

Climate Element

City of Ferndale

TABLE OF CONTENTS

| | |
|--|--------------------------|
| <u>INTRODUCTION</u> | <u>EXECUTIVE SUMMARY</u> |
| <u>BACKGROUND AND PURPOSE</u> | |
| <u>DESCRIPTION, INVENTORY, AND ANALYSIS OF UTILITY SYSTEMS</u> | |
| — <u>SOLID WASTE AND RECYCLING</u> | |
| — <u>ELECTRICITY</u> | |
| — <u>NATURAL GAS</u> | |
| — <u>TELECOMMUNICATIONS</u> | |
| <u>UTILITY DEMAND PROJECTIONS</u> | |
| <u>GOALS AND POLICIES</u> | |

~~CHAPTER 5: UTILITIES ELEMENT~~ ~~FERNDALE COMPREHENSIVE PLAN~~

Contents

| | |
|--|---|
| <u>Executive Summary</u> | 3 |
| <u>Background and Purpose</u> | Error! Bookmark not defined. 2 |
| <u>Description, Inventory, and Analysis of Utility Systems</u> | Error! Bookmark not defined. 4 |
| <u>Solid Waste and Recycling</u> | Error! Bookmark not defined. 5 |
| <u>Electricity</u> | Error! Bookmark not defined. 8 |
| <u>Natural Gas</u> | 8 |
| <u>Telecommunications</u> | 8 |
| <u>Utility Demand Projections</u> | Error! Bookmark not defined. 15 |
| <u>Utility Goals and Policies</u> | Error! Bookmark not defined. 22 |

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

INTRODUCTIONEXECUTIVE SUMMARY

City residents rely on a number of basic services that help define their quality of life and maintain their health and well-being. ~~Utilities such as the~~These utilities include the delivery of natural gas, electricity, ~~—~~cellular, ~~and~~telecommunication, and solid waste services are key to that quality of life.

In Ferndale, these services are ~~currently~~ provided by private or quasi-public agencies. As a result, ~~the City~~and the community in general does not have ~~a~~ direct involvement in determining the methods or expectations for future services over the ~~twenty~~20-year planning horizon~~period~~.

The [Washington Utilities and Transportation Commission \(WUTC\)](#) ~~r~~egulates the services and defines the costs that a utility can recover, to ensure that the utility acts prudently and responsibly. The Growth Management Act ~~provides for both the~~gives the City and the WUTC ~~to have~~ jurisdiction over the activities of gas, electric, and telephone utilities within the City of Ferndale.

During the 20-year ~~scope~~planning horizon ~~for~~of the Comprehensive Plan, changes will occur in how ~~utilities~~ are provided. ~~As technology evolves, it is~~ important ~~essential to~~ ensure that all citizens of Ferndale continue to have access to these services. ~~The City aims to ensure that the utility service that is provided is~~It is the City's goal for these utility services to be both economical to the service provider and affordable to the consumer.

BACKGROUND AND PURPOSE

~~Continued population growth is expected to profoundly alter the shape of the City of Ferndale. When the 1996 Comprehensive Plan was drafted, the population of Ferndale was approximately 6,830, and there were 2,514 housing units. In 2005, the population had increased to 9,750, and there were 3,476 housing units. Currently, in 2016, there are over 13,000 residents of Ferndale and the city is projected to grow to nearly 20,000 residents by 2036, adding up to 2,800 additional housing units. The Land Use and Housing elements of this plan provide more details on Ferndale's anticipated growth.~~

UTILITIES ELEMENT: SUMMARY OF CONCLUSIONS

- The utilities subject to this element are private and are generally not regulated or administered by the City.
- Opportunities exist to improve coordination with utility companies related to capital projects and day-to-day maintenance.
- ~~Communications utilities cellular communications, high speed fiber and similar provide substantial opportunities for new investment at both the public and private level.~~
- ~~Future City investment in municipal fiber may increase the City's ability to attract businesses that depend on this infrastructure while reducing costs for Ferndale citizens.~~
- The City has the responsibility through its franchise agreements to ensure that utility companies are attentive to the needs of Ferndale residents and the City in general.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

The purpose of the Utilities Element is to ensure that utility services provided by both public and private purveyors will be consistent with the City's Comprehensive Plan and be available to support the community's growth and development as anticipated in the Plan during its 20-year planning ~~period~~horizon. The design and timing for extension of utility services should promote the land use pattern and policies proposed in the Land Use Element, and ~~be~~ coordinated with the infrastructure improvements outlined in the Transportation Element and Public Capital Facilities Element.

The costs of private utility expansions or modifications are typically paid for by the consumers or subscribers to that utility (the customers). The City does not finance these changes; ~~However~~, the City can provide guidance to private utilities as to where future population growth is anticipated.

This element is also intended to supplement and guide franchise agreements between the City and the various utilities described in this plan, and to seek facilitation with those utilities, so that they are not only available to Ferndale residents, but are also provided in an efficient manner that respects Ferndale residents as customers.

~~. This plan also seeks to ensure that the services provided by utilities are not only available to Ferndale residents but that they are provided in an efficient manner that respects Ferndale residents as customers.~~

The Growth Management Act (GMA) and Utilities Planning

~~While the City is required to prepare a Utilities Element per the State of Washington Growth Management Act, the City has chosen to expand on the requirements to include opportunities for closer coordination between the City and utilities, customer service advocacy, and the possibility of expanding City services in the future.~~

~~-The Growth Management Act requires that each city develop a Utilities Element as a part of its Comprehensive Plan. -The Utilities Element must include an inventory of the general location of all existing and proposed utility facilities, and a description of the current capacity and expected future capacity of each utility. The utilities addressed in this Element are: electricity, natural gas, utility conveyance systems (such as major transmission lines and pipelines), ~~and~~ telecommunications (including cellular service, cable TV, and ~~the~~ internet), and solid waste and recycling. The ~~D~~omestic water, wastewater (sanitary sewer), ~~solid waste and recycling~~, and stormwater are ~~referenced but further articulated~~ discussed in their respective sub-elements of the Capital Facilities Element.~~

Unlike public or municipal providers, private utility providers are not required to meet specific level of service standards or demonstrate concurrency prior to development. The WUTC mandates that these private utilities provide service on demand and provide the same level of service to all customers, without forcing existing users to subsidize new

~~CHAPTER 5: UTILITIES ELEMENT~~

~~FERNDALE COMPREHENSIVE PLAN~~

growth. —Electric and telephone utilities are further regulated by the [Federal Energy Regulatory Commission](#) (FERC). —Additionally, cellular telephone communication companies are licensed by the [Federal Communications Commission](#) (FCC). —Cable television companies are regulated by the Federal Communications Commission (FCC) and the Communications Act of 1934, as amended.

