ENVIRONMENT ELEMENT

CHAPTER 9

City of SeaTac
everywhere's possible

SeaTac 2035

TABLE OF CONTENTS

INTRODUCTION E-3

MAJOR CONDITIONS E-4

GOALS AND POLICIES E-5

Overarching Environment Goals E-5

GOAL 9.1 BASE REGULATIONS ON CURRENT SCIENCE E-5

GOAL 9.2 ENHANCE WATER QUALITY E-6

GOAL 9.3 ENHANCE NATURAL DRAINAGE SYSTEMS E-7

GOAL 9.4 IMPROVE AIR QUALITY E-8

GOAL 9.5 REDUCE GREENHOUSE GAS EMISSIONS AND ADDRESS CLIMATE CHANGE E-9

Environmentally Sensitive Areas E-11

GOAL 9.6 PROTECT STREAMS AND LAKES E-11

GOAL 9.7 ENHANCE WETLANDS E-13

GOAL 9.8 PROTECT GROUNDWATER AQUIFERS E-14

GOAL 9.9 PROTECT STEEP SLOPE, LANDSLIDE, EROSION, AND SEISMIC HAZARD AREAS E-16

GOAL 9.10 PRESERVE FLOODPLAINS E-21

GOAL 9.11 ENHANCE WILDLIFE HABITAT E-22

Shorelines E-23

GOAL 9.12 ENSURE ECONOMIC ACTIVITY RESPECTS SHORELINE ENVIRONMENT E-23

GOAL 9.13 INCREASE PUBLIC ACCESS E-25

GOAL 9.14 ENCOURAGE WATER-ORIENTED RECREATION E-26

GOAL 9.15 MAINTAIN ROUTES TO SHORELINES E-27

GOAL 9.16 CONSERVE SHORELINE NATURAL RESOURCES E-28

GOAL 9.17 SYNCHRONIZE LAND USE AND ENVIRONMENT DESIGNATIONS E-29

GOAL 9.18 PROTECT ARCHEOLOGICAL, HISTORIC, AND CULTURAL SITES E-31

RECOMMENDED IMPLEMENTATION STRATEGIES E-32

Maps

Map 9.1. Wetland, Stream, and Shoreline Classifications E-12

Map 9.2. Wellhead Protection Areas E-15

Map 9.3. Erosion Hazard Areas E-17

Map 9.4. Landslide Hazard Areas E-18

Map 9.5. Seismic Hazard Areas E-19

Map 9.6. Angle Lake Shoreline Management Area E-24

INTRODUCTION

This Element addresses the stewardship of SeaTac's environmental assets, and guides the development and implementation of environmental policies and regulations. It is coordinated with the Land Use, Transportation, Utilities, Economic Vitality and Parks, Recreation, and Open Space Elements.

MAJOR CONDITIONS

Major environmental conditions in SeaTac include:

1. Curbing the growth of CO2 and other greenhouse gases is a global challenge. Former Governor Christine Gregoire issued Executive Order 07-02 which established a series of greenhouse gas reduction and clean energy economy goals for the state. The state can only meet these goals if local actions are taken to reduce greenhouse gas emissions and move toward more efficient energy use.

2. Due to the urbanized nature of the city, few wetlands remain in SeaTac. The City needs to preserve these dwindling resources.

3. SeaTac's location in an air quality non-attainment area for carbon monoxide emissions has been upgraded to a "maintenance" area. The City still needs to work with its residents, businesses, and the Port of Seattle to maintain or improve this level of air quality.

4. The Department of Ecology estimates that millions of pounds of pollutants flow into the Puget Sound each year. Stormwater carries pollutants left in yards, parks, streets, and parking lots into SeaTac's stormwater drainage system which flows into local waterways and the Puget Sound. Pollutants carried by stormwater include soaps, fertilizers, pesticides, automotive oil, and other toxins.

In 1996, after several years of meeting the standards for CO2 levels, the Puget Sound region was designated by the EPA as a maintenance area.

GOALS AND POLICIES

This section contains SeaTac's environment goals and policies. Goals represent the City's general objectives, while policies provide more detail about the steps needed to achieve each goal's intent.

Overarching Environment Goals

GOAL 9.1

Ensure that environmental management policies and regulations are based on the most current scientific information.

The City of SeaTac manages its sensitive areas, including streams and wetlands, based on the most current, reliable, and accurate scientific information available. To keep pace with the best available science, the City periodically reviews its goals, policies and regulations and makes amendments as necessary.

Policy 9.1A

Wetlands, streams, shorelines of the state, fish and wildlife habitats, aquifers and aquifer recharge areas (including wellhead protection areas), landslide, erosion and seismic hazard areas, are all hereby designated as environmentally sensitive areas.

Policy 9.1B

Base regulations on the best available science to protect the functions and values of environmentally sensitive areas.

Best practices for designating and protecting environmentally sensitive areas can change over time based on field and academic research. During the last periodic Plan review and update in 2004, the literature on best practices for setting wetland and stream buffers, including guidance documents from the Washington Department of Commerce Growth Management Services (previously named Department of Community Trade and Economic Development), were focused on these features in a natural setting. Because SeaTac is an urbanized setting largely disturbed by development activity for many years, the "best available science" was not relevant to most of the wetlands and streams in SeaTac.

To supplement the BAS, staff reviewed existing and proposed sensitive area regulations in seven local cities and SeaTac's existing sensitive areas regulations, endeavoring to balance the natural functions and environmental considerations with existing conditions and community values.

LID techniques mimic natural stormwater drainage and infiltration to remove pollutants and reduce piped stormwater infrastructure.

Policy 9.1C

Make Low Impact Development the preferred and commonly used approach to development.

The Department of Ecology's 2013-2018 Western Washington Phase II Municipal Stormwater Permit requires jurisdictions to update their codes, policies and standards to make Low Impact Development (LID) the preferred and commonly used approach to development by January 1, 2017. LID is a stormwater management strategy that more closely mimics natural hydrologic patterns and emphasizes open space preservation and stormwater infiltration. However, the science is still developing for some aspects of LID and additional guidance for the use of these techniques is pending. The City plans to adapt to the changes in best available science for these techniques as new guidance becomes available.

GOAL 9.2

Preserve and enhance the quality of water resources.

See 9.2 for reasons to protect water quality and 9.3 for related LID policies.

Policy 9.2A

Protect and enhance water quality. Preserve the amenity and ecological functions of water features through land use plans, innovative land development, public education, and stormwater regulations.

Clean water in streams, lakes, and wetlands is an amenity within a city. It provides opportunities for water activities (e.g., swimming, fishing, kayaking, etc.) without fear of infections from waterborne bacteria or parasites. Clean water also enhances the image of a city for its livability and its concern for the natural environment. Techniques for protecting and improving water quality include:

1. Provision of sewers for new development and redevelopment.
2. Adequate stormwater flow control and treatment for new development and redevelopment.
3. Public education about how to maintain and improve water quality within natural drainage basins.

Policy 9.2B

Manage water resources to preserve ecosystem services, including recreation, fish and wildlife habitat, flood protection, water supply, and open space.

Clean water in streams and lakes allows for preservation of urban wildlife and healthy ecosystems, which provide useful benefits to the City. This increases the overall livability of SeaTac.

Policy 9.2C

Work with adjacent jurisdictions and other affected entities to enhance and protect water quality in the region.

Enhancing and protecting clean water throughout a stream watershed often requires that many jurisdictions work together to preserve water quality. Miller and Des Moines Creeks both cross City limits. Many entities have

interests in SeaTac's water quality issues, include fisheries industries for SeaTac's salmonid-bearing waterbodies, the Muckleshoot Indian Tribe, and Des Moines and Normandy Park as downstream cities. Affected jurisdictions and entities must coordinate to preserve water quality.

GOAL 9.3
Protect, preserve, and enhance natural drainage systems.

Under predevelopment conditions, rainwater infiltrates into the soil and then flows slowly into the stream or receiving water. Infiltration allows soil and plants to break down and remove many pollutants and regulates peak storm flows, summer low flows, and stream temperatures. When an area is developed, the amount of rainwater that can infiltrate into the soil is often significantly reduced (see Figure 9.1 below). The majority of the remaining stormwater flows over impervious surfaces (e.g., parking lots, sidewalks, street, and buildings). This causes problems such as:

1. High peak storm flows that can scour a stream bed or destabilize stream banks.
2. In some cases, the summer low flow can be depleted or the stream dries up so that the stream cannot support aquatic life (because there is not enough groundwater flow to maintain stream flow).
3. On hot summer days, parking lots and rooftops build up heat. Stormwater runoff from these surfaces is likewise heated up and subsequently raises stream temperatures. Stream temperatures greater than 68 degrees Fahrenheit can lower a salmonid's resistance to disease or kill fish resources.

The use of green roofs, pervious pavement, and other LID techniques can mitigate the temperature impacts of roofs and paved areas by allowing rainwater to infiltrate into the cool soils. Providing tree canopy to shade parking lots can lower temperatures and mitigate impacts to streams and lakes. Infiltration techniques can minimize impacts on aquatic resources while allowing development.

Why care about natural drainage?

Stormwater runoff impacts water quality. In developed areas, runoff can carry oil, fertilizers, or a number of other pollutants into the stream channel. Fertilizers provide nutrients for excessive algae growth that can sap the drainage system of oxygen and asphyxiate fisheries resources. Soaps, oils, and other hydrocarbons from streets, parking lots, and driveways are toxic to fish. Controlling the water quality within a drainage basin can preserve fisheries and other resources.

