CHAPTER XII
ENVIRONMENTAL ELEMENT

INTRODUCTION

Mill Creek originally developed in the 1970s as a planned residential community in a natural setting. Neighborhoods were built around an extensive system of open space corridors and a golf course, and the City was surrounded by undeveloped land. The retention of natural areas such as wetlands and stream corridors contribute greatly to the quality of life in Mill Creek.

The Puget Sound region has seen significant growth in the last several years. With the advent of Growth Management in the early 1990s, development focused within established Urban Growth Areas. Urban development within Mill Creek and its Urban Growth Area increases pressure upon the natural environment.

The recent listing of the Chinook Salmon as a threatened and endangered species under the Endangered Species Act, as well as the state requirement for jurisdictions to incorporate Best Available Science into their Critical Area Regulations, has brought increased attention to the impacts of development upon natural systems. In the face of increased growth and these changes in the regulatory landscape, Mill Creek is faced with new challenges to achieve a balanced relationship between development and protection of the natural environment.

The overall purpose of the Environmental Element is to provide policy guidance for the long-term preservation of environmentally sensitive areas and how the built environment should co-exist with the natural environment. The policies, established later in this chapter, are based upon an analysis of existing environmental features and conditions, environmental and regulatory issues and community values regarding the protection of the City's environmental resources. Identification of existing conditions provides the basis for identifying key environmental issues that can then be addressed through policies that target general and specific areas of environmental resource protection.

ENVIRONMENTAL RESOURCES

Inventory of Environmentally Sensitive Areas

This section identifies existing environmentally sensitive areas, and provides a description of existing conditions. Sources of information in developing this inventory include a stream map generated by the Mill Creek Public Works Department, wetland delineations prepared in conjunction with private development proposals, the Snohomish County Stream and Wetlands Survey (August 1986), the Soil Conservation Service's Soil Study of Snohomish

County (July 1983) and the Flood Insurance Rate Maps generated by the Federal Emergency Management Agency (November 1999). In conjunction with the 2004 Comprehensive Plan update, the City's wetland consultant verified the wetland boundaries established in Snohomish County's wetland survey (more detailed information can be found in the *Background Document*, available for public review at Mill Creek City Hall).

Environmentally sensitive areas are displayed on the Wetlands, Steep Slopes, Floodplains and Aquifer Recharge Areas maps. These maps are intended to show the general location of environmentally sensitive areas; site-specific identification and delineation will be conducted by the property owner at the time of a project proposal.

It should be noted that the City of Mill Creek does not contain any shorelines of statewide significance, and thus, is not required to adopt a Shoreline Management Plan.

Wetlands

Wetlands of various sizes occur within Mill Creek and its UGA and are depicted on the Wetlands map. Some of the larger wetland systems include those associated with the riparian habitats of North Creek, Penny Creek, Tambark Creek and Nickel Creek. Of these systems, the North Creek wetland is the most extensive, running from the northern city limits to the southern city limits and beyond. In places, the wetland is several hundred feet in width and is dominated by forested vegetation.

Other wetlands include those associated with Sitka Creek and Mill Creek. Several isolated wetlands of varying size are situated throughout the City. Of these wetlands, the most unique is a bog wetland, located south of 132nd Street SE.

The 2003 Wetland Assessment indicates varying conditions of wetlands within Mill Creek. While some wetlands were found to be in good condition, others were found to be significantly degraded. The reasons for these varying conditions ranged from past agricultural activities (including grazing) to increased surface water runoff resulting from urban development and the attendant loss of natural vegetation.

Streams and Drainage Ways

The City of Mill Creek lies within the Sammamish River watershed, which is comprised predominantly of the North Creek basin and a small portion of the Little Bear Creek basin. There are six primary sub-basins that make up the drainage area of Mill Creek and its UGA including North Creek, Penny Creek, Tambark Creek, Mill Creek, Silver Creek and Nickel Creek. A small portion of the Little Bear Creek sub-basin is located within the eastern portion of the UGA.

