

XI. UTILITIES

A. INTRODUCTION

The Utilities Element addresses water, sewer, surface water, electric power, natural gas, ~~and~~ telecommunications, and hazardous liquid pipelines.

Utility planning has contributed to a high quality of life for Kirkland residents and businesses by ensuring efficient utility delivery. Kirkland's existing utility infrastructure is generally adequate to meet the growth needs of the City for many years. The City's objective is to meet the needs of the present without compromising the ability of future generations to meet their own needs. ~~The primary focus of the City in the coming years will be to continue to~~ update

- upgrade existing systems to increase efficiency and to avoid maintenance problems associated with older facilities,*
- reduce demand through conservation, and*
- transition to renewable and alternative technologies to reduce greenhouse gas emissions.*

Each utility function presents ~~a~~ unique problems. 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, how to prevent non-degradable materials from entering the sewer system, and the possible future use of reclaimed water. For surface water, the City is challenged to manage a growing system to handle increased urbanization without flooding, while maintaining and enhancing water quality and aquatic habitat. For hazardous liquids, Kirkland land development regulations near the pipeline corridor will continue to be enforced to help reduce the risk of a pipeline accident. For telecommunications, the City ~~must find economical ways to install~~ will continue to develop its fiber-optic telecommunications network to meet the City's needs and respond to changes in technology. ~~and, Where possible,~~ the City will utilize its telecommunications investments and partnerships to benefit citizens, businesses and public institutions. The City recognizes that excellent Internet connectivity is a key resource for business success. To that end, the city will work with telecommunications providers to help them succeed.

For both City and non-City-managed utilities, ~~the City Kirkland~~ faces the challenge of facilitating system improvements, efficiencies and new technologies while ~~minimizing~~ appropriately managing 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 ~~116124th~~ Street that are outside the City's service area. Figure U-1 shows the City's water system.*

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- **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 U3 shows the City's surface water system.

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

- **Northshore Utility District and Woodinville Water District** – Both are special purpose districts that operate independently from the City. They provide water and sewer services to the northern portions of the City. Both have franchise agreements that include provisions for future City assumption of service at such time as it is desirable to do so. The Washington State Departments of Health and Ecology review and approve the Utility Districts' Comprehensive Plans, and they are bound by the same service regulations as the City. Figures U-4 and U-5 show the water and sewer systems.
- **Puget Sound Energy** – Is a public service company - a corporation or other non-governmental business entity which delivers certain services considered essential to the public interest. It transmits and distributes electric power and natural gas in a nine-county area, including Kirkland and much of King County. Figures U-6 and U-7 show Puget Sound Energy's showing the location of electrical and gas facilities are not available from PSE.
- **Telecommunications** – are provided by a variety of non-City managed companies. Kirkland has both wired and wireless telephone services, cable TV service, and high speed cable and fiber-optic internet services, all provided by a variety of non-managed providers. Those that use City rights-of-way to provide services have franchise agreements with the City.

CITY MANAGED FACILITIES

Water

The City of Kirkland Water Utility provides water service to all of its residents, except those generally north of NE ~~116~~ 124th Street who are served by the Northshore Utility District or the Woodinville Water District (see Figure U-1). A very small portion of the southeastern city is served by the City of Bellevue.

The City's water system is primarily a gravity system consisting of ~~181~~ 171 miles of water lines and ~~19.5~~ 12.62 million gallons of storage capacity that includes 1.5 million gallons of fire protection storage. An average of 5.3 million gallons of water per day is distributed to Kirkland's water service area customers. Projected costs associated with the water system are primarily maintenance and replacement costs for aging pipe and fire flow needs. The system generally has sufficient capacity to serve growth anticipated through the land use plan and future water customers into the year 2035. The Kirkland Water System Plan outlines water projects to upgrade any deficiencies in the system for the next 20 years. 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 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 regional capital facilities charges to fund planning and development of future water sources. The City is part of a regional solution to address water needs. Kirkland purchases its water supply from Seattle Public Utilities. The water is then distributed to Kirkland customers through the City's distribution system. The City currently receives all of its water supply from Seattle from the Tolt River Watershed, with occasional supply from the Cedar River Watershed when routine maintenance is required at the Tolt Treatment Facility. Cascade Water Alliance currently has an agreement with Seattle Public Utility to provide 33.3 million gallons of water per day to its member through the year 2039 with the opportunity for an extension of the contract until 2063.

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In addition to the supply from Seattle Public Utility, Cascade Water Alliance also has an agreement with the City of Tacoma for additional supply into the year 2042, and has the capability of developing Lake Tapps in East Pierce County if the need arises beyond 2063. According to the Cascade Water Alliance, based on current trends of water use, responsible plumbing codes, and water efficient appliances, it is likely that Lake Tapps will not need be developed for decades.

Cascade Water Alliance Water Efficiency Program has a single regional water efficiency savings goal for all its members of a cumulative savings of 0.6 million gallon per day on an annual basis and 1.0 mg per day on a peak season basis through 2020. By utilizing existing water supplies more efficiently, millions of dollars will be saved for its members and ratepayers, leave more water in streams for fish, and reduce the region's carbon footprint through decreased energy usage involved in the treatment, transmission and heating of drinking water.

Sewer

The City of Kirkland Sewer Utility 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~~ 40 wastewater collection basins, ~~88~~ 122 miles of sewer pipe, ~~nine~~ six lift stations and force mains, and approximately ~~2200~~ 3184 manholes. Approximately five to ~~10~~ ten percent of Kirkland residents use septic systems. Sewer extensions have typically been funded by developers ~~and or~~ local homeowners through the City-managed Emergency Sewer Program in compliance with the Kirkland Municipal Code.

The system's most serious deficiency is the age of some of the pipelines. Twenty percent of the conveyance system consists of The 45-year-old concrete pipes that were installed prior to the 1950's. Many allow inflow/infiltration and root intrusions which reduce capacity of the system and increase operation and maintenance costs. In addition, downtown businesses that produce fats, oils, and grease (FOG), release damaging amounts into conveyance pipes, contributing to odors downtown and increasing the risk of overflows. As a founding member of the Northwest FOG alliance, the City continues to lead the region in its efforts to educate businesses about proper kitchen practices and regular cleaning of FOG controls to prevent these impacts. 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 Kirkland Sewer Plan establishes the policy basis for recommended capital improvements to correct deficiencies and meet future service needs. The Plan provides the City with a guide to evaluate the impact of possible reclaimed water use and future development and land use on the local and regional sewer system.

The King County ~~Department of Metropolitan Services (METRO)~~ Wastewater Treatment Division (WTD) 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 intergovernmental agreement. ~~Northshore Utility District and City sewage~~ and a majority of Northshore Utility District's sewage are treated at ~~Metro's~~ King County's Renton treatment plant. The Brightwater Treatment plant in Woodinville supplies reclaimed water to the region and is currently located at Willows and NE 12th Street. Very small portions of Northshore's sewage flows to the Brightwater Treatment Plant in Woodinville and the West Point Treatment Plant in Seattle.

King County WTD's review of regional conveyance and treatment plants capacity indicates that the existing capacity is adequate to treat the region's wastewater until the 2030's. Planned upgrades to the treatment facilities will occur in order to maintain adequate capacity to serve anticipated growth beyond the 2030s.

Surface Water

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The City maintains conveyance, ~~flow control detention~~ and water quality treatment systems in public rights-of-way, ~~and flow control and water quality treatment facilities that serve single-family developments.~~ These ~~facilities are managed to reduce flooding and to protect water quality~~ systems ~~accept stormwater runoff and surface water from private property within the City and from neighboring jurisdictions.~~ As of 20014, the City ~~owns and manages 257 miles of conveyance pipe and 539 retention and detention facilities (i.e. tanks, vaults and ponds).~~ system ~~contains 364 public and private detention systems which include vaults and ponds, 9,967 public and private catch basins and 170.4 miles of public and private pipes.~~

Privately owned stormwater facilities consist of conveyance, flow control and water quality treatment facilities that serve multi-family and commercial developments, and certain private roads and single-family developments. City staff inspect 631 private flow control and water quality treatment systems to insure that they are cleaned and functioning as designed. In addition, staff provide technical assistance for drainage and water quality problems that impact these systems. Figure U-3 shows the City surface management water system.

