

# XI. UTILITIES



CHARTING A FUTURE COURSE

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## ◆ RELATIONSHIP TO THE FRAMEWORK GOALS ◆

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The **Utilities Element** highlights the following Framework Goals:

- FG-1 Maintain and enhance Kirkland's unique character.
- FG-2 Support a strong sense of community.
- FG-3 Maintain vibrant and stable residential neighborhoods and mixed-use development, with housing for diverse incomes, ages, and lifestyles.
- ✓ **FG-4 Promote a strong and diverse economy.**
- FG-5 Protect and preserve environmentally sensitive areas and reduce greenhouse gas emissions to ensure a healthy environment.
- FG-6 Identify, protect and preserve the City's historic resources, and enhance the identity of those areas and neighborhoods in which they exist.
- ✓ **FG-7 Encourage a sustainable community.**
- FG-8 Maintain and enhance Kirkland's strong physical, visual, and perceptual linkages to Lake Washington.
- FG-9 Provide safety and accessibility for those who use alternative modes of transportation within and between neighborhoods, public spaces, and business districts and to regional facilities.
- FG-10 Create a transportation system which allows the mobility of people and goods by providing a variety of transportation options.
- FG-11 Maintain existing park facilities, while seeking opportunities to expand and enhance the current range and quality of facilities.
- ✓ **FG-12 Ensure public safety.**
- ✓ **FG-13 Maintain existing adopted levels of service for important public facilities.**
- FG-14 Plan for a fair share of regional growth, consistent with State and regional goals to minimize low-density sprawl and direct growth to urban areas.
- ✓ **FG-15 Solve regional problems that affect Kirkland through regional coordination and partnerships.**
- FG-16 Promote active citizen involvement and outreach education in development decisions and planning for Kirkland's future.
- FG-17 Establish development regulations that are fair and predictable.

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## A. INTRODUCTION

The Utilities Element addresses water, sewer, surface water, electric power, natural gas and telecommunications.

Kirkland's existing utility infrastructure is generally adequate to meet the growth needs of the City for many years. The primary focus of the City in the coming years will be to continue to update existing systems to increase efficiency and to avoid maintenance problems associated with older facilities. Each utility function presents a unique problem. For water, Kirkland faces regional supply issues that require regional solutions. For sewer, the City must consider how to service areas on septic systems as those areas become more urbanized. For surface water, the City is challenged to manage a growing system to handle increased urbanization while maintaining and enhancing water quality. For telecommunications, the City must find economical ways to install its fiber-optic network to meet the City's needs and respond to changes in technology and, where possible, utilize its telecommunications investments and partnerships to benefit citizens, businesses and public institutions.

For non-City-managed utilities, the City faces the challenge of facilitating system improvements and new technologies while minimizing the impacts associated with above-ground utility installations.

### *EXISTING CONDITIONS*

The City of Kirkland currently provides the following utility services:

- ◆ **Water** – All areas of the City except those north of NE 116th Street that are outside the City's service area. Figure U-1 shows the City's water system.
- ◆ **Sewer** – All areas of the City except those north of NE 116th Street that are outside the City's service area. Figure U-2 shows the City's sewer system.

- ◆ **Surface Water** – All areas of the City. Figure U-3 shows the City's surface water system.

The following non-City-managed utilities provide additional services:

- ◆ **Northshore Utility District and Woodinville Water District** – provide water and sewer services to the northern portions of the City. Figures U-4 and U-5 show the water and sewer systems.
- ◆ **Puget Sound Energy** – transmits and distributes electric power and natural gas in a nine-county area, including Kirkland and much of King County. Figures showing the location of electrical and gas facilities are not available from PSE.
- ◆ **Telecommunications** – Kirkland has both wired and wireless telephone services, cable TV service and high speed cable internet services all provided by a variety of non-managed providers.

### *CITY MANAGED FACILITIES*

#### **Water**

The City of Kirkland provides water service to all of its residents, except those north of NE 116th Street who are served by the Northshore Utility District or the Woodinville Water District (see Figure U-1).

The City's water system is primarily a gravity system consisting of 181 miles of water lines and 19.5 million gallons of storage capacity. Projected costs associated with the water system are primarily maintenance and replacement costs. The system generally has sufficient capacity to serve growth anticipated through the land use plan and no capacity costs are anticipated through 2022.

Seattle Public Utilities supplies the City's drinking water and is contracted to do so into the near future. The City, as a member of the Cascade Water Alliance, is also planning to secure and develop water supplies from other areas in the long-term. Cascade collects re-

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gional capital facilities charges to fund planning and development of future water sources. The City is part of a regional solution to address water needs.

## Sewer

The City of Kirkland provides sanitary sewer service to all of its residents south of NE 116th Street (see Figure U-2). The Northshore Utility District provides sewer service to most residents north of NE 116th Street.

The collection system consists of 35 wastewater collection basins, 88 miles of sewer pipe, nine lift stations and force mains, and approximately 2200 manholes. Approximately five to 10 percent of Kirkland residents use septic systems. Sewer extensions have typically been funded by developers and local homeowners through the City-managed Emergency Sewer Program. The system's most serious deficiency is the age of some of the pipelines. The 45-year-old concrete pipes allow inflow/infiltration and root intrusions which reduce capacity of the system and increase operation and maintenance costs. The primary costs anticipated to maintain existing levels of service are related to replacement and rehabilitation of older pipelines, improvement of pumping capacity, and system expansions in the Lake Plaza Basin, Central Way Basin, and Juanita Basin. These improvements will provide adequate capacity to serve growth anticipated through the land use plan through 2022.

The King County Department of Metropolitan Services (METRO) provides the City's service area with sanitary sewer treatment services at a capacity of 100 gallons per day per capita under the terms of an inter-governmental agreement. Northshore Utility District and City sewage are treated at Metro's West Point and Renton treatment plants.

## Surface Water

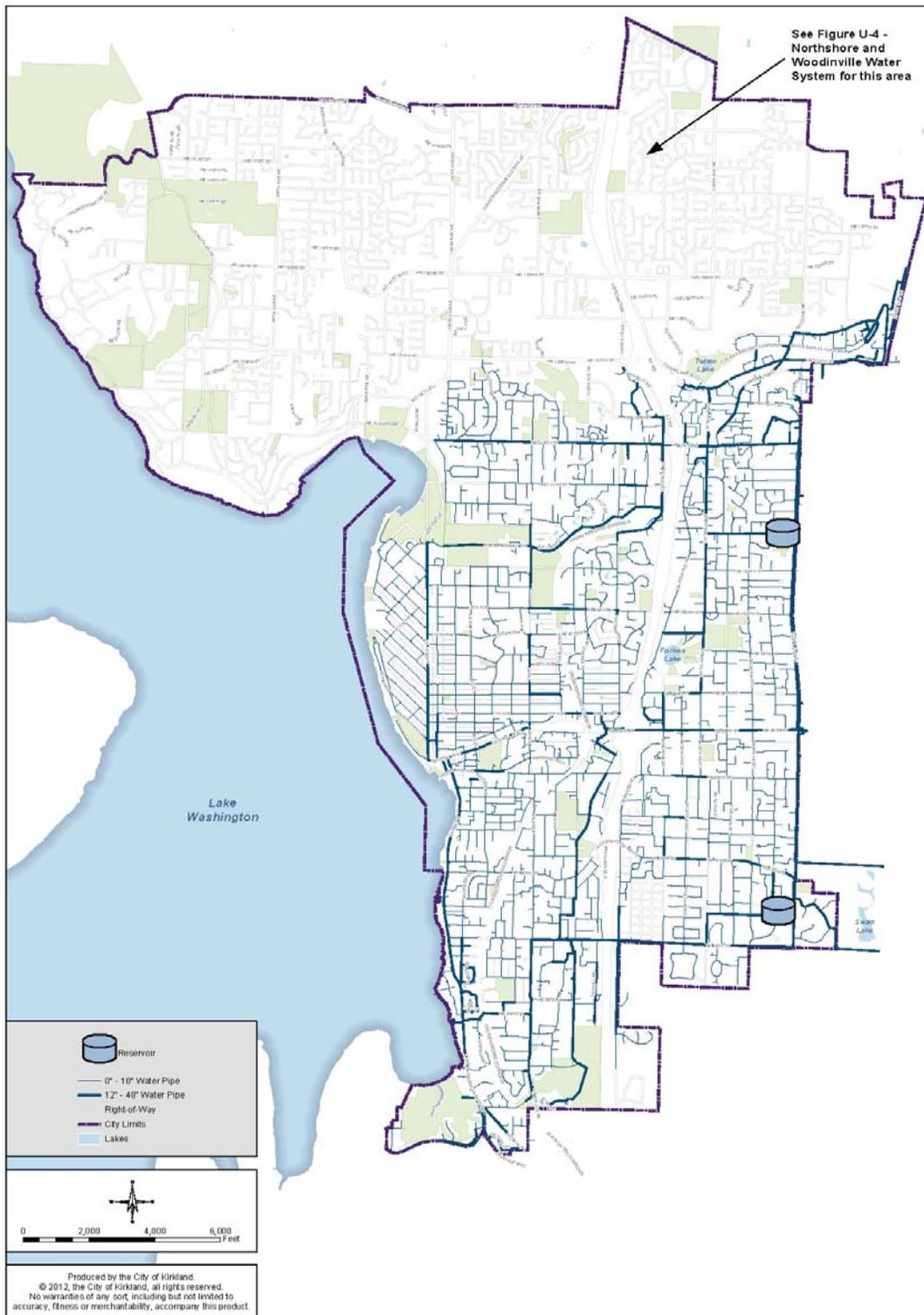
The City maintains conveyance, detention and water quality treatment systems in public rights-of-way. These systems accept stormwater runoff and surface water from private property within the City and from neighboring jurisdictions. As of 2004, the City system

