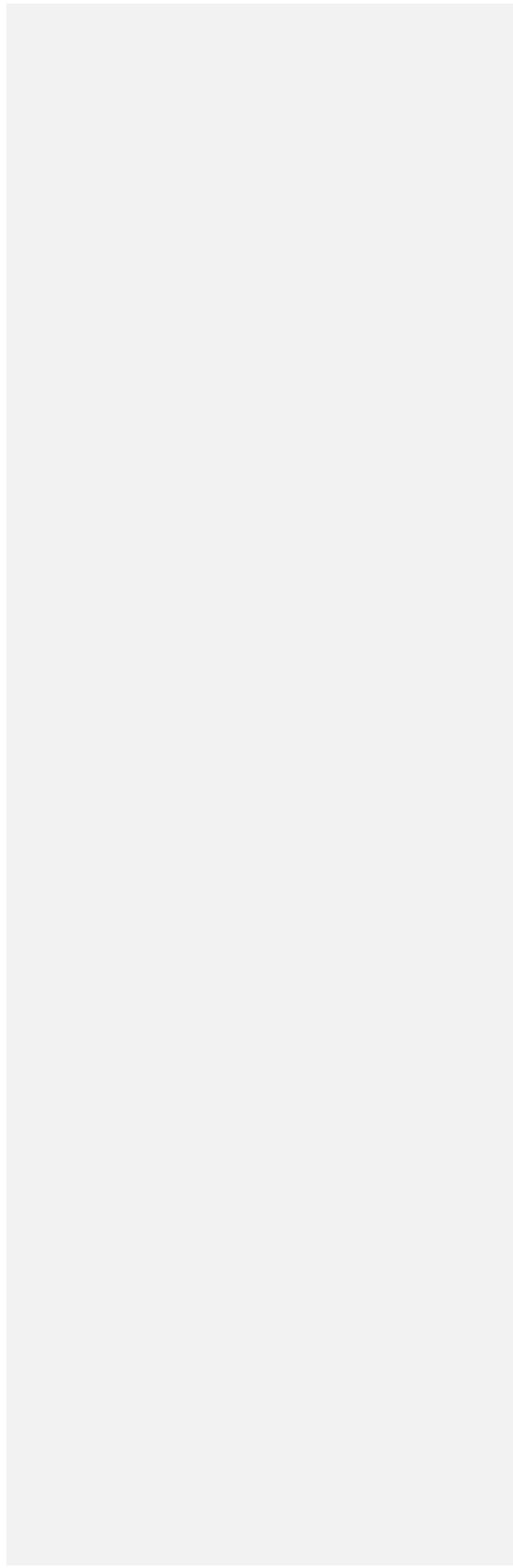




**Utilities And  
Capital Facilities  
Element  
7/25/17**



## Utilities and Capital Facilities

This Utilities and Capital Facilities Element has been developed in accordance with Section 36.70A.070 of the Growth Management Act and with the Island County Wide Planning Policies, to address the capital facilities and utilities needs in the city of Langley Urban Growth Area. It also provides a link between the land use planning policies of the city and the development activities of utility providers, and describes how the various utilities plan to accommodate forecasted growth over the next 20 years.

Commented [CPI]: Moved from Utilities element

It forecasts the community's policy plan for public facilities for the next 20 years, and includes a six-year financing plan for capital facilities and identifies the source of funds for such purposes. The policies and objectives in this plan will be used to guide public decisions on the use of capital funds. They will also indirectly guide private development decisions by providing a strategy of planning public capital expenditures.

This element has also been integrated with other elements to ensure consistency throughout the comprehensive plan. The element specifically evaluates the city's fiscal capability to provide the capital/public facilities necessary to support the other comprehensive plan elements.

The Capital Facilities and Utilities Element assists the city to coordinate its physical and fiscal planning. The Capital Facilities and Utilities Element promotes efficiency by requiring the city to prioritize capital improvements for a longer period of time than the single budget year. Long range financial planning presents the opportunity to schedule projects so that the various steps in development logically follow one another, with regard to relative urgency, economic desirability, and community benefit. In addition, the identification of adequate funding sources, results in the prioritization of needs, and allows the trade-offs between projects to be evaluated explicitly.

Capital facilities plans can help jurisdictions use its limited funding wisely and most efficiently to maximize funding opportunities. By planning ahead to determine what the needs are, jurisdictions can prioritize projects, coordinate related projects, and be ready to apply for loan and grant opportunities. When the comprehensive plans, development regulations, and budgeting policy and decisions are made in a coordinated and consistent manner, the outcome can be better implementation of the adopted community vision.

Each jurisdiction should define capital facilities and identify which capital facilities and public services are included. Additionally, each jurisdiction should clearly identify which capital facilities and public services are necessary to support development.

The Capital Facilities and Utilities Elements was combined into one element for this plan due to the size of the city and its capital/public facilities as well as the amount of overlap between the two elements that existed in the previous plan.

## **CAPITAL FACILITIES PROGRAM**

The Capital Facilities Program within this element is a six-year financing plan for capital expenditures to be incurred each year. It sets forth each capital project, which the jurisdiction plans to undertake and present estimates of the resources needed to finance the project. The first year (2017) of the Capital Facilities Program will be converted to the annual capital budget that is adopted by Council. While the remaining five-year program for 2018 to ~~2030~~ ~~23~~ outlines long-term project planning. Only the expenditures and appropriations in the annual budget are binding financial commitments. The projections for the remaining five years are not binding, and the capital projects recommended for future development may be altered or not developed due to costs or changing circumstances. The Capital Facilities Program is a six-year rolling plan that will be revised and extended annually to reflect changing circumstances.

Capital Facilities are not specifically defined by the GMA, however it does define public facilities to include “streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, park and recreational facilities and school.” The GMA also defines public services to include “fire protection and suppression, law enforcement, public health, education, recreation, environmental protection and other governmental services.”

Utilities are defined for this plan to include third party utilities such as electrical, telecommunication facilities (including telephone, cellular phone, and cable television services) and natural gas lines.

### **Capital Improvements**

This Element identifies those capital/public facilities that require repairs, upgrading, replacement, as well as new facilities that need to be developed to accommodate projected growth. The project may also include design, pre-engineering, permitting, environmental analysis, land acquisition, construction, major maintenance, site improvements, landscaping, initial furnishings, and equipment.

These are for facilities that are large scale, generally non-recurring high cost, and may require multi-year financing. This does not include capital outlay items such as equipment. Minor projects, activities, or maintenance that cost less than \$5,000 are considered minor maintenance and are not capital improvements.

### **Capital Improvement Program**

The city's six-year and twenty-year capital improvement program is identified in Table C-1, which is hereby incorporated by reference. Table C-1 provides a brief description of each of the capital improvements projects, and provides an estimate of the total project costs. Capital improvement projects have been identified for transportation, parks and recreation, wastewater, potable water, stormwater drainage facility improvements, and other public facilities.

## **MECHANISMS TO FUND CAPITAL FACILITIES**

In order to realistically project available revenues and expected expenditures on capital facilities, the city must consider all current policies that influence decisions about the funding mechanisms as well as policies affecting the city's obligation for public facilities. The most relevant of these are described below.

**General Taxes:** This is the most common revenue source for capital facilities and include property tax, sales tax, utility tax, and real-estate excise tax. General taxes are flexible but funds numerous municipal activities.

**Debt Service Funds:** Langley currently has minimal long-term debt obligations. Annual bond payments for the Second Street project undertaken in 2014 total approximately \$35,000 and will be paid off in 2028. The city has the ability to issue general obligation bonds without voter approval, but must have the available revenue to pay the bond payments over time. In 2012 the city adopted updated budget policies to guide future bond proposals. The city currently has ample debt capacity, but there is limited ability under the existing budget to pay the costs of long-term bonds.

**Grants and Loans:** Different state departments offer grants and low-interest loans for different utilities for example, Department of Ecology for the Centennial Clean Water Fund and Clean Water SRF and the Department of Commerce for the Public Works Trust Fund (PWTF), and the Department of Ecology Clean Water SRF loan. The city has had success with some of these programs in the past. Island County has an Economic Development grant program that is funded by \$0.09 rural county sales tax that can also be utilized for capital projects.

**Mandatory Dedications or Fees in Lieu of:** The city may require, as a condition of development approval, that proponents dedicate a certain portion of the land in the development to be used for public purposes, such as roads or parks. Dedication may be made to the local government or to a private group, but must be proportional to the impact of the project. When a development is too small or because of topographical conditions a land dedication cannot reasonably be accommodated, the city may accept a voluntary fee in lieu of providing the needed improvement. Developers are responsible for providing all needed public facilities to accommodate a proposed development if existing facilities are lacking. The city may decide, at its discretion, to participate in the development of infrastructure to accommodate a development project to meet city goals such as economic development or affordable housing.