The Kirkland Surface Water Master Plan is a functional plan that Kirkland uses to identify capital projects to address deficiencies in the system. This provides the policy basis for capital projects.

Kirkland is subject to the Phase II Western Washington Municipal Stormwater Permit (the Permit). The Permit is issued by the State of Washington under authority from the Environmental Protection Agency, and is part of the National Pollutant Discharge Elimination System (NPDES), a program which seeks to reduce pollution in the Nation's waterways by controlling sources of pollution. The current Permit became effective on August 1, 2013, and will expire on July 31, 2018. The Permit allows Kirkland to discharge stormwater into water of the State (Lake Washington) if the City takes specific steps in each of the following areas to minimize discharge of pollutants to stormwater: public education and outreach, public involvement, illicit discharge detection and elimination, controlling runoff from new development, redevelopment, and construction sites, municipal operations and maintenance, and monitoring and effectiveness studies.

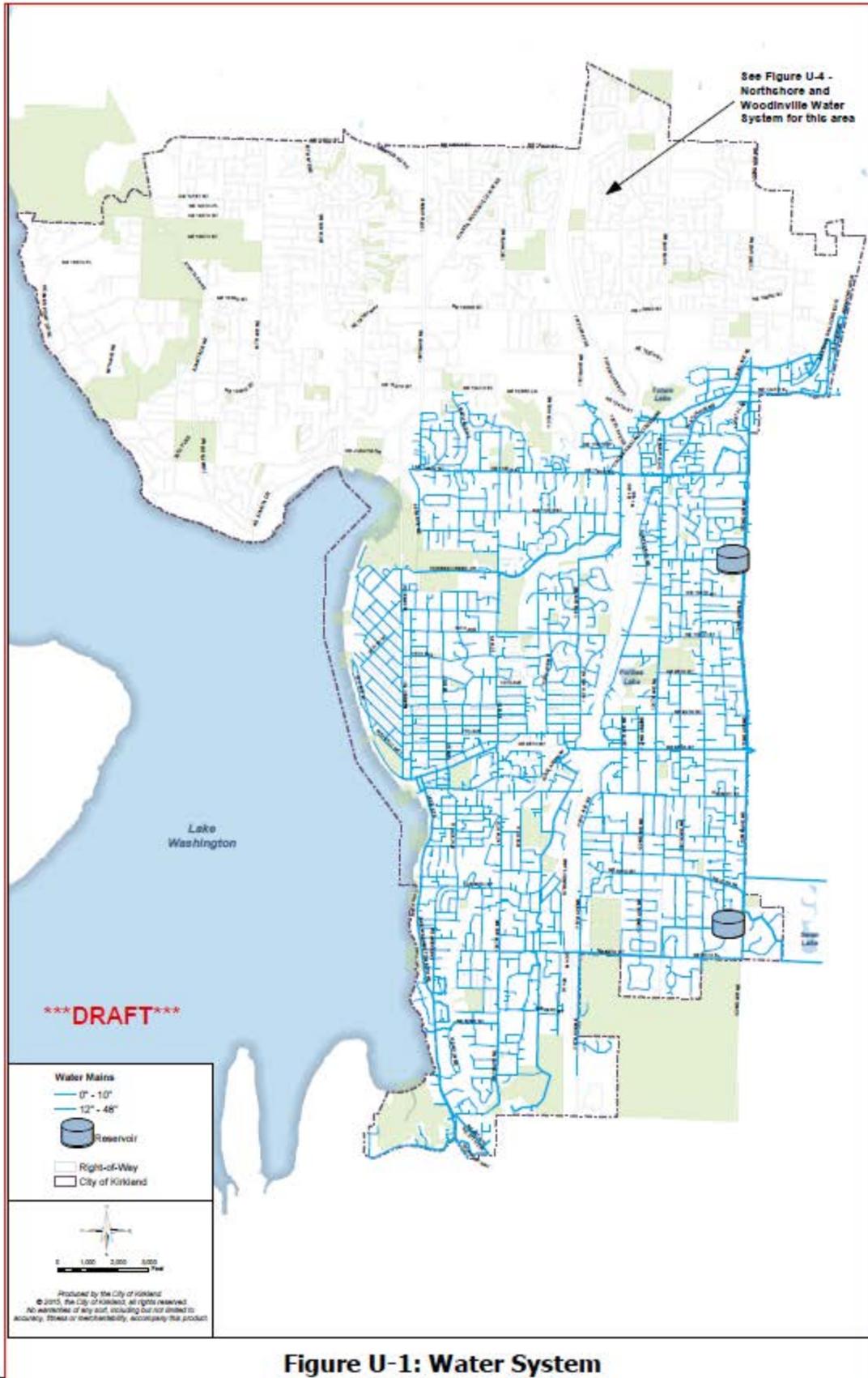
A watershed approach has been used for managing the surface water utility by dividing the City into 135 drainage basins. The largest and most important streams are Juanita and Forbes Creek. The size of their drainage basins makes them especially important for receipt of stormwaters and discharge into Lake Washington. Yarrow Creek, Denny Creek, Juanita Creek, Forbes 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, and a map illustrating their location, can be found in the Natural Environment Element.

City Telecommunications

~~Over time, T~~the City is installing a expanding its fiber-optic network to service ~~its~~ governmental facilities and traffic control systems by addition, the City is partnering with other cities and schools to lay the foundation for a regional fiber optic telecommunication system. ~~Figure U-6 shows T~~the publicly owned fiber optic network in Kirkland, which includes partnerships with the City, Community Connectivity Consortium has 22 members including Kirkland, Lake Washington School District, the University of Washington and the City of Bellevue ~~to install publicly owned fiber optic in major rights-of-way.~~

