Chapter 5. Natural Systems

5.1. Introduction

Port Orchard, which is located on the Sinclair Inlet of Puget Sound, contains interconnected creeks, wetlands and urban forests that provide amenities for residents and key habitat corridors and environments for terrestrial and aquatic wildlife. The City of Port Orchard serves as chief steward of the city's environment, and is responsible for the implementation of many federal and state environmental protection statutes. Through regulation, operating programs and incentives, the City actively works to protect the natural systems of the community and promote sustainable development.

Natural Systems Vision

Port Orchard embraces its stewardship of the environment and natural resources, by protecting and retaining natural systems and building for a sustainable future. The City encourages the preservation, restoration and enhancement of natural systems within its urban setting.

As Port Orchard continues to grow, development has the potential to negatively impact the city's environmental resources, particularly natural open spaces, water quality and tree cover. State law requires cities to plan for the protection of environmentally-sensitive areas (critical areas), such as wetlands, streams and geologically-hazardous areas. Environmental sustainability and responsible stewardship of natural resources require a continually improved relationship between the developed and natural environments. The City supports an approach that includes:

- Minimizing the susceptibility of critical areas to damage.
- Minimizing the rate at which natural resources are consumed.
- Minimizing production of waste that can affect air, soil and water resources.
- Maximizing open space and opportunities for recreation.
- Protecting and encouraging the enhancement of greenbelts, habitat conservation areas and wildlife habitat corridors.
- Improving infrastructure systems to support healthy living for people and wildlife.

The City evaluates the impact of its administrative and legislative decisions on the urban environment, with particular attention to impacts on environmentally sensitive areas – and weighs the merits and costs of its environmental protection and enhancement against other important responsibilities (e.g., public safety, infrastructure needs and economic

development). Non-regulatory efforts to protect natural resources include habitat/open space acquisition and preservation , salmon recovery projects and monitoring, and water quality projects and monitoring.

The City recognizes the importance of protecting its unique natural setting while providing for the needs of the growing number of residents and businesses that call Port Orchard their homes. Port Orchard's attractiveness as a place to "live, work and play" depends on preserving the natural assets of the community while simultaneously nurturing economic growth and social vibrancy. Therefore, the City has and will continue to support standards that preserve the City's natural systems to protect public health, safety and welfare, and to maintain the integrity of the natural environment.

The Natural Systems element works in concert with other elements of the Comprehensive Plan, particularly Land Use and Parks, and within the framework of municipal financial planning. The City's Critical Areas Ordinance is the regulatory authority for development and activities within critical areas (wetlands, fish and wildlife habitat areas, geologically hazardous areas, frequently flooded areas, critical aquifer recharge areas). Critical areas are discussed In more detail in Section 5.3 below. In the City's shoreline jurisdiction, the Shoreline Master Program establishes a regulatory framework and planning policies that provides an additional layer of protection for the City's shorelands and aquatic resources.

5.2. Existing Conditions

Port Orchard enjoys a full range of natural systems, recreational areas, open space, and ecosystem connections. However, like most growing areas within the state, Port Orchard has experienced declines in tree canopy, water quality and the health of salmon populations, as well as increases in traffic congestion and surface water runoff from impervious surfaces.

Key elements of natural systems in the City are regulated critical areas, as defined by the state Growth Management Act (see Figure 1). Critical areas include the following areas and ecosystems:

- Wetlands
- Areas with a critical recharging effect on aquifers used for potable water
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas.

These areas are regulated through the City's Critical Areas Ordinance (POMC Title 18), and are protected with buffers and restrictions on development type and intensity. Critical areas also receive additional protection from other City regulatory and planning efforts for water quality, stormwater runoff, efficient use of land, and provision of urban services.

Special status wildlife are those designated by federal or state government agencies as endangered, threatened, proposed, candidate, sensitive and monitor species, and species of local importance in Kitsap County. Habitat used by these species for breeding, foraging or migration also requires protection. At present, listed species that have been documented in the Port Orchard vicinity include chinook, chum, coho, cutthroat, and steelhead salmonid species; smelt; sand lance; bald eagles; marbled murrelet; great blue heron; and Steller's sea lion.

Port Orchard also has a diverse and active shoreline. The City's waterfront contains a multitude of docks, marinas and water-dependent businesses, which provide economic vitality to the downtown merchants and the city as a whole, and provide needed services to citizens throughout the region. Maintaining the general health of the City's shorelines and aquatic areas is critical to maintaining a viable working shoreline and a marine attraction. As in other urbanizing areas around Puget Sound, water quality and populations of marine life have declined due to development impacts. The City supports the restoration of natural system processes and reduction of urban impacts that reduce the health of Sinclair Inlet and the City's shorelands. The Inventory and Characterization that was prepared for Port Orchard's Shoreline Master Program contains detailed analysis of the City's shorelines and regulated water bodies.

5.3. Critical Areas and Shorelines

5.3.1 Geologically Hazardous Areas

Within Port Orchard, geologically hazardous areas include unstable slopes over 30% grade, and areas of geologic concern include unstable slopes less than 30% grade and other slopes that meet criteria for high erosion potential, seismic hazard or groundwater seepage. Geologically hazardous areas are located along a number of stream banks and bluffs near the shoreline. Areas of geologic concern are widespread throughout the city and are often located in proximity to other critical areas such as wetlands and streams. Both geologically hazardous areas and areas of geologic concern areas are regulated through the City's Critical Areas Ordinance.