North Creek

Of the five streams within the City, North Creek is the largest with respect to volume and channel width. Originating in Everett, North Creek runs the full extent of the City from the north end to the south end, and then flowing south until it merges with the

Sammamish River in the City of Bothell. North Creek has historically contained Chinook salmon, which has been identified as threatened and endangered species under the Endangered Species Act. Together with its associated wetlands, North Creek comprises a significant riparian system of both local and regional importance. As development has occurred along the North Creek corridor, conservation easements have been granted to the City to permanently protect this valuable resource.

Penny Creek

Penny Creek originates outside the City, flowing from the north to Thomas Lake, and then running in a westerly direction through the golf course and underneath SR 527 before merging with North Creek. Many of the upper reaches of Penny Creek are absent of riparian vegetation as a result of past development activity.

Nickel Creek

Nickel Creek originates within the City of Mill Creek in the vicinity of the Chatham Park development. Nickel Creek is tributary to North Creek, and has undisturbed riparian vegetation along the majority of the creek.

Mill Creek

Mill Creek is a minor tributary of North Creek and originates east of SR 527. Mill Creek was informally referred to as Smokehouse Creek for a number of years, but in 2001 was officially named Mill Creek by the State Board of Geographic Names.

The upper reaches of Mill Creek have been disturbed by past development activities, but the lower portion (beginning at Merrill Gardens) is undisturbed.

Sitka Creek

Sitka Creek is another minor tributary of North Creek, originating near the City's northern boundary near McCollum Park. The creek and its associated wetlands have experienced little pressure from development until recently, with the commencement of several residential projects within the SR 527 Subarea. In an effort to preserve the pristine character of Sitka Creek, these developments have utilized stormwater facilities designed to minimize impacts upon the creek.

Tambark Creek

Tambark Creek originates south of Thomas Lake and flows south, crossing under 180th Street SE, then flowing westward into Silver Creek.

FISH AND WILDLIFE

Development within Mill Creek and surrounding areas has significantly reduced available habitat for fish and wildlife. The loss of forested areas that once dominated the landscape has resulted in the loss of habitat for birds and animals, and an accelerated volume and rate at which runoff enters streams and rivers. This runoff transports pollutants and sediments into streams, which degrade stream conditions that support fish and other aquatic species. The loss of vegetation adjacent to streams increases in-stream

temperatures and eliminates available woody debris that is an essential ingredient of a healthy stream system.

Because Mill Creek residents place a high value upon the natural environment, many areas have been preserved as the City has developed. Riparian corridors, such as the North Creek, Penny Creek and Tambark Creek corridors, as well as the extensive network of open space throughout the City, provide excellent habitat and movement corridors for birds and mammals. Herons are often seen flying along the North Creek Greenway, and Red Tail hawks can be seen soaring above the County Park located just south of Mill Creek.

Streams provide habitat for several fish species. North Creek has historically contained Chinook salmon, which was listed as a threatened and endangered species under the Endangered Species Act in 2001.

Groundwater Resources/Aquifer Recharge Areas

Groundwater is present throughout Mill Creek, though a comprehensive study has not been conducted to determine the location and depth of groundwater. The groundwater regime is important because of its role in transporting surface water into wetlands and streams, and in maintaining stream base flows during dry periods. Groundwater also supports aquifers for domestic drinking supplies. The majority of Mill Creek is now supplied with water from a public water system, although a small number of residents rely on private wells for their supply of potable water.

Aquifer recharge areas function as large underground "reservoirs" of water that provide water to wells for domestic use. Snohomish County has identified certain aquifers as critical aquifers because they provide the primary source of drinking water for most of the County residents. Based upon an inventory conducted by Snohomish County in 2003, aquifer recharge areas are not present within the city limits, but are present in the East UGA Subarea.

GEOLOGIC HAZARD AREAS

Geologic hazard areas include those areas that are susceptible to erosion or landslides. These areas have been identified on the Steep Slopes map, and occur primarily north of Nickel Creek (south of Seattle Hill Road), on the west and south sides of Dumas Road and west of North Creek. According to the Snohomish County Soil Survey, these areas exhibit steep slopes and contain soil types that are prone to erosion or slippage.

