3.22 Utilities

3.22.1 Affected Environment

Current Plan Area

Natural Gas

Puget Sound Energy, Inc. (PSE), supplies natural gas to six Washington counties—Snohomish, King, Pierce, Thurston, Lewis, and Kittitas. PSE is an investor-owned natural gas and electric utility. As of July 2009, PSE supplied natural gas to 750,000 customers, 141,666 of which reside in Pierce County. Natural gas is not considered an essential service, and therefore, PSE is not mandated to serve natural gas customers as they are electric customers within their service territory. Extension of natural gas service is based on customer request and the results of a market analysis to determine if revenues from an extension will offset the cost of construction. Although natural gas is a fuel of choice, most new residential construction includes natural gas when and where available.

Facilities and Services

The Williams Pipeline Corporation (Williams) supplies natural gas to the entire Puget Sound region. Williams' system within Washington is primarily two large pipelines (26-inch and 30-inch), which roughly follow the I-5 corridor in the state. However, locally these pipelines cross through the southern and eastern extremities of the Sumner city limits, as well as the eastern part of the Sumer UGA. Figure 3.22-1 generally depicts the location of natural gas facilities. Natural gas is supplied from Williams to PSE as a colorless and odorless gas. PSE adds a powerful odorant, typically mercaptan, for safety purposes. Natural gas is delivered through Williams' pipelines at relatively high pressure, up to 1,000 pounds per square inch (psi). Natural gas is delivered to the residential customer, through a series of pressure-reducing stages, at a pressure of from 0.25 to 2 psi. The natural gas delivery system is as follows:

- **Transmission mains.** Supply from Williams to PSE at 300 to 800 psi.
- **Gate stations.** Delivery point of the natural gas to PSE. Gate stations include meters, odorizer and pressure regulators, which reduce the pressure to less than 250 psi. The North Tacoma Gate Station is located within the Dieringer area of the current plan area.
- **Supply mains.** PSE's supply mains transport natural gas to district regulators throughout PSE's service territory. These supply mains vary in size from 4 inches to 20 inches and generally supply natural gas at a pressure of up to 250 psi. Supply mains are generally located within rights-of-way.
- **Limiting stations.** A limiting station reduces the pressure along a supply main system, generally in the range of from 60 to 200 psi. A supply main located downstream of a limiting station is referred to as a limited supply main.
- **District regulators.** District regulators are pressure-regulating stations that supply natural gas to the local distribution system at intermediate pressure), which normally ranges from 20 to 60 psi. Distribution mains range in size from 2-inch to 12-inch. District regulators are generally

located in an easement adjacent to rights-of-way, while intermediate pressure mains are generally located in rights of way.

The Washington Utilities and Transportation Commission (WUTC) regulates PSE within Washington. The WUTC reviews, approves, and monitors the rates and charges as well as the facilities and operating practices of PSE's natural gas system. The WUTC requires PSE to demonstrate that existing ratepayers are not subsidizing new customer growth. Thus, historically natural gas main extensions are not planned in advance in anticipation of new growth, but only initiated to keep up with existing demand.

The North Tacoma Gate Station supplies natural gas to the current plan area as part of a natural gas supply system that serves most of northern Pierce County, southern King County, and the Gig Harbor Peninsula. Supply and distribution mains supply natural gas to most of the current plan area. PSE's records indicate that, as of June 2010, there were approximately 2,500 natural gas customers within the city limits.

If the City grows at a rate consistent with current projections, then PSE estimates that there will be approximately 3,200 residential and commercial customers within the city limits by the year 2024. PSE's long range planning group continually performs load and growth analysis to determine PSE's capacity to serve its existing customers, and to prioritize system capital improvements. The capacity of the existing distribution system can be increased as required by one or more of the following:

- Increase distribution and supply pressures in existing lines.
- Add new distribution and supply mains for reinforcement.
- Increase existing distribution system capacity by replacement with larger sized pipes.
- Add more district regulators for supply mains to provide additional capacity.
- Loop the distribution mains to provide an alternate route for natural gas supply.

