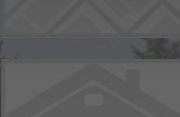
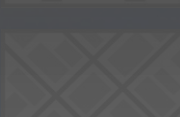




CHAPTER 8 UTILITIES

PUYALLUP COMPREHENSIVE PLAN



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Chapter Outline

A. INTRODUCTION 8.4

B. PUBLIC UTILITIES 8.4

C. PRIVATELY-OWNED UTILITIES 8.13

D. GOALS AND POLICIES 8.18



A. INTRODUCTION

Utilities are both conveniences and services that ensure the health of an urban community's residents. Strategies for utility services can have crucial impacts on environmental systems, including ground and surface water resources. Phasing of essential public utilities largely influences the shape of an urban community. The purpose of the **Utilities Element** is to ensure that utility services provided by both public and private (investor-owned) purveyors will be supportive of the comprehensive plan and be available to support the growth and development anticipated during the planning period.

I. Growth Management Act

The Utilities Element has been prepared to comply with the State of Washington Growth Management Act. One of the thirteen goals of GMA is to ensure that the public facilities and services necessary to support development will be adequate to serve new development at the time it occurs.

Section 36.70A.070(4) of the RCW in the Growth Management Act requires that the Utilities Element "(consist) of the general location, proposed location, and capacity of all existing and proposed utilities, including but not limited to, electrical lines, telecommunication lines, and natural gas lines."

II. Multi-county Planning Policies

Puyallup's utility goals and policies are to be consistent with VISION 2040's *Public Services*, one of the six categories that VISION 2040 uses to organize the regional framework that guide the development of countywide and local planning policies. The overarching multi-county goal for public services is:

The region will support development with adequate public facilities and services in a coordinated, efficient, and cost-effective manner that supports local and regional growth planning objectives.

III. Countywide Planning Policies

In addition to VISION 2040, Puyallup's utility goals and policies should also relate to the Pierce County Countywide Planning Policies, specifically those pertaining to provision of public services within Urban Growth Areas.

B. PUBLIC UTILITIES

I. Water

The City of Puyallup water system provides drinking water to approximately 36,000 people within the City and its Urban Growth Area (UGA). Other water purveyors provide service within the City's UGA. The other water purveyors within the City's UGA include, Fruitland Mutual, City of Tacoma, Valley Water System, Summit Water and Supply Company, and several smaller water purveyors. Map 8-1 displays the water purveyors located within the City's UGA.

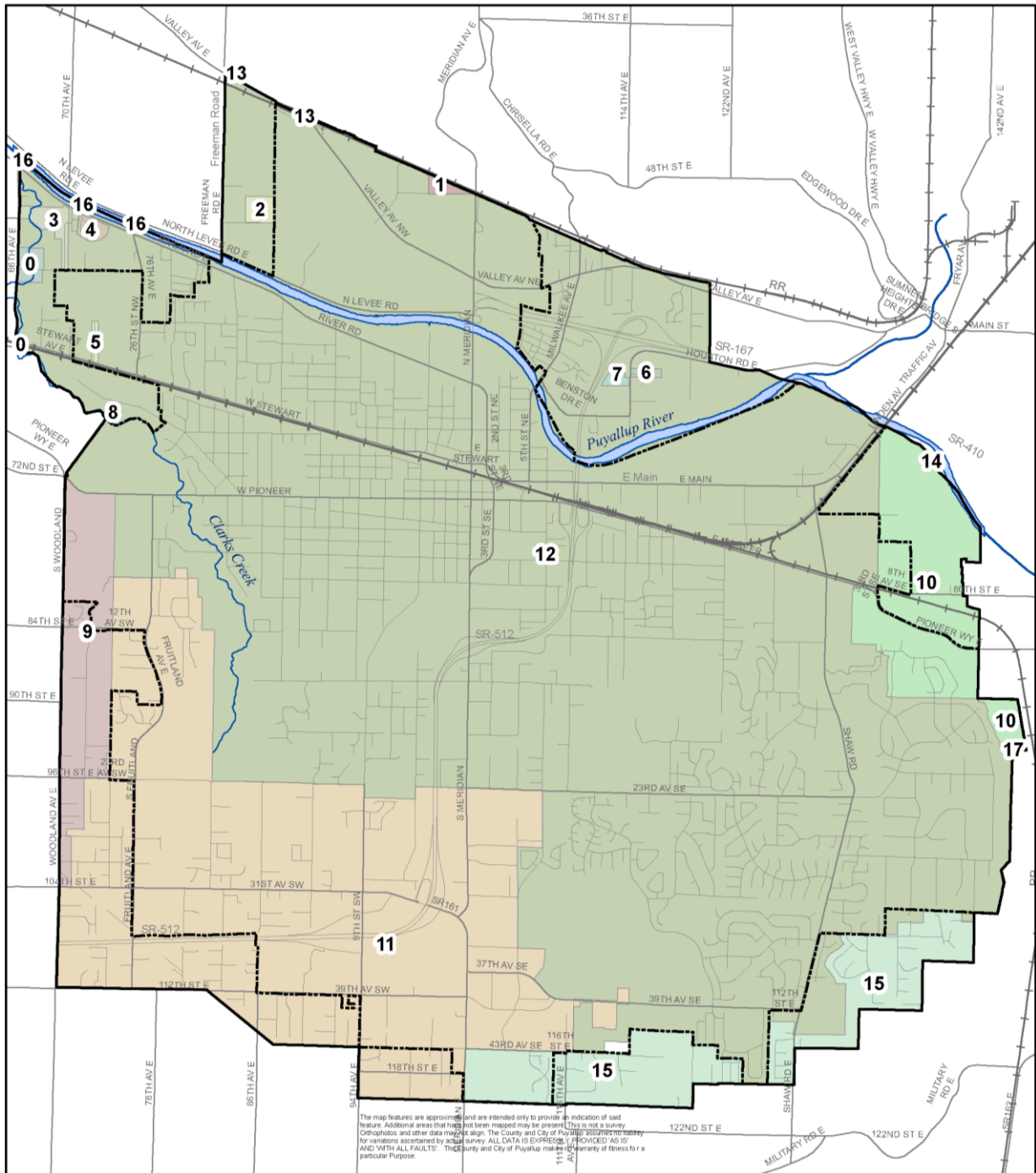
Existing Conditions

The sources of water supply for the City of Puyallup's water system consist of two springs and six production wells. Salmon Springs, the City's main supply source is located in Sumner and all other sources are within the Puyallup City limits. The City also maintains an intertie with the City of Tacoma which supplies an industrial area in the southern portion of the City. The City chlorinates all source water before it enters the distribution system.

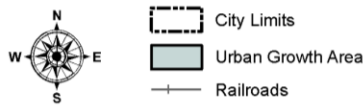
The water distribution system consists of approximately 190 miles of water pipes varying in size from 2-inch to 24-inch diameter. The distribution system conveys water to thirteen zones which maintain pressure for specific geographic areas, generally areas of similar elevation. Pressure and supply is maintained to the zones through a system of pressure reducing valves and booster stations. Generally water is pumped from the major water supply



Map 8-1: Water Purveyors



The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County and City of Puyallup assume no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSED, PROVIDED AS IS AND "WITH ALL FAULTS". The County and City of Puyallup make no warranty of fitness for a particular purpose.