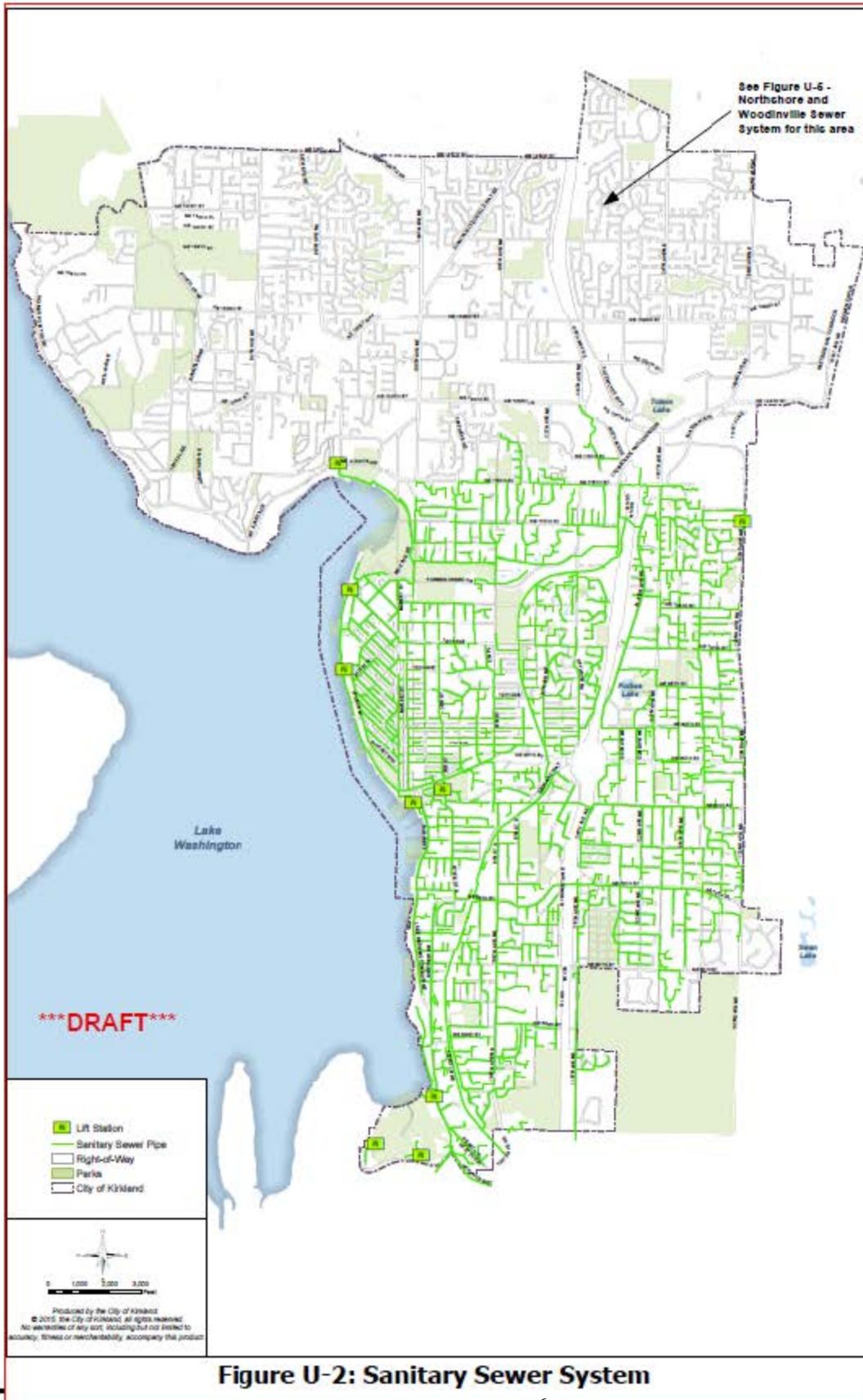
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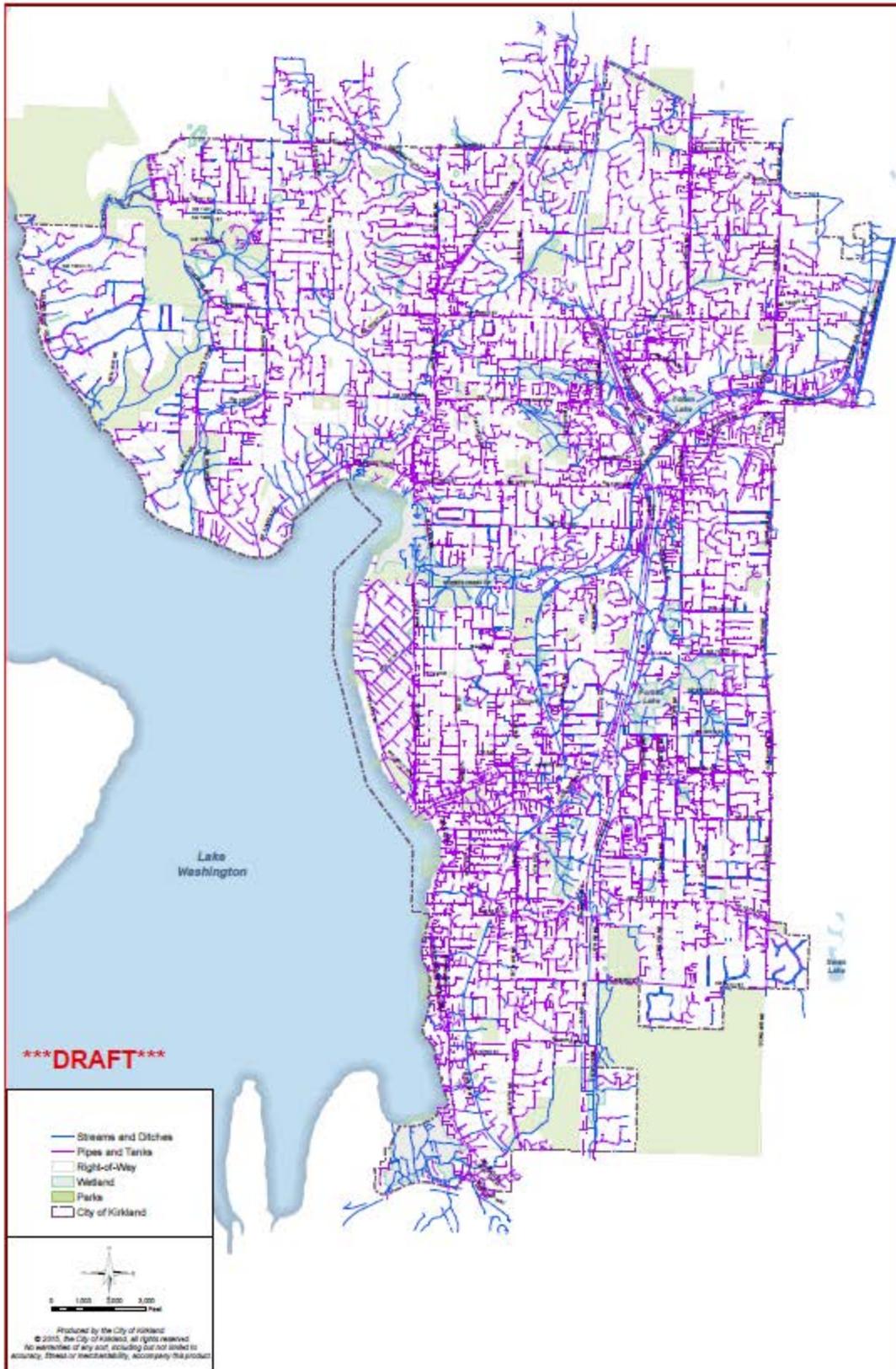
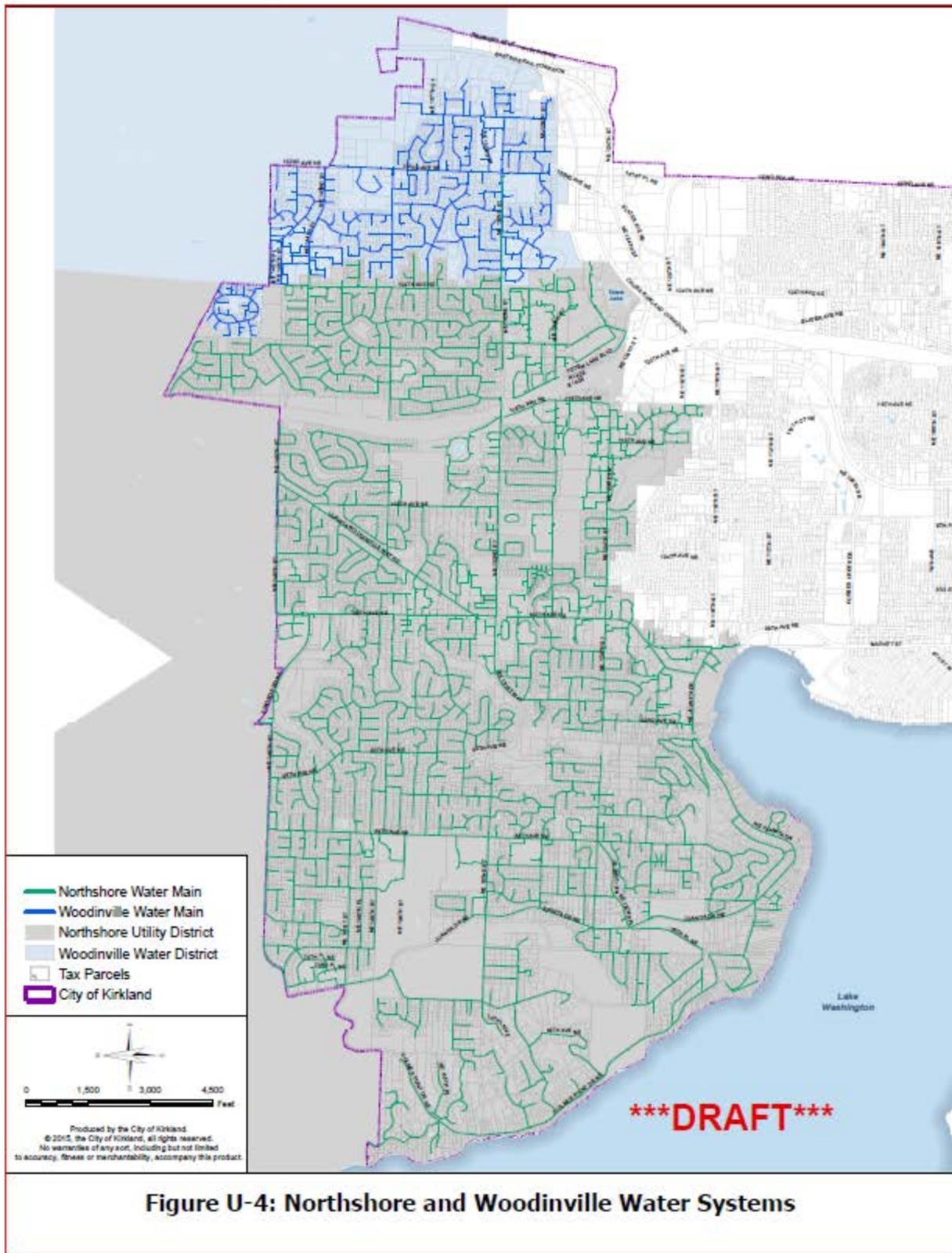