In predevelopment conditions 20-70% of rainwater infiltrates into groundwater.

In post-development conditions only 10-50% of rainwater infiltrates into groundwater.

Figure 9.1 *Pre- and post-development hydrologic conditions.*

See Policy 9.2C above regarding interjurisdictional water quality work.

Policy 9.3A

Consider entire watersheds in surface water management plans, with responsibility shared between SeaTac, other cities, and the County.

Watersheds often exceed jurisdictional boundaries. Surrounding jurisdictions should coordinate surface water management plans for consistency.

See related Policies 9.1C on LID best practices and 9.6E on LID techniques.

Policy 9.3B

Protect and enhance natural drainage systems to maintain and improve water quality, reduce public costs, and prevent environmental degradation by using best management construction practices and current stormwater treatment and flow control standards on new and redevelopment projects.

Unmitigated peak storm flows can scour streambeds, destabilize stream banks, impact spawning areas, and significantly degrade habitat. Quality site planning, construction practices, and stormwater management can minimize erosion, sedimentation, and landslides.

See Goal 9.9 regarding areas sensitive to erosion and landslides.

Policy 9.3C

Require resource industries to use management practices that prevent erosion and sedimentation and pollutants from entering ground or surface waters.

Resource industries, such as gravel mining operations, can heavily impact water resources. Proper erosion and sedimentation control practices and pollutant removal should be used to prevent impacts on water resources.

GOAL 9.4
Improve air quality.

Policy 9.4A

Continue to support and rely on the various State, federal, and local programs to protect and enhance air quality.

Regional air quality programs are already in place (Puget Sound Clean Air Agency). Local jurisdictions should continue to support these programs.

Policy 9.4B

Require vegetation retention and landscaping to provide filtering of suspended particulates.

Trees and other vegetation convert carbon dioxide into oxygen, filter out air pollutants, and trap other particulates such as dust.

Policy 9.4C

Support public transportation, non-motorized transportation, and Transportation Demand Management (TDM) programs to reduce Vehicle Miles Traveled (VMT), greenhouse gas emissions, and other locally generated air pollutants.

Reducing VMT and greenhouse gas emissions helps to meet State air quality goals.

GOAL 9.5

Reduce greenhouse gas emissions as a means of addressing the potential adverse impacts of climate change.

SeaTac's existing land use strategy to reduce automobile dependency and VMT by developing dense nodes of jobs and housing around light rail transit stations also supports greenhouse gas reduction efforts. The City Center Plan (1999), S. 154th Street Station Area (2006), and the Angle Lake Station District (2015) Plans, and the accompanying development regulations for each of these subarea plans, help to implement that strategy.

Policy 9.5A
Support efforts to achieve State of Washington and King County greenhouse gas emissions reduction targets.

Washington established a series of greenhouse gas reduction and clean energy economy goals for the state. The state greenhouse gas reduction goal is to reach 50% below 1990 levels by 2050.

See Goal 9.5's greenhouse gas emissions reduction implementation strategies.

The King County Growth Management Planning Council (GMPC) adopted the following greenhouse gas reduction targets in July, 2014:

- 25% below 2007 levels by 2020
- 50% below 2007 levels by 2030
- 80% below 2007 levels by 2050

Policy 9.5B
Reduce vehicle greenhouse gas emissions by increasing use of electric vehicles and developing more robust bicycle and pedestrian infrastructure.

See the Land Use Element's Healthy, Equitable, and Connected Communities section.

Policy 9.5C
Reduce energy use in existing buildings, and limit emissions growth in new buildings.

Policy 9.5D
Foster community-wide renewable energy use.

Policy 9.5E
Increase natural carbon storage by increasing tree canopy on city streets and properties and protecting green belts.

See Utilities Goal 6.6 for examples of the City leading the way in electrical vehicle usage.

See Transportation Element for pedestrian and bicycle strategies.

See Utilities Element for goals related to efficient resource use.

Policy 9.5F

Develop and implement actions to reduce greenhouse gas emissions in City operations.

Climate change has the potential to affect nearly all issues identified in this Plan. Though a global issue, local governments can play an important role in reducing its impacts. For every gallon of gasoline used, automobiles release roughly 20 pounds of carbon dioxide, a primary greenhouse gas contributing to climate change (Puget Sound Clean Air Agency). In the central Puget Sound region, cars and trucks contribute more greenhouse gas emissions than any other source. The other major source is from the heating and cooling of buildings, both residential and commercial. Choosing cleaner fuel alternatives and retrofitting older machinery and buildings to be less polluting are affordable ways to protect our air.

Policy 9.5G

Increase the recycling rate citywide.

Minimizing the waste of resources that have reuse, resale, and recycling value economically benefits the City and its residents, as well as reduces the City's carbon footprint by reducing the need to manufacture or produce the goods being reused or recycled.

Policy 9.5H

Develop plans to adapt to the potential effects of climate change.

Current scientific opinion is that the effects of human-induced global warming cannot be eliminated because of the volume of greenhouse gases already emitted into the atmosphere. Humans can reduce the worst future impacts and slow the pace of change. The Pacific Northwest will see:

1. Higher levels of population growth resulting from in-migration from parts of the country made inhospitable due to the effects of climate change (i.e., "climate refugees"),
2. Declining snowpack negatively affecting regional water supplies,
3. Higher temperatures increasing risks to forestry from wildfires and insect pests,
4. Negative impacts on coastal areas resulting from sea level rise, and
5. Decreasing habitat for cold water fish such as salmon.

Environmentally Sensitive Areas

GOAL 9.6

Protect the water quality, natural drainage, fish and wildlife habitat, aesthetic values, and recreational functions of streams and lakes.

Policy 9.6A

Preserve an undisturbed corridor wide enough to maintain natural functions and wildlife habitat between new development and streams and lakes. When impacts from new development are unavoidable, ensure that those impacts will not result in the loss of natural functions or wildlife habitat between the new development and streams and lakes.

To preserve the amenities and their water quality and wildlife functions, buffer corridors need to be provided. These corridors filter pollutants, serve as wildlife habitat buffered from adjacent development, and perform an aesthetic function. This policy requires that, as part of the mitigation for any proposed development, stream and creek corridors are buffered to provide long-term water quality, habitat, and recreational benefits.

Environmental goals are integrally related. Natural drainage systems (described in Goal 9.3) are imperative for protecting water quality (discussed in Goal 9.2), which affects water bodies (addressed here), wildlife habitat (Goal 9.11), and entire ecosystem health.

Policy 9.6B

Preserve, protect, enhance, and restore natural stream channels for their hydraulic, ecological, and aesthetic functions through development regulations, land dedications, easements, incentives, acquisition, and other means.

The natural functions of stream channels can be preserved through several methods, including:

1. Acquisition of stream channels.
2. Buffering of streams.
3. Clustering of development away from stream channels.
4. Control of peak storm flows into streams.
5. Control of everyday runoff through permanent stormwater management plans and construction site mitigation strategies.
6. Public education and involvement.

See LID (i.e., natural drainage) policies above in Goal 9.3.

Policy 9.6C

Use State standards and guidance for the selection of best management practices and techniques for in-channel and in-water construction to protect and restore fish passage and wildlife habitat in natural waterways.

Washington State Department of Fish and Wildlife is the state agency responsible for setting standards and guidelines in stream channels. Their standards and guidance for instream construction are designed to preserve wildlife habitat and protect and restore fish passage.

See Goal 9.11 for additional policies regarding wildlife habitat.

Map 9.1. Wetland, Stream, and Shoreline Classifications

Policy 9.6D

Rehabilitate degraded stream channels and banks by using public programs and new development or redevelopment, where conditions permit. Require any necessary alteration of creeks to include mitigation and ongoing maintenance which at a minimum address water quality, floodplain protection, fish and wildlife habitat, channel stability, vegetative cover, maintenance of instream flows, and impacts to downstream property owners.

Miller and Des Moines Creeks, plus the smaller unnamed creeks in SeaTac, have been degraded by past development and its resulting uneven urban stormwater flow. Rehabilitating stream channels increases their fisheries values while enhancing the amenity of the stream. Where riparian vegetation has been removed, new development or redevelopment can mitigate their impacts by planting new native vegetation to provide shading for the stream and enhancing the biologic integrity of streams.

Policy 9.6E

Require the use of stormwater infiltration techniques where feasible in private and public developments in order to maintain or restore natural flows in streams and protect fisheries and recreation resources.

GOAL 9.7

Preserve or enhance wetlands important for flood control, drainage, water quality, aquifer recharge, habitat functions, or visual or cultural values.

Policy 9.7A

Preserve and enhance unique, outstanding, peat, sphagnum, forested, or significant wetlands from adjacent new development by providing a buffer around the wetland adequate to protect its natural functions. Encroachments into significant wetlands may be allowed when no feasible alternative exists and enhancements are provided to replace the lost wetland's functions and values.

Wetlands provide valuable habitat functions. As encroachment on these areas increase, their value decreases. Species, such as blue herons, marsh hawks, and green herons are easily disturbed by human intrusion. Adequate buffers from development need to be provided to protect these species and many others.

In determining the boundary of a wetland, the City of SeaTac Zoning Code specifies use of the U.S. Army Corps of Engineers Wetlands Delineation Manual in conjunction with the Washington Regional Guidance on the 1987 Wetland Delineation Manual dated May 23, 1994.

Policy 9.7B

Develop public access to wetlands for scientific and recreational use when sensitive habitats are protected.

