

Chapter 5. NATURAL SYSTEMS

5.1. Plan Context

As the City of Port Orchard continues to grow, in population and in area, the detrimental impacts of that growth on the natural environment become more pronounced. The proximity of attractive natural areas and the recreational opportunities made available by fish, wildlife, clean water and open spaces play a large role in enhancing the quality of life in the City. In order to adequately meet the need for protection, preservation and enhancement of natural resources, the Natural Systems Chapter provides a framework that recognizes the relationship between Port Orchard's natural resources, land use planning, and a variety of regulatory and non-regulatory efforts.



This chapter includes goals and policies to protect and enhance natural resources and to guide future growth in a manner that minimizes impacts to the City's natural environment. Impacts of development are minimized primarily through regulations on development while enhancements to natural resources are primarily through non-regulatory efforts. The implementation of the policies outlined in the chapter supports the protection and enhancement of these areas. These elements are defined and regulated in the City of Port Orchard Critical Areas Ordinance (Ordinance 1784, adopted December 1999).

Key elements of natural systems in the City are regulated as critical areas, including geologically hazardous areas, critical aquifer recharge areas, wetlands, frequently flooded areas, and fish and wildlife habitat conservation areas.

Non-regulatory efforts to enhance natural resources include (1) habitat/open space planning and property acquisition, typically by a public entity; (2) salmon recovery planning, monitoring, and project implementation; and (3) water resources planning, monitoring, management, and project implementation. This chapter works with other chapters of the Port Orchard Comprehensive Plan (Plan) to protect and enhance critical areas and natural resources.

5.2. Natural Systems Goals and Policies

5.2.1. Geologically Hazardous Areas

Geologically hazardous areas are defined as critical areas due to their susceptibility to sedimentation, erosion, sliding, earthquake, or other geological events. They are not suited to siting high density or high intensity commercial, residential or industrial development consistent with public health or safety concerns.

Goal 1. Protect the public health, safety and welfare from geologic hazards.

- Policy PONS-1 Ensure that development in geologically hazardous areas occurs in a manner that poses no hazard to health or property and that minimizes impacts to the natural environment, including stream and shoreline processes.
- Policy PONS-2 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.
- Policy PONS-3 Where information about extensive fill areas is known, depict fill areas as areas of geologic hazard.
- Policy PONS-4 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 PONS-5 Protect the forested slopes and ridgelines designated as geologically hazardous areas.
- Policy PONS-6 Require revegetation and enhancement of steep slopes that have been cleared in violation of the Critical Areas Ordinance.

Goal 2. Consider geologically hazardous areas in assigning comprehensive plan designations and implementing zones.

- Policy PONS-7 Maintain and update a City map for land use planning and regulatory purposes that depicts both Areas of High and Areas of Moderate Geologic Hazard.
- Policy PONS-8 Maintain and update a Critical Areas Ordinance (CAO) that addresses land use controls in geologically critical areas.
- Policy PONS-9 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 PONS-10 Update the geologically hazardous areas map regularly to reflect the latest information.

Policy PONS-11 Establish development standards in geologically hazardous areas that promote retention and maintenance of existing vegetation to discourage clearing of ridgelines and slopes to provide scenic vistas, and to ameliorate stormwater drainage impacts.

Policy PONS-12 Encourage location of building sites away from steep slopes and breaks-in-slopes.

5.2.2. Critical Aquifer Recharge Areas

In Port Orchard, groundwater is the source of all drinking water. Places where rainfall soaks into the ground are called recharge areas. Places where the geologic conditions are such that surface contaminants could pollute water supplies are considered critical aquifer recharge areas. The CAO recognizes two categories of critical aquifer recharge areas: Category I and II, with Category I being areas with a higher risk of contamination of water supplies.

Category I and II critical aquifer recharge areas are protected through a combination of regulatory restrictions on land uses that pose an elevated risk of contaminating groundwater and low-density zoning.

Goal 3. 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 PONS-13 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 PONS-14 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 PONS-15 Require proposed projects that present a 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 PONS-16 Implement plans created to improve water resource management, using resources available to accomplish higher priority actions first.

Policy PONS-17 Take immediate action to correct or limit saltwater intrusion in areas with evidence of intrusion.

5.2.3. Surface Water Resources

Surface waters include wetlands, streams, ponds, lakes, and the marine waters of Puget Sound. These areas are highly valued by Port Orchard citizens and are home to a wide variety of fish and wildlife species.

Wetlands generally include, but are not limited to swamps, marshes, estuaries, bogs, and ponds less than 20 acres, including their submerged aquatic beds and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, stormwater 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 include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.



Goal 4. Protect the water quality, flows and ecological integrity of streams, wetlands, and Sinclair Inlet by appropriately regulating through the development review process stormwater and land use while allowing for compatible growth and development.

Policy PONS-18 Protect marine and fresh surface water resources by ensuring that development, including rights-of-way, in critical areas is consistent with the CAO, Shoreline Management Master Program, and other applicable local regulations.

Policy PONS-19 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 PONS-20 Require native vegetation buffers along streams and wetlands to protect the functions and values of those surface waters.

Policy PONS-21 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.

Goal 5. Maintain accurate and scientifically sound development regulations that protect the water quality, flows and ecological integrity of streams, wetlands, and Puget Sound, while allowing for compatible growth and development.