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Updated: January 2015

- | | |
|-------------------------------------|--------------------------------|
| 0, SUMMIT WATER & SUPPLY CO | 17, VALLEY WATER SYSTEM |
| 1, DECHAUX MUTUAL WATER | 2, SCHENK WATER SYSTEM |
| 10, VALLEY WATER SYSTEM | 3, MAJESTIC MOBILE MANOR |
| 11, FRUITLAND MUTUAL WATER COMPANY | 4, RIVERSIDE VILLA |
| 12, CITY OF PUYALLUP | 5, ELMWOOD MOBILE MANOR |
| 13, MOUNTAIN VIEW-EDGEWOOD WATER CO | 6, GARDEN COURT MUTUAL |
| 14, CITY OF SUMNER | 7, WATTADEAL WATER SYSTEM |
| 15, CITY OF TACOMA | 8, DAN ELE'S MOBILE HOME COURT |
| 16, CITY OF FIFE | 9, CITY OF TACOMA |

Water Purveyor



Information about the City's most current Water Quality Report can be viewed online at:
<http://www.cityofpuyallup.org/services/public-works/water-division/>

sources, located in the lower elevation zones, south and uphill, as needed to meet demand and to maintain system pressure to customers as the elevation increases. Please see Map 8-2 for the City's water system.

Future Planning & Capacity

Water storage is provided in nine welded steel reservoirs with a combined capacity of 19.3 million gallons. Water is pumped to, and drawn from, the reservoirs as needed to meet demand, which varies throughout the day and year.

The City has water rights for its two spring sources and for six production wells. The City's water rights are anticipated to exceed demand and meet capacity needs through the year 2030.

To help with identification of system needs, both current and future, the City of Puyallup completes Water System Planning in accordance with the Washington State Department of Health guidelines. The most recent Water System Plan was completed in 2011. It provides detail and analysis regarding the water system's infrastructure, current and anticipated future water demand, current and future needs and a review of the Water Utility's financial status. Please reference the most current Water System Plan for detailed information on the water system, capacity, and facilities. The costs associated with achieving an acceptable level of service for the water system are addressed in the **Capital Facilities Plan Element**.

II. Sanitary Sewer

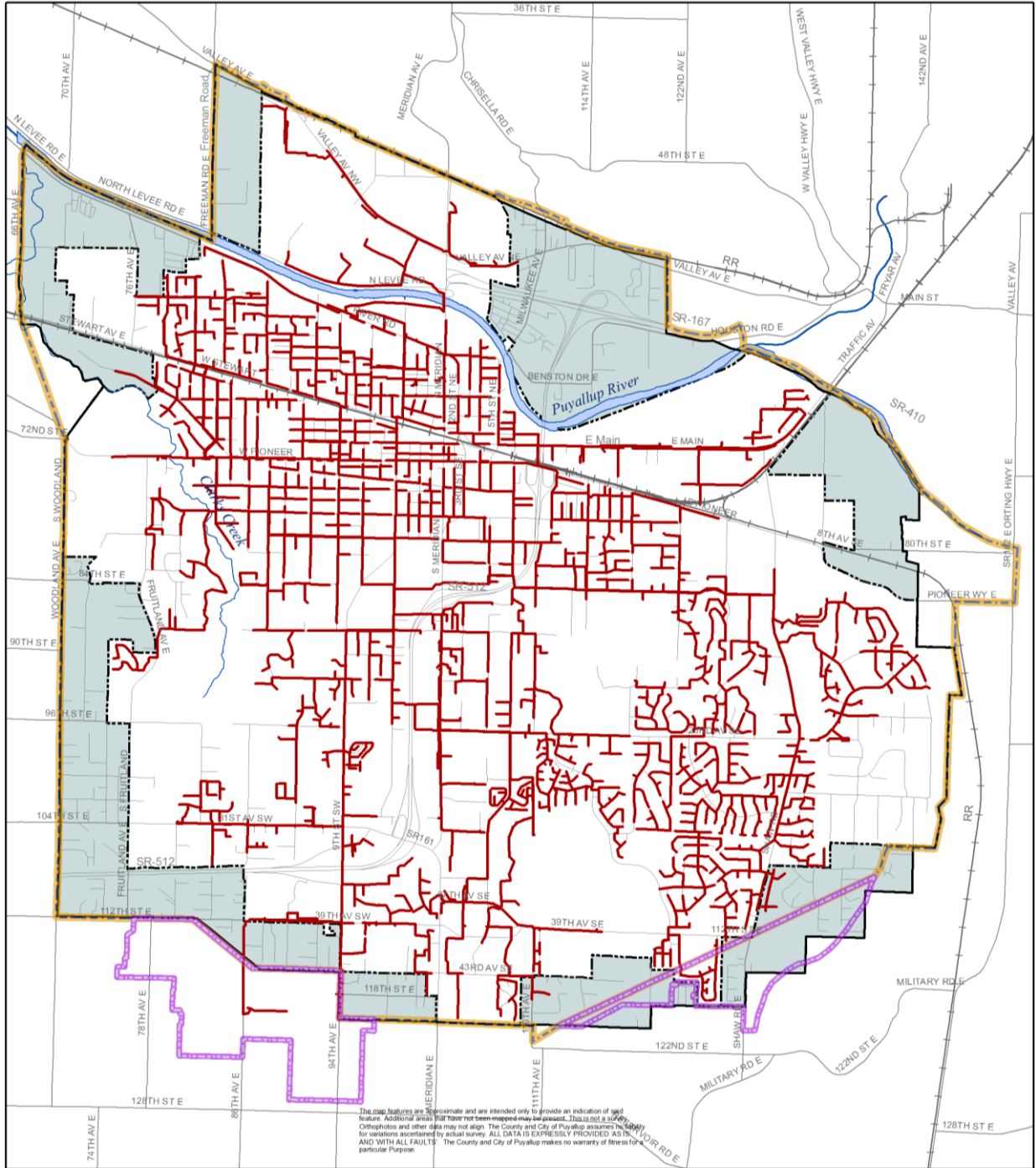
The City of Puyallup's sanitary sewer utility provides wastewater collection and treatment services for its customers within a defined sanitary sewer service area. The current service area includes all of the properties within the city limits as well as certain areas within the urban growth area and unincorporated Pierce County. See Map 8-3 for the sanitary sewer service area boundary.

The wastewater collection system consists of a network of sewer pipes that conveys wastewater from individual properties to larger trunk lines within individual drainage basins. These trunk lines then convey the wastewater into large interceptor pipes that receive flow from several drainage basins and route it to the City's Water Pollution Control Plant (WPCP) for treatment. Once treated, the wastewater is discharged to the Puyallup River in accordance with United States Environmental Protection Agency (EPA) and Department of Ecology regulations. In addition, a number of pump stations and force mains (pressurized pipes) augment the system.

