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State:	Washington
Jurisdiction Type:	Municipal
Municipality:	City of Bainbridge Island
Year *(adopted, written, etc.)*:	2004
Community Type – applicable to:	Urban; Suburban
Title:	City of Bainbridge Island Comprehensive Plan – Environmental Element
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Abstract

The City of Bainbridge Island has explicitly addressed the potential for sea level rise in the Environmental Element of its comprehensive plan. Adopted in 2004, the plan recognizes that Bainbridge Island is potentially subject to flooding, erosion, landslides, seismic events, and soil subsistence. The overall goal of the Environmental element is to avoid adverse impacts where possible; to minimize, reduce or eliminate impacts over time; and to compensate for unavoidable impacts. The plan outlines protections for critical areas including transfer of and purchase of development rights; provides for the use of the City's Shoreline Management Master Program to address and protect marine fish and marine shoreline habitat; mandates no net loss of the city's remaining regulated aquatic resources; requires the maintenance of vegetated buffers between proposed development and aquatic resources; calls for the preservation of stream courses; and the protection or restoration of natural functions of riparian habitat.

The Frequently Flooded Areas component of the plan also addresses sea level rise, noting that "cumulative sea level rise has serious implications for the shorelines and lowland areas that are potentially affected by beach, bluff erosion, and loss of intertidal zones." The component recommends actions to protect frequently flooded areas including a limitation on development and alteration of natural floodplains; preservation of stream channels and natural protective barriers; revision of the flood insurance rate map to reflect the natural migration of frequently flooded areas; implementation of nonstructural protective methods such as setbacks and the use of natural vegetation; and location of public sewers and water infrastructure outside frequently flooded areas.

Resource

Editor's Note: The text below contains relevant provisions excerpted from the 2004 City of Bainbridge Island Comprehensive Plan, Environmental Element. The remaining provisions of this element have been omitted due to length.

2004 Comprehensive Plan: Environmental Element

INTRODUCTION

This element addresses the natural environment of Bainbridge Island. The Environmental Element includes goals and policies for all lands considered critical areas under the Growth Management Act, such as wetlands, streams, aquifer recharge areas, fish and wildlife habitat, frequently flooded areas, and geologically hazardous areas. This element also addresses natural resources such as forests, agricultural lands, and mineral resources and provides goals and policies concerning air quality and the retention and development of the Greenways trails and open space system.

Preserving and protecting the environmental resources and natural amenities of the Island is an important component for the vision of our city. Bainbridge Island contains interconnected forests, meadows, wetlands and stream systems, and saltwater shorelines, all of which provide wildlife habitat and scenic value, and some of which are protected as public parkland. The Island also contains agricultural lands and land areas that are sensitive due to geological conditions, slope and/or soil types.

As our Island grows and develops, continued protection of varied open space areas and environmentally sensitive landscape is necessary to maintain the quality of life that is currently enjoyed on Bainbridge Island.

Citizens of Bainbridge Island enjoy and value the Island's natural environment. The public parklands, open spaces, and other natural areas contribute to the quality of life on the Island. The Bainbridge Island Community Values Survey – 2000, indicates that the citizens' support for preservation of environmentally sensitive areas and agricultural lands remains high. It also indicates that the community is supportive of providing pedestrian and bicycle trails and increased public access to shorelines.

Understanding the functions of the Island's valuable natural systems and what types of activities may impact these functions is key to protecting these lands and natural resource areas. Retaining the viability and ecological functions of our natural systems and protecting those areas that are sensitive to development is paramount to maintaining a healthy natural environment and a high quality of life.

The goals and policies of the Environmental Element attempt to guide future action such that the quality of the Island's natural environment is protected and maintained, and when possible, restored and improved. Future actions will incorporate the best available science as required by RCW 36.70A.172.

AQUATIC RESOURCES

Goal 1

Preserve and protect the Island's remaining aquatic resources' functions and values.

