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Table CFP-3 2025 City Capital Facility Project List

Capital Facility	Project List
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Proposed Amendments to CFP Section 12.6 Water System section
Pages 199-204

12.6 Water System

The City of Poulsbo Water Utility provides potable water within the city limits and some limited areas in the surrounding unincorporated UGA. A complete inventory, analysis of need, identification of deficiencies, and the capital facilities program is provided in the 2007 2014 Water System Plan, which is included in Appendix B-1 to the Comprehensive Plan and adopted in its entirety.

The City’s water system provides service to approximately 7,800 9,388 people located in an

area totaling 2,970 ~~2,912~~ acres. These customers are served by five wells (capable of 3.4 ~~2.3~~ million gallons per day), nine reservoirs (4.1 million gallons), and six ~~four~~ pressure zones. Approximately two-thirds of total water consumption is used by residential customers.

The City's water service area encompasses approximately 4.93 ~~5.15~~ square miles and ranges from sea level to 360 ~~406~~ feet. The downtown area lies in the lower elevations near the shores of Liberty Bay. The service area is separated into six ~~four~~ pressure zones to serve the varying service elevations. The City's water service area encompasses where direct service connections exist or service connections are currently available. **The City's water service area is identified in Appendix B-1 Figure 1-2.**

The City's water service area has been adjusted since the 2007 Water System Plan to reflect changes to the city limits and adjustments to better serve customers. The service area adjustment in the northwestern part of the UGA does not include the entire UGA due to the topography of the area. Services west of Olympic College had been in the City's planning area, but are now served by the Kitsap Public Utility District (KPUD). In 2011, the City agreed to relinquish these areas to the KPUD and in return there is an additional intertie at NW Reliance Road that will help provide fire flow storage for the West High Zone.

An average of 74 water service connections was added to the City's water system annually over the last seven years, which corresponds to an average annual growth rate of approximately 2.3%. Single-family residential connections lead the new connections and non-residential connections decreased for several years after 2008.

The amount of water the City uses has dropped significantly since the last water system plan. In the 2007 Water System Plan, the City used on average 195 gpd/ERU and currently uses 159 gpd/ERU. This decrease in water has been a combination of increased efficiency, education, and lowering the distribution system leakage. Consequently, the long term projected consumption of the City is not anticipated to exceed their water rights as it did in the 2007 plan.

By 2020, the total annual water use is projected to be 1,270 acre-feet/year, a 30 percent increase from current usage. By the end of the 20-year planning period, projections increase to 1,612 acre-feet/year. These projections do not include reductions in water use created by increased conservation and water use efficiency measures underway and planned by the City. At this time, the City holds water rights for a total of 1,893 acre-feet/year. It is not expected that the City will need additional instantaneous or annual water rights within the 20-year planning period.

The water service area has been expanded since the City's 2000 Water System Plan to reflect the City's annexation into its urban growth area, as well as those portions of the City's urban growth area not currently annexed. In addition, the service area also recognizes the City's ability to serve customers from the new College MarketPlace facilities (West High Zone). The service

area in the northwestern part of the City's urban growth area is not included due to the topography of the area. These high elevation parcels will continue to be within the Kitsap Public Utility District's water service area.

Water system expansion is expected as the city continues to grow. College Market Place has laid the foundation for new commercial development in the northwest part of the City. Further, additional residential development is expected, consistent with the City's Urban Growth Area, and its mandate to accommodate growth. In addition, infill and re-development is also occurring within the existing city limits. Combined, the city's expected growth places an increasing demand on the water system and its ability to provide safe and reliable water supply.

Utilizing the City's 2025 population forecast, the 2007 Water System Plan predicts that by the end of the 2025 planning period, the city residents and businesses total annual water usage will be 1,966 acre feet/year. These projections include reductions in water use created by increased conservation and water use efficiency measures underway and planned by the City. At this time, the City holds water rights allowing for a total of 1,734 acre feet/year. Additional water right capacity or supply is necessary to meet future demands.