contains 364 public and private detention systems which include vaults and ponds, 9,867 public and private catch basins and 170.4 miles of public and private pipes. Figure U-3 shows the City surface management water system.

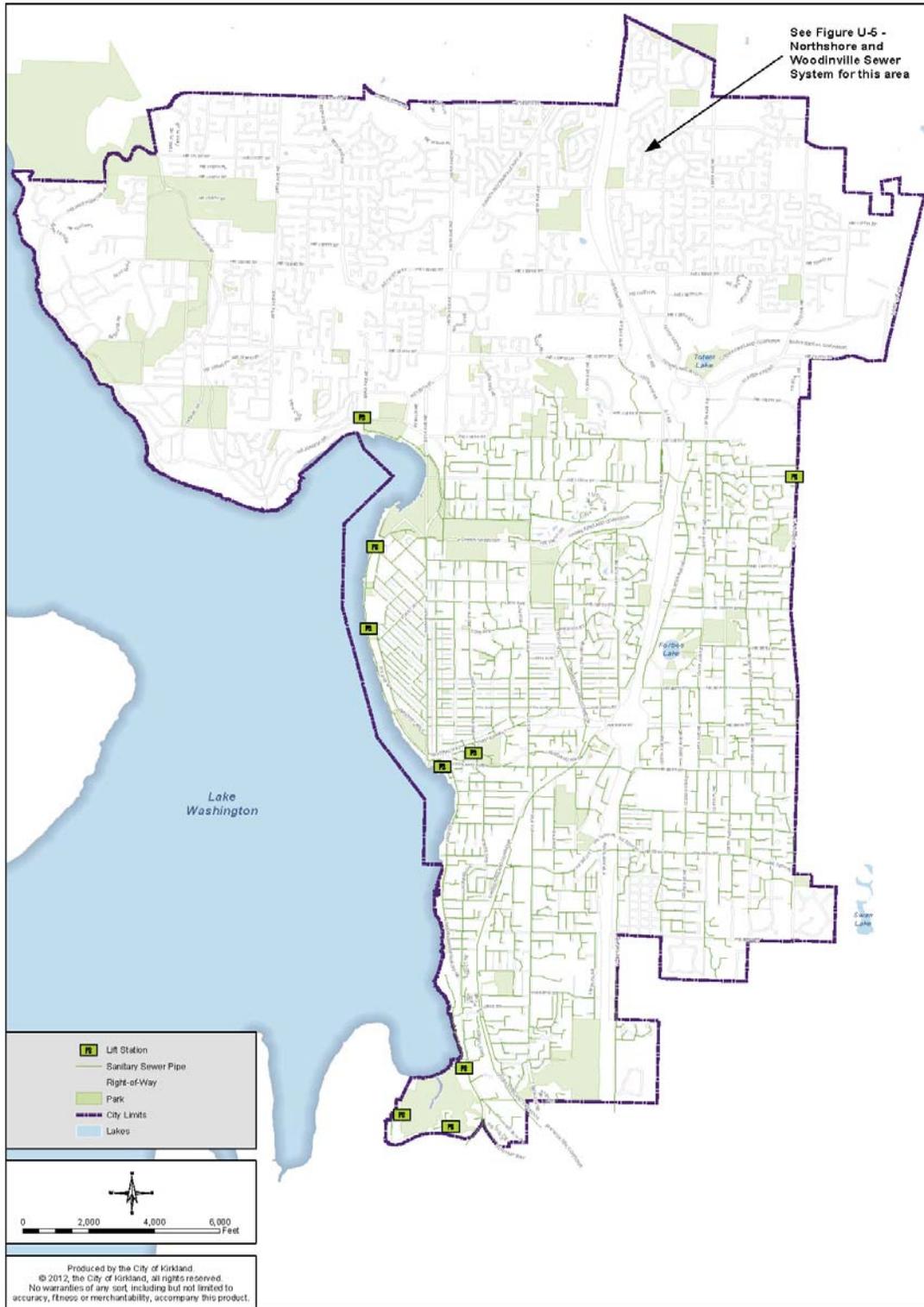
A watershed approach has been used for managing the surface water utility by dividing the City into nine drainage basins. The largest and most important streams are Juanita and Forbes Creek. The size of their drainage basins makes them especially important for receipt of stormwaters and discharge into Lake Washington. Yarrow Creek, Denny Creek, and Champagne Creek also have large basin areas within the City and are significant because they provide salmonid fish habitat and productive associated wetlands. Smaller critical drainages include Carillon Creek, Cochran Springs Creek, Everest Creek, Holmes Point, and Kingsgate Slope. More information on the watershed and drainage basins can be found in the Natural Environment Element.

