

# UTILITIES

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## **Draft Utilities Element**

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The Utilities Element emphasizes the following Framework Goals:

### ***FRAMEWORK GOALS***

- FG1: Accommodate anticipated levels of growth and enhance the quality of life within the City of Shoreline.**
- FG2: Promote quality building and development that is compatible with the surrounding environment.**
- FG3: Support diverse and affordable housing opportunities which provide for Shoreline's population growth.**
- FG4: Pursue a strong and diverse economy and assure economic development that complements neighborhood character.**
- FG5: Protect the natural environment and preserve environmentally sensitive areas.**
- FG6: Promote improvements to human services.**
- FG7: Assure effective and efficient public investment for quality public services, facilities, and utilities.**
- FG8: Improve multi-modal transportation systems which provide for Shoreline's present and future population.**
- FG9: Provide for wide involvement in community planning decisions.**

## ***Intent***

The Utilities Element is a required element under GMA. It identifies the location and capacity of all existing and proposed utilities, no matter how they are provided. It addresses electrical, telecommunications, and natural gas utilities as well as other basic utilities including water, sewer, surface water, garbage and electricity.

The intent of the Utilities Element is to show how the full range of utilities can be provided to existing and future development in a manner consistent with community desires. This will help ensure that future service will remain as good as existing service and, in many cases, improve over time, regardless of whether the utility is provided directly by the City or by a contract provider. In situations where the City does not directly control utility service, the Utilities Element establishes goals for future service. It also guides the City in certification of utility plans, development of utility franchises and decisions about who should provide services in the future. This will help ensure that the City can meet its GMA obligations for service provision, growth and concurrency.

The Utilities Element is based on estimates of existing and future demand for utility service. Where possible, current utility consumption trends are used to indicate likely future consumption. Some utilities, such as cellular telephone, are rapidly growing with changing technologies. Consequently, future demand is difficult to predict. In other instances, where utility providers are private corporations, specific information on utility consumption and demand are considered to be proprietary and are therefore not disclosed.

The Element also gauges the ability of existing and planned utility facilities to meet future demand. Generally, the current provision of utility services and the ability to meet future population demand in Shoreline are not hindered by any serious constraints.

The facilities presented in this element provide information useful to the planning process. The Element does not include all the data or information that was gathered, but presents the relevant information concerning the general location, proposed location, and capacity of all existing and proposed utilities. Additional information is available from the Draft Environmental Impact Statement on the Shoreline Comprehensive Plan. Further information is available from individual utilities or in the comprehensive plans of the various service districts which were used as the basis for the analyses contained in this plan. Comprehensive plans for the water and sewer districts are on file with the City of Shoreline.

## ***Background and Context***

As a recently incorporated city, the City of Shoreline does not presently control most of its public utilities. There are currently 18 different direct utility providers in Shoreline:

- Shoreline Water District
- Seattle Public Utilities, Water Division
- Shoreline Wastewater Management
- Highland Sewer District
- Seattle Public Utilities, Wastewater Div.
- Seattle City Light
- King County Solid Waste
- Rabanco
- Waste Management NW
- City of Shoreline Surface Water
- US West Communications and Air Touch West
- GTE
- AT &T
- Electric Lightwave
- Metricom
- Puget Sound Energy (Washington Natural Gas)
- Chambers Cable of Edmonds
- TCI Cablevision of Seattle, Inc.

The King County Department of Natural Resources Wastewater Division, King County Roads and the City of Edmonds provide additional utility services to the direct service providers.

These utilities have a broad impact on the future of the community. In many cases, these utilities are needed to meet the basic needs of daily living and ensure health and safety. Utilities, however, can also significantly enhance the quality of life in the community.

When considering the future provision of utility services, a number of issues must be considered: legal requirements like the State Growth Management Act; aesthetic and environmental impacts; governance, costs and revenues. In order to address these issues, the community must identify the type and quality of utilities needed to serve local residents and determine how these services can best be provided. As a part of this discussion, the community must consider the aesthetic and environmental impacts of new services on the community as well as issues of governance, costs and revenues.

## ***Existing Conditions***

The City maintains a number of franchise agreements between the utility provider and the City allowing for the existence of support facilities (e.g., cable, electrical wire, sewer pipe) within the City's right-of-way (streets). Most of the utility services referred to under this element are controlled by the City through franchise agreements. Presently, there is only one interlocal agreement, which is with King County Solid Waste for the transfer and disposal of solid waste. The status of the

franchise agreements is noted in the listing of current providers. NOTE: Some franchise agreements are in the process of being negotiated or renegotiated.

### **Water Service**

The City of Shoreline is served by two water utilities: Seattle Public Utilities (SPU) and Shoreline Water District (SWD). The City maintains a franchise agreement with the Shoreline Water District through June 18, 1998. There is no franchise agreement with Seattle Public Utilities. Figure U-1, at the end of this element, depicts the service areas and major facilities of the water purveyors.

### **Existing Water System Capacity and Supply**

The water system provides water conveyance and fire flow service to hydrants, individual and multi-family residences, commercial customers, and fire suppression systems.

Currently, Shoreline residents use approximately 14 million gallons of water each day. This water is supplied by Seattle Public Utilities via the 60 + -inch transmission main located along 8<sup>th</sup> Avenue ~~Northeast~~N.E.. The Seattle Public Utilities' primary sources of water are the Cedar and Tolt Rivers.

The Seattle Public Utility is a direct provider of water to its individual customers. SWD does not supply its own water and currently contracts with SPU for water to provide to SWD customers.

### **Seattle Public Utilities (Water)**

#### **Existing SPU Water Services and Facilities**

Seattle Public Utilities provides water service for about 9,650 households and businesses within Shoreline city limits, generally west of the I-5 corridor, constituting about 58% of Shoreline geographically (the remaining 42% of Shoreline is serviced by the Shoreline Water District).

Seattle Public Utilities facilities in the City of Shoreline through 1994 include approximately 606,000 feet of 1-inch diameter to 66-inch diameter pipe, 879 fire hydrants from 2 to 8-inches in diameter (785 units are 6 inches in diameter), and the following four major facilities:

- Richmond Highlands Tanks at the Southwest corner of ~~North~~N. 195<sup>th</sup> Street & Fremont Avenue ~~North~~N.
- Foy Standpipe at the ~~N~~northeast corner of Dayton Avenue ~~North~~N. and ~~North~~N. 145<sup>th</sup> Street
- Foy Pump Station at the ~~N~~northeast corner of 5<sup>th</sup> Avenue ~~Northeast~~N.E. and ~~Northeast~~N.E. 145<sup>th</sup> Street
- North Pump Station located east of 8<sup>th</sup> Avenue ~~Northeast~~N.E. on ~~Northeast~~N.E. 185<sup>th</sup> Street

The first portion of the water distribution system included 27,882 feet of waterline and was built in 1933. The water system now covers the entire service area. In 1995, an estimated 2,640 feet of new pipe was built, generally to replace existing

water mains. The water system has approximately 17,000 feet of 3-inch and less diameter pipe in addition to 2,907 feet of 4-inch asbestos cement pipe that will eventually have to be replaced.

#### **Future SPU Water Service and Facilities**

The Seattle Public Utilities has notified current wholesale purchasers of its water, including the Shoreline Water District, that it will not renew existing supply contracts past the year 2015. SPU is offering instead to commit to sell excess water only to a new association called the Cascade Water Alliance that is currently being created by existing wholesale water purchasers. There is no indication from the documents and statements released by SPU that City of Shoreline residents currently serviced by SPU will be affected by this change in contract policy.

While the Seattle Public Utilities has plans for numerous maintenance and replacement projects of existing facilities, no major new facilities are planned by the SPU in the next 20 years.