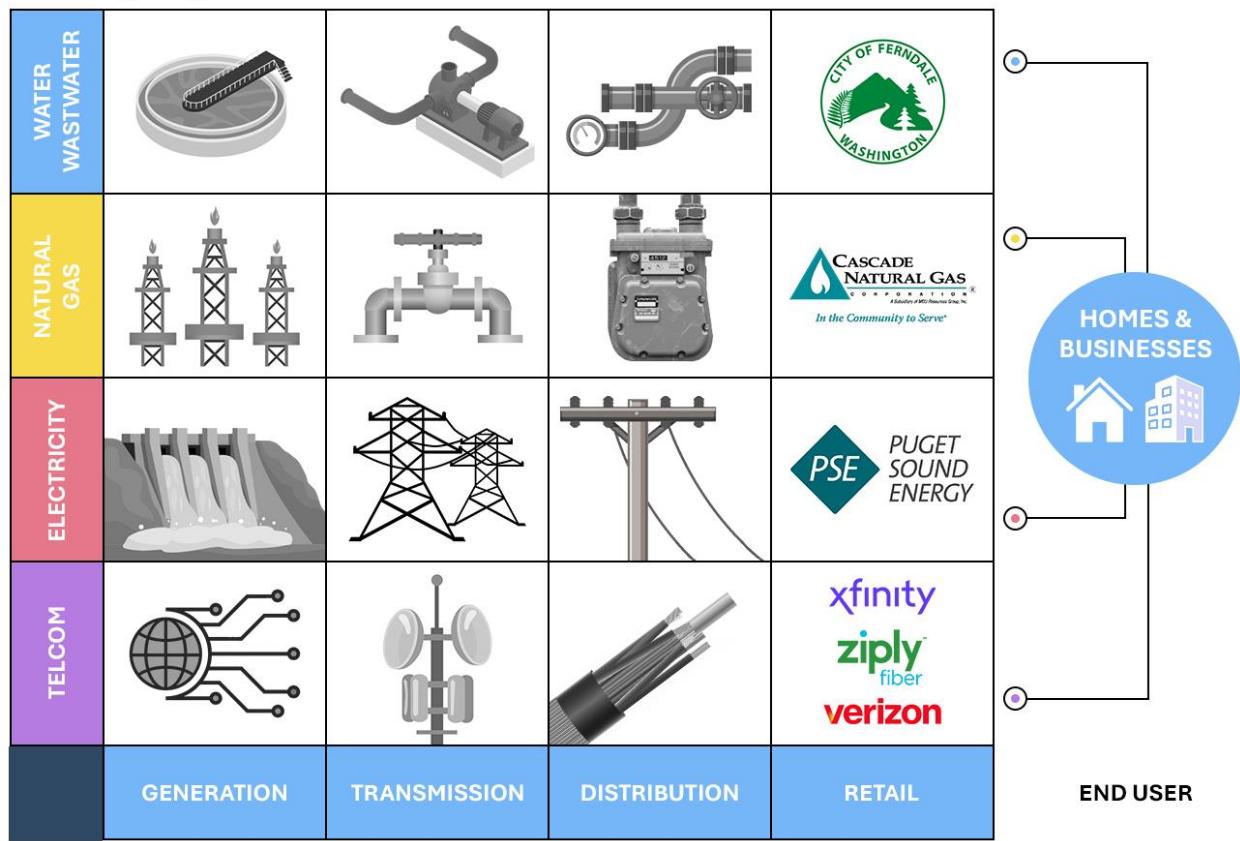
DESCRIPTION, INVENTORY, AND ANALYSIS OF UTILITY SYSTEMS

Typically, utility systems have at least two components, a transmission system that transports the utility to the area and a distribution system that provides [the an](#) individual customer with the utility service (see Figure [UE1](#)). —The focus of this chapter is on transmission systems. It is assumed that each utility will have its own distribution system located throughout the City and Urban Growth Area [\(UGA\)](#). —These systems are necessary and desirable in order to serve each customer who requests service.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Figure 1
Utility Systems



Solid Waste and Recycling

All homes, businesses, and public facilities within the City and Ferndale Urban Growth Area generate municipal solid waste. Solid waste is generally defined as being household trash or garbage. The Sanitary Service Company (SSC), under contract with the City, collects municipal solid waste within the City of Ferndale. SSC is certified by the Washington State Utilities and Transportation Commission, and has the exclusive right to collect solid waste generated within the City. SSC has also been granted the exclusive right to collect both residential and commercial solid waste from areas located within the Ferndale UGA.

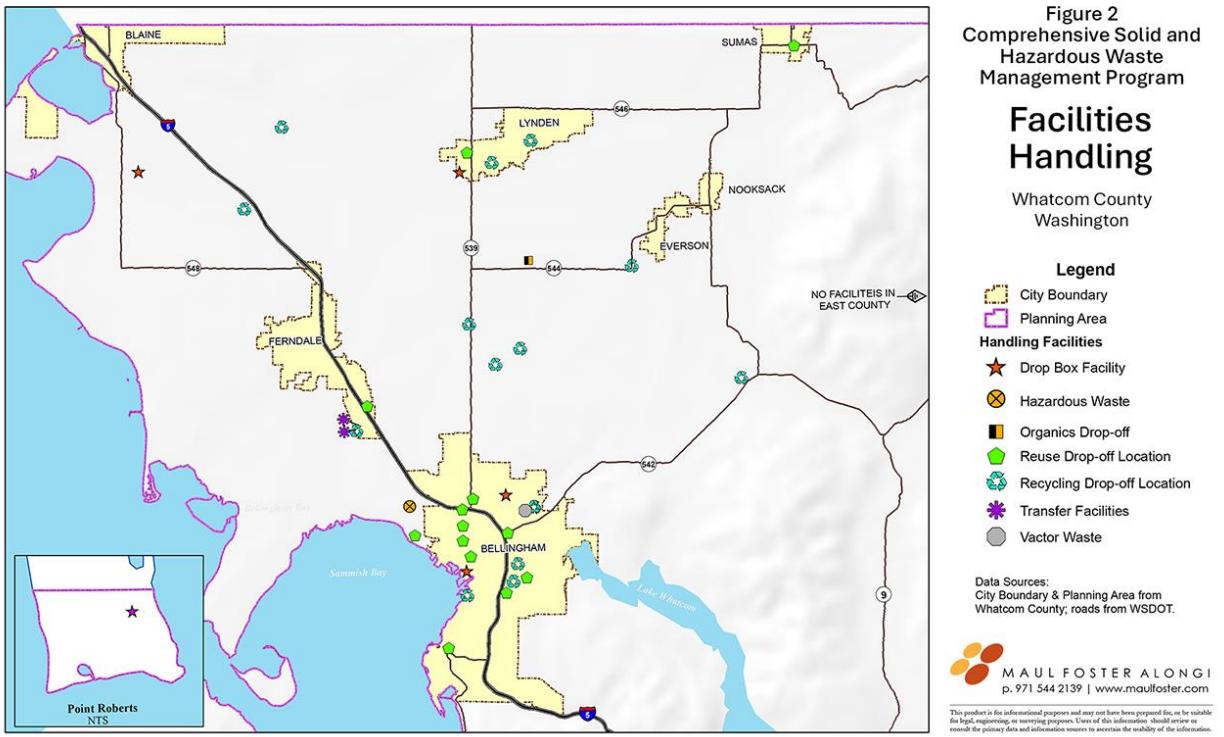
Solid and hazardous waste in Whatcom County is administered by the Whatcom County Health Department, subject to the Comprehensive Solid and Hazardous Waste

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

[Management Plan \(2022-2027\)](#) which is hereby adopted by reference to this plan. See Figure [UE2](#) for a regional map of solid and hazardous waste facilities.