## City Telecommunications

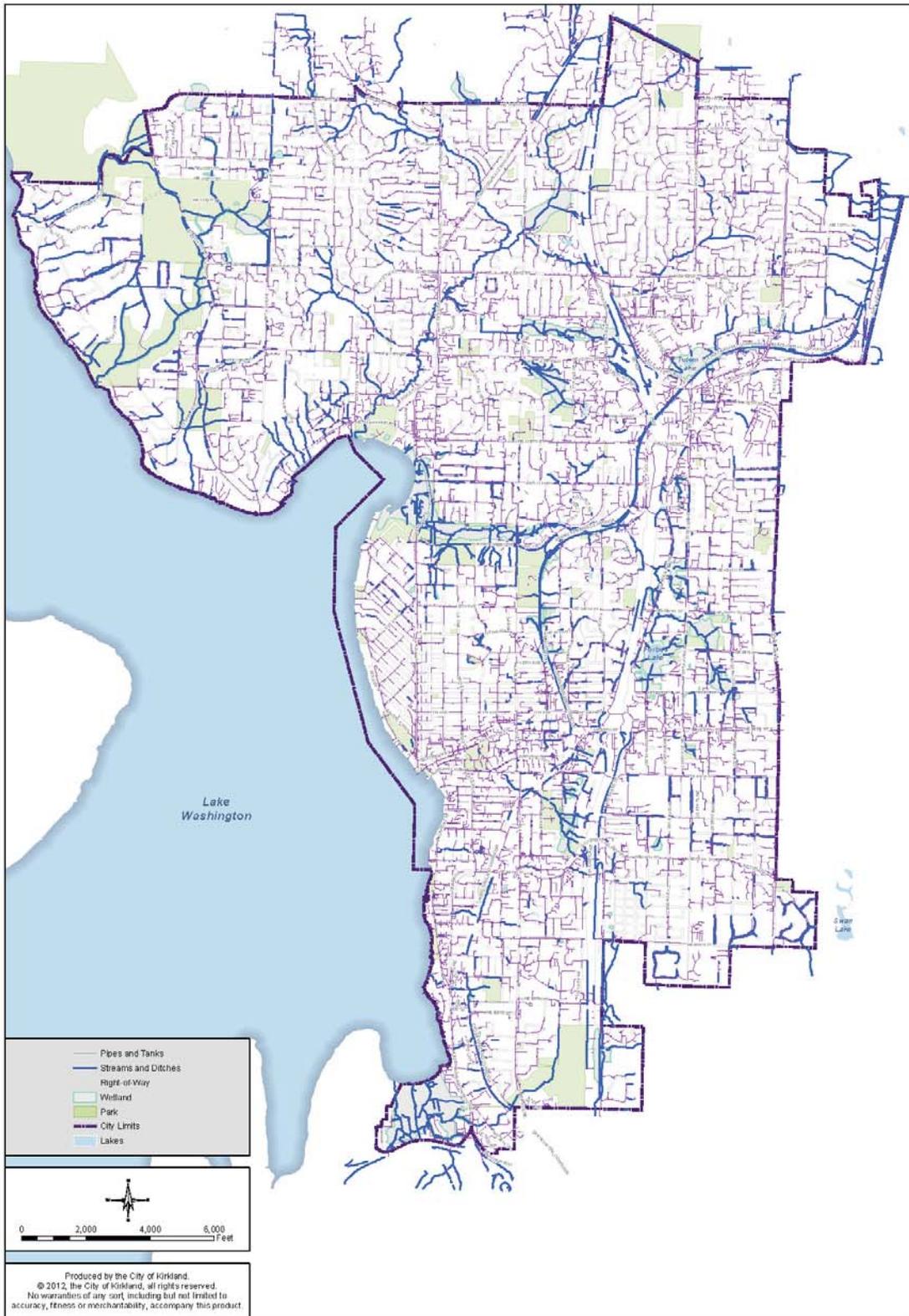
Over time, the City is installing a fiber-optic network to service its governmental facilities and traffic control system. In addition, the City is partnering with other cities and schools to lay the foundation for a regional telecommunication system. Figure U-6 shows the fiber-optic network in Kirkland, which includes partnerships with the City, Lake Washington School District, the University of Washington and the City of Bellevue to install publicly owned fiber-optic in major rights-of-way.