**Impact Fees:** Impact fees are one-time charges that can be assessed by a local government against a new project to help pay for new or expanded public facilities that will directly address the increased demand created by that development. Impact fees may only be used for capital facilities that are reasonably related to the new development, will directly benefit the new development, and will also serve the community at large. Impact fees can only be imposed for public streets, publicly owned parks, open space and recreation facilities, school facilities and fire protection facilities. Impact fees may not

be used to correct existing deficiencies. The city does not collect impact fees due to the slow growth rate of development, the restricted use of funds and relatively short timelines permitted by the State to use the funds. (RCW 82.02.050-.110 and WAC 365-196-850)

**Utility Fees and Permit Fees:** Utility fees are user fees paid by the end user of the service and are typically comprised of inspection fees, bi-monthly utility charges, late fees, application and connection fees, and the like. The city has three utility funds: Water, Sewer and Stormwater. The fees collected for each specific utility are used for the day to day operation of that utility and include staff wages and related expenses, regular operating and maintenance costs, engineering, sampling, reporting, etc. There are also transfers from each Utility Fund to the General Fund, Capital Reserve Fund for the specific utility and Vehicle/Equipment Reserve Fund.

**Capital Reserve Funds:** Each of the utilities has a Capital Reserve Fund that is comprised of the transfer of funds from each of the Utility Funds outlined above. These funds are used for capital improvements and to pay for any debt service on these improvements. The reserve funds for water and sewer have existed since the early 90's. Until 2007, stormwater was a part of the street fund. The stormwater utility was created in 2007 and its reserve in 2013.

**Official Controls:** RCW 36.70.560 allows cities to utilize official controls for the purpose of planning for future public facilities and capital improvements. Mapped capital facilities must be accommodated in any development proposal on the property, but the property owner must be compensated for any property or facilities that are needed beyond those that are proportional to the development's impact. Mapped public facilities may include streets, parks and facilities for sewer, water and stormwater infrastructure.

Commented [CP2]: This is unknown to the Finance dept and Public Works dept.

**Latecomer Agreements** Latecomer agreements, also referred to as recovery contracts or reimbursement agreements, allow a property owner who has installed street or utility improvements to recover a portion of the costs of those improvements from other property owners who later develop property in the vicinity and use the improvements. Allowed for sewer and water and roads. Chapter 35.72 RCW authorizes cities and counties to contract with a developer for the construction or improvement of street projects, and it authorizes, for a 15-year period, reimbursement of the developer by other property owners who subsequently develop their property and who meet certain criteria. RCW 35.91.020 authorizes contracts between a city or a county and a developer for construction of water and sewer facilities, and it authorizes, for a 15-year period, reimbursement of a developer by other property owners who did not contribute to the original cost of the facilities and who subsequently tap into or use the facilities.

**Local Improvement Districts** Local Improvement Districts (LIDs) are a means of assisting property owners in financing needed capital improvements through the formation of special assessment districts. Special assessment districts allow

improvements to be financed and paid for over a period of time through assessments on the benefiting properties. The city has one LID, ULID 8 Commercial Surcharge, that was created in 1993 to construct Pump Station Nos. 1 and 2, as well as force main, outfall and some collection system improvements. ULID 8 was paid off in 2002. The commercial sewer surcharge was however, made permanent at that time. It is the only difference between residential and commercial sewer rates. The city has had several different LID's in the past, none are active.

RCW Chapters 35.43 through 35.56 authorize and establish the mechanisms for cities to carry out a wide range of public improvements, including streets, parking facilities, water and sewer systems, parks and recreational facilities, underground utilities, and transportation facilities, and to assess for benefited property owners the costs of such improvements.

**Subdivision Extractions** Under chapter 58.17 RCW, the state subdivision law, cities or counties may require that developers install, at their expense, the improvements necessary for a full range of urban services in new subdivisions. Such improvements usually include streets, curbs and gutters, sidewalks, water systems, fire hydrants, sewer and drainage lines, and, in some instances, transit stops, parks and recreation facilities, and sites for schools. Installation of these improvements is usually required as a condition of subdivision approval. Also, a performance bond or similar obligation generally is required to ensure that improvements will be installed in accordance with city or county requirements. If a proposed plat does not make "appropriate provisions" for the public health, safety, and general welfare, including such needed improvements, the legislative body must deny the proposed plat.

#### **OBLIGATION TO PROVIDE CAPITAL FACILITIES**

**Coordination with Other Public Service Providers:** Local goals and policies as described in the other comprehensive plan elements are used to guide the location and timing of development. However, state agencies, special management districts, and utilities that provide public facilities within the city influence many local decisions. The planned capacity of public facilities operated by other jurisdictions must be considered when making development decisions. Coordination with other entities is essential not only for the location and timing of public services, but also in the financing of such services.

The city's plan for working with electric and telecommunication providers is detailed below in the Utilities Element. This plan includes policies for sharing information and a procedure for negotiating agreements for provision of new services in a timely manner.

Other public service providers such as the school and port districts, Island Transit and Island County are important agencies to the city. The city's policy is to exchange information with these entities and to provide them with the assistance they need to ensure that public services are available and that the quality of the service is

maintained.

**Urban Growth Area Boundaries:** The Urban Growth Area Boundary was established ~~selected~~ in order to ensure that urban services will be available to all development. The location of the boundary was based on the following: environmental constraints, the concentrations of existing development, and the existing infrastructure and services.

**RCW 36.70A.070** A capital facilities plan element consisting of: (a) An inventory of existing capital facilities owned by public entities, showing the locations and capacities of the capital facilities; (b) a forecast of the future needs for such capital facilities; (c) the proposed locations and capacities of expanded or new capital facilities; (d) at least a six-year plan that will finance such capital facilities within projected funding capacities and clearly identifies sources of public money for such purposes; and (e) a requirement to reassess the land use element if probable funding falls short of meeting existing needs and to ensure that the land use element, capital facilities plan element, and financing plan within the capital facilities plan element are coordinated and consistent. Park and recreation facilities shall be included in the capital facilities plan element.

(4) A utilities element consisting 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.

Commented [CP3]: This is here for reference only

## **PLAN IMPLEMENTATION AND MONITORING**

### **Implementation**

Outlined below are ~~Table C-1~~ lists of the capital improvement project by facility type, indicating which projects are needed to correct existing deficiencies, and provides estimates of project costs by year. The distribution among years matches the years in which capital improvement work is planned ~~in order~~ to achieve or maintain the adopted Level of Service standards and measurable objectives for various public facilities.

Top priority is generally given to projects, which correct existing deficiencies, followed by those required for facility replacement and those needed for future growth. A further consideration is the economic and social benefits of capital projects.

### **Monitoring and Evaluation**

Monitoring and evaluation are essential in ensuring the effectiveness of the Capital Facilities Plan Element. ~~Capital Improvements are Table C-1 will be reviewed~~ annually and amended to verify that fiscal resources are available to provide public facilities needed to support this element and the goals of the comprehensive plan.

### **Asset Management**

Asset management (sometimes used interchangeably with infrastructure management) is a relatively young and evolving discipline, with the potential to inform decisions that will yield the best possible long-term social, economic and environmental value for a community. Asset management is a continuous quality improvement process. This ongoing process is incremental and scalable involving: assessing capacity, demand and result, planning what needs to be done and implementing the plans. This continually

informs how to enhance and expand the process. Asset Management Plans are integral to a robust Long-Term Financial Plan and support Sustainable Service Delivery. This integration identifies gaps between long-term costs and available funding. The financial planning process identifies opportunities to close the gap through adjusting service levels (reducing costs) and/or increasing funding (raising revenue).

**CAPITAL FACILITIES INVENTORY**

~~**Water (ID# 45950W):** The City began construction in 1927 of a concrete storage tank to serve for the City’s water supply, but there is evidence of three older well installations in the watershed area. The watershed was formally conveyed to the City by Superior Court judgment in 1939 for “well pumps and piping” and again in 1976 to further clarify the present boundary. In 1986 a hydrological study outlined the present well development that is in use today. The City’s service area is approximately 2.5 square miles and serves 980 connections. It has the capacity to serve 1,372 connections. The infrastructure includes approximately 46,000 linear feet of water mains, ranging in size from 2 inch to 12 inch; two aquifers that supply three operating wells; an emergency well; one water treatment facility; and one welded steel reservoir that holds 618,179 gallons of water. A complete description of the City’s supply, treatment and distribution systems can be found in the adopted 2012 Comprehensive Water System Plan.~~

**Commented [CP4]:** The section below is moved from the Utilities Element and updated.

The Langley water system service area is approximately 2.5 square miles. The city serves approximately 954 Equivalent Residential Units. The city had approximately 1,011 connections in 2015. According to the City’s Water System Plan, adopted in 2012, future growth projections indicate that the City will ultimately serve approximately 1,400 by the year 2030.

The City is currently permitted for 301 acre-feet a year and future planning projections through 2030 predict that withdrawals will remain below permitted amount, with the demand estimated at 188.57 acre-feet in 2030. ~~The city has 1,372 approved residential connections, with an estimated 1,346 by 2030. The city has the system capacity for the next 20 years.~~

**History of the Water System**

The city’s water system was mainly constructed during the 1960s. The city depends solely on ground water for its source. The city draws its water from the wells listed below:

**Table U-1**

City Wells

WELL	YEAR DRILLED	DEPTH	SIZE OF CASING	INSTALLED CAPACITY
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				(GPD <del>M</del> )
NO. 1	1987	281'	12"	<u>518,400</u> <del>360</del>
NO. 2	ABANDONED	7/22/97		
NO. 3	1962	42'	8"	<u>129,600</u> <del>90</del>
NO. 5*	1971	238'	8"	<u>360.00</u> <del>250</del>
NO. 6	1996	51'	8"	<u>108,000</u> <del>75</del>

\*Emergency Use Only

The city currently uses wells number 1, 3, and 6, which are located in its watershed area well field relatively close to its 650,000-gallon storage facility. Well number 5 has not been used as a source since well number 1 was developed in 1987, due to the amounts of iron and manganese present in its water. Well No. 2 was abandoned due to well casing failure in 1997 and Well No. 6 was drilled as a replacement.

