
Appendix C-Habitat Conservation Element

Purpose

The “Principal Condition” for Kenmore is its natural environment, consequently the city recognizes that natural areas, and open spaces are essential to the health, quality of life and the vitality of the community. These areas not only affect city residents, they also have profound effects upon those who visit and work inside the city. Further, these natural areas are often part of broader systems that affect our neighbors as well. One of the key values for the city is the notion of stewardship which is an ethic that embodies responsible planning and management of resources including those within natural systems. Protection, conservation, enhancement of environmentally sensitive areas including the city’s three major habitat areas is one of the city’s seven major goals.

Goals and Objectives

Accordingly, a set of objectives and policy actions have been adopted establishing the means to accomplish this goal. In summary those actions advocate providing a balance of management activities including acquisition, development, maintenance and stewardship practices that ensures habitat protection, restoration, enhancement, and public access and education. These objectives and policy actions are presented and discussed within the City’s Comprehensive Park Recreation and Open Space Plan. The successful implementation of these strategies also relies on cooperation and coordination with County, State and Federal agencies.

Existing City of Kenmore Natural Resources

In 2006 the city adopted a Critical Areas Ordinance that noted three primary wildlife habitat areas in Kenmore. Much of these habitat areas exist within Kenmore’s 6.15 square miles. The 2012 adopted Kenmore Final Comprehensive Plan Natural Environment sub-element contains information including plants and wildlife expected in these three habitat areas, provides information on listed Federal and State Endangered, Threatened, Sensitive Species and is considered part of this plan. The three habitat areas found in Kenmore include:

- Swamp Creek Corridor-This area and its associated wetland, ravines and riparian corridors contain approximately 2.4 miles of streams.
- Sammamish River-Kenmore contains about 1.5 river miles and 4 miles of shoreline on the Sammamish River as it flows from Lake Sammamish generally westward until it flows into Lake Washington. The river also contains its associated wetlands, riparian corridors and floodplain.
- Lake Washington -The Lake contributes about 3.4 miles of linear shoreline within Kenmore. As a result of urban development, very little natural vegetation remains along the shoreline. St. Edwards State Park has the longest undeveloped stretch of lake shoreline left in the city of just over .56 miles. St. Edwards Park also contains the largest acreage of upland conifer forest in the city.

Within Kenmore there are over 131 acres of City administered parks and open spaces and another 288 acres managed publicly by King County or the State of Washington.

The following is a list of City owned Nature Parks:

Wallace Swamp Creek Park	25.5 acres
Squire’s Landing Park	40.4 acres

The following is a list of City owned open spaces:

Swamp Creek Corridor	18.9 acres (17 parcels)
Inglewood Wetlands	10.4 acres (3 parcels)

The largest publicly owned natural area in Kenmore is contained within St. Edward State Park, which contains 274 acres of nature park within the city and contains approximately 3,000 lineal feet of shoreline on Lake Washington.

Public Attitudes

Two statistically valid surveys were undertaken in 2013 to assess public attitudes and awareness of Kenmore City parks, open spaces and recreation services. The surveys revealed that overall awareness and impressions about these services improved measurable since 2003 and 2006. Wallace Swamp Creek Park, Log Boom Park (on Lake Washington), and Rhodendron Park (on the Sammamish River) were the most visited city parks. St Edward State Park continued to be popular as well.

On-going and Future Habitat Protection

The city's approach to habitat protection is a strategic method balanced to ensure the appropriate mix of conservation, education and public access.

Management Techniques

Currently the city uses a system of best management practices, and best available technologies to preserve, maintain and restore environmentally sensitive areas. Currently the city employs three distinct strategies in its management approach related to the care of its Natural Parks and Open Spaces.

Restoration

On an on-going basis the city works to restore degraded habitat areas within its Nature Parks. It works cooperatively with local, state and federal agencies and seeks partnerships in the form of funding, labor and continuing monitoring of the success of those efforts. Recent examples of this work include riparian corridor restoration along Swamp Creek in Squire's Landing Park and Wallace Swamp Creek Park. Future work may include restoration along the Sammamish River in Squire's Landing Park.

Conservation

Kenmore regularly evaluates and regularly reviews parcels of land as they become available for inclusion into the existing network of parks and open spaces. Land considered as possible priority for acquisition include:

- Areas which are intrinsically and biologically critical by virtue of their continuity with other, existing natural areas within the City
- Areas that benefit the community in the form of habitat quality and water quality, hydrologic management, and erosion control.
- Areas of scenic quality.
- Areas that are culturally significant.

Education

The city recognizes the value of public education regarding natural systems enabling a better understanding for the need to protect natural areas such as wetlands, riparian corridors, and woodlands and other environmentally sensitive areas. Accordingly, as part of its master planning efforts for its park facilities appropriate interpretive education is included. Effort to provide volunteer docent programs at Wallace Swamp Creek Park is underway. A preliminary master planning effort for Squire's Landing Park includes the opportunity for an interpretive education center and contemplates a partnership with local schools.

This page intentionally left blank.

NATURAL ENVIRONMENT SUB-ELEMENT

INTRODUCTION

Natural systems play an important part in defining the character of the City of Kenmore. The different waterways provide recreational opportunities as well as visual amenities for the community. Some of the smaller, unnamed creeks perform an important role in surface water management by channeling runoff from impervious surfaces to the Sammamish River and/or Lake Washington. Streams and wetlands provide habitat for fish and wildlife and the tree-covered hillsides protect the slopes from erosional processes while also providing habitat. Future development will impact the natural systems and should be carefully reviewed to prevent undue adverse impacts that would lead to degradation of critical areas and to property damage.

Purpose

The purpose of the Natural Environment Sub-Element is to clarify the relationship between the natural environment and the built environment and to secure a balanced approach to future development. Sensitive areas such as wetlands, open spaces, fish and wildlife habitat contain much of the natural wealth valued by City residents. Other sensitive areas, such as land prone to flooding and geologically hazardous areas are important because of the risk to lives and property posed by developing them.

Growth Management Act Requirements

Under the Growth Management Act (GMA) all jurisdictions are required to protect and enhance the natural ecosystems through comprehensive plans and policies, and to develop regulations that reflect natural constraints and protect sensitive features. Land use and development is to be regulated in a manner that respects fish and wildlife habitat in conjunction with natural features and functions, including air and water quality. Natural resources and the built environment are to be managed to protect, improve and sustain environmental quality. Local waterways are to be managed for multiple beneficial uses, including flood and erosion hazard reduction, fish and wildlife habitat, agriculture, open space, water supply, and hydropower. Use of water resources for one purpose should, to the fullest extent possible, preserve and promote opportunities for other uses.

Countywide Planning Policies

The King County Countywide Planning Policies (CPP) require all jurisdictions to identify natural drainage systems including riparian and shoreline habitat to be maintained and enhanced. Jurisdictions in shared basins are to coordinate regulations to manage the basins and the natural drainage system. Jurisdictions are also directed to maintain or enhance water quality through control of runoff and best management practices. Local governments are required to coordinate land use planning and management of fish and wildlife resources with affected state agencies and federally recognized Tribes.

Under the CPP, cities are to work with the County to plan and coordinate implementation of their flood hazard reduction activities within the major river basins (including the Sammamish). Comprehensive Plan policies, regulations, and programs of the City of Kenmore must be consistent with the King County Flood Hazard Reduction Plan (FHRP) policies. Each jurisdiction's policies, regulations, and programs must effectively prevent new development or other actions from causing significant adverse impacts on major river flooding, erosion, and natural resources outside its jurisdiction. All jurisdictions are to implement the Puget Sound Water Quality Management Plan to restore and protect the biological health and diversity of the Puget Sound Basin.

All jurisdictions are to coordinate with the Puget Sound Air Pollution Control Agency (PSAPCA) and the Puget Sound Regional Council to develop policies, methodologies, and standards to promote regional air quality.