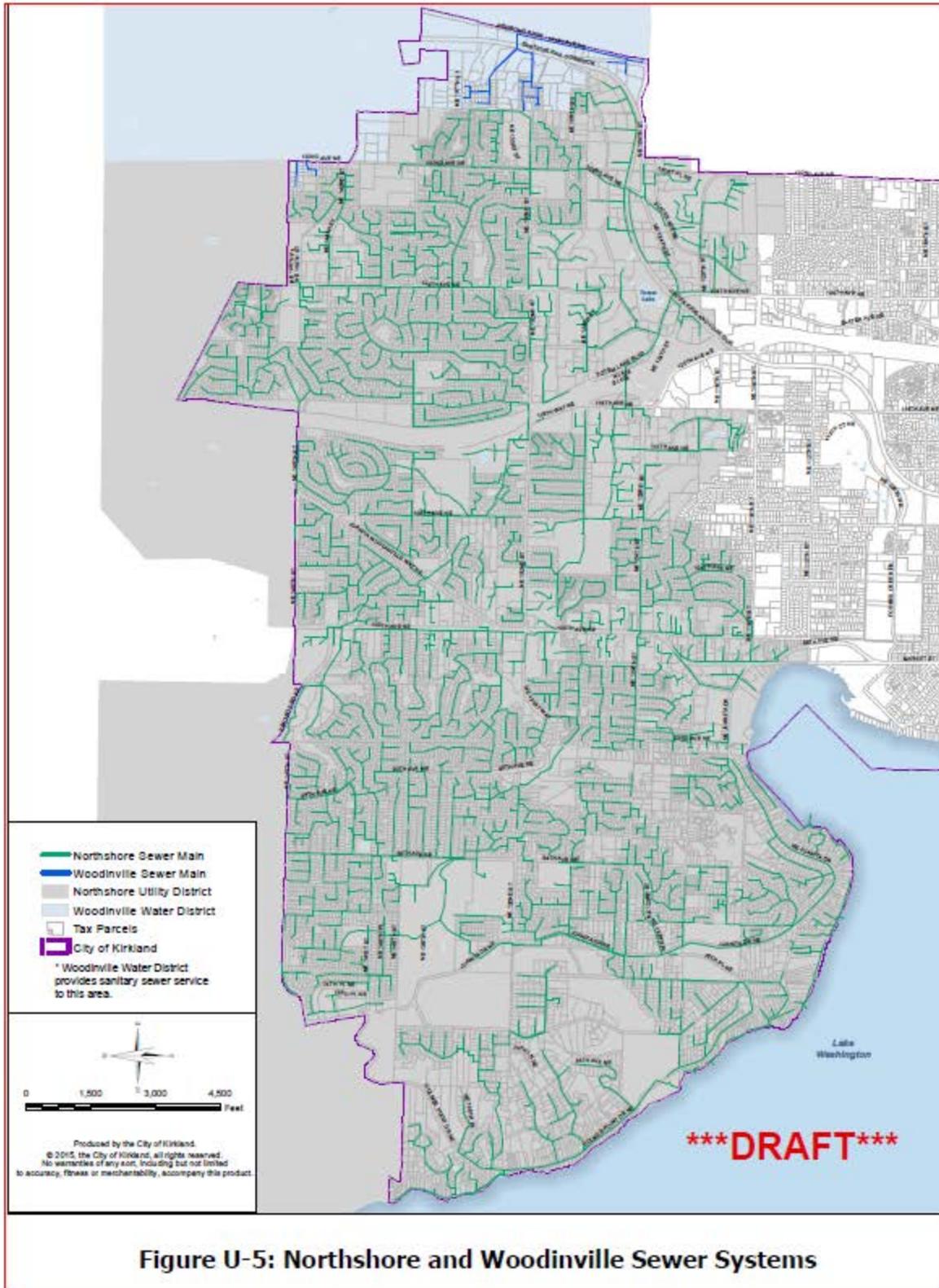
Figure U-3: Surface Water Management System

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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's sewer system is primarily a gravity system. Wwastewaters is-are treated at King County's Department of Natural Resources West Point and Renton treatment plants. Sewer Level of Service is 71 gallons per capita flow rate. Potable water from the Tolt River Watershed is purchased from Seattle Public Utility (SPU). The water system has five reservoir sites with a 29-million-gallon capacity. Water Level of Service is 174 gallons per day (GPD) per Equivalent Residential Units (ERU).~~

~~The District's is-in-the-process-of developing a sewer system capital improvement plan sewer and water plans include identification of capital improvements 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.~~

~~The District, as one of a group of 18 utilities who also purchase water from SPU, are part of the Saving Water Partnership (SWP) administered by SPU. All have adopted the Saving Water Partnership Regional Conservation Program Water Use Efficiency Goal. The conservation goal is to reduce per capita water use from current levels so that the total average annual retail water use of members of the SWP is less than 105 million gallons per day (MGD) from 2013 through 2018 despite forecasted population growth. Due to the high cost of connecting to the Brightwater Wastewater Treatment Facility reclaimed water distribution system, the District does not currently have sufficient need or cost-justification to develop and manage a reclaimed water distribution system. They will continue to evaluate the feasibility of doing so in the future.~~

~~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 only a few single family homes ~~in the City~~. Figure U-4 illustrates the existing Woodinville water system. Figure U-5 illustrates the existing Woodinville sewer system.

~~Woodinville's sewer system is primarily a gravity system. Due to the topographical difficulty of providing gravity sewer service to the Kingsgate area, Northshore Utility District provides sewer service there, even though it is within Woodinville's service area. 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. Sewer Level of Service is 75 gallons per day per capita. Woodinville's Sewer General Plan indicates that Woodinville Water district can provide sewer service to accommodate Kirkland's future growth.~~

~~Potable water from the Tolt River Watershed is purchased from Seattle Public Utility. The water system has six-eight reservoir sites with a 14.9-million-gallon capacity. Water Level of Service is 193 gallons per day (GPD) /Equivalent Residential Units (ERU). Woodinville's Comprehensive Water System Plan indicates that by the year 2027, the District's water needs in the west service area, which includes Kirkland, will be deficient of source availability for projected demands and fire suppression storage. The District has a capital improvement plan for the system. Depending on future demand, a new water reservoir will be built to provide new capacity where the existing Kingsgate reservoir is located. In the meantime, a new booster pump station at~~

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this site has delayed the need for the new reservoir. Repair and maintenance of the system occur when needed and extensions necessitated by future development will be provided by the developer.

The district's conservation goal is to reduce per capita water use from current levels so that the total average annual retail water use of the members of Seattle Public Utility Saving Water Partnership is less than 105 Million Gallons per Day (MGD) from 2013 – 2018 despite forecasted population growth.

Woodinville Water can provide service to accommodate Kirkland's future growth. However, water needs in the west service area, which includes Kirkland, indicates that there will be a deficit

Puget Sound Energy: Electricity and Natural Gas

Puget Sound Energy (PSE) is regulated by the Washington Utilities and Transportation Commission (WUTC), which provides the Kirkland area with natural gas and electricity. Figure U- 6 illustrates the existing natural gas system. Figure U-7 illustrates the existing electrical system.

Electricity

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. As of 2014, PSE generates approximately 46% of its electricity from their own power plants and acquires the rest from generation sources on the Columbia River and across the western United States and Canada. The electricity that PSE delivers to customers is generated from hydroelectric dams, coal, natural gas, wind, and to a much smaller degree from nuclear, and other (solar, biomass landfill gas, petroleum, and waste). 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~~ PSE's Eastside and Northshore Electrical Subareas. Power is delivered on 230,000 volt (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 new 115KV transmission line connecting PSE's Sammamish Substation in Redmond to Kirkland's Juanita Substation is planned for construction in 2017 along a route that enters Kirkland near NE 124th Street and generally follows the Cross Kirkland Corridor until heading north along 120th Avenue NE, and then west along NE 124th Street.