Figure 2 Solid Waste Facilities



Existing and Future Conditions

SSC deposits municipal solid waste at a two regional transfer station facilities y located on Slater Road in Ferndale, operated by Republic Services of Washington, Inc. and Recycling and Disposal Services (RDS), which is owned and operated by Recomp of Washington, Inc. Both SSC and Recomp Republic Services processes and loads solid waste into trucks or railroad cars for transport to southeast Washington and burial in the at the Roosevelt Regional Landfill. Materials deposited at RDS are sent via truck or railroad cars to Columbia Ridge Landfill located in Oregon.

Recycled materials are collected by Recycling and Disposal Services (RDS) at the Slater LaBounty Road transfer facility, where they are then sorted and distributed to recycling companies, including Slater Road Lautenbach Recycle Park, located across the street.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Organic materials, such as yard and food waste, and other certified compostable items, are collected curbside and processed at Green Earth Technology, located in Lynden. The collected materials are subsequently turned into compost in approximately eight weeks, which is then available for purchase by the public.

All residential properties within Ferndale are required to have solid waste and recycling services. Commercial properties are only required to have solid waste services. Organic services are an optional service for both residential and commercial.

When all recycled items and collection services and opportunities in Whatcom County are accounted for, it is estimated that Whatcom County's residential recycling rates (40-50%) and diversion rates (52-58%) are generally higher than the state average, as well as having some of the lowest contamination rates. In Ferndale, SSC recently switched from the three-bin approach to single stream recycling, and will continue to transition all of the County in the coming years. These higher recycling rates have been attributed to the County's continued use of a multi-bin recycling system

The City is committed to reducing the waste stream through source separation and recycling. New and extended recycling programs will continue to be the preferred approach in an effort to minimize the need for future disposal facilities.

Figure 3
Whatcom County Waste Stream Composition
2015 Seasonal Study (All seasons)*

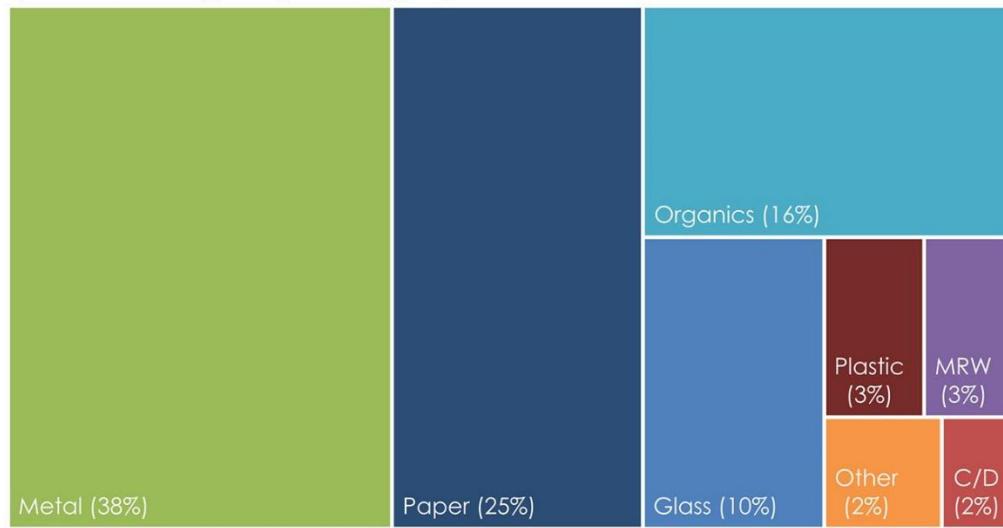


*Ecology seasonal percentages of total waste disposal by weight have been averaged among the four seasons

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Figure 4
Whatcom County Recycled Stream Composition
(Percentage by Weight) 2017



The City is committed to reducing the waste stream through source separation and recycling. New and extended recycling programs will continue to be the preferred approach in an effort to minimize the need for future disposal facilities.

Whatcom County in general, and Ferndale specifically, seeks to reduce or prevent the generation of solid waste. – While no deficiencies in the solid waste, ~~and recycling, and organic material management~~ utilities were identified in the Comprehensive Management Plan, this does not mean that ~~significant~~ improvements ~~should~~can not be made, – or that the City has no role to play.

Ferndale's role in solid waste ~~prevention-diversion~~ will be experienced most dramatically through expanded education and outreach to private households and the construction industry, which together comprise the majority of all waste generated in Whatcom County. Figures ~~UE3 and UE4~~ demonstrate that well over half of all products disposed of in Whatcom County in ~~2009-2015~~ could have been diverted from a landfill.

~~As noted,~~ Ferndale's association with solid waste is somewhat unique, ~~as in that~~ it hosts three of the largest solid waste disposal/recycling businesses in Whatcom County. While Ferndale's share of total solid waste is reflective of its size (rather than location), the City does play a role in working with those businesses to ensure that sustainable waste disposal and recycling remains the first option for consumers.

~~CHAPTER 5: UTILITIES ELEMENT~~ ~~FERNDALE COMPREHENSIVE PLAN~~

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Electricity

Ferndale and its growth area are served by [Puget Sound Energy \(PSE\)](#). This regional purveyor provides service to nearly 2 million people in their 4,500 square mile service area. –Electricity is transmitted into Whatcom County by high voltage lines from Canada and Skagit County, much of it on lines owned by the federal [Bonneville Power Administration \(BPA\)](#). –PSE purchases electricity from BPA, private sources, and also generates some of its own. ~~Major electrical transmission lines and electrical substations are illustrated in Exhibit UE5.~~

The “Bulk Transmission System” is operated by the BPA, which operates a region wide, interconnecting, transmission system that supplies electric power to utilities from federal hydroelectric projects east and west of the Cascades. –The primary service BPA provides to PSE is wheeling energy around the region. –All the transmission lines supplying Ferndale are energized at 115kV (Kilovolt). –These lines supply power into the electrical distribution system and provide connections to customers countywide. –The electricity is distributed through Whatcom County via high voltage transmission lines which connect to distribution substations. –These substations reduce the voltage levels for distribution to local levels. ~~The nearest such station to Ferndale is located in Custer.~~

There are several ~~smaller~~ substations located within or very near ~~the Urban Growth Area~~[Ferndale](#). –These substations provide the distribution lines that deliver electricity to residential and commercial customers within the area. ~~One of these stations is located east of the city on Trigg Road, a second is located on Aldergrove Road (west of the Burlington Northern Railroad), a third is located on Sunset Avenue (west of the freeway), and a fourth is located at the Whatcom County PUD pump site on the west bank of the Nooksack River, along the southerly boundary of the city limits.~~

WHAT IF: THE POWER OF PUBLIC INFORMATION

This element describes a variety of private or quasi-public utilities that have a variety of different objectives, response times, and ability to deliver resources.

While some of these utilities (such as telecommunications) are in a competitive marketplace and seek to expand their services to the greatest extent possible, others (such as Puget Sound Energy) seek to encourage the conservation of scarce resources.

The City is in a unique position to provide objective and free information to the public concerning all of these utilities. Working with other public agencies and through franchise agreements, the City can inform the public of its rights as consumers – and of its responsibilities as they relate to the conservation of resources.