Engineering provides some solutions to environmental constraints associated with geologic hazards, but such solutions must be evaluated for suitability in individual circumstances. One of the most cost-effective methods of preserving slope stability is the preservation of

native vegetation and retention of forested conditions within and at the top of geologic hazard areas.

In addition to providing significant habitat value in areas of high opportunity (bands of steep slope areas extending throughout a city often provide habitat corridors in urbanized areas), the preservation of native and non-invasive vegetation and forest features helps prevent erosion, retains important soil binding root systems, and provides valuable open and green space. Along the shorelines, erosion of coastal bluffs replenishes beach sediments that are lost to tidal action, storms and surface runoff.

5.3.2 Frequently Flooded Areas

Flooding is caused by excess surface water runoff and is exacerbated when eroded soil from cleared land or unstable slopes reduces the waterway's natural capacity to carry water. Construction and development activity within the floodplain reduces the floodway capacity. Flooding is also exacerbated by king tides in conjunction with heavy rain and wind.

Flooding causes significant public safety problems, property damage, and habitat destruction. Small areas of floodplain exist within Port Orchard, generally along areas of Blackjack Creek, Wilson Creek and Ross Creek (see Figure 2). Under the Federal Flood Insurance Program, a limited amount of floodplain development is allowed if eligibility requirements are met; however, the City regulates land uses and land alteration activities to minimize development within floodplains and the potential for damage from flooding.

5.3.3 Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas are defined as those areas identified as being of critical importance to the maintenance of fish, wildlife, and plant species, including areas with which endangered, threatened, and sensitive species have a primary association; habitats and species of local importance; commercial and recreational shellfish areas; kelp and eelgrass beds; forage fish spawning areas; naturally occurring ponds and their submerged aquatic beds that provide fish or wildlife habitat; waters of the state; lakes, ponds, streams or rivers planted with game fish by a government or tribal entity or private organization; state natural area preserves and natural resource conservation areas. Areas that are critical for fish and wildlife are primarily conserved via regulatory means; other areas are primarily dealt with through non-regulatory, incentive-based approaches.

Designated fish and wildlife habitat conservation areas in Port Orchard include riparian corridors, wetlands, and naturally occurring ponds and lakes. Other lands may be given special consideration for fish and wildlife habitat if there is a primary association with an endangered, threatened or sensitive species. The City seeks to protect and sustain the existing natural functions of these areas and encourages the enhancement of areas that have been degraded in the past.

Streams and water bodies provide fish and wildlife habitat, convey stormwater flows, provide recreational opportunities, and enhance the community's aesthetic appeal. In recent years, large areas of Port Orchard's drainage basins have experienced rapid development, with a corresponding decline in surface water quality.

Blackjack Creek is the largest stream system in Port Orchard and extends into tributaries spanning an area of approximately 3 miles within the city limits. Blackjack Creek is the only stream within the City that falls within SMA jurisdiction based on flow rate, although a portion of both Ross Creek and Blackjack Creek estuaries are under SMA jurisdiction based on tidal influence. Blackjack Creek is one of the major fish producing streams in East Kitsap, and supports Chinook, coho, steelhead, cutthroat and summer chum (chinook and steelhead are ESA listed species). The summer chum run is the only native (non-hatchery) summer chum run known in the mid-Puget Sound area. Ross Creek is also a salmon stream and is surveyed annually for adult spawners.

In recent years, the City has taken steps to protect the Blackjack Creek corridor and encourage restoration, while continuing to allow and improve public enjoyment through trails and overlooks. Further protections for both Blackjack and Ross Creek are appropriate and will be implemented through development regulations.

5.3.4 Wetlands

Wetlands are integral to the local hydrologic cycle. They reduce floods, contribute to stream flows, and improve water quality. Each wetland provides various beneficial functions, but not all wetlands perform all functions, nor do they perform all functions equally well. Large wetlands, and wetlands hydrologically associated with lakes and streams, have a relatively more important function in the watershed than small, isolated wetlands.

Urbanization within a watershed diminishes the function of individual wetlands by increasing stormwater volume, reducing runoff quality, isolating wetlands from other habitats, and decreasing vegetation. Undeveloped land adjacent to a wetland provides a buffer to help minimize the impacts of urbanization. The long-term success in function of the wetland is dependent on land development strategies that protect and restore wetland buffers. Science indicates that an undeveloped vegetated buffer is equally as important as the wetland itself as it contributes to the function of the wetland by providing wildlife habitat, retaining stormwater, filtering sediment and pollution, and moderating water temperature.

5.3.5 Aquifer Recharge Areas

All of the City of Port Orchard's public water supply is obtained from wells. The City's Critical Areas Ordinance recognizes critical aquifer recharge areas around water system wellheads and in areas that are highly susceptible to groundwater contamination. These areas are protected through a combination of regulatory restrictions and low-density zoning.

Groundwater aquifers also supply water to lakes, wetlands, and streams and to private wells. An aquifer is a sizable and continuous body of porous material composed of sand, gravel or silt saturated with water and capable of producing usable quantities of water to a well. As required by federal law, this water is monitored and tested to ensure that it meets the high standards required for drinking water. Rainfall contributes to surface water and recharges the groundwater as precipitation infiltrates through the soil.