ENVIRONMENTAL ISSUES

Stormwater Management

Water Quality: Sedimentation in North Creek and its tributaries results from stormwater run-off, inadequate erosion control measures, inappropriate grading practices and other non-point source discharges into wetlands and streams. Sediments have an adverse

impact on water quality in the streams and may result in continued degradation of habitat for salmon and other aquatic vegetation. Along with sediment, stormwater run-off carries other pollutants that have an adverse impact on water quality in wetlands and streams.

With continued development in the North Creek watershed, the amount of impervious surface is increased. Paved surfaces and compacted soils do not allow water to infiltrate, causing increased volumes of runoff at higher velocities and greater frequencies. This leads to increased stream flows and possible flooding, scouring of stream channels, deposition of sediment and loss of aquatic habitat.

Regional Issues: Streams and wetlands do not recognize jurisdictional boundaries. Decreased water quality and increased volumes and frequencies of surface water can have significant and cumulative impacts on downstream water bodies. In particular, Mill Creek is tributary to the Sammamish River, which provides habit for Chinook salmon.

Mill Creek recognizes the importance of regional coordination in developing strategies to protect threatened and endangered species. To this end, the City is participating in Watershed Resource Inventory Area (WRIA 8) with other jurisdictions within the WRIA for the purpose of salmon recovery. The City participates on a regional level and is responsible for addressing long-term watershed planning and conservation for watershed basins within the City and the UGA.

Groundwater Protection

Ongoing development decreases the amount of pervious ground that is essential for the infiltration of precipitation into a water table or aquifer. The interruption of this natural process may impact the recharge of wetlands and aquifers through groundwater transport and reduce base flows. Further, impervious areas generate a higher volume of pollutant-laden stormwater, which can impact the quality of water within both wetlands and aquifers.

Over half of the East UGA Subarea is designated as a Sole Source Aquifer for the Cross Valley Water District. Thus, land developments in this area should take measures to reduce impervious areas. Stormwater systems for these developments should be designed to minimize impacts to groundwater resources serving the Cross Valley Water District.

Wetland Preservation

A wetland can be associated with and adjacent to a stream or lake or may be isolated from a water source. Wetlands serve several very important purposes such as water quality, recharge of water quantity, flood attenuation, wildlife habitat and stormwater retention functions. Naturally occurring wetlands are threatened by development in the Mill Creek area.

In 2001 the state legislature adopted new rules requiring that jurisdictions update their Critical Area Regulations using "Best Available Science." The City of Mill Creek will be required, under this new law, to evaluate the adequacy of its existing wetland regulations.

Stream Preservation

Similar to wetlands, streams within Mill Creek are threatened by development. Streams provide habitat for fish and other aquatic species. Riparian corridors provide habitat and movement corridors for birds and mammals. The loss of vegetative cover and increased impervious areas increases the volume, rate and velocity of stormwater runoff, and transports sediment and pollutants into streams, impacting stream habitat.

Endangered Species Protection

With the federal listing of the Chinook salmon under the Endangered Species Act, the City faces increased responsibility for balancing economic growth with protection of the natural environment. Development of a comprehensive strategy is key to achieving this balance. Such a strategy must take into account several factors such as the long-term economic goals of the City, current development patterns and practices, integration of the new Best Available Science rules into the City's Critical Area Regulations, and the City's commitment to a regional strategy for resource protection.

The restoration and maintenance of salmonid habitat is another key component of a comprehensive strategy. Opportunities for restoration are largely driven by the availability of state or federal funds for such purposes. If funds are not available to implement restoration projects, the City can focus on community-wide education and the preservation of remaining resources.

Erosion Control

Slopes over 15 percent may have severe limitations for development and slopes over 40 percent are generally considered unsuitable for development. Vegetated slopes left in their natural state are less susceptible to erosion than unvegetated slopes, provide valuable wildlife habitat and act as buffers for an associated stream or wetland.

Aesthetic Values

Significant stands of trees in the City lend an aesthetically pleasing image to the City's landscape as well as providing valuable habitat for wildlife. Additionally, vegetated areas provide erosion control along steep slopes and act as buffers along stream banks. As more trees and vegetation are removed, the potential for run-off and erosion adding sediment and pollutants to wetlands and streams will increase.