EXISTING CONDITIONS

Earth

Much of the City of Kenmore is comprised of undulating uplands formed as a result of different glacial depositional processes. Stream erosion, subsequent to glaciation, carved gullies and ravines in the uplands. Drift plains and alternating valleys create a north-south trending “ridge and valley” regional topography, with one major east-west lowland bisecting Kenmore – the Sammamish River Valley where the river empties into Lake Washington.

Soil Types

Predominant soil associations found in the City of Kenmore and Joint Study Areas include the Alderwood series, Everett series, and Alderwood-Kitsap-Indianola series. Alderwood is associated with moderately well drained, undulating to hilly soils that have dense, very slowly permeable glacial till at a depth of 20 to 40 inches, and is found on uplands and terraces. The Everett series soils are somewhat excessively drained, gravelly, gently undulating soils underlain by sand or gravel, and are found on terraces. Alderwood-Kitsap-Indianola soils are moderately well drained, found on nearly level to steep slopes that have very slowly permeable glacial till or glacial lake deposits at a depth of 16 to 40 inches. These are somewhat excessively drained, rolling, deep sandy soils, found on uplands and terraces.

In Kenmore, west of 68th Avenue NE, soil types recorded in 1952 indicate a predominance of Alderwood. This classification is old and may not accurately represent existing soil characteristics that are primarily urban and have been subject to much grading and filling, thus altering native soils. Areas east of 68th Avenue NE and areas south of Bothell Way were surveyed again in 1973 (the 1973 survey omitted areas west of 68th Street due to dense development and the resulting alterations of native soils). Conducted by the U.S. Department of Agriculture’s Soil Service Department, **Table LU-D** outlines the 1973 survey results by soil type and location. The descriptions of the soil types are general, and are described in greater detail in the King County Washington Soil Survey, including the presence of organic soils associated with wetlands and sensitive areas. Additionally, there may be inclusions of other smaller areas of soil types that are unmapped due to the small size.

Geologic Hazards

Geologic hazard areas in Kenmore include lands with erosion, landslide, and seismic hazards. Erosion hazard areas, identified in the 1990 King County Sensitive Areas Map Folio, occur along the northwest City limits, along 61st Avenue NE, land south of NE 170th Street, and along the shoreline in the Inglewood neighborhood and St. Edward Park. Erosion hazard areas are those soil types occurring on 15-30% slopes that may experience severe to very severe erosion hazards.

The identification of areas susceptible to landsliding is necessary to support grading, building, foundation design, housing density, and other land development regulations. Steeply sloping unconsolidated glacial deposits are highly susceptible to landslides. Landslide hazard areas are found along 61st Avenue NE, the area south of NE 170th Street, and the Inglewood/St. Edward State Park area along Lake Washington. These areas fall under the Sensitive Areas Ordinance definition of a hazardous landslide area because they exhibit slopes greater than 15% and are composed of gravelly soils.

**TABLE LU-D
1973 SOIL SURVEY OF THE CITY OF KENMORE**

SOIL TYPE	LOCATION
Alderwood (AgB) (AgC) (AgD)	Alderwood soils are a gravelly sandy loam typically occurring in uplands on slopes 0-30%, are moderately well drained, and have a thin layer of organic material on top. Significant deposits of Alderwood soils occur along the northeastern edge of the City continuing west until about 80 th Avenue NE, within the southwest portion of the Inglewood Country Club, and St. Edwards State Park.
Bellingham (Bh)	The Bellingham silt loam soil has a silty substratum that impedes drainage and is subject to flooding. It is commonly found in depressions or terraces along small streams. In Kenmore, this soil type is found near Swamp Creek and 80 th Avenue NE.
Everett (EvC) (EvB)	Everett soils are gravelly sandy loams, usually occupy lower elevations than the Alderwood soils, are less productive agriculturally, and exhibit slopes of 5-15%. Everett series soils are found in Kenmore north of the Sammamish River along 73 rd Avenue NE and 68 th Avenue NE.
Indianola (InA)	Indianola soils are sandy soils found on terraces, with slopes of 0-30%. In Kenmore the Indianola loamy fine sand soil type is found on slopes of 0-4%, near 80 th Avenue NE between NE 185 th Street (extended) and Bothell Way. The soil is suitable for urban development.
Kitsap (KpB) (KpD)	Kitsap silt loams have silty, platy lake sediment in the substratum and occur on terrace fronts that face major valleys and drainage ways. Slopes can range from 2 to 30%. In Kenmore they are found along the Sammamish River, 76 th Place NE, and St. Edwards State Park.
Norma (No)	This soil type is found along Kenmore's low-lying areas such as the Sammamish River and Swamp Creek. It is a fine sandy loam with a 10-inch dark, organic top layer that is highly productive agriculturally. It is an alluvial soil located on 0-3% slopes and produced as glacial ravines sloughed off into valleys.
Ragnar (RdC)	RdC is a soil found on 6-15% slopes. It is a fine sandy loam with moderately fast percolation. The southeastern portion of Inglewood Country Clubs' golf course is designated as RdC with this being the exclusive site for this soil class in Kenmore.

Source: King County Washington Soil Survey, Issued September 1952; Soil Survey of King County, Issued November 1973

The King County Sensitive Areas Ordinance defines seismic hazard areas as those areas subject to severe risk of earthquake damage as a result of seismically induced settlement or soil liquefaction. The King County Sensitive Areas Map Folio identifies the region of Swamp Creek, the Sammamish River basin and the northern end of Lake Washington north of NE 166th Place as a seismic hazard area primarily due to the potential of soil liquefaction during times of seismic activity. Refer to **Figures LU-11 and 11a** for maps indicating geologic hazard areas in Kenmore.

Air Quality

Air quality is generally assessed in terms of concentrations of air-borne pollutants being higher or lower than ambient air quality standards set to protect human health and welfare. To measure existing air quality, the Washington State Department of Ecology and PSAPCA maintain a network of monitoring stations throughout the Puget Sound region. Based on monitoring information collected over time, state (Ecology) and federal (EPA) agencies designate regions as being “attainment” or “nonattainment” areas for particulate air pollutants. Attainment is a measure of whether National Ambient Air Quality Standards (NAAQS) are being met.

King County was designated as a nonattainment area in 1989. This designation brought about maintenance measures as outlined in the State Implementation Plan (SIP) to bring the area back into attainment. In King County and the Puget Sound Region, there has been much effort to meet standards set by agencies controlling ambient air quality, or to maintain “attainment” status. Population growth and the continued dependence on motor vehicles will affect Kenmore’s air quality more than any other factors. Typical sources of air pollutants in Kenmore as reported in studies of the LakePointe development include vehicular traffic, existing industrial sources, and residential wood burning devices.

Carbon Monoxide

Carbon monoxide is a by-product of incomplete combustion and is largely generated by transportation sources. Air quality standards for carbon monoxide are set by EPA. It is only recently that the Puget Sound region and King County attained compliance with EPA carbon monoxide standards. The approved maintenance plan that supports the regions’ “attainment” designation also includes Kenmore within the carbon monoxide maintenance plan area boundaries.

Of the various vehicular emissions, carbon monoxide is the air pollutant emitted in the largest quantity. Dispersion modeling conducted as part of the LakePointe Mixed Use Master Plan Final Supplemental EIS (1998) shows 1997 peak one-hour concentrations at intersections analyzed were far below the 35 parts per million (ppm) one-hour limit. However, converting one-hour concentration results to represent eight-hour concentration resulted in some instances when the eight-hour, nine ppm limit at study intersections were exceeded. These levels were expected to improve by the year 2000 and 2010 due to continuing emission control inspection and maintenance programs, increasing efficiencies in vehicular engines, and federal requirements for cleaner burning fuels.

