# UTILITIES ELEMENT

## I. INTRODUCTION

### 1. Growth Management Act Requirements

The Growth Management Act (GMA) requires jurisdictions to prepare a utilities element that addresses "the general location, proposed location and capacity of all existing and proposed utilities, including, but not limited to, electrical lines, telecommunications lines, and natural gas lines."

### 2. Purpose of Utilities Element

The Utilities Element inventories the general location of existing and proposed utilities, and analyzes the capacity to serve planned land uses. The GMA defines utilities as integrated facility systems that serve the public by means of a network of wires or pipes, and ancillary structures. Included are systems for the delivery of natural gas, electricity, and telecommunications services, water systems, and sewage disposal.

Utilities are distinguished from other capital facilities as being essential services necessary to supporting basic life needs. The high cost of utility infrastructure necessary to deliver the utility service limits competition. Residents pay a fee for utility services while other capital facility services such as police and fire protection are funded by the whole community through taxes.

Water supply, sanitary sewers and storm sewers may also be considered as "public facilities" and the Growth Management Act requires that jurisdictions consider the capital improvement aspect of these utilities in the Capital Facilities element. Accordingly, the Capital Facilities Element provides level of service standards, projects capital facility needs and includes utility capital improvements in the 6 year Capital Facilities Plan.

Utilities are either publicly or privately owned. Private utilities are regulated by a variety of entities. The natural gas and telephone utilities are regulated by the Washington Utilities and Transportation Commission, cellular telephone communication companies are licensed by the Federal Communication Commission.

The planning of utility services is primarily the responsibility of the utility providers. However, the City will incorporate utility plans into its comprehensive planning efforts in order to coordinate the quality and delivery of services with anticipated patterns of land use. It may also assist utility providers in identifying ways of improving services provided in the City. The information included in this element will assist in ensuring the orderly and efficient provision of utility services to the City and in the City Planning or Sphere of Influence Area (UGA).

The following utilities are addressed in this Element:

1. Water Supply;
2. Sanitary Sewer;
3. Stormwater and Drainage;
4. Electricity;
5. Natural Gas; and
6. Telecommunication System.

Figures or maps showing the locations of utilities are included in appropriate sections of this Element. The maps are simplified to show only major facilities. More detailed and updated maps of the utilities are available with the City of Brier.

## II. EXISTING CONDITIONS

### 1. Water Supply

The City of Brier is provided with municipal water supply by the Alderwood Water District. The Alderwood Water District service area encompasses approximately 60 square miles. Alderwood Water District is responsible for constructing, repairing, maintaining and servicing water lines as well as providing potable water to the City's residents, as established by Ordinance No. 336.

Alderwood Water District purchases treated water from the City of Everett. The City of Everett water supply originates in Spada Lake in the Sultan Basin and is "preset" in Lake Chaplan after passing through Snohomish County PUD's water power generating system. In August of 1983 the City of Everett completed a 100 million gallon per day water treatment plant, which is planned to have sufficient capacity to meet the water needs of its supply area until approximately the year 2000. When additional supply becomes necessary, the plant's treatment capacity can be expanded to 160 million gallons per day, meeting projected water demand well into the future (Byron, 1986). Alderwood Water District operates 2 pump stations in Everett, with a total capacity to pump 31 million gallons per day.

Alderwood Water District has 3 water storage reservoirs that serve Brier. The reservoirs are all located at 156$^{th}$ Street SW and 36$^{th}$ Street W. in Lynnwood. The three reservoirs have a combined storage capacity for 88 million gallons. The entire City of Brier is within the 635 foot pressure zone.

The Water mains that serve the City are mapped on Figure 1. The City and Alderwood Water District maintain more detailed and updated maps of water system facilities.

Alderwood Water District estimates there are approximately 1,974 water service connections in the City of Brier, as of November, 1993 (more current data was not available from AWD for 1998). The average daily demand per connection is 210 gallons, which equals an average daily demand for the city of approximately 414,540 gallons. The peak daily demand per connection is 475 gallons, which would result in a peak city-wide demand of approximately 937,650 gallons.

Brier's population projection for the planning period (year 2012) is 7,200 persons, or 2,400 households (7,200/3/0 persons per household = 2,400 households). This would result in an average city-wide daily demand for 504,000 gallons, and a peak daily demand for 1,140,000 gallons.

Officials at the Alderwood Water district have stated that the District has no problem serving any areas within the City of Brier or the proposed City Planning or Sphere of Influence Area, and that they do not forsee any problems providing water service for the future projected growth of the City.

