three deep sources (Wells 6, 7, and 8) are the most extensive. Capture zones for the shallow well are smaller, but cover commercially designated areas of Battle Ground. Some types of commercial development include activities that pose a high risk for groundwater contamination. These activities usually involve the production or use of solvents, petroleum products or other contaminants that could spill and reach the ground water supply. Mapping and inventories of CARAs presented in this element are for informational purposes only, and should not be relied on for technical data. More information on CARAs can be found in the City of Battle Ground Wellhead Protection Plan (2000).

Figure 6-1: Critical Aquifer Recharge

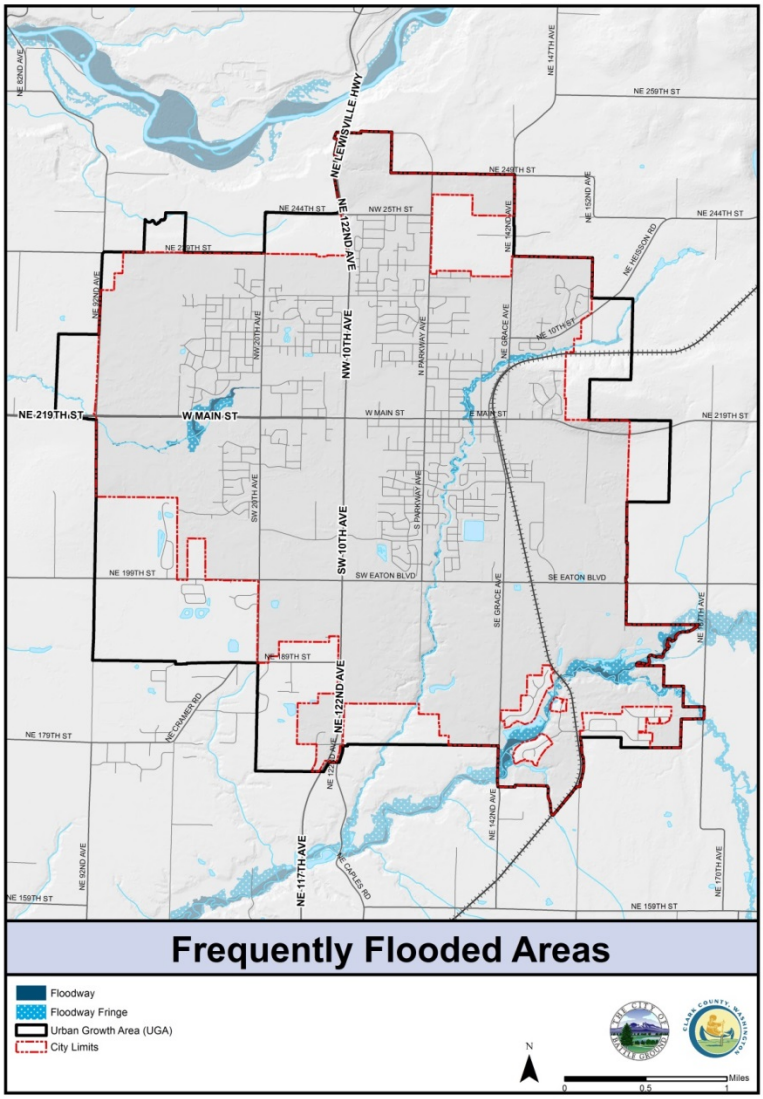


Frequently Flooded Areas

The City of Battle Ground seeks to protect people and property from injury that could be caused by flood events. The City is specifically concerned with events that affect frequently flooded areas. Frequently flooded areas are defined as areas in the floodplain subject to a one percent or greater chance of flooding in any given year including, but not limited to, areas such as streams, lakes, and wetlands. Development in floodplains reduces the natural water storage capacity, increases the amount of runoff that storm events cause, and could lead to damage of public and private property.

Frequently flooded areas were identified during a 1980 study conducted by the Federal Insurance Administration. Flood insurance maps identify floodplains affected by the 100-year storm (areas that are subject to a one percent or greater change of flooding during any given year) (see Figure 6-2). Mapping and inventories of frequently flooded areas presented in this element are for informational purposes only, and should not be relied on for technical data.

Figure 6-2: Frequently Flooded Areas



Geologic Hazards

Geologically hazardous lands are characterized by steep slopes, landslide and erosion-prone areas, and/or high levels of instability during earthquake events.