Ozone

Ozone is a highly reactive form of oxygen created by sunlight-activated chemical transformations of nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the ambient air. Historically, King County exceeded the National Standard for ozone emissions several times, thus earning the EPA designation of a “non-attainment area.” King County subsequently recorded no exceedances of the ozone concentration limit for three continuous years and was allowed to petition for redesignation as an “attainment” area. In 1996 EPA granted King County’s application for redesignation and it is now listed as an “attainment” area subject to an approved air quality maintenance plan. Kenmore is located within

Figure LU-11
Critical Areas – King County Sensitive Areas Folio

Figure 11a. Geologic Hazards

an ozone maintenance area and is therefore subject to the regulations in effect under the approved air quality plan.

Particulate Matter

Total suspended particulate (TSP) is the total amount of particulate matter in ambient air. Two categories of TSP are: particulate matter less than or equal to 10 micrometers in diameter (PM10) and fine particulate matter less than or equal to 2.5 micrometers in diameter (PM 2.5). Particulate matter is generated by industrial activities, residential wood burning, and motor vehicle engines and tires as well as other sources. EPA standards are set for acceptable levels of particulate matter and King County currently meets these standards. Lake Forest Park is the nearest PM 10 monitoring station to the City of Kenmore. There are no PM 2.5 monitoring stations near the City of Kenmore.

Future Conditions

Air quality in Kenmore is predicted to remain much as it is today or to improve slightly. This is based on continuation of the inspection and monitoring program for vehicle emissions and the decreased dependence on wood as a primary heating source as newer houses replace older ones. Data collected to complete the LakePointe Mixed Use Master Plan Final Supplemental EIS support the above statement that there will be improvements by 2010 to carbon monoxide levels at 68th Avenue NE/SR-522 together with 68th Avenue NE/NE 175th Street, and SR-522/SR-104. These intersections are currently not meeting air quality standards but are expected to do so by 2010.

Additionally, implementation of zoning responsive to air quality concerns can result in air pollution benefits Countywide and regionally. Decreased air pollution can be expected from zoning and development patterns that result in a reduction in vehicle miles traveled. Concentrated development and higher density development allows transit to serve people more efficiently and generally reduces the number of cars on the road. Although regional or Countywide emissions can be reduced with efficient land use patterns, air pollutant emissions would still occur in more populated areas and may affect more people. (King County Parks, Planning and Resources Department 1994)

Water

Predominant water features in the City include Swamp Creek as well as its tributaries and associated wetlands, the Sammamish River, and Lake Washington (see Figures 11 and 11b). In addition to these major water bodies, numerous small unnamed streams drain to these features. Water quality in Lake Washington is designated Lake Class and is considered of a quality that exceeds requirements for nearly all uses. The Sammamish River has been designated as a Class AA water (extraordinary) along its length from the Marymoor Park Bridge to Kenmore by the Washington State Department of Ecology as its water quality does not violate requirements for all or significantly all uses. Water quality in the City is being compromised by low dissolved oxygen, high fecal coliform counts and high nutrient concentrations, possibly due to failing septic systems, lack of riparian cover, and stormwater runoff.

Swamp Creek is a stream that supports both anadromous and resident fish, based on low water temperatures, sufficient dissolved oxygen, sufficient food, clean gravel for spawning, and riffles for aquatic insects. Little Swamp Creek flows from the northeast to join Swamp Creek in Swamp Creek Wetland 3 (as listed in the King County Sensitive Areas Map Folio).

Water quality in Swamp Creek is being impacted by growth in the watershed. It currently exhibits characteristics typical of streams that drain urban and agricultural watersheds: high turbidity levels during storm events due to erosion and sediment transport and low oxygen levels during summer low-flow

periods due to decay of large amounts of organic material. Pollutants come from a variety of sources including parking lot and highway runoff, excessive lawn and garden chemical use, improper disposal of yard waste, pet waste, failing septic systems, and poor business housekeeping practices.

Flooding in Swamp Creek has become more frequent as a result of urbanization in its 15,687-acre watershed that extends out of the study area and north into Snohomish County. The current two-year flood at 720 cubic feet per second (cfs) is greater than the historic 100-year flood of 624 cfs. Properties that used to flood with a frequency of once in 100 years now flood every other year. Flood hazard areas in Kenmore are shown on **Figure LU-11**.

Fish and Wildlife

In Kenmore and the Joint Study Areas, fish and wildlife habitat is found in wetlands, the stream corridors of Swamp Creek and the Sammamish River, and Lake Washington. This section describes the major fish and wildlife habitat found in Kenmore.

Wetlands

Wetlands are transitional areas between aquatic and upland habitats and are identified based upon three parameters: hydrology, soils and vegetation. Wetlands are formally identified and delineated according to the methods in the Washington State Wetland Identification and Delineation Manual (Department of Ecology, 1997). Under normal circumstances, wetlands include the following three components:

- Presence of water (hydrology) or an indication of at least the seasonal presence of water;
- Unique soils (hydric soils) that differ from upland soils due to anaerobic conditions resulting from prolonged or frequent saturation or flooding; and
- A dominance of plants adapted to growing in wet conditions (hydrophytic vegetation).

Wetlands provide habitat for a variety of aquatic and terrestrial plant and animal species. The extent to which a wetland will provide wildlife habitat will depend upon several features including the condition of the site, its size, presence of habitat features (e.g. open water, dead snags, islands or perches), the variety and complexity of the different habitat types within the wetland, and the surrounding habitat in the immediate vicinity. (Sheldon 1994) The ability of a wetland to provide habitat can also be linked to the degree it has been fragmented by urbanization and the level of disruption of the hydrology and vegetative continuity with other wetland systems. See Figure LU-11c for a map of wetlands in Kenmore.

Figure 11b. Streams (with Typing)

Figure 11c. Wetlands

Several wetlands or portions of wetlands are located within public open spaces such as Wallace Swamp Creek Park, new Swamp Creek Park, and Inglemoor Wetlands.

Kenmore has adopted wetland classifications and buffers at the time of this writing:

- Class 1 – 150 feet
- Class 2 – 100 feet
- Class 3 – 60 feet

Wetland avoidance and protection are promoted in the regulations. The regulations allow for the possibility of wetland alteration if certain criteria are met, such as minimizing the area to be altered and if there is wetland creation, restoration or enhancement of wetlands on another portion of the site or within the same drainage basin. However, the result of wetland mitigation/compensation projects is no-net-loss of wetland functions or values in each drainage basin (see Policy LU-15.1.3).

Streams – General

Within the various drainage basins of the City are stream courses where surface waters produce a defined channel or bed. **Figure LU-11c** (and **SW-1** in the Surface Water Element) show the stream courses in the City of Kenmore and Joint Study Areas.

Activities or developments proposed within 200 feet of Shorelines of State are reviewed under the Shoreline Master Program. The buffer requirements in the City’s sensitive area regulations applicable to streams are:

- Type 1 Stream: 150 feet
- Type 2 Stream: 100 feet
- Type 3 Stream: 50 feet
- Type 4 Stream: 25 feet

The 1990 King County Sensitive Areas Map Folio shows Lake Washington as a Class 1 water body that would have a 100-foot buffer.

The Shoreline Master Program applies to Class 1 streams and other State Shorelines. In Kenmore these include Lake Washington, the Sammamish River, and Swamp Creek. In addition, wetlands considered “associated” with State Shorelines, such as Swamp Creek No. 3, are also regulated by the Shoreline Master Program. The Shoreline Master Program regulations include environment designations of Urban, Conservancy, Rural and Natural. The Urban environment is more permissive in terms of uses and development standards than the other designations. The most restrictive Environment is the Natural Environment. On all water bodies, the designations change based upon environmental and development conditions.