A double-circuit 230 kV Seattle City Light transmission line runs through Kirkland north to south near 124th Avenue NE, but does not directly serve the Eastside subarea.

PSE's long-range electrical energy plans through the year 2022~~35~~ ~~indicate the need for three~~ include a new 230 kV transmission 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 to Renton. Known as the Energize Eastside Project, siting of the new transmission line goes through a public involvement process that is expected to be complete at the end of 2015, followed by environmental review and permitting in 2015 - 2017. Construction is planned for 2017 - 2018.

Washington State's Energy Independence Act requires utilities to acquire specified amounts of renewable resources or equivalent renewable energy credits (RECs). Sufficient "qualifying renewable energy" must equal at least three percent of retail sales in 2012, nine percent in 2016 and 15 percent in 2020. PSE has acquired enough eligible renewable resources and REC's to meet the requirements of the law through 2022 from wind resources.

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Natural Gas

~~PSE provides natural gas to five six Washington counties, including King County via PSE's distribution system. The natural gas originates from various regions of the U.S. and Canada. Natural gas is transported throughout Washington via a network of interstate transmission pipelines owned and operated by Northwest Pipeline Corporation. PSE takes delivery of natural gas from Northwest at a gate station located east of Lake Sammamish outside Kirkland City limits. PSE gas distribution lines up to eight inch in diameter in Kirkland, together with future extensions and upgrades, will service Kirkland's growth.~~

~~While PSE has not historically planned for gas main and service extensions, but reacts plans for gas system demand growth, installation of gas main extensions and new service lines respond to customer demand. The gas industry is regulated by the Washington Utilities and Transportation Commission, which rules 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

~~Telephone services are regulated by the Washington Utilities and Transportation Commission. Personal wireless service providers serving Kirkland are those licensed by the Federal Communications Commission (FCC) in the Radio Frequency Spectrum for wireless communications service and registered to do business in Kirkland. Cable services are provided under municipal franchise.~~

Telephone

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

Personal Wireless

~~Several companies provide wireless (cellular) 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

~~Cable TV and Internet services are also available in Kirkland. Most homes area served by at least two providers. ~~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. Residential high speed DSL services, cable-based Internet, and fiber are available in most locations in the community.~~~~

Fiber Optic

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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.

Broadband

Broadband Internet Services are available nearly everywhere in Kirkland via commercial telecommunications providers. The City of Kirkland encourages competition among telecommunications providers, broadband accessibility for all locations and incomes, and build-out of gigabit symmetrical services for homes and businesses in Kirkland. Gigabit speed is 1000 megabits per second and is expected to meet consumer and small business demand for entertainment, communication, education, and other computing needs for the next decade. Symmetrical services means an equivalent amount of both download and upload capability.

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 in diameter, generally along the Puget Sound Energy easement north-south corridor, 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 (see Figure U-6). 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.

The City also enforces the state's Call Before You Dig Law to safeguard the public and construction personnel who work around utilities and the underground infrastructure of pipes, mains, and lines, including fiber optic lines, with an emphasis on protecting fuel transport lines. It requires notification when excavating near underground utilities and ensures that they will be marked, in order to prevent damage, service interruptions and bodily injury.

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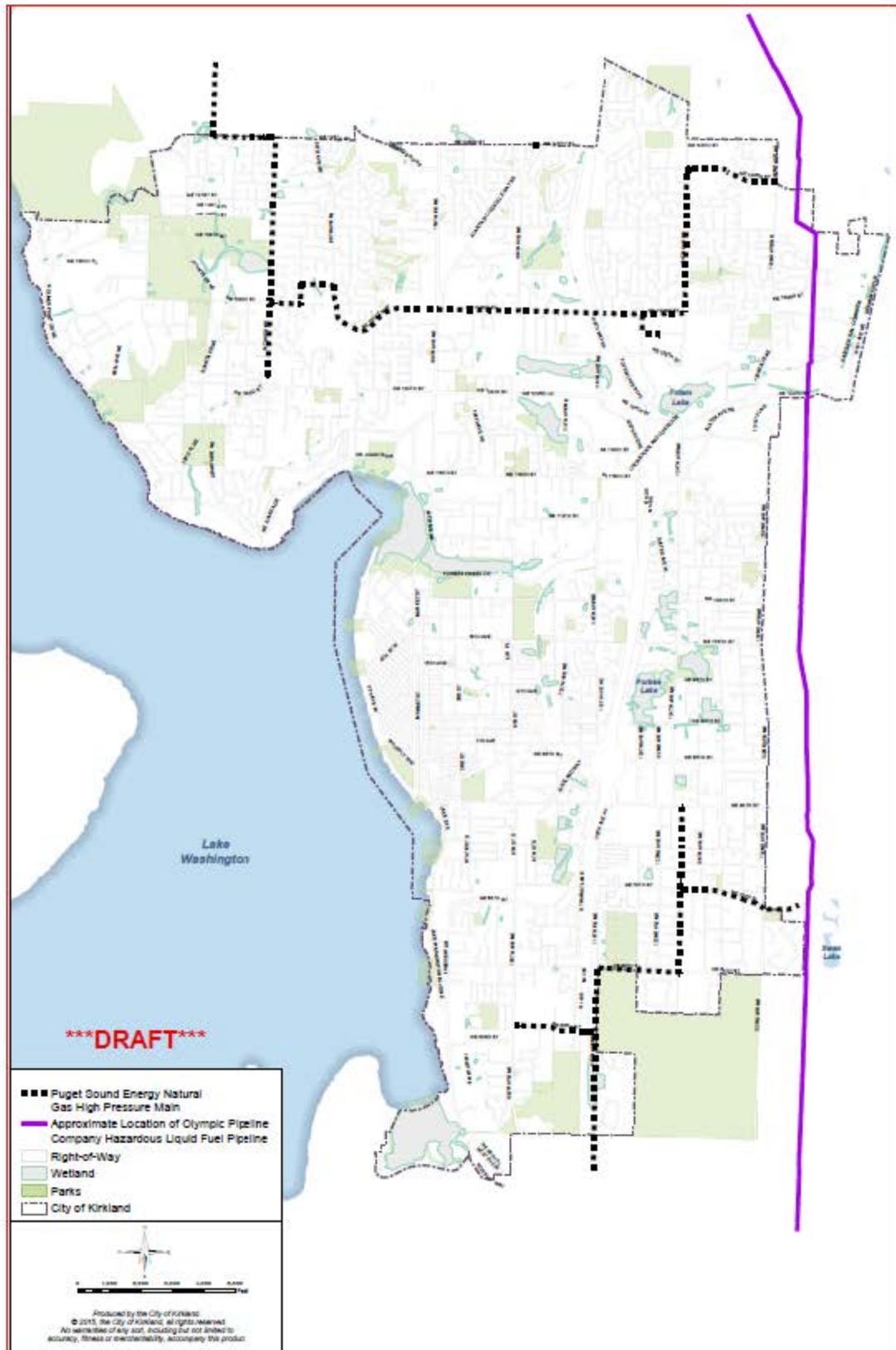