The City can also provide a transparent (and trusted) voice when informing the public when significant expansions of utility systems are proposed, especially when those expansions may have the potential to impact the life or safety of the Ferndale community.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

~~Two 115 KV lines are located on the southern boundary of the city, along the Slater Road corridor. Refer to the attached Electrical Transmission System Map, provided by Puget Sound Energy.~~

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Level of Service

Puget Sound Energy's future electrical service plans are designed not only to provide for future growth and accommodate new and increased loads, but also include changes to the existing systems to improve reliability, maintain power quality, and maintain redundancy backup service in the system. -PSE foresees no immediate energy issues, and will continue to be able to supply energy to Ferndale as the City grows.

Existing and Future Deficiencies

Additional construction of cogeneration facilities and transmission lines/transformer capacity could potentially expand the existing system. -The timing of any improvement would depend on the design and capacity of the cogeneration facility.

PSE also has an active asset management plan. -The plan includes replacing poles as they age and as necessary to maintain or to increase line clearances, as well as working with local jurisdictions to "underground" utilities when associated with new development or as part of planned capital projects.

No deficiencies currently exist, and no deficiencies are forecasted; however, the transition to electric vehicles will likely require increased infrastructure to provide safe, reliable, and effective sources of energy for charging. Infrastructure modifications may include replacing existing transmission and distribution equipment, such as modifications to existing substations, or the addition of new distribution and transmission equipment to meet customer needs.

Therefore, no expansion plans will be necessary during this planning period. In the decade preceding 2016, PSE had has aggressively sought to promote the use of solar energy and other renewable energy forms as a method to supplement existing energy systems. -These programs have generally focused on solar installation with a rapid return on investment, such as private residences, but it is expected that commercial and public users will continue to adopt these methods over the planning period and legislation will provide adequate incentives to support this transition.

As Ferndale residents move toward increased renewable energy, local renewable energy generating resources may result in additional infrastructure required to deliver energy to the grid in a safe, effective, and reliable manner. Additionally, considering energy storage, both residential and utility scale, will have the potential of providing additional benefits for renewable energy sources and providing benefits to the community.

Natural Gas

Natural gas is distributed throughout Whatcom County by Cascade Natural Gas Corporation (CNGC). -Natural gas is a fuel provided to homes and businesses through

CHAPTER 5: UTILITIES ELEMENT FERNDALE COMPREHENSIVE PLAN

underground piping. -It is colorless, odorless, flammable and lighter than air. Gas is odorized to make leaks more perceptible. -Most natural gas use in the urban growth area is for space and hot water heating. -Major gas transmission pipelines are illustrated in [ExhibitFigure -5UE-2](#).

CNGC provides natural gas to the City and surrounding communities through a network of interconnecting supply and distribution mains. -According to CNGC's Rate Department, the average house (using natural gas for both heat and hot water) consumes about 1,000 therms per year. -Ten therms equals approximately one "mcf" (one thousand cubic feet) of gas per year, in which case. ~~Given that 10 therms equal approximately one "mcf" of gas (or one thousand cubic feet), then~~ 1,000 therms per house equals approximately 100,000 cubic feet of gas per year per house. When planning the size of new gas mains, CNGC uses a saturation model which assumes all new households will use natural gas, ~~since the vast majority of new homes constructed, where builders have the choice, are using natural gas.~~ Extension of service ~~(typically conversion)~~ is based on request and the results of a market analysis to determine if revenues from an extension will offset the cost of construction.

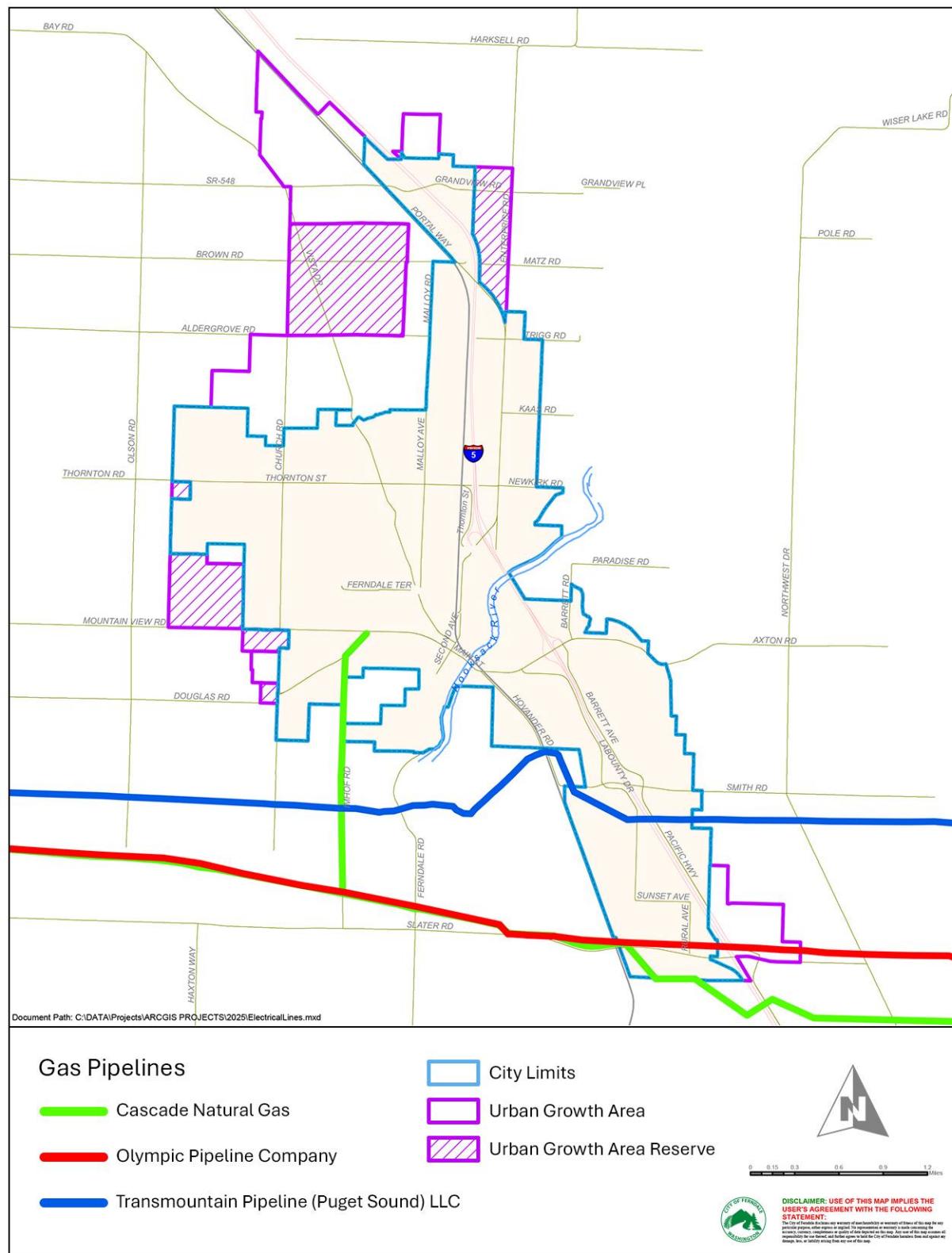
Typically, Nnatural gas used in Whatcom County flows from Canada, through Sumas, then west to Cherry Point and south and east to Ferndale. -The primary ~~transmission high pressure distribution~~ line for Ferndale runs adjacent to Slater Road and ~~services continues to~~ Bellingham and other points south. -Large distribution lines are also located in the Urban Growth Area, along Imhoff Road to the south of the ~~C~~ity limits, and east of the freeway and south of Smith Road. -Delivery to homes and businesses occurs from smaller pipelines throughout the City. Not all the City has access to natural gas, although most newer subdivisions install it as a standard utility service.