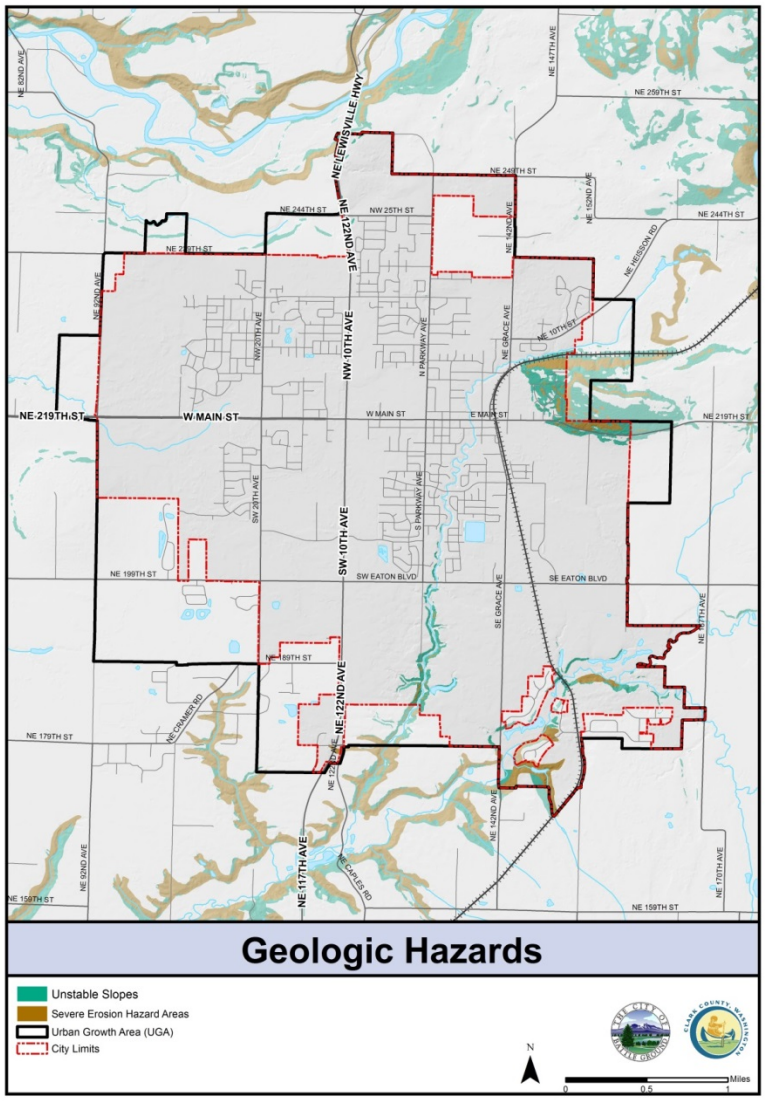
Landslide-prone areas represent a potential hazard to people and property. Inappropriate development activities may disturb the natural stability of soils, rock formations, slopes, and natural water systems to the point that uncontrolled movement of rock and soil, erosion, high water runoff, and unwanted streambed changes may occur. These areas typically have slopes greater than 15 percent, natural water springs or groundwater seepage, sand and gravel soils near the surface, and silt and clay soils underneath.

Seismic hazard areas are characterized by soft, uncompacted soils in association with a shallow groundwater table. During an earthquake, these soils become highly unstable and are unable to provide adequate support to structures. With appropriate construction techniques, such as soil compaction or pile construction, building owners can minimize the potential for damage. A qualified geotechnical engineer is typically required to identify seismically hazardous sites and recommend appropriate construction techniques.

Soil erosion problems are the result of improper or inappropriate construction practices such as grading, and inadequate stormwater management infrastructure. Leveling natural topographic features without providing appropriate stormwater drainage can cause soil to be carried away during storms.
However, in small areas of the city where the soils are very sensitive to erosion, urban development may not be appropriate.

Steep slope areas are susceptible to instability when disturbed by construction or other activities. In Battle Ground, geologically hazardous areas have been mapped using countywide data (see Figure 6-3), and the City is in the process of developing city-specific maps. Mapping and inventories of geologically hazardous areas presented in this element are for informational purposes only, and should not be relied on for technical data.

Figure 6-3: Geologic Hazards



Fish and Wildlife Habitat

Fish and wildlife habitats include streams, ponds, wildlife corridors, upland grazing areas, and stands of intact forest. The City seeks to protect environmentally distinct, fragile and valuable fish and wildlife habitat areas for present and future generations, and to conserve the functional integrity of the habitats needed to species, as critical areas that require protection. These habitats are extremely important to fish and wildlife, which rely on them for foraging, nesting, and breeding.