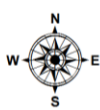
The original sanitary sewer collection system was constructed in 1905 and discharged directly into the Puyallup River. Up until approximately 1949, the system conveyed both stormwater and wastewater as a combined stormwater/sanitary sewer system. Since 1949, city regulations required all new construction to separate the storm and sanitary sewers into stand-alone collection systems.



Map 8-3: Sanitary Sewer System



The map features are approximate and are intended only to provide an indication of general location. Additional details that have not been depicted may be present. This is not a survey. Orthophotos and other data may not align. The County and City of Puyallup assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED AS IS, AND WITH ALL FAULTS. The County and City of Puyallup makes no warranty of fitness for particular Purpose.



- City Limits
- Urban Growth Area
- Railroads

- Sanitary Sewer Service Area
- First Right of Refusal
- Sanitary Mains

Sanitary Sewer System

0 0.25 0.5 1
Miles

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Updated: April 2015



Existing Conditions

The sanitary sewer system comprises more than 3,200 manholes, 225 miles of gravity sewer pipe and 8 miles of force main, and 20 sewage pump stations. The gravity mains range in size from 6 to 48 inches in diameter. Wastewater flow is treated at the City's WPCP located at 1602 18th Street NW. Current capacity of the WPCP is 27.4 million gallons per day (MGD) with an annual average influent flow of 9.5 MGD. Sludge produced at the WPCP as result of the treatment process is further processed, dewatered, and ultimately trucked to eastern Washington for use in the agricultural industry.

Service Standards

The City owns and maintains all public sewer mains and service laterals within the public right-of-way. The goal of the City's sanitary sewer utility is to preserve the value of the physical infrastructure components, and to ensure that all wastewater is conveyed and treated safely, efficiently, and reliably.

The primary tasks associated with the operation and maintenance of the sewer system include inspection of lift stations and generators, cleaning gravity sewer mains, manhole inspections, system repairs, and equipment and facility maintenance. Other key components of operating the system include administration, inventory tracking and record keeping.

The City is embarking on a comprehensive Asset Management Plan that will better refine current inventory practices by performing coordinated condition assessments on the sewer system. This work will allow the City to better prioritize the replacement and preservation efforts associated with sewer components nearing the end of their life cycle.

Currently, the existing sewer system meets all federal and state standards and the City is in compliance with its National Pollutant Discharge Elimination System (NPDES) permit requirements.

On-Site Systems (Septic Tanks)

Current City ordinances and Tacoma-Pierce County Health Department rules prohibit new septic systems within the sewer service area, except in extenuating circumstances.

At the end of 2014 there were approximately 2,100 onsite sewage treatment or septic systems in the Puyallup sewer service area, serving roughly 6,100 people and discharging over 398,000 gallons of effluent into the ground for treatment each day. Because most of the systems are more than 30 years old and reaching the end of their expected service life, failures are likely to occur. In the event of a septic system failure, City regulations require connection to the public sewer system if the sewer is within 300 feet of the property. It should be noted that septic system failures may go undetected for extended periods, allowing contamination of nearby streams, lakes, and/or shallow drinking water wells. Septic systems can also cause an increase in nitrates in groundwater which can be detrimental to humans, livestock, and groundwater-fed streams. As of 2015, both Clarks Creek and Meeker Creek are impaired by fecal coliform and are currently being managed by the 2009 Clarks Creek Fecal Coliform Bacteria Total Maximum Daily Load Water Quality Implementation Plan, which was initiated in cooperation with the Department of Ecology, Pierce County, Puyallup Tribe, and other interested parties.

The City anticipates implementing a Sewer Connection Incentive Program (SCIP) in an effort to protect water resources from failing septic systems and to help homeowners eliminate unreliable septic systems. The intent of the SCIP would be the extension of new sanitary sewers into areas served by septic systems, and the possibility of affordable financing for homeowners to connect to the system when their septic systems fail.

Future Planning & Capacity

The City maintains and updates the Sanitary Sewer Comprehensive Plan in an effort to define and analyze the existing sanitary sewer system, optimize the management of assets, and project future wastewater collection and treatment needs. The plan also includes a summary of the policies and regulations that govern the operation, maintenance, and construction of new system improvements.



A major effort of the most recent Sanitary Sewer Comprehensive Plan update, which is anticipated to be adopted in late 2015, was the refinement of the existing hydraulic model. The hydraulic model is used to determine whether the existing network of pipes, manholes, pumps, and other physical facilities are adequate to convey estimated flows under a twenty-five-year recurrence-interval storm event based on existing and future conditions.

Using large scale monitoring information recently gathered throughout the City and implementing extended-time (dynamic) modeling methods has allowed the City to calibrate the wastewater system to real-world flows, thereby increasing the level of confidence in the model output and minimizing the potential of unnecessary system improvement projects.

The results of the modeling effort and the subsequent system improvement projects will be in the latest version of the City's Sanitary Sewer Comprehensive Plan, anticipated to be adopted in late 2015.

III. Stormwater Management

Stormwater management systems are designed in response to the specific surface hydrology of an area to manage flooding, water quality and erosion problems. Drainage measures may be nonstructural (i.e., utilizing natural drainage systems including streams, rivers, lakes and ponds, and wetlands) or structural (i.e., utilizing constructed improvements to collect stormwater using curbs and gutters, pipes in the ground, and detention and retention systems). These systems serve to drain run-off where flooding or severe erosion problems may exist.

Given that urban development creates added impervious surface and thereby increases stormwater run-off, stormwater management should be designed to adequately handle the impacts from anticipated growth in the City and UGA. Stormwater management presents issues of public utility management, design standards for private systems not functionally part of the public utility, and environmental constraints. Stormwater management should be considered in determining the location and intensity of new development, methods to avoid flooding and roadway design standards.

Existing Conditions

There are five primary stormwater drainage basins located within the City: Clarks Creek, the State Highway System, Shaw Road, North Puyallup, Puyallup River, and Potholes (areas draining to naturally occurring potholes). Map 8-4 depicts the basins in the City and where they extend into the UGA. All five basins include land outside the City limits, in the Urban Growth Area.

As a result of regulations in the Federal Clean Water Act (CWA), the City of Puyallup is required to comply with the National Pollutant Discharge Elimination System (NPDES) permit, Phase II. This federal permit regulates wastewater and stormwater discharged into U.S. waters and water of the state, including rivers, lakes, streams, and all underground waters and aquifers. The permit regulates discharge from three potential sources: municipal separate storm sewer systems (MS4), construction activities, and industrial activities.

The Washington State Department of Ecology (DOE) is the regulatory authority for the NPDES permit. DOE issued the NPDES Phase II Municipal Stormwater Permit for Western Washington in January 2007. The City of Puyallup's Stormwater

Stormwater is that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes and other features of a stormwater drainage system into a defined surface waterbody, or a constructed infiltration facility.

2012 Storm Management Manual
for Western Washington



Management Plan (SWMP) has been completed and accepted by the DOE. One of the requirements of the NPDES permit is the development and implementation of a citywide SWMP. The SWMP is intended to describe the city's current implementation of the permit as well as plans for implementing additional program elements. The SWMP is updated annually and submitted to DOE as part of the City's permit reporting requirements.