Discussion: Aquatic resources include marine nearshore, wetlands, streams, lakes, creeks, and associated vegetated areas. Over the past decade, awareness has grown of the importance of aquatic resources, particularly wetlands, in our natural and built environment. Aquatic resources have a number of important ecological functions and values. These functions vary from wetland to wetland, stream to stream, but include providing water quality protection, flood plain control, shoreline stabilization, contributions to groundwater and stream flows and wildlife and fisheries habitat. Wetlands and streams also have values as natural areas providing aesthetic, recreational and educational opportunities that need to be preserved for future generations.

AQ 1.1 Achieve no overall net loss of the City's remaining, regulated, aquatic resources.

AQ 1.2 Development shall not be approved in regulated wetlands, streams, or buffer areas, unless a property owner would be denied all reasonable use of property.

Discussion: In some cases, buffer configurations and widths can be modified to allow normal usage of legally established lots. In other cases, the development and implementation of a habitat management plan may provide resource protection to allow development. A variance process should be available to accommodate development in buffer areas. Reasonable use exception should be reserved for development in the critical area if no other process will allow for a reasonable use of the property. A Reasonable Use Exception (RUE) is a form of variance from regulations that allows some use of a legally established lot. A reasonable use must minimize the impact to critical areas. The RUE process is included in the critical areas regulations of the Bainbridge Island Municipal Code, which implements policies of this document.

AQ 1.3 Require that vegetated buffers be maintained between proposed development and the aquatic resource in order to protect the functions and values of such systems. Degraded buffers should be restored to enhance their function. Reductions in vegetated buffers shall be allowed only in areas where such reductions, if consistently applied, would not result in significant cumulative impacts to aquatic resources and fish and wildlife habitat.

AQ 1.4 Require that buffers be retained in their natural condition wherever possible, while allowing for appropriate maintenance. Where buffer disturbance has occurred, require revegetation with appropriate species, with a preference for native species, to restore the buffers' protective values.

Discussion: Vegetated buffers facilitate infiltration and maintenance of stable water temperatures, provide the biological functions of flood storage, water quality protection and groundwater recharge, reduce amount and velocity of run-off, and provide for wildlife habitat.

AQ 1.5 Ensure that development activities are conducted so that aquatic resources and natural drainage systems are maintained and water quality is protected.

AQ 1.6 Prior to any clearing, grading, or construction on a site, all wetlands, streams, and buffer areas should be specifically identified and accurately located in the field in order to protect these areas during development. After construction, permanent visual markers should be placed around the buffer areas.

Discussion: The purpose of this policy is to educate future home owners and users of aquatic resources (i.e. trail users) of the boundary of the aquatic resources.

AQ 1.7 New development using flexible lot design should include any wetlands, streams, or required buffers in separate tracts or easements to remain in common ownership.

AQ 1.8 Herbicides and pesticides should not be used in wetlands, streams, and buffer areas, and should be discouraged in the areas that drain into them.

Discussion: Encourage alternatives to the use of herbicide and pesticide in areas adjacent to buffer areas by providing technical information and educational programs including the use of native vegetation.

AQ 1.9 Develop a community-wide program to educate island residents about alternatives to using and disposing of herbicides, pesticides, and other household chemicals to reduce impacts to marine shoreline areas, wetlands, streams, and other environmentally sensitive areas.

AQ 1.10 Access to regulated wetlands by farm animals should be discouraged. Agricultural activities must be in conformance with Best Management Practices.

AQ 1.11 Restoration, creation or enhancement of wetlands, streams, and their buffers shall be required in order to offset the impacts of alteration of a wetland/stream or buffer area. Compensation for loss of aquatic resources should be determined according to function, acreage, type, location, time factors, and an ability to be self-sustaining.

WETLANDS

AQ 1.12 Maintain the Island's wetlands in their natural state by:

- Preservation of native vegetation in and next to the wetlands.
- Restoration of areas that have already been degraded.
- Protection of areas that have not been disturbed.

AQ 1.13 The City should make every effort to purchase or obtain conservation easements for significant wetlands and areas of the shoreline critical to natural habitat.

STREAMS

AQ 1.14 Maintain the Island's streams and creeks in their natural state by:

- Preservation of their courses, their banks, and the vegetation next to them.
- Restoration of areas that have already been degraded.
- Protection of areas that have not been disturbed.