Swamp Creek

Swamp Creek lies within a 24.1-square mile drainage basin located north of Seattle between Everett and Kenmore. The basin is approximately 11 miles long and 2.5 miles wide. Approximately 93 percent of the basin is within Snohomish County. The lower 2.4 stream miles are located within Kenmore, in King County. Flooding is a chronic and often severe problem in many reaches of Swamp Creek in both counties. (King County Department of Natural Resources 1997; Kato and Warren 1999)

Swamp Creek is typical of Puget Sound lowland streams. It originates in upland areas with gently sloping hillsides and eventually flows through a broad valley to the mouth. Topography along the stream course varies from 450 feet above sea level at the headwaters to 20 feet above sea level at the mouth of the creek. The gradient of the stream is gradual, less than one percent, averaging 40 feet per mile (King County Department of Natural Resources 1997). Site and vegetation clearing and grading, increased impervious surfaces, inadequate storm detention and other factors, particularly with development in the watershed upstream from Kenmore, have increased flood frequencies and severity. Refer to **Chapter 8, Surface Water Element**, which addresses the Swamp Creek basin and the effects of urbanization in the watershed.

Fish Habitat

Both anadromous and resident fish are found in Swamp Creek. Anadromous fish hatch in the creek, migrate downstream to Lake Washington and out to Puget Sound where young spend most of their lives in saltwater and then return upstream to the creek to spawn. Resident fish spend their entire lives in Swamp Creek. (King County Department of Natural Resources 1997)

Coho and chinook salmon are the primary anadromous species in the creek. The Washington State Department of Fish and Wildlife releases coho and chinook fingerlings from hatcheries. Other anadromous salmonids found in the creek are sockeye salmon, steelhead trout, and sea-run cutthroat trout. Resident fish species in Swamp Creek include freshwater cutthroat trout, rainbow trout, kokanee, three-spine stickleback, sculpin, speckled dace, redbelly shiner, largescale sucker, yellow perch, largemouth bass, and smallmouth bass. (King County Department of Natural Resources 1997)

Characteristics of good fish habitat include clear water with moderate temperatures, sufficient dissolved oxygen, sufficient food, clean gravel for spawning, pools for rearing, and riffles for aquatic insects. Many of these characteristics have been adversely impacted in Swamp Creek, leading to decreased quality of the spawning and rearing habitat in the creek. (King County Department of Natural Resources 1997)

Salmonid populations in the Swamp Creek watershed have decreased significantly since the late 1970's. Overharvesting of adult fish in Lake Washington, severe predation by river otters, a debris jam blockage in Swamp Creek Wetland #3, and urbanization in the upper watershed have resulted in fewer salmonids. (King County Department of Natural Resources 1997)

Wildlife Habitat

Wildlife species are concentrated in small forested and wetland areas of the Swamp Creek watershed. Swamp Creek Wetland #3 (Listed in the King County Sensitive Areas Map Folio; see **Figure LU-11**) provides excellent forage and nesting habitat for birds and good forage and shelter habitat for amphibians, reptiles and small mammals. Ponded areas in the wetland provide resting sites for waterfowl. Refer to **Table LU-E** for a list of plant and animal species found in Swamp Creek Wetland #3. Of particular interest in Wetland #3 is the Great Blue Heron rookery, described further below.

To prevent development in the broad and flat floodplain of the Swamp Creek watershed adjacent to the Sammamish River, the King County Parks and Recreation Department purchased several lots for use as open space and passive recreation. Wildlife in wetland areas between Swamp Creek and the Sammamish River includes songbirds, waterfowl, river otters, raccoons, beavers, muskrats, weasels, porcupines, and coyotes. (King County Department of Natural Resources 1997)

**TABLE LU-E
PLANTS AND ANIMALS OF SWAMP CREEK WETLAND #3**

PLANTS¹		
Trees	Shrubs	Sedges/Rushes/Grass/Ferns
Red alder	Willow	Lady fern
Black cottonwood	Red osier dogwood	Slough sedge
Oregon ash	Douglas spirea	Water parsley
Sitka spruce	Twinberry	Dagger-leaved rush
Cedar	Indian plum	Skunk cabbage
Hemlock	Ninebark	Iris
Douglas fir	Salmonberry	<i>Reed canarygrass</i>
	Nootka rose	<i>Creeping buttercup</i>
	Black hawthorne	<i>Knotweed</i>
	Nettles	
	<i>Himalayan blackberry</i>	
	<i>Bittersweet nightshade</i>	
	<i>Hazelnut</i>	
ANIMALS		
Fish	Amphibian/Reptiles	Birds/Mammals
Coastal cutthroat	Pacific treefrog	Bald eagles
Coho salmon	Red-legged frog	Red tail hawk
Sockeye salmon	Pacific giant salamander	Great blue heron
Kokanee salmon	Northwestern garter snake	Common coot
Rainbow trout	Northern alligator lizard	Common crow
Coastrange sculpin		Cedar waxwing
Peamouth		Downy woodpecker
Three-spined stickleback		Pileated woodpecker
Speckled dace		Belted kingfisher
Longnose dace		Wilson's warbler
Squaw fish		Mallard
Largemouth sucker		Canada Geese
		Goldfinches
		Beaver
		Coyote
		Raccoon
		Long-tailed weasel
Notes:		
¹ Plant species in italics are non-native to the Pacific Northwest.		

Source: King County Department of Natural Resources, 1997
 Personal Communication, Teresa Vanderburg, Adolfsen Associates, Inc. February 2001

Sammamish River

The Sammamish River begins at the outlet of Lake Sammamish and ends at its confluence with Lake Washington. The River has been altered overtime to control flooding. The natural Sammamish River floodplain historically covered a very large area as the river meandered extensively across the valley floor. Prior to channelization, land use in the valley was predominately agricultural and spring flooding regularly caused extensive damage to seed crops. To reduce this damage and to help regulate the level of Lake Sammamish, the U.S. Army Corps of Engineers, with King County as a local sponsor, dredged a deeper and straighter channel in the 1960s, filling in the former meanders. The new channel, completed in 1966, was designed to contain a 40-year springtime flood event (roughly equivalent to a 10-year winter

flood) in order to address local agricultural concerns. Levees were typically placed on the riverbanks to maximize the flood protection area. Miles of streambank were lined with rip-rap and are devoid of vegetation. Under an historical agreement with the Corps, King County is required to remove vegetation larger than four inches in diameter from stream banks, to remove large woody debris from the channel, and to conduct occasional minor dredging in some areas. (King County Surface Water Management Division 1993)

Consequences of the flood control projects include reduced frequency of overbank flooding, reduced riparian habitat, and elimination of extensive wetland areas. The combination of channelization and associated maintenance practices has resulted in significantly impaired fish habitat. Because of the reduced flooding events, additional urban development has occurred in the floodplains. (King County Surface Water Management Division 1993)

Fish Habitat

The Sammamish River basin supports several anadromous salmonids including chinook, coho, and sockeye salmon, and steelhead, and cutthroat trout. The Sammamish River system also supports runs of nonanadromous kokanee salmon and adluvial cutthroat trout. The mouth of the Sammamish River provides rearing habitat for salmonids and is a migration corridor for adult and juvenile salmon. The majority of the spawning and rearing activity of migrating salmon and trout occurs in tributaries to the Sammamish River and Lake Sammamish, including Issaquah, North, Swamp, Big Bear, Little Bear, and Cottage Lake Creeks. Both natural and artificial salmon production occurs in Issaquah Creek. (King County Department of Development and Environmental Services 1998)

Wildlife Habitat

Historically, the Sammamish River with its broad, shallow channels and numerous backwater sloughs and meanders provided prime habitat for a wide variety of animal species. Although many of the species live along the river today as they did historically, the diversity of the wildlife community and the number of animals in general has declined due to reductions in habitat diversity. (King County Surface Water Management Division 1993). Fragmentation of habitat may also have affected wildlife diversity.