**Figure U-1: Water System**

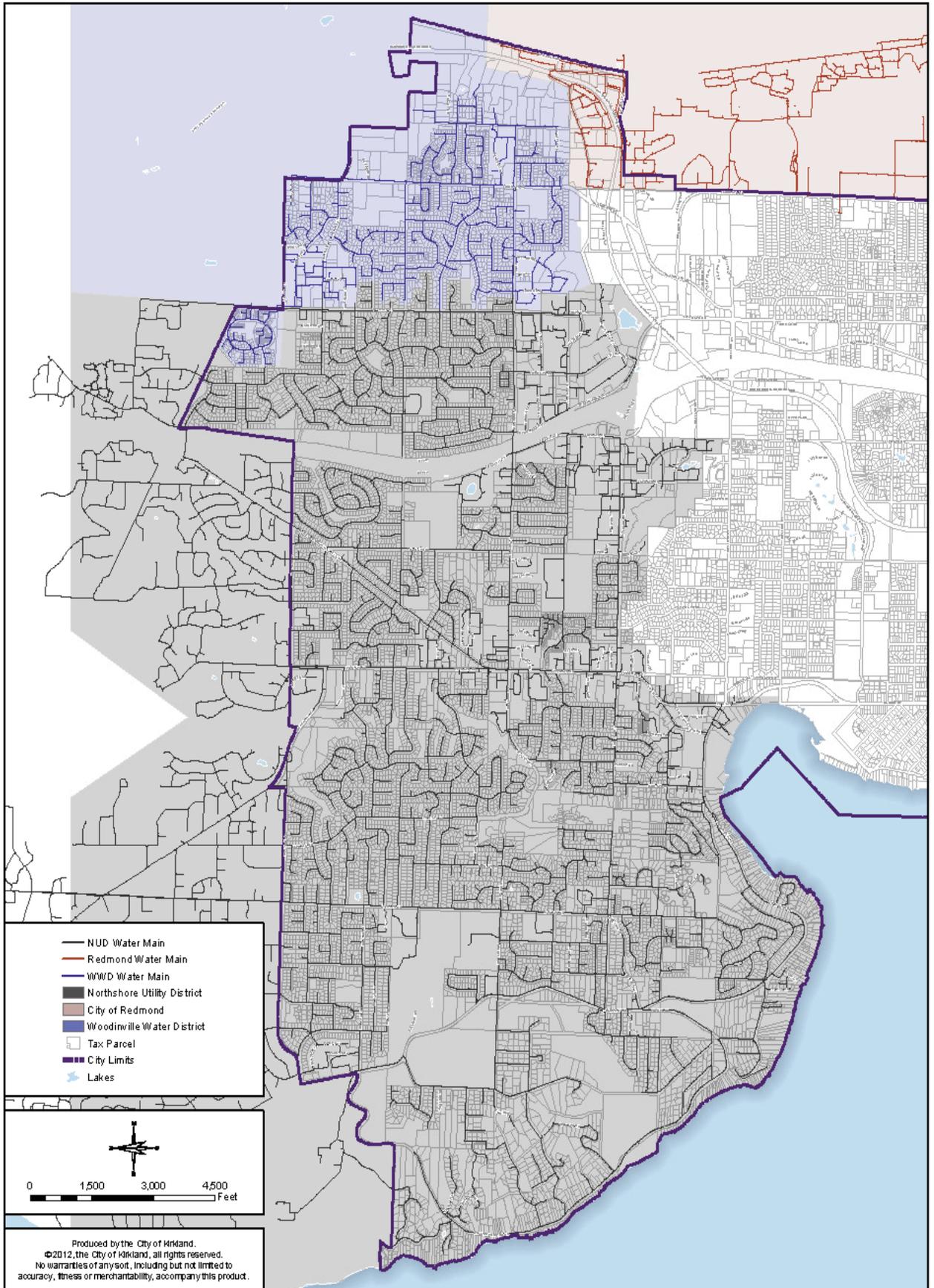


**Figure U-2: Sanitary Sewer System**

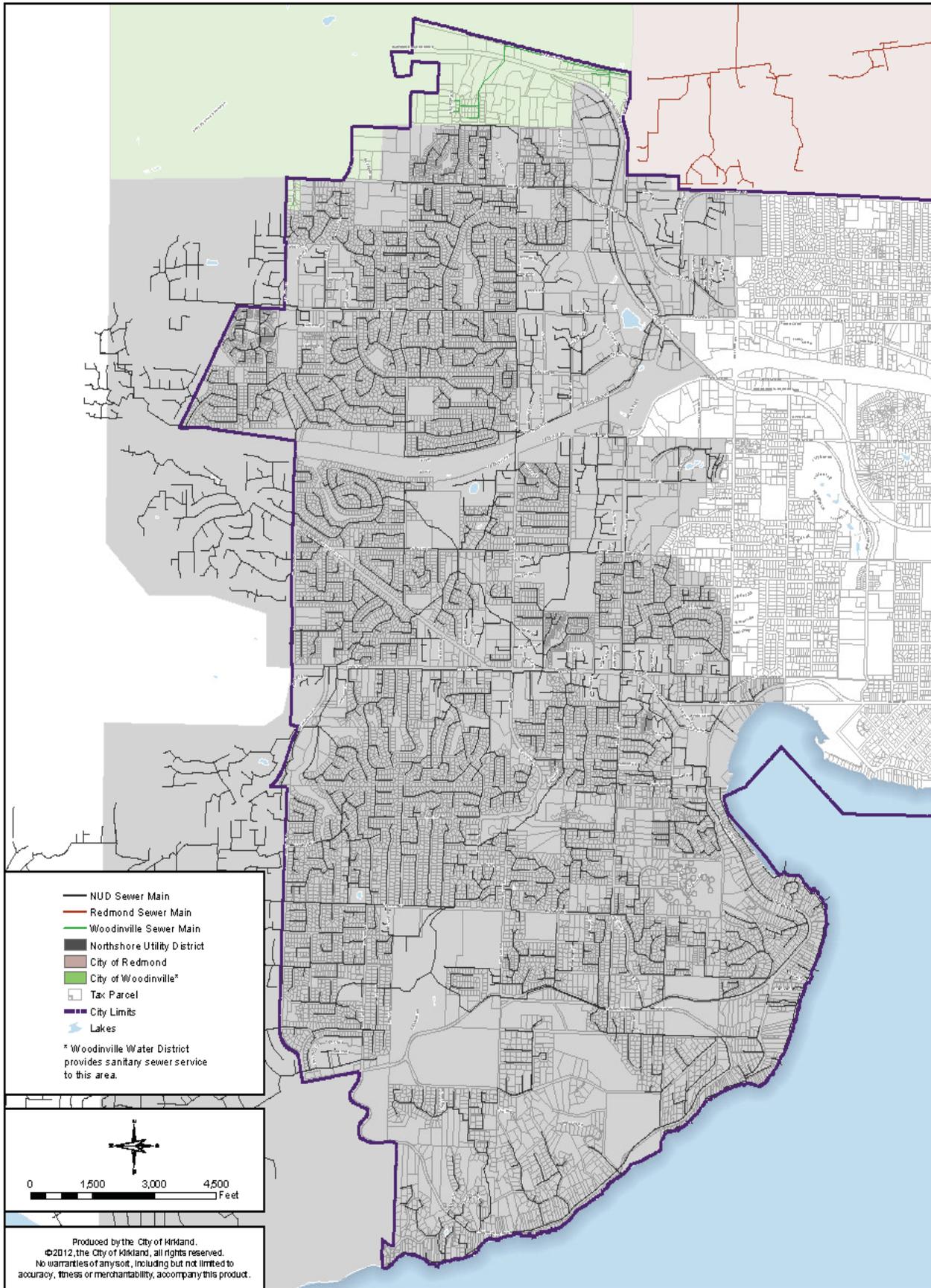


**Figure U-3: Surface Water Management System**

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**Figure U-4: Northshore and Woodinville Water Systems**



**Figure U-5: Northshore and Woodinville Sewer Systems**

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## *NON-CITY-MANAGED UTILITIES*

### **Northshore Utility District: Water and Sewer**

The Northshore Utility District provides water and sewer services to northern portions of the City. Figure U-4 illustrates the existing Northshore water system and proposed improvements. Figure U-5 illustrates the existing Northshore sewer system. Northshore wastewaters are treated at King County's Department of Natural Resources West Point and Renton treatment plants. The water system has five reservoir sites with a 29-million-gallon capacity. The District is in the process of developing a sewer system capital improvement plan for replacement and repair of the older, damaged sections of the system. Repair and maintenance of the system occur when needed and extensions necessitated by future development will be provided by the developer.

Northshore can provide service to accommodate Kirkland's future growth.

### **Woodinville Water District: Water and Sewer**

The Woodinville Water District provides water services to the northeast portion of the City and sewer service to a few single family homes in the City. Figure U-4 illustrates the existing Woodinville water system and proposed improvements. Figure U-5 illustrates the existing Woodinville sewer system. Woodinville Water wastewaters are treated at King County's Department of Natural Resources West Point and Renton treatment plants. The water system has six reservoir sites with a 14.9-million-gallon capacity. The District has a capital improvement plan for the system. Repair and maintenance of the system occur when needed and extensions necessitated by future development will be provided by the developer. Woodinville Water can provide service to accommodate Kirkland's future growth.

### **Puget Sound Energy: Electricity and Natural Gas**

Puget Sound Energy (PSE) is a public service company regulated by the Washington Utilities and Transportation Commission (WUTC), which provides the Kirkland area with electricity and natural

gas. PSE distributes power transmitted by Bonneville Power Administration (BPA), and generates, transmits, and distributes power as part of the interconnected Northwest power grid. Although there has historically been a net surplus in electricity supply in the Northwest, in recent years there has been a balance between supply and demand. Future forecasts indicate some scenarios where deficits may emerge, requiring additional power purchases, new generation, and further conservation.

Kirkland is a part of the Eastside and Northshore Electrical Subareas. Power is delivered on 230 kV transmission lines to substations in Redmond and Renton, where the voltage is transformed to 115 kV. Several distribution stations in Kirkland further transform the voltage to 12.5 kV which is then distributed to customers. A double-circuit 230 kV Seattle City Light transmission line runs through Kirkland near 124th Avenue NE, but does not directly serve the Eastside subarea.

PSE's long-range plans through the year 2022 indicate the need for three new distribution substations in Kirkland and a new 115 kV line along the eastern and northern City boundaries to connect to the Sammamish substation in Redmond.

PSE provides natural gas to five Washington counties, including King County. PSE has not historically planned for gas main and service extensions, but reacts to customer demand. The gas industry is regulated by the Washington Utilities and Transportation Commission, which requires gas companies to demonstrate that existing ratepayers will not subsidize new customers.

The Northwest distribution pipeline and gas station are located east of the Kirkland City limits. Existing four-inch to eight-inch gas lines in Kirkland, as well as extensions currently anticipated, will service Kirkland's growth.

### **Telecommunication Service Providers**

Wired telephone service and certain related special services are available in the City. System facilities within Kirkland include switching stations, trunk

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lines, and distributions lines. There are four switching stations in Kirkland at 101 Market Street, 10020 133rd Place NE, NE 95th Street/128th Avenue NE, and NE 43rd Street/Lake Washington Boulevard. Trunk lines connecting the switching stations are concrete-encased four-inch conduit, and distribution lines are either pole-mounted or underground. Service and facility expansions are driven by customer demand.

Several companies provide wireless telephone service. Cellular telecommunication permits wireless transmission of messages on a network of strategically placed receivers (i.e., mobile telephone communications). Receivers may be placed on tall poles, lattice-type towers, or buildings. The cellular telephone industry does not plan facilities far into the future, but uses market demand to determine expansion into new service areas.

Cable TV and internet services are also available in Kirkland. The Kirkland system is fed from a microwave receiving site in Bellevue. The majority of trunk and distribution lines are overhead lines rather than underground. The local provider has the technical capacity to serve any new development in the City by simply adding new trunk or distribution lines. High speed DSL services are available in the community.

Many telecommunication vendors own optic fiber in Kirkland rights-of-way for commercial use. The City of Kirkland has access to some of these strands through franchise agreements.