For water to be pumped on a sustainable basis, new water must enter the aquifer. Aquifers are recharged by rainwater infiltrating into the ground through permeable soils and by recharge from rivers, streams and lakes. Wetlands and natural areawide landscape depressions that allow water to stand also may aid in groundwater infiltration by slowing runoff and allowing it to seep into the ground when located in suitable areas. Development can lessen the water entering the aquifer by covering recharge areas with impervious surfaces or filling wetlands and natural depressions that contain standing water. Groundwater contamination may also result from development. Once groundwater is contaminated, it is difficult, costly, and sometimes impossible to clean up. Preventing contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people.

As in any urban area, ensuring groundwater recharge and groundwater quality will be a continuing challenge as further urbanization occurs.

5.3.6 Shorelines

Shorelines within the City of Port Orchard include those portions of Sinclair Inlet lying within the city limits and all lands extending landward 200 feet from the ordinary high water mark, together with any associated wetlands, river deltas, and floodways associated with tidal waters. The City also has one creek, Blackjack Creek, which is regulated as a "shoreline of the state" due to its average flow level. The estuarine portion of Ross Creek and portions of two lakes (Big Lake and Square Lake) also qualify as shorelines of the state.

The Port Orchard vicinity is experiencing an increasing amount of urban development, which has affected the City's shorelines. Sinclair Inlet is a shallow, poorly flushing estuary, and the slow period of discharge and replenishment is a factor influencing its water and habitat quality in the inlet. Fecal coliform contamination, mostly from non-point source pollution, in addition to significant chemical contamination that includes high levels of mercury and PCBs have been documented in Sinclair Inlet.

Currently, existing impervious surfaces along portions of Bay Street are not treated for stormwater runoff and flow directly into Sinclair Inlet. However, improvements are being made with adoption of Low Impact Development Standards and within the City's Stormwater utility and updated NPDES permit programs.

The Inventory and Characterization section of the City's Shoreline Master Program contains detailed recommendations for land use, zoning, restoration plans and other actions that could assist in restoring shoreline water quality and habitat functions.

5.4 Goals and Policies

General

Goal 1. Maintain accurate and scientifically sound development regulations that protect the City's natural resources, while allowing for compatible growth and development.

Policy NS-1 Maintain a Critical Areas Ordinance that protects surface water resources including fish and wildlife habitats and wetlands with special consideration for special status wildlife (listed species).

Policy NS-2 Utilize Best Available Science to improve the protection of and increase the accuracy of information about wetlands, flood plains, channel migration zones, watershed boundaries and stream locations and types.

Policy NS-3 Map wetlands, streams, fish and wildlife habitat conservation areas, geologically hazardous areas, frequently flooded areas, flood plains, channel migration zones, and the findings of professionally conducted local wetlands inventories into Critical Areas maps.

Policy NS-4 Develop and implement a mitigation banking program with coordination with state and federal agencies, with sites in multiple watersheds to mitigate for unavoidable impacts to wetlands, streams, and their buffers. Ensure that replacement of altered or displaced wetland or stream functions occurs within the drainage basin or service area identified by the department.

Goal 2. Protect the water quality, flows and ecological integrity of streams, wetlands, and Sinclair Inlet by appropriately regulating storm water and land use while allowing for compatible growth and development.

Policy NS-5 Protect marine and fresh surface water resources by ensuring that development, including rights-of-way, in critical areas is consistent with the Critical Areas Ordinance, Shoreline Master Program, and other applicable local, state and federal regulations.

Policy NS-6 Evaluate, avoid, minimize, and mitigate unavoidable impacts to surface water quality and quantity during the planning and development review process. Consider the cumulative impacts of existing and future development on surface water quantity and quality.

Policy NS-7 Require native vegetation buffers along streams, marine and freshwater shorelines and wetlands to protect the functions and values of those surface waters.

Geologically Hazardous Areas

Goal 3. Protect the public health, safety and welfare from geologic hazards.

Policy NS-8 Ensure that development in geologically hazardous areas occurs in a manner that minimizes hazard to health or property and minimizes impacts to the natural environment, including stream and shoreline processes.

Policy NS-9 Protect public safety and health, maintain water quality and habitat, minimize erosion of soils and bluffs, and diminish the public cost of repairing areas from damage due to landslides, erosion and seismic activities through appropriate regulation and development conditions.

Policy NS-10 Where information about extensive fill areas is known, depict fill areas as areas of geological hazard.

Policy NS-11 Restrict development in geologically hazardous areas according to the Critical Areas Ordinance, unless the site is demonstrated by a qualified geotechnician to be suitable for building.

Policy NS-12 Protect forested steep slopes and ridgelines designated as geologically hazardous areas.

Policy NS-13 Require revegetation with appropriate native plant species and enhancement of existing native vegetation on steep slopes that have been cleared in violation of the Critical Areas Ordinance.

Goal 4. Consider geologically hazardous areas in assigning comprehensive plan designations and implementing zones.

Policy NS-14 Maintain and update a City map for land use planning and regulatory purposes that depicts both Geologically Hazardous Areas and Areas of Geologic Concern, per the definitions in the Critical Areas Ordinance.

Policy NS-15 Maintain and update a Critical Areas Ordinance that addresses land use controls in geologically hazardous areas.

Policy NS-16 Base the geologically hazardous areas map on best available scientific information, such as the Coastal Zone Atlas of Washington, Quaternary

Geology and Stratigraphy of Kitsap County, and other available geotechnical reports.