Electricity

PSE provides electrical service to more than 1,000,000 residential, commercial, and industrial customers within a nine-county, 6,000-square-mile service territory in western Washington. As of February 2010, PSE served 107,936 customers in Pierce County. To provide reliable service, PSE builds, operates, and maintains an extensive electrical system consisting of generating plants, transmission lines, substations, and distribution systems. PSE is regulated by WUTC and is obligated to serve its customers subject to WUTC rates and tariffs.

Existing System and Facilities

There are two main access points for receiving power in Pierce County: White (Stuck) River 230-/115-kilovolt (kV) Transmission Station located east of the city limits; and at PSE's Frederickson Generation station located in the Frederickson Industrial area of Pierce County. A third access point from St. Clair switching station near the Thurston/Pierce County line provides a major tie between Pierce and Thurston Counties.

The existing electrical system serving the current plan area is depicted in Figure 3.22-1 and summarized below.

Transmission Substations

- The White (Stuck) River Transmission Station (immediately east of the city limits)
- Alderton Transmission Station (in Alderton)

Distribution Substations

- Sumner
- Gardella
- Dieringer

Transmission Lines (115kV)

- White River—Alderton # 2
- White River—Alderton #3
- White River—Alderton #4
- White River—Boeing Auburn
- White River—O'Brien
- White River—Starwood

Existing Capacity

The power utilization factor of all distribution substations serving the current plan area is at 90%. The utilization factor is a comparison of current peak system load (during the winter heating season), divided by the design capacity of the substations in the area. The following table illustrates the capacity versus peak winter loads for the City's distribution substations.

Table 3.22-1. Existing Capacity of Puget Sound Energy Electrical Utilities (Mega Volt Amperes)

Distribution Substations	Capacity	Winter Load (Dec 09, 2009)
Sumner	20	19.82
Dieringer	25	29.03
Gardella	25	20.12
Total	70	68.97

Source: Markos pers. comm.

The electrical system can be expanded as the area load develops. The timing of future construction is largely dependent on the development growth of an area, and the associated increase in electric demand (load), as well as facility maintenance requirements, reliability related improvements, or system replacement needs.

Projected Needed Capacity

PSE's *2019 Electrical Facilities Plan* for all of Pierce County predicts a projected load level in mega volt amperes (MVAs) of 515 megawatts (MW). This represents a growth of about 30 MVA from the current 2009 peak load levels for the entire County of 485 MVA, or approximately 0.62% per year. PSE's long-range plans for the current plan area are based on electrical growth projections anticipated in future years. Projected load is calculated as the existing load, minus conservation

reductions, minus demand-side management, plus the forecast of new load. PSE projects that the number of customers in Pierce County will increase to 124,743 by 2019, an average growth rate of 1.4% per year.

The population and employment forecasts are based on a regional economic and demographic model and then allocated into each of the counties within the service territory. The regional forecasts account for the latest assumption about the national economy and reflect the historical structure of employment and population within each county as well as their recent growth patterns. The historical population data by county is based on the State of Washington Office of Financial Management projections, while the employment data is based on the State Employment Security Department's monthly reports. The projection of these inputs together with the company's projections of conservation, retail rates and any known short term large load additions or deletions form the company's forecast of energy and peak loads.

Future Proposed System

PSE has identified system and transmission improvements required to serve the forecasted load growth in Pierce County. Many improvements are in progress; others have been identified as future improvements to meet the growth demand. These improvements are intended to meet the growth and reliability demands for the current plan area, as well as other portions of Pierce County.