~~The location of the utility infrastructure is illustrated on Figure UE-1.~~

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Figure 5 Natural Gas Transmission Lines



CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

As of 2016, a new natural gas transmission line has been proposed north of Ferndale, conveying gas through Whatcom County and ultimately under the Salish Sea to Vancouver Island. The City discourages the location of such a transmission line through the City or its Urban Growth Area as such a line would likely require additional setbacks and buffers, thus limiting future development potential. Environmental and safety concerns represent additional considerations that must be evaluated regardless of the location of a transmission line.

Delivery to homes and businesses occurs from smaller pipelines throughout the city. Not all the city has access to natural gas, although most newer subdivisions install it as a standard utility service.

Level of Service

The capacity of the natural gas supply system is primarily constrained by the volume of gas entering the network. The minimum pressure at which gas can be delivered is 15 psi. As it is not an essential service, CNGC is not mandated to provide residential or commercial service. However, according to CNGC officials, there is ample supply to accommodate existing and future demand.

Existing and Future Deficiencies

Natural gas is considered a “cleaner” energy source in comparison to other fossil fuels like coal or crude oil. As the nation works to confront climate change, demand for natural gas may increase.

The availability of natural gas does not appear to be an issue during the next 20 years. As such, Cascade Natural Gas does not anticipate constructing new facilities within the region. Based on growth projections, CNGC anticipates that the existing system is capable of supplying approximately 50,000 customers in Ferndale. If supply issues become problematic, potential methods for increasing supply to a particular area include replacement of the lines with larger pipelines, looping pipeline systems, installing parallel lines, and system pressure increase. inserting higher pressure lines into greater diameter but lower pressure mains. Three types of construction anticipated in the Ferndale area include:

- New installation to increase capacity of existing customers or conversions from an alternate fuel;
- Main replacement projects to improve maintenance and system reliability; and
- Replacement or relocation of facilities due to municipal and State projects.

CHAPTER 5: UTILITIES ELEMENT FERNDALE COMPREHENSIVE PLAN

Changes to federal law over the last two decades were designed to increase competition among energy sources by encouraging the development of new natural gas resources and the development of nationwide transmission pipelines. ~~Almost all new homes are more likely to have heat pumps installed, and the use of natural gas for heating other appliances. Facility technology for electricity transmission may change in the future in response to the need to create more efficient facilities and in response to various electromagnetic field and health concerns.~~ Utility policies should be updated in the future to take into consideration changes in technology, facilities, and services.

Natural gas service and availability are currently sufficient to meet existing demand. Northwest Pipeline works together with Cascade Natural Gas to ensure that local gas supply needs are met.

~~Cascade Natural Gas Corporation does have pressure deficiencies that are being addressed in the next five to ten years. Some of the projects plans budgeted include installation of reinforcement pipelines to support light industrial expansion and surrounding business, as well as several projects related to supporting northeast section of town particularly Portal Way/Enterprise Rd areas. Additionally, Cascade Natural Gas may install additional infrastructure to support residential and commercial customers in response to demand.~~

~~Cascade's Integrated Resource Plan describes the two- to four-year and 20-year expectation of how Cascade expects to safely serve customers' energy needs at the lowest reasonable and safe cost. The analyses in this 12–18 month process includes existing and potential new pipelines and natural gas supply contracts (among others) as well as benefits of energy efficiency to customers. The IRP provides comprehensive and transparent insight into how Cascade plans for customers' energy future. Cascade's Integrated Resource Plan is located at www.cngc.com.~~

~~No deficiencies currently exist and no deficiencies are forecasted. Therefore, no expansion plans are anticipated during the life of the Comprehensive Plan.~~

Telecommunications

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Telecommunications is the transmission of information by wire, radio, ~~optical fiber optic~~ cable, electromagnetic, or other similar means. In Ferndale, telecommunications utilities include ~~standard (conventional)~~ telephone, wireless communication, ~~Internet~~ service and cable TV. Telecommunications is not only important for voice transmission, but also provides the infrastructure for the transmission of images and electronic data. In the City, telecommunications service providers include ~~Century Link, Comcast, and Ziply, formally known as~~ Frontier Communications, ~~and Astound Broadband (Wave)~~. In addition, several wireless providers provide mobile services via a system of wireless communication towers and several companies provide cable TV and internet service.

Federal and state regulations require that telecommunications purveyors provide adequate telecommunications services on demand. Continuing coordination between the City and telecommunications purveyors will help ensure maintenance of an adequate level of service.

Conventional Telephone Services

Existing Systems

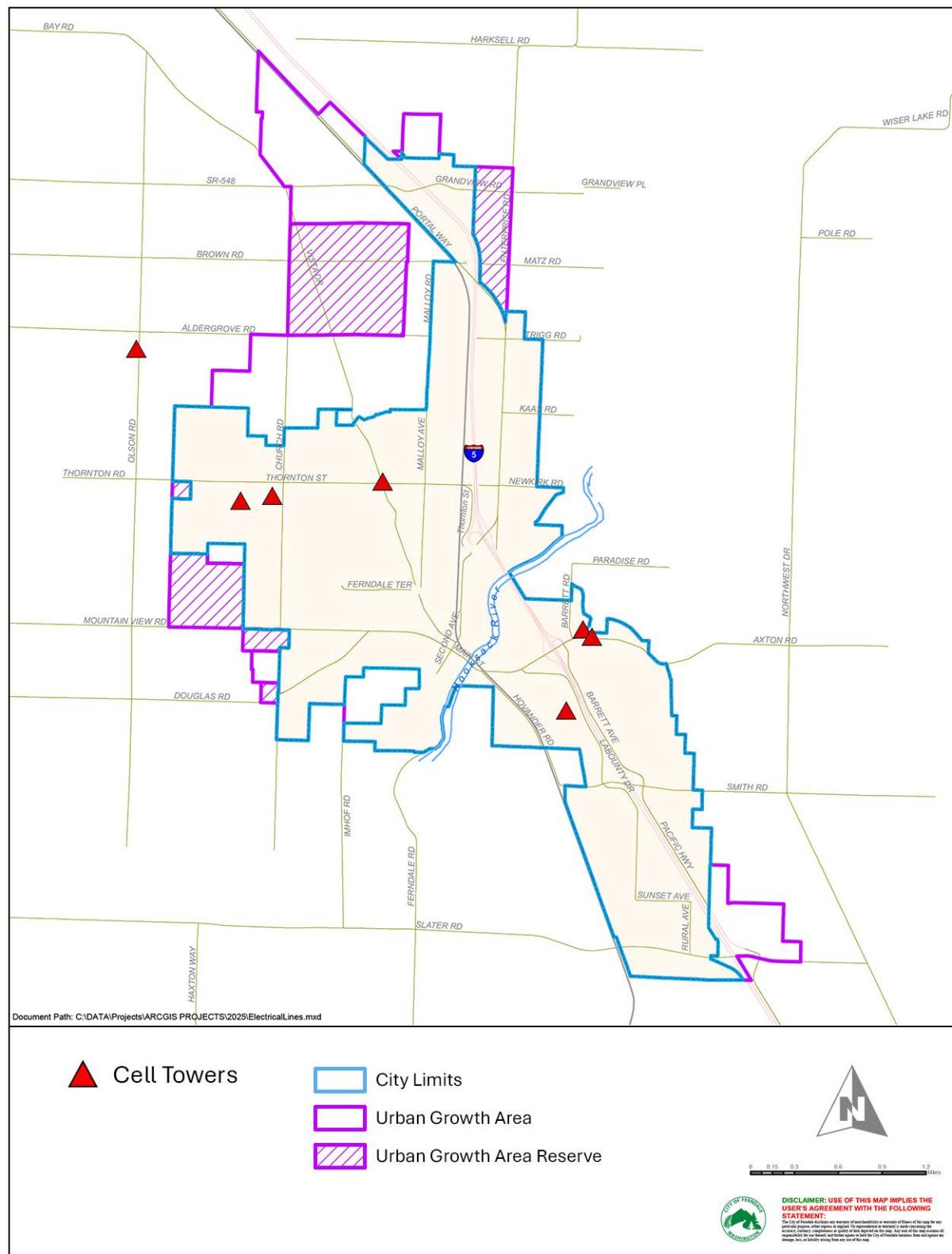
Conventional telephone service (or “landline” service) is regulated by the WUTC, ~~and while there may be some utilities that still provide this service, it has almost entirely been replaced by Voice Over IP (VOIP).~~ In fact, phone jacks are rarely installed in new developments. Fiber and cable lines are used by Ziply and Comcast respectively to provide VOIP to residents. In most cases, it is wireless services that residents rely on.