The four production wells have an installed total capacity of 775 gpm or 1.116 million gallons per day (MGD). The estimated current usage by the City is 134,807 gallons per day as shown in Table U-3.

The older water distribution system consists of 6-inch and 8-inch asbestos cement pipe as well as some 4-inch cast iron and 2 and 1-inch galvanized steel pipe. The new mains are either PVC or ductile iron pipe.

A major improvement in the water supply was made in 1987 when a new well was drilled, well number 1, which is now the main supply source. At the same time that this well was developed meters were installed at the other wells to record water production. Therefore, the city's well production records begin in 1987.

The City's storage facility consists of one covered steel tank with a capacity of 650,000 gallons. This tank was constructed in 1996 as a part of an improvement project listed as Phase I Water System improvements.

### Existing Water Quality

The City's well water sources are properly monitored in accordance with the Washington State Department of Health monitoring schedule for bacteriological contamination, lead and copper, volatile organics, herbicides, pesticides, insecticides, inorganic contaminants, nitrates and Radionuclides. Of the three wells, Well 1 produces 75% of the total system demand, but contains high levels of manganese and iron. The arsenic level for this

source averaged 9.6ppb over a 6 year period with 4 different tests taken. This level of arsenic is only 0.4 ppb below the Maximum Containment Limit (MCL). Wells 3 and 6 are a combined source, and produce 25% of the total system demand. Water from these wells is relatively acidic with a lower average arsenic level of 3.5 ppb. The water quality tests indicate that the water provided by the City of Langley meets the Washington State Department of Health standards.

### **Treatment**

The Safe Drinking Water Act amendments passed by the U.S. Congress in 1986 require disinfection of potable water supplies, including ground water.

Wells #1, #3, and #6 are disinfected at the source with chlorine tablets and a CT of 6, at concentrations sufficient to provide required free chlorine residuals throughout the entire distribution system. Chlorine gas disinfection was replaced with a chlorine tablet system in 2010.

### **Ground Water Characteristics**

Ground water on Whidbey Island exists in three general aquifers. The "perched aquifer" is the nearest aquifer to the surface. It is limited to local areas and is not generally used for potable water.

The "water table aquifer," the next aquifer encountered, is the aquifer tapped by wells number 2 and number 3. The "sea level aquifer" occurs from 30 feet above to 200 feet below sea level. ~~This is the aquifer tapped by well number 1.~~

Commented [CP5]: Reference removed by PACE

In 1982 all ground waters beneath Whidbey Island were designated a "sole source aquifer" by the Federal Environmental Protection Agency (EPA). The designation was based on the fact that ground water is the principal source of drinking water on the Island and on the aquifer's vulnerability to contamination from industrial sources, subsurface sewage disposal, and seawater intrusion. The designation requires that federally funded projects be designed to ensure that ground water contamination will not occur. The United States Geological Society, DOE, DOH, and Island County Health and Planning Departments have done numerous investigations on ground water conditions in Island County. The studies indicate the need for increased management of ground water resources throughout the county in order to adequately protect the resource, which the City currently continues to address.

### **Water System Connections**

As of December 10, 2010, theThe city's 2016 water system connections are broken down as defined by their use is estimated as follows:

**Table U-2**

Water Connections

Single-Family	<u>653673</u>
Multi-Family	<u>204207</u>
Commercial/Governmental/Industrial	<u>126130</u>
Agricultural	0
Total	<u>9801,010</u>

**Projected Demands**

Future demand can be projected based on the estimated future population to be served by the water system. The projected population is multiplied by the historical values for maximum day demand and average day demand. Average daily usage (residential and commercial) is estimated as 187 gallons per person per day.

**Table U-3**  
Projected Demand in Gallons

YEAR	POPULATION OF SERVICE AREA*	NUMBER OF CONNECTIONS**	AVERAGE DAILY DEMAND (GPD)	MAXIMUM DAILY DEMAND (GPD)
2010	<u>1,035</u>	<u>980</u>	<u>122,561</u>	<u>360,000</u>
2016	1,138	<u>1,011</u>	134,807	<u>450,000</u>
2030	1,421	1,346	168,355	

\* Population projections based on trend of 3.5% growth

\*\* Future connections based on past trend of 2.3% growth

~~Based on these estimates by the year 2010 the city's source capability of 494,640 gal/day permitted (per water rights) use of existing water sources will be exceeded by the peak day usage. However, through the use of water conservation methods, seeking approval of expanded withdrawal rights from the current well sources, and continued lost water control, the city's water needs can be met for the future.~~

~~The city currently has water rights permit from the Department of Ecology for 301 acre-feet (Water Right No. G1-28188). This 301 acre-feet converts to 98,081,151 gallons used annually. The projected 2030 annual demand is 61,449,575 gallons, well within the permit limits. The City has 1,372 approved residential connections, which shows that the City has system capacity to accommodate the next 20 years.~~

**Summary of Proposed Improvements**

Water system improvements are classified into either a 6 year or 20 year planning period. Each Capital Improvement Program (CIP) project is prioritized to meet the requirements set forth by the Washington State Department of Health, to improve system deficiencies,

and to meet the present and future supply needs of the city to their 20 year planning period and beyond. From this, four general categories of water system improvements are identified in the CIP.

- Distribution system main replacement and improvements required to meet minimum standards.
- Major facility replacement and improvements: tanks, pumps, water quality, emergency power, and corrosion control.
- Policy initiatives: to implement water conservation and future planning efforts.
- System extensions: new water mains to provide service to undeveloped portions of the city’s water service area, improve reliability and performance of the existing system, as well as provide guidance for system expansion.

Capital improvements for the 6 year period are scheduled for ratemaking and cash flow purposes. The projects are shown in Table U-4 and represent water main replacement projects. The 6 year CIP activities have been phased and timed to achieve a relative constant rate of expenditures. The CIP was developed in the 2012 Water System Plan and the CIP numbers, shown in Table U-4 are consistent with those numbers in that plan. The Projects 1, 2, and #4 have been completed.

~~Capital improvements for the 6 year period are scheduled for ratemaking and cash flow purposes. The projects are shown in Table U-4. The 6 year CIP activities have been phased and timed to achieve a relative constant rate of expenditures.~~

**Table U-4**  
6-Year Water System Capital Projects  
Existing Water Main Replacement Capital Projects

2018		
Sandy Point Road-Furman to Wilkinson (1/2)	\$375,000	
Water Comp Plan Update	\$70,000	
2019		
Sandy Pint Road-Furman to Wilkinson (completion)	\$400,000	
2020		
Northview Pressure Zone Transfer	\$300,000	

<u>CIP</u> <u>Numbe</u> <u>r</u>	<u>Project Location</u>	<u>Description</u>	<u>Est. Cost</u>	<u>Year</u>

<u>1</u>	<u>Decker Avenue: Sandy Point to Edgecliff</u>	<u>1,150 LF of 8 inch WM</u>	<u>304,520</u>	<u>2016</u>
<u>2</u>	<u>2<sup>nd</sup> Street: Debruy to Anthes Avenue</u>	<u>1400 LF of 8 inch WM</u>	<u>\$400,000</u>	<u>2017</u>
<u>3</u>	<u>Sandy Point Road: Furman to Wilkinson</u>	<u>2,900 LF of 8 inch WM</u>	<u>\$560,000</u>	<u>2018/2019</u>
<u>4</u>	<u>Northview PZ Transfer</u>	<u>200 LF 12 inch WM, 350 LF 8 inch WM (Suzanne CT. to ex. 12 inch Trans. WM)</u>	<u>\$150,000</u>	<u>2020</u>
<u>P1</u>	<u>Water Conservation</u>		<u>\$1500/yr</u>	<u>Present 2017</u>
<u>P2</u>	<u>Water System Plan Update 2018</u>		<u>\$100,000</u>	<u>2018</u>

<u>CIP Numbe r</u>	<u>Project Location</u>	<u>Description</u>	<u>Est. Cost</u>	<u>Year</u>
<u>3</u>	<u>Decker Avenue: Sandy Point to Edgecliff</u>	<u>1,150 LF of 8 inch WM</u>	<u>304,520</u>	<u>2016</u>
<u>5</u>	<u>2<sup>nd</sup> Street: Debruy to Park Avenue</u>	<u>700 LF of 8 inch WM</u>	<u>\$140,000</u>	<u>2016</u>
<u>6</u>	<u>Sandy Point Road: Furman to Wilkinson</u>	<u>2,900 LF of 8 inch WM</u>	<u>\$560,000</u>	<u>2016</u>
<u>7</u>	<u>Northview PZ Transfer</u>	<u>200 LF 12 inch WM, 350 LF 8 inch WM (Suzanne CT. to ex. 12 inch Trans. WM)</u>	<u>\$150,000</u>	<u>2016</u>
<u>P1</u>	<u>Water Conservation</u>		<u>\$1500/yr</u>	<u>Present 2017</u>

<u>P2</u>	<u>Water System Plan</u> <u>Update 2017</u>		<u>\$100,000</u>	<u>2017-2030</u>
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Projects 1, 2, and #4 have been completed. Project #1 installed 900 linear feet of 8 inch water main in First street from Debruyen to the existing water main. Project #2 installed 850 linear feet of 8 inch water main in First street from Anthes to Wharf Street. Project #4 installed 660 linear feet of 8 inch water main in Park Avenue from First Street to Third Street.