The City considers the following areas to be critical fish and wildlife habitat:

- High Quality Habitat listed by the Washington Natural Heritage Program
- Waters of the State and naturally occurring ponds that are less than 20 acres, or as listed by the Department of Natural Resources

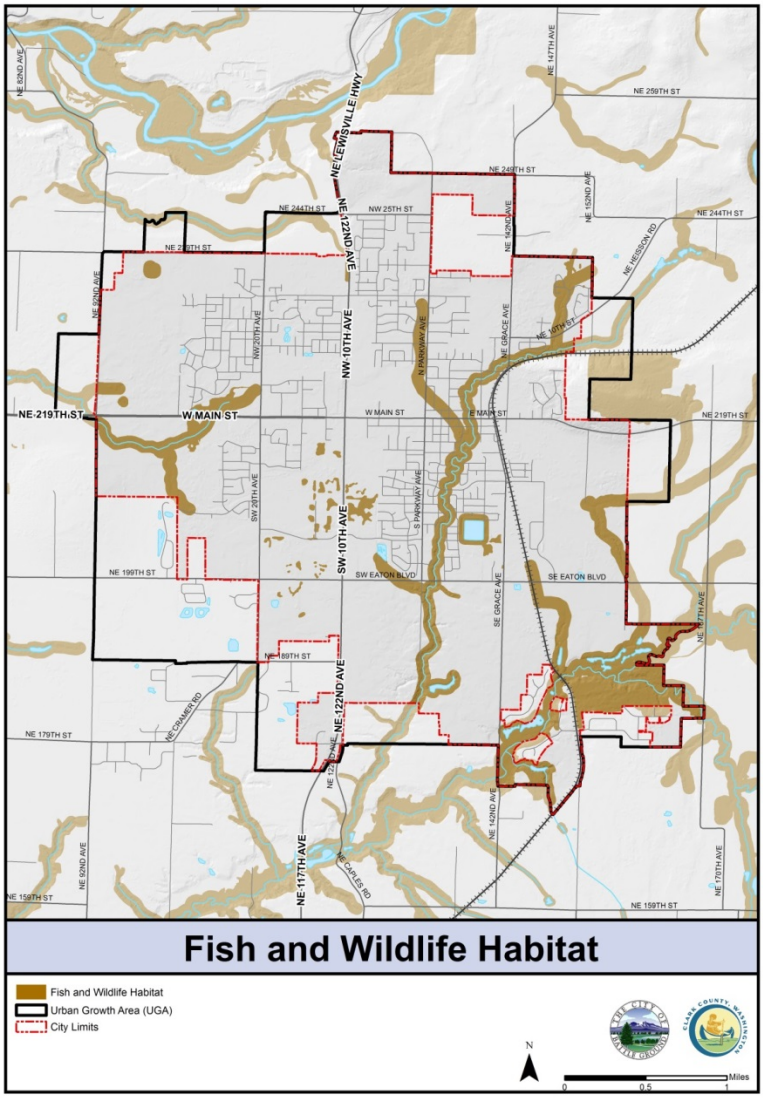
- Locally significant habitat that creates corridors between larger protected areas, as listed by the Washington Department of Fish and Wildlife

- Locally important habitat based on connectivity to priority habitat areas and native tree stands as determined by the City of Battle Ground

- Anadromous fish habitat, including fish streams, channel migration zones and a protective buffer on each side of creeks, as outlined by the Washington Department of Fish and Wildlife.

Preliminary maps of critical fish and wildlife habitat areas have been developed using Washington Department of Fish and Wildlife data and local information (see Figure 6-4). Mapping and inventories of fish and wildlife habitat areas presented in this element do not document all critical fish and wildlife areas, are for informational purposes only, and should not be relied on for technical data.

Figure 6-4: Fish and Wildlife Habitat



Wetlands

Wetlands are areas where the frequent and prolonged presence of water at or near the soil surface drives the natural system, meaning the kind of soils that form, the plants that grow, and the fish and/or wildlife communities that use the habitat. Swamps, marshes, bogs, and riparian wetlands are well-recognized types of wetlands. Wetlands constitute important natural resources which provide significant environmental functions including: the control of flood waters, maintenance of summer stream flows, filtration of pollutants, recharge of groundwater, and provision of significant habitat areas for fish and wildlife. Uncontrolled urban-density development in and adjacent to wetlands can eliminate or significantly reduce the ability of wetlands to provide these important functions, and in the process, negatively affecting public health, safety, and general welfare. Filling wetlands can change the ability of the natural hydrological system to absorb, transport, and process stormwater. The key functions and values that critical wetlands can serve are described below:

- Rare Wetland Type - High quality native wetland communities which qualify for inclusion in the Natural Heritage Information System. Examples are mature forested swamps, bogs and fens.