Wireless facilities are regulated by the FCC and the City of Ferndale has adopted local regulations that are consistent with federal standards. The majority of improvements anticipated within the planning period consist of the maintenance, updating, and co-locations on existing facilities.

The location of cellular wireless tower facilities is illustrated in Figure 6. These are owned and/or operated by a variety of companies, including Verizon, T-Mobile, and AT&T.

CHAPTER 5: UTILITIES ELEMENT FERNDALE COMPREHENSIVE PLAN

Figure 6 Cell Tower Locations



CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

~~A local exchange area is served by a~~

~~Central Office (CO), which contains various kinds of switching equipment. From a CO, there are typically four main cable routes extending relatively north, south, east, and west. From each main cable route there are branch distribution routes. These facilities may be aerial or buried, copper or fiber. Extending from the branch distribution routes are local lines that can be used for voice or data transmission by subscribers.~~

~~The 2005 Comprehensive Plan anticipated a significant and increasing demand for conventional telephone service through 2025. However since that time the use of landlines has declined significantly as consumers utilize Voice Over IP (VOIP) or eliminate landlines entirely, in favor of mobile devices. See Figure UEX~~

Level of Service

According to Pew Research, as of 2024, 98% of Americans own and use a cell phone, with nine-in-ten owning a smartphone. Furthermore, as of 2022, according to US Centers for Disease Control, 29% of adults are living in a household without a landline (whether conventional or VOIP).

~~While landlines are expected to continue to decline over the life of this plan, it is likely too early to predict their obsolescence, or an era in which telecommunications companies will be unable to provide landline services on demand.~~

Existing Deficiencies

~~None identified.~~

Existing and Future Deficiencies

Telecommunications companies are required by law to provide adequate telecommunications services on demand. ~~Accordingly, these companies must provide facilities to accommodate whatever growth pattern occurs within the City.~~ Due to advances in technology, additional capacity is easily and quickly added to the system. The City has ~~substantial~~ authority through its franchise licensing authority to ensure that utility companies maintain their responsibilities.

Forecasting for new cellular facilities uses a relatively narrow time frame of two years. Expansion is demand driven, and services are expanded in response to customer demand. Raising the density of transmission/reception equipment to accommodate additional subscribers follows rather than precedes increase in local system load. For this

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

reason, companies closely analyze market demand to determine expansions into new service areas. Capacity may also be expanded through technological advances in digital equipment. Therefore, cellular companies are likely to maintain a short response time and a tight planning horizon.

Cellular Telephone Service

Existing Systems

The location of cellular wireless tower facilities is illustrated in Exhibit UE-3.

Wireless facilities are regulated by the FCC and the City of Ferndale has adopted local regulations that are consistent with federal standards. Throughout the 1990's and early 2000's, the various wireless carriers focused primarily on the development of the cellular network, which most visibly consisted of wireless tower facilities. The majority of improvements anticipated within the planning period consist of the maintenance, updating, and co-locations on existing facilities.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Level of Service

No Level of Service has been established for these uses and may vary from company to company based on individual business models and market demand.

According to Pew Research, as of 2014, 90% of Americans own and use a cell phone, with 64% of citizens using a so-called "Smartphone". Furthermore, 43% of adults are living in a household with a cell phone and no landline.

Future Deficiencies

The use of cellular telephones has far outpaced initial projections, and advances in technology continue to shift the use and expectations for these devices. As an example, the 2005 Comprehensive Plan forecast that by 2010, 20% of the population would own mobile devices. By 2014, 90% of American adults owned a cell phone. The 2005 update pre-dated "smart phones" by several years by 2016, nearly 70% of the adult population owned a smart phone.

Forecasting for new cellular facilities uses a relatively narrow time frame of two years. Expansion is demand driven, and services are expanded in response to customer demand. Raising the density of transmission/reception equipment to accommodate additional subscribers follows rather than precedes increase in local system load. For this reason, companies closely analyze market demand to determine expansions into new service areas. The cellular network is expanded by dividing a larger cell into several smaller cells to increase the number of available channels. Capacity may also be expanded through technological advances in digital equipment. Therefore, cellular companies must maintain a short response time and a tight planning horizon.

WHAT IF? FRANCHISE AGREEMENTS

The various utilities described in this element operate within the City of Ferndale under "Franchise Agreements" that allow the utility to use the City's public rights-of-way. In turn, these agreements are intended to provide the utility with the ability to quickly and efficiently serve their customers.

It is vitally important that franchise agreements are updated on a regular basis and that the City and the utility are able to frankly discuss their individual goals and objectives, as well as upcoming projects that may impact the other.

In some cases, the lack of frank discussion may lead to project delays, redesign of projects, or inconsistent elements within projects (such as failure to underground utilities or subsequent modification to the project once it is complete).

Cities may also negotiate in-kind or financial support from utilities in order to distribute information to the public about the utility as well as City processes, to support local programs, and other projects.

Franchise agreements may also include agreements related to customer complaints associated with the utility, including the basic expectations of the community for response time, and even including penalties should the utility fail to perform.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Internet Service

~~No technology in the last century has so radically and quickly transformed daily life as the internet.~~ The internet has become so pervasive in daily life that it is now considered an essential utility that some consider to be on par with water and electricity for billions of people.

In Ferndale, ~~internet~~ service is presently provided by ~~telephone~~, cable, fiber, and satellite. —In addition, as the City constructs or reconstructs streets, it is providing conduits to assist in the installation of fiber optic communication systems.

Level of Service

Federal and state regulations require that telecommunications purveyors provide adequate telecommunications services on demand. Continuing coordination between the City and telecommunications purveyors will help ensure maintenance of an adequate level of service.