Access to wetlands increases their value as a community educational and recreational resource. Careful trail and viewing area planning allows public enjoyment of wetlands while assuring safety and preventing environmental problems.

SeaTac encourages school classrooms to visit wetlands to study wetland biology and ecology.

Policy 9.7C
Allow reasonable use of property containing existing wetlands to avoid a "regulatory taking" when the following criteria can be met:

- **If existing sensitive area regulations prohibit any use on the property;**
- **Either due to a court decision or by provision of the codes, a reasonable use of the property is required;**
- **The development of the wetland and/or its buffer is limited to only that portion of the property to allow a reasonable use, and;**
- **A soil analysis shows that construction measures can successfully mitigate potential hazards of unstable soil and drainage problems.**

In some cases, the application of "Sensitive Areas" regulations regarding wetlands would preclude the possibility to develop a property. Based on court cases, if a reasonable use of the property is not allowed, a "regulatory taking" occurs, and the local government must pay for the property. However, if a reasonable use is proposed (such as a single family residence), it would be allowed provided it minimizes and mitigates impacts to the wetland. Mitigation could entail special studies.

Wetlands are difficult building foundations

Avoiding building in wetlands is good not only for the environment but also typically for building structural stability. Soil in many wetlands is highly unstable or subject to liquefaction. Many wetlands have underlying layers of peat. During earthquakes, if proper construction practices (such as pilings to load bearing soils) are not used, buildings on top of the peat will be subject to greater ground movement causing extensive damage. Seattle Muck is another type of soil found in the wetlands of SeaTac. These soils are subject to liquefaction during earthquakes. Subsequently, buildings on these soils may suffer extensive damage.

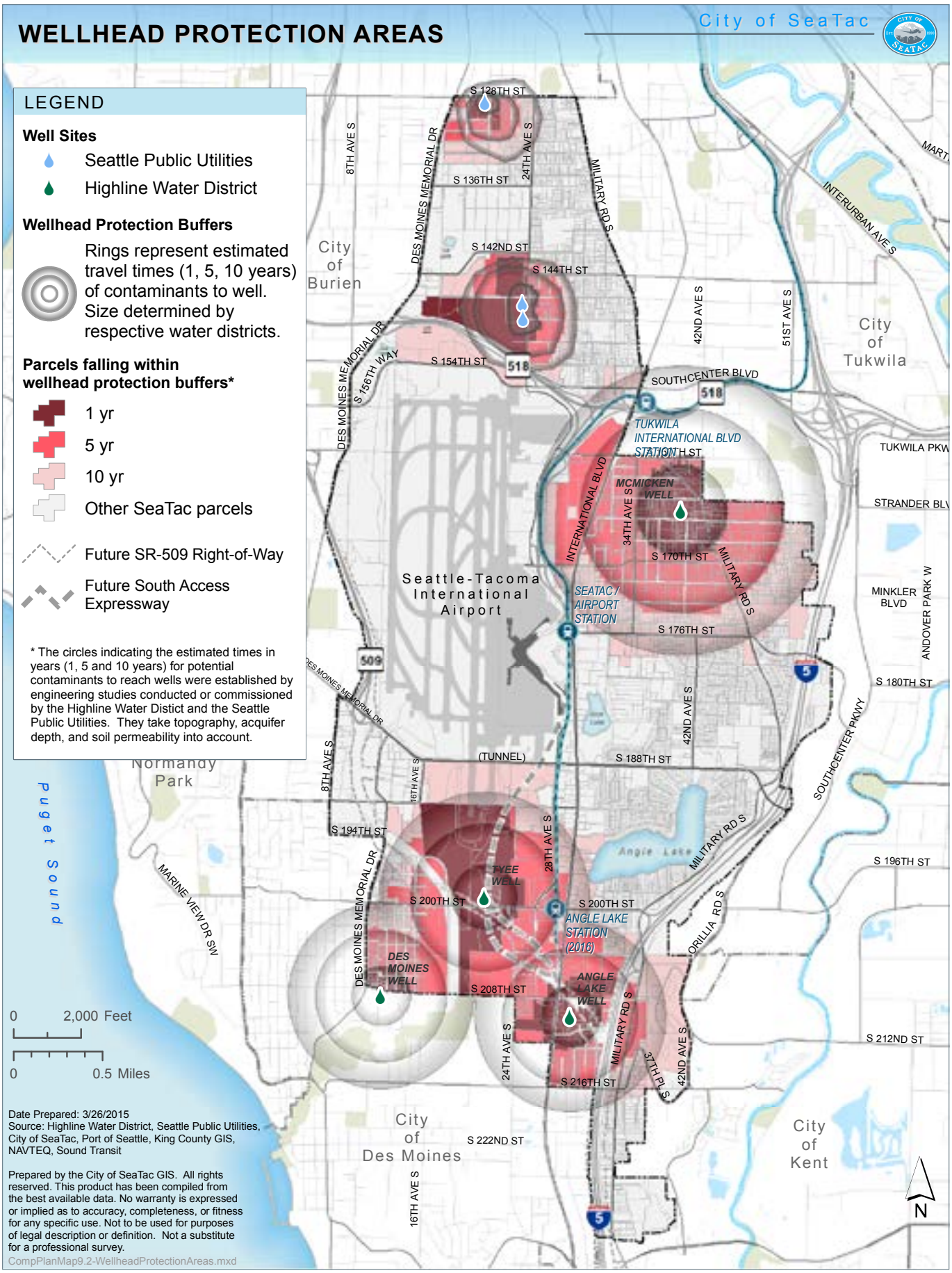
Policy 9.7D
Prohibit altering of wetlands for speculative purposes.
Where a wetland is altered or filled in relation to a development proposal, the development proposal can address mitigating measures to decrease impacts to the wetland. If wetlands are filled speculatively, the site's value is entirely lost until development mitigates the fill.

Policy 9.7E
In wetlands used as stormwater detention sites, maintain water level fluctuations similar to natural conditions, unless plants and animals in the wetland can adapt to new levels as documented by a wetland biologist.
Wetland vegetation and species are adapted to the localized drainage conditions. Changing water levels upsets the balance between the different plants and animals within the wetland, degrading the wetland's value.

GOAL 9.8
Protect the quality and quantity of groundwater used for public water supplies.

Aquifers supply domestic water.

Policy 9.8A
Protect aquifers, aquifer recharge areas, and wellhead protection areas used for domestic water supply from contamination.
The City of Seattle and the Highline Water District draw water from aquifers within the City to supplement their domestic water supply. Aquifers also provide a valuable function in helping to maintain stream flows and water levels in lakes and wetlands in the summer months.



Map 9.2. *Wellhead Protection Areas*

Policy 9.8B

Protect streams, wetlands, and lakes that serve to recharge aquifers from contamination.

Contamination of aquifers can have serious consequences for humans and wildlife. For example, high concentrations of nitrates in the water supply from fertilizers could cause health problems in infants and children. Toxic compounds in the water deny its ability to be used as domestic water. Contaminated groundwater from aquifers could reach wetlands, streams, and lakes, which could cause health problems for wildlife and the public. Identifying and protecting aquifers, aquifer recharge areas, and wellhead protection areas helps minimize contamination risks.

GOAL 9.9

Protect, preserve, and enhance steep slope, landslide, erosion, and seismic hazard areas due to their sensitivity to human activities, and provide adequate mitigation of adverse environmental impacts.

Policy 9.9A

Design land use development to prevent property damage and environmental degradation, and enhance greenbelt and wildlife habitat values.

Improperly designed land use development impacts steep slopes, landslide, erosion, and seismic hazard areas. Improper or inadequate stormwater runoff drainage systems can lead to large scale erosion or landslides in steep slope areas. Development that does not take topography and natural features into account may increase erosion or landslides and destroy valuable habitat. Sedimentation due to erosion can destroy fisheries habitat. Development that recognizes natural features can preserve valuable habitat (possibly through clustering) while minimizing impacts on sensitive areas.