The minimum level of service provided by the Alderwood Water District is a minimum pressure of 30 psi (pounds per square inch). Minimum fire flows are as follows:

Residential: 500 gallons per minute (gpm) for 30 minutes
Commercial: 750 gpm for 60 minutes

At this time, Alderwood Water District has no future capital facilities improvements scheduled for Brier.

## 2. Sanitary Sewer

In 1998, a Comprehensive Sanitary Sewer Plan (Hammond, Collier & Wade – Livingstone Associates, Inc.) was prepared for the City of Brier. The purpose of the study was to be consistent with Growth Management Act (GMA) requirements and to meet relevant requirements of the State Department of Ecology Rules and Regulations regarding wastewater facilities.

Sanitary sewage collection is provided by the City of Brier. There are currently 2,031 sewer connections in the City. Collection lines feed into two trunk lines, which are indicated on Figure 2. A 15-inch trunkline follows Oak Way in the northeast Brierwood section of the City, and ties into the 36-inch Swamp Creek trunk line that is operated by the Alderwood Water District. Approximately 479sewer connections are routed to the north and east through this trunk line. 1,552 sewer connections are routed to the 15-inch Lyons Creek trunk line, which extends southwest from 228$^{th}$ St. S.W. into Mountlake Terrace. This trunk line is owned by both the City of Brier and Mountlake Terrace. Both the Swamp Creek and Lyons Creek trunk lines connect to the Kenmore Interceptor, which is owned and operated by the Municipality of Metropolitan Seattle (Metro). All sewage from the Brier planning area eventually flows through the Kenmore Interceptor to Metro's West Point Treatment Plant in Seattle.

There are 12 sewer basins within the Brier service area, plus an additional one called the AWD basin that is within the Alderwood Water District's service area. The basins are as follows: 1) Brier Road; 2) Brierwood; 3) Alder; 4) Vine Road; 5) Shasta; 6) Old Poplar Way; 7) Crestview; 8) Castle Crest; 9) AWD; 10) Golden View; 11) East; 12) Southeast; and 13) Northwest. Most areas of the City are presently served by a sanitary sewer system, though several areas remain served by on-site septic systems. These areas are generally located in the southeast, southwest, and northwest corners of the City and east of Brier Road, between Vine Road and 232$^{nd}$ Street S.W. These areas

have remained on septic systems because they are either difficult to serve due to local topography or because the existing low density development has not warranted extension of sewer service. Some problems with failing septic systems persist in these areas. Figure 2 maps the areas of the City that are served with on-site septic systems and the location of the two major trunk lines serving Brier.

The Comprehensive Sanitary Sewer Plan indicated that the existing Brier sewer system capacity is adequate to accommodate the proposed development density buildout and peak wastewater flow conditions. There are two areas in the Brier Road Basin (generally in the south central part of Brier) that is close to capacity at peak flow conditions. Further study on inflow and infiltration issues and remediation program is recommended to mitigate the problems. In addition, at buildout, there may be a surcharge at manhole #485 in the Brierwood Sewer Basin (generally the northern part of Brier), which could require mitigation.

The Golden View Pump Station is also adequate to serve current and projected sanitary sewer service needs. It was recommended, however, that a permanent generator be connected to the pump station.

Potential projects also include providing sewer service to the unsewered areas within the service area. A total of 23 sewer extensions are proposed in the Comprehensive Sanitary Sewer Plan to accomplish that project. In Brier, sewer lines are commonly extended or improved in the developed areas by means of Utility Local Improvement Districts (ULIDs), and extensions to serve new development are the responsibility of the developer. Service rate increases may also be necessary if the potential sewer utility expenditures exceed revenue.

### a. Sewage Treatment

Sewage treatment is provided by King County Department of Natural Resources (KCDNR), formerly Metro, through an intergovernmental agreement. The West Point Plant has the capacity to treat 360 million gallons of raw sewage per day. The average current volume is 100 million gallons per day. However, during periods of prolonged wet weather, volumes exceed plant capacity, due largely to the fact that much of Seattle's system combines sanitary sewage and stormwater sewers. In 1992, a $600 million project to convert the West Point Plant from a primary to secondary treatment facility was completed, but the project did not increase capacity at the Plant. An expansion of the plant to increase capacity to 440 million gallons per day is under consideration by KCDNR along with a proposal to build another sewage treatment facility in north King County.