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**Table U-5**  
20-Year Water System Capital Projects

<u>CIP Number</u>	<u>Project Location</u>	<u>Description</u>	<u>Est. Cost</u>	<u>Cumulative Total</u>	<u>Year</u>
<del>1-8</del>	<u>6<sup>th</sup> Street: Park to Anthes</u>	<u>650 LF 8-inch</u>	<u>130,000</u>	<u>130,000</u>	<del>2018-2030</del>
<del>2-9</del>	<u>Park Ave: 6<sup>th</sup> to 4<sup>th</sup></u>	<u>650 LF 8-inch</u>	<u>\$130,000</u>	<u>\$260,000</u>	<del>2018-2030</del>
<del>3-10</del>	<u>Island View: 6<sup>th</sup> to existing 8" WM</u>	<u>400 8-inch</u>	<u>\$90,000</u>	<u>\$350,000</u>	<del>2018-2030</del>
<u>M1</u>	<u>Well #5</u>		<u>1,000,000</u>	<u>\$1,350,000</u>	<del>2018-2030</del>
<u>M2</u>	<u>Upper Zone Standpipe Storage Tank</u>	<u>380 foot HGL (approx.. 1-MG)</u>	<u>\$2,100,000</u>	<u>\$3,450,000</u>	<del>2018-2030</del>
<u>M3</u>	<u>Upper Grid tie to East</u>	<u>New WM that interties the Reservoir BPS with Cedars BPS</u>	<u>\$1,228,920</u>	<u>\$4,678,920</u>	<del>2018-2030</del>
<u>M4</u>	<u>Emergency Power Generator</u>	<u>For Cedars BPS</u>	<u>\$15,000</u>	<u>\$4,693,920</u>	<del>2018-2030</del>
<u>M5</u>	<u>Intertie with SWSD</u>	<u>Intertie for emergency purposes</u>	<u>\$650,000</u>	<u>\$5,343,920</u>	<del>2018-2030</del>
<u>M6</u>	<u>Wilkenson Court WM</u>	<u>New WM to loop the supply to Sandy Pt. sub-service area</u>	<u>\$103,000</u>	<u>\$5,446,920</u>	<del>2018-2030</del>
<u>M7</u>	<u>Maple Cove WM</u>	<u>New WM to loop the supply to Sandy Pt. sub-service area</u>	<u>\$141,000</u>	<u>\$5,587,920</u>	<u>2018-2030</u>

**Wellhead Protection**

The City of Langley's Wellhead Protection Plan (WHP) was adopted in June 2008. The purpose of the WHP is to provide an organized approach to effectively protect drinking water supplies from contamination. The WHP includes the following elements:

- A completed susceptibility assessment.
- Identification of the WHP zones.
- An inventory of potential contaminant sources and land use activities.

- A discussion of the management strategy.
- Contingency and emergency response planning.
- Supporting information and documentation.

The wellhead protection area is the surface and subsurface area surrounding a well that supplies a public water system through which contaminants are likely to pass and eventually reach the water well. The most straightforward method accepted by the state for determining the area is a calculated fixed radius CFR. This method determines a 0.5, 1, 5 and 10 year time of travel zone for contaminants. The CFR method is a very simple ground water model, which may not accurately predict the actual zone of contribution to the city's wells. The method is based on the well pumping rate, soil porosity and well screen interval. The wellhead protection zones for each well (#1, #3, and #6) were determined.

~~A field survey was conducted in order to inventory potential sources of contamination and identify land use activities, which may pose threats to groundwater quality. The only site specific potential contamination source identified within the WHP zones were five residential septic systems, within the eastern portion of the 0.5 and 1 year zone. Other potential non-site specific sources include improper application and disposal of garden and household toxic chemicals at residences and businesses.~~

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**Sanitary Sewer (NPDES Permit # WA-002070-2):** ~~The original wastewater collection system was a combined system carrying both sanitary wastewater and storm water. In 1960 and 1961 the sewer was separated into both a sanitary sewer system and storm drainage system. The original primary wastewater treatment plant was constructed in 1963 at Seawall Park at the base of Anthes Avenue. In 1992, the new secondary wastewater treatment facility was constructed at the southwestern edge of the City on Coles Road. The location of this new plant requires the influent wastewater to be pumped over a mile through a force main from a lift station at the location of the old primary treatment facility at Seawall Park (which was removed) and a lift station at the NW corner of DeBruyn and 2nd Street. The effluent is discharged through approximately 7,200 feet of pipe into the water of Puget Sound's Saratoga Passage. The capacity of the wastewater facility is 150,000 gallons per day. The infrastructure includes approximately 6 miles of sewer pipe (both grinder pump and gravity fed), ranging in size from 2 inch to 12 inch; two pump stations, Sunrise Lane and Woodside; two lift stations; and the secondary wastewater treatment facility. A complete description of the collection and treatment of the City's sanitary sewer system can be found in the adopted 2006 Comprehensive Sewer System Plan. The plan is currently being updated.~~

### Sewer Collection System

The sewer service area includes approximately 650 acres of land within the current City of Langley City Limits. ~~The 2013 Urban Growth Area (UGA) was used for previous sewer planning and includes approximately 450 acres surrounding the current City Limits.~~ The sewer system serves approximately 60% of the population and essentially all of the

businesses, the middle school, and the fairgrounds (2013 City Comprehensive Plan). Currently, no properties outside the City is served by the existing sanitary sewer system.

The existing sewer collection system has approximately 6.87 miles of sewer piping with diameters ranging from 2" to 4" for grinder pump mains and from 6-inch to 12-inch pipe for gravity sewers. The basic sewer system was constructed between 1960 and 1968 as part of six local improvement districts (LID). Since completion of the basic system, private developers have added extensions to serve new developments. All of the existing sewers are concrete pipe with rubber gasket joints, ~~with the exception of some lines that were installed by developers that are~~ and PVC pipe.

#### **On-Site Systems**

Approximately 60% of the City is served by the sewer system and the rest is served by on-site septic systems. Island County is responsible for permitting septic systems and requires annual inspections. Individual property owners can receive training from the County and self-inspect their systems.

#### **Grinder Pump Collection Systems**

Low pressure sewer developments have been constructed within the City. Approximately 1,444 feet of 2-inch, 2,090 of 3-inch, and 2,678 of 4-inch low pressure sewers were have been installed since 2006. The largest development is the Highlands at Langley with approximately 3,123 feet of low pressure sewers.

#### **Existing Sewage Flows**

The average annual flow for 2009 to 2014 was 72,000gd ~~0.072 mgd~~ and the maximum month average daily flow was 90,000gd ~~0.09 mgd~~. Both are below the permit limits for the wastewater treatment plan; average annual month design flow for the treatment plan is 135,000gd ~~0.135 mgd~~ and the maximum month design flow for the plant is 150,000gd ~~0.15 mgd~~. The annual maximum month flow is about 53% of the maximum month design flow.

#### **Projected Sewer Flow**

Sanitary sewer flow projections are comprised of four separate components defined as follows:

- Base Flows are a simple calculation of average flow rates without consideration of infiltration and inflow (I&I). Base flows have been determined by applying average flows per capita (as indicated in Table U-~~64~~) to the population and employment data.
- Peak Flows are used to estimate domestic flows at peak periods (typically early morning and evenings) and do not take infiltration and inflow into account. A peaking factor of 4.0 has been applied to base flows to estimate the peak flows indicated in Table U-~~64~~ and Table U-5 (Base Flow x 4.0 = Peak Base Flow).

- Infiltration and Inflow (I&I) is groundwater entering sanitary sewer through defective pipe joints, or broken pipes and water entering through inappropriate connections such as roof drains. I&I is calculated at a City-wide rate of 1,100 gallons per acre per day (gpad) assuming approximately 140 acres contribute to infiltration and Inflow into the system.
- Total System Flows or peak flows plus I&I have been determined by adding the aforementioned I&I rate to the peak base flows. No peaking of I&I has been assumed.

The projected flows shown in Tables U-4~~6~~ and U-5 are provided for the Sanitary Sewer Service Area (City Limits) and 2013 UGA separately. ~~At the time of the development of this Plan, no development within the UGA is served by the City's sewer service and therefore no flow is shown for 2014. —~~

**Table U-6**  
Projected Flows within City Limits

Year	% Population Served <sup>a</sup>	Base Flow (gpd)	Peak Flow (gpd) <sup>b</sup>	Peak Flow (gpm)	I&I Flow (gpm) <sup>c</sup>	Total System Flows
2014	60%	76,100	304,520	211	110	320
2024	65%	84,800	339,300	236	120	360
2034	70%	94,290	377,150	262	130	390

**Table U-7**  
Projected Flows within the Urban Growth Boundary

Year	% Population Served <sup>a</sup>	Base Flow (gpd)	Peak Flow (gpd) <sup>b</sup>	Peak Flow (gpm)	I&I Flow (gpm) <sup>c</sup>	Total System Flows
2014	0%	0	0	0	0	0
2024	2%	150	600	0.50	3.5	4.0
2034	5%	400	1,600	1.10	7.0	8.1

#### Sewer Main Extensions

Sewer expansion improvements to serve currently unsewered areas are to be funded primarily by developers or through other charges not incurred by the City and therefore are not included in the Capital Improvement Program. The expansion projects shown on the sewer CIP map are conceptual and will require an engineering design. It is unknown at

what level and location of new development that will occur and therefore projects will be constructed in a variety of intensity and order.