Policy NS-17 Update the geologically hazardous areas map regularly to reflect the latest information.

Policy NS-18 Establish development standards in geologically hazardous areas that promote retention and maintenance of existing native vegetation and which discourages clearing of ridgelines and slopes to provide scenic vistas, and to ameliorate stormwater drainage impacts.

Policy NS-19 Encourage location of building sites away from steep slopes and breaks in slope.

Critical Aquifer Recharge Areas

Goal 5. Safeguard the quality and quantity of long-term water supplies by preserving and protecting critical aquifer recharge areas through use of the appropriate regulatory means.

Policy NS-20 Coordinate with the US Geological Survey, Kitsap County Health District, and the City Public Works Department to maintain and update the methodology and mapping used to identify Category I and Category II Critical Aquifer Recharge Areas.

Policy NS-21 Limit land uses listed by the Environmental Protection Agency (EPA) Office of Groundwater and Drinking Water exhibit titled "Potential Sources of Drinking Water Contamination Index" within Category I Critical Aquifer Recharge Areas. Within Category II areas, require appropriate safeguards and/or mitigation for listed land uses.

Policy NS-22 Require proposed projects that present a potential threat to critical aquifer recharge areas and groundwater quality to provide hydrogeologic information to evaluate the proposal, in accordance with adopted plans and regulations.

Policy NS-23 Implement plans created to improve water resource management, using resources available to accomplish higher priority actions first.

Policy NS-24 Take immediate action to correct or limit saltwater intrusion in areas with evidence of intrusion, and prevent saltwater intrusion in areas where hydrologic information indicates that saltwater intrusion is likely.

Wetlands

Goal 6. Protect the water quality, flows and ecological integrity of wetlands by appropriately regulating land uses and storm water through the development review process.

Policy NS-25 The City's Critical Areas Ordinance shall protect existing wetland functions in order to maintain water quality, retention, and wildlife habitat. New development adjacent to protected wetlands shall be subject to vegetative buffers as identified in the Critical Areas Ordinance and other applicable development standards.

Policy NS-26 Strive to achieve no net loss of wetland function in the short term, and a measurable gain of wetland function in the long term, in the following manner: Avoid direct impacts on wetlands and buffers; minimize direct impacts to wetlands and buffers; and mitigate impacts through creation, restoration, or enhancement of wetlands or buffers.

Policy NS-27 Use of fencing, flagging, or tape to mark wetland boundaries, buffers, and construction setbacks during construction shall be required as a condition of the land use permit or building permit. No construction activity or mechanical equipment shall be allowed in these delineated areas.

Policy NS-28 Identification of wetlands and delineations of their boundaries shall be done in accordance with the approved federal wetland delineation manual and applicable regional supplements, and the most recent version of the Washington State Rating System for Western Washington, or as required in the City's Critical Areas Ordinance.

Frequently Flooded Areas

Frequently flooded areas are defined as lands, shorelands, and waters that are within the 100-year floodplain as designated by the Federal Emergency Management Agency on Flood Insurance Rate and Boundary Maps.

Goal 7. Reduce the risk of damage to life, property, and the natural environment from flooding through appropriate regulatory means. Prevent development on floodplains that might have the potential to damage property or increase height, flow or velocity of floodwater.

Policy NS-29 Avoid development in frequently flooded areas except when no conditions will be created which will be injurious to life, property or natural systems in times of flooding.

Policy NS-30 Require improvements to existing structures within frequently flooded areas to be constructed using methods and practices that minimize flood damage.

Policy NS-31 Minimize diking and bank protection that may alter the natural hydrology of streams, except where used to enhance habitat.

Policy NS-32 Prohibit the construction of flood barriers that will unnaturally divert floodwaters or that may increase flood hazards in other areas.

Goal 8. Prevent land use in floodplains that may degrade water quality during times of flooding.

Policy NS-33 Prohibit locating hazardous materials and solid waste facilities in floodplains.

Policy NS-34 Coordinate with the Kitsap County Health District to identify failing septic systems and connect to sewer, where available.

Fish and Wildlife Habitat Conservation Areas

Goal 9. Preserve natural flood control, stormwater storage and drainage or stream flow patterns.

Policy NS-35 Minimize habitat fragmentation and maximize connectivity of open space corridors when designating land use and zoning classifications, and reviewing development proposals.

Policy NS-36 Identify and protect habitat conservation areas throughout the City, where appropriate.

Policy NS-37 Coordinate with appropriate federal and state agencies, local tribal governments, and community organizations to refine and maintain thorough assessments of habitat types and areas with important habitat elements. Based upon these assessments, develop a habitat protection plan that identifies areas most in need of protection and restoration, with special consideration for special status wildlife species.

Policy NS-38 Consider the potential development impacts to habitat conservation areas, plant communities, and fish and wildlife populations in designating land use and zoning classifications.

Policy NS-39 Require appropriate native vegetative buffers along surface waters to protect fish and wildlife habitat. Larger or enhanced buffer areas may be

required to adequately protect priority fish and wildlife species. Buffer enhancement, restoration, and/or mitigation shall be required where buffers have been degraded or removed during new development.

Policy NS-40 Review development applications located within identified habitat conservation areas and forward those that may pose a potential adverse impact to the appropriate agencies for review.

Policy NS-41 Encourage developers to protect continuous corridors of native vegetation wherever possible, to disturb as little natural vegetation as feasible, and to enhance or restore wildlife habitat by transplanting or planting native vegetation in the developed landscape.