Policy PONS-22 Maintain a CAO that protects surface water resources including fish and wildlife habitats and wetlands with special consideration for anadromous fish.

Policy PONS-23 Utilize BAS 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 PONS-24 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 PONS-25 Develop and implement a mitigation banking program 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 designated by the department.

5.2.4. 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 6. 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 PONS-26 Avoid development in frequently flooded areas.
- Policy PONS-27 Require improvements to existing structures within frequently flooded areas are constructed using methods and practices that minimize flood damage.
- Policy PONS-28 Minimize diking and bank protection that may alter the natural hydrology of streams, except where used to enhance habitat.
- Policy PONS-29 Prohibit the construction of flood barriers that will unnaturally divert floodwaters or that may increase flood hazards in other areas, including filling areas that frequently flood.

Goal 7. Prevent land use in floodplains that may degrade water quality during times of flooding.

- Policy PONS-30 Prohibit locating hazardous materials and solid waste facilities in floodplains.
- Policy PONS-31 Coordinate with the Kitsap County Health District to identify failing septic systems and assist in the connection to sewer, where available.

5.2.5. 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.

Goal 8. Preserve natural flood control, stormwater storage and drainage or stream flow patterns.

- Policy PONS-32 Minimize habitat fragmentation and maximize connectivity of open space corridors when designating land use and zoning classifications and reviewing development proposals.
- Policy PONS-33 Identify and protect habitat conservation areas throughout the City, where appropriate.

Policy PONS-34 Coordinate with appropriate 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 anadromous fish species.

Policy PONS-35 Coordinate development to minimize habitat fragmentation and protect open space and connective corridors.

Policy PONS-36 Consider the impacts to habitat conservation areas, plant communities, and fish and wildlife populations in designating land use and zoning classifications.



Policy PONS-37 Require 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 PONS-38 Review building permit applications located within identified habitat conservation areas and forward those that may pose a potential adverse impact to the appropriate agencies for review.

Policy PONS-39 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 PONS-40 Encourage cluster development to protect fish and wildlife habitat and, where possible, plan cooperatively with adjacent property owners to provide maximum habitat potential.

Policy PONS-41 Encourage best management practices in the use of herbicides and pesticides near surface waters or drainage ditches.

Goal 9. Maintain accurate and sound development regulations that preserve the biological diversity of Port Orchard and the Puget Sound.

Policy PONS-42 Improve mapping of habitat conservation areas throughout the City and the South Kitsap Urban Growth Area.

Policy PONS-43 Maintain a CAO and development regulations that protect habitat conservation areas and important habitat elements.

Policy PONS-44 Identify species of local importance within Port Orchard City Limits.

Goal 10. Preserve the biological diversity of Port Orchard and Puget Sound using non-regulatory means as appropriate.

Policy PONS-45 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 PONS-46 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 anadromous fish species. Implement the habitat protection plan through the Parks, Recreation and Open Space Plan and other incentive-based, non-regulatory efforts. Where inventories are incomplete, make it a high priority to complete them.



Policy PONS-47 Minimize habitat fragmentation and maximize connectivity of open space corridors when implementing non-regulatory efforts.

Policy PONS-48 Work with other government jurisdictions to coordinate watershed management and habitat protection efforts for watersheds and corridors that cross jurisdictional boundaries.

Policy PONS-49 Ensure that the City's Parks, Recreation, and Open Space Plan is consistent with habitat inventories and habitat protection plans.

Policy PONS-50 Minimize impacts to fish and wildlife species when siting trail systems through habitat conservation areas.

Policy PONS-51 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 11. Protect anadromous fish runs in the City of Port Orchard using appropriate regulatory means.

Policy PONS-52 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 12. Protect and restore anadromous fish runs in the City of Port Orchard using appropriate non-regulatory means.

Policy PONS-53 Assist in the restoration of local salmon populations by participating of the East Kitsap Lead Entity and the Puget Sound Partnership.

Policy PONS-54 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 PONS-55 Work with resource agencies, tribal governments, the County, and others to inventory nearshore areas, prioritize and implement restoration projects.

Policy PONS-56 Work with resource agencies, local tribal governments, the County, and others to inventory, prioritize, and restore fish blockages, degraded stream reaches, and wetlands.

Policy PONS-57 Support and coordinate volunteer stream and wetland restoration and preservation efforts.

Goal 13. 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 PONS-58 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 PONS-59 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. Where appropriate, recommendations that apply to all watersheds should be implemented on a countywide basis.

Goal 14. 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 PONS-60 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 PONS-61 Coordinate with Ecology, Kitsap Public Utility District, Kitsap County Health District, area tribal governments, and other jurisdictions and government agencies to pursue funding for water resource management efforts.

Goal 15. Comprehensively monitor water resources through non-regulatory means to ensure their long-term viability.

Policy PONS-62 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 16. Comprehensively manage water resources primarily through non-regulatory means to ensure their long-term viability.

Policy PONS-63 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 PONS-64 Seek opportunities to use reclaimed water for wetland augmentation, irrigation, stream enhancement, and aquifer replenishment.

Policy PONS-65 Take immediate action to correct or limit saltwater intrusion in areas with evidence of intrusion.



Policy PONS-66 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 PONS-67 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 PONS-68 Employ best management practices in the City’s use of herbicides and pesticides near surface waters or drainage ditches.

Policy PONS-69 Educate City residents and businesses about the natural environment and the benefits of healthy surface and groundwater resources.

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