**Sewage Treatment System**

The wastewater treatment plant is operating well and consistently produces an effluent that is well within permit limits. The maximum month average daily flow for 2012 through 2013 has been 0.095 mgd, which is 63% of the plant design capacity. Based on flow, the plant will not exceed its design hydraulic capacity during the next five (5) years and will not be exceeded during the 20-year planning horizon for the sewer planning period.

The programmable logic controller (PLC) for the entire plant needs to be replaced. There is not enough space in the existing control room for a new PLC without removal of the existing analog controller. Or extended manual operation for the plant.

**Sewer Capital Improvement Program**

The established priorities for the sewer system are provided in tables U-7 through U-9. Individual projects may change based on an increase or change in problems, development, or opportunities for additional funding. Implementing the CIP will reduce flow by approximately 10%. The City will need to periodically review project priorities, on an annual basis as a minimum, and change them as appropriate. The existing system improvements are prioritized into immediate, near term, and long-term improvements and their times of implementation are as follows:

- Immediate improvements – Projects to occur within 1 – 6 years.
- Near Term Improvements – Projects to occur within 6 - 10 years.
- Long Term Improvements – Projects to occur within 10-20 years

**Table U-7  
Collection System Rehabilitation and Replacement Project**

ID	From MH	To MH	Street	Problem Description	Pipe Length	Estimated Cost <sup>1</sup> (\$)	Schedule
RR-1	E35	E31	Parallel to Brookhaven Creek	Protruding & Infiltration	50	\$15,500	Immediate
RR-2	E43	E43A CO	Alley south of Groom Lane	Protruding roots, ponding, and compressed piping	290	93,000	Immediate

<sup>1</sup> Cost in 2015 dollars

RR-3	N13	N12	McLeod Alley (Alley between 2nd Street and 1st Street)	High infiltration	70	\$21,700	Immediate
RR-4	E39	E40	6th Street	Broken pipe Protruding lateral	230	\$71,300	Immediate
RR-5	W65	W64	Alley between Park Ave & Island View Ln	Protruding laterals Infiltration	400	\$124,000	Immediate
RR-6	W70	W69	Anderson Road	High infiltration and sagging of pipe	300	\$93,000	Immediate
RR-7	W69	W67	6th Street	Sagging; Concrete in pipe	200	\$62,000	Near Term
RR-8	W71	W70	Anderson Road	Sagging	320	\$99,200	Near Term
RR-9	W75	W72	Suzanne Court	Sagging	220	\$68,200	Near Term
RR-10	W72	W71	Suzanne Court	Sagging	160	\$49,600	Near Term
RR-11	N21	N22	3 <sup>rd</sup> Street	High infiltration	250	\$77,500	Near Term
RR-12	B1	B2	Wharf Street	Infiltration	165	\$52,700	Near Term
RR-13	E28	E27	4th Street	Protruding lateral from E28; Infiltration	240	\$74,400	Near Term
RR-14	N17	N16	Alley between 2nd Street and 3rd Street	Protruding Roots	340	\$105,400	Near Term

**Table U-98**

## Wastewater Treatment Facility Remediation Projects

ID	Recommendation	Notes	Estimated Cost <sup>2</sup> (\$)	Schedule
WT P-1	Programmable Logic Control (PLC) Replacement	The PLC is the original and is antiquated and in need of replacement.	161,000	Fall 2017
WT P-2	Emergency generator replacement	The emergency generator should be replaced with a larger generator to allow the SBR blowers to run during a power outage.	186,400	Immediate
WT P-3	Resurface Chlorine contact chamber walls	Deteriorating wall surface allows for growth on walls.	\$35,000	Near Term
WT P-4	Upgrade Nonpotable water system controls	System controls are getting antiquated and needing repair or replacement	\$20,000	Near Term
WT P-5	Compost drainage	Install compost drainage in Plant.	\$10,000	Near Term
WT P-6	Replace Digester Blower air lines	Disgester Blower air lines are in need of repair or replacement.	\$20,000	Near Term
TOTAL			\$432,400	

**Table U-910**

## Pump Station Improvement Projects

ID	Recommendations	Notes	Estimated Cost <sup>3</sup> (\$)	Schedule
P-1	Sunrise Pump Station upgrades	Upgrade pumps, telemetry, and replace electrical controls. New generator.	236,200	Immediate
P-2	Upgrades to Pump Stations	Replace piping and upgrade from bubbler system to ultrasonic pump controls Pump Station 1.	100,000	Partially complete in 2016
TOTAL			\$336,200	

<sup>2</sup> Cost in 2015 dollars<sup>3</sup> Cost in 2015 dollars

**Stormwater Management:** The City’s storm drainage system was first installed in the 1960’s. Due to the bowl-shaped nature of the central area, most of the stormwater runoff converges at the storm drains on Anthes Avenue. This concentration of flow through the downtown commercial area has contributed to drainage problems within the downtown area. The infrastructure consists of open ditches, storm drains, detention ponds, and infiltration systems. A complete description of the City’s stormwater management can be found in the adopted 2009 Comprehensive Stormwater Management Plan.

**Existing Stormwater System**

The City of Langley has a stormwater conveyance system that is mainly limited to the central portion of the city. Due to the bowl-shaped nature of the central area most of the stormwater runoff converges at the storm drains on Anthes Avenue and Park Avenue. This concentration of flow through the downtown commercial area has contributed to drainage problems within the downtown area.

**Table U-101**  
Storm Drain Inventory

Pipe Size	Approximate Length
(inches)	(feet)
48"	100
42"	90
36"	40
24"	380
18"	1,350
15"	1,610
12"	11,550
10"	740
8"	4,450
6"	1,720
4"	250

The existing system consists of open ditches, storm drains along some major arterials, and mainly privately owned detention and infiltration systems. In addition, the natural drainage system includes three small creeks that flow through the city and wetland areas. Common

names of the three creeks are Saratoga Creek (west of DeBruyn Avenue), Brookhaven Creek (through the center of town), and Noble Creek (east of Camano Avenue). None of the three creeks has a native fish population though Brookhaven Creek has been used in the past for salmon rearing. Protection of the wetland areas is important in the management of stormwater runoff since they act as natural stormwater detention and water quality treatment facilities and minimize the need for artificial stormwater facilities.

The city was divided into the 10 drainage sub-basins to develop a computer simulation of runoff flow rates. These sub-basins are part of four main basins, which drain to Noble Creek, Saratoga Creek and Brookhaven Creek/Anthes Avenue plus four basins located east of Noble Creek. The city's drainage discharges to the Sound through an 18-inch outfall on Anthes Avenue, a 12-inch outfall on Park Avenue, a 12-inch outfall on Camano Avenue and from Noble and Saratoga Creeks.

An inventory of the storm drains and detention/infiltration facilities within the City are presented in Tables 1 and 2. Of the detention and infiltration facilities, only the Cedars infiltration ponds are owned and maintained by the City.

**Table U-112**  
Detention/Retention and Infiltration Facilities

Facility	Capacity
Northview Pond	25,600 cf
Cedars Infiltration Ponds	29,689 sf
Saratoga Terrace Infiltration Trenches	1,842 cf
Creekside Terrace Retention Pond	2,000 cf
4 <sup>th</sup> Street Condos Detention Pipe	Unknown
Glenhaven Condos Detention Pipe	605 cf
Martin Short Plat Infiltration Pond	400 sf
Second Street – Langley Village Det. Pipe	2,700 cf
Harrison House Detention Pipe	115 cf

**Proposed Stormwater**

The City's stormwater management plan provides recommendations for structural and non-structural improvements to existing storm drainage facilities. The facilities include pipe and ditch conveyance, detention and infiltration systems and natural stream and wetland drainage systems. Management of stormwater runoff has become a requirement for local jurisdictions with federal and state regulations concerning protection of water quality and

sensitive areas. Besides structural improvements, the stormwater plan includes non-structural management recommendations including public education, policies and ordinances governing future development, operation and maintenance and record keeping. The structural and non-structural solutions developed in the stormwater plan are consistent with federal and state regulations.

The following are general non-structural policy recommendations which are intended to be implemented by the City.

1. Revision of the Land Development Standards
2. Adopt a drainage ordinance to enforce the standards.
3. Inspection and maintenance of stormwater facilities.
4. Record Keeping
5. Public Education
6. Protection of sensitive areas.
7. Preference for Infiltration BMPs.

The Stormwater Plan which was approved in 2009 recommended structural improvements that include the collection, conveyance, and water quality improvements listed in Table U-142. The priority conveyance improvements are an improved ditch and culverts on 3rd Street from DeBruyn Avenue to Anthes Avenue, a 12-inch storm drain on 2nd Street from Park Avenue to Anthes Avenue, a storm drain on Park Avenue, and a grass lined ditch on Brooks Hill Road. ~~Proposed detention improvements include modifications to Northview pond in the near future and modifications to Brookhaven pond in the long term future. The improvements include modifying the pond outlet structures to provide better flow regulation to the downstream system.~~ The Plan also includes a section on stream conditions and proposed improvements on Brookhaven Creek that would provide better habitat for future fish rearing projects.