Mammals that continue to live along the river include deer, coyotes, raccoons, beavers, muskrats, mink, river otter, shrews, mice, voles, moles, rabbits, opossums, skunks, ermines, weasels, and possibly fox. The more adaptive of the mammals, coyotes, squirrels and raccoons, for example, exhibit the strongest presence. (King County Surface Water Management Division 1993)

Birds are the most visible form of wildlife along the river. Birds commonly found in the riparian/wetland areas include grebes, cormorants, herons, bitterns, Canada geese, mallards, mergansers, coots, snipes, yellowlegs, kingfishers and dippers. Less water-dependent species found in the riparian/wetland areas include osprey, red tail hawk, killdeer, woodpeckers, swallows, crows, wrens, yellowthroats and blackbirds. Agricultural/grassland areas support smaller birds and act as hunting grounds for raptors. Shrubs and thickets support California quail, common bush tits, wrens, warblers, American goldfinches, rufous-sided towhees and sparrows. Where trees occur, they support songbirds, woodpeckers, grouse, nuthatches, creepers, flycatchers, Stellar's jays, wrens, kinglets and juncos. Bald eagles and other raptors have also been observed flying overhead along the river. (King County Surface Water Management Division 1993; personal communication Teresa Vanderburg, Adolfsen Associates, Inc. February 2001)

Sammamish River Segments in Kenmore

The Sammamish River bisects Kenmore from east to west and flows to Lake Washington. Key features of the river in this area are given below and are based on the 1993 Sammamish River Corridor and Enhancement Opportunities report prepared by the King County Surface Water Management Division.

Reach 1 – Mouth of River to 68th Ave. NE: The river channel in this reach has been less impacted by dredging and channelization than elsewhere. The river splits in two channels as it nears Lake Washington, around Bird Island. Although there is industrial development on the northern bank, vegetation here is more diverse than on most other reaches due to extensive wetlands in the vicinity of Bird Island and along the southern bank near the Inglewood Golf Course (Class 2 wetlands). Fish habitat in the main channel is limited by warm water temperatures, low dissolved oxygen, and lack of instream cover. Bird Island is especially noted for its waterfowl habitat.

Reach 2 –68th Ave NE to Western Bothell City Limits/Wayne Golf Course: Although the channel in this reach has been widened and deepened, the banks are relatively low so the river is highly visible. Swamp Creek, which has declining fish runs due to urbanization in its upper watershed, joins the Sammamish River in this reach. Fish habitat in the main channel is limited by warm water temperatures, low dissolved oxygen, and lack of instream cover. Because of the extensive emergent and scrub-shrub wetlands (rated Class 2) in Swamp Creek, this section of the River has more diverse plant cover and wildlife habitat than most of the other reaches.

Lake Washington

Kenmore's shoreline along the north end of Lake Washington has little natural vegetation or habitat left due to urbanization. An exception would be the waterfront along St. Edward State Park, which is roughly 3,000 feet in length and the longest undeveloped stretch of Lake Washington shoreline.

Despite the minimal habitat, wildlife is present, as reported in the analyses of the LakePointe development proposal. Two Class 2 wetlands (0.25 acres and 1.5 acres) are found on the LakePointe site. The smaller wetland offers breeding habitat for waterfowl and passerine birds, foraging habitat for shorebirds and breeding, and foraging habitat for amphibians. Trees along the Sammamish River and Lake Washington shorelines provide perch sites and limited shade. Different species of wildlife were observed during environmental surveys conducted on the site in 1996: American coot, mallard and mallard/domestic cross breeds, common merganser, greater scaup, gadwall, western grebe, Canada goose, snipe, great blue heron, cormorant, belted king fisher, bald eagle, western gull, rock dove, Bewicks wren, American crow, black-capped chickadees, song sparrow, bush tits, swallow's nest, beaver, and muskrat. A beaver was observed swimming in the inner harbor. Bald eagles were reported flying over the project site, and two bald eagles were observed perched along the Lake Washington shoreline south of the Sammamish River confluence during fisheries surveys. (King County Department of Development and Environmental Services 1997)

Lake Washington supports salmonid and nonsalmonid fish species. **Table LU-F** shows a summary of fish thought to be present in Lake Washington.

The area of the lake at the mouth of the Sammamish River is a critical point for millions of salmon as they migrate between the Pacific Ocean and their spawning grounds in the Lake Washington basin. Each year about five million salmon fry and smolts travel down the Sammamish River on their way to Lake Washington and ultimately to the ocean. They become very concentrated at the mouth of the Sammamish River and are particularly vulnerable to predation during this migration. (King County Department of Development and Environmental Services 1998)

**TABLE LU-F
LAKE WASHINGTON FISH**

COMMON NAME	ORIGIN
Sockeye salmon and kokanee	Introduced
Chinook salmon	Native
Coho salmon	Native
Cutthroat trout	Native
Steelhead trout and rainbow trout	Native
Squawfish	Native
Rocky Mountain whitefish	Native
Peamouth chub	Native
Large-scale sucker	Native
Coastrange sculpin ¹	Native
Prickly sculpin	Native
Riffle sculpin	Native
Three-spined stickleback	Native
Longfin smelt	Native
Pacific lamprey	Native
Brook lamprey	Native
River lamprey	Native
Redside shiner	Native
Large mouthed bass	Introduced
Small mouthed bass	Introduced
Yellow perch	Introduced
Common carp	Introduced
Brown bullhead	Introduced
Black crappie	Introduced
White crappie	Introduced
Bluegill	Introduced
Tench	Introduced
Atlantic salmon	Introduced
Goldfish	Introduced
Pumpkinseed sunfish	Introduced

¹The pelagic sculpin frequently found in association with sockeye salmon and long-fin smelt has not been officially identified but might be a subspecies of the coast range sculpin.

Source: Wydoski and Whitney 1979 reported in King County Department of Development and Environmental Services, 1998

Coho and chinook salmon, as well as steelhead trout populations are at historically low numbers. Development-related activities resulting in habitat degradation in the Puget Sound lowlands are considered a primary cause of their decline. (King County Department of Development and Environmental Services 1998)

Endangered, Threatened, Sensitive Species

Federal

The Federal Endangered Species Act (ESA) designates two levels of protection for listed species: Threatened or Endangered. “Endangered” means that a population or species is “in danger of extinction throughout all or a significant portion of its range.”(16 U.S.C. Sec. 1532(6)) “Threatened” means that a species or population is “likely to become endangered within the foreseeable future.” (16 U.S.C. Sec. 1532(20)) An Endangered listing triggers the full protection of the Act while a Threatened listing allows

the regulatory agency (e.g. National Marine Fisheries Service for marine species or US Fish and Wildlife Service for terrestrial species) more latitude in how the species is protected and recovered. The law prohibits “taking” an endangered or threatened species. To “take” means to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 U.S.C. Sec. 1532 (19)) (Perkins Coie 1998).

The federal regulatory agency may issue species-specific regulations that may allow for “incidental takes.” The ESA allows for “incidental takes” where an applicant may commit a take that would otherwise be prohibited where it is “incidental to and not [for] the purpose of, the carrying out of an otherwise lawful activity” (16 U.S.C. Sec. 1539(a)(1)(B)). Incidental takes are authorized through a variety of voluntary agreements such as Candidate Conservation Agreements, Safeharbor Agreements, and Habitat Conservation Plans (HCPs) with Implementing Agreements. (Perkins Coie 1998)

The ESA listings affect the development permit process and local government capital projects. If a proposed action may adversely affect a listed species, the permitting agency must consult with the National Marine Fisheries Service (NMFS) or US Fish and Wildlife Service (USFWS). After consultation, the federal agency would issue a biological opinion regarding the proposed action. If the federal agency finds that there will be significant negative effects, alternatives must be proposed. If the federal agency determines that no jeopardy or modification is likely, then the action may proceed, but the federal agency may also propose conservation recommendations. (Perkins Coie 1998)

Chinook salmon are listed as Threatened by the NMFS in the Puget Sound. Additionally, the U.S. Fish and Wildlife Service recently listed bull trout as Threatened. Both species are thought to occur within the Study Area.