Comcast maintains that coaxial services exists within all areas of Ferndale City limits, while Ziply is in the process of bringing fiber internet options to many more residential areas within Ferndale.

Existing and Future Deficiencies

There are currently no specific deficiencies for internet services within Ferndale. Some of those deficiencies do exist within the UGA; however, as areas are annexed into the City and development occurs, internet providers will have the obligation and opportunity to extend services.

WHAT IF? MUNICIPAL FIBER

~~Many jurisdictions throughout the world have sought to provide free or low cost access to the internet, often through high speed fiber optic infrastructure located within public right of ways.~~

~~Many cities have also sought to establish public wifi networks, often within the downtown core of a city, in order to provide residents and visitors with free and reliable access to information.~~

~~These approaches serve a number of different functions:~~

- ~~As a non profit venture, they tend to decrease costs to the consumer~~
- ~~Provide competition to private carriers~~
- ~~Provide a significant incentive to businesses that depend on high capacity, high speed access to information to locate in a jurisdiction~~
- ~~Provide municipal agencies the ability to remotely access critical information~~
- ~~Decreases the “digital divide” that may prevent low income households from accessing the internet.~~

~~As of 2016, the need for quick and reliable access to information continues to expand and there is little doubt that high speed internet access has become an essential utility. However, the degree to which the City of Ferndale will become responsible for providing this utility is yet to be determined.~~

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Streaming video is becoming a larger part of America's entertainment consumption. In the first quarter of 2015, American Netflix subscribers watched over 10 billion hours of internet video content, roughly two hours per subscriber per day. According to a 2014 report by Sandvine, a Canadian bandwidth management systems analyst, streaming video accounts for 36.5% of all downstream internet bandwidth during peak periods in North America.

Cable and Satellite Television

Cable television service in Ferndale is provided by Comcast ~~and Frontier Communications~~, while satellite television is provided by DIRECTV and DISH Network. Cable systems receive their signals in several different ways. Some are received through the air directly from broadcast television stations using antennas similar to those used by homeowners. Other signals are transmitted from point to point via microwave. Microwave transmission differs from off-air broadcast channels because the carrier that the video, color and sound are modulated upon is at a much higher frequency in microwave transmission. A third source of signal is via satellites.

Main trunk cable lines (coaxial cable and fiber) distribute cable television signals throughout Ferndale. Feeder cables branch from the main trunk cables to distribute the signals to neighborhood areas. From there, individual connections are made to the customer's service entry. Satellite television utilizes a satellite receiver, or dish, located on the customer's property and receives information (internet, telephone, television) via direct line of site to a satellite.

~~Comcast works closely with utility companies and the City to stay informed on proposed developments so that cable can be a part of a development's plans. Each year, engineers assigned to the Ferndale area assess the need for system expansion based on telephone inquiries, permitting data from the City and County, and technological advances in distribution equipment. Comcast now offers digital service to Ferndale customers, and has also replaced copper cable trunk lines with fiber optic lines, which can be configured to carry video or data transmission signals.~~

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

Level of Service

Existing cable television facilities are currently capable of servicing approximately nearly all potential customer connections in Ferndale. Comcast policies encourage the provision of service to all residents within its franchise areas. -Factors considered in extending service are overall technical integrity, ~~economic~~economic feasibility, and franchise requirements.

~~Federal and state regulations require that telecommunications purveyors provide adequate telecommunications services on demand. Continuing coordination between the City and telecommunications purveyors will help ensure maintenance of an adequate level of service.~~

Existing and Future Deficiencies

No deficiencies in ~~the~~ cable or satellite television service systems were identified ~~in the Comprehensive Plan~~, so no improvement recommendations were developed.

UTILITY DEMAND PROJECTIONS

Utility providers must consider the regional as well as local needs for the services they provide. -Consideration must be given not just to the number of people within a given area, but where they work, live, and shop. -An analysis of the population projections and land use plan is key to development of these demand projections. -As future growth and development generate demand for additional utility service, major utility providers are encouraged to work with the City to identify potential sites for infrastructure and facility expansion. ~~To date, the plans that utility providers have provided to the City do not indicate that additional facilities are planned within the urban growth area.~~

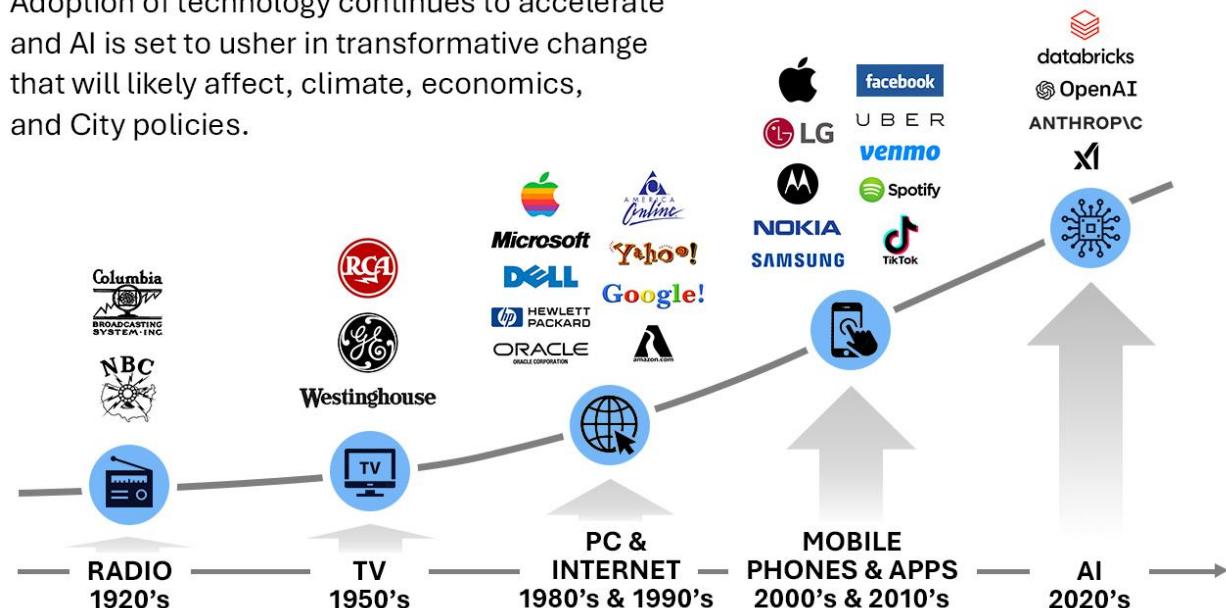
Major utility facilities and transmission lines are typically difficult to site within an urbanizing area. -While there may be some community resistance to permitting particular private utility and service providers to locate and operate facilities within the City, it is important to remember that it is the demand for utility services and community resources that create the need for these facilities in the first place. -State law does not permit jurisdictions to preclude the siting of essential public facilities within the City. -A discussion on essential public facilities is contained within the Capital Facilities Element.

While few deficiencies exist with most of the utilities presented in this element at this time, the 20-year planning horizon comes with its own challenges when it comes to the change of technology. The continued advancement and use of AI is likely to create different challenges for the City and its needed utilities in the future.

CHAPTER 5: UTILITIES ELEMENT FERNDALE COMPREHENSIVE PLAN

Figure 7
Forecasting Technology: The Speed of Change

Adoption of technology continues to accelerate and AI is set to usher in transformative change that will likely affect, climate, economics, and City policies.