Figure U-6: Natural Gas and Hazardous Liquid Transmission System

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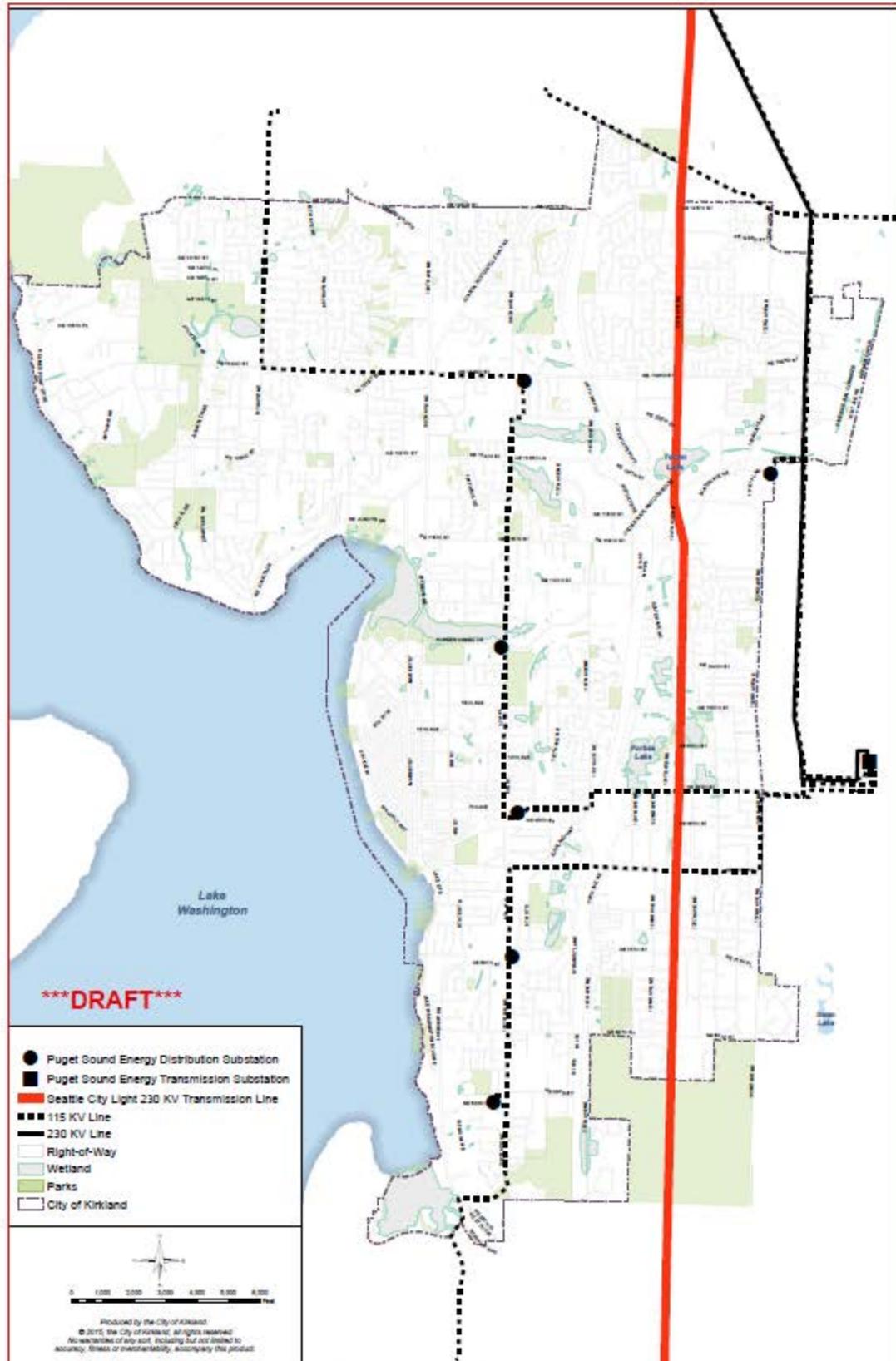


Figure U-7: Electrical Transmission System

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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 and sustainable 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. Energy policies support the sustainability objectives found in the Environment Chapter. 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 funding, concurrency, and level of service goals and policies of the Capital Facilities Element. The Capital Facilities Element contains further explanation regarding the analysis of need for capital projects to meet the level of service standards for city managed utilities.

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 that are adopted by reference:

- City of Kirkland ~~Comprehensive~~ Water System Plan;
- City of Kirkland ~~Comprehensive~~ Sewer Plan;
- City of Kirkland Surface Water Master Plan;
- Washington State Department of Ecology Stormwater Management Manual for Western Washington
- Northshore Utility District ~~Comprehensive~~ Water Plan;
- Northshore Utility District Wastewater System Plan
- Northshore Utility District Sewer and Water Plan Maps;
- Woodinville Water District Comprehensive Water ~~System~~ Plan;
- ~~and~~ Woodinville Water District 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 water, sewer and surface water utilities and levels of service are established

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for non-City purveyors of water and sewer. In addition, water and sewer concurrency requirements are established for new development. A detailed explanation of level of service and concurrency requirements are in the Capital Facilities Element.

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. As telecommunication technologies continue to evolve, the Utility Element supports systems that are widely available, reliable, efficient, and complete, and that respond to the ever greater business and residential demand to be connected.

The importance of efficiency, renewable energy and conservation ~~is~~ are stressed as cost-effective means of accommodating the growing demand for services and reducing carbon emissions.

C. UTILITIES GOALS AND POLICIES

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~~ infrastructure.

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.

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

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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.

Goal U-7: Promote energy infrastructure that is energy efficient, addresses climate change, and protects the community character.

Goal U-~~7~~8: Facilitate the development and maintenance of non-City-managed utilities at the appropriate levels of service.

~~GENERAL~~

Community Values General

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, which are reflected in levels of service standards, Kirkland must balance the quality of the service provided with the costs and community and environmental impacts. New policy initiatives for achieving sustainable utility services can ensure this level of utility service is maintained into the future.

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 public and private 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-Coordinated~~ 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: and ensures that adequate capital facilities and utilities will be available with development.

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

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Table U-1

Water, Sewer and Surface Water Level of Service

Facility	Standard
<i>Water distribution <u>residential use:</u></i>	103 gallons/day/capita
<i>Water storage <u>distribution</u> <u>all other uses:</u> <u>Irrigation</u> <u>Businesses</u> <u>Fire suppression</u></i>	249 gallons/ <u>day/</u> capita (includes 1.5 million gallons for fire storage)
<i>Sanitary sewer collection:</i>	100 gallons/day/capita
<i>Surface water management:</i>	<u>Conveyence, flow control, and water quality treatment per the Stormwater Management Manual for Western Washington or equivalent to prevent flooding, and protect water quality, and habitat in streams and lakes</u> 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. Ensuring that utilities are screened to blend in with their surroundings should increase community acceptance of conspicuous infrastructure.

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~~ faces increased challenges to ~~the supply of~~ these resources, ~~Conservation and efficiency~~ measures can be employed to delay the need for new supplies. Reducing the rate of energy consumption is a means to lower energy costs and mitigate environmental impacts associated with traditional energy supplies.

Policy U-1.6: Promote renewable energy

Kirkland should lead by example. Reducing the City's carbon footprint by reducing our output of greenhouse gasses will help decrease the impacts of climate change and support the vision of an ecologically sustainable city. The City should continue participating in Puget Sound Energy's Green Power program which ensures that a portion of Kirkland's municipal electricity use is matched with clean renewable energy resources located in the Northwest. Continuing to target City utility infrastructure for 100 percent green power as is the case of sewer lift stations, supports this policy. The City's should also continue to replace its vehicle fleet with hybrid and electric vehicles to boost fuel efficiency and increase the number of electric charging stations at public facilities. Other opportunities to reduce energy use should be aggressively pursued. Installation of solar panels and heat pumps on City facilities can further reduce greenhouse gas emissions to meet our reduction targets and encourage community use of these technologies. Targets are described in the Environment Element.

Move this policy to Telecommunication Policy U-5.6 ~~*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 telecommunications 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: Provide equal access to utility services, regardless of historic disparities in income and employment opportunities.

Utility service should be available and provided at the adopted level of service throughout Kirkland. The City or non-City managed utility provider should plan to extend service or upgrade infrastructure where deficiencies are identified.

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Policy U-1-~~78~~: *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 utility~~ outages associated with wind damage and ~~eliminate unsightly~~ reduce the need for 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; especially of Lake Washington and within view corridors. The City should explore prioritizing the undergrounding of existing 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 on file with~~ the WUTC in deciding where to underground existing distribution lines.

Policy U-1-~~89~~: *Encourage the joint use of utility corridors and facilities ~~consistent with prudent utility practice~~.*

Besides the benefit of minimizing the extent of environmental impacts, utility co-location, consolidation, and joint use increases the efficient use of resources. For example, there is significant land devoted to public stormwater facilities. Joint use of this land consistent with prudent practice, would enhance the community while still providing the stormwater functions for which the facilities were built.