Bald eagles are listed as Endangered by the USFWS, but the species is proposed for de-listing due to its successful recovery. Even if the U.S. Fish and Wildlife Service removes the bald eagle from the list of threatened and endangered species, the bird would still be protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. There have been several sightings of bald eagles in the Kenmore area as described above.

Other species considered candidates for listing in the Puget Sound area include coho salmon as well as herring and a number of species of rockfish.

State

Priority Habitat and Species Program

The State of Washington Department of Fish and Wildlife has a Priority Habitat and Species (PHS) Program. Based on State laws and the PHS program, the State lists designated State *Endangered*, *Threatened*, or *Sensitive* Species. In addition there are two other criteria that result in a listing as a Priority Species: *Vulnerable Aggregations* of species that are susceptible to decline by virtue of the inclination to aggregate, or *Species of Recreational, Commercial, and/or Tribal Importance* that are vulnerable. Many species on the State’s lists occur in the Study Area. Examples include bald eagles, great blue herons, and several salmonid and non-salmonid fish species. Due to the importance and size of the colony, the great blue heron species is addressed below.

Great Blue Heron

Great blue herons are included as a Priority Species by the State of Washington due to their inclination to aggregate during the breeding season, making them vulnerable to significant population declines. They

are found throughout Washington but are most common in the lowlands. Great Blue Herons occur near most types of fresh and saltwater wetlands including seashores, rivers, swamps, marshes and ditches. (State of Washington Department of Fish and Wildlife 1999)

Great blue herons are colonial breeders that nest in a variety of deciduous and evergreen trees. Nests are usually built in the tallest trees available. The herons feed on a wide variety of aquatic and marine animals found in shallow waters. Although they forage up to 18 miles from a colony, most forage within one to three miles of the colony. Food availability strongly affects heron survival, the spacing of their colonies, and their use of habitat. (State of Washington Department of Fish and Wildlife 1999)

A heron rookery has been established near the King County Sheriff's office substation and the Kenmore Park and Ride, within Swamp Creek wetlands. It has grown from about 24 nests in 1990 to 35 nests in 1996. The rookery is considered large by urban standards. It is also considered extremely important because it is successful and increasing in size. (Thompson 1999)

The colony established itself after the Kenmore Park and Ride lot was developed. There is a water barrier between the lot and the colony which may create a sense of safety. It is one of the few colonies not harassed by bald eagles and was the only colony in urbanized King County to have a successful breeding season in 1999. Other than encroaching development, factors which may cause the birds to move in the future include bald eagle intrusion, damage to nesting trees (trees can be damaged by the nesting as well as flooding), reduction in foraging areas, and other factors. (Norman 1999)

The birds are colonial during the breeding season but are noncolonial in the winter when they stay in the immediate area but separate into smaller groups. The winter roosting areas have not been identified. In winter, the birds will switch from foraging in wetland areas to upland areas where they will feed, for example, on rodents. (Norman 1999)

Colonies usually exist at the same location for many years, and productivity (the number of fledglings/nesting herons) may be positively related to the number of years colonies have been in use. The herons may relocate their colonies in response to increased predation on eggs and young by mammals and birds such as eagles, declines in food availability, or human disturbance. (State of Washington Department of Fish and Wildlife 1999)

The State Department of Fish and Wildlife recommends comprehensive land use planning that considers the needs of all species, or colony site-specific management plans.

The City of Kenmore's Critical Area Regulations require a buffer of 900 feet radius around an active rookery. Between January 1 and July 31, no clear or grading or land disturbing activity is allowed within 900 feet of the rookery unless approved by the Washington State Department of Fish and Wildlife (the SR-522 right of way is exempt from the buffer). Permits for activities within the heron rookery buffer require approval of a habitat management plan by the State and City.

GOALS, OBJECTIVES, AND POLICIES

Following are the natural environment goals, objectives and policies. In some cases, policies are cross-referenced in more than one Element or Sub-Element, and this is noted by a policy reference in italics (e.g., *Policy SW-42.3.1*).

GOAL 13. PRACTICE ENVIRONMENTAL STEWARDSHIP BY PROTECTING, ENHANCING, AND PROMOTING THE NATURAL ENVIRONMENT IN AND AROUND THE CITY OF KENMORE.

OBJECTIVE 13.1 Cooperate regionally and strive locally to improve air quality.

- Policy LU-13.1.1 Protect air quality from adverse impacts through the following measures:
- a. Encourage alternative modes of transportation to reduce reliance on the automobile as the primary method of transportation.
 - b. Promote mixed-use and compact development forms, particularly in the Downtown, to help reduce the need for automobile use.
 - c. Require air quality impact analysis for major new developments, which could adversely impact the air quality levels in the vicinity.
 - d. Work with other agencies to educate the public about air quality impacts due to vehicular travel and due to improper use of woodstoves and fireplaces.
 - e. Work with other agencies to monitor air quality within the planning area.
- Policy LU-13.1.2 Through development standards, reduce air pollution emissions from construction and land clearing activities.

OBJECTIVE 13.2 Encourage a reduction in overall noise levels throughout the community.

- Policy LU-13.2.1 Require new developments which could generate substantial levels of noise or could expose people to substantial levels of noise from existing noise generators to submit an analysis of potential noise impacts and propose mitigation.
- Policy LU-13.2.2 Implement noise and nuisance ordinances to address various noise sources and require cessation or mitigation of noise.
- Policy LU-13.2.3 Encourage residential or other noise-sensitive development proposed for location in noise-impacted areas to be oriented away from noise source, or to be constructed with materials that will maximize noise reductions, or to incorporate fencing, landscaping, or other noise-reducing features, appropriate to the situation. Noise impacted areas may include the vicinity of SR-522, or the vicinity of the Air Harbor, or other areas that may be determined through environmental review.

OBJECTIVE 13.3 Encourage a reduction in light and glare impacts throughout the community.

- Policy LU-13.3.1 Through design standards or educational opportunities, discourage the use of building materials or signage materials that cause glare impacts to substantial numbers of motorists or surrounding neighborhoods.
- Policy LU-13.3.2 Require appropriate illumination levels and light shields, and direction for lighting standards along streets, and in public open spaces and parks.
- Policy LU-13.3.3 Encourage residents to provide exterior lighting for security purposes which does not unduly impact their neighbors.

Policy LU-13.3.4 Restrict lights pointing up, affecting the view of the night sky.

OBJECTIVE 13.4 Cooperate regionally and strive locally to protect surface and ground water quality and quantity from degradation.

Policy LU-13.4.1 Actively work with communities upstream from Kenmore to develop and implement appropriate surface water regulations to adequately retain and detain surface water so as to minimize the adverse effects upon the environment in Kenmore.

Policy LU-13.4.2 Use incentives, regulations and programs to manage Kenmore's water resources (rivers, streams, lakes, wetlands and ground water) and to protect and enhance their multiple beneficial uses including fish and wildlife habitat, flood and erosion control, water supply, energy production, transportation, recreational opportunities and scenic beauty. Use of water resources for one purpose should, to the fullest extent practicable, preserve opportunities for other uses.

Policy LU-13.4.3 Allow development that supports continued ecological and hydrologic functioning of water resources. Development should not have a significant adverse impact on water quality or water quantity.

Policy LU-13.4.4 Participate in the development of watershed plans integrating surface water, ground water, drinking water and wastewater planning to provide efficient water resource management.

OBJECTIVE 13.5 Adopt an urban forestry strategy to encourage the preservation and planting of trees on public and private property.

Policy LU-13.5.1 Adopt an urban forestry strategy which encourages the preservation and protection of trees on public and private properties.

Policy LU-13.5.2 Through urban forestry, street design standards and parks programs, encourage the planting of street trees throughout the City.

OBJECTIVE 13.6 Protect the natural, environmental, ecological, public access, aesthetic, and economic aspects of Lake Washington, the Sammamish River, and Swamp Creek.

Policy LU-13.6.1 In the City's Shoreline Element and Shoreline Master Program, balance the need to provide for shoreline protection, and public access, with the need to allow for water-oriented uses and economic development.