#### **Shoreline Water District**

##### **Existing SWD Services and Facilities**

Approximately 42% of Shoreline is serviced by the Shoreline Water District. The District acquires all of its water from metered connections with the City of Seattle's Tolt Transmission Pipeline. The Shoreline Water District's administrative offices are located at 15<sup>th</sup> Avenue ~~Northeast~~N.E. and ~~Northeast~~N.E. 177<sup>th</sup> Street. The maintenance facility is located south of the administrative offices, at 15<sup>th</sup> Avenue ~~Northeast~~N.E. and ~~Northeast~~N.E. 169<sup>th</sup> Street.

The Shoreline Water District system has approximately 420,000 feet of pipeline. Transmission capability for the system is primarily provided by 12-inch diameter pipelines from the supply stations to various points within the service area. The transmission pipelines are located primarily along the major city transportation corridors. Some transmission capability is also provided by looped, 8-inch diameter pipelines in the heavily developed residential areas of the system.

The Shoreline Water District storage capacity is composed of a 3.7 million gallon reservoir, a 2.0 million gallon reservoir, and a smaller 400,000 gallon reservoir. Two booster pump stations are located on 8<sup>th</sup> Avenue ~~Northeast~~N.E., one at ~~Northeast~~N.E. 160<sup>th</sup> Street and one at ~~Northeast~~N.E. 185<sup>th</sup> Street. A supply station is located at 16<sup>th</sup> Avenue ~~Northeast~~N.E. and ~~Northeast~~N.E. 192<sup>nd</sup> Street.

##### **Future SWD Services and Facilities**

The Shoreline Water District has an agreement with the City of Seattle to the year 2015 for water supply. Seattle Public Utilities will discontinue wholesale water supply contracts in the year 2015. After 2015, the District will be able to purchase excess water supply from the City of Seattle through a new entity called the Interim Water Group (IWG). The IWG will become the Cascade Water Alliance in December, 1999. The price and adequacy of that supply is uncertain at this time. Alternate water sources are being explored including interties with and purchase of

water from Mountlake Terrace as well as using Lake Washington as a primary water source.

A comprehensive water system plan was completed for the Shoreline Water District in 1991. This Plan identifies numerous maintenance and replacement projects of existing facilities. In addition, the District plans to construct a new 2.0 million gallon reservoir sometime after 1999. The State of Washington Department of Natural Resource land located at 25th Avenue ~~Northeast~~N.E. and ~~Northeast~~N.E. 150th Street has been selected as the proposed location for this facility. The District has placed a bid on the property, but does not have ownership of this site at this time. The Shoreline Water District is currently in the process of updating its 1991 Comprehensive Plan. As a part of this update, the District is exploring the construction of a water treatment facility also to be located at the DNR site.

### **Wastewater**

Two organizations directly service the wastewater needs of the majority of the City of Shoreline: Shoreline Wastewater Management District<sup>1</sup> serves the west and north sides of the City, and Seattle Public Utilities serves a portion of south-central Shoreline around the I-5 corridor. A third, the Highlands Sewer District, serves a small part of the City in the Highlands neighborhood. The City of Lake Forest Park covers a small portion of Annexation Area A-2; however, these lots are either served by the Shoreline Wastewater Management District under contract or are on septic systems.

There are approximately 10 lots on septic systems within the Seattle Public Utilities service area located along 23rd Avenue ~~Northeast~~N.E. just south of ~~North~~N. 150th Street. The Shoreline Wastewater Management District is aware of two septic systems located in the Richmond Beach Neighborhood<sup>2</sup>. Additionally, approximately four square blocks located between N. 186<sup>th</sup> and N. 190<sup>th</sup> along Corliss Avenue, N., just west of the City of Shoreline Senior Center also are on septic systems.

The City maintains a franchise agreement with the Shoreline Wastewater Management District through March 2001. The City does not currently have a franchise agreement with Seattle Public Utilities or the Highlands Sewer District.

Wastewater treatment services are provided by the City of Edmonds and the King County Department of Natural Resources Wastewater Division (formerly Metro). King County DNR also provides gravity and pumped interceptor service. Figure U-2, at the end of this element, depicts the service areas and major facilities of the wastewater service providers.

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<sup>1</sup> formerly Ronald Sewer District

<sup>2</sup> The Shoreline Wastewater Management District reports that these septic systems were "grandfathered in" as a contract condition at the time the District took over the ownership of the Richmond Beach King County Sewer and Drainage District #3, in 1986.

## **Seattle Public Utilities (Wastewater)**

### **Existing SPU Wastewater Services and Facilities**

Seattle Public Utilities maintains 7,668 residential and 198 commercial accounts in the City of Shoreline. SPU maintains 432,065 feet of pipeline north of the Seattle city limits and approximately 85% of the system north of 145<sup>th</sup> Street is located within Shoreline (the other 15% is located within the City of Lake Forest Park). Most of these pipes were installed in the 1950s and early 1960s. One Seattle Public Utilities sewer pump station is located within the city limits.

Wastewater volume is estimated at 600 cubic feet (cf) per month for single-family homes. Wastewater in the Seattle Public Utilities area is processed at the King County West Point Treatment Plant.

### **Future SPU Wastewater Services and Facilities**

The City of Shoreline has developed an interlocal agreement with the Shoreline Wastewater Management District, authorizing the District to perform a condition assessment of the sewer collection system in the Seattle Public Utilities sewer service area located within the boundaries of the City of Shoreline. The purpose of the investigation is to determine condition and value of the system and determine the feasibility of the Shoreline Wastewater Management District assuming ownership and operation of the Seattle Public Utilities sewer system within the City of Shoreline boundaries through a negotiated process with the City of Seattle.

## **Shoreline Wastewater Management District**

### **Existing SWMD Services and Facilities**

The Shoreline Wastewater Management District's service area includes the City of Shoreline, some portions of unincorporated King County east of Shoreline (including most of Annexation Area A), a portion of the City of Lake Forest Park, and portions of Snohomish County including the Point Wells Chevron facilities and flows from the Town of Woodway.

The Shoreline Wastewater Management District, which includes approximately 10,200 total accounts, serves a population of approximately 39,000. Facilities include a wastewater collector and interceptor system consisting of 12 lift stations, 19 grinder pump stations, and over 125 miles of sewer mains varying in size from 8 to 24 inches in diameter.

The wastewater collected from within the District is treated at two facilities under contract arrangements: King County Wastewater Division's West Point Treatment Plant and the City of Edmonds Treatment Plant. The Highlands Sewer District discharges wastewater flow into the Shoreline Wastewater Management District system.



### **Future SWMD Services and Facilities**

A comprehensive sewer system plan was completed for the Shoreline Wastewater District in June 1990. This Plan identifies numerous maintenance and replacement projects for existing facilities.

The District maintains a \$4.6 million dollar 10-year capital improvement program including an ongoing preventative maintenance program. The District is also conducting a 10-year inflow and infiltration program (of which 3 years have been completed).

The District is currently exploring the possibility of assuming control of the Seattle Public Utilities services and system located within the City of Shoreline based upon an interlocal agreement with the City of Shoreline.

### **Highlands Sewer District**

#### **Existing HSD Services and Facilities**

The Highlands Sewer District maintains a sanitary sewer collection system which conveys wastewater from approximately 100 households in the Highlands Neighborhood to the Shoreline Wastewater Management District.

#### **Future HSD Services and Facilities**

There are no known changes to future provision of service within the Highlands Sewer District.

### **King County Department of Natural Resources Wastewater Division (KCDNRWD) and the City of Edmonds**

#### **Existing KCDNRWD and City of Edmonds Services and Facilities**

King County maintains a system of interceptor sewers and three (3) pumping stations within the City of Shoreline (see Figure U-2 at the end of this element). King County transfers the majority of the flows from within the City of Shoreline via gravity and pumping to the West Point Treatment Plant. The West Point Treatment Plant currently has the capacity to treat up to 133 million gallons of wastewater per day.

A small area within the City of Shoreline (approximately 2200 households) is served via gravity and pumping into Snohomish County and to the City of Edmonds Wastewater Treatment Plant. The Edmonds Wastewater Treatment Plant currently has capacity to treat approximately 12 million gallons per day.