- Documented Threatened, Endangered and Sensitive Species (T, E & S) - Wetlands that have a documented occurrence of a federal or state listed endangered, threatened or sensitive plant, animal or fish species. The Washington Department of Fish and Wildlife records and updates the database containing this information. Nationally, nearly 35 percent of all rare and endangered animal species depend on wetlands, even though wetlands comprise only about 5 percent of the land area.

- Local Significance - Wetlands that a community has designated worthy of protection based on local criteria based on their potential to support local ecological functions, provide habitat, support biodiversity, and/or create local economic or cultural value.

- Flood/Stormwater Control - Many floodplain and stream-associated wetlands absorb and store stormwater flows, which reduces flood velocities and stream bank erosion. Preserving these wetlands reduces flood damage and the need for expensive flood control devices such as levees.

- Base Flow/Groundwater Support - Many wetlands store water, slowly releasing the water back into the ground or the steam. Wetlands also augment summer stream flows when the water is needed, by slowly releasing the stored water back to the stream system. This function maintains natural hydrology during the periods of low water flow.

- Water Quality Improvement - Wetlands are highly effective at removing nitrogen, phosphorous, some chemicals, heavy metals, and other pollutants from water. For this reason, artificial wetlands are often constructed for cleaning storm water runoff and for tertiary treatment (polishing) of wastewater. Wetlands bordering streams and rivers and those that intercept runoff from fields and roads provide this function.

- Erosion/Shoreline Protection - Wetlands adjacent to the shore or located along streams reduce the water velocity, stopping or slowing the erosion process. Heavily vegetative wetlands are more effective at reducing flow velocity than open water or emergent wetlands.

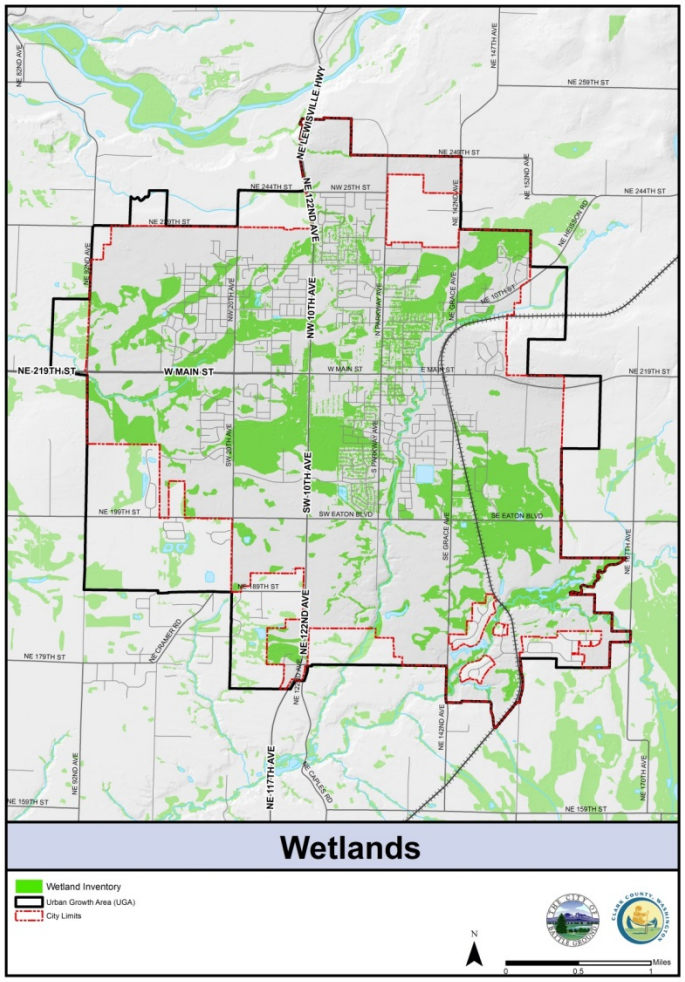
- Habitat Function - Wetlands provide essential water, food, cover, and reproductive areas for many wildlife species. For example, nearly two-thirds of the commercially important fish and

shellfish species are dependent upon estuarine wetland habitats for food, spawning, and/or nursery areas. Similarly, millions of waterfowl, shorebirds, and other birds depend on wetlands. Wetland areas also can provide specific habitat characteristics for species of invertebrates, amphibians, fish, mammals and birds.

- Cultural/Socioeconomic Value - Depending on their type and location, wetlands provide opportunities for fishing, hunting, plant identification, and wildlife observation. They are also visually pleasing, interesting elements in the landscape and provide outdoor classrooms and laboratories.