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**Table U-123**  
Stormwater Capital Improvement Projects

<u>CIP Project</u>	<u>Fund Rates Estimated Cost</u>	<u>Fund Grants</u>	<u>Near</u>
<b><u>Immediate*</u></b>			
<u>1. 6<sup>th</sup> Street – East of Anthes to Brookhaven Creek, 12”</u>	<u>\$190,000</u>		
<u>2. Edgecliff Drive – West of Furman Avenue, 12” to 18”</u>	<u>\$280,000</u>		
<u>3. Furman Avenue &amp; Decker Avenue, 12”</u>	<u>\$490,000</u>		

4. <u>Intersection of Anthes &amp; First Street, 4 catch basins</u>	<u>\$20,000</u>		
5. <u>Melson Alley (4<sup>th</sup> to 6<sup>th</sup>), 12"</u>	<u>\$130,000</u>		
6. <u>Water Quality Treatment at 4 existing outfalls</u>	<u>\$200,000</u>		
7. <u>Wharf Street, 12" &amp; water quality treatment unit</u>	<u>\$60,000</u>		
<b><u>Near-Long Term**</u></b>			
8. <u>Edgecliff Drive – East of Furman Avenue to City Limits</u>			<u>\$120,000</u>
9. <u>2<sup>nd</sup> Street – to Cascade Ave., to Extension of 3<sup>rd</sup> Street, 12"</u>			<u>\$180,000</u>
<i>Project #10 is completed – Northview Pond improvements</i>			
11. <u>6<sup>th</sup> Street – Anthes Avenue to Park Avenue, 12"</u>			<u>\$190,000</u>
12. <u>2<sup>nd</sup> Street – Park Avenue to Melson Alley, 12"</u>			<u>\$110,000</u>
13. <u>1<sup>st</sup> Street and Debruyne Avenue, 12"</u>			<u>\$130,000</u>
14. <u>2<sup>nd</sup> Street and Debruyne Avenue, 12"</u>			<u>\$150,000</u>
<b><u>Subtotal CIP Projects</u></b>	<b><u>\$1,136,000</u></b>	<b><u>\$260,000</u></b>	
	<b><u>0</u></b>		
<b><u>Total CIP Projects</u></b>	<b><u>\$1,136,000</u></b>	<b><u>\$950,000</u></b>	
<p><i>*Immediate – These projects are included in the combined water/sewer/storm utility project – debt repayment to be paid by rates (\$6.60/mo beginning 2011).</i></p> <p><i>**Near-Long Term – Seek grant funding for these projects as rate funding is beyond affordability at this time. Consider rate funding for additional debt after rates catch up with full cost of operations and combined project is funded.</i></p>			

The project #10 was completed. It consisted of a drainage & detention pond in the Northview Subdivision.

Insert Existing Stormwater and Sub-basins

Insert Proposed Stormwater Improvements

**Non-City owned Utilities:**

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## ELECTRICITY

Recognizing the need for integrated and cooperative planning, the five major electrical utilities in the Pacific Northwest (Puget Sound Energy, Snohomish County PUD, the Bonneville Power Administration, Seattle City Light, and Tacoma Public Utilities) have developed a long-term plan. Prepared specifically for local jurisdictions planning under the GMA, the Regional GMA Inter Utility Report (November 1992) details major facility needs over the next twenty years for the Puget Sound region. The joint plan represents a commitment by these utilities to work closely with each other and with local jurisdictions.

Being regional in scope, the Inter Utility Report does not address in detail those transmission facilities, which are considered local, such as 115 kV (kilovolts, or 1,000 volts) transmission lines, which serve distribution substations. Currently, Island County is not served with any lines with greater capacity than 115 kV, though upgrades are planned (see below).

An electric power network, from large generating stations to the outlet on the wall, involves a series of "step-downs" through transformers. From any of a number of Columbia River hydroelectric generators, 500,000 volts (500 kV) transmission lines terminate at transmission substations, where the voltage is typically stepped down to 115 kV. At a distribution substation the 115 kV is stepped down to distribution levels, usually between four and 35 kV. For service lines to individual customers, this voltage is dropped to 110 or 240 volts via the transformers on utility poles.

Electrical facilities of less than 55,000 volts (55 kV) are generally referred to as distribution facilities. Facilities of greater than 55 kV are known as transmission facilities. For the purposes of this inventory, only transmission facilities and other major facilities are addressed.

### **Puget Sound Energy**

Puget Sound Energy (PSE) is a private utility providing electric and natural gas service to homes and businesses in the Puget Sound region and portions of Eastern Washington, covering 10 counties and approximately 6,000 square miles. PSE's regional and local electric and natural gas planning efforts are integrated and centered on providing safe, dependable, and efficient energy service. PSE provides electrical power to more than 1.2 million electric customers throughout 10 counties.

PSE currently has about 3,000 megawatts of power-generating capacity, and purchases the rest of its power supply from a variety of other utilities, independent power producers and energy marketers across the western United States and Canada.

With roots dating to the 1880s, Puget Sound Energy (PSE) is one of the oldest investor-owned utilities in the Northwest, and, with nearly 800,000 customers, it is the largest electric utility in Washington. Its service area spans approximately 6,000 square miles in ten Washington counties.

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As of 2010, PSE serves approximately 35,264 customers on Whidbey Island and is the sole provider of electricity within the City of Langley.

### Existing Facilities

Whidbey Island is served exclusively by PSE, and provides all the power to the City of Langley. Power for the Whidbey Island is generated by Columbia River hydroelectric projects in Eastern Washington and British Columbia, along with other facilities in Whatcom and Skagit Counties, including gas-fired combustion turbines at the Texaco refinery near March Point on Fidalgo Island.

From the March Point substation, two 115 kV lines cross Deception Pass and terminate at the Whidbey Substation in Oak Harbor. From this substation, two 115 kV lines run to the South Whidbey Substation near Langley. Lines run from these three transmission substations to nine distribution substations.

PSE serves approximately 37,000 commercial and residential locations within Island County and operates and maintains approximately 600 miles of overhead facilities and 500 miles of underground cables.

PSE provides provides power to Langley through...

### Future Demand and System Improvements

Puget Power has identified two sets of issues concerning continued provision of service through the year 2010: (1) the need for system capacity improvements to serve new load associated with projected island growth; and (2) service reliability related to existing transmission facilities. These issues and P.S.E.'s proposed responses are summarized in the following section. A detailed discussion of these issues and proposed system improvements is available in Puget Power's "GMA Electrical Facilities Plan," Section IV. A discussion of additional transmission improvements under consideration beyond the year 2010 is presented at the end of this section.

Projected electrical load growth island-wide and a need to improve the reliability of the service delivery to the island will require transmission system improvements at the northern end of the island between March Point (Fidalgo Island) and Whidbey Substations (Oak Harbor). Puget Power proposed to build a third transmission line between these stations, using either an overhead crossing at Deception Pass or an underwater crossing east of the pass, along a corridor separate from the one currently used, by the year 2003. The additional line would increase transmission capacity to the island; the separate corridor would reduce the likelihood of loss of all transmission lines in the event of storms. The proposed March Point Whidbey #3 line would be initially energized at 115 kV (Figure 12A).

Additional Distribution Substation capacity is expected to be needed throughout the island. South of Langley a single new substation, "Glendale," is proposed to accommodate new

load expected to develop by the year 2010. Concurrent with the installation of this facility, a new 115 kV transmission line will be needed to feed the substation. The new line is proposed to route past the existing transmission line west of Langley Substation, creating a new single path from the South Whidbey Generator to the Freeland Substation.

PSE has plans to systematically deploy smart grid technology at each level of infrastructure to enhance and automate monitoring, analysis, control and communications capabilities along its entire grid. Smart grid technologies can impact the electricity delivery chain from a power generating facility all the way to the end-use application of electrical energy inside a residence or place of business. The ultimate goals of smart grid are to enable PSE to offer more reliable and efficient energy service, and to provide customers with more control over their energy usage.

To meet local electric demand, new transmission lines and substations may need to be constructed. In addition, existing facilities will need to be maintained and possibly rebuilt to serve current and future demand. The system responds differently year to year and PSE is constantly adding or modifying infrastructure to meet electrical demands.

In 2016, PSE added a new transmission/distribution substation near Maxwellton Road, increasing reliability in and around the Langley and South Whidbey area.

With that said, potential major construction and rebuilding/ maintenance activities affecting the City of Langley that are anticipated in the next 10 to 20 years include:

- Adding a potential third 115 kV transmission line to the Island. This will improve reliability on the Island on a day to day basis as well as during storm events. It will also add transmission capacity to serve future growth.
- Adding a potential new transmission substation in the Central Whidbey area, increasing transmission line reliability throughout the Island.

PSE will continue its current increased vegetation management and key rights-of-way (ROW) expansion on the Island along the existing 115 kV transmission lines. This ongoing vegetation management and key ROW maintenance and acquisition program has increased reliability on the Island dramatically over the last 8 years and will continue to do so into the future.