System improvements in progress include the following:

- **White River 230-kV transmission substation improvements.** Construction of this project is currently in progress and is expected to be completed in late 2010. This project reinforces the bulk power delivery into Pierce County and sets the stage for a major 230-kV capacity addition at Alderton transmission substation.
- **Alderton 230-kV development.** Pierce County will need a major upgrade of bulk power delivery system in the near future. The project will involve construction of a 8-10 Miles of new 230 kV transmission line between White River Transmission Station near Lake Tapps and Alderton Transmission Station located near SR 162 & Military Road; and development of the 230 kV switch yard in Alderton Station. The 230 kV transmission route for this project is currently under review. It includes the initial plan to upgrade the existing de-energized transmission line that runs through the city of Sumner. The current planned in-service date for this project is 2012.
- **Electron Heights transmission loop into Alderton along the White (Stuck) River.** These improvements will provide a transmission route from the Bonney Lake area into the Alderton Transmission Station and from the Rhodes Lake area also into Alderton Transmission Station. The benefit to Sumner is increased capacity and reliability of the electric transmission delivery system for serving Sumner's electric uses. The current planned in-service date for this project is 2012.
- **Woodland–St. Clair 115-kV transmission project.** This project involves an upgrade of Woodland Substation in Puyallup and rebuilding of about 15 miles of an existing de-energized transmission line between Woodland substation and Gravelly Lake substation in Lakewood. This project is intended to improve transmission reliability in the Sumner/Puyallup area including increased transmission intertie capacity between Pierce and Thurston counties.

Future improvements with in-service dates beyond 2015 include the following:

- Pioneer transmission switching station;
- Frederickson-Woodland 115 kV transmission line; and
- Frederickson-Alderton 115/230 kV transmission line.

Future distribution substations are also planned at the following locations:

- **Lakeland Hills Substation.** A new distribution substation is planned near the White River transmission station. This substation will serve customers west and north of Lake Tapps freeing up capacity at the existing Dieringer Substation to serve the Sumner Valley. This substation is projected to be required in 2016.
- **Kelley Substation.** An additional electric distribution substation is planned to be located within the SR 410 corridor connecting Sumner and Bonney Lake. PSE has not identified a location for this substation to date, but it is anticipated that this substation will serve PSE customers in the cities of Sumner, Bonney Lake, and unincorporated Pierce County. This substation is currently projected to be in-service in 2017 (Markos pers. comm.).

Telecommunications

Telecommunications consist of telephone service, personal wireless, cable video, and high-speed data services. In the current plan area, home phone service and internet via a digital subscriber line (DSL) is provided by Qwest. There are four cellular towers and one private radio tower installed within the city limits. Comcast provides cable television and high speed internet services.

Existing Facilities—Telephone

Qwest Communications is a private for-profit corporation providing voice, video and data services to more than 25 million customers. Qwest offers regulated and non-regulated telecommunications services pursuant to Washington State Law to Washington communities including the current plan area and surrounding communities. The WUTC promulgates the regulations governing regulated telecommunications services. Telecommunications regulations are codified in the Washington Administrative Code (WAC 480-120). Qwest is also subject to various federal laws and regulations, administered by the Federal Communications Commission (FCC). Local laws and rules may also exist which regulate land use, public rights-of-way and other issues.

Qwest Communications and its predecessors have provided telecommunications services in Washington communities for over 100 years. Various kinds of facilities are located throughout the state. Telephone facilities are not necessarily located near the served customers. Many of Qwest's facilities, including aerial and underground lines, are co-located with those of electric power providers. Individual facilities may serve purely local and/or regional or distant customers. Figure 3.22-2 depicts the location of existing Qwest facilities in the current plan area. Distribution of telephone service is facilitated through a local exchange area, served by a Central Office, which contains various types of switching equipment. From a Central Office, there are typically four main cable routes extending relatively north, south, east, and west. From each main cable route are branch feeder routes. Major routes tend to be located along major rail and street rights-of-way. These facilities may be aerial (utility poles) or buried, copper or fiber. Extending from the branch feeder routes are thousands of local loops that provide dial tone to every telephone subscriber. Local lines can be used for voice or data transmission. Not every customer is serviced by a pair of

wires between their home or business and the Central Office. Qwest's facilities can provide multiple voice/data paths over a single wire.