## **Olympic Pipeline Company: Hazardous Liquid Pipelines**

The Olympic Pipeline Company, operated by BP Pipelines, North America, operates a 400-mile-long petroleum pipeline system from Ferndale, Washington, to Portland, Oregon. Two parallel lines, 16-inch and 20-inch, generally along the Puget Sound Energy easement, pass through the Kingsgate and Totem Lake neighborhoods in the northeast portion of Kirkland and close to a portion of the eastern boundary of the Bridle Trails neighborhood. The pipelines carry gasoline, diesel and aviation fuel. Delivery lines carry products from this mainline to bulk terminals at Sea-

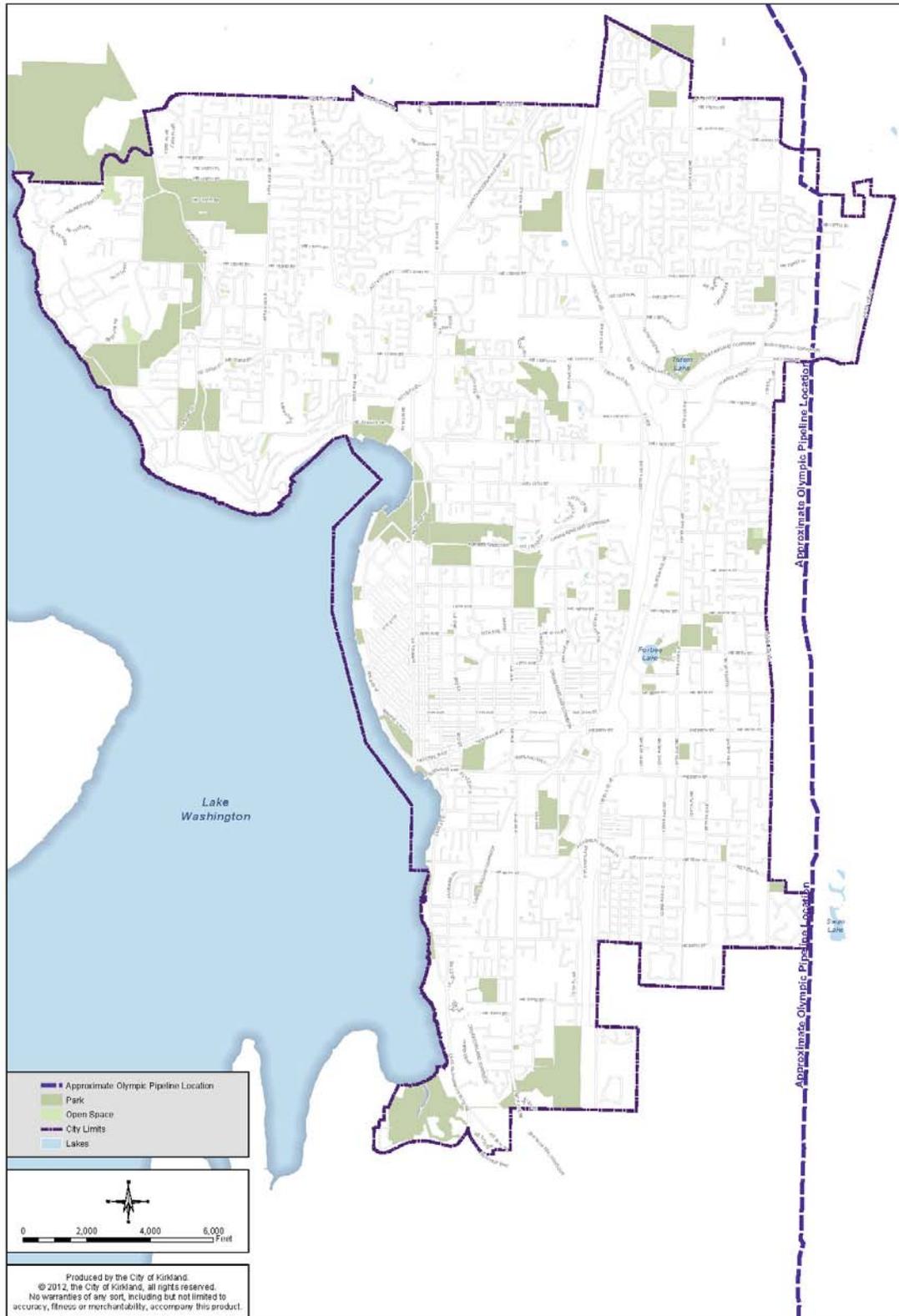
Tac International Airport; Seattle, Tacoma and Vancouver, Washington; and Linnton and Portland, Oregon.

The pipelines are hazardous liquid pipelines, as defined by state law (RCW 81.88.040). Pipeline facilities, if ruptured or damaged, can pose a significant risk to public safety and the environment due to the high operating pressure and the highly flammable, explosive and toxic properties of the fuel.

The Federal Office of Pipeline Safety (OPS) is responsible for regulation of the interstate pipeline facilities and addresses safety in design, construction, testing, operation, maintenance and emergency response of pipeline facilities. The Washington State Utilities and Transportation Commission (UTC) has authority to act as an agent for OPS.

Kirkland's Fire Department has reciprocal emergency response agreements with Redmond and other surrounding jurisdictions in the event of a pipeline failure. The Redmond Fire Department Olympic Pipeline Response Plan includes technical information about the pipeline, potential hazards, a guide to hazardous materials scene management, emergency response and evacuation plans, and contacts and other resources. It contains the fundamentals of the City of Kirkland Fire Department response, and in addition maintains city specific data to be used in such an emergency.

The City has established policies to supplement state regulations and the City's risk management/response plan. Utility Element policies focus primarily on land use measures that help minimize and prevent unnecessary risk to the public due to hazardous liquid pipelines, recognizing it is impossible to eliminate risk entirely.



**Figure U-6: Hazardous Liquid Pipelines**

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## *RELATIONSHIP TO OTHER ELEMENTS*

The Utilities Element supports other elements of the Comprehensive Plan by establishing policies for provision of efficient urban services to serve anticipated growth and development. This Element supports an infrastructure for servicing existing development and areas targeted for growth by the Land Use Element. The general policies in this Element support the Shoreline Area Chapter by encouraging joint use of utility corridors and mitigating environmental impacts caused by the utility. The telecommunications policies will help implement the policies of the Land Use, Economic Development, Transportation, and Public Services Elements by facilitating the movement of information as an alternative to the historic commuter/work relationship. Finally, utility policies provide direction to the goals and policies of the Capital Facilities Element.

Policies for public services such as emergency services, schools, and libraries are contained in the Public Services Element.

## *RELATIONSHIP TO OTHER PLANS*

In preparing this Element, the City has reviewed and considered the following documents:

- ◆ City of Kirkland Comprehensive Water Plan;
- ◆ City of Kirkland Comprehensive Sewer Plan;
- ◆ City of Kirkland Surface Water Master Plan;
- ◆ Northshore Utility District Comprehensive Water Plan;
- ◆ Northshore Utility District Sewer and Water Plan Maps;
- ◆ Woodinville Water District Comprehensive Water System Plan and General Sewer Plan;
- ◆ Puget Sound Energy GMA Electrical Facilities Plan.

- ◆ Redmond Fire Department Olympic Pipeline Response Plan.

## **B. UTILITIES CONCEPT**

The Utilities Element supports the continued provision of adequate utility services to support existing and future development. Levels of service are established for City-managed utilities and levels of service are established for non-City purveyors of water and sewer. In addition, concurrency requirements are established for new development.

The Utilities Element provides policies for regional coordination of utility needs. A basis for coordination with regional and local providers is established to ensure fair and consistent review of system expansions and enhancements while providing appropriate public input. The environmental and aesthetic concerns of the community are balanced with the need to provide affordable and reliable utility service.

The importance of efficiency and conservation is stressed as a cost-effective means of accommodating the growing demand for services.

## **C. UTILITIES GOALS AND POLICIES**

**Goal U-1: Maintain the quality of life in Kirkland through the planned provision of public and private utilities.**

**Goal U-2: Provide an efficient system to deliver high quality water.**

**Goal U-3: Protect public health and environmental quality through appropriate and efficient design, installation, and maintenance of sanitary sewer facilities.**

**Goal U-4: Provide surface water management facilities programs and services that provide adequate drainage and minimize flooding while protecting and enhancing the water quality and habitat value of streams, lakes, and wetlands.**

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- Goal U-5:** Ensure adequate and competitively priced telecommunication infrastructure, facilities and services.
- Goal U-6:** Reduce the risk to public safety and the environment in the event of a hazardous liquid pipeline failure.
- Goal U-7:** Facilitate the development and maintenance of non-City-managed utilities at the appropriate levels of service.