#### Insert Electrical Transmission System

#### TELECOMMUNICATIONS

Telecommunications encompasses both one-way (Radio/TV) and two-way (Telephone/Internet) services. Such services are available through wires (terrestrial), over the air (aerial), and via satellite (celestial). Langley is spoiled for choice when it comes to the various forms of telecommunication available to its residents. Langley is

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also served by celestial services for Television, Internet, Telephone, and Radio, including all of the services available within the United States, provided visual contact to the appropriate satellites is available.

### **Terrestrial**

Langley is served by two terrestrial companies, one an independent local telephone company and Incumbent Local Exchange Carrier, and the other a national cable company and Competitive Local Exchange Carrier. All residents within the city are part of the service area of both companies.

Whidbey Telecom is the local telephone company, and provides Telephone, Television, and Internet services through their underground telephone infrastructure. Internet and Television services are provided via DSL technology over existing telephone infrastructure. The services utilize ADS2+ and VDSL2 technology packages to provide hi-speed Internet throughout the city. Television services are provided over the same infrastructure and technology, utilizing IPTV technology developed by Microsoft and currently provided by Ericsson. There are two distribution nodes within the city, one on Third Street near DeBryun, which is a major distribution center for South Whidbey which serves most of the city, with the exception of the eastern portion. A second, smaller distribution center is located within the right-of-way of Sandy Point Rd., near Cedar Circle and serves eastern Langley and points south and east. Whidbey Telecom's TV service does include a local TV channel with local events and locally produced content.

Comcast operates their Xfinity service within Langley. Xfinity utilizes coaxial cabling to provide Telephone, Television, and Internet service on lines suspended from power poles, strung throughout the city. Some neighborhoods have the same infrastructure located in underground cable runs. Internet services are provided via DOCCIS technology, distributed via fiber to local neighborhood nodes, before being distributed through shared infrastructure to homes in the neighborhood. Telephone services are provided via VoIP technology on the existing Internet services. Television services are provided through Digital Cable QAM technology. A local channel is provided for local access, however Langley is only provided the channel as available from Oak Harbor.

### **Aerial**

The major post-paid cellular carriers have a presence within the city, however coverage varies depending on devices used and geographic locations, the pre-paid service companies are also served, with the same device and geographic limitations applied to the post-paid carriers.

The city is largely blanketed with aerial signals for cellular telephone, with notable dead spots that change regularly due to equipment and environmental activity. Aerial television service is extremely limited due to technical limitation of Digital Television

transmissions, geographic limitations, and the shutdown of many local repeaters due to low demand. Few in Langley can receive Over-The-Air (OTA) television, and much of that is limited to Canadian Stations (CBUT, CHEK, CHAN, CBUTF), PBS (KBTC), or non-major networks/independent stations (KVOS). Langley is largely served by the Seattle Radio Market, with marginal exposure to the Vancouver/Victoria radio market. There is also a Low Power AM station, operating at 1610 kHz, that broadcasts from just outside of the city limits, and currently broadcasts city council meetings, as well as various local programming.

At the Federal level, cellular phone facilities are regulated by the Federal Communications Commission (FCC), which has jurisdiction over the public airwaves, assigning frequencies and licensing operators. The FCC requires that transmitting towers be located such that transmission of signals is unobstructed. Local jurisdictions can regulate tower siting to the extent that a Federally-licensed use is not impeded.

Thus, a local jurisdiction can deny approval of a tower at a particular site, but cannot impose an outright ban on towers within its jurisdiction. The Federal Aviation Administration (FAA) and WSDOT Aviation Division also review proposed towers when they exceed 200 feet in height (above ground level) or when the proposed location is within 20,000 feet of a major airport (serving military and commercial aircraft) or within 10,000 feet of a smaller airport. While not having the authority to deny potential sites, the FAA coordinates its review process with the FCC, who may deny a particular site if the FAA objects

#### **Celestial**

Even given Langley relatively high latitude, all celestial services are available that otherwise cover the US and southern Canada. This includes DirecTV and Dish Network for Television, SiriusXM for Radio, Hughes Net and WildBlue for Internet, and the various companies that provide satellite telephone services around the world.

#### **Future Demand and Proposed Facilities**

Existing telephone facilities and some minor upgrades, mainly at the distribution level, will adequately serve the County's needs over the next 20 years.

Frontier and Comcast are the main cable providers in Island County. Cable companies and cable service change often, and require relatively minor facilities. No new major facilities are expected to meet anticipated growth in Island County.

Whidbey Telecom also provides internet, telephone, and telephone services over a fiber optic network it is in the process of expanding to be available to all residents of Langley

### **Existing System: Whidbey Telephone**

Whidbey Telephone's service area begins at Greenbank and covers the southern part of Whidbey Island. The provision of telecommunication services is driven by the needs of its customers. As the population grows, telecommunication facilities will be upgraded to ensure adequate service levels. It is also feasible that facilities will be upgraded as technology advances.

Like investor owned gas and electric companies, telecommunications companies are regulated by the WUTC, which ensure reliable service levels is provided at reasonable rates.

Standard telephone facilities include a central plant, which houses switching gear (usually in the same building as central offices), and the familiar utility poles and overhead lines. Underground installation of telephone lines and use of efficient fiber optic systems is becoming more common as technology advances and the regulatory framework responds to aesthetic concerns.

Whidbey Telephone is an independently owned and operated telephone utility serving roughly the southern half of Whidbey Island with main offices in Bayview. They provide TV service, High Speed internet connectivity, local and hosted telephone services and security and alarm monitoring services. Their network is 100% buried protecting their network through challenging weather conditions.

### **Future Demand and Proposed Facilities**

Whidbey Telecom's long range plans are to migrate off of the current copper network onto a network that will fulfill the future needs of their service area for generations to come.

### **CELLULAR TELEPHONE SERVICE**

Cellular telephone service has become increasingly popular. A cellular system consists of cells (a geographic area served by a transmitting and receiving tower), cell sites (the tower site, also including a base station radio and interconnecting equipment), a switching station (which receives and distributes signals from the cell sites via conventional land lines and microwave signals), and, the cellular phones themselves. Cellular phones can operate only within the range of a given cell site. Thus, in order to cover broad service areas, cell sites must be located close enough to one another so that service is uninterrupted as the user moves from one location to another.

Cellular towers can pose siting problems. The towers can be free standing structures, but are often placed on top of existing structures where convenient. This is more common in urban areas, and creates less of a visual impact than free standing towers. As service expands or changes, existing cell sites may need to be reconfigured. For example, as additional cell sites are added to the system, existing towers may need to be lowered to prevent overlapping radio coverage.

~~With growing use of digital technology, existing cell sites will be able to serve greater capacity than the analog system. Thus, capacity is not anticipated to be a problem in the future. Local jurisdictions can regulate tower siting to the extent that a federally licensed use is not impeded. Thus, a local jurisdiction can deny approval of a tower at a particular site, but cannot impose an outright ban on towers within its jurisdiction.~~

~~A trend that is growing for cellular telephone service is for a third party to own and operate the cell towers and lease space back to cell phone service providers. Verizon is one company that has sold many of their towers to companies like American Tower, Crown Castle, Atlas Tower, etc. and then leases back space.~~

#### **Existing System**

~~Just outside of Langley in the South Whidbey region, American Towers Monarch Towers, T-Mobile, and Whidbey Telecom own cellular towers.~~

#### **Future Demand and Proposed Facilities**

~~Demand for cellular service for voice is steady or possibly declining trends for voice cellular service is stagnate and possibly declining. Demand for data use by cell phones have been increasing double every year with the rise of smart telephones. Cellular service companies are keeping up with this demand by adding capacity through smaller cell sites where possible. In higher use areas, i.e. stadiums or large retail shopping center, small cell sites within buildings are provided. Langley, does not have demand for the higher~~

~~Add info about Verizon.~~

### **CABLE TELEVISION**

#### **Existing System**

~~Cable carries data via coaxial cable from trunk lines, which originate at a "head-end site," which processes information and generates it through the distribution system. Though the term "cable" implies wiring throughout the system, many cable systems also utilize satellite dishes and microwave antenna. Cable distribution lines are often run using overhead utility poles, but underground installation of cable systems is becoming more common.~~

~~AT&T/Comcast provides cable service in the Langley area.~~

#### **Future Demand and Proposed Facilities**

~~Cable companies and cable service change often, and require relatively minor facilities.~~

~~Insert Electrical Transmission Service~~

#### **Telephone/TV/Internet:**

~~Whidbey Telecom is an independent, locally owned and operated business that serves residential and commercial properties in Langley. Originally incorporated in 1908 as Whidbey Telephone Company, it rebranded as Whidbey Telecom in 2004. In 1961, they became the first local telephone company in the United States to bury 100% of it's local~~

lines. The product of this investment benefits Langley's customers by giving them increased network reliability and a decreased impact on the scenic beauty that characterizes Langley. Whidbey Telecom also provides internet and TV.

Comcast Cable is a nationally owned and operated business that serves residential and commercial properties in Langley. Originally formed as American Cable Systems in 1963, the company was incorporated in 1969 under the new name Comcast Corporation. Comcast provides mass media (cable television), internet service, and telephone service.