#### **Future KCDNRWD and City of Edmonds Services and Facilities**

King County has released plans to construct a new regional wastewater treatment plant to be located in north King County or south Snohomish County (the Point Wells site is a potential location for this facility and/or its outflow pipe). This facility is intended to address expected shortages in system-wide treatment capacity that will be needed by approximately 2010. This plant would eventually add capacity to

treat up to 36 million gallons a day by the year 2030. It is assumed that capacity needed to treat future wastewater flows from Shoreline would be accommodated by this proposal.

### **Surface Water Drainage**

Upon incorporation in 1995, the City of Shoreline inherited and assumed control of the storm and surface water management system located in the roadways within the City boundaries. Facilities located outside the roadways are under the jurisdiction of Shoreline as of April 1, 1998. Figure U-3, at the end of this element, indicates the City of Shoreline Surface Water service area and facilities.

The City will be responsible for most of its own surface water management activities including planning, budgeting and implementation. King County will continue to collect drainage utility fees and provide maintenance staff from King County Road Maintenance. Shoreline will receive a proportionate share of the utility revenue and direct work by King County Road Maintenance.

### **Existing Surface Water Services and Facilities**

The surface water system had evolved over many years under the management of King County. The stormwater system generally consists of a conglomeration of open ditches and channels, pipes, vaults and open retention/detention facilities. Depending on when individual properties developed, King County's changing surface water requirements affected the level of management. For example, areas that were developed prior to the early 1970s, when surface water regulations were developed, commonly had minimal or no stormwater facilities; where they exist, they were typically designed to move water off-site as quickly as possible. In contrast, newer developments maintain both water quantity and water quality controls mandated by current regulations.

Within the boundaries of the Shoreline Planning Area are portions of the McAleer Creek, Lyons Creek, Thornton Creek, and two Middle Puget Sound drainage basins, as well as the entire Boeing Creek drainage basin. The stormwater management system in Shoreline discharges into each of these basins and affects the water quality and flows of each basin's stream system.

The City has adopted King County's 1992 Stormwater Design Manual to determine appropriate stormwater facility design. These standards are required of new development through the permitting process. The City responds to immediate complaints of flooding through the Customer Response Team. During 1996, the City of Shoreline Customer Response Team responded to 284 calls regarding flooding of creeks or basins during 1996 and 1997. These calls ranged in scope from minor to severe and were scattered through all parts of the City.

### **Future Surface Water Services and Facilities**

The City began provision of surface water management planning as of April 1, 1998 through the Public Works Department. The Department has not yet had the opportunity to comprehensively research and identify the full scope of needed surface water services and facilities. As a first step in addressing future services

and facilities, the City of Shoreline Draft Interim Capital Improvement Program 1998-2003 proposes several surface water capital improvement projects for public discussion and includes proposed surface water improvements at the following sites:

1. Northwest N.W. 175th Street and 6th Avenue Northwest N.W.
2. Ronald Bog
3. 3rd Avenue Northwest N.W. and Northwest N.W. 184th Street
4. Midvale Avenue North N. and North N. 177th Street
5. Dayton Avenue and North N. 189th Street
6. Northeast N.E. 155th Street
7. 175th Street at Serpentine Place
8. Northeast N.E. 175th Street and 14 Avenue Northeast N.E.

The most significant of these proposed projects are Ronald Bog and 3rd Avenue Northwest N.W.. The Ronald Bog project would be aimed at resolving flooding of private and public properties downstream of Ronald Bog to the Metro Bus Base. The 3rd Avenue Northwest N.W. project would address flooding of private property and public streets between 3rd and 6th Avenues Northwest N.W. from Northwest N.W. 176th Street to Richmond Beach Road. All of the listed projects are intended to respond to flooding problems which have existed for many years.

In addition to these proposed projects, the City will continue to respond to surface water problems through the Customer Response Team and plan for additional future surface water facilities through the newly established Surface Water Management Utility.

### **Solid Waste**

Two solid waste collection companies operate within the Shoreline city limits. Waste Management Northwest services 75% of Shoreline from the western border east to 7<sup>th</sup> Avenue Northeast N.E.. It has approximately 8,400 residential customers and 450 commercial customers. Rabanco Solid Waste collection serves the eastern 25% of the City of Shoreline out to 5<sup>th</sup> Avenue Northeast N.E. in the southern half of the city and out to 8<sup>th</sup> Avenue Northeast N.E. in the northern part of the City. Rabanco serves about 2,500 residences and about 150 commercial properties. The map of solid waste providers shows the solid waste service area boundaries. The City has deed certificates with both providers. Both certificates expire on September 1, 2000.

Solid Waste collected by Rabanco and Waste Management Northwest is disposed of by the King County Solid Waste Division under interlocal agreement. Figure U-4, at the end of this element, displays the service areas of solid waste collection companies and the location of the King County Solid Waste Division transfer station.

### **Existing Solid Waste Collection Services and Facilities**

Both Waste Management Northwest and Rabanco charge a mandatory recycling fee and provide recycling services to their customers. Recycling is handled at the same time as solid waste removal. Each company uses its own recycling center. Waste Management Northwest's recycling center is located in Woodinville; Rabanco's

recycling center is located in Seattle. Rabanco uses two of its 150 trucks to service Shoreline. Collected solid waste is processed at the King County's 1<sup>st</sup> Avenue ~~North~~N.E. Transfer Station. King County Solid Waste provides solid waste transfer and disposal services under the conditions of a 32-year agreement with King County that makes the County responsible for handling Shoreline residents' solid waste transfer and disposal needs.

The existing solid waste transfer/recycling station located at 2300 ~~North~~N. 165<sup>th</sup> Street, just off Meridian Avenue ~~North~~N., is used by both companies as well as by individuals who prefer to dispose of their own waste. The 1st Avenue ~~North~~N.E. Transfer/Recycling Station was constructed in 1967 on 13 acres at the Corliss Landfill. The station collects recyclables (tin, aluminum, glass, mixed waste paper, newspaper, cardboard, and HDPE and PET plastic bottles), but no yard waste collection services are provided. Of the 59,000 tons delivered to the site in 1997, approximately 32,300 (55%) was self-haul, resulting in 118,600 vehicle trips with site capacity estimated at 140,000 trips. Facilities include an open-sided, direct-dump style transfer building; portable site attendant building; scalehouse; no-fee recyclables collection area; and trailer parking areas. The entry drive and scalehouse are on an easement granted by King County Metro. According to the zoning code, this location is zoned R6 (residential). The existing facility is a non-conforming use.

From this transfer station, the waste is delivered to the Cedar Hill Landfill. The Cedar Hill Landfill is expected to be operational until approximately 2015. The current disposal forecast projects 0.75 tons (1,500 pounds) per year per capita disposal in year 2000 and 1.5 tons (3,000 pounds) per year per capita generation by 2010. All fees associated with the removal of solid waste are billed from the provider to the customer.

#### Future Solid Waste Services and Facilities

Deed certificates with Rabanco and Waste Management Northwest will continue through September 2000. In addition, the City has adopted an interlocal agreement with King County Solid Waste for transfer and disposal of solid waste through the year 2033.

Based upon long-range transfer station forecasts, the estimated daily handling capacity at 1<sup>st</sup> Avenue ~~North~~N.E. will not be exceeded until after 2020, but vehicle capacity will be exceeded in 2005. Therefore, the 20-year capacity standard will not be attained if current conditions prevail.

A Facility Master Plan was prepared by the King County Solid Waste Division that identified a full development alternative for the site. This alternative includes pre-load compaction, a new transfer building, improved recycling area, more on-site queuing, and improved freeway access. Though actual implementation of the Plan may include portions of the full development alternative, the facility is expected to be able to meet vehicle and tonnage needs for at least the next 20 years.

## Electrical Service

Electrical service is provided within the City of Shoreline by Seattle City Light. The City has a franchise agreement with Seattle City Light through May 1998. Figure U-5, at the end of this element, depicts the Seattle City Light service area and facilities.