Future Planning & Capacity

Puyallup's March 6, 2012 Comprehensive Storm Drainage Plan provides detailed data on the City's stormwater utility locations, capacity, and deficiencies. In general, there is some additional capacity throughout the entire system, however a large amount of the system has areas that are at capacity. The areas of the system that are at capacity tend to be areas where we experience localized flooding. The Plan evaluates the system under present conditions, and identifies remedies for segments of the system where problems exist or are likely to develop in the future as a result of growth and development.

Capital Improvement Projects (CIPs) and programmatic measures were developed as part of the Comprehensive Storm Drainage Plan to address the identified stormwater drainage and water quality problems. Please reference the Comprehensive Storm Drainage Plan for more information. The costs associated with achieving an acceptable level of service for stormwater management are addressed in the Capital Facilities Plan Element. The City reviews and updates its Comprehensive Storm Drainage Plan regularly to assure consistency with this Plan, State and local regulations, and other on-going City planning processes.

IV. Solid Waste

Under state law governing solid waste management (RCW 70.95.090) local governments are required to provide collection of source separated recyclable materials from single and multi-family residences; drop-off or alternative systems for rural residents; yard waste collection; educational and public outreach programs; programs to monitor the collection of recyclables from commercial sources; in-house recycling and procurement programs; and any other programs the municipalities determine are necessary to achieve state and local waste reduction and recycling goals.

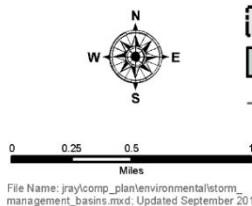
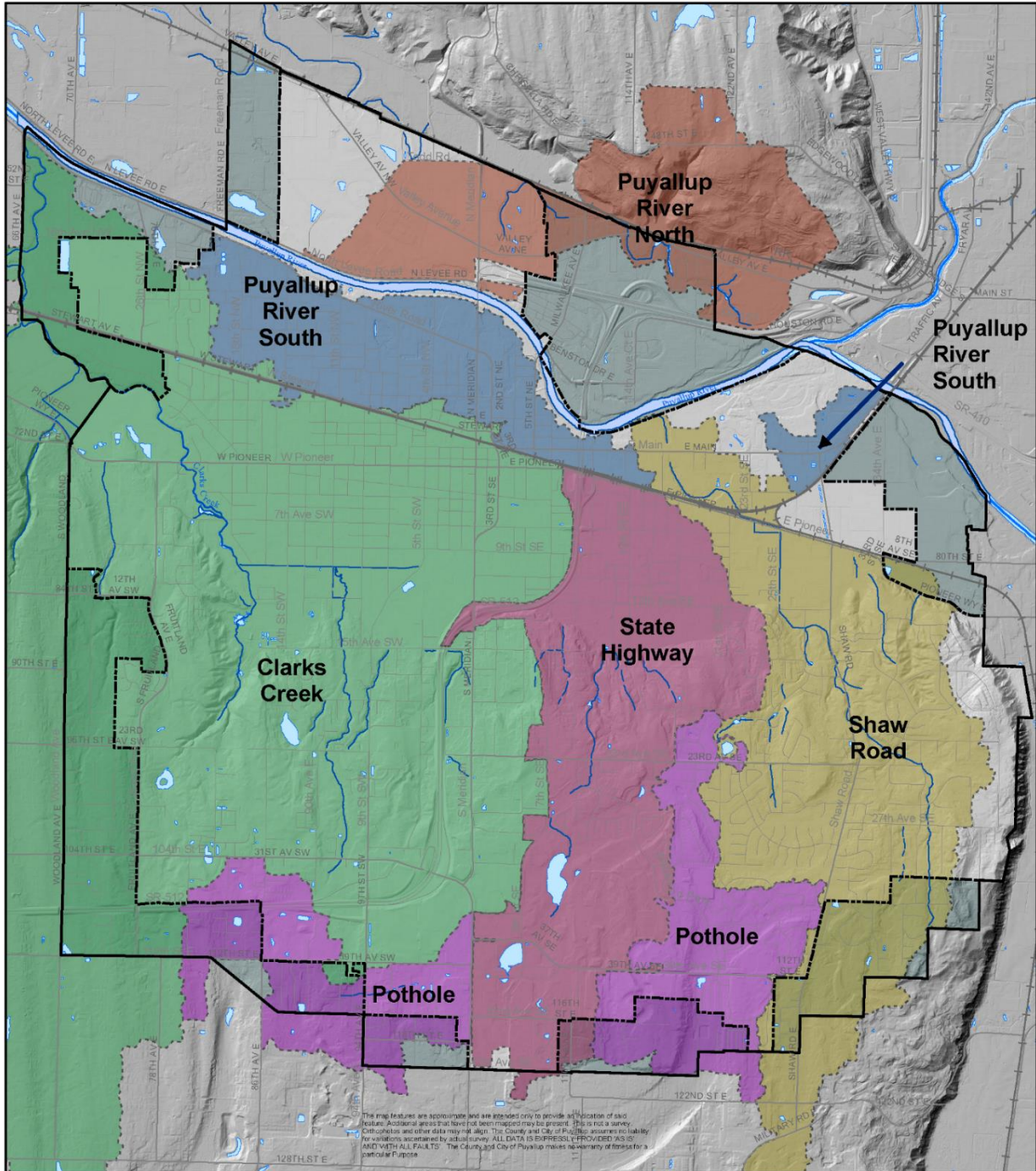
The Tacoma-Pierce County Solid Waste Management Plan, adopted in 2000 and supplemented in 2008, guides all aspects of solid waste handling in Pierce County and each city and town wholly within Pierce County. It is the primary tool implementing the law cited above. Pierce County has started work on a new supplement which is scheduled for adoption in late 2015.

Existing Conditions & Future Capacity

Except for collection contracting authority, which it retains through an Interlocal Agreement, Puyallup has designated Pierce County as the entity responsible for managing waste reduction, recycling, composting, disposal, and household hazardous waste programs, including associated public information, outreach, and engagement. Under County direction, waste generated within the City of Puyallup is disposed in the Land Recovery, Inc. (LRI) Landfill in unincorporated Pierce County and yard waste is composted at facilities owned by Pierce County or operated under contract with Pierce County. According to the 2008 Supplement to the



Map 8-4: Stormwater Management Basins



- | | | |
|-------------------|----------------------|---------------|
| City Limits | Clarks Creek | Shaw Road |
| Urban Growth Area | Pothole | State Highway |
| Railroads | Puyallup River North | Water Bodies |
| | Puyallup River South | Streams |

Stormwater Management Basins

Data Source: Comprehensive Stormwater Plan, November 2011, Brown and Caldwell



Tacoma-Pierce County Solid Waste Management Plan, the LRI Landfill is anticipated to meet the projected capacity needs for the municipalities it serves in Pierce County. The City will continue to partner with Pierce County to ensure that solid waste capacity needs are met.

Puyallup contracts with Waste Connections, doing business in the city as DM Disposal, for the collection of household and commercial garbage, recyclables and yard waste. Food waste is not accepted as part of the County-provided yard waste program. Residents and businesses can self-haul special wastes and recyclables (e.g. household hazardous waste, tires, batteries, and oil) to fixed facilities located throughout the County. In the City of Puyallup, all occupied residences are required to have solid waste collection service one time per week. Commercial establishments are required to have weekly service at a level commensurate with the amount of solid waste produced by the establishment as determined by the contractor.