Policy LU-13.6.2 Allow development within designated Shoreline Environments that preserves the resources and ecology of the water and shorelines, avoids natural hazards, promotes visual and physical access to the water and preserves archeological resources, traditional cultural resources, and navigation rights. Protection of critical areas should take priority over visual values and physical access.

Policy LU-13.6.3 Balance private property rights with the need for public physical and visual access to shorelines.

GOAL 14. PROTECT LIFE AND PROPERTY IN AREAS OF NATURAL HAZARDS.

OBJECTIVE 14.1 Strive to protect lives and public and private property from flooding.

- Policy LU-14.1.1 Implement the Surface Water Element goals, objectives and policies and the Kenmore Surface Water Management Plan to minimize flood hazards in the community.
- Policy LU-14.1.2 Recognize the Swamp Creek basin as an environmentally sensitive area that has sustained repeated flooding impacts. Densities and services should reflect the environmental sensitivity of the Swamp Creek basin.

OBJECTIVE 14.2 Strive to protect slopes from erosion and sliding.

- Policy LU-14.2.1 Require land uses permitted in mapped Erosion Hazard Areas to minimize soil disturbance and maximize retention and replacement of native vegetative cover.
- Policy LU-14.2.2 Require new development to protect natural vegetation coverage at levels sufficient to moderate surface water runoff and erosion and to protect the integrity of stream channels. When revegetation is required, appropriate native vegetation should be used.
- Policy LU-14.2.3 Require grading and construction activities to be conducted with erosion control Best Management Practices and other development controls as necessary to reduce sediment discharge from construction sites to minimal levels.
- Policy LU-14.2.4 Require increased surface water requirements in areas draining over steep and erosive slopes. (*see SW-42.3.1*)
- Policy LU-14.2.5 Limit development on slopes with a grade of 40 percent or more to be developed unless the risks and adverse impacts associated with such development can be reduced to a non-significant level.
- Policy LU-14.2.6 Limit development in Landslide Hazard Areas unless the risks and adverse impacts associated with such development can be reduced to a non-significant level.

OBJECTIVE 14.3 Minimize the potential for damage due to liquefaction and seismic hazards.

- Policy LU-14.3.1 In areas with severe seismic hazards, apply Uniform Building Code, and any other necessary special building design and construction measures to minimize the risk of structural damage, fire and injury to occupants and to prevent post-seismic collapse.

GOAL 15. PROTECT AND ENHANCE UNIQUE, VALUABLE, AND CRITICAL PLANTS AND WILDLIFE.

OBJECTIVE 15.1 Protect wetlands from encroachment and degradation, and encourage wetland restoration.

- Policy LU-15.1.1 Determine wetland boundaries using the procedures provided in the following manual: Washington State Wetlands Identification and Delineation Manual, Washington State Department of Ecology, March 1997, Ecology Publication #96-94 or the scientifically accepted replacement methodology based on better technical criteria and field indicators.
- Policy LU-15.1.2 Provide a classification system for wetlands that allows for the designation of both regionally and locally unique wetlands.
- Policy LU-15.1.3 Strive to achieve no-net-loss of wetland functions or values within each drainage basin. Acquisition, enhancement, regulations, and incentive programs may be used independently or in combination with one another to protect and enhance wetlands functions.
- Policy LU-15.1.4 Require development adjacent to wetlands to be sited such that wetland functions are protected, an adequate buffer around the wetlands is provided, and significant adverse impacts to wetlands are prevented.
- Policy LU-15.1.5 Protect areas of native vegetation that connect wetland systems. Whenever effective, incentive programs such as buffer averaging, density credit transfers, or appropriate non-regulatory mechanisms should be used.
- Policy LU-15.1.6 Protect the unique hydrologic cycles, soil and water chemistries, and vegetation communities of bogs, fens and other legislatively designated unique through the use of Best Management Practices to control and/or treat stormwater within the wetland watershed.
- Policy LU-15.1.7 Allow public access to wetlands for scientific, recreational use, and traditional cultural use where public access trails are carefully sited, sensitive habitats and species are protected, and hydrologic continuity is maintained.
- Policy LU-15.1.8 Allow enhancement or restoration of degraded wetlands to maintain or improve wetland functions, provided that all wetland functions are evaluated in a wetland management plan, and adequate monitoring, code enforcement and evaluation is provided and assured by responsible parties. Restoration or enhancement must result in a net improvement to the functions of the wetland system. Technical assistance to small property owners should be considered.
- Policy LU-15.1.9 Alterations to wetlands may be allowed, only after all wetland functions are evaluated, the least harmful and reasonable alternatives are identified, and affected significant functions are appropriately mitigated, in order to:
- a. Accomplish a public agency or utility development;
 - b. Provide necessary utility and road crossings;
 - c. Maintain and improve a wetland; or,
 - d. Avoid a denial of all reasonable use of the property.
- Policy LU-15.1.10 Approve wetland mitigation proposals if they would result in improved overall wetland functions within a drainage basin. All wetland functions should be

considered. Ensure mitigation sites replace or augment the functions that would be lost as a result of the project proposal. Further, mitigation sites should be located strategically to alleviate habitat fragmentation.

- Policy LU-15.1.11 Promote mitigation projects that contribute to an existing wetland system or restore an area that was historically a wetland. The goal for these mitigation projects is no net loss of wetland functions per drainage basin.
- Policy LU-15.1.12 Preserve land used for wetland mitigation in perpetuity. Monitoring and maintenance should be provided until the success of the site is established.
- Policy LU-15.1.13 Support a cooperative multi-jurisdictional effort to develop a plan for the establishment of a wetland mitigation banking program.
- Policy LU-15.1.14 Apply appropriate penalties for current as well as previous wetland alteration violations, such as requiring wetland restoration, through code enforcement and stricter standards for development on sites where wetlands have been illegally filled.

OBJECTIVE 15.2 Protect streams from encroachment and degradation, and encourage stream restoration.

- Policy LU-15.2.1 River and stream channels should be preserved, protected and enhanced for their hydraulic, ecological and aesthetic functions.
- Policy LU-15.2.2 In partnership with other jurisdictions and interested parties, continue restoring stream and river channels and surrounding riparian areas to enhance water quality and fish and wildlife habitat and to mitigate flooding and erosion.

OBJECTIVE 15.3 Maintain and promote a diversity of species and habitat within the City.

- Policy LU-15.3.1 Protect native plant communities by encouraging management and control of non-native invasive plants, including aquatic plants. Environmentally sound methods of vegetation control should be used to control noxious weeds.
- Policy LU-15.3.2 Actively encourage the use of environmentally safe methods of vegetation control. Herbicide use should be minimized.
- Policy LU-15.3.3 Encourage the use of native plants in landscaping requirements, erosion control projects, and in the restoration of stream banks, lakes, shorelines, and wetlands. Provide incentives for using native plants, mature plantings, and higher densities of biomass.
- Policy LU-15.3.4 Maintain fish and wildlife through conservation and enhancement of terrestrial, air, and aquatic habitats.
- Policy LU-15.3.5 Preserve habitats for species which have been identified as endangered, threatened, or sensitive by the state or federal government.
- Policy LU-15.3.6 Designate and protect the following Fish and Wildlife Habitat Conservation Areas found in Kenmore:

- a. Habitat for federal or state listed Endangered, or Threatened species;
- b. Habitat for State Sensitive, and Candidate species; animal aggregations considered vulnerable; and those species of recreational, commercial, or tribal importance that are vulnerable as identified in the State Priority Habitats and Species List.
- c. Habitat for Herons of Local Importance: great blue heron;
- d. Urban natural open spaces designated in the Priority Habitat and Species Project by the State Department of Fish and Wildlife; and,
- e. Riparian corridors.

Policy LU-15.3.7 Conduct a local process to determine fish, wildlife, and plant species of local importance, and address these in Policy LU-15.3.6.