Other Examples of joint use 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.*
- Developing pedestrian and bicycle trails and community gardens in utility corridors.*
- Developing passive recreation, play areas, community gardens or wildlife habitat in storm and surface water detention areas.*
- Sharing telecommunication trenches between providers and for the City's expansion of its fiber-optic network.*

Policy U-1-~~910~~: *Coordinate with other jurisdictions and tribes 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, tribal governments 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.

Policy U-2.1: Work in coordination with other jurisdictions and purveyors in the region to ensure a reliable, economic, and sustainable 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. As a member of the Cascade Water Alliance, Kirkland has played a large role in securing long term regional water supplies well into the future. The City will continue to work with neighboring agencies and tribal governments to provide its customers with reliable, safe water at a reasonable cost, and address the potential impacts of climate change on regional water resources.~~

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~~ the Washington State Department of Health and United States Environmental Protection Agency through the Safe Drinking Water Act.

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Policy U-2.4: Visually screen new water towers and other water utility infrastructure to blend into their surroundings.

Utilizing vegetative buffers and camouflaging techniques can conceal and screen otherwise visually impacting facilities.

Sewer

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

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. Alternative and innovative techniques in lieu of sewer, such as composting toilet systems and mini treatment systems, should be explored and encouraged by the City.

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. Continued testing for markers of poor water quality and failed or leaching septic systems will identify priority areas for upgrades. The City ~~should~~ facilitates sewer extensions to these areas in compliance with the Kirkland Municipal Code, by prioritizing utilizing City-funded extensions and facilitating innovative privately-funded solutions such as Local Improvement Districts and latecomer agreements or the sewer extension program, whereby private property owners are able to pay their proportionate share of the City's cost to extend sewer to areas within the City's sewer district not currently being served.

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. A new lift station downtown provides significant unused capacity and overflow storage to prevent discharge to Lake Washington during storm events. 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. Diligence to maintain

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and expand the funding support to maintenance programs; such as inspection programs, technological upgrades, and tracking will continue to protect the system from overflows into Lake Washington.

Policy U-3.5: Educate businesses and the public on the proper use of the sewer conveyance system.

Public education and outreach focuses on proper management of fats, oils and grease (FOGs) and non-degradable products to prevent them from entering the sewer system. The outreach program reduces degradation of infrastructure and overflows, control odors, and protects both the public investment in the system and the environment.

Policy U-3.6: Encourage water reuse and reclamation.

The City is collaborating with King County to study reclaimed water use and availability in Kirkland. The City should take advantage of the opportunity to access the regional repurposed water provided by the King County Wastewater Division at the Willows Pump Station. With development of the Cross Kirkland Corridor, the City may benefit by installing purple reclaimed water pressurized conveyance pipe that future development can access to irrigate landscapes and flush toilets. This will help protect Kirkland residents from any future water shortages. Future opportunities to reuse water for irrigation of parks and school facilities should also be explored.

Surface Water

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.

Policy U-4.1: Implement the priorities and needs identified in the City's Surface Water Master Plan.

The Surface Water Master Plan sets the course for the next 5-10 years of surface water utility operations. The plan is updated periodically and serves as a tool to guide the City's surface water utility work program while managing resources, complying with regulations, and coordinating with various entities that are responsible for different aspects of surface water and stormwater management.

Policy U-4.~~1~~2: 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 patterns 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 rain gardens and swales, or wetvaults. The Phase II Western Washington Municipal Stormwater Permit requires that the City at a minimum follows the Department of Ecology's stormwater management design standards.

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Policy U-4.~~23~~: Adopt and implement standards for control of runoff and erosion from construction sites.

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

Policy U-4.~~34~~: Encourage or require use of “low impact development” principles and practices to mMinimize the surface water impacts of development ~~through the use of environmentally “low impact development” techniques.~~

~~The City of Kirkland~~ 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-practices~~ that mimic natural watershed hydrology by slowing, evaporating/transpiring, and filtering water before it reaches a stream channel. LID contrasts with ~~current-past~~ 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 techniques seek to minimize the amount of stormwater runoff; LID facilities use soils and vegetation to treat and slow the stormwater runoff that is produced on the site. LID allows land to be developed cost-effectively, which helps reduce potential environmental impacts.

Low impact development ~~techniques-principles~~ include the following:

- *Minimize creation of impervious surfaces;*
- *Preserve Native Vegetation*
- *Cluster housing to allow for preservation of open space*
- *Use site soils and vegetation to soak up and filter stormwater runoff;*

Low Impact Best Management Practices include the following:

- *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, driveways and walkways;*
- *Use green roofs to minimize runoff from impervious surfaces; and*
- *Collect and store water for landscaping or other nonpotable water uses.*

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

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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 installation of oil/water separators to connecting car washing areas to sanitary sewers.

Policy U-4.~~46~~: 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 those responsible for nonstormwater discharges 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 training and procedures; and*
- *Conduct surveys and inspections to identify and eliminate ~~the~~ illegal connections to the storm drainage system.*
- *Maintain maps of the drainage system that allow pollutants to be quickly traced to their source.*

Policy U-4.~~67~~: Assess the quality of water and habitat in local streams and lakes to evaluate the effectiveness 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 recommended element of several State and federal programs.

Policy U-4.~~78~~: Ensure that privately owned stormwater facilities are operated and maintained in a manner that maximizes their quantity and quality control benefits.

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

Policy U-4.~~89~~: Educate the public on protecting and enhancing the quality of our water resources.

The City should strive to raise awareness of the impact that everyday business and residential activities can have on water quality and fish habitat and populations, and to provide information on best practices. ~~These include, such as~~ natural yard care, proper disposal of animal waste, including chickens, horses and household pet waste, 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 resources. The City should also explore new techniques for engaging the public and effecting positive changes in behavior.

Policy U-4.10: Explore the potential for regional stormwater facilities.

In some cases, particularly where there is significant redevelopment, providing regional facilities for flow control and water quality treatment may provide efficient and effective means of management of stormwater.

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Policy U-4.11: Take steps to remove fish passage barriers and to protect and enhance fish habitat.

The Muckleshoot Indian Tribe has Treaty fishing rights in Kirkland. The City should work closely with the Muckleshoot Tribe to prioritize fish passage barriers and other habitat enhancement projects to maximize the habitat benefits with available funding.

Policy U-4.12: Conduct municipal operations in a manner that protects water quality.

Use erosion control and pollution prevention practices in City operations including but not limited to parks, streets, wastewater, stormwater, and water in order to minimize the discharge of pollutants to the stormwater system.

Policy U-4.~~9~~13: 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-4.1~~0~~4: 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-4.1~~5~~5: 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 Partnership Action Agenda for 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.

Policy U-4.16: Investigate and plan for the impacts of climate change on operation, maintenance and construction of the stormwater system.

Changes in precipitation patterns and climate may impact flooding and the need to store and reuse rainwater. Investigate and plan for sizing of the conveyance system, provision of additional areas for storage of flood waters, and potential for rainwater reuse. Evaluate construction methods used for stormwater system to insure that they minimize the production of greenhouse gases to the degree possible.

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Policy U-4.17: Conduct asset management and planning to insure uninterrupted and efficient operation of the stormwater system.

Assessment of the condition, and ranking of assets according to their criticality and likelihood of failure, should be done to help prioritize replacement and rehabilitation of the system.

Policy U-4.18: Consider acquisition of open space, stream corridors and/or wetlands in cases where this would further goals of reducing flooding, improving water quality and improving fish habitat.

There are cases where preservation and /or restoration of stream corridors and wetlands may benefit City functions, and where this may not happen despite critical areas regulations. In addition, there may be cases where restoration of streams or wetlands would have significant benefits for water quality and habitat, and this work would likely not happen if the property were not under City ownership.

Telecommunications

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

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~~ Partner with public agencies and private sector organizations 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 and encourage collocation ~~of to achieve cooperation and cost sharing in building telecommunication systems and providing services. Partnerships may include the use of shared telecommunication space, such as on towers, and buildings and in 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.

Policy U-5.4: Seek opportunities to enhance the number of service providers in the community to increase choice and fair access 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.

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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, including enhancements to broadband services, and that providers and other public entities can install the facilities.

Policy U-5.6: Continue to provide and improve audio – visual systems for City communication with the public

The city should invest in high quality systems, equipment and staff to support broadly available communications with citizens via the technologies that work best for them.