All solid waste-related activities in the City are funded by garbage/recycling rates, revenue bonds and grants. The City collects a landfill fee from utility customers which goes into the City's "Sanitation Enterprise Fund". The Sanitation Fund is primarily used for the post-closure costs associated with a city-owned landfill which closed in 1979. The primary costs involved at the landfill site are associated with the maintenance and operations of the gas migration system and a façade to cover the system to minimize vandalism. The City is required to report to the Department of Ecology on the landfill cleanup process and will continue this process until the landfill materials are degraded. During the current 20-year planning period, the landfill materials are not anticipated to be completely degraded.

Other programs supported by the Sanitation Fund include three annual citywide cleanup events— Fall Cleanup, January Treecycling, and Spring Cleanup – for items which are not easily hauled with curbside service but have recycle or reuse capability.

C. PRIVATELY-OWNED UTILITIES

Privately-owned utilities develop strategic and operational plans with varying degrees of input and involvement from the City. They set capacity and service levels on an area-wide basis, and rely on the local government's involvement to ensure that capacity is sufficient.

As a condition of applying for a permit, new development that uses non-City owned water is required to obtain a letter of service availability. This letter establishes that utility service meeting City standards is either available or will be available prior to occupancy. Additionally, in instances where septic systems may be allowed, the applicant is required to provide approval from the Tacoma-Pierce County Health Department (TPCHD). This process ensures that new development occurring outside of the City's sewer availability area is working with TPCHD and meeting the required standards.

The electric power and natural gas utilities project adequate capacity during the 20-year planning period, assuming responsible use of these resources. Electric utility capacity is set regionally, with Puyallup's needs determined and provided for as part of an area-wide system. Similarly, natural gas is provided via a regional delivery system.

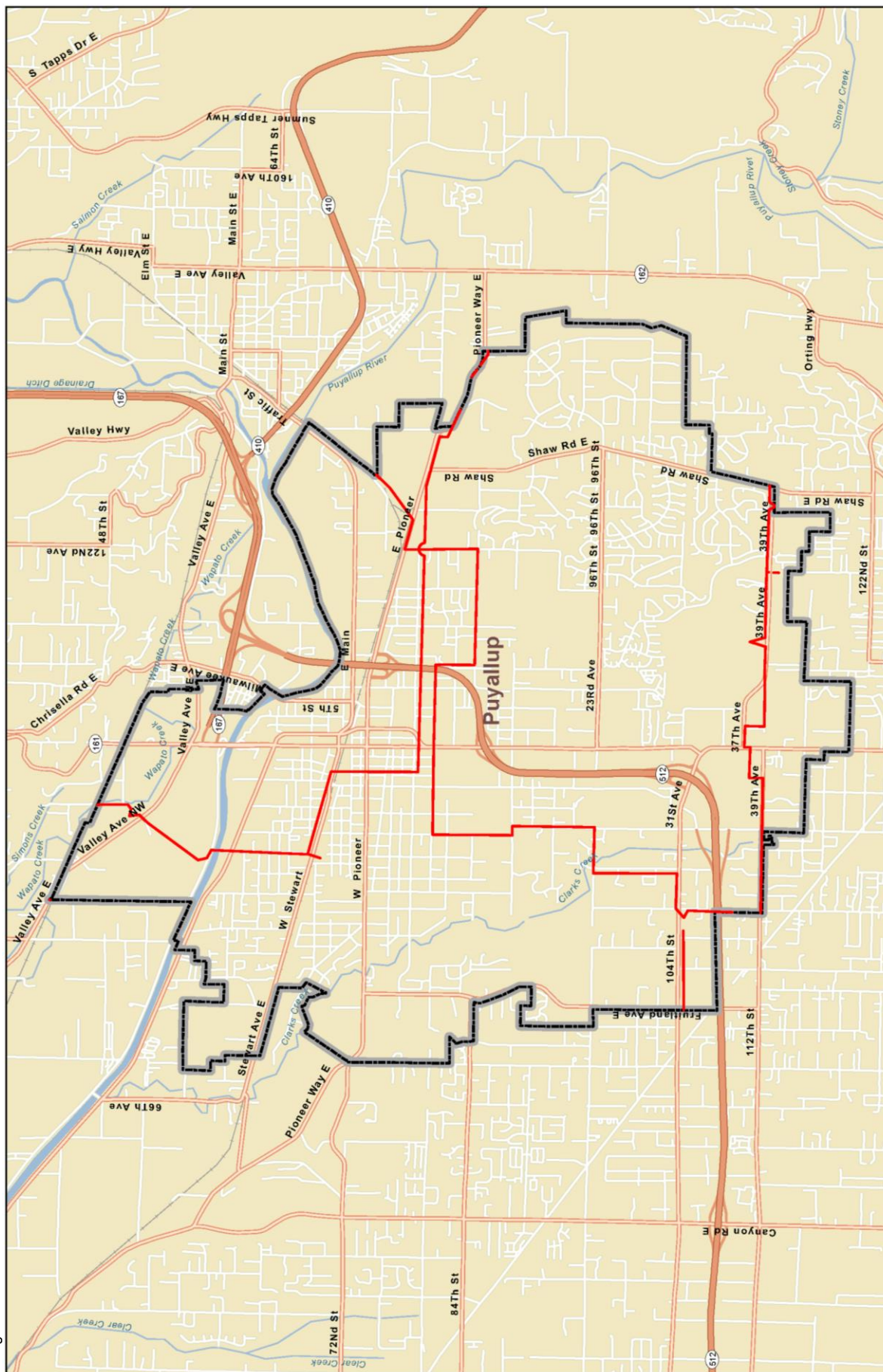
With new technologies, telecommunications utilities project adequate capacity within the planning horizon.

I. Electricity

The information in this section was provided by Puget Sound Energy. Puget Sound Energy (PSE) is an investor-owned utility providing electrical service to approximately 1,100,000 residential, commercial, and industrial customers in an eight county, 4,500 square mile service territory in western and parts of central Washington. 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 the Washington Utilities and Transportation Commission (WUTC) and is obligated to serve its customers subject to WUTC rates and tariffs.



Map 8-5: PSE Transmission



PUYALLUP

PSE - PUGET SOUND ENERGY

PSE Transmission - City of Puyallup

Legend:
— PSE Transmission
 City of Puyallup

Scale: 0 to 1.5 Miles

North Arrow

Map prepared by PSE Energy Services, Inc. on 08/14/2018. All rights reserved. PSE Energy Services, Inc. is a registered provider of public utility information. This map is for informational purposes only and does not constitute an offer of any service. PSE Energy Services, Inc. is not responsible for any errors or omissions on this map. For more information, please contact PSE Energy Services, Inc. at 206.462.1000.