## 3. Stormwater and Drainage

In 1998, a Stormwater Management Plan (Hammond, Collier & Wade – Livingstone Associates, Inc.) was prepared for the City of Brier. The focus of the Plan was on stormwater management of the major undeveloped Old Poplar Way area in Brier and to provide a strategy for managing the City's stormwater runoff quantity and quality, especially in the Old Poplar Way area.

The Stormwater Management Plan identified four primary watersheds in Brier: Swamp Creek; Scriber Creek (tributary to Swamp Creek); Lyon Creek; and Creek 0056 ("Kenmore Creek"). The Swamp Creek watershed consists of approximately 222 acres and is located in the east central part of Brier. The Scriber Creek watershed is the largest watershed, containing approximately 476 acres, and is located in the north part of the City. The Lyon Creek watershed is located in west central Brier and it is comprised of approximately 215 acres. Creek 0056 is located in the south part of Brier and it consists of approximately 450 acres.

Brier is served primarily by a system of open grass-lined ditches and 12 inch diameter storm drains/culverts with catch basins in the older, developed areas of the City. In the newer developments in the City, stormwater detention vaults and detention pipes are used for stormwater drainage. Figure 3 shows the areas of the City that are served by the two types of stormwater drainage systems.

The Stormwater Management Plan identified both general drainage problems in Brier which include local ponding, erosion, basement or crawl space flooding, and potential water quality problems. It was concluded that these problems are due to the increase of impervious surface and by the glacial till soils in the area.

There are seven specific drainage areas of concern that were identified in the Stormwater Management Plan:

1. Abbey View Pond Outlet on the east part of the lake, in the vicinity of 35th Ave. W. has flooding problems;
2. Abbey View Pond/Brier Road, located downstream from #1, near the south end of 31st Ave. W. has flooding problems;
3. Old Poplar Way has some problems in the road with cracking and settlement due to subsurface water flow, soils, and poor drainage;
4. Vine Road between approximately 219th St. S.W. and the Seattle City Light easement lacks roadside drainage facilities, causing ponding and pavement scouring;
5. Ravine at Brier Road and Old Poplar Way is experiencing accelerated erosion caused by storm drain discharge from an 18 inch storm drain;
6. Ravine on the east side of Old Poplar Way at approximately 222nd St. S.W. also has erosion problems from stormwater piped under Old Poplar Way and discharged into the ravine; and
7. Hickory Way is experiencing erosion and road scouring problems due to lack of drainage facilities in the gravel part of the roadway (north of the paved area).

The Old Poplar Way area was the primary focus of the Stormwater Plan in order to address the stormwater management of the undeveloped area, prior to development. State law requires the implementation of stormwater best management practice (BMPs) for developing areas. The Plan recommends controlling runoff from as much of the area as possible by intercepting and conveying it with regional bioswales routed to regional detention ponds.

New development in the City is required to provide stormwater detention facilities to mitigate downstream drainage impacts. Stormwater detention facilities are designed to

insure that peak discharge rates from a site do not exceed predevelopment existing conditions. The City is currently considering the adoption of the updated Washington Department of Ecology (DOE) standards with a local requirement of three times larger (300%) than the current DOE standards

a. Drainage Courses

The Scriber Creek Watershed Management Plan (December 1989) was developed under an interlocal agreement between the cities of Brier, Lynnwood, and Snohomish County. The Plan evaluated stream conditions, habitats, and water quality in the entire watershed, and recommended a combination of regulations, education, and capital projects to prevent future flooding and to maintain water quality in Scriber Creek. The Plan recommended specific local and regional capital projects to protect surface water resources, and implementation of the Plan has been ongoing over the past decade.

## 4. Electricity

The Snohomish County Public Utility District No. 1 supplies electricity to the City of Brier. Electricity is supplied to the area by an 115,000-volt transmission line, located along 228th Street S.W. This transmission line serves a system of distribution substations, which reduce the current to 12,000 volts. From the substations, 12,000 volt distribution lines run along local street, and transformers further reduce the voltage to 240 for distribution to residences and commercial/industrial users.

The substation which serves most of Brier is located on 228th Street S.W. and 40th Avenue W., in Mountlake Terrace. The substation has a capacity of 28 MVA. There is also a Snohomish County PUD substation located just north of the City Limits, near the intersection of Cypress Way and Larch Way. This substation also has a 28 MVA capacity. The PUD designs its substations to accommodate a second bank of transformers for an additional 28 MVA capacity.

Seattle City Light has an 115,000 volt transmission line that runs diagonally through the City along its own right-of-way.