## GENERAL

### Community Values

As an urban area, Kirkland is accustomed to a high level of utility service. These services accommodate the lifestyles of Kirkland residents and the success of Kirkland businesses. To maintain these community values, Kirkland must balance the quality of the service provided with the costs and community impacts.

***Goal U-1: Maintain the quality of life in Kirkland through the planned provision of public and private utilities.***

***Policy U-1.1: Maintain an inventory of existing capital facilities and utilities, including locations and capacities of such systems and facilities.***

An accurate inventory of existing utility locations and capacities will ensure that the City can plan for new growth in a manner that reflects the ability to service that growth with adequate services.

***Policy U-1.2: Provide for needed capital facilities and utilities based on adopted levels of service and forecasted growth in accordance with the Land Use Element of this Plan.***

This policy is intended to ensure that the Capital Facilities, Land Use, and Utilities Elements are functioning in concert. This systematic planning allows the City to make accurate land use projections based on utility plans and allows utility providers to plan for utilities in a manner that reflects expected land use patterns and densities.

***Policy U-1.3: Use the following level of service standards for determining the need for public sewer, water, and surface water facilities:***

**Table U-1  
Water, Sewer and Surface Water Level of Service**

Facility	Standard
Water distribution:	103 gallons/day/capita
Water storage:	249 gallons/capita (includes 1.5 million gallons for fire storage)
Sanitary sewer collection:	100 gallons/day/capita
Surface water management:	Convey, detain and treat stormwater runoff in a manner that provides adequate drainage for the appropriate storm to ensure safety, welfare, and convenience in developed areas while protecting the hydrologic regime and quality of water and fish/wildlife habitat in streams, lakes and wetland.

***Policy U-1.4: Ensure that utility services are provided in a manner that is environmentally sensitive, safe and aesthetically compatible with surrounding land uses.***

A variety of factors are at stake in the consideration of any proposed utility expansion. For example, clearing for installation or maintenance should minimize impacts to trees and vegetation as well as fish and wildlife habitat. Utilities also should be installed and maintained to protect the environment from contamination. Mitigating environmental and aesthetic impacts can have implications on cost and efficiency of the system. Therefore, it is appropriate to weigh costs against a full consideration of long term benefits that will be derived. Individual implementation issues arising under this policy should be resolved on a case-by-case basis in light of all these considerations.

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***Policy U-1.5: Facilitate and encourage the conservation of utility resources.***

The demand for utilities, such as water and electricity, may be met by either increasing the supply or reducing the demand. As the region continues to face challenges to the supply of these resources, conservation measures can be employed to delay need for new supplies.

***Policy U-1.6: Minimize impacts of personal wireless services, telecommunication facilities, and towers on adjacent land uses through careful siting and design. Facilitate the approval of facilities that meet certain standards relating to location and configuration.***

In order to minimize potential impacts, personal wireless services facilities should be located to the extent possible in nonresidential areas. They should be encouraged to be located in areas where the impact of the facilities will be minimal on residential areas such as in industrial or some commercial areas. In general, there should be a preference for more, smaller facilities located on existing structures, such as buildings or electrical transmission towers, or for co-locating on existing towers. When new facilities are required, carriers should be required to use techniques to disguise or camouflage the facilities and associated equipment shelters, so that they fit in with the surroundings.

In recognition of the important role telecommunication plays in facilitating business and personal communication, the City should enable carriers to quickly and efficiently site and configure facilities in ways that meet our standards. One of the best ways is to provide faster permit review for the locations and types of facilities the City wants to encourage.

Also recognizing changing technology and flux in the industry, the City should ensure that abandoned facilities are removed promptly. The burden of removing the facilities should fall to the property owner or operator of the facility and not the City.

***Policy U-1.7: Install new and, where feasible, existing utility distribution lines underground.***

Undergrounding of utility lines will visually enhance the area in which it occurs. In addition, undergrounding can reduce the potential for power outages associated with wind damage and eliminate unsightly pruning of vegetation. The complexities of undergrounding could increase as new utility lines are added to existing poles (i.e., new franchises).

Undergrounding utilities can be especially effective along major routes with good regional views. The City should explore prioritizing the undergrounding of utility lines in these areas.

Kirkland should acknowledge the disproportionate costs of undergrounding existing lines for smaller developments by allowing owners to defer until undergrounding occurs as part of a larger project where economies of scale can be realized. The City will need to consider the rates and tariffs of the WUTC in deciding where to underground existing distribution lines.

***Policy U-1.8: Encourage the joint use of utility corridors and facilities consistent with prudent utility practice.***

Additional efficiencies may be achieved by coordinating utility corridors. Examples include sharing right-of-way acquisition costs and joint use of rights-of-way for utility and pedestrian trails. Utility co-location and consolidation also have the benefit of minimizing the extent of environmental impacts.

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***Policy U-1.9: Coordinate with other jurisdictions when utility additions and improvements cross jurisdictional boundaries to ensure that decisions are consistent with regional demand and resources and consistency in timing of permit review.***

Where utility improvements are planned to serve regional demand, it is imperative that affected jurisdictions and utilities work together from the early planning stage. This will help reduce delays and a lower quality of regional service.

## ***CITY-MANAGED UTILITIES***

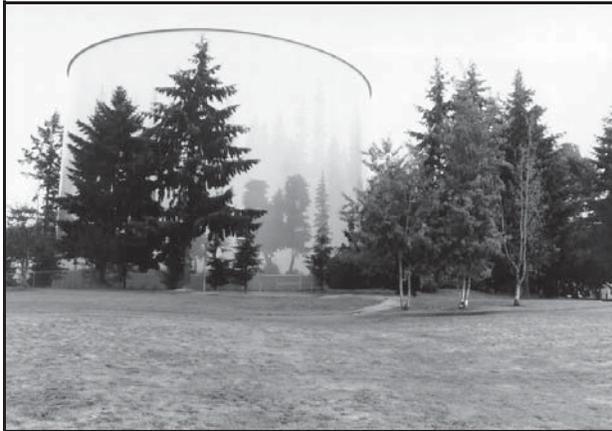
### **Water**

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***Goal U-2: Provide an efficient system to deliver high quality water.***

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***Policy U-2.1: Work in coordination with other jurisdictions and purveyors in the region to ensure a reliable, economic source of water and to address the long-term regional water demand needs of all agencies and purveyors.***



*Water tank in North Rose Hill Neighborhood*

To accomplish this, Kirkland needs to participate in and facilitate the development of a regional water supply system that effectively balances regional water resources and regional water supply needs and provides equitable participation in ownership and management.

***Policy U-2.2: Implement system rehabilitation and improvements in order to manage water resources.***

Increasing system efficiencies by taking such measures as replacement of older pipes can delay the need for new and more costly supply solutions.

***Policy U-2.3: Protect public health and safety, through the appropriate design, installation, and maintenance of water facilities.***

The primary concerns with water supply are quantity and quality. The quantity of water has health and safety implications, particularly related to fire suppression. Water quality has obvious public health implications regulated by different levels of government.

### **Sewer**

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***Goal U-3: Protect public health and environmental quality through appropriate and efficient design, installation, and maintenance of sanitary sewer facilities.***

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***Policy U-3.1: Work with King County, adjoining jurisdictions, and local purveyors to manage, regulate, and maintain the regional sewer system.***

The existing regional sewage system has the capacity to handle Kirkland's future growth. The system will require maintenance and improvements to increase efficiencies.

***Policy U-3.2: Ensure that all new development proposals are served by adequate sanitary sewer systems.***

In general, new development should not be permitted on property that is served only by septic tanks. However, in limited situations, septic systems should be considered for low-density residential development where no reasonable alternatives exist upon demonstration that soil conditions will permit proper functioning of a septic system.

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***Policy U-3.3: Connect areas that are on septic systems to sanitary sewer.***

Some older, less urbanized areas of the City are served only by septic systems. As these systems age and fail, they present health and environmental risks. The City should facilitate sewer extensions to these areas by prioritizing City-funded extensions and facilitating innovative privately funded solutions such as Local Improvement Districts and latecomer agreements.