Stepmark Partners <https://stepmark.ai/about/>

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

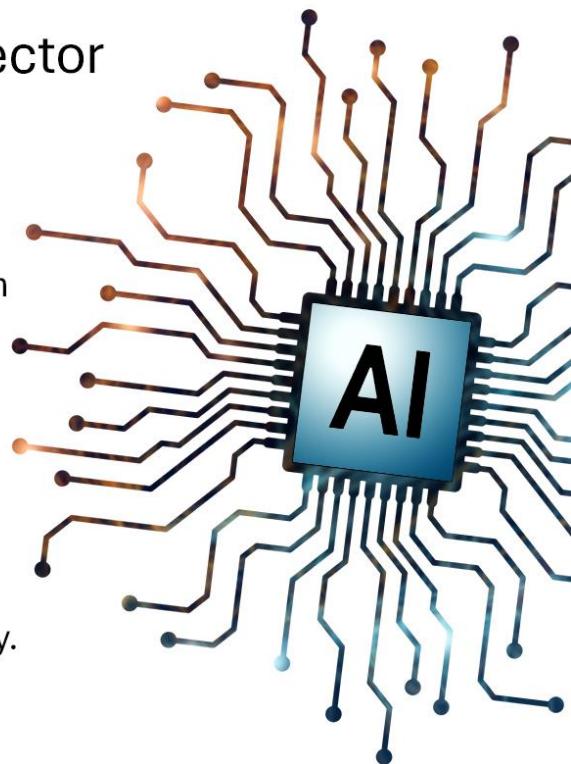
Figure 8

How AI Affects The Utility Sector

Predictive AI improves the efficiency of the energy grid.

AI's best decision for system optimization might not be the best decision for human beings. AI will still need active and capable human oversite.

AI internet searches use **10 times** more electricity than traditional searches. In 2023, the data centers that power these searches used 4.4% of total US electricity. By 2028 that usage is expected to rise between 6.7% and 12%.



Washington State Artificial Intelligence Task Force Report December 2024, US Department of Energy Berkeley Lab Report January 2025

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

UTILITY GOALS AND POLICIES

1. 1.I: PLAN IMPLEMENTATION: The City ~~shall will~~ take an active role in working with private and quasi-public utility ~~providers,ies, their location, and their response to Ferndale consumer expectations.~~

Rationale: Prioritizing coordination with utility providers both before and during any project will overall provide a more organized outcome with fewer issues for the City, the utility provider, and Ferndale residents.

Plan Implementation Policies:

- A. i:** Franchise agreements will not be allowed to lapse.
- B. ii:** The City will seek to initiate franchise agreement negotiations no less than six months prior to expiration of previous agreements.
- C. iii:** The City will seek to maintain maps and other information online that will provide utility companies with long-range notice of pending or potential capital projects.
- D. iv:** The City will seek to inform utilities companies of pending private development projects that will require the extension of utilities in order to minimize or prevent subsequent encroachment into the public infrastructure soon after installation.
- E. v:** The City ~~shall will~~ establish Development Standards that anticipate the joint use of public right of way and utility corridors.

2. 2.II: CONSUMER RIGHTS: Ferndale residents should be informed of their legal rights and have agency when resolving conflicts with utility providers.

Rationale: The installation and maintenance of utilities is a needed aspect of the City. When utility providers are working in neighborhoods, there is always the chance of disruptions and impacts. It is important that residents of Ferndale understand that while they have agency when it comes to work being completed on their property, utility providers also have the right to install and maintain their utility where required.

Consumer Rights Policies:

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

- A. i: The City will seek to utilize franchise agreements when funding public information outreach and surveys related to individual utilities.
- ii: Utilities constructed in residential neighborhoods shall be designed and constructed in a manner consistent with the character of the area. Where actual design of a structure cannot be modified (e.g., above ground vaults, power poles), appropriate buffer/screening measures shall be required as a condition of development.
- B. iii: The City will seek to utilize franchise agreements to fund improved access to public meetings, public events, and general outreach.
- C. iv: The City will seek to work with utilities companies to inform the public of significant utilities projects in advance of their development.
- D. v: When new utility facilities must be located in close proximity to residential neighborhoods, every effort should be made to minimize the impacts of the facility through the use of buffers, landscaping, undergrounding of utilities, co-location of utilities, and designing the facility to minimize aesthetic impacts.
- E. vi: Establish development regulations that permit utilities to efficiently serve their customer base, without abrogating the City's responsibilities to protect its citizens.

32. III: ENVIRONMENT: Promote conservation of utility resources and the environment in order to extend the life and capacity of both.

Rationale: As the demand for energy increases, the need to find ways to conserve energy and protect the environment also increases. The City and utility providers should find ways to improve the conservation both in use and maintenance of the specific utility, as well as ensure that environmental impacts are appropriately considered and where appropriate, mitigated.

Environmental Policies:

- A. i: City shall will facilitate the conversion to cost-effective, and environmentally sensitive and technologiesenergy-efficient technologies, and energy sources.
- B. ii: When possible, the City shall will minimize encroachment on view and solar access of existing residences by new utility facility construction or improvements.

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

iii: ~~City shall facilitate the conversion to cost-effective and environmentally sensitive technologies and energy sources.~~

C. iv: The City ~~shall will~~ target goals and timelines for reduction of ~~electric~~ energy consumption within City-owned facilities, and implement measures to achieve these goals.

D. v: The City ~~shall will~~ seek to implement waste reduction measures by coordinating with Sanitary Service Company and other utilities, and ~~shall will~~ seek assistance in these measures through revised franchise agreements.

E. The City will seek ways to support reliable energy systems, such as energy storage systems, in coordination with utility providers.

4. IV: UTILITY RIGHTS: ~~The City recognizes that utility substations and transmission lines are necessary components of utility service in urban areas and Encourages those utility providers to types of site facilities utility substations and transmission lines to locate in a manner that is compatible with surrounding land uses.~~

Rationale: The City recognizes that utility substations, transmission lines, and facilities are necessary components of utility service in urban areas, but should work with the utility provider to site facilities in such a way to prevent disruptions to Ferndale residents.

Utility Rights Policies:

A.

i: The City will encourage utility providers to locate new facilities in areas that are compatible with surrounding land uses and away from established residential neighborhoods whenever possible.

V: TECHNOLOGY AND SERVICE ENHANCEMENT: ~~The City will explore methods through which Ferndale citizens and businesses may be provided with the most reliable, advanced, and cost-effective utilities.~~

Technology and Service Enhancement Policies:

i: ~~Whenever it is determined that a utility cannot compete with services that could be provided by the City or another agency, the City shall consider modifying or~~

CHAPTER 5: UTILITIES ELEMENT

FERNDALE COMPREHENSIVE PLAN

- nullifying franchise agreements in order to provide better service to Ferndale citizens.
- ii: The City shall consider utilizing franchise agreements to fully or partially fund the development of Municipal Broadband, in order to create a “high tech” zone of fast and inexpensive internet service throughout its downtown.

Utility Providers

AT&T

Astound Broadband

Cascade Natural Gas Corp. (CNGC)

Comcast (Xfinity)

DirectTV

DISH

Puget Sound Energy (PSE)

Sanitary Service Company (SSC)

T-Mobile

Verizon

Ziply Fiber