The existing substation and transmission line facilities that are located in the Brier area are mapped on Figure 4.

According to officials with the Snohomish County PUD No. 1, there are no existing plans to expand electrical facilities within the Brier planning area. The Utility projects future needs based on “small area forecasts,” which anticipate utility needs for reliability during peak load demand. Officials indicated that with respect to current load forecasts, the existing system facilities are adequate to serve projected growth for the next 5-10 years.

Snohomish County PUD’s electrical power supply is provided from the following sources:

- The Henry M. Jackson Hydroelectric Project on the Sultan River– 10 percent.
- The Centralia Coal Powered Plan – 10 percent.

- The Bonneville Power Administration – 80 percent.

FIGURE 1: WATER SYSTEM

FIGURE 2: SANITARY SEWER SYSTEM

FIGURE 3: STORMWATER/DRAINAGE FACILITIES

FIGURE 4: ELECTRICITY FACILITIES

FIGURE 5: NATURAL GAS SYSTEM

## 5. Natural Gas

Puget Sound Energy, (PSE), formerly Washington Natural Gas (WNG) is certified by the State Utilities and Trade Commission to serve all the Puget Sound Area which lies along the route of the Northwest Pipeline. The Brier planning area is included within the PSE service area.

The Northwest Pipeline originates in Canada and consists of two pipes: one 26 inch diameter pipe designed to carry natural gas at a pressure of 600 pounds per square inch; and the other 30 inch pipe is designed for 1,000 pounds of pressure. The main Pipeline route is east of Woodinville and Redmond, with lateral lines that branch off in south Snohomish County to facilitate service to areas. The Brier planning area is served primarily from PSE lines which branch off the Northwest Pipeline lateral in Mountlake Terrace Distribution lines (six to eight inches in diameter) branch off the main PSE supply lines. The existing and proposed distribution lines that serve the City of Brier are mapped on figure 5. As of February, 1999, there were 1,341 natural gas connections in Brier.

Puget Sound Energy has established as its optimum service standard a pressure of 45 pounds per square inch, and as the minimum service threshold a pressure of 15 pounds per square inch. Generally, residences in Brier are served by gas lines that provide 35 pounds per square inch. During high demand periods, gas pressure is increased from the district regulator to provide adequate pressure. According to PSE officials, the local capacity in Brier may be increased by "looping" existing systems to provide alternate directions of supply.

PSE officials have indicated that the natural gas supply system will be able to meet the demand for natural gas within the planning area over the next 20 years. PSE does not anticipate the need for additional pipeline corridors within the Brier planning area.

## 6. Telecommunication System

### a. Telephone

General Telephone provides telephone service throughout the City of Brier planning area. Telephone system facilities include central office exchange switching stations, trunk lines which connect switching stations, and distribution lines which run along streets to serve homes and businesses. The distribution lines are either pole-mounted or underground.

The central office exchanges that house the switching stations serving the Brier planning area are located at the following locations:

| | | |
|---|---|---|
| Hall's Lake | 6706 212th Street S.W., Lynnwood | 63,000 line capacity |
| Bothell | 2326 228th Street S.E., Bothell | 48,000 line capacity |

b. Cellular Telephone Systems

The Federal Communications Commission (FCC) licenses two operators to provide telephone service in an area. Western Washington is served by Cellular One and US West Vector. A cellular telephone system s a series of transmission facilities or "cell sites," which use FM radio signals to transmit conversations and data to mobile/portable phone users. Cell sites consist of transmitting and receiving equipment and microwave relays, usually mounted on a pole or lattice tower, and ground-mounted switching equipment. In Brier, all of the existing cell sites are co-located on Seattle City Light transmission towers. Cell sites range in size from 1,000 to 2,000 square feet, and are enclosed by chain link fences.

There currently are three cell sites within the City of Brier. They are located in the following locations: Brier Park, operated by Western Wireless; at 231st Street S.W. and 32nd Avenue W., operated by U.S.West; and at 236th Street S.W. and 38th Avenue W, operated by GTE. In addition, U.S. West operates two cell sites that serve Brier: one is located in Lynnwood at the intersection of 196th Street S.W. and I-5; and the other is located at 24330 23rd Avenue S.E. in Bothell. Cellular One operates three cellular antenna sites which provide coverage to the Brier area, located at the following addresses: 1) 4030 - 200th Street S.W., Lynnwood; 2)18010 – 15th Avenue N.E., Seattle; and 3) 6141 NE Bothell Way, Bothell.