As more vegetated areas are developed, valuable habitat is lost, decreasing the potential for wildlife to continue to live in the natural areas of the City. The loss of natural vegetation

also diminishes the wooded setting that characterizes Mill Creek and contributes to the quality of life for Mill Creek residents.

Air Quality

Air quality may continue to deteriorate so long as land development continues and the population in the area increases. Factors contributing to poor air quality include suspended particulates from woodstoves and fireplaces, construction activities and increased exhaust fumes from the higher volumes of traffic. Land development in the surrounding areas has an impact on the City due to smoke from woodstoves and fireplaces, construction activities and added traffic. Suspended air pollutants gather in valleys and topographic depressions during certain times of the year causing an increase in carbon monoxide and particulate levels.

Noise

Noise pollution may continue to increase as growth occurs and the population increases. The primary source of noise pollution is from increased traffic traveling through the City. Noise is a form of pollution that has direct and harmful effects upon the public's health and welfare and adversely affects the livability, peace and comfort of the residents and community as a whole. Like many forms of pollution, noise is both a local and regional issue.

ENVIRONMENTAL POLICIES

Water Management Resource Policies

Policy 1.01
Land developments should be encouraged to use low impact development techniques to minimize the amount of impervious surface dedicated to streets, driveways and roofs. Use of these techniques will help reduce the amount of stormwater runoff and provide greater protection of surface and groundwater resources. Stormwater facilities should be incorporated into new developments that meet the requirements of the current Department of Ecology Stormwater Management Manual.

Policy 1.02
Land developments shall include stormwater facilities that meet or exceed the requirements of the current Department of Ecology Stormwater Management Manual.

Policy 1.03
The City should continue its efforts with regional coalitions, Snohomish County and other jurisdictions to promote erosion and stormwater control measures, reduce pollution and improve water quality within the City and UGA.

Policy 1.04
The City should undertake a program to educate residents about water quality and quantity management issues including the initiation of "Best Management Practices" for residential neighborhoods situated adjacent to wetlands, streams and other watercourses.

Wetland and Stream Preservation Policies

Policy 2.01
Land development activities should avoid straightening, channelizing, and rerouting existing drainage courses. Structures and impervious surfaces should be set back from streams and wetlands to ensure that riparian vegetation and wetland buffers are undisturbed.

Policy 2.02
Wetlands, streams and associated buffers should be left in their natural state to preserve wildlife habitat and protect water quality and quantity values. The alteration of wetlands and streams through clearing, grading, draining and filling is discouraged.

Policy 2.03
Buffer widths for streams and wetlands shall be the minimum width necessary to protect the integrity, function and value of the resource and shall be based upon Best Available Science rules adopted by the state of Washington (RCW 36.70A.172 and WAC 365-195, part 9).

Policy 2.04
Altering wetlands and streams shall only be allowed after it has been demonstrated that no design alternative exists to afford reasonable economic use of the property and when mitigation is provided that adequately compensates the water quality functions and values and lost wildlife habitat. Proposals to alter wetlands and streams shall be based upon Best Available Science.

Policy 2.05
Streams, wetlands, and their associated buffers shall be protected in perpetuity through the use of tracts, conservation easements or other means to achieve permanent protection.

Policy 2.06
Wetlands and other watercourses on development site plans and City Critical Areas Maps shall be clearly identified.

Policy 2.07
The City will seek opportunities to enhance and restore wetland, stream and wildlife habitat areas within the City and UGA.

Fish and Wildlife/Habitat Policies

Policy 3.01
Protect fish and wildlife habitat through the development of a land use plan and development regulations that are sensitive to valuable habitat areas.

Policy 3.02
Restore and maintain federally-listed threatened and endangered species, and protect the habitat upon which they rely.

Policy 3.03
The City shall adopt Critical Area Regulations that consider the presence of species that are listed as threatened and endangered under the Endangered Species Act.

Policy 3.04
The City shall adopt Critical Area Regulations based upon Best Available Science rules adopted by the state of Washington.