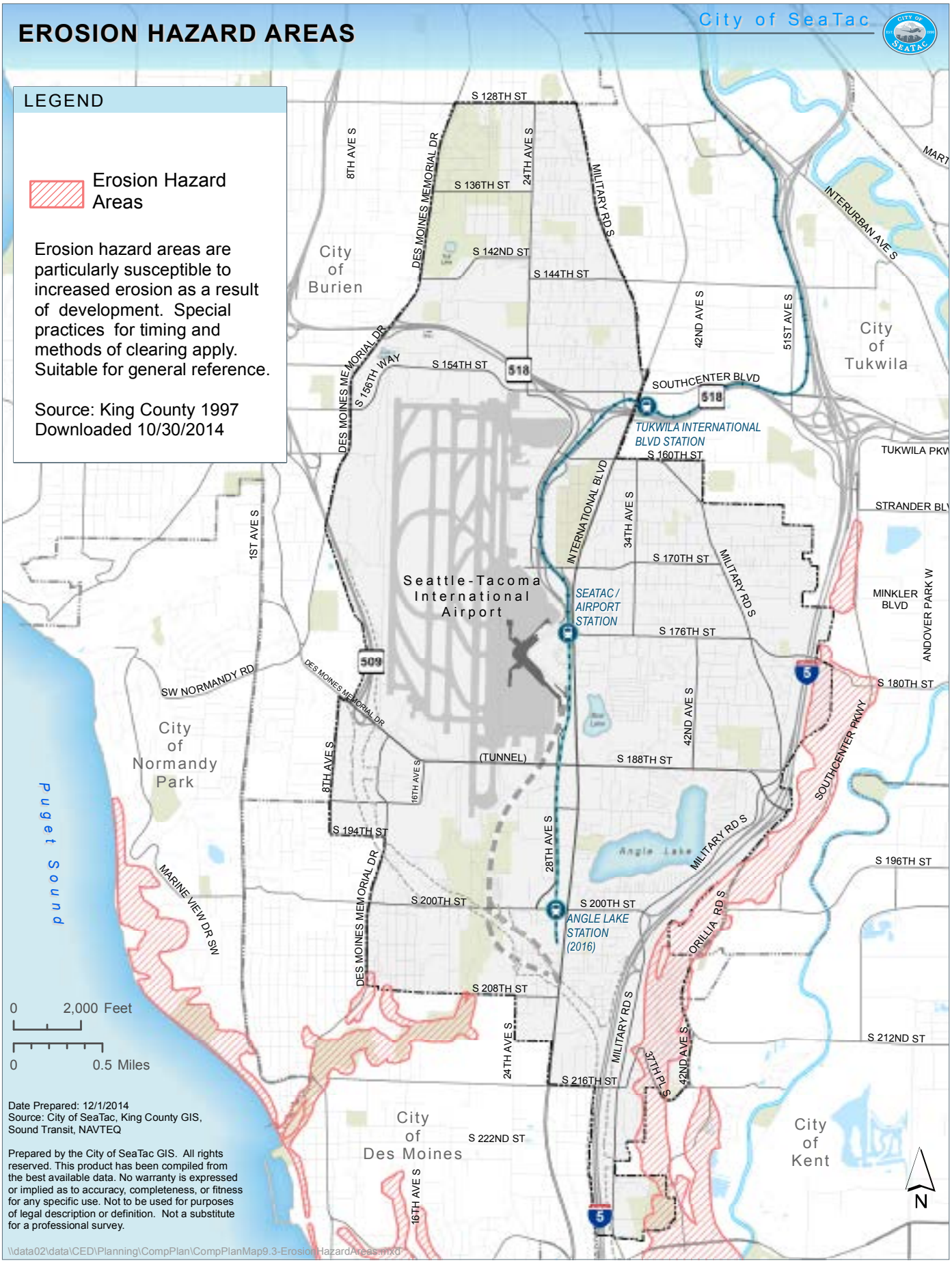
Policy 9.9B

Decrease development intensity as slopes increase to mitigate problems of drainage, erosion, siltation, and landslides. Retain slopes of 40 percent or more in a natural state, free of structures and roads. Ensure that developments that create slopes of 40 percent or more provide appropriate drainage, erosion, siltation, and landslide mitigation measures.

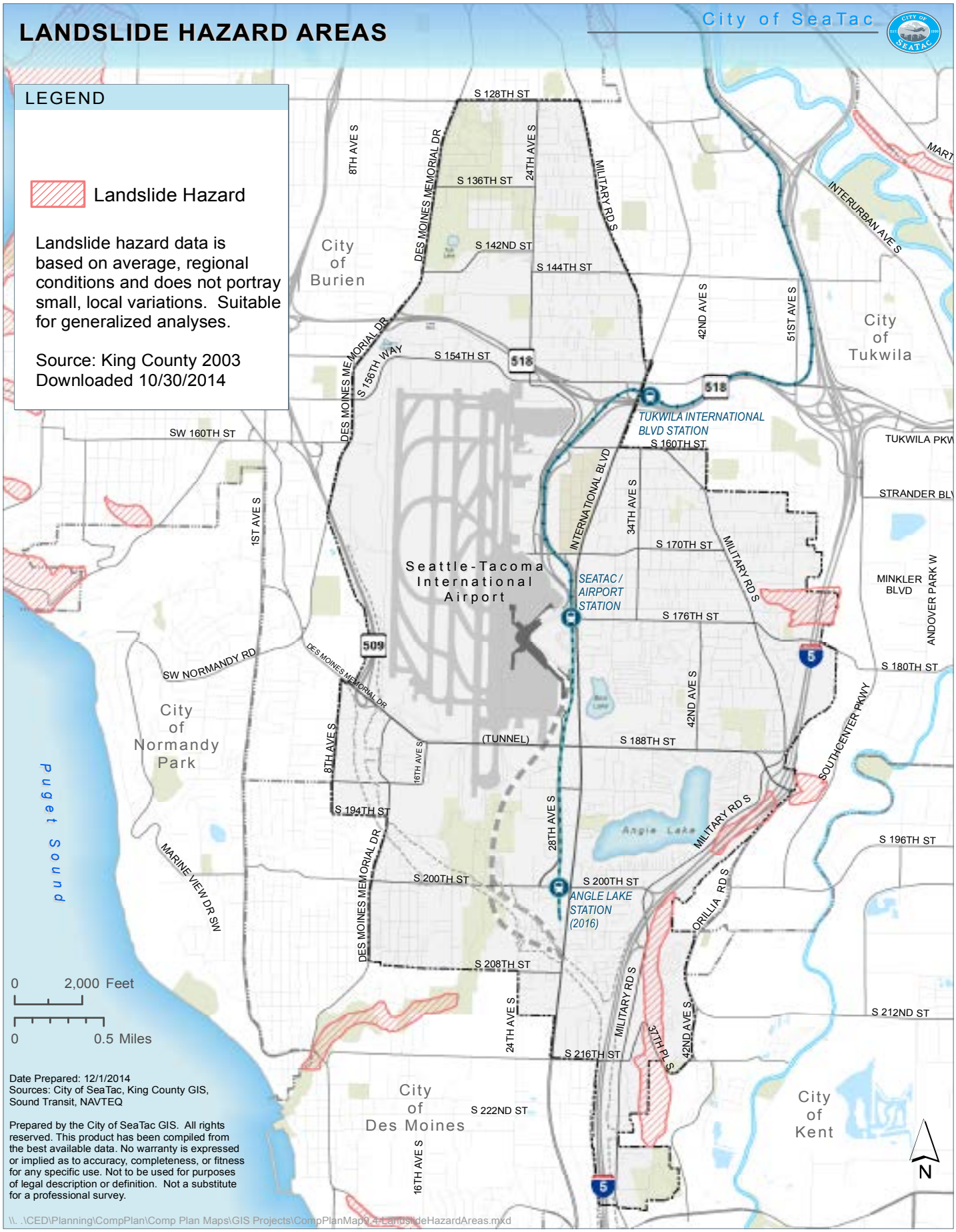
As slopes increase, there is an increased likelihood of problems due to drainage, erosion, siltation, and landslides. On slopes of 40 percent or greater, these problems may happen even without development. Generally, the greater the intensity of development in a steep slope area, the greater the impacts.

Policy 9.9C

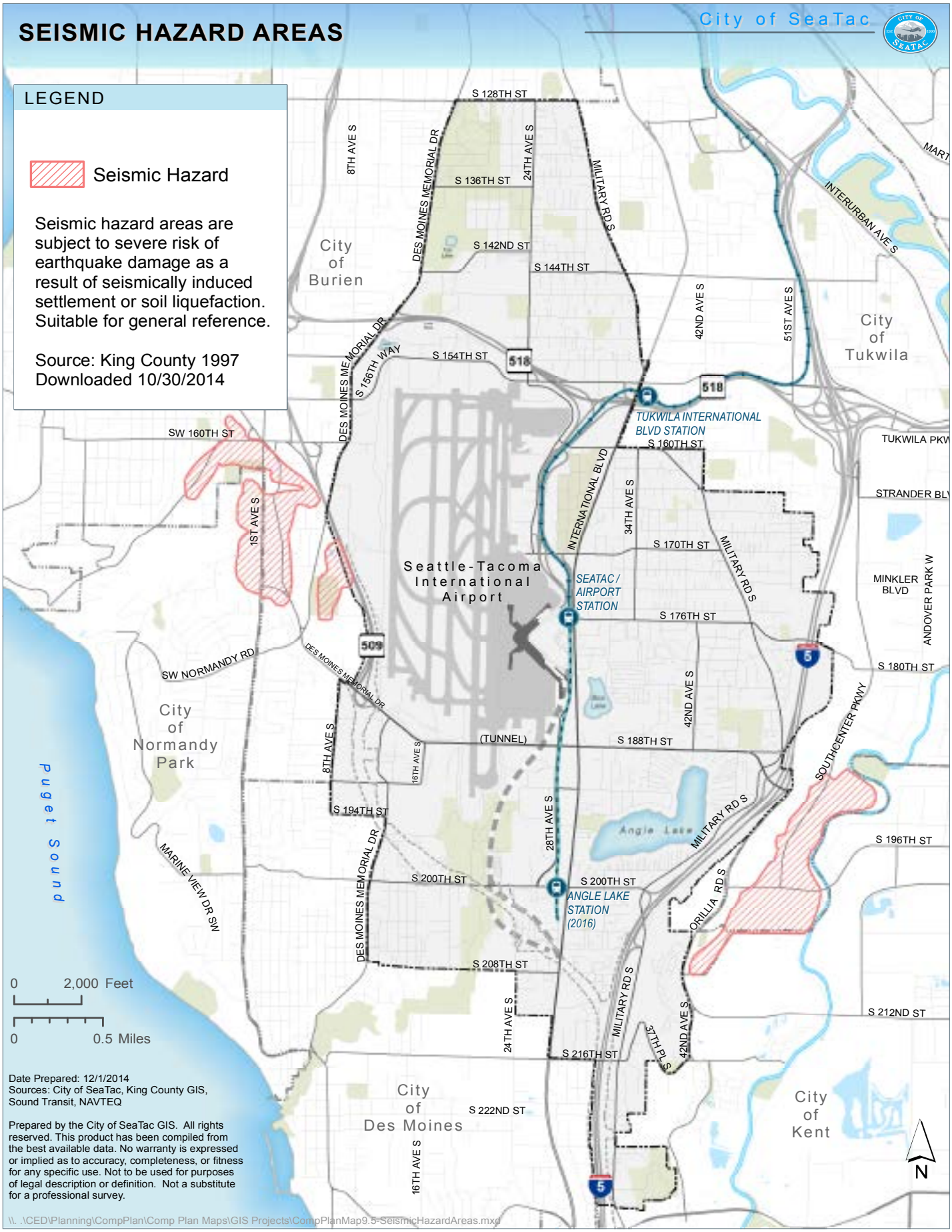
Preserve severe landslide hazard areas from development.