1. Fiber Optics

As part of the development of a fiber optics "ring" around Puget Sound, two fiber optics systems are currently being installed in Brier. U.S. Crossing is installing a north-south fiber optics system from the north city limits, along the west side of Poplar Way/Brier Road, to 236th St. S.W. It will intercept another system operated by Pacific Fiberlink. This system will run east-west, along 236th St. S.W.

4. Cable Television

ATT/TCI Cable, formerly known as Viacom Cablevision, provides cable television service in the Brier planning area. Brier is served from a satellite receiving and processing station located at 185th Street S.W. and 40th Avenue W. in Lynnwood. From the receiving station, trunk lines extend through the service area. The trunk lines branch off into distribution cables which carry the signals down residential streets. Cables then extend from the distribution lines to serve individual homes. Cables may be mounted on poles or place underground. ATT/TCI Cable rents pole space or shares trenches with Snohomish County or GTE.

Presently, cable service is available to all residences in the City. There are currently approximately 1,600 customers. ATT/TCI Cable officials project no need for additional relay stations or trunk lines to serve the Brier planning area.

## III. UTILITY ELEMENT GOALS AND POLICIES

GOAL UT 1.0: Ensure that utilities including water supply, sewage disposal, stormwater facilities, electricity, natural gas, and telecommunications are available or can be provided to support current and future development.

1. General

Policy UT 1.1: Design and install utilities with sufficient capacity to meet anticipated land use intensity.

Policy UT 1.2: Allow new development only when and where such development can be adequately served by essential public utilities without reducing levels of service.

Policy UT 1.3: Coordinate with utility providers at early stages in planning for needed facilities:

1) The City shall require that utility providers use the Land Use Element of this Plan in planning future facilities;
2) The City shall adopt procedures to review and comment on proposed actions and policies of public and private utility providers; and
3) City coordination may include involvement in consideration of alternatives to new facilities and alternate locations for new facilities.

Policy UT 1.4: Minimize adverse environmental, aesthetic, and fiscal impacts associated with the siting, development, and operation of utility services and facilities.

Policy UT 1.5: Require all annexations and new development to connect with City of Brier utilities.

Policy UT 1.6: Require the location of utility facilities in conduits, shared corridors and trenches to reduce costs, minimize the amount of land allocated for this purpose, and to minimize construction disturbances.

Policy UT 1.7: Coordinate future utility expansions with the County to ensure consistency with the Countywide Policy Plan.

2. Water

Policy UT 2.1: Coordinate with the Alderwood Water District to provide an efficient and adequate water supply to the residents and businesses of the City.

Policy UT 2.2: Design the size of new water utility systems to the anticipated future requirements of the area's land use.

Policy UT 2.3: Design new water systems to allow for their extension into potential future service areas.

3. Sewer

Policy UT 3.1: Provide an efficient and adequate sanitary sewerage service to the residents and businesses of the City in order to maintain adequate water quality.

Policy UT 3.2: Extend sewers to serve development where there are limitations to on-site treatment due to soils, topography, or water resources.

Policy UT 3.3: Require all new development to have sanitary sewer service.

Policy UT 3.4: Design the size of new sanitary sewerage systems to the anticipated future requirements of the area's planned land use.

Policy UT 3.5: Design new sanitary sewerage systems to allow for their extension into potential future service areas.

Policy UT 3.6: Inspect on site wastewater treatment systems frequently, and establish proof of pump out systems in areas with a high risk of system failure.

Policy UT 3.7: Preserve and enhance water quality by providing adequate sewerage systems adjacent to waterways.

Policy UT 3.8 Prohibit the development of new pump stations.

4. Storm Drainage

Policy UT 4.1: Adopt the Washington DOE standards for stormwater runoff.

Policy UT 4.2: Provide an adequate and cost effective method of preventing property damage from local storm water.

Policy UT 4.3: Encourage non-structural as well as structural solutions to storm water control.

Policy UT 4.4: New construction should be designed so that peak storm water discharge is no greater than the discharge was prior to any previous or supposed development.

Policy UT 4.5: Design street systems to provide that storm water within the right-of way will be maintained within the street area.

5. Electrical and Telephone

Policy UT 5.1: Require the undergrounding of all existing and new electrical and communication systems.

Policy UT 5.2: Require undergrounding to occur in existing easements or right-of-way, whenever feasible.

Policy UT 5.3: Require the use of one trench in a corridor to accommodate all electrical and communication utilities.

Policy UT 5.4: Encourage a minimum of disruption to areas affected by the installation of underground utilities.