*Note: Transmission lines are only shown within the City of Puyallup boundary. Transmission lines may extend beyond city



Existing Conditions

There are two main access points for receiving power in Pierce County: White River 230/115 kilovolt (kV) Transmission Station located north of Puyallup; and at PSE’s Frederickson Generation station located in Frederickson Industrial area of Pierce County. In addition, the county is interconnected with multiple transmission lines to systems in King and Thurston counties. Please see Map 8-5 for a visual of where these existing PSE transmission lines exist within city limits. The existing electrical system serving the Puyallup area consists of the following:

Transmission Substations:

- The White River Transmission Station (immediately east of Sumner, northeast of Puyallup)
- Alderton Transmission Station (in Alderton)
- Electron Heights Switching Station
- Frederickson Generation Station

Distribution Substations:

- Cedarhurst
- Fairchild
- Fruitland
- Hemlock
- Shaw
- Stewart
- Sunrise
- Woodland

Transmission Lines (115kV):

- White River-Alderton #4 115 kV
- White River-Fairchild 115 kV
- Alderton-Fairchild 115 kV
- White River – Alderton # 2

Nameplate rating, also known as nameplate capacity or generator nameplate capacity, is defined as:

“The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.”

U.S. Energy Information Administration

Existing Capacity to Serve the City of Puyallup

The power utilization factor of all distribution substations serving the City of Puyallup and surrounding area is at 67 percent of nameplate rating and 50 percent of winter rating. 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 Puyallup distribution substations.

Distribution Substations	Nameplate Rating (MVA)	Winter Rating (MVA)	Winter Peak Load (MVA) - Feb 6, 2014	Winter Peak Load (MVA) @ 23 F	% of Name plate	% of Winter Rating
Cedarhurst	25	33	25.9	24.8	99%	75%
Fairchild 1	25	33	4.3	4.1	16%	12%
Fairchild 2	25	33	8.1	7.7	31%	23%
Fruitland	25	33	25.6	24.5	98%	74%
Hemlock	25	33	21.7	20.7	83%	63%
Shaw	25	33	13.8	13.3	53%	40%
Stewart	25	33	19.1	18.3	73%	55%
Sunrise	25	33	19.3	18.8	75%	57%
Woodland	25	33	18.4	17.6	70%	53%
Total	225	297	156.2	149.8	67%	50%

(MVA = Mega Volt Amperes)

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 electric demand (load), as well as facility maintenance requirements, reliability related improvements, or system replacement needs.

Future Planning and Capacity

Projected Capacity Needs

PSE's future Electrical Facilities Plans are developed for all of Pierce County to support the projected load level in the county including the City of Puyallup and surrounding areas. All PSE transmission facilities that are part of the Bulk Electric System (BES) and the interconnected western system shall be planned and designed in accordance with the latest approved version of the applicable NERC Reliability Standards, and the WECC Standards and Reliability Criteria. These standards set forth the performance expectations that affect how the Bulk Electric System; 100 kV and above – is planned, operated and maintained.

The population and employment forecasts are based on a regional economic and demographic model to reflect interrelationships of industries within the region, 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's Office of Financial Planning/US Bureau of Census reports, while the employment data is based on the state's Employment Security Department's and US Bureau of Labor Statistics 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.

Proposed System

Puget Sound Energy has identified system and transmission improvements required to serve the forecasted load growth in Pierce County. Many improvements are in progress or planned for the future; 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 City of Puyallup and the surrounding area, as well as other portions of Pierce County.

System Improvements in Progress

- Alderton 230 kV Development: Pierce County will need a major upgrade of bulk power delivery system in the near future. The Alderton Transmission Station has been identified as future 230 kV transformation station. The project will involve construction of a new 230 kV transmission line east and northeast of Puyallup and installation of a 230 – 115 kV transformer at the Alderton transmission substation.
- White River – Electron Heights transmission loop into Alderton: 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. Phase one of this project was completed in 2014; with the 2nd phase is currently in progress.

Future Transmission Improvements

- Woodland – St. Clair Phase II: This project will involve upgrade of Woodland substation (in southwest Puyallup) to a switching station and rebuilding of existing lines between Lakewood and Woodland. When completed, the project will increase transmission backup capacity between Pierce and Thurston counties and improve reliability in central Pierce County.
- Alderton – Electron Heights Transmission Reconfiguration: This is a long range plan to reconfigure the 115 kV transmission network south of Alderton towards Electron Heights to increase transmission reliability in the Puyallup valley and surrounding areas. This project may include a new transmission line between Frederickson and Electron Heights via Graham.
- Pioneer Transmission Switching Substation: This is a long term plan to develop a new switching substation near the intersection of E. Pioneer Ave and 21st St SE in the city of Puyallup. The new facility is planned to be



developed in stages over time beginning with a distribution substation and then upgraded to a switching substation over the long term.

- White River – Christopher 115 kV Transmission Line: PSE has a proposed plan to extend 115 kV transmission line north from Edgewood substation at 16th St E and Meridian to an existing transmission line at Enchanted Parkway and Military Road. This would provide capacity for new substations in the Federal Way/Edgewood areas and would improve reliability to the Edgewood substation which is on a radial tap.

II. Natural Gas

The information in this section was provided by Puget Sound Energy. The City of Puyallup receives natural gas service from Puget Sound Energy (PSE), which is a company that provides natural gas service to more than 750,000 customers in six Western Washington counties: Snohomish, King, Kittitas, Pierce, Thurston, and Lewis.

Existing Conditions

Natural gas comes from gas wells in the Rocky Mountains and in Canada and is transported through interstate pipelines by Williams Northwest Pipeline to Puget Sound Energy's gate stations.

Supply mains then transport the gas from the gate stations to district regulators where the pressure is reduced to less than 60 pounds per square inch gage (psig). The supply mains are made of welded steel pipe that has been coated and is cathodically protected to prevent corrosion. They range in size from 4" to 20".

Distribution mains are fed from the district regulators. They range in size from 1-1/4" to 8" and the pipe material typically is polyethylene (PE) or wrapped steel (STW).

Individual residential service lines are fed by the distribution mains and are typically 5/8" or 1-1/8" in diameter. Individual commercial and industrial service lines are typically 1-1/4", 2" or 4" in diameter.

Future Planning

PSE does not have any major projects planned in Puyallup at this time, but new projects can be developed in the future at any time due to:

1. New or replacement of existing facilities to increased capacity requirements due to new building construction and conversion from alternate fuels.
2. Main replacement to facilitate improved maintenance of facilities.
3. Replacement or relocation of facilities due to municipal and state projects.

PSE Gas System Integrity-Maintenance Planning has several DuPont manufactured main and service piping and steel wrapped main replacements planned for 2015. There will be several pipe investigations throughout the city to determine the exact location of the DuPont manufactured pipe. Identified DuPont manufactured piping in PSE's entire system will be ranked and replaced accordingly.

III. Telecommunications

Existing Conditions

Telecommunications in Puyallup includes both wired and wireless telephone services, cable and satellite television, and high-speed broadband technology. As telecommunications technologies have evolved, convergence of these technologies has occurred, resulting in multiple communication services migrating into consolidated networks.