Policy LU-15.3.8 Identify species which need protection during the development review process.

Policy LU-15.3.9 Stream and wetland buffer requirements may be increased to protect Endangered, Threatened, and Priority wildlife species. Whenever possible, density transfers and/or buffer averaging should be allowed.

Policy LU-15.3.10 Protect salmonid habitats by ensuring that land use and facility plans (transportation, water, sewer, electricity, gas) include riparian and stream habitat conservation measures developed by the County, cities, tribes, service providers, and/or state and federal agencies. Development within basins that contain fish enhancement facilities should consider significant adverse impacts to those facilities.

Policy LU-15.3.11 Work with adjacent jurisdictions, state and federal governments and tribes during land use plan development and site development review to identify and protect habitat networks at jurisdictional boundaries.

Policy LU-15.3.12 Encourage incorporating native plant communities into development proposals.

Policy LU-15.3.13 Integrate fish and wildlife habitats into capital improvement projects whenever feasible.

Policy LU-15.3.14 Promote voluntary wildlife habitat enhancement projects by private individuals and businesses through educational and incentive programs.

Policy LU-15.3.15 Actively participate in the Watershed Resource Inventory Area (WRIA) 8 Council to ensure that the City's planning, implementation, and enforcement efforts regarding surface and groundwater, environmentally sensitive areas, and development regulations are consistent with regional efforts. A central purpose of the watershed planning and implementation should be the recovery of endangered, threatened, or sensitive species such as the chinook salmon and bull trout.

Policy LU-15.3.16 Regularly review the City's capital projects, and planning and regulatory efforts to ensure consistency with the Federal 4(d) rule.

IMPLEMENTATION STRATEGIES

The Natural Environment Sub-Element policies would require new or increased commitments of City resources to prepare new regulations, review/amend existing regulations, create educational or incentive programs, or coordinate with adjacent jurisdictions.

New programs, rules, or regulations would be needed to address:

- Air quality and noise analyses for major new developments
- Design standards for building materials, signage and light standards
- Urban forestry strategies
- Native vegetation requirements
- Designated fish and wildlife habitat conservation areas
- Habitat enhancement educational and incentive programs.

A review of existing programs, rules and regulations would be needed to ensure they meet the policies, including:

- Control of air emissions from construction and land clearing activities
- Erosion control Best Management Practices
- Increased surface water requirements on steep and erosive slopes
- Sufficiency of wetland, habitat, flood hazard, steep slope, landslide hazard, and erosion hazard regulations.

Additional or continuing efforts would need to be made to coordinate with adjacent jurisdictions or participate in regional programs, including:

- Working with adjacent, upstream communities on water quality and flooding issues
- Participating in the development of watershed plans
- Establishing a wetland mitigation banking program
- Restoring stream channels.

REFERENCES

Bucher, Willis and Ratliff Corporation (November 23, 1999). Personal communication, phone call from Cindy Stahl, Bucher, Willis & Ratliff Corporation to Larry Altose, PSAPCA.

City of Kenmore (November 23, 1999). Personal Communication, meeting, Debbie Bent, Senior Planner, City of Kenmore and Lisa Grueter, Bucher, Willis & Ratliff Corporation.

City of Renton, Economic Development/Neighborhoods and Strategic Planning Department (June 1999). Draft Southport Development Planned Action Supplemental Environmental Impact Statement. Prepared by Huckell/Weinman Associates, Inc. Renton, WA.

Clifford, Peggy (February 26, 1997). Personal Communication, Peggy Clifford, State of Washington Department of Ecology, to Lisa Grueter, Senior Planner, City of Renton.

Goldsmith, Mark (November 28, 2000). Letter from Mark Goldsmith, State of Washington Department of Fish and Wildlife, to Bob Sokol, Community Development Services Director, City of Kenmore.

Jensen, K.E., and P.D. Boersma (1993). "Land Development and Human Disturbances as Factors in Determining Great Blue Heron (*Ardea herodias*) Colony Size and Location in the Puget Sound Region." Unpublished Report, University of Washington, Seattle, Washington.

King County (May 1978). King County Shoreline Master Program. Ordinance 3692. Seattle, WA.

King County (December 1990). Sensitive Areas Map Folio. Seattle, WA.

King County (1990). Wetlands Inventory. Seattle, WA.

King County (December 21, 1999). Zoning Code. Seattle, WA.

King County, Department of Development and Environmental Services (November 1997). LakePointe Mixed Use Master Plan, Draft Supplemental Environmental Impact Statement. Prepared by Huckell/Weinman Associates, Inc. Seattle, WA.

King County, Department of Development and Environmental Services (July 1998). LakePointe Mixed Use Master Plan, Final Supplemental Environmental Impact Statement. Prepared by Huckell/Weinman Associates, Inc. Seattle, WA.

King County, Department of Natural Resources (February 1997). Swamp Creek Action Plan: Final Plan. Seattle, WA.

King County, Department of Parks Planning & Resources (1993). Northshore Community Plan Update and Area Zoning. Seattle, WA.

King County, Department of Public Works, Surface Water Management Division (December 1993). Sammamish River Corridor Conditions and Enhancement Opportunities. Seattle, WA.

King County, Parks, Planning & Resources Department (June 1994). Draft King County Comprehensive Plan Supplemental Environmental Impact Statement. Prepared by Huckell/Weinman Associates, Inc. Seattle, WA.

King County, Surface Water Management Division (1993). King County Flood Hazard Reduction Plan. Seattle, WA.

King County Growth Management Planning Council (December 31, 1995). Countywide Planning Policies. Seattle, WA.

Norman, Don (November 23, 1999). Personal Communication, phone call from Don Norman, consulting biologist to Lisa Grueter, Bucher, Willis & Ratliff Corporation.

Northeast Lake Washington Sewer and Water District (September 1990). Comprehensive Sewer Plan: 1990 Update. Prepared by ST Engineering Inc., P.S. Kenmore, WA.

Perkins Coie (1998). "The Endangered Species Act – A Primer." By Patrick W. Ryan and Galen Schuler. Seattle, WA.

Puget Sound Regional Water Quality Authority (1994). 1994 Puget Sound Water Quality Management Plan. Olympia, WA.

Sheldon, Dyanne M. (November 1994). "Planning for Wetlands Workshop." Prepared for American Planning Association. Seattle, WA.

State of Washington (1988). "State of the Environment." Environment 2010 program.

State of Washington, Department of Ecology (March 1997). Washington State Wetlands Identification and Delineation Manual. Ecology Publication #96-94. Olympia, WA.

State of Washington, Department of Fish and Wildlife (1999). "Great Blue Herons" in the Management Recommendations for Washington's Priority Species, Volume IV: Birds. Authors Timothy Quinn and Ruth Milner. Olympia, WA.

Stofel, Julie (November 16, 1999). Personal Communication, phone call and facsimile from Julie Stofel, State Department of Fish and Wildlife, to Lisa Grueter, Bucher, Willis & Ratliff Corporation.

Thompson, Trisha (November 12, 1999). Personal Communication, phone call from Trisha Thompson, State Department of Fish and Wildlife, to Lisa Grueter, Bucher, Willis & Ratliff Corporation.

U.S. Department of Agriculture (September 1952). Soil Survey, King County, Washington, Series 1938, No. 31. King County, Washington.

U.S. Department of Agriculture, Soil Conservation Service (1973). King County Area Soil Survey. King County, Washington.

Vanderburg, Teresa (February 8, 2001). Personal Communication, transmittal from Teresa Vanderburg, Wetlands Program Manager, Adolfson Associates, Inc. to Lisa Grueter, Bucher, Willis & Ratliff Corporation.

Vanderburg, Teresa (February 16, 2001). Personal Communication, facsimile from Teresa Vanderburg, Wetlands Program Manager, Adolfson Associates, Inc. to Lisa Grueter, Bucher, Willis & Ratliff Corporation.