Map 9.3. *Erosion Hazard Areas*



Map 9.4. Landslide Hazard Areas



Map 9.5. *Seismic Hazard Areas*

Policy 9.9D

Require best erosion and sedimentation prevention practices be used on construction projects. These may include:

1. **Retain or replace native ground cover immediately after the disturbance has ended in development areas subject to erosion hazards;**
2. **Reduce the site coverage of the development; and**
3. **Consider limiting construction work to dryer seasons to reduce erosion and sedimentation.**

Where development occurs in steep slope, landslide, or erosion areas, revegetation of the site should take place immediately after site disturbance has ended. Bare slopes easily erode and are less stable without vegetation. Other mitigation methods include tight-lining storm drainage from the slopes and limiting construction in these areas to the dry period of the year.

Also see Goal 9.1 encouraging regulations to be based on best available science.

Policy 9.9E

Require appropriate engineering, building design, and construction measures to minimize the risk of structural damage and fire and injury to occupants, and to prevent post-seismic collapse in areas with severe seismic hazards.

Seismic hazard areas are found in areas where ground movement is great (such as steep slope areas or wetlands). When earthquake resilient building and construction measures are used, such as pilings to good load bearing soils, earthquake-related structural damage and injuries are minimized.

Policy 9.9F

Require special studies to evaluate seismic risks to reduce the risks to buildings prior to development in severe seismic hazard areas.

In seismic hazard areas, additional studies are necessary to ensure that soils can adequately support the proposed development's type of construction.

Policy 9.9G

Work with adjacent jurisdictions and other affected entities to protect steep slopes, landslide, erosion, and seismic hazard areas.

Most of the steep slopes, landslide, erosion and seismic hazard areas are located on the City's borders, adjoining other jurisdictions. Working together will likely provide more protection for these areas and result in fewer problems.

GOAL 9.10

Preserve and protect the natural flood storage function of floodplains.

Policy 9.10A

Emphasize non-structural methods in planning for flood prevention and damage reduction. Design new developments or land modifications in the 100-year floodplains to maintain natural flood storage functions and minimize hazards.

New development should be designed to maintain natural flood water storage functions. Failing to do so causes nearby properties to flood.

Policy 9.10B

Protect 100-year floodplains by limiting development and encouraging low-impact uses such as open space, trails, and parks, locating roads and structures above the 100-year flood level, and requiring new development to replace existing flood storage capacity lost due to filling.

Increasing the building density in a floodplain decreases the storage capacity of the floodplain.

Policy 9.10C

Allow no permanent structures within the floodway due to risks associated with deep and fast-flowing waters, unless appropriate flood control measures have been taken. Allow no land uses in a floodway that would divert water from the floodway, change flood elevation or obstruct natural flow, unless appropriate flood control measures have been taken such that there are no additional offsite impacts and no degradation of water quality. Allow no development in the floodway fringe that would reduce the existing level of flood storage.

No structures should be allowed in the stream channel (i.e., floodway). Within the floodway fringe, any new development should be allowed only if the existing level of flood storage capacity is maintained.

Policy 9.10D

Permit no permanent structures, and allow no grading or filling along small streams for which the floodway has not been identified. In such a case, treat the entire floodplain as a floodway.

There are small streams in SeaTac for which no floodway has been defined. To minimize damage to property, no building should be constructed in the entire potential floodway until the floodway is identified.

Why care about structures in floodplains?

Any new structure that is constructed within the floodplain decreases the flood storage capacity within the floodplain. This is similar to placing a number of bricks into a bucket full of water. The volume of the bricks displaces a like volume of water thereby decreasing the carrying capacity of the water bucket.

GOAL 9.11

Maintain wildlife through the preservation and enhancement of fish and wildlife habitat through acquisition, incentives, and other techniques with particular attention to habitat for species that have been identified as endangered or threatened.

The Puget Sound Chinook salmon is listed as a threatened species by the US Fish and Wildlife Service. This requires state and local governments to protect and enhance habitat for salmon, which also benefits other anadromous fish.

Policy 9.11A

Protect and enhance fish and wildlife habitat corridors where steep slopes, wetlands, stream ravines, or stream corridors provide a continuous corridor that provides food, shelter, and water and where there are minimal impacts due to human intrusion.

Continuous undisturbed areas with a water source (wetland), food source (wetlands, forests), and areas of shelter (forested areas) that have minimal intrusion by people provide the best wildlife habitat functions. In SeaTac, these corridors are located along the steep slopes and stream canyons on Des Moines Creek and Miller Creek. Lower development densities are generally recommended in these areas.

Policy 9.11B

When developing on forested property adjacent to steep slopes, wetlands, stream ravines, or stream corridors, encourage development to provide additional buffer areas to provide wildlife and fisheries habitat. Incentives for additional buffers may include:

1. **Density Bonuses.**
2. **Lot Clustering.**

In areas adjacent to wetlands, stream ravines, or streams, clustering of development should be encouraged to allow greater buffers between the development and the sensitive area. This increases the functional and biological value of the sensitive area, provides a greater wildlife habitat area, and provides an amenity for the residents or users of the development.

Policy 9.11C

Foster native vegetation and control invasive species to preserve and enhance fish and wildlife habitat.

Very little habitat in SeaTac remains in an undisturbed, natural state. Exotic, invasive plant species have replaced native vegetation in most areas, providing poor habitat for fish and wildlife. Revegetating with native species improves the ecological value of habitat and provides a public benefit to SeaTac residents.

Shorelines

In 2010, the City's updated Shoreline Master Program (SMP) was approved by the State. Only one water body in the City is subject to the Shoreline Management Act: Angle Lake. The City's SMP is a stand-alone document with an adoption by reference to applicable portions of the City's Environmentally Sensitive Areas Ordinance. Pursuant to RCW 36.70A.480, the goals and policies of the City's Shoreline Master Program are considered an element of the City's Comprehensive Plan. The major goals and policies are contained in this sub-element for topic areas in the Shoreline Master Program that are overarching and comprehensive in nature. For specific policies refer to Chapters 4, 6, and 7 of the Master Program.

Only one water body in the City is subject to the Shoreline Management Act: Angle Lake.

As required by the Shoreline Management Act in RCW 90.58.100, the following elements have been considered in the preparation of the Master Program for the City of SeaTac: Economic Development, Public Access, Recreational, Circulation, Shoreline Use, Conservation, and Historic, Cultural, Scientific, and Educational. The goals and policies established for these elements are the basis for policies and regulations included under the general and specific use requirements of the Master Program.