### Existing Electrical Services and Facilities

Seattle City Light is a City of Seattle-owned electrical utility. Its total service area covers approximately 131 square miles, including all of Seattle and some portions of incorporated and unincorporated King County to the north and south of Seattle city limits. Seattle City Light is both a retailer and wholesaler of electric power, providing single-phase service in all parts of its service area. Additionally, industrial (three-phase) service is available in some areas.

Seattle City Light generates 70 percent of the power it sells to retail customers from its own facilities. The largest facilities are the hydro-generating plants of the Skagit Project. Another smaller hydro-generating facility is the Cedar Falls Dam on the Cedar River. Seattle City Light also holds an eight percent interest in the Centralia coal-fired generating plants in southwest Washington, and purchases power from the Bonneville Power Administration (BPA).

Seattle City Light owns and maintains approximately 649 miles of transmission lines which transmit power from the Skagit and Cedar Falls generating facilities to 14 principal substations. High voltage transmission lines enter the city from both the north and south. These transmission lines connect with the 12 distribution substations within Seattle and two outside the city limits. Power is distributed from these principal stations via high voltage feeder lines to numerous smaller distribution substations or pole-mounted transformers. There are several Seattle City Light electrical distribution facilities within Shoreline, including:

- **Distribution Substations:** The Shoreline distribution substation (at ~~North N.~~ 165th Street and Meridian Avenue ~~North N.~~) is the principal station serving Shoreline. Distribution substations transform voltages of 115 kV or greater to lower voltages of 12 or 34 kV.
- **Transmission Lines:** 115 kV transmission lines generally connect substations, providing neighborhood-level electrical distribution. There are five 115 kV transmission lines serving the Shoreline area.

The substations use transformers to reduce the incoming high voltage to lower voltage. From these substations, 10 to 24 distribution lines (high voltage feeder lines) branch out and travel along every street in the service area. Small distribution substations or transformers on telephone poles further reduce the voltage to serve residential and small commercial customers.

The distribution system has three basic designs depending on the geographic area served: overhead, underground residential, and underground network service. The overhead system provides power to the majority of City Light customers. Transmission and distribution lines, whether above or below ground, generally use street rights-of-way (ROW).

### **Future Electrical Service and Facilities**

A site at ~~North N.~~ 185th Street and 10th Avenue ~~Northeast N.E.~~ has been selected and acquired as a site for a future City Light substation. City Light has reduced its projections of the number of small distribution substations that it will need in the future and additional substations in the Shoreline area are not planned at this time.

Seattle City Light has stated that there would be no limitation on service except as jurisdictions might impose on facility additions. Currently, the Shoreline substation has an existing capacity of 190,000 kilo-Watts and is at 83% of capacity. When the Shoreline substation becomes fully loaded or when overloaded feeders are in need of relief, capacity additions will be made.

### **Natural Gas Service**

Puget Sound Energy provides natural gas service to the residents of the City of Shoreline. The City maintains a franchise agreement with Puget Sound Energy through August 31, 2000. Figure U-6, at the end of this element, shows the PSE service area and major transmission lines.

### **Existing Natural Gas Service and Facilities**

Puget Sound Energy (formerly Washington Natural Gas, which recently merged with Puget Power) is a power and natural gas utility serving more than 400,000 gas customers in five Western Washington counties—Snohomish, King, Pierce, Thurston, and Lewis. Puget Sound Energy purchases gas from other regions and manages the distribution of natural gas to customers within its service area. This involves pressure regulation and the development and maintenance of distribution lines. The map of natural gas providers shows the general locations of natural gas facilities.

Natural gas is currently supplied to most areas within the City of Shoreline through 45 miles of natural gas mains. Gas flows through the system under high pressure in the main located along 5th Avenue ~~Northeast N.E.~~ (a map is located in the Capital Facilities Element). This pressure is reduced en route to individual services by a series of regulators which are self-controlled and adjust the supply of gas to compensate for varying load demand.

The types of natural gas service Puget Sound Energy provides in Shoreline are residential, commercial and industrial. As of February 1998, Puget Sound Energy had approximately 5,920 customers in the City of Shoreline. By its definition, a customer is a residence or building identified by an individual meter. An average household consumes (using natural gas for both heat and hot water) approximately 1,000 therms (100,000 cubic feet) of gas per year.

Natural gas is not defined as an essential service by the Washington State Utilities and Transportation Commission (WUTC); therefore, Puget Sound Energy is not required to provide services.

## **Future Natural Gas Services and Facilities**

Extension of service is based on individual requests and the results of a market analysis to determine if revenues from an extension will offset the cost of construction. Overall, Puget Sound Energy does not foresee any problems that would limit the supply of natural gas to the City of Shoreline in the future.

## **Telecommunications**

In general, telecommunications refers to the exchange of information over distance. While the term encompasses the media of telephone, television, cable and radio services, this element focuses primarily on telephone and cellular radio/telephone communications.

-Figure U-7, at the end of this element, shows the general locations of telephone and wireless communications facilities, as well as service areas.

### **Telephone**

Local telephone service in Shoreline is provided by US West on the east side, GTE Northwest on the west side, and Electric Lightwave which is franchised to serve in areas throughout Shoreline. The City has a franchise agreement with Electric Lightwave through June 2006. The City does not have franchise agreements yet with US West or GTE Northwest.

### **Existing Telephone Services and Facilities**

Central offices serve telephone customers as switching facilities. For local exchange or intra-LATA calls, the central office (CO) switches calls within and between line exchange groupings. These groupings are addressed uniquely by an area code and the first three digits of a phone number. The City of Shoreline is served by two COs: the US West CO located at ~~North N.~~ 145<sup>th</sup> Avenue and 15<sup>th</sup> Avenue ~~North N.E.~~ in Seattle and the GTE Richmond Beach office at ~~North N.~~ 185<sup>th</sup> Street and Linden Avenue ~~North N.~~ (a map is located in the Capital Facilities Element).

US West and GTE Northwest collectively provide telephone service to about 15,000 customers in the City of Shoreline. Of these 15,000 customers, 12,000 are residential and 3,000 are commercial. Because the COs (and the respective exchanges they serve) do not correspond with city boundaries, US West and GTE Northwest were not able to supply exact number of customers served in Shoreline.

US West and GTE Northwest do not provide estimates of local capacity due to the proprietary nature of this information. The capacity of each CO differs relative to the type of switch it houses. Each line grouping, which is identified by the area code and prefix, can carry up to 10,000 numbers.

### **Future Telephone Services and Facilities**

Advances in technology and the use of digital transmission allow US West and GTE Northwest to increase the capabilities in CO switches as demand grows. A 10,000-line grouping can be installed by adding circuit packs, line trunk capacity units, and distribution frame wiring which can be engineered and installed in 12 months. US

West and GTE telephone services are demand-derived and will increase as paying customers request.

Washington Utilities Trade Commission regulations require US West and GTE Northwest to provide adequate telecommunications service on demand, and Section 480-120-086 of the Washington Administrative Code requires US West and GTE Northwest to maintain adequate personnel and equipment to handle any reasonable demand and traffic. New technology such as multiplexing and digital transmission, cellular and fiber optic technologies are allowing dramatic advances in communication. Because US West and GTE Northwest provide service on demand, there are no limits to future capacity.

### **Cellular Communications**

~~Two~~ Three companies provide cellular service to the City of Shoreline: US West Communications' "New Vector Group", ~~and~~ AT&T Wireless Services, a division of AT&T, and Metricom.

### **Existing Cellular Services and Facilities**

The Federal Communications Commission (FCC) has divided geographic areas into regional cellular service areas. The FCC awards licenses to two cellular providers within each regional service area to maintain healthy competition. The entire market area within each service area must be serviced within five years of the FCC awarding the respective license. Apart from this general requirement, the FCC applies no level of service (LOS) standards to cellular activity.

Although the FCC regulates the cellular industry, it is not subject to the jurisdiction of the WUTC and is not required to develop any formal capital facilities plans for public review. Neither Metricom, US West nor AT&T Wireless Services would supply the number of customers served in Shoreline.