Policy NS-42 Encourage redevelopment of areas within the City that were previously developed but that are now underutilized or vacant, to promote the highest and best use of existing properties and minimize new environmental impacts.

Policy NS-43 Encourage cluster development to protect fish and wildlife habitat and, where possible, plan cooperatively with adjacent property owners to provide maximum habitat potential. Restoration of native vegetation within undeveloped areas of cluster development should be a requirement of such development.

Policy NS-44 Encourage best management practices in the use of herbicides and pesticides near wetlands, surface waters or drainage ditches.

Goal 10. Maintain accurate and sound development regulations that preserve the biological diversity of Port Orchard and the Puget Sound.

Policy NS-45 Improve mapping of critical areas and buffers throughout the City and the South Kitsap Urban Growth Area.

Policy NS-46 Maintain a CAO and development regulations that protect habitat conservation areas and important habitat elements.

Policy NS-47 Identify species of local importance within Port Orchard City Limits.

Goal 11. Preserve the biological diversity of Port Orchard and Puget Sound using non-regulatory means as appropriate.

Policy NS-48 Maintain a citywide inventory of existing plant, fish, and wildlife habitat, including habitat for all species of concern identified by Washington

Department of Fish and Wildlife, and make information available to the public.

Policy NS-49 Map priority conservation areas based upon a synthesis of existing citywide assessments of aquatic habitat quality, terrestrial habitat quality, and groundwater recharge potential. Work with appropriate state agencies, local tribal governments, and community organizations to refine and maintain thorough citywide assessments of habitat types and areas with important habitat elements. Based upon these assessments, develop a habitat protection plan that identifies areas most in need of protection and restoration, with special consideration for special status wildlife. Implement the habitat protection plan through the Parks Plan and other incentive-based, non-regulatory efforts. Where inventories are incomplete, make it a high priority to complete them.

Policy NS-50 Minimize habitat fragmentation and maximize connectivity of open space corridors when implementing non-regulatory efforts.

Policy NS-51 Work with other government jurisdictions to coordinate watershed management and habitat protection efforts for watersheds and corridors that cross jurisdictional boundaries.

Policy NS-52 Ensure that the City's Parks, Recreation, and Open Space Plan is consistent with habitat inventories and habitat protection plans.

Policy NS-53 Minimize impacts to fish and wildlife species when siting trail systems through habitat conservation areas.

Policy NS-54 Encourage public-private partnerships and voluntary efforts to protect, restore, and enhance fish and wildlife habitat. Provide information about existing government and private programs pertaining to voluntary habitat protection, enhancement, and restoration.

Goal 12. Protect anadromous fish runs in the City of Port Orchard using appropriate regulatory means.

Policy NS-55 Give special consideration to the protection of anadromous fish species when determining land use and zoning designations, and when developing and applying development regulations. Consider the relative importance of a stream's fisheries resource.

Goal 13. Protect and restore anadromous fish runs in the City of Port Orchard using appropriate non-regulatory means.

Policy NS-56 Restore local salmon populations by participating in the West Sound Watersheds Council Lead Entity and the Puget Sound Partnership.

Policy NS-57 Develop and implement recovery plans for anadromous fish and other listed species under the Federal Endangered Species Act. Work with appropriate state and federal agencies, local tribal governments, and community organizations and adjacent jurisdictions to identify deficiencies in City programs and regulations.

Policy NS-58 Work with resource agencies, tribal governments, the County, and others to inventory nearshore areas, prioritize and implement restoration projects.

Policy NS-59 Work with resource agencies, local tribal governments, the County, and others to inventory, prioritize, and restore fish blockages, degraded stream reaches, and wetlands.

Policy NS-60 Support and coordinate volunteer stream and wetland restoration and preservation efforts.

Goal 14. Update the Ross and Blackjack Creek watershed plans to improve water resource management and implement improvements for ground and surface water quality and quantity in cooperation with tribal governments and interested citizens.

Policy NS-61 Implement plans created to improve water resource management and monitoring, including the recommendations of the proposed Kitsap Peninsula (WRIA 15) Watershed Plan and Kitsap County Groundwater Management Plan, using resources available to accomplish higher priority actions first. Use watershed plans as a means of identifying projects with a broad base of community support and coordinating with neighborhood jurisdictions.

Policy NS-62 Coordinate with other jurisdictions, agencies, and private landowners to reduce the impacts of non-point source pollution upon aquatic resources by implementing the recommendations of approved watershed action plans.

Goal 15. Develop a funding strategy and financing plan that uses a mix of local, state, federal and private funds to achieve conservation and restoration priorities.

Policy NS-63 Develop locally-controlled long-term funding source(s) for natural resource protection and enhancement. Utilize these funds to the maximum extent possible to leverage grant funds.

Policy NS-64 Coordinate with Ecology, Kitsap Public Utility District, Kitsap County, area tribal governments, and other jurisdictions and government agencies to pursue funding for water resource management efforts.

Goal 16. Comprehensively monitor water resources through non-regulatory means to ensure their long-term viability.

Policy NS-65 Ensure that local water resources are comprehensively monitored, paying special attention to aquifer recharge areas, groundwater levels, stream flows, and saltwater intrusion. Maintain a citywide water quality monitoring program.

Goal 17. Comprehensively manage water resources primarily through non-regulatory means to ensure their long-term viability.