AQ 1.15 Allow stream relocation only where relocation would result in improved stream habitat and when a property owner would otherwise be denied all reasonable use of the property.

AQ 1.16 Degraded channels and banks should be rehabilitated by various methods (e.g. volunteer efforts, public programs or as offsetting mitigation for new development) to restore the natural function of the riparian habitat.

AQ 1.17 Anadromous fish streams and adjacent land should be preserved and enhanced to ensure the propagation of salmonid fish.

AQ 1.18 Require the construction of necessary roads and utility corridors to avoid wetland and stream crossings and disturbances.

SAND SPITS

AQ 1.19 Development on sand spits shall be limited to protect aquatic resources. Newly proposed development on sand spit properties shall be evaluated according to the cumulative impacts of additional requests for like actions on the remainder of lots on the sand spit.

Discussion: Sand spits have limited upland area and, with their proximity to dynamic aquatic environments, are subject to impacts associated with flooding, storm waves, liquefaction, sea level rise, and the cumulative impacts of development on water quality, shoreline habitat, visual resources, and marine environments. However, redevelopment of existing structures, in accordance with legal nonconforming structure regulations, shall not require cumulative impact analysis.

FREQUENTLY FLOODED AREAS

Regulation of frequently flooded areas is important for property and habitat protection. Floodplains are valuable natural resource areas that play a major role in the function of ecosystems. Floods are a natural process where rising water inundates otherwise dry land. Floodplains provide storage for floodwaters, which reduces downstream erosion and improves downstream water quality. Floodplains allow infiltration for aquifer recharge and provide important habitat necessary for the survival of many invertebrate, fish and wildlife species. Flood courses can change naturally, over time. As impervious development covers

more land surface and encroaches on floodplains, damage increases to both the built and natural environments.

The Federal Emergency Management Agency (FEMA) has designated frequently flooded areas as areas that have a 1% or greater chance of flooding in any given year. Also known as
the 100-year flood, this level was chosen to manage flooding as a compromise between an economic use of the land and an understanding of the natural benefits of flooding.
Sea level rise may happen as the result of natural or human activity such as geologic subduction or global warming. Here in the Puget Sound we experience the affects of both the geologic and hydrologic events. Regardless of the cause assigned, cumulative sea level rise has serious implications for the shorelines and lowland areas that are potentially affected by beach, bluff erosion and loss of intertidal zones. These areas serve such purposes as nursery habitat, feeding grounds for fish and fowl, stormwater collection and water filtration.

Goal 1

Protect the natural functions of frequently flooded areas.

Discussion: Frequently Flooded Areas are described in the Critical Areas Ordinance as those lands and floodplains adjacent to streams, lakes, coastal areas and wetlands with a 1% or greater chance of flooding in any given year (i.e. the 100-year floodplain), as determined by the Federal Emergency Management Agency (FEMA).

FL 1.1 Minimize public and private losses due to flood conditions by limiting development in frequently flooded areas as shown on the Flood Insurance Rate Maps.

Discussion: Frequently flooded areas can and do migrate over time. Increased development may affect the level of occurrence and location of frequently flooded areas. The Flood Insurance Rate Maps adopted by the City were originally produced in 1975 and updated in 1977. Opportunities to update flood hazard maps should be pursued as resources become available.

FL 1.2 Limit the alteration of natural floodplains, stream channels, and natural protective barriers which help accommodate, dissipate, or channel floodwaters.

FL 1.3 Emphasize nonstructural methods, such as setbacks and vegetation, to prevent or minimize flood damage.
FL 1.4 Public facilities such as sewer and water lines should be located outside of frequently flooded areas, in order to minimize damage to both the public facility and the natural environment. Public facilities may be located within frequently flooded areas only if no environmentally preferable alternative exists to mitigate existing environmental concerns and additional development is not encouraged in frequently flooded areas.

Goal 2

Anticipate and prepare for the consequences of sea level rise.

SL1 The City should work with Tribal, Federal, State and local agencies to develop a coordinated water management program that includes issues related to Sea Level Rise.