When demand warrants, additional capacity is supplied through the addition of transmission antennas. This approach has the effect of dividing larger cells into smaller cells. As with many other utilities, a cellular system grows according to increases in population density and higher volume transportation corridors. In addition, technical changes such as digital transmission will permit more voices to use the same channel and would allow each cell site to handle approximately three times as many calls as it can now.

The City has adopted an ordinance regulating wireless communication facilities. This is discussed further in the Interim Actions section of the Draft Environmental Impact Statement.

### **Future Cellular Service and Capacity**

Because of the small size of facilities (transmission antennas) and the fact that they can be located on top of buildings and do not require utility corridors, there are no significant limits to future capacity. The location of antennas are planned according to geographic and engineering constraints.



Capacity overload and consequent cellular system expansion is a response to several factors: an increase in the number of customers residing within a designated area; a shift in traffic volumes affecting cellular users; or a record of service inadequacies such as dropped calls or poor quality sound.

### **Cable Television Service**

Two cable television companies serve the City of Shoreline: TCI and Chambers. The City maintains franchise agreements with both companies. Figure U-8, at the end of this element, shows the service areas of local cable television service providers.

### **Existing Cable Television Services and Facilities**

Chambers Cable passes 11,593 homes in the City of Shoreline and provides cable service to 7,779 of these homes (October 1995). TCI cable serves approximately 25% of the Shoreline population, passing 6,700 homes in Shoreline, 4,351 of which subscribe.

Cumulatively, Chambers Cable and TCI Cable serve the entire Shoreline area except for a one-quarter-square mile area in the northeast quadrant. This area is comprised of Holyrood Cemetery and the Ballinger Commons apartment complex. Ballinger Commons management provides television services for its residents by satellite dish.

### **Future Cable Television Services and Facilities**

The demand for cable television is likely to continue to increase as population grows. At the same time, new technology will allow cable companies to provide more channel options to their customers. Most areas in Shoreline are served by cable television currently, but some new development may strain existing cable facilities.

### **Utility Issues**

#### **Uncertain Water Supply**

Seattle Public Utilities has decided to terminate contracts for water supply after the year 2015 to all water districts and cities which currently purchase water from the City of Seattle. This decision presents a significant challenge to secure adequate water to serve the needs of existing and future Shoreline residents not located within the Seattle Public Utility service area.

A group of water purveyors who are affected by this decision have formed the Interim Water Group (IWG) to address this issue. The City of Shoreline is not a member of the IWG because it is not a provider of water service; however, the Shoreline Water District is a member of the Interim Water Group because it currently contracts for water supply from Seattle Public Utilities and provides service to those portions of the City which are not served by Seattle Public Utilities.

It is the intent of the IWG to buy excess water capacity from the City of Seattle; however, in the event that this supply does not match anticipated demand, a

number of alternate strategies are being considered by this group to secure future water supply. These strategies include contracting with other regional water suppliers such as Everett or Tacoma, tapping into unused aquifer sources, drawing water from Lake Washington or using reclaimed water from a possible new regional wastewater treatment facility. In addition, water conservation and the re-use of water are additional methods which could extend the capacity of the water supply.

### **Inadequate Infrastructure**

There are numerous indications that sewer, water and stormwater facilities will need to be upgraded or replaced in parts of the community. In some cases, these improvements will be necessary because of the advanced age or condition of the pipes/facilities. In other situations, existing systems may be insufficient to meet desired service levels. For example, research indicates that several areas of the City have deficiencies with fire flow based upon accepted standards. This may require not only installation of new piping but also installation of new hydrants. In other areas, inflow and infiltration of the wastewater system results in capacity problems during significant storm events. Based upon numerous flooding incidents, there is a high demand for improved surface water facilities. In addition to improvements needed to correct or improve existing systems, new or expanded infrastructure may be needed to adequately serve areas where redevelopment is anticipated in coming years.

Except for surface water services, over which the City recently assumed direct control, the City is currently dependent upon the independent service providers to inventory and address these deficiencies. In many of these situations, steps are already being proactively taken by the providers to address infrastructure issues. For example, the Shoreline Wastewater Management District is in the fourth year of a ten-year program to address inflow and infiltration problems in the wastewater system. Where infrastructure deficiencies exist that are not currently being addressed, the City must find ways to encourage and ensure that these problems are comprehensively identified and addressed by all independent utility providers. In addition, the City must ensure that infrastructure will be available to serve future development.

For utilities that the City does not directly operate, service contracts or interlocal agreements can be used to guarantee the future provision of adequate infrastructure and corresponding service. The City has contracts or interlocal agreements with most providers although some service continue to be provided based upon historical service obligations (such as Seattle Public Utilities services). Without a service contract, the City has limited ability to address inadequate infrastructure if the provider does not intend to do so. In these situations, the City may have problems ensuring adequate infrastructure and the City may need to look to contract with a different provider or assume direct provision of service in order to ensure adequate infrastructure.

### **Equitable Funding**

Most utility services are financed by rates which the customers pay directly to the providers. In some cases, taxes are used to support services provided by public

entities. Seattle Public Utilities provides sewer and water service to portions of Shoreline and Seattle City Light provides electricity to the community. Utility taxes are collected by the City of Seattle for these services; however, Seattle's utility tax revenues go into Seattle's general fund and do not directly support the operation of the utility. The utility taxes Shoreline residents pay to Seattle Public Utilities do not directly help maintain infrastructure and provide service within Shoreline.

In several situations, such as water, sewer and cable service, utility rates paid by customers to different providers for similar service is significantly different. These rate differentials may be the result of different capital improvement programs or administrative systems.

### Frequent Flooding

Recent storm events have brought attention to multiple areas within the community that experience potentially damaging or dangerous surface water run-off. During 1996, the City of Shoreline Customer Response Team logged 128 calls regarding flooding of creeks or basins and this number rose to 156 during 1997. The City received an additional 33 flooding calls through April 1, 1998. These calls were scattered through all parts of the City and range from minor incidents to major flooding situations. During January 1997, the region experienced a major storm event resulting in severe flooding in many parts of the City. The most notable damage from this event was the wash out of the entire intersection of 6th Avenue ~~North~~North~~East~~N.W. and ~~North~~North~~N.W.~~N.W. 175th Street. Public input has strongly indicated a desire for improvements to the surface water infrastructure within the community in order to minimize future damage from localized flooding.

There are a number of issues for the community to face in addressing these surface water problems. Some relief may be available through greater on-site mitigation by requiring additional surface water retention capacity. In other cases, construction of new surface water facilities may be needed at significant cost. Methods chosen to address surface water problems will raise other issues such as aesthetics, environmental protection and water quality. For example, the use of swales are considered unaesthetic to some residents but can enhance water quality. In these situations, the community may have to clarify its needs and prioritize its value. The community will also need to address surface water impacts which affect wildlife including local and regional salmon runs. The proposed listing of the Puget Sound Chinook Salmon as threatened species may result in stricter standards for controlling run-off and water quality throughout the community.

### Environmental Impacts from Utility Improvements

When utility facilities are renovated, expanded or created they have an impact on the community. Several projects are being considered which could have an impact on the community. These include a potential new regional wastewater treatment plant and expansion of the regional solid waste transfer station. In addition, there have been a number of recent additions of transmission towers within the City which have had aesthetic impacts on neighborhoods. These projects raise questions about how the community addresses and mitigates utility facilities. The City relies upon SEPA to identify and address most impacts, however, the community may

consider additional approaches to mitigate the impact of utility facilities and infrastructure. The City Council's adoption of an undergrounding ordinance is an example of the community acting to address these concerns in an expanded manner.

### **Opportunities for Cooperation**

The utilization of multiple providers to serve the utility needs of the community raises a number of issues about coordination with the City and between service providers. Trenching activities can often be consolidated through coordination, reducing the cost and impact of these activities. In some cases, cooperative use of utility facilities can benefit the community. The use of the City Light right-of-way for a trail facility is an example of a potential beneficial cooperative arrangement.