***Policy U-3.4: Correct deficiencies and increase system efficiency. Emphasis should be placed on correcting deficiencies that present sewage overflow risks.***

The greatest system deficiencies in Kirkland's sanitary sewer system are related to the age and reliability of parts of the system. Infiltration and inflow of stormwater into the older pipes decreases system capacity and exfiltration of effluent from older pipes presents environmental and health risks. The focus should continue to be on updating older portions of the systems, with an emphasis on areas where overflows could occur near water bodies.

## Surface Water

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***Goal U-4: Provide surface water management facilities programs and services that provide adequate drainage and minimize flooding while protecting and enhancing the water quality and habitat value of streams, lakes, and wetlands.***

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***Policy U-4.1: Adopt surface water design standards for new development and redevelopment that incorporate best available research and technology in protecting water resources in an economical and feasible manner.***

The goal of surface water design for new development and redevelopment projects is to provide adequate drainage and to provide post-construction controls that mimic predevelopment hydrologic pat-

terns and protect water quality to the degree that is economically feasible. Such facilities may include low impact development techniques and/or structural controls such as detention vaults or ponds, infiltration facilities, biofiltration swales, or wetvaults.

***Policy U-4.2: Adopt and implement standards for control of runoff and erosion from construction sites.***

In order to reduce erosion from construction, use of erosion control techniques should be required at all sites where significant clearing and grading will take place.

***Policy U-4.3: Minimize the surface water impacts of development through the use of environmentally "low impact development" techniques.***

The City encourages the use of low impact development practices and should identify incentives and evaluate potential changes to land use development regulations and building codes to support and promote low impact development.

Low impact development (LID) is a set of techniques that mimic natural watershed hydrology by slowing, evaporating/transpiring, and filtering water before it reaches a stream channel. LID contrasts with current drainage techniques that collect and convey water to streams quickly – damaging stream channels and degrading water quality.

This approach uses various land planning and design practices to conserve and protect natural resources and reduce infrastructure costs. LID allows land to be developed cost-effectively, which helps reduce potential environmental impacts.

Low impact development techniques include the following:

- ◆ Minimize creation of impervious surfaces;
- ◆ Use site soils and vegetation to soak up and filter stormwater runoff;

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- ◆ Amend soils with compost to improve water retention;
- ◆ Construct bio-retention swales or cells, which are natural areas that have specifically chosen plants and engineered soils that slow, filter and absorb water;
- ◆ Use permeable pavement for roadways, drive-ways and walkways;
- ◆ Use green roofs to minimize runoff from imper-vious surfaces; and
- ◆ Collect and store water for landscaping or other nonpotable water uses.

When combined, such techniques can greatly reduce the amount of stormwater runoff from developed sites and improve water quality.

***Policy U-4.4: Minimize environmental damage from spilling and/or dumping of pollutants into the storm drainage system.***

The City should respond to instances of spilling and dumping of materials into the storm drainage system through activities such as the following:

- ◆ Identify and where appropriate take enforcement action against those responsible for nonstormwater discharges, including requiring cleanup or conducting abatement;
- ◆ Maintain and periodically update inter-City and intraagency spill coordination and response pro-cedures; and
- ◆ Conduct surveys to identify and eliminate illicit connections to the storm drainage system.

***Policy U-4.5: Require businesses and residents to take steps to prevent stormwater pollution.***

It is much easier to prevent pollution than to clean up polluted waters. Businesses and residents should be required to use both nonstructural and structural “best management practices” (BMPs) to prevent discharge of pollutants from everyday activities. BMPs range from covering materials stored outdoors, sweeping

rather than using water to clean parking lots, and in-stallation of oil/water separators to connecting car washing areas to sanitary sewers.

***Policy U-4.6: Assess the quality of water and hab-itat in local streams and lakes to evaluate the effec-tiveness of utility standards and programs and to focus future efforts.***

Identification of specific water quality and habitat concerns and the tracking of changes over time should help to improve the efficiency and cost-effectiveness of programs and projects. Such assessment is a rec-ommended element of several State and federal pro-grams.

***Policy U-4.7: Ensure that privately owned storm-water facilities are operated and maintained in a manner that maximizes their quantity and quality control benefits.***

When well-maintained detention and water quality fa-cilities on private property serve to protect down-stream resources, City programs should be continued to ensure that privately owned stormwater facilities are operated and maintained so that downstream sys-tems are not affected.

***Policy U-4.8: Educate the public on protecting and enhancing the quality of our water resources.***

The City should strive to raise awareness of the im-pact that everyday business and residential activities can have on water quality and fish habitat and popu-lations, and to provide information on practices, such as natural yard care, proper storage of materials, and washing practices, that can prevent the discharge of pollutants. Citizen volunteers should be involved in activities that increase stewardship of our water re-sources. The City should also explore new techniques for engaging the public and effecting positive changes in behavior.

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***Policy U-4.9: Coordinate basin planning, pollution prevention, and restoration activities with neighboring jurisdictions.***

Watersheds do not stop at jurisdictional boundaries, and must be analyzed and restored as whole entities. The City should coordinate activities with King County, Bellevue and Redmond and other jurisdictions as appropriate to maximize the positive impact of projects and programs.

***Policy U-4.10: Participate in regional surface water resources and fish resource conservation planning efforts.***

The City should continue in the participation of the WRIA 8 salmon conservation planning effort and the Puget Sound Shared Strategy. The purpose of this project is to develop a plan for recovery of salmon habitat functions of the greater Lake Washington Watershed. Habitat is the only one of the four “H’s,” Habitat, Hydropower, Hatcheries, and Harvest, which is under local government control. Recovery of salmon stocks listed as threatened under the Federal Endangered Species Act would reduce the regulatory and liability burden for local jurisdictions, help to protect a vital part of our regional economy, and protect a species that has great cultural significance in the Pacific Northwest.

***Policy U-4.11: Ensure compliance with State and federal regulations related to surface water quality and fisheries resources.***

The City should coordinate surface water management requirements and programs with a variety of State and federal programs and regulations, including but not limited to the following:

- ◆ National Pollutant Discharge Elimination System, Phase II;
- ◆ Puget Sound Water Quality Management Plan; and
- ◆ Federal Endangered Species Act listing of Chinook salmon as a threatened species.

This policy is intended to acknowledge and accommodate future regulatory changes.

## Telecommunications

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***Goal U-5: Ensure adequate and competitively priced telecommunication infrastructure, facilities and services.***

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***Policy U-5.1: Manage the City’s existing and planned telecommunication improvements to optimize service delivery opportunities in Kirkland.***

The City should plan and install sufficient capacity into its telecommunication system to meet future City needs.

***Policy U-5.2: Use partnerships to achieve cooperation and cost-sharing in building telecommunication systems and providing service.***

The City should establish partnerships with other public agencies and private sector organizations to achieve cooperation and cost-sharing in building telecommunication systems and providing services. Partnerships may include the use of shared telecommunication space, such as towers, buildings and fiber-optic lines.

***Policy U-5.3: Review and update City policies, procedures and regulations to facilitate the installation and maintenance of telecommunication systems.***

The City should review and update its policies, procedures and practices to ensure that they facilitate the installation of new telecommunication systems and support existing systems. In addition, the City’s development regulations need to be flexible or revised on a regular basis to respond to changes in technology and consumer needs.

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***Policy U-5.4: Seek opportunities to enhance the number of service providers in the community to increase choice and encourage competitive pricing and high quality customer service.***

Choice, availability and price are important factors to telecommunication consumers. The City should look for opportunities to increase the number of high quality service providers to have competitively priced and high quality telecommunication systems in Kirkland.

***Policy U-5.5: Involve community stakeholders and service providers in telecommunication decisions.***

The City should involve consumers, service providers and other public entities with telecommunication systems in Kirkland when reviewing its policies, practices and development regulations to ensure that consumer needs are being met and that providers and other public entities can install the facilities.