Sprint also has a fiber optic line within the city limits. This fiber optic line runs along the Burlington Northern Santa Fe Railroad right-of-way, with a major spur within the city limits branching off to Tacoma. See Figure 3.22-2 for the approximate location.

Services

The WUTC requires Qwest to provide adequate telecommunications services on demand. Qwest will provide facilities to accommodate growth as it occurs. Qwest construction planning is driven by the needs of its customers. As communities grow, facilities are upgraded to ensure adequate service levels. To comply with state law, Qwest regularly evaluates the capacity of outside plant facilities. Facilities are also upgraded as technological advances occur and can be made available. Regulations, which address Qwest's response to growth in its service territories, include adequate personnel, equipment, line extension policies, underground utilities, and other issues.

Existing Facilities—Cellular and Radio Towers

There are four cellular towers located within city limits: two in the East Sumner neighborhood, one in the northern industrial area, and one near Zehnder Street. A private radio tower is located near East Valley Highway, north of 24th Street.

Electromagnetic Fields

Electric and magnetic fields (EMF) exist in nature as well as around all types of electrical devices. The electric and magnetic fields around electrical appliances and power lines fall within the extremely low frequency (ELF) range. The Telecommunications Act of 1996 and the FCC regulate the emissions of electromagnetic radiation from cellular facilities by setting thresholds for acceptable levels of radiation. Consistent with federal requirements, the City's development code requires that applicants provide verification from a licensed engineer documenting that acceptable levels are not exceeded. The federal government administers the Telecommunications Act, and cities do not have the authority to interfere with or override the standards required by the federal government. Provided an applicant demonstrates that the required thresholds have been met, the City cannot impose any additional requirements.

Transmission lines, like all electric devices and equipment, produce EMF. Current, the flow of electric charge in a wire, produces the magnetic field. Voltage, the force that drives the current, is the source of the electric field. The strength of EMFs depends on the design of the line and on distance from the line. Field strength decreases rapidly with distance. Electric and magnetic fields are found around any electrical wiring, including household wiring and electrical appliances and equipment. (Bonneville Power Administration 2009)

Orton Junction Expansion Area

Natural Gas

PSE provides natural gas service to a large area in northwest Pierce County. Infrastructure and service availability in the Orton Junction expansion area are the same as within the current plan

area. For a description of natural gas services and facilities in the Orton Junction area, see the description of affected environment for the current plan area.

Electricity

PSE provides electric service to a large area in northwest Pierce County. Infrastructure and service availability in the Orton Junction expansion area are the same as within the current plan area. For a description of electric services and facilities in the Orton Junction area, see the description of affected environment for the current plan area.

Telecommunications

Telecommunications services in Pierce County are provided on a regional basis, and the same services are available in the Orton Junction expansion area as within the current plan area. For a description of telecommunications services and facilities in the Orton Junction area, see the description of affected environment for the current plan area.

Electromagnetic Fields

Electromagnetic field conditions in the Orton Junction expansion area are similar to those for the current plan area.

East Hill Reduction Area

Natural Gas

The East Hill reduction area currently lies within the Sumner UGA boundary. As such, the natural gas services and facilities available would be the same as described for the current plan area.

Electricity

The East Hill reduction area currently lies within the Sumner UGA boundary. As such, the electric services and facilities available would be the same as described for the current plan area.

Telecommunications

The East Hill reduction area currently lies within the Sumner UGA boundary. As such, the telecommunications services and facilities available would be the same as described for the current plan area.

Electromagnetic Fields

Electromagnetic field conditions in the East Hill reduction area are similar to those for the current plan area.

3.22.2 Impacts

Impacts Common to All Alternatives

Population growth under any of the alternatives will result in increased demand for utility services. However, the alternatives differ with regard to the location and magnitude of increased demand and are discussed in detail below.

Impacts Specific to the UGA Expansion (Orton Junction) Alternative

Development in the Orton Junction expansion area is currently primarily agricultural and low-density residential in nature. Additional residential and commercial development that would be allowed under the UGA Expansion Alternative would require the extension of electric, natural gas, and telecommunications connections to serve new homes and businesses.