**Power:** Puget Sound Energy provides power to the residential and commercial properties within the City. Through mergers and acquisitions, dozens of small utility companies gradually evolved into today's Puget Sound Energy. The oldest of these, the Seattle Gas Light Company, introduced Washington Territory to manufactured gas lighting on New Year's Eve, 1873. A dozen years later, another PSE ancestor, the Seattle Electric Light Company, gave the region its first electric service from a central power plant. PSE adopted its name and current structure in 1997 when two of its largest ancestral companies, Puget Sound Power and Light Company and Washington Energy Company, merged. PSE serves more than 1 million electric customers across 11 counties.

**Small Boat Harbor:** In 1902 Jacob Anthes built a dock in the Wharf Street area. It was U-shaped and had two driveways with a warehouse at the end in which to store freight. The dock changed ownership several times. In 1985 the existing marina facility was completed. The South Whidbey Boat City Harbor consists of 41 slips, most of which will accommodate vessels up to 35 feet. Facilities include restrooms and showers, power and water at the docks, a floating pump-out station, Phil Simon Park and a boat launch. In January of 2009, The South Whidbey Port District took over ownership of the Harbor. Additional information can be found in the 2004 Boat Harbor Master Plan.

Commented [CP11]: This is detailed in the Transportation Element

**Seawall:** The Seawall north of First Street at Seawall Park was built in 1976. It is a reinforced concrete seawall that is 1,032 feet long. It created a level separation from the beach and the slope, thus giving the City what is now known as Seawall Park. There is deterioration of the wooden posts and the concrete is starting to deteriorate. In 2016 an Ad-hoc Committee was established by Council to guide improvements to Seawall Park.

**Cemetery:** The Langley-Woodmen Cemetery is located south of the central business district on Al Anderson Avenue. It was established in 1902 by the Woodmen's Lodge and they maintained it until the City was incorporated. In September of 1913 the Woodmen donated the Cemetery to the City of Langley. The Cemetery is approximately 5 acres, and currently has 2803 plots and an ash garden. The City has a very active cemetery board that plans policy, budget, development and landscaping. In 1995, the Friends of the Langley Woodmen Cemetery (a non-profit organization) was founded to assist the city with the maintenance and care of the cemetery.

**Parks, Open Space and Trails:** For an inventory and description of the city's parks, open space, and trails refer to the Parks and Open Space, and Trails Element found in OS 1—OS-34 of this Comprehensive Plan. It also describes natural areas and parks in the surrounding area outside of city limits.

**Transportation:** Refer to the Transportation element found in T 1—T 31 of this Comprehensive Plan for an inventory and description of the transportation system in

Langley, along with level of service standards for roads ~~way and transit systems~~ the transportation improvement plan and the goals and the policies for Langley’s multi-modal transportation improvement program.

**Buildings (Non-Utility):**

104 2nd Street – Library: The city remodeled the library (and City Hall) in 1994 with non-taxable municipal bonds, a federal grant and a generous contribution from the Friends of Langley Library Association. The city is currently responsible for the maintenance of the grounds, and the capital improvements to the building. The library became part of the Sno-Isle Regional Library System in January of 2012.

115 2nd Street – Post Office: The city outgrew the original post office and did not have enough space to expand, so in 1998 the city partnered with D & L Constructors. The city gave D & L a long-term ground lease which was paid for in a lump sum payment that allowed the city to purchase adjoining property. With the additional square footage, D & L was able to construct the new postal facility and sub-lease it to the Postal Service. The Postal Service is responsible for all building and property maintenance, including capital improvements. The contract expires in 2026.

112 2nd Street – City Hall: City Hall was formerly the Masonic Lodge building and the city remodeled it in 1994. The city is responsible for the grounds, the building, and all capital improvements.

179 2nd Street – Old Fire Hall: South Whidbey Fire District rented the fire hall until they built a new building in Langley on Camano Avenue in 2008. At that time the city decided to continue to rent out the building rather than sell the property. The city is responsible for the capital improvements to the building.

208 Anthes Avenue – Langley Visitor’s Information Center and Public Restrooms: The city currently rents the VIC to the Langley Chamber of Commerce. The city is responsible for the capital improvements to the restroom building, the VIC and the storage shed.

999 Coles Road – Public Works Shop: The Public Works shop was originally located at the northwest corner of Saratoga Road and Debruyne Avenue (now lift station #2/ Generation Park). It was relocated to the current location after the Wastewater Treatment Plant was built and the city needed a convenient location for the temporary post office, while the new one was being constructed at 115 2nd Street. The utilities share the responsibility, along with the city capital fund, of any capital improvements to the public works shop.

**Capital Improvement Program**

**Table C-1  
Capital Improvement Program**

<b>Transportation Improvement Program 2017-2022</b>				
<b>Project</b>	<b>Fiscal Year</b>	<b>Funding Source</b>	<b>Local Match</b>	<b>Total Cost</b>

Overlay Second Street (Anthes to DeBruyn) • Separated walkway extruded curb	2017	STP Grant *applied 9/30/16	\$77,625	\$575,000
De Bruyn Avenue and First Street sidewalk	2017	TIB SCSP Grant and TA Grant *applied 9/30/16	\$24,500	\$245,000
First Street (Wharf to DeBruyn Ave) • Milling, Overlay, Sidewalk and ADA improvements Not eligible for STP grant	2018	TIB complete Streets grant possibility Not STP Grant Eligible		\$575,000
DeBruyn Street Overlay (2 <sup>nd</sup> Street to 3 <sup>rd</sup> Street)	2018	STP Grant Eligible	\$175,000	\$23,625
Anthes Reconstruction (1 <sup>st</sup> Street to 2 <sup>nd</sup> Street)	2019	Not STP Grant Eligible		\$600,000
Park Avenue milling and overlay (3 <sup>rd</sup> Street to 4 <sup>th</sup> Street)	2020	STP Grant Eligible	\$60,750	\$200,000
Third Street Overlay (DeBruyn to Brooks Hill Road)	2021	STP Grant Eligible	\$60,750	\$450,000
Edgecliff Reconstruction and Widening (Decker to Camano)	2022			\$880,000
Saratoga Road Reconstruction • guardrail and widening	Future			\$1,250,000
Sandy Point Reconstruction and Widening	Future			\$1,200,000
Edgecliff Reconstruction and Widening • Decker to City Limits	Future			\$500,000
Trail System Improvements • Noble Creek, Middle School, Highlands to 6 <sup>th</sup> Street	Future			\$500,000

**City of Langley Capital Improvement Program (CIP) 2016-2021**

**Transportation Improvement Program 2016-2021**

	<u>Estimated Cost</u>	<u>Local match</u>
<b><u>2017</u></b>		
Cascade Avenue Reconstruction Sixth St. to Wharf STP R grant awarded	\$310,000.00	\$42,000.00
<b><u>2018</u></b>		
Overlay Second Street	\$325,000.00	N/A

	STP R-grant eligible		
<b><u>2019</u></b>			
Anthes Reconstruction		\$600,000.00	N/A
	First St. to Second St.		
	STP R-grant eligible		
<b><u>2020</u></b>			
Park Avenue milling and overlay		\$250,000.00	N/A
	First St. to Third St.		
	STP R-grant eligible		
<b><u>2021</u></b>			
Third Street overlay		\$300,000.00	N/A
	Debruyne to Brooks Hill		
Out Years			
Saratoga Road Reconstruction		\$1,250,000.00	N/A
	Guardrail/widening		
Sandy Point Reconstruction		\$1,200,000.00	N/A
	Widening		
Edgecliff Reconstruction		\$1,200,000.00	N/A
	Widening		
Trail System Improvements		\$500,000.00	N/A
Second Street walkway		\$550,000.00	N/A
	Melson Alley to Debruyne		

**Existing Water Main Improvement Program 2016-2021**

<b><u>2016</u></b>			
Decker Avenue: Sandy Point to Edgecliff		\$252,000.00	N/A
Cascade Avenue: Wharf to Sixth St.		\$225,000.00	N/A
<b><u>2017</u></b>			
Second Street: Anthes to Debruyne		\$325,000.00	N/A
<b><u>2018</u></b>			
Sandy Point Road: Furman to Wilkinson (1/2)		\$325,000.00	N/A
<b><u>2019</u></b>			
Sandy Point Road: Furman to Wilkinson (2/2)		\$325,000.00	N/A
<b><u>2020</u></b>			
Northview PZ Transfer		\$200,000.00	N/A

**Sewer Capital Improvement Program 2016-2021**

<b><u>2016</u></b>			
Replace Programmable Logic Control at		\$161,000.00	N/A

Plant

**2017**

Upgrade Sunrise Beach Lift Station \$236,000.00 N/A

**2018**

Existing Sewer System Main  
Replacements From sewer Comp  
Plan \$100,000.00 N/A

**2019**

Existing Sewer System Main  
Replacements From sewer Comp  
Plan \$100,000.00 N/A

**2020**

Existing Sewer System Main  
Replacements From sewer Comp  
Plan \$100,000.00 N/A

**Stormwater Capital Improvement Program 2016-2021**

**2016**

Sixth Street: East of Anthes to Brookhaven  
Creek \$190,000.00

Replace Manholes: First Street at Anthes \$25,000.00

**2017**

Melsen Alley: Fourth to Sixth \$150,000.00

**2018**

Edgecliff Drive: West of Furman \$300,000.00

**2019**

Furman and Decker Avenues \$490,000.00

**2020**

Wharf Street and Water Quality Improvements \$300,000.00