Moved from Community Value Policy U-1.6 Policy U-1.6 5.7: Minimize Mitigate impacts of ~~personal wireless services, telecommunication facilities, and towers~~ on adjacent land uses through careful siting and design. Facilitate the approval of wireless service facilities that meet certain standards relating to location and configuration to balance the need for community connectivity with aesthetic standards. Stay up-to-date with changing technologies and rules.

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, t~~There should be a preference for ~~more, smaller facilities co-located on existing structures, such as buildings or electrical transmission towers, and located on existing structures such as building or equipment structure facades, transmission towers or utility poles, or for co-locating on existing towers to avoid unnecessary proliferation.~~ When new facilities are required ~~or existing facilities are expanded, carriers/providers should be required to use techniques to disguise or camouflage screen or conceal the wireless service facilities and associated equipment shelters, so that they fit in with~~ to be compatible with the surroundings.

In recognition of the important role ~~telecommunications~~ wireless services 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, in recognition of the ~~recognizing~~ changing technology and ~~flux in the~~ industry, the City should ensure that ~~abandoned facilities are property owners or providers removed~~ abandoned facilities promptly. ~~The burden of removing the facilities should fall to the property owner or operator of the facility and not the City. In addition, federal regulations covering wireless service facilities change frequently and the city should monitor and amend regulations accordingly.~~

Policy U-5.8: Allow new aerial telephone and cable lines in the right-of-way, provided that they are designed and installed to minimize aesthetic impacts and are subsequently required to be placed underground at the time of undergrounding electrical distribution lines..

Communication lines (telephone and cable) are often located on electrical utility poles. However electrical lines are typically the determinate for when communication lines are undergrounded. When electrical distribution lines are placed underground communication facilities must also be undergrounded.

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Policy U-5.9 Ensure that franchise and right of way agreements with telecommunication service providers require collaborative undergrounding of facilities when electrical distribution lines are placed underground.

The City's objective for undergrounding is to minimize aesthetic impacts and create more resilient infrastructure. Collaborative undergrounding creates economies of scale for all parties and minimizes traffic disruption.

Policy U-5.10: Screen ground mounted cabinets associated with telephone and cable telecommunication equipment so that they fit in with their surroundings.

Landscaping, proper placement and camouflaging techniques should be used to soften the appearance of the structures. Recognize that the provider must have access to the facilities in order to service and maintain them.

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 regulated utility can recover, and consequently provides ~~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

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

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;

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- *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.*

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."

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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 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-Ljine 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.

Energy

Goal U-7: Promote energy infrastructure that is energy efficient, addresses climate change, and protects the community character.

XI. UTILITIES

Policy U-7.1: Encourage the public to conserve energy through public education.

Utilizing renewable energy sources, conserving energy, and employing new energy technologies and efficiencies further Kirkland's sustainability goals. Renewables include solar, wind and other sustainable energy sources. The City should initiate public outreach to engage the community in this effort.

Policy U-7.2: Participate in regional efforts to increase renewable electricity use 20% beyond 2012 levels Countywide by 2030, phase out coal fire electricity sources by 2025, limit construction of new natural gas based electricity power plants, and support development of increasing amounts of renewable energy sources.

Kirkland must advocate for the transition from carbon based energy to renewables in coordination with the King County Climate Change Collaborative (K4C) at the state level. The K4C is a partnership between the county and cities to coordinate and enhance local government climate and sustainability efforts. As a founding member of the K4C, Kirkland leads in its commitment to support plans to reduce greenhouse gas emissions. Renewables include solar, wind and other sustainable energy sources.

The City adopted Principles of Collaboration and Joint County-City Climate Commitments in 2014. Energy supply commitments are strategies and actions to meet these King County wide targets. These are further described in the Environment Element. Kirkland should build on existing state renewable energy commitments including the Washington State Renewable Portfolio Standard to partner with utilities, including Puget Sound Energy, and other stakeholders on a countywide commitment to renewable energy resources, including meeting energy demand through energy efficiency improvements and phasing out fossil fuel.

Policy U-7.3: Work with and encourage Puget Sound Energy to provide clean and renewable energy that meets the needs of existing and future development, and provides sustainable, highly reliable and energy efficient service for Kirkland customers.

Kirkland requires highly reliable service for public health and safety and to meet the needs of our residents and businesses, while reducing greenhouse gas emissions. In recognition of the challenges that climate change pose to our community, Kirkland has adopted greenhouse gas emission reduction targets. As discussed in the Environment Element, besides transportation, the largest contributors to greenhouse gas emissions are residential and commercial buildings. Puget Sound Energy provides all of Kirkland's energy needs and about half are derived from fossil fuels. Since fossil fuels produce carbon emissions while converting to electricity, it is important for PSE to transition to renewable energy sources and co-generation and phase out fossil fuels to achieve the City's greenhouse gas emission reduction targets.

As PSE increases its renewable energy portfolio and use of co-generation, energy is conserved, efficiency is increased, and the carbon footprint is reduced. Cogeneration uses an otherwise unused byproduct of fossil fuel electricity generation to become a useful commodity by capturing heat that is generated while producing electricity to supply hot water, steam, space heating and cooling.

XI. UTILITIES

Policy U-7.4: Promote the use of small to large scale renewable energy production facilities.

The City should promote solar energy to generate electricity and heating for residential and commercial development. Wind turbines and other types of emerging technologies, such as digesters that divert and break down organic waste to produce energy should also be encouraged. The City must balance the goal of increasing renewable energy with aesthetic concerns and tree preservation objectives.

Policy U-7.5: Require new and, where feasible, existing electrical distribution lines in the right of way to be underground.

Electrical distribution lines, often located in the public rights-of-way, carry electricity to homes and businesses throughout Kirkland. Electrical service is provided to private property by service lines connecting to these power lines. Electric distribution lines are located both above and below ground throughout Kirkland. In more recent development areas systems are typically underground.



Undergrounding of electrical distribution lines can reduce the potential for power outages associated with wind damage, eliminate or reduce the need for pruning vegetation, and enhance views.

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.

Policy U-7.6: Screen above ground equipment cabinets and other structures associated with electrical distribution without hindering access as required by the provider.

Landscaping or other techniques to screen these structures will generally soften their appearance so that they fit in with the surroundings.

Policy U-7.7: Require siting analysis in the development review process for new and expanded electrical transmission and substation facilities to address land use and sensitive areas and provide mitigation to minimize visual and environmental impacts.

Electrical transmission lines are located within corridors in public rights of way or within utility easements. Existing transmission lines in Kirkland are above ground. Electric substations are located on private property owned by the utility. The additional cost to underground PSE's electrical transmission lines is regulated by the WUTC and borne by the entity requesting the undergrounding. New or expanded aerial transmission lines should be sited and designed to minimize impacts to critical areas, preserve trees, and reduce visual impacts, especially where views of Lake Washington, the Olympic Mountains and view corridors are affected. Transmission lines should be sited to minimize impacts on schools and residential areas.

In addition, while the impacts of exposure to electric and magnetic fields (EMF) on health remains a question, minimizing potential risk is appropriate. Accepted low-cost methods should be considered to reduce exposure without unduly burdening the utility provider. The city should be involved with regional or statewide agencies when and if they develop policies regarding exposure to EMF. Periodic review of the state of scientific research on EMF may warrant changes to policies.

XI. UTILITIES

Coordination

Goal U-78: *Facilitate the development and maintenance of non-City-managed utilities at the appropriate levels of service.*

Policy U-78.1: *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-78.2: *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.

Policy U-78.3 *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-78.4: *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.*

Timely information about capital improvement plans ~~Providing~~ provides utilities the opportunity to coordinate construction projects with City projects. This 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.

Policy U-8.5: Encourage the consolidation of special districts.

Obtaining urban services from cities, and encouraging special service districts, including sewer, water, and fire districts, to consolidate or dissolve as a result, advances the Growth Management, regional and county wide vision for municipalities to be the primary providers of urban services. Services should be provided in an efficient, environmentally sensitive, timely, and cost-effective manner.

Policy U-8.6: Coordinate emergency response for utility disaster recovery.

During disasters, effective incident coordination between utility providers and emergency management is imperative. Plans should include provisions for mitigating impact of collapsed electrical poles and towers, pipeline failures of all kinds (water, sewer, petroleum), for restoration of service as quickly as possible, and for the citywide implementation of emergency management plans.