Electricity and Natural Gas

Under WUTC rules, PSE is required to provide electric service to support growth within its service area. In the current plan area, PSE has identified the transmission lines along Valley Avenue and East Valley Highway for future upgrades, with schedule to be dictated by growth rates. While natural gas is not a basic utility, and service is driven by customer request, PSE has indicated that they have sufficient natural gas infrastructure in the area surrounding Sumner, and that extending services to the Orton Junction expansion area would be a relatively simple process (Payne pers. comm.).

Although the UGA Expansion Alternative would result in increased demand for electricity and natural gas services, this increase is not significant in the regional context in which PSE plans for growth, and planned facility improvements in the Sumner area should be adequate to accommodate increased demand.

Telecommunications

Similar to PSE, Qwest is regulated by the WUTC to provide adequate telecommunications services on demand. As a regional provider, Qwest continually monitors customer requests for service and countywide growth projections to appropriately plan future service extensions and facility upgrades. Although the UGA Expansion Alternative would result in increased demand for telecommunications services, this increase is not significant in the regional context in which Qwest plans for growth, and planned facility improvements in the Sumner area should be adequate to accommodate increased demand.

Impacts Specific to the UGA Modification Alternative

The East Hill reduction area is predominantly residential. As such, the infrastructure for electric, natural gas, and telecommunications services is already in place. Removal of this area from the Sumner UGA would limit the amount and density of development that could occur in this area in the future. Thus, future requests for new service from this area would remain low, and additional infrastructure would not be necessary.

In the Orton Junction expansion area, impacts would be similar to under the UGA Expansion Alternative, though to a lesser degree, because the UGA Modification Alternative does not include a residential development component.

Impacts Specific to the No Action Alternative

Under the No Action Alternative, the study area would develop as currently allowed under City of Sumner and Pierce County development regulations, and extension of utility services would be in accordance with current provider plans. No significant adverse impacts on utility services are anticipated under the No Action Alternative.

3.22.3 Mitigation Measures

Incorporated Plan Features

- The *City of Sumner Comprehensive Plan* (2009) includes a Utilities Element that guides coordination between the City and service providers. All alternatives would retain this element.

Applicable Regulations and Commitments

- Puget Sound Energy reviews research regularly and considers EMF through the following actions (PSE 2010):
  - Providing magnetic field measurements upon request in homes.
  - Following all applicable federal, state, county and city rules, regulations and standards when constructing power facilities for the safe and reliable delivery of electric service.
  - Remaining informed about important developments in EMF research.
  - Sharing accurate and objective information about EMF with PSE customers.
- Federal and state energy regulations, as promulgated by the Washington Utilities and Transportation Commission would apply to future development under all alternatives, including RCW 80.28.110, which requires all gas, electric, and water companies engaged in public sale of these utilities to provide reasonable service to all customers in their service areas.
- The City should continue to implement the Washington State Energy Code.

Other Potential Mitigation Measures

- Consistent with City policies, the City should provide annual updated population, employment, and development projections to Puget Sound Energy so they can evaluate actual patterns and rates of growth, and compare these patterns to electrical demand forecasts.
- The City could coordinate and cooperate with other jurisdictions in the implementation of multi-jurisdictional electric utility facility additions and improvements.

3.22.4 Significant Unavoidable Adverse Impacts

Additional population and employment growth will increase the demand for electricity, natural gas, and telecommunication services. The City's coordination with service providers along with mitigation measures should allow for increased demand to be met. Significant, unavoidable, adverse impacts are not anticipated.