### **Adequacy of Service**

The community has expressed a desire to maintain current levels of utility service. However, in several areas, concern has been expressed about the quality of current services and means to improve how these utilities are provided to the community. These concerns range from the unavailability of natural gas service to the quality of service for cable tv, telephone and cellular phones. A prime concern of community residents is the state of current storm water management. Public input consistently has indicated that residents are not satisfied with surface water management services. In response to these concerns, the City has assumed control of the surface water utility from King County as of April 1, 1998.

The City may face difficulties in assuring adequate services and facilities from providers the City does not directly control. This significant issue in the provision of essential services can be addressed through contracts or interlocal agreements with individual agencies for services or through direct provision of service (such as surface water management). Lack of needed infrastructure from these services may result in permitting delays or moratoriums if services are required for concurrency.

There are a number of ways that the community can promote improved levels of service in the future. The City may evaluate current providers to determine if alternate providers or direct provision may be appropriate measures to achieve service standards desired by local residents. Service contracts, interlocal agreements, assumption of service or other measures may be needed in order to assure that services will be available to serve planned growth and meet concurrency requirements.

### **Goals and Policies**

The policies provide direction for the siting of new utility facilities and appropriate mitigation of these facilities. Public health, safety and environmental quality are important community priorities, and the policies identify ways to meet these priorities in the provision of utility services. The policies support efficiency in the delivery of utility service and look for co-location and coordination as possible approaches to achieve increased efficiency. The policies also support exploration of alternate providers in order to meet the communities' priorities.

## **General Utility Policies**

The general utility policies highlight overall strategies for the community to address issues such as levels of service, consistency, coordination, mitigation of new or expanded facilities, efficiency, funding and governance.

### **Goal U 1: To promote city-wide utility services that are:**

- **consistent,**
- **high quality,**
- **equitable,**
- **responsive,**
- **forward looking, and**
- **efficient.**

### **Policies**

#### **Level of Service**

- U1:** Promote the provision of utility services city-wide that meet service levels established in the Capital Facilities Element at reasonable rates.
- U2:** Investigate alternative service provision options that may be more effective at achieving these service standards or in meeting other policy goals found in the Comprehensive Plan.
- U3:** Promote the timely provision of the full range of utilities at designated service levels in commercial and mixed use areas in order to serve existing businesses and promote further economic development.
- U4:** Support the timely expansion, maintenance and replacement of utility infrastructure at designated service levels in order to match and meet expected demand for service.

#### **Consistency and Coordination**

- U5:** Promote the development, maintenance and operation of all utilities in a manner consistent with:
- existing and anticipated development,
  - adopted growth targets, and
  - the land use plan.
- U6:** Process permits for utility facilities in a consistent and timely manner.
- U7:** Coordinate with other jurisdictions and governmental entities in the planning and implementation of multi-jurisdictional utility facility additions and improvements.
- U8:** Ensure that utility related planning efforts by the City are consistent with public service obligations imposed upon utilities by Federal and State law.

**Goal U II: Support environmentally and locationally sensitive, energy efficient, aesthetic development and demand management strategies in order to enhance the capacity of utility systems.**

## **Policies**

### **Mitigation and Efficiency**

- U9:** Encourage the design, siting, construction, operation, and ~~decommissioning~~ relocation or closure of all utility systems in a manner which are:
- is cost effective,
  - minimize and mitigate impacts on adjacent land uses,
  - is environmentally sensitive,
  - is appropriate to the location and need.
- U10:** Encourage the co-location or joint use of trenches, conduits, or poles so that utilities may encourage expansion, maintenance, undergrounding and upgrading facilities with the least amount of disruption.
- U11:** Monitor and support technological advances which:
- provide direct benefit the community,
  - enhance the capacity and delivery of utility systems,
  - are consistent with the comprehensive plan.
- U12:** Investigate water reuse opportunities that:
- may diminish impacts on water, wastewater and surface water systems,
  - promote the conservation or improvement of natural systems.
- U13:** Encourage the use of ecologically sound site design in ways which enhance the provision of utility services through measures such as:
- promoting the use of drought tolerant vegetation in landscaping to reduce water consumption,
  - using native vegetation in places such as natural or buffer areas to reduce surface water or wetland impacts,
  - promoting solar orientation on site to reduce energy consumption,
  - reducing impervious surfaces or excessive run-off to maintain natural drainage systems,
  - encouraging tree retention to prevent erosion, provide wildlife habitat, etc.

## **Specific Utilities**

The utility policies apply to 9 separate utility services. In addition, the community has 18 unique providers of these utility services. The policies relating to specific utility services are intended to provide guidance for issues that are specific to each utility and clarify the community's expectations to the provider's of these services. These policies set high standards for levels of service in the community and look for high quality, reasonable costs and efficient service.

**Goal U III: To facilitate the provision of appropriate, reliable utility services whether through City owned and operated services or other providers.**

**Policies**

**City Managed Utilities – Surface Water**

- U14:** Resolve long standing flooding impacts, prevent new flooding impacts and ensure adequate surface water services for existing and anticipated development at service levels designated by the Capital Facilities Element.
- U15:** Design, locate and construct surface water facilities to
- promote water quality,
  - enhance public safety,
  - preserve and enhance natural habitat,
  - protect environmentally sensitive areas, and
  - reasonably minimize significant, individual and cumulative adverse impacts to the environment.

**Non-City Managed Utilities – Water and Wastewater**

- U16:** Support efforts which will ensure adequate water supply and wastewater treatment capacity for existing and anticipated development at service levels designated by the Capital Facilities Element.
- U17:** Support efforts which will correct existing water and wastewater system deficiencies where deficiencies exist and ensure adequate infrastructure and services for all areas of the City.
- U18:** Fully investigate the ramifications of siting a regional wastewater treatment facility in the Shoreline area and at other alternative sites outside of the Shoreline area in order to assess the costs, benefits and impacts of each alternative on
- the region,
  - the community,
  - adjacent areas, and
  - the adjoining neighborhood.
- U19:** Ensure appropriate mitigation for both the community and adjacent areas if Shoreline is chosen as the site for a regional wastewater facility.
- U20:** Support local efforts to minimize inflow and infiltration and reduce excessive discharge of surface water into wastewater systems in order to
- reduce impacts on the wastewater system, and
  - enhance wastewater system capacity.

**Non-City Managed Utilities – Solid Waste**

- U21:** Monitor solid waste collection providers for adequacy of service and compliance with service contracts.

- U22:** Support recycling efforts throughout the community.
- U23:** Investigate improvements to regional solid waste facilities in the Shoreline area and alternative sites in other areas in order to fully assess the costs, benefits and reduce impacts of each alternative on
- the region,
  - the community, and
  - adjacent areas.
- U24:** Ensure appropriate mitigation of regional solid waste facilities for both the community and adjacent areas.

**Non-City Managed Utilities - Electricity**

- U25:** Promote the co-use of Utility corridors for recreational facilities where appropriate.
- U26:** Mitigate the aesthetic impacts of high voltage utility corridors and sub-stations within the community.
- U27:** Promote the gradual undergrounding of electrical systems throughout the community with an emphasis on undergrounding new wires in commercial areas. Costs of undergrounding should be equitably allocated between one or more of the following;
- ratepayers,
  - taxpayers, and
  - property owners.