Through partnerships with franchised telecommunications companies, internal department projects and capital projects, the City is working towards a conduit infrastructure that would enable and facilitate future fiber optic



Voice over Internet Protocol (VoIP) –

technology that allows voice communication over an internet connection, rather than a traditional phone network. VoIP service is often offered as part of bundle of services from an internet provider, but it is also commercially available as a stand-alone service, and is very popular for making international calls due to its low cost as compared to traditional long-distance service.

connectivity projects benefitting the City and potential project partners. This fiber optic system would provide redundancies, enhance communications networks, and emergency operations. The City of Puyallup has non-exclusive franchise agreements with Comcast Corporation, the Zayo Group, and Astound Broadband, LLC to construct, operate and maintain a system in compliance with Federal Communications Commission (FCC) regulations. The networks provide high-definition television capacity and high-speed internet access through cable modems, and includes coaxial and fiber optic cabling systems deployed both underground and overhead using utility poles leased from power and telephone companies.

Satellite television competes directly with cable television by delivering hundreds of channels directly to mini-dishes installed in homes and businesses throughout Puyallup.

Many companies offer telecommunications services including integrated voice and data, and voice over internet protocol (VoIP) technology. CenturyLink, the Incumbent Local Exchange Carrier (ILEC), is now joined by several Competitive Local Exchange Carriers (CLECs) in providing more communications service options to Puyallup residents and businesses.

Future Capacity

With expansion of telecommunications infrastructure, new technologies and competition, telecommunications utilities are expected to meet voice, video and broadband demands during the planning horizon.

D. GOALS AND POLICIES

Public Utilities

Coordination and Consistency

- U - 1 Coordinate and cooperate with state, federal, and local jurisdictions, private water purveyors, privately-owned utilities purveyors, private industry, business and citizens in the planning and development of public utilities facilities in a manner that supports the planned growth of the community.**
 - U- 1.1 The City shall serve a role as the primary coordinator of utilities services in the City and Urban Growth Area.
 - U- 1.2 As city limits expand the City shall coordinate the provision of utilities services with outside purveyors.
 - U- 1.3 The City shall seek cooperative approaches to address regional issues of water, sanitary sewer, storm water management and solid waste management.
 - U- 1.4 Public facilities master plans or comprehensive plans shall be guided by the projected growth and development established in the comprehensive plan to determine appropriate resource capacity and services.



- U- 1.5 Major revisions to long range public utilities plans shall be reviewed to assure that those plans remain consistent with the comprehensive plan.
- U- 1.6 Periodic updates of population, employment and development projections shall be provided from the City of Puyallup Department of Development Services to public utilities providers. City agencies and other affected public utilities providers shall seek to jointly evaluate actual patterns and rates of growth, and compare such patterns and rates to demand forecasts for long range planning applications.
- U- 1.7 Sufficient public utilities resources and delivery systems shall be provided to support economic development activities promoted in the comprehensive plan.
- U- 1.8 To coordinate with other utilities providers and street and road departments in the development review process, public utilities providers shall be invited to participate in a joint review process of development permit applications to assure the ability to service proposed projects and consistency in standards.
- U- 1.9 To enhance cooperation to assure the ability of public and private utilities improvements projects to be completed in a timely and efficient manner, the design and timing of utilities siting, trenching, maintenance, repair and replacement shall be coordinated with street repair in public rights-of-way.

Water

- U - 2 Ensure that adequate water quantity and quality provided by either City or private water purveyors is available to all existing and future customers in the City and Urban Growth Area in a manner that supports the planned growth and development of the community.**
 - U- 2.1 Adopt and maintain a comprehensive water system plan to evaluate the City's water sources and identify current and future water system infrastructure needs and/or improvements.
 - U- 2.2 Provide safe, reliably-maintained, sustainable, and efficient water service for domestic, commercial, industrial, fire flow and water emergency uses, to meet present and future needs.
 - U- 2.3 Provide sufficient funding to maintain and replace infrastructure, as needed to ensure reliable service.
 - U- 2.4 Maintain minimum standards for new construction to ensure that it meets the long term goals of the City.
 - U- 2.5 Seek cooperative approaches to address regional water issues, including inter-ties where appropriate, and consideration of joining a regional water system.
 - U- 2.6 Water purveyors in the Urban Growth Area shall be required to show in their respective capital facilities plans those improvements needed to upgrade their water systems in the Urban Growth Area to meet the City's water distribution and fire flow standards.
 - U- 2.7 The City shall pursue obtaining the City's standard of water distribution and fire flow throughout the Urban Growth Area.
- U - 3 Promote long term protection of critical groundwater resources.**
 - U- 3.1 Protect groundwater sources by maintaining and monitoring a Wellhead Protection Program which guides land use decisions, development standards, stormwater facility requirements, coordination with other agencies, and other measures necessary to protect Puyallup's well system, per the Water System Plan.



Sanitary Sewer

U - 4 Maximize sanitary sewer service within the sewer service area to promote economic development and improved water quality.

- U- 4.1 Adopt and maintain a comprehensive sanitary sewer system plan to evaluate the City's sanitary sewer system and identify current and future sanitary sewer system infrastructure needs and/or improvements.
- U- 4.2 Promote sanitary sewer service for urban land uses and discourage the use of septic systems for urban land uses.
- U- 4.3 Use established minimum standards for the requirement of sanitary sewer service based upon land use intensities and densities.
- U- 4.4 As funds and time allow, extend sanitary sewer to unserved areas of the sanitary sewer service area, prioritizing to those areas of most economic or environmental benefit.
- U- 4.5 Reduce infiltration and inflow through alternative construction standards, particularly in high risk areas, to maximize the capacity of the sewer conveyance system and efficiency at the Water Pollution Control Plant.
- U- 4.6 Investigate offering incentives to encourage sewer connection of existing development, including but not limited to: discounting the Systems Development Fee and through partial subsidization to participants in Local Improvement Districts.

Stormwater Management

U - 5 Control the quantity and quality of stormwater produced by new development and redevelopment such that they comply with water quality standards and contribute to the protection of beneficial uses of the receiving waters.

- U- 5.1 Serve all of Puyallup's residences and businesses with a surface water utility.
- U- 5.2 Adopt and maintain a comprehensive storm drainage plan to evaluate the City's stormwater drainage system and identify current and future stormwater system infrastructure needs and/or improvements.
- U- 5.3 Provide Capital, maintenance, education, and enforcement programs as a function of the storm and surface water management utility.
- U- 5.4 Require on-site detention or retention and treatment of surface water for both development and redevelopment projects, unless a regional facility benefitting a drainage basin is constructed, or storage is provided in the Puyallup River for previously-treated surface water as documented in the Comprehensive Storm Drainage Plan.
- U- 5.5 Apply an adopted surface water design manual as the minimum requirement for all development projects and other actions that could

Baseline Event- The design standard for sizing stormwater systems for capacity is a historic baseline storm event. When compiling the Comprehensive Storm Drain Plan, the calculations and modeling were based on actual baseline events, which is also known as a 25-year stormwater flow event (September 17, 1969). For more information, please reference the Comprehensive Storm Drainage Plan.



cause or worsen flooding, erosion, water quality and habitat problems, for both upstream and downstream development.