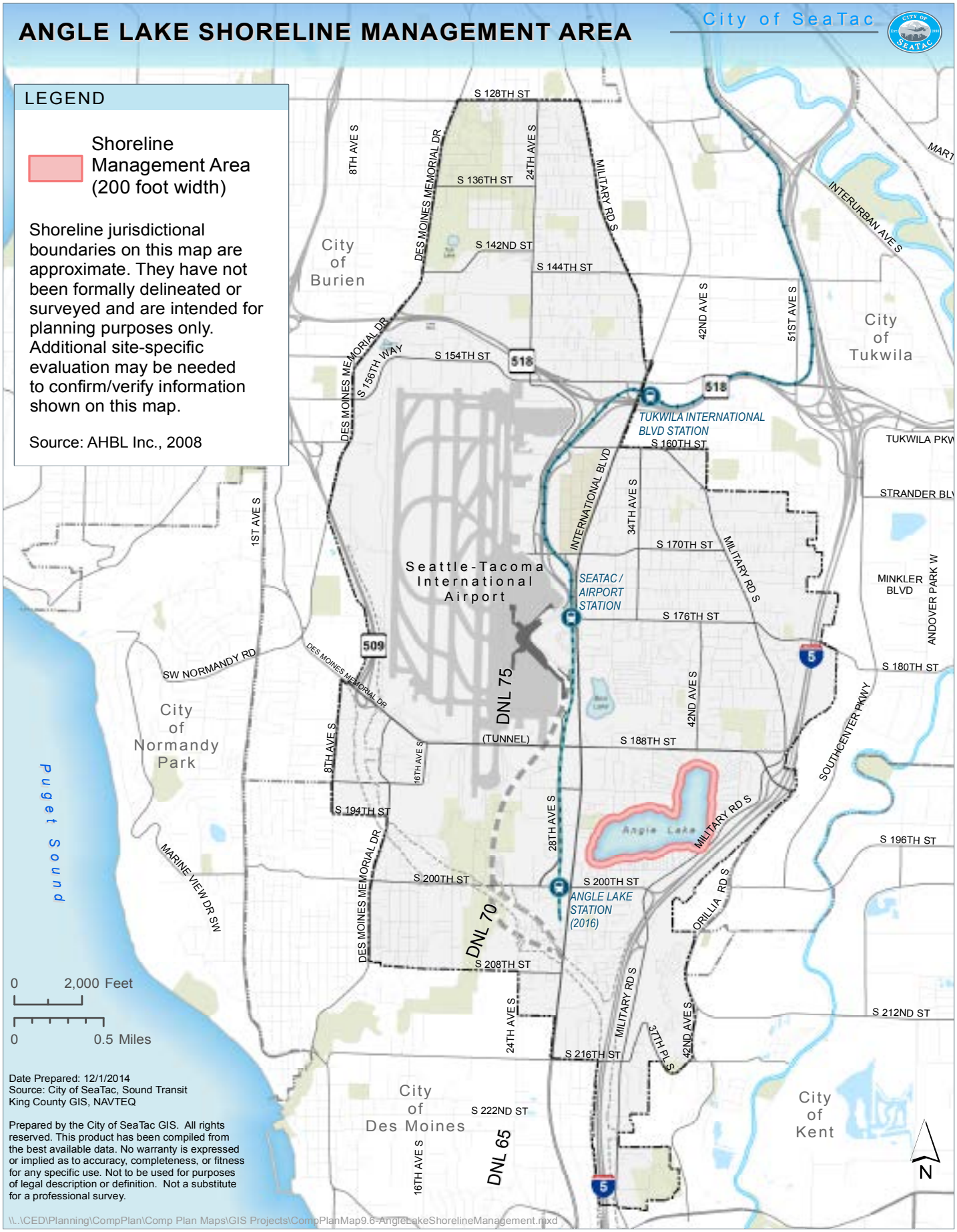
GOAL 9.12

Ensure that any economic activity taking place along the shoreline operates without harming the site's environmental quality or adjacent shorelands and that new non-residential development provides public access to the shoreline for water-enjoyment activities.

Policy 9.12A

Require proposed economic use of the shoreline to be consistent with SeaTac's Comprehensive Plan. Require upland uses on adjacent lands outside of immediate SMA jurisdiction (in accordance with RCW 90.58.340) to be consistent with the purpose and intent of the Master Program as they affect the shoreline.

There are limited opportunities available for residential and commercial development on Angle Lake. Development should continue to be allowed within the shoreline environment consistent with the underlying zoning and the current nature of development around the lake. Preference should be given to water-dependent and water-related uses in the shoreline management area.



Map 9.6. Angle Lake Shoreline Management Area

GOAL 9.13

Increase the amount and diversity of public access to the shoreline, including trails, viewing platforms, and improved piers, and preserve and enhance views of the shoreline, consistent with the natural shoreline character, private rights, and public safety.

Policy 9.13A

Provide and enhance shoreline access to Angle Lake through purchase or retention of access easements, signage of public access points, and designation and design of specific shoreline access areas for wildlife viewing. Integrate public access to shorelines as a part of the City's public trail system; priorities for public access trails include connecting the Hughes Property with Angle Lake Park.

A component of the Shoreline Management Act is to encourage more public access to the water. The greatest opportunity for access to the water is Angle Lake Park, the only public park on Angle Lake. The City owns the Hughes Property; future development of that parcel should allow for passive or active recreational uses on the waterfront. Any new commercial or multifamily residential development along Angle Lake should, where feasible, allow for public access to the waterfront.

Policy 9.13B

Ensure new public access does not adversely affect the integrity and character of the shoreline, or threaten fragile shoreline ecosystems by locating new access points on the least sensitive portion of the site.

One of the principles of the SMA is protection of natural shoreline functions; therefore, it is important that thoughtful site planning and placement of public access points balances public/private enjoyment of the waterfront and environmental considerations.

Policy 9.13C

Ensure the development of upland areas such as parking facilities and play areas, as well as the development of in-water and near shore structures, such as docks and swimming areas, are located and designed in ways that result in no net loss of ecological function.

There are limited areas around Angle Lake left for either commercial or residential development. On the upland portions of sites adjacent to Angle Lake, outside the shoreline management areas should be designed using the most current stormwater manual such that impacts from upland development will not have an adverse affect on Angle Lake.

Policy 9.13D

Access should be provided for a range of users including pedestrians, bicyclists, boaters and people with disabilities to the greatest extent feasible.

Angle Lake Park accommodates a wide range of users and passive and active recreational opportunities. Future improvements to the park and

potential public access from the Hughes Property should be designed to continue to accommodate a wide range of users and activities.

Policy 9.13E

Development, uses, and activities on or near the shoreline should not impair or detract from the public's visual or physical access to the water.

The intent of this policy is to design future public access points to maximize waterfront enjoyment, while minimizing visual impacts to the waterfront.

GOAL 9.14

Encourage diverse, water-oriented recreational opportunities in those shoreline areas that can reasonably tolerate such uses without destroying the integrity and character of the shoreline.

See the Parks, Recreation, and Open Space Element for more about Angle Lake.

Policy 9.14A

Maintain and enhance existing shoreline recreation assets at Angle Lake Park, including the existing pier and boat launch.

This policy pertains to future improvements to Angle Lake Park, such as repair or replacement of the existing dock and boat launch, and the addition of a small covered stage for plays and performances in conjunction with ongoing Parks and Recreation programs. The purpose of these improvements is to enhance the enjoyment and use of the park for the citizens of SeaTac. This policy also addresses maintenance of existing facilities to ensure the continued enjoyment of the park by the public.

What is active and passive recreation?

As examples, active recreation might include swimming, boating, and fishing. Passive recreation might include bird watching or simply viewing the lake at sunset.

Policy 9.14B

Pursue additional public access to the shoreline for recreational uses, particularly for trails and passive recreation. Explore opportunities to develop trail links within and between public properties.

Shorelines are a valuable resource in the community. Accessing this resource is necessary for the public to enjoy the resources. During the development of the Shoreline Master Program there was much discussion on having the flexibility to somehow connect Angle Lake Park to the Hughes Property by way of easements for a trail on adjacent properties or combination of easements and floating trail. The intent was limited to that type of a connection and not a trail around the lake.

Policy 9.14C

Ensure existing and proposed recreational uses are of a safe and healthy nature and do not adversely affect the integrity and character of the shoreline or threaten fragile shoreline ecosystems.

Recreational areas on shorelines should provide the maximum benefit to the greatest number of users. Use of these areas should be accessible to all people and be compatible with each other and not conflict with other uses of the shoreline.

Angle Lake Park and potentially the waterfront portion of the Hughes property are a valuable resource both from a recreation standpoint and, in the case of the Hughes Property, also a habitat standpoint. Future improvements should focus on preserving these resources.

Policy 9.14D
Consider active and passive recreational needs in development of public shoreline access areas.

GOAL 9.15

Maintain safe, reasonable, and adequate vehicular, bicycle, and pedestrian circulation systems to shorelines and ensure that these routes have the least possible adverse effect on unique or fragile shoreline features and existing ecological systems, while contributing to the functional and visual enhancement of the shoreline.

See the Transportation Element for strategies to connect to Angle Lake.

Policy 9.15A
Locate land circulation systems as far from the land-water interface as feasible to reduce interference with either natural shoreline resources or other appropriate shoreline uses, except when necessary to provide for appropriate public access to the shoreline. Where possible avoid creating barriers between adjacent uplands and the shoreline.

Policy 9.15B
Improve access to Angle Lake through expanded non-motorized connections and transit service.

Transit service connections would be to Angle Lake Park or adjacent properties per se. Expanded non-motorized connections might include sidewalks and bike trails or lanes on local streets that connect to the park.

GOAL 9.16

Preserve, protect, and restore to the greatest extent feasible the natural resources of the shoreline, including but not limited to scenic vistas, aesthetics, and vital riparian areas for wildlife protection.

Policy 9.16A

Protect shoreline processes and ecological functions through regulatory and non-regulatory means that may include acquisition of key properties, conservation easements, regulation of development within the shoreline jurisdiction, and incentives to encourage ecologically sound design.

New development within the shoreline impacts the shoreline environment to varying degrees. By adhering to accepted design standards, such as storm drainage standards, and best management practices (BMPs), these impacts should be minimized.

Policy 9.16B

Reclaim and restore areas which are biologically and aesthetically degraded to the greatest extent feasible while maintaining appropriate use of the shoreline.

Few remaining shoreline areas on Angle Lake retain their natural native vegetation buffer areas. Such areas, where feasible, should be reclaimed and restored, as they provide natural habitat and shoreline protection.

Policy 9.16C

Preserve the scenic aesthetic quality of shoreline areas and vistas to the greatest extent feasible.

Scenic vantage points can be found around the lake, both from private property adjacent to the lake and from public property points such as Angle Lake Park and to a lesser extent the Hughes Property. As properties within all the shoreline designations change or redevelop over time careful consideration should be given to the scenic quality of the lake. In some cases, such as commercial development or multi-family residential development, view corridor implementation studies may be necessary.

Policy 9.16D

Preserve and restore native vegetation along the shoreline to the greatest extent feasible.

Little natural vegetation remains around Angle Lake since the lake is currently heavily urbanized. Where natural vegetation remains, it should be preserved as part of any new development of the adjacent upland properties. Residential properties should be encouraged to remove non-native species and replace them with native plant materials.