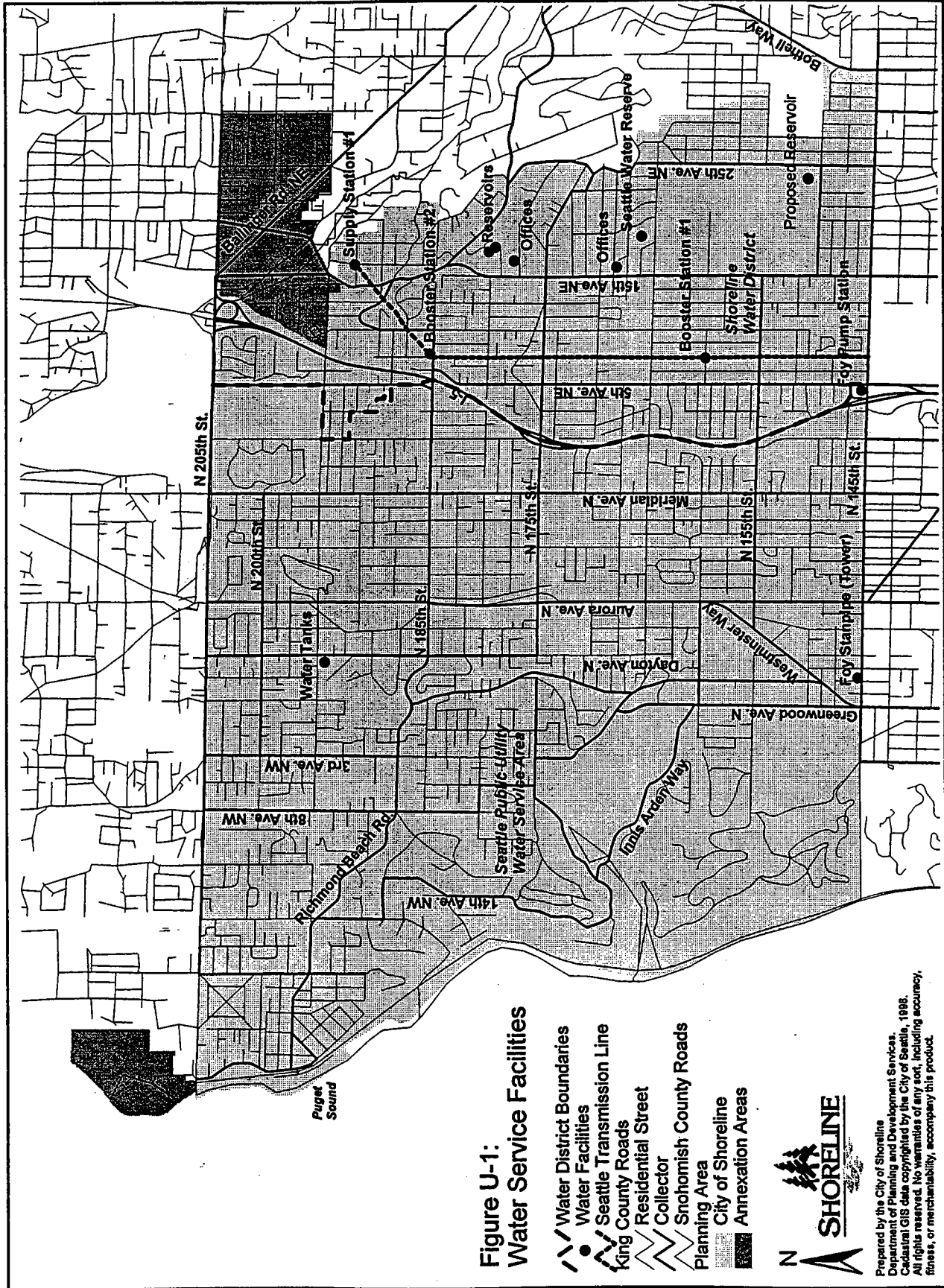
**Private Non-City Utilities — Telecommunications and Natural Gas**

- U28:** Explore strategies which minimize or reduce the impacts of telecommunication facilities and towers on the community.
- U29:** Promote the gradual undergrounding of telecommunication wires in coordination with and in a manner consistent with the undergrounding of electrical systems.
- U30:** Support the provision of high quality cable television service throughout the community.
- U31:** Promote opportunities for distance learning and telecommuting in coordination with telecommunication and cable television providers.
- U32:** Cooperate with private natural gas utilities in logical service improvements and expansion throughout the community.
- U33:** Support the eventual provision of full coverage of natural gas services.



- U34:** Encourage and work with telecommunication providers to develop fiber optic cable networks and other emerging technologies and increase interconnectivity between different networks.
- U35:** Work with utility companies and public institutions to develop a full range of community information services, available to citizens and businesses through the telecommunication network.