- U- 5.6 Coordinate water quality improvement programs with adjoining jurisdictions whose surface waters flow into or through Puyallup.
- U- 5.7 Use the Stormwater Fund to retrofit surface water systems to improve water quality and enhance fish passage, by establishing:
 - a. A water quality program that prioritizes projects based on need, and takes into account upstream land uses and Washing Department of Ecology expanded listing of impaired water bodies; and
 - b. A fish passage program that prioritizes projects based on habitat needs and compliance with Washington Department of Fish and Wildlife requirements.
- U- 5.8 Encourage the retention and planting of trees for their beneficial effects on surface water runoff, including flow attenuation, water quality enhancements and temperature reduction.
- U- 5.9 Conveyance capacity should be determined based on a historic baseline storm event. Stormwater drainage systems should have sufficient conveyance capacity so that water levels do not rise above *baseline event* elevations.
- U- 5.10 Stormwater should be discharged directly to the Puyallup River where feasible, provided that the discharge will not cause downstream flooding problems and is consistent with federal, state, and city regulations governing water quality and peak flow control.

U - 6 Establish equitable and manageable means to finance and construct storm water management improvements.

- U- 6.1 As a condition of annexation, the City may require property owners to form Local Improvement Districts to upgrade substandard facilities to the adopted standards of the City of Puyallup.

Solid Waste

U - 7 Promote reliable and cost-effective solid waste management services.

- U- 7.1 The City shall continue to work with Pierce County in solid waste disposal, including participation in the Land Recovery, Inc. (LRI) Landfill and future landfill solutions.
- U- 7.2 Provide solid waste and recycling collection services in a manner that is economical and efficient for both residents and businesses, and uses sustainable practices.

U - 8 Promote solid waste practices that minimize environmental degradation.

- U- 8.1 The City shall seek to implement solid waste management processes that reduce the waste stream, promote recycling and provide for the separation of waste prior to incineration or landfilling.

Except for collection contracting authority which it retains, through an Interlocal Agreement, Puyallup has designated Pierce County as the entity responsible for managing waste reduction, recycling, composting, disposal, and household hazardous waste programs, including associated public information, outreach, and engagement. Please reference the 2000 Tacoma-Pierce County Solid Waste Management Plan, and 2008 supplement (new supplement draft scheduled for adoption in late 2015), for additional goals and policies related to solid waste.



- U- 8.2 Support recycling through such means as:
 - a. Composting food waste from kitchen and lunch areas, and yard waste from landscaping practices;
 - b. Placing disposal containers in convenient locations;
 - c. Using incentive programs to encourage recycling of materials;
 - d. Purchasing City goods containing recycled materials; and
 - e. Encouraging procurement of recycled-content products by residents and businesses.
- U- 8.3 Establish codes to ensure adequate and conveniently located space for garbage and recycling collection containers in commercial, multifamily and mixed-use buildings.
- U- 8.4 Encourage public education programs on solid waste management, recycling, waste reduction, and the proper storage and disposal of hazardous wastes.

Privately-Owned Utilities

Adequacy Of Service & Coordination

- U - 9 Ensure that adequate electric, natural gas and telecommunications service, provided by privately-owned utilities companies, is available to all existing and future customers in a manner that supports the planned growth of the community by coordinating and working with private utility providers.**
 - U- 9.1 The City shall encourage private utilities providers to use the City's Comprehensive Plan and the LIFT implementation plan in planning for their future facilities.
 - U- 9.2 The City shall notify private utilities providers to enable their participation in the development review process.
 - U- 9.3 The City shall attempt to coordinate with private utilities providers the design and timing of utilities trenching and street repair in public rights of way, and pedestrian and bicycle trails and pathways, to reduce disruption.
- U - 10 Assure safety of utilities infrastructure and operations through maintenance.**
 - U- 10.1 Private utility providers shall have primary responsibility in maintaining their facilities in safe working order and responding to emergencies.
 - U- 10.2 The City shall attempt to promptly notify private utility providers in cases of potential disruption of service.

Environmental Considerations

- U - 11 Promote environmental stewardship in location, siting and operational decisions related to the provision of privately-owned utility facilities.**
 - U- 11.1 Monitor research concerning possible health effects of electromagnetic fields (EMF) and shall consider legislation restricting exposure at such time that State and Federal Guidelines be issued.
 - U- 11.2 Cooperate with the natural gas provider to assure all public and private construction proceeds with careful attention to the location of gas lines to minimize the danger from natural gas leaks and flaring.
 - U- 11.3 Where no feasible alternatives exist, private utilities facilities may be located in environmentally critical areas and critical area buffers with minimum disturbance.
- U - 12 Promote energy conservation technologies and practices.**



- U- 12.1 Promote the use of energy conservation techniques and processes including but not limited to: public education, site planning, selection of construction methods and materials, and landscaping in land use policies and development regulations. Such application of techniques and processes shall also promote practices that do not compromise human health conditions when occupied or used.
- U- 12.2 Continue to support conservation standards through adopted building and energy codes.
- U- 12.3 Support telecommunication systems that would assist vehicle trip reduction.

Land Use Compatibility

- U - 13 Promote compatibility in size and use characteristics of privately-owned utilities with surrounding land uses.**
 - U- 13.1 Private utility facilities shall be located where they generally correspond with the type of surrounding land uses with regard to the size of exposed apparatuses and the production of audible noise. Residential and commercial neighborhoods are typically inappropriate locations for generating facilities and transmission stations; however, distribution facilities and transmission lines are appropriate. Larger facilities shall be located in designated industrial areas, unless no feasible alternative exists.
 - U- 13.2 Above-ground natural gas gate stations should be discouraged from being located in residential and commercial areas.
- U - 14 Encourage combined usage of street rights-of-way for public and private utilities.**
 - U- 14.1 Coordinate joint usage of street rights-of-way for public and private utilities.
 - U- 14.2 Coordinate with private utilities companies or other designated parties to secure appropriate active and passive open space uses of utilities corridors which are independent of the road network.
 - U- 14.3 Work with private telecommunications companies or other designated parties to establish joint use of pedestrian and bicycle pathways for installation of high capacity data conduit.



Table 8-2 Implementation Schedule

Utilities Element – Implementation Schedule		
Implementing Action	Time Frame ¹	Potential Actors/Partners
Adopt and maintain a comprehensive water system plan to evaluate the City’s water sources and identify current and future water system infrastructure needs and/or improvements.	Ongoing	Staff
Adopt and maintain a comprehensive sanitary sewer system plan to evaluate the City’s sanitary sewer system and identify current and future sanitary sewer system infrastructure needs and/or improvements.	Ongoing	Staff
Adopt and maintain a comprehensive storm drainage plan to evaluate the City’s stormwater drainage system and identify current and future stormwater system infrastructure needs and/or improvements.	Ongoing	Staff
Coordinate with Pierce County on future updates to the Tacoma-Pierce County Solid Waste Management Plan.	Ongoing	Staff
Establish codes to ensure adequate and conveniently located space for garbage and recycling collection containers in commercial, multifamily and mixed-use buildings.	Near Term	Staff

¹Time frames are defined as follows:

Near Term – years 2015-2020,

Mid Term – years 2021-2025,

Long Term – years 2026-2030, and

Ongoing.