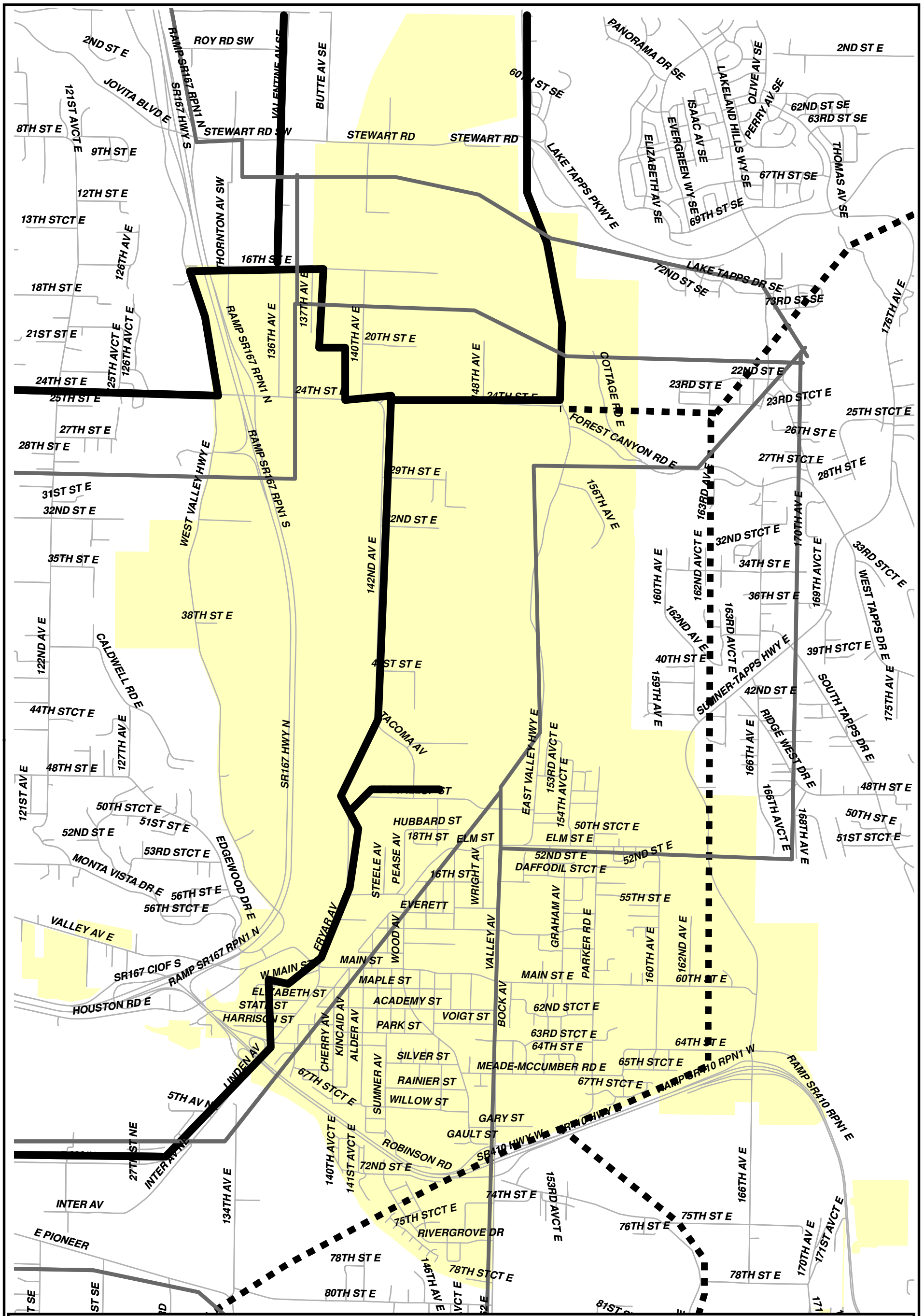

Figure 3.22-1 ***Natural Gas & Electrical Facilities***

Qwest Exchange Building

Comprehensive Plan Update and Amendments
Environmental Impact Statement

LEGEND:

Sprint Telephone Main Lines

Sumner City Limits

Qwest Telephone Facilities

Main Feeder Route

Branch Feeder Route

Primary of Feed

Subdivision of Feed

DISCLAIMER:
This Map is Intended for Planning Purposes Only.

Source: City of Sumner Community Development Department

Figure 3.22-2 ***Telephone Facilities***