Policy 9.16E

Target Angle Lake Park for restoration of shoreline natural resources and functions while ensuring continued public access to the shoreline.

Where feasible, as Angle Lake Park is improved, opportunities to restore the natural shoreline should be considered as part of any redevelopment of the park. Such restoration work should not conflict with the public's ability to access the shoreline and enjoy the park.

GOAL 9.17

Ensure that the land use patterns within shoreline areas are compatible with shoreline environment designations and will be sensitive to and not degrade habitat and ecological systems and other shoreline resources.

Like or compatible shoreline uses should be clustered or distributed in a rational manner to promote the best possible pattern of land and water use consistent with the Shoreline Master Program.

Policy 9.17A

When determining allowable uses and resolving use conflicts within the City's shoreline jurisdiction, apply the following preferences and priorities in the order listed below:

1. Reserve appropriate areas for protecting and restoring ecological functions to control pollution and prevent damage to the natural environment and public health.
2. Reserve shoreline areas for water-dependent and associated water-related uses.
3. Reserve shoreline areas for other water-related and water-enjoyment uses that are compatible with ecological protection and restoration objectives.
4. Locate single family residential uses where they are appropriate and can be developed without significant impact to ecological functions or displacement of water-dependent uses.
5. Limit non-water-oriented uses to those locations where the above described uses are inappropriate or where non-water-oriented uses demonstrably contribute to the objectives of the Shoreline Management Act, including opportunities for ecological enhancements and public access improvements.

This policy addresses the distribution, location, and extent of uses within the shoreline management area. Angle Lake's shorelines are substantially developed. Development is mostly residential, with a few pockets of commercial and multifamily.

Also see Policy 9.1C regarding LID best practices, Policy 9.3E on stormwater infiltration techniques, and Goal 9.7 on enhancing natural drainage systems.

Policy 9.17B

New residential development should be designed to protect existing shoreline water views.

The original lots between Angle Lake and adjacent roads are long and narrow. Many original lots remain while several have been split into smaller lots. This has created a situation where the construction (or reconstruction) of a house on the frontage lot on Angle Lake could potentially block views of the houses further inland from the lake. In the construction of a residence on these lots, the impacts to views of the shoreline to upland properties should be taken into account.

Policy 9.17C

Only allow development and redevelopment activities within the City's shoreline jurisdiction that is designed to ensure public safety, enhance public access, protect existing shoreline and water views, and achieve no net loss of shoreline ecological functions.

Because Angle Lake is heavily developed, new development and redevelopment should strive to balance public safety, public access, and shoreline and water views with preserving ecological functions.

Policy 9.17D

Encourage and in some cases require the use of low impact development (LID) and green building practices, such as those promulgated under the Leadership in Energy and Environmental Design (LEED) and Green Built programs, for new development within the shoreline jurisdiction.

The shoreline area around the lake is unique. As part of any new development or redevelopment within the shoreline management area, development activities should take into account and consider design standards and building techniques, where feasible, that create low impact green buildings.

Policy 9.17E

Do not allow proposed shoreline uses to infringe upon the rights of others or upon the rights of private ownership.

Policy 9.17F

Encourage shoreline uses which enhance their specific areas or employ innovative features for purposes consistent with the Shoreline Master Program.

Development should continue around the lake consistent with the existing development pattern. Residential and commercial development could include green building techniques and materials during construction to produce structures that are more self-sufficient and reduce their impact on Angle Lake.

Policy 9.17G

Encourage restoration of shoreline areas that have been degraded or diminished in ecological value and function as a result of past activities or catastrophic events.

New development or redevelopment should consider restoration efforts that include the removal of non-native plant materials and replace them with native plant materials along the shoreline. Native plant materials are more drought-tolerant, requiring less water to thrive, and they can enhance the natural beauty of the beachfront. Restoration efforts may include the removal and replacement of traditional bulkheads with softer, more natural materials.

GOAL 9.18

Identify, protect, preserve and restore important archeological, historic, and cultural sites located in the shoreline jurisdiction of SeaTac for their educational and scientific value, as well as for the recreational enjoyment of the general public.

Policy 9.18A

Prevent the destruction of or damage to any site having historic, cultural, scientific, or educational value.

Although there are no known archeological or historical sites within the shoreline management area, should development activity unearth important material, it should be preserved and documented according to State law.

Policy 9.18B

Ensure that new development is compatible with existing historic structures and cultural areas.

No historic structures currently exist within the shoreline management area. If during construction of a site along Angle Lake within the shoreline management area a cultural site be discovered, it should be excavated and documented per State law.

RECOMMENDED IMPLEMENTATION STRATEGIES

This section identifies the specific steps, or **implementation strategies**, that achieve this Element's policies. It also identifies the group(s) with **primary responsibility** for carrying out each strategy and the expected **time frame** within which the strategy should be addressed. Policy summaries are included in the table for reference.

Not all policies require an implementation strategy. In those cases those policies are not reflected in the tables that follow.

As the Primary Responsibility column indicates, many of the implementation strategies will be initially undertaken by a specified board or commission. In most cases, the City Council will analyze the specific board/commission recommendation and make the final decision about how to proceed.

The time frame categories are defined as follows:

- Short-Term ..... one to five years
- Medium-Term .... six to 10 years
- Long-Term ..... 11 to 20 years
- Ongoing ..... the strategy will be implemented on a continual basis

The time frames are target dates set annually when the City Council adopts amendments to the Comprehensive Plan. Strategies that have been implemented are noted in brackets, along with the relevant completion date.

The list of proposed implementation strategies is a minimum set of action steps and is not intended to limit the City from undertaking other strategies not included in this list.

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.1 BASE REGULATIONS ON CURRENT SCIENCE			
9.1B Base regulations on Best Available Science (BAS).	In reviewing development proposals that may have an impact on any sensitive areas, consult with third party biologist and/or engineer to assess potential impacts and recommend development alternatives or mitigation.	Staff	Ongoing
9.1C Make Low Impact Development (LID) techniques the preferred development approach.	Adopt current LID manuals, policies, development standards, regulations and techniques by January 1, 2017.	City Council	Short-Term
9.2 ENHANCE WATER QUALITY			
9.2A Preserve water feature functions through land use plans and development and stormwater regulations.	Work with providers to enable sewer services for new development.	Staff	Ongoing
	Provide adequate stormwater detention control for new development, including LID techniques.	Staff	Short-Term
	Update development codes to require and implement low impact development (LID) provisions.	Staff, City Council	Short Term
	Work with school districts to educate the public in how to maintain water quality within the natural drainage basins.	Staff	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
	Enforce regulations that protect water resources while allowing recreational use of those resources.	Staff	Ongoing
9.2B Manage water resources to preserve ecosystem services.	Revisit and update the June 2000 Bow Lake Joint-Use Facilities Study before proceding with implementations actions: • Develop and carry out a public input process • Conduct an agency outreach process • Further characterize economic impacts and benefits • Identify a preferred alternative • Prioritize development of publicly owned properties • Environmental review	Planning Commission, City Council	Long-Term
	Monitor storm drain outfalls and adjust water quality maintenance as necessary.	Staff	Ongoing
9.2C Work with adjacent entities to enhance water quality.	Coordinate implementation strategies (such as regulations) with adjacent jurisdictions. See 9.3A below.	Staff	Ongoing
9.3 ENHANCE NATURAL DRAINAGE SYSTEMS			
9.3A Consider entire watersheds and plan interjurisdictionally.	Work with Burien, Des Moines, Tukwila, and King County to ensure that regulations regarding surface water management are consistent between the cities and County for consistent surface water management.	City Council, Planning Commission	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.3A Continued	Continue involvement with watershed planning efforts through participation in the Des Moines Creek Basin Planning Committee, the Miller and Walker Creek Basin Planning Committee, and the Watershed Resource Inventory Area 9 (WRIA 9) Green/ Duwamish River Watershed planning and habitat recovery efforts.	City of SeaTac Planning Commission, Staff	Short-Term
9.3B Maintain and enhance natural drainage systems.	Enforce regulations that prohibit or minimize the degradation of the natural drainage systems.	City Council, Planning Commission	Ongoing
9.3C Use current stormwater treatment and flow control standards on new and redevelopment projects.	Enforce regulations and methods that would protect quality and quantity of stormwater runoff entering SeaTac's streams and wetlands.	City Council, Planning Commission	Ongoing,
9.3D Require resource industries management practices that protect drainage systems.	Enforce regulations and methods that minimize the amount of erosion, sedimentation, and water pollutants created by resource industries.	City Council, Planning Commission	Ongoing,
9.4 IMPROVE AIR QUALITY			
9.4A Continue to support and rely on State, federal, and local programs to protect air quality.	Work with the Puget Sound Air Quality Control Agency and with Federal and State agencies to ensure that air quality is protected within SeaTac.	Staff	Ongoing
9.4B Require vegetation and landscaping to filter particulates.	Enforce landscape codes that allow the use of existing vegetation to be used for biofiltration.	City Council, Planning Commission	Ongoing,