Policy NS-66 Adequately maintain groundwater quantity to avoid saltwater intrusion and to protect in-stream flows for anadromous fish populations. Utilize BAS to determine desired streamflows and determine means of achieving those flows.

Policy NS-67 Seek opportunities to use reclaimed water for wetland augmentation, irrigation, stream enhancement, and aquifer replenishment.

Policy NS-68 Coordinate actions of the City of Port Orchard Public Works Department with other agencies and jurisdictions to improve runoff quality and reduce runoff flow rates. Utilize a basin approach to stormwater facility planning.

Policy NS-69 Ensure all existing City-owned stormwater facilities, and all new private facilities and culverts are properly designed, constructed and maintained to reduce the occurrence of flooding.

Policy NS-70 Employ best management practices in the City's use of herbicides and pesticides near surface waters or drainage ditches.

Policy NS-71 Educate City residents and businesses about the natural environment and the benefits of healthy surface and groundwater resources.

Shorelines and Aquatic Areas

Goal 18. Encourage shoreline diversity by recognizing the distribution and location requirements of housing, commerce, industry, transportation, public buildings, education, recreation and natural resources.

Policy NS-72 Encourage and support shoreline diversity through planned and coordinated development, which gives preference to water-dependent uses, maintenance of shoreline resource values, and continuing environmental protection.

Goal 19. Water-dependent and water-related commercial uses should be encouraged when the shoreline can accommodate such development.

Policy NS-73 Encourage and support water-related and water-dependent commercial uses that are environmentally compatible with the City's Shoreline Master Program and other shoreline and aquatic area protection policies and regulations.

Policy NS-74 Land use activities shall be sited and designed to minimize conflicts with and avoid impacts to the shoreline environment.

Policy NS-75 Encourage maritime dependent services and industry to remain and to improve their services while operating in an environmentally sustainable manner.

Goal 20. Increase public awareness of the historical, cultural and environmental influences of Port Orchard's shorelines.

Policy NS-56 Historical, cultural, educational or scientific areas should be identified, preserved and/or restored and shoreline development within them should be minimized.

Policy NS-57 Waterfront historical districts (those identified now and in the future), cultural resource areas and specific historic sites and structures should be integrated into zoning and planning maps and development regulations.

Policy NS-58 Public awareness of the historical, cultural and environmental influences of Port Orchard's shoreline should be increased through educational and interpretive projects.

Goal 21: When development or redevelopment of shoreline properties is proposed, the development proposal should include restoration of degraded shoreline habitat where feasible, consistent with the requirements of the City's shoreline master program.

Policy NS-59 Shoreline development proposals should include an analysis of potential opportunities for restoration of degraded shoreline habitat, including but not limited to opportunities for: removal of shoreline fill, bank armoring and overwater structures; re-establishing intertidal and riparian vegetation; and restoring tidal processes.

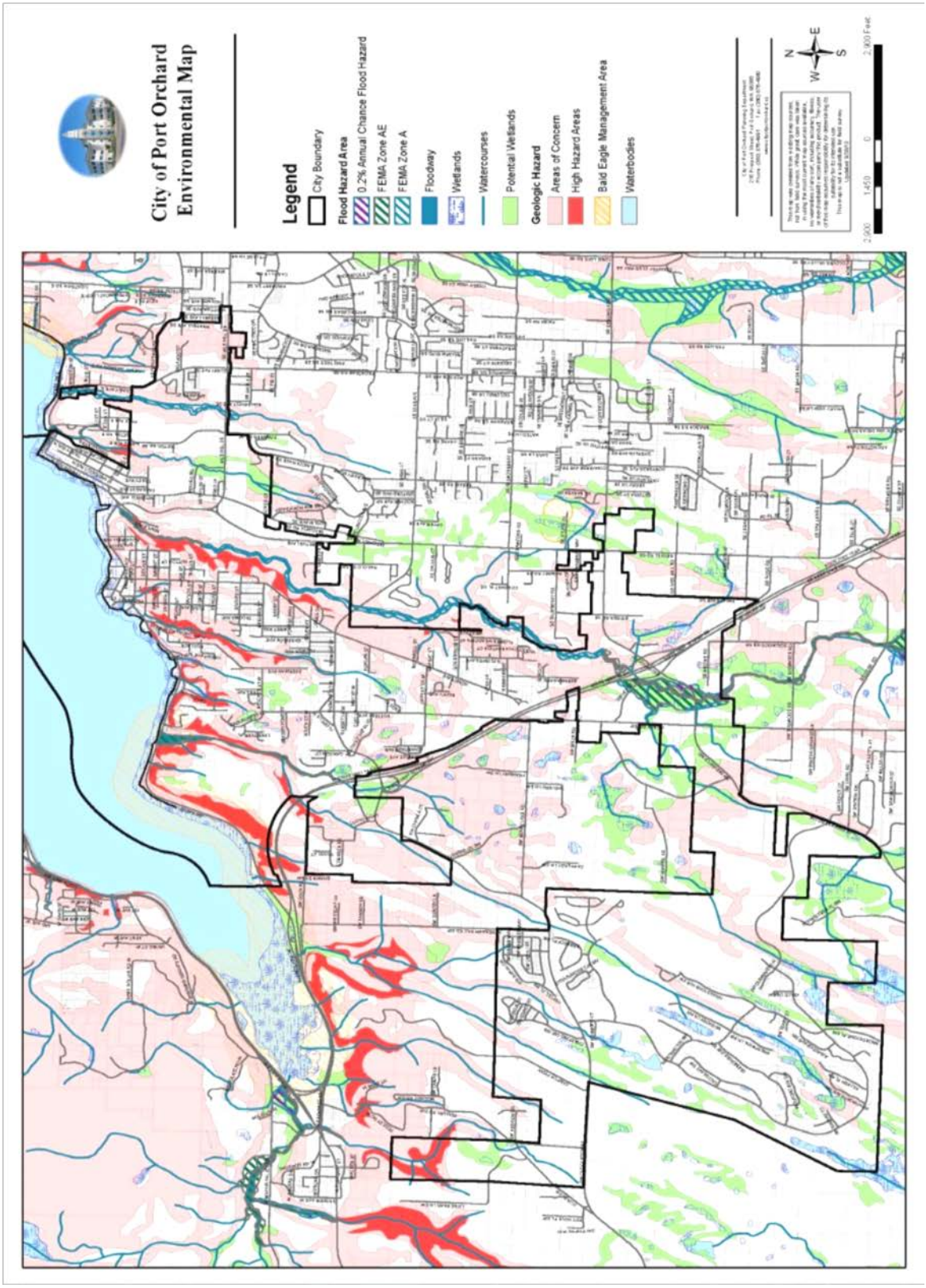
Policy NS-60 Shoreline development proposals should include an analysis of anticipated impacts to shoreline ecological functions, and should provide mitigation measures sufficient to ensure no net loss of such functions.