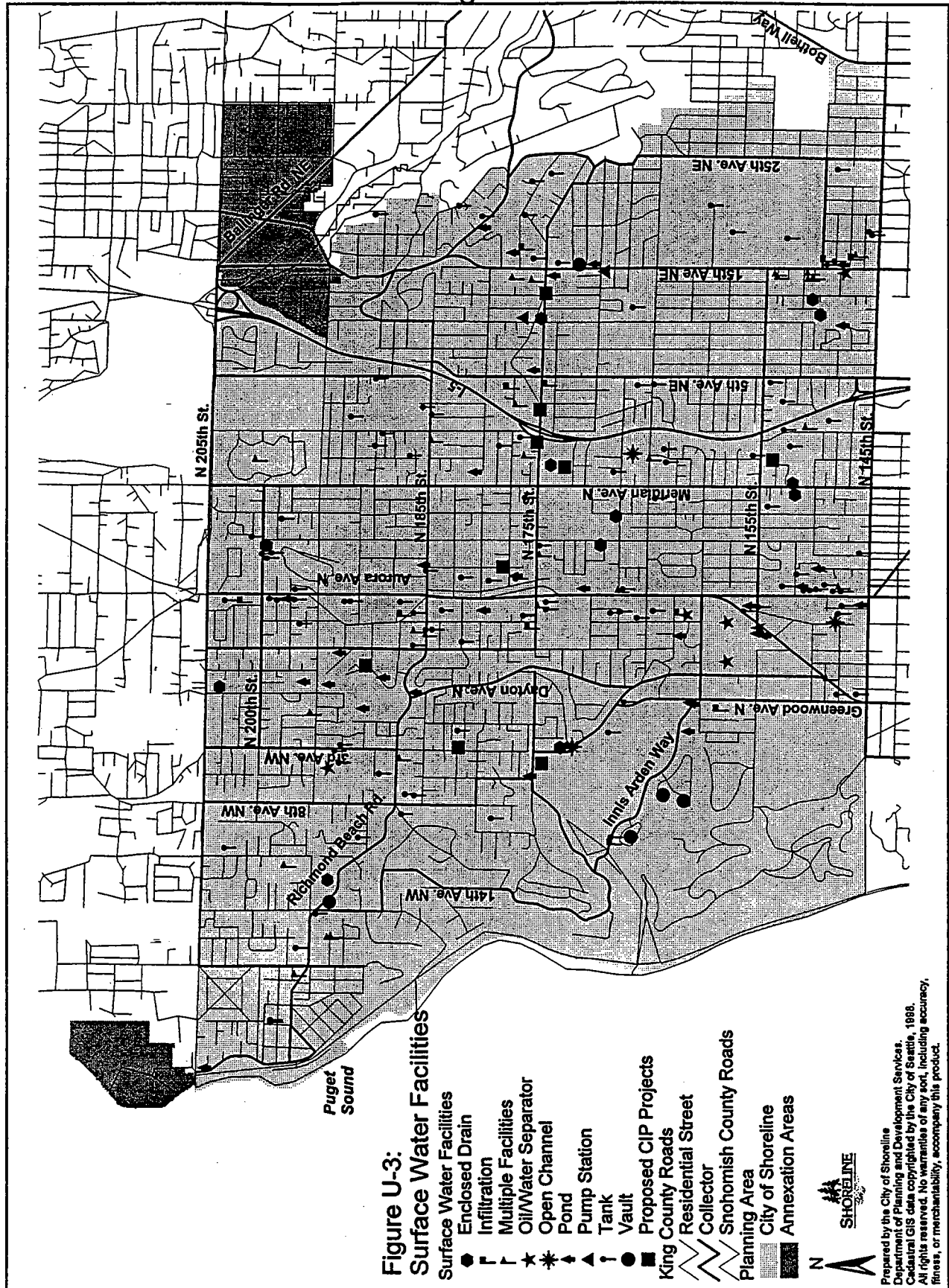
Figure U-1: Water Service Facilities



### Figure U-2: Wastewater Facilities



### Figure U-3: Surface Water Facilities



**Figure U-4:  
Solid Waste Facilities**





Figure U-5: Electrical Service Facilities

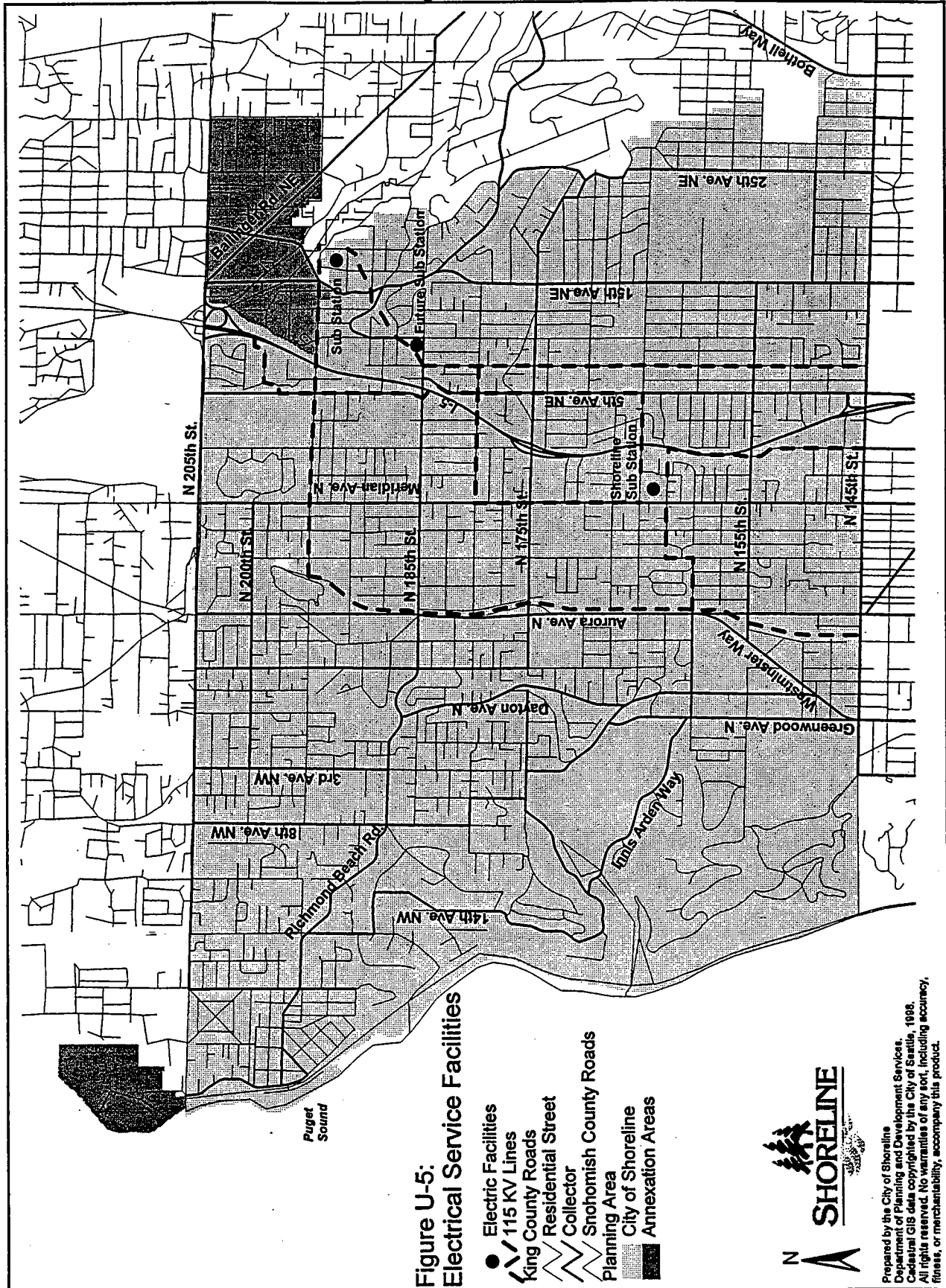


Figure U-6: Natural Gas Facilities

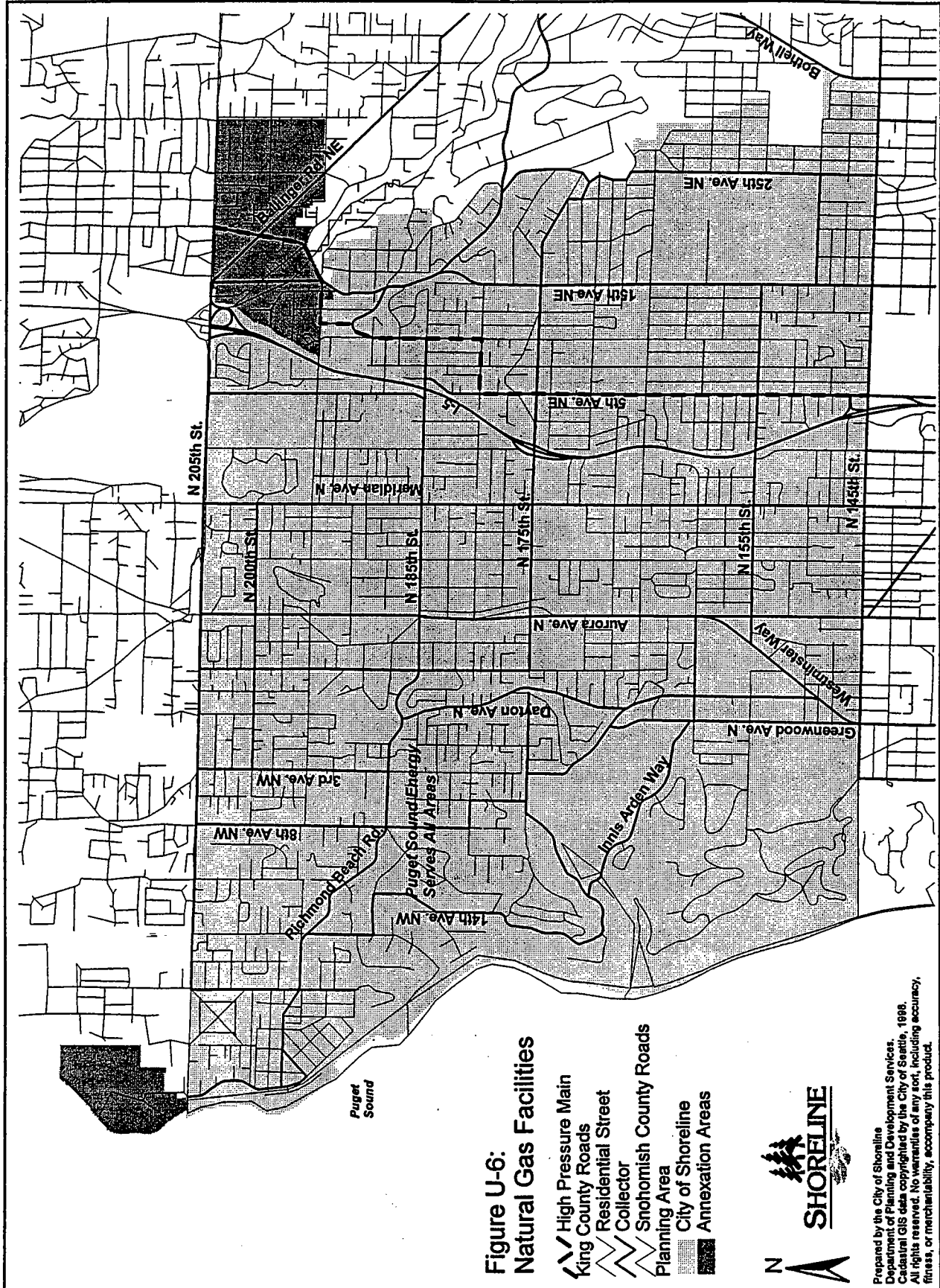


Figure U-7: Telephone and Wireless Communications Facilities