The City's wetlands inventory map serves as a key source of information in determining where wetlands are located (see Figure 6-5). The map provides a high-level inventory of wetlands areas, using aerial photography, field study, the National Wetlands Inventory, and other data sources, but does not exhaustively detail all wetlands areas. Wetlands areas evolve naturally, therefore wetland mapping and inventories presented in this element are for informational purposes only, and should not be relied on for technical data.

Figure 6-5: Wetlands



Analysis and Projections

Battle Ground is growing rapidly and will experience increasing pressure on its sensitive natural resources. The City will reduce impacts to sensitive natural resources by requiring land use and land division permit applicants to develop site plans that are compatible with the environment.

New code language will be required that balances avoidance, minimization, and/or mitigation of impacts caused by new development to sensitive natural resources with the need for continued economic development. The CAO is the primary tool in preserving sensitive environmental areas, while balancing the rights of landowners to develop their property. These regulations are essential to preserving critical areas for current and future residents of Battle Ground. Other potential protection measures include conservation easements, public purchase or protection as part of an open space purchase. Specific critical areas protection needs are summarized below:

- Critical Aquifer Recharge Areas - Protection of CARAs requires a contamination risk assessment prior to permitting of new development. High-risk uses, as defined in the Wellhead Protection Plan, should be prevented from being developed in CARAs and other safety measures should be developed to mitigate risks to vulnerable groundwater sources including stormwater management, education and outreach, pollution control, and monitoring. The benefit of CARA protections is long-term preservation of the quality and safety of Battle Ground's drinking water. Some of Battle Ground's commercial areas are located in CARAs, which might restrict the development of some uses that landowners and tenants wish to develop. However, sufficient commercial land has been provided in areas that don't have critical areas protections to accommodate these uses.

- Frequently Flooded Areas - New construction within floodplains should be regulated to make property more resistant to flood damage and to prevent the loss of life and property. Additionally, new development and land alternations (fill, removal, etc.) should be prevented from occurring within floodways, which includes the main channel of the water-body.

- Geologic Hazards - Development should be controlled in geologic hazard areas, including but not limited to the implementation of restrictions of highly sensitive uses (i.e. critical public facilities, schools etc.), protective buffers, and other measures.

- Fish and Wildlife Habitat - Land divisions and new construction should avoid, reduce, or mitigate impacts to critical habitat and buffer areas. Regulatory incentives to protect or enhance habitat areas, such as transfer of density and riparian habitat buffer averaging are ways to create flexible regulations. This may limit the development of certain types of land uses, but would still allow economic development to occur thereby balancing development and ecological protection.

- Wetlands - Due to the preliminary nature of the City's wetlands mapping, development applicants should delineate wetlands if their site contains hydric soils, wetlands identified on the National Wetland Inventory, or wetlands identified through other information. The use of a ranking system for assessing the functions and values that delineated wetlands provide is an appropriate means to establish protection. Valuable wetlands are protected through the establishment of protective buffers, where development impacts must be avoided, or mitigated. If landowners wish to pursue development in protected wetlands areas, it may be possible, though not preferred, to replace wetlands off-site in lieu of preserving these areas locally or for

landowners to pay fees to an established wetlands bank for the creation and preservation of intact wetlands areas.

Protection of critical areas must be balanced with the need for economic development. Critical area buffers and other limitations were established with the intent of minimizing the adverse effects that such protections would cause to Battle Ground's economic vitality. Although some potential types of development are limited in critical areas, other types may still be allowed that provide alternative investment opportunities. Protection can provide the quality of life and environment that promotes further development and investment in the Battle Ground community.

The City has analyzed the degree to which new development will create pressure on sensitive natural resources during the coming years. The locations of critical wetlands, floodplains, and riparian corridor habitat were compared to the location of vacant and buildable land. It was found that approximately 13 percent of vacant land contains these critical areas, which must be developed in such a way that environmental impacts are avoided, minimized, and/or mitigated (see Table 6-1). These calculations do not include land that may be required for buffers to protect critical areas resources, nor do they include critical areas that have not been mapped. It is projected that critical areas protections will have a minimal effect on economic development within the City, while preserving some of its finest resources.

Findings:

Battle Ground has a wide variety of critical areas that require protection according to state and federal requirements. The City has mapped its critical areas as required by the state and has analyzed the needed protections for each. Implementations of these requirements will not only help the City preserve its natural heritage; it will also help to protect endangered and threatened species. The protection of critical areas within the City and its UGA has been balanced against the need for continued economic development and growth. An appropriate balance has been found between these two competing goals. In addition, the City will strive to protect its natural heritage through the implementation of goals found in other elements found within this Plan, including the Transportation, Parks and Recreation and Capital Facilities elements.