Policy 3.05
The City shall work cooperatively with regional and local jurisdictions to develop and implement a comprehensive, science-based recovery plan for federally-listed threatened and endangered species.

Policy 3.06
The City should establish an educational program to inform residents of issues pertaining to fish and wildlife and the protection of habitat of threatened populations.

Erosion Control Policies

Policy 4.01
Land clearing, grading and filling practices shall minimize soil erosion and sedimentation into streams, wetlands and other watercourses. The City shall ensure that all required temporary and permanent erosion control measures are adequately installed to control water runoff prior to, during and after land clearing or disturbance activities.

Policy 4.02
Land development proposed on slopes over 15 percent is discouraged. Development on slopes between 15 – 40 percent may be permitted provided specific site engineering can demonstrate that subsequent development is safe and will not adversely affect drainage courses, vegetation or slope stability. Development on slopes 40 percent or greater shall not be allowed, and minimum setbacks shall be established to protect slope stability.

Aesthetic Values Policies

Policy 5.01
The City's image is characterized by an abundance of natural vegetation indigenous to the northwest. As additional development occurs, landscaping that emphasizes the use of native plant materials (including drought resistant species), provides a unified design element, achieves compatibility between varied uses and provides attractive entrances into the City is highly encouraged. Wooded areas should be preserved, wherever possible, to ensure adequate habitat for wildlife.

Policy 5.02
Natural vegetation that significantly contributes to the aesthetic values of the City and adds to the natural scenic views shall be preserved to the maximum extent possible. All new developments shall be required to establish cutting preserves consistent with the City subdivision regulations. Three types of cutting preserves are provided to achieve diversity in landscape treatment: undisturbed native growth; natural planting; and formal (see definition in Streetscape Element, Policy 3.03).

Policy 5.03
Vegetated buffer zones should be preserved and/or established between developments and watercourses to protect the integrity of the aquatic systems, to enhance water quality and to ensure adequate habitat for fish and wildlife.

Policy 5.04
Wooded areas should be preserved, wherever possible, to ensure adequate habitat for wildlife.

Policy 5.05
The City should support private and public efforts to obtain conservation easements in areas with significant vegetated backdrops, scenic vistas and wildlife habitat areas.

Air Quality Policies

Policy 6.01
The City should participate with regional transit and other transportation agencies to promote and encourage car-pooling and other public transportation programs that result in improved air quality in the North Creek Basin.

Policy 6.02
Construction activities shall initiate "Best Management Practices" to reduce dust and suspended particulates during the construction process. Measures shall be taken to ensure that all construction related dust and dirt remain on-site.

Policy 6.03
The City shall participate and coordinate with the Puget Sound Air Pollution Control Authority to ensure that all wood stoves installed for use in new homes meet the applicable U.S. Environmental Protection Agency and state standards.

Policy 6.04
The City shall encourage the Puget Sound Air Pollution Control Agency to establish a monitoring station within the North Creek Drainage Basin to ensure that the air quality remains within the accepted standards.

Noise Policies

Policy 7.01
Ensure that excessive noise does not impair the permitted land use activities in residential, commercial and industrial zoning districts.

Policy 7.02
Implement reasonable and effective noise mitigation measures for arterial road improvements in residential areas if the existing or projected noise levels exceed City adopted standards.

Policy 7.03
Work with state and county agencies to mitigate highway and arterial noise, while addressing aesthetic concerns.

Policy 7.04
Evaluate the benefit of measures designed to mitigate arterial noise, specifically noise walls, along with impacts on the pedestrian environment and character of the neighborhood.

Policy 7.05
Evaluate noise impacts when reviewing measures designed to keep traffic volumes and speeds within reasonable limits on collectors and arterials.

Policy 7.06
Require new residential development to include traffic noise abatement design and materials where necessary to minimize noise impacts from arterials.

Policy 7.07
Landscaping within required roadway buffers and cutting preserves within residential neighborhoods should take noise levels of adjacent streets into consideration. Where noise levels exceed City standards, landscaping should include trees that attenuate noise impacts.