## ***NON-CITY-MANAGED UTILITIES***

The Washington Utilities and Transportation Commission (WUTC) has traditionally been the primary regulatory agency for private utilities. The WUTC has the authority to define the costs that a utility can recover, and consequently has the oversight to ensure that the utility acts prudently and responsibly. Under the Growth Management Act, local jurisdictions now have the obligation and requirement to plan for utilities including the identification of utility corridors. Kirkland will need to consider the obligations of the utilities to WUTC regulation when considering policies and regulation affecting their operations.

### **Hazardous Liquid Pipelines**

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***Goal U-6: Reduce the risk to public safety and the environment in the event of a hazardous liquid pipeline failure.***

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This goal addresses safety concerns. Damage from external forces such as construction equipment can produce an immediate fuel release or a scratch on a

coated-steel pipeline can lead to accelerated corrosion and failure at a later time. Other safety concerns are location of land uses with high on-site populations that are difficult to evacuate, and location of emergency facilities and other land uses where the consequence of the loss in the event of a pipeline failure is high.

Actions that can be taken to ensure a higher degree of safety include early detection of potential pipeline damage or failures through adequate maintenance of the hazardous liquid pipeline corridor, neighborhood education, and working with other governments and industry representatives to seek improvements in safety measures for hazardous liquid pipelines. These provisions are intended to protect the health, safety and welfare of the general public.

During development review and construction of projects in the vicinity of the pipeline, setting requirements for avoidance of damage and coordination between Kirkland and the pipeline operator, Olympic Pipeline Company, or its successor can help avoid problems. The following actions can reduce the chance of an incident:

Identifying the location of the pipeline corridor on site plans, plats or other construction drawings;

Using the one-call locator service, particularly during construction on adjacent properties;

Physically verifying pipeline locations as needed to minimize the likelihood of damage;

Establishing and maintaining setback requirements from the hazardous liquid pipelines for new or expanded structures and other significant land disturbance; and

Monitoring land disturbance close to the pipeline by the pipeline operator or its representative.

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***Policy U-6.1: Establish standards to minimize pipeline damage.***

Require development activity near pipelines to provide the following information in order to evaluate the proposal:

- ◆ Location of the liquid pipeline corridor in relation to proposed structures, utilities, or clearing and grading activities.
- ◆ Proposed techniques to minimize the potential disturbance to the pipeline prior to and during construction.
- ◆ Potential stormwater discharge impacts to the pipeline, and mitigation measures to prevent erosion.
- ◆ Setbacks and other site design techniques to minimize the potential hazard.
- ◆ Emergency plans as appropriate.

***Policy U-6.2: Coordinate with the pipeline operator when developments are proposed near the hazardous liquid pipeline corridor to reduce the potential for problems.***

The City and operator should communicate and coordinate their review. Methods include the following:

- ◆ Notifying the pipeline operator of proposed development projects located near the pipeline corridor.
- ◆ Receiving verification that the pipeline operator has received and reviewed the proposal, and provided comments prior to City review of development activity.
- ◆ Seeking the pipeline operator’s participation in preconstruction meetings if warranted.
- ◆ Seeking monitoring by the pipeline operator of development that involves land disturbance or other significant work within or near the pipeline corridor.

***Policy U-6.3: Prohibit new high consequence land uses from locating near a hazardous liquid pipeline corridor. Design proposed expansions of high consequence land uses to avoid increasing the level of risk in the event of a pipeline failure, and where feasible, to reduce the risk.***

Kirkland can help reduce the risk of injury in the event of a pipeline failure by not allowing certain land uses to locate near hazardous liquid pipelines. Land uses with high-density on-site populations that cannot be readily evacuated or protected in the event of a pipeline failure are considered “high consequence land uses.” Examples are schools and multifamily housing exclusively for the elderly or the handicapped. Uses such as these carry a relatively higher risk and have higher potential consequences in the event of a pipeline failure and therefore are not as appropriate as other uses near pipelines. Facilities that serve critical “lifeline” or emergency functions, such as fire and police facilities or utilities that provide regional service, are also considered “high consequence land uses.”

John Muir Elementary School is located near the pipeline corridor in the Kingsgate neighborhood. Future expansions can use measures such as site planning that reflect anticipated flow paths for leaking hazardous materials and emergency response.

***Policy U-6.4: Require maintenance of the hazardous liquid pipeline corridor through a franchise agreement or other mechanisms.***

The pipeline operator can help reduce the likelihood of accidental damage by adequately maintaining the pipeline corridor. Dense vegetation such as blackberry bushes can impede visibility and access. Instead, the pipeline corridor can be properly maintained with grass or other low-growing vegetation that enables easy inspection while preventing erosion. Ensuring that the pipeline locations are marked and that missing markers are replaced is also important, as is periodic aerial inspection of the pipeline corridor to detect potential problems. Kirkland can assist this effort when permits are necessary for

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inspections or repair with prompt permit processing. The pipeline operator should maintain the pipeline corridor on a continual basis by:

- ◆ Maintaining vegetation to enable visibility and access for inspection while ensuring that such maintenance does not contribute to soil erosion;
- ◆ Using plant species and plantings that prevent erosion;
- ◆ Ensuring that above and below grade pipeline markers containing information, such as operator name and number and facility type, are in place; and
- ◆ Conducting periodic visual inspections of the corridor.

***Policy U-6.5: Expedite permits for the hazardous liquid pipeline company necessary for inspections and repairs.***

***Policy U-6.6: Continue to work with other jurisdictions, state and federal governments, and the pipeline operator to seek improvements in safety measures for hazardous liquid pipelines.***

Working with other jurisdictions and agencies as part of a unified approach to addressing pipeline safety issues is important. This unified approach can address issues such as maintaining a model franchise agreement, periodic review of the pipeline operator's safety action plan to identify any deficiencies, and advocacy of City concerns regarding pipeline safety regulations.

***Policy U-6.7: Encourage the pipeline operator to maintain a neighborhood education program for those who live and work within one-quarter mile of the hazardous liquid pipeline to educate them and the general public about pipeline safety.***

People who live on property or work near the pipelines can also play an important part in avoiding pipeline damage and identifying potential problems early on. The Olympic Pipe Line Company or its successor can promote public safety through periodic neighborhood mailings and meetings. Important information

should include facts about the pipelines, how to avoid damage, potential problems to watch out for, such as unusual smells or suspicious construction activities, and how to respond in the event of a failure or other problem.

## Coordination

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***Goal U-7: Facilitate the development and maintenance of non-City-managed utilities at the appropriate levels of service.***

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***Policy U-7.1: Work with non-City-managed utilities and review facility plans to ensure that they reflect and support Kirkland's land use plan. Likewise, the City should work with providers to ensure that utilities are available to support land uses and to maintain appropriate levels of service.***

This policy is intended to ensure that non-City providers are in compliance with the City's Comprehensive Plan as mandated by the Growth Management Act. This systematic planning allows the City to make accurate land use projections based on utility plans and allows utility providers to plan for utilities in a manner that reflects expected land use patterns and densities.

***Policy U-7.2: Coordinate with non-City providers of water and sewer on a joint program for maintaining adopted levels of service, concurrency requirements, funding, and construction of shared public facilities.***

Under the provisions of this Comprehensive Plan, the City is establishing specific utility requirements for itself and utilities serving the Kirkland area consistent with the requirements of the Growth Management Act.

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***Policy U-7.3: Coordinate with the appropriate utility provider when considering land use decisions in the vicinity of proposed facility locations to ensure land use compatibility.***

Working with utilities in advance of key land use decisions has the potential to eliminate potential conflicts and ensure that utility considerations are factored into the development review process.

***Policy U-7.4: Provide timely and effective notice to utilities of the construction, maintenance, or repair of streets, roads, or other facilities and coordinate such work with the serving utilities.***

Providing utilities the opportunity to coordinate construction projects with City projects has two distinct advantages: it could save the utility money by reducing construction expenditures and it can help the City to avoid multiple roadcuts for various utility installations.