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.4C Support programs that reduce Vehicle Miles Traveled (VMT) and locally generated air emissions.	Work with local business to adopt "Transportation Demand Management Programs" (TDM) to encourage their employees to use alternative forms of transportation to reduce vehicle trips and emissions.	City Council, Planning Commission	Ongoing
	Enforce regulations that require new development to adopt TDM programs.	City Council, Planning Commission	Ongoing
9.5 REDUCE GREENHOUSE GAS EMISSIONS AND ADDRESS CLIMATE CHANGE			
9.5A Commit to meeting State and County greenhouse gas emissions reduction targets.	Advocate for a comprehensive approach that requires responsible, science-based limits on climate pollution and market-based prices for emissions.	City Council	Ongoing
9.5B Reduce vehicle greenhouse gas emissions.	Support statewide clean fuel standards and participate in regional efforts to expand the use of low emission and zero emission vehicles. Partner on catalytic pilot projects such as: • Expansion of electric vehicle charging stations available at public facilities, • Incentives that encourage building owners to have EV-ready building systems, and • Construction of bicycle infrastructure such as cycle tracks, dedicated lanes, and greenways.	City Council	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.5C Limit energy use and emissions in buildings.	Work with energy utilities to develop a regional retrofit program to lower energy use in existing residential and commercial buildings and coordinate with existing programs.	City Council	Ongoing
	Support implementation of the Washington State Energy Code.	City Council	Ongoing
	Demonstrate innovation in local codes, ordinances, and partnerships to encourage green building, in particular through the Regional Code Collaboration.	City Council, City Staff	Ongoing
9.5D Foster community-wide renewable energy use.	Support implementation of Washington State Renewable Portfolio Standard and strong federal policy on reducing GHG emissions from power production.	City Council	Ongoing
	Work with local utilities to help transition to increasingly renewable and efficient energy resources for electricity and heating.	City Staff	Ongoing
	Remove regulatory barriers to small scale local energy projects.	City Council, Planning Commission, Staff	Ongoing
	Partner on catalytic pilot projects such as pilot incentives to encourage building owners to have solar-ready rooftops.	City Council, Planning Commission, Staff	Ongoing
9.5E Increase natural carbon storage by increasing tree canopy.	Develop a street and city lands tree program.	City Staff, City Council	Short Term
	Maintain healthy urban forests, such as those in the Des Moines Creek corridor and around Tub Lake.	City Council, Planning Commission, City Staff	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.5F Reduce GHG emissions in City operations.	Reduce fuel consumption through efficient fleet management practices.	Staff	Ongoing
	Support ways to create ongoing funding for government agency projects related to energy efficiency, renewable energy, and transportation emissions reduction.	City Council	Ongoing
9.5G Increase the recycling rate citywide.	Work with solid waste utilities on outreach to businesses and city residents and to develop and implement education programs	Staff	Ongoing
9.5H Develop plans to adapt to climate change.	Review Emergency Management plans and amend as necessary. Climate change-related amendments may include identifying vulnerable areas and developing adaptation measures.	City Council, Staff	Ongoing
9.6 PROTECT STREAMS AND LAKES			
9.6A Preserve stream corridor buffers.	Enforce regulations that mandate a minimum buffer area between streams, lakes, and wetlands.	City Council, Planning Commission	Ongoing
9.6B Preserve, protect, and restore natural stream channels.	Enforce regulations that protect natural stream channels.	City Council, Planning Commission	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.6C Use State standards and guidance for in-channel and in-water construction.	Update regulations to reference State standards and guidance for in-channel and/or in-water construction, or incorporate state regulations into SMC Chapter 15.30.	Staff	Short-Term
9.6D Rehabilitate degraded stream channels and banks.	Work with the school district, nonprofit organizations, and other public agencies to implement programs to rehabilitate streams and creeks. Such programs could be implemented separately or combined and may include: • Establishing a school curriculum from K-12 that would adopt and rehabilitate a creek. • Working with public agencies or a nonprofit agency, such as the Adopt-A-Stream Foundation, in coordination with school programs.	Staff	Ongoing
9.6E Require stormwater infiltration techniques to maintain natural flows streams.	Update development codes to encourage use of LID techniques.	City Council, Staff	Short Term
	Retain existing wetlands and creeks on the site of new development and require the maintenance of natural features.	City Council, Planning Commission	Ongoing
9.7 ENHANCE WETLANDS			
9.7A Preserve and enhance wetlands with buffers from adjacent new development.	Enforce development regulations at significant wetlands.	City Council, Planning Commission	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.7B Develop public access to wetlands for scientific and recreational use.	Develop regulations that would allow public access to sensitive areas habitat; provided, that such access does not impact such habitat areas.	City Council, Planning Commission	Ongoing
9.7C Allow the reasonable use of property containing wetlands if the adopted criteria can be met.	Enforce regulations that allow the reasonable use of a piece of property that is totally impacted by a "Sensitive Area."	City Council, Planning Commission	Ongoing
9.7D Prohibit altering of wetlands for speculative purposes.	Enforce specific regulations to prohibit speculative landfills in wetland areas.	City Council, Planning Commission	Ongoing
9.7E Maintain water level fluctuations similar to natural conditions.	Enforce regulations that would ensure the water level fluctuations within wetland areas are maintained similar to natural conditions as part of new development.	City Council, Planning Commission	Ongoing
9.8 PROTECT GROUNDWATER AQUIFERS			
9.8A Protect aquifers from contamination.	Work with the Water Districts, Dept. of Ecology and others to delineate aquifer recharge areas and determine if additional regulations to protect these areas are needed.	Staff	Short-Term
	Update regulations as necessary.	Staff	Short-Term
9.8B Protect streams, wetlands, and lakes from contamination.	Enforce regulations to minimize impacts from new development.	Staff	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.9 PROTECT STEEP SLOPE, LANDSLIDE, EROSION, AND SEISMIC HAZARD AREAS			
9.9A Design land use development to prevent environmental degradation and enhance habitat.	Enforce regulations to minimize impacts from new development.	Staff	Ongoing
9.9B Decrease development density as slopes increase.	Enforce regulations that would limit or prohibit development on steep areas.	Staff	Ongoing
9.9C Preserve severe landslide hazard areas from development.	Limit development within severe landslide areas.	Staff	Ongoing
9.9D Require best erosion and sedimentation management practices on construction projects.	Enforce regulations that require special construction practices to reduce or prevent erosion and sedimentation in erosion hazard areas.	City Council, Planning Commission	Ongoing
9.9E Require appropriate engineering, building design and construction measures to minimize the risk of structural damage, fire and injury to occupants, and to prevent post-seismic collapse in areas with severe seismic hazards.	Enforce building and fire codes that require construction to standards that account for the severity and frequency of seismic activity in the Puget Sound area.	City Council	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.9F Require seismic studies to evaluate risks and use appropriate engineering and construction measures.	Enforce building and fire codes that require construction to standards that account for the severity and frequency of seismic activity in the Puget Sound area.	City Council	Ongoing
9.9G Work with other affected entities to protect steep slopes, landslide, erosion, and seismic hazard areas.	Provide notice of development proposals to adjacent jurisdictions when those proposals are within or near these types of sensitive areas on a shared boundary.	Staff	Ongoing
	When reviewing proposals from adjacent jurisdictions in areas where these types of sensitive areas are located, consider potential impacts to these sensitive areas.	Staff	Ongoing
9.10 PRESERVE FLOODPLAINS			
9.10A Maintain natural flood storage functions and minimize hazards.	Floodplain areas are designated by the Federal Emergency Management Agency. Enforce regulations that restrict development in such areas.	City Council, Planning Commission	Ongoing
9.10B Protect floodplains by limiting development, encouraging low-impact uses, and requiring new development to replace existing flood storage capacity.	Floodplain areas are designated by the Federal Emergency Management Agency. Enforce regulations that restrict development in such areas.	City Council, Planning Commission	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.10C Allow no permanent structures nor land uses in a floodway that would divert water from the floodway, change flood elevation obstruct natural flow, or reduce existing level of flood storage capacity.	Floodplain areas are designated by the Federal Emergency Management Agency (FEMA). Enforce regulations that restrict development in such areas.	City Council, Planning Commission	Ongoing
9.10D Do not permit permanent structures along small streams non-identified floodways.	Identify the floodplain on smaller stream corridors (other than Miller and Des Moines Creeks) and enforce regulations that would control development in the same manner as development within floodplain areas designated by FEMA.	City Council, Planning Commission	Ongoing
9.11 ENHANCE WILDLIFE HABITAT			
9.11A Protect and enhance fish and wildlife habitat corridors.	Adopt regulations that protect wildlife habitat areas for endangered or threatened species.	City Council, Planning Commission	Ongoing
	Continue working with King County and City of Des Moines to monitor the performance of the Des Moines Creek Basin Plan.	Staff	Ongoing
	Adopt regulations that would require buffer areas adjacent to wetlands, streams and creeks, and steep slope areas.	City Council, Planning Commission	Ongoing
9.11B Encourage development to provide wildlife buffer areas.	Enforce regulations that allow the clustering of residential units (in both single family and multi-family zones) to preserve as much open space area as possible.	City Council, Planning Commission	Ongoing

PROPOSED POLICIES	IMPLEMENTATION STRATEGIES	PRIMARY RESPONSIBILITY	TIME LINE
9.11C Preserve and enhance habitat by fostering native vegetation and controlling invasive species.	Develop regulations requiring all new development to establish native vegetation as the dominant plant species in buffers around wetlands, streams, creeks, and steep slope areas.	City Council, Planning Commission	Short-Term
	Develop regulations allowing buffer width reductions for redevelopment situations as part of an approved vegetation management plan.	City Council, Planning Commission	Short-Term
9.12-9.18 IMPLEMENTATION ACTIONS RELATED TO THE SHORELINES POLICIES CAN BE FOUND IN TITLE 18 OF THE SEATAC MUNICIPAL CODE AND THE SEATAC SHORELINE MASTER PROGRAM			