Goal 22: Manage land use and water resources so that shellfish and finfish that utilize marine and freshwater in Port Orchard are abundant and fit for human consumption.

Policy NS-61: Maintain or improve water quality such that shellfish within Port Orchard are safe to consume.

Policy NS-62: Maintain or improve marine habitat such that there is no net loss of shellfish habitat quantity and quality within Port Orchard compared to a baseline of 1995.

Policy NS-63: Maintain or improve fresh, estuarine, and marine habitat such that there is no net loss of fin fish habitat quantity and quality within Port Orchard compared to a baseline of 1995.


City of Port Orchard
Environmental Map
Legend
City Boundary
Flood Hazard Area
0.2% Annual Chance Flood Hazard
FEMA Zone AE
FEMA Zone A
Floodway
Wetlands
Watercourses
Potential Wetlands
Geologic Hazard
Areas of Concern
High Hazard Areas
Bald Eagle Management Area
Waterbodies
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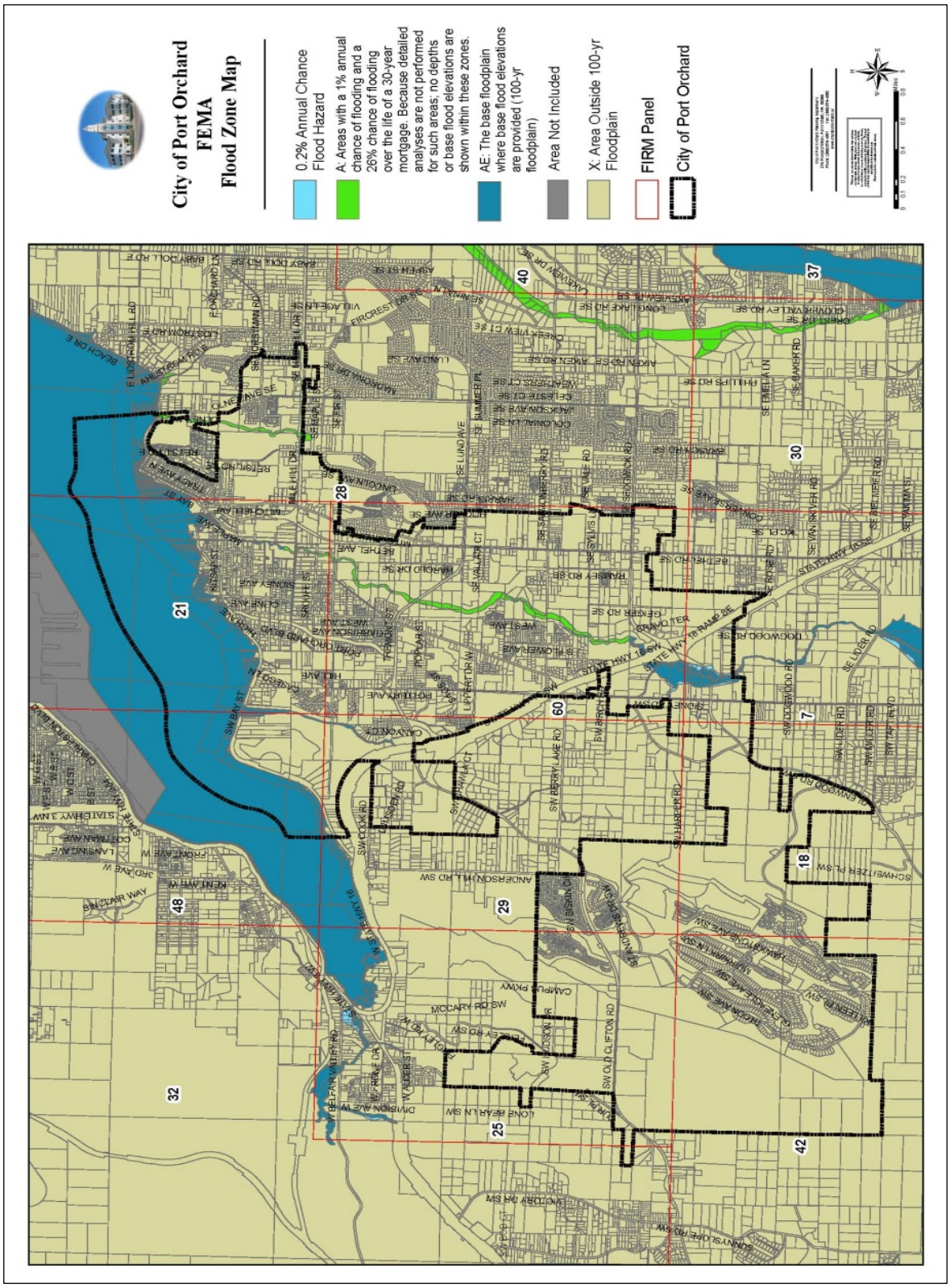
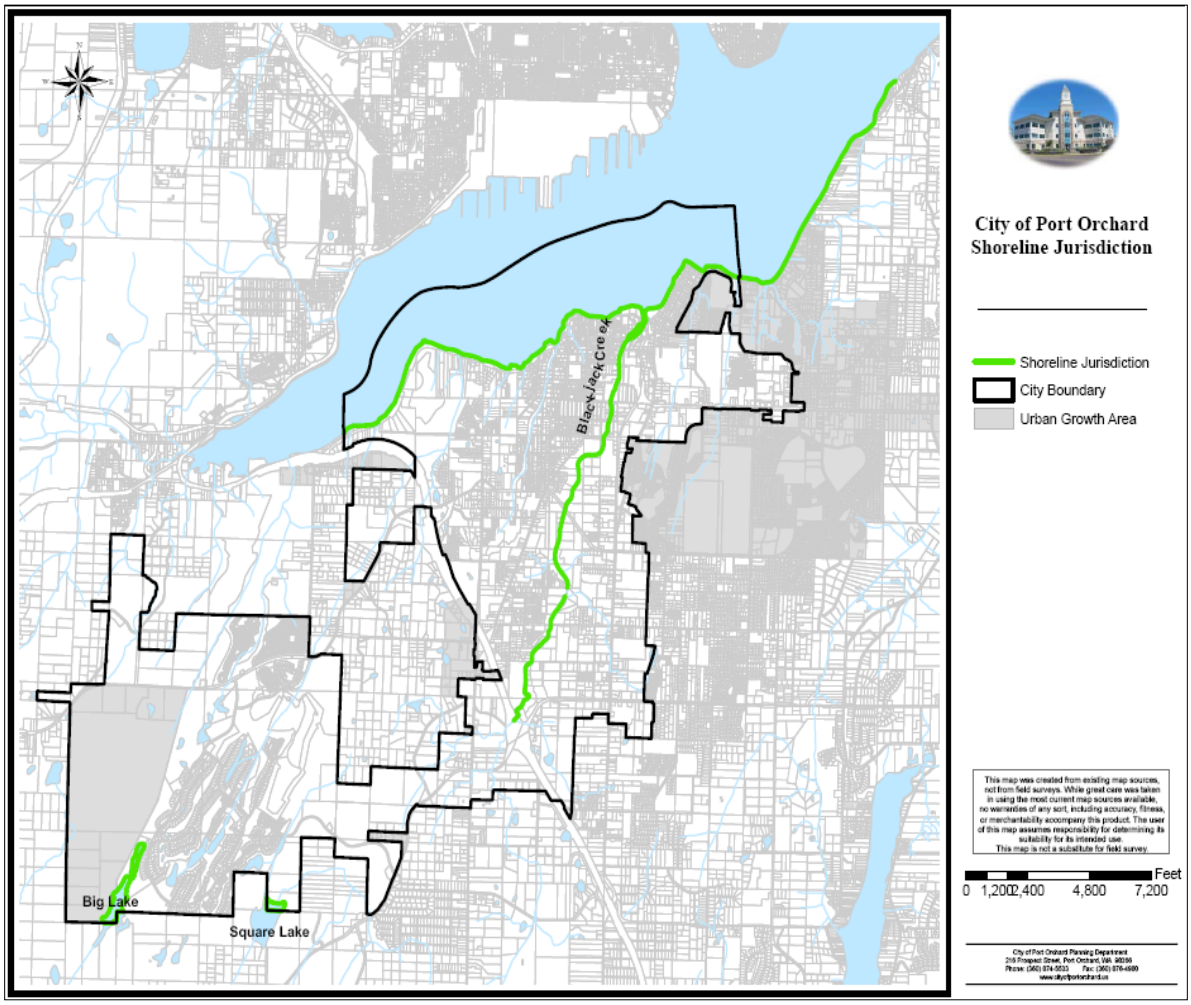

City of Port Orchard
FEMA
Flood Zone Map
0.2% Annual Chance Flood Hazard
A: Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE: The base floodplain where base flood elevations are provided (100-yr floodplain)
Area Not Included
X: Area Outside 100-yr Floodplain
FIRM Panel
City of Port Orchard


Big Lake
Square Lake
City of Port Orchard
Shoreline Jurisdiction
Shoreline Jurisdiction
City Boundary
Urban Growth Area
Feet
0 1,200 2,400 4,800 7,200