It should be emphasized that the City has an obligation to plan for the 2025 population forecast which the 2007 Water System Plan has done. The actual realization of the city's population growth—and therefore its impact on the City's water system and supply—is also influenced by regional, state, and national economic influences and trends.

However, in order to ensure that the City is planning for the 2025 population forecast and to meet the needs of future residents, the City has initiated discussions with Kitsap Public Utility District (KPUD) to provide water supply in the future at such a time as the City needs it. A Memorandum of Understanding has been agreed upon by the City of Poulsbo and KPUD, which lays out the process to establish coordinated domestic water supply, storage and service areas. A copy of the MOU is included with the 2007 Water Supply Plan in Appendix B-1.

2025 Water Facility Improvements

Water system capital facility improvements have been evaluated, identified and prioritized on the basis of water quality concerns, growth demands, regulatory requirements, component reliability, system benefit, and financial priority for the planning period. When the Water System Plan is updated again at the end of its 6-year planning period, the projects presented for the 20-year planning period should be reevaluated and scheduled for the subsequent 6-year planning period as necessary.

Water Supply Projects

Lincoln Wells No. 1 and No. 2 Manganese Treatment

The Lincoln Wells have higher than desired manganese concentrations in the raw water. The concentrations exceeded the high concentrations cause the City to frequently have to flush its water mains, and it can add an unwanted color, odor and taste to the water. The City conducted a pilot test in 2014 and constructed treatment facility in 2015. The

treatment would reduce or eliminate the manganese from the raw water concentration to below 0.05 mg/L in the finished water. The Pugh Well has iron bacteria issues. The Pugh Well will be isolated from the system and remain as a resource for emergency situations.

Lincoln Well No. 2 (Pugh Well Replacement) Well House and Telemetry

The City began drilling a second well in 2006 on the Lincoln Well site as a replacement for the Pugh Road Well. The new well will eliminate the need to frequently use the Pugh Road Well, which has iron bacteria problems. As a result, the City can reduce the flushing frequency thereby lowering water production requirements and lost and unaccounted for water. The Pugh Well water right allows for 650 gpm of instantaneous withdrawal and the new well is being designed to maximize the water right.

Westside Well Treatment

The Westside well also has manganese concentrations in the raw water that are slightly higher than the EPA's Secondary MCL. Manganese can add an unwanted color, odor and taste to the water. The City plans on installing a pilot test system in 2015 and a treatment facility in 2016. The treatment system would reduce the manganese from the raw water concentration to below 0.05 mg/L in the finished water.

Long Term Water Supply Study

The City plans to develop a long term water supply study that identifies alternatives to procuring additional water rights or water supply capacity. **The City has sufficient water rights to supply demands for the 20-year planning period, but the existing pumps will need to pump an excess of 18 hours a day; therefore the city plans to add source capacity to improve system reliability and meet DOH recommendations.**

Big Valley Well No. 3

The City plans to drill, develop, and equip a third well at the Big Valley Well site. **Additional source capacity is necessary to provide maximum day demand and replenish fire suppression storage during the planning period, and a new 500 gpm well will provide sufficient flows.** A new 500 gpm well will provide sufficient flows through 2014. This project will be re-evaluated upon completion of the long-term water supply study.

Westside Well No. 2

The City plans to drill, develop, and equip a second well at the Westside Well site. Additional supply capacity **should be installed to reduce the demand on aquifers and equipment.** will be necessary by 2014 to provide sufficient flows through 2026. This project will be re-evaluated upon completion of the long-term water supply study.

Acquire/Upgrade Supply Capacity

The city needs to acquire additional or upgrade current source capacity in order to meet its predicted demands and Department of Health's reliability recommendations. Project identification is expected to come from long term water supply study.

Storage Projects

Wilderness park Reservoir Repairs

Based on a seismic study which evaluated the City's reservoirs, the Wilderness Park Reservoir does not meet current seismic design standards. This project will retrofit the existing reservoir to have additional ties to the foundation to resist overturning forces induced by seismic loads.

Raab Park Reservoir Replacement

Replace the existing 150,000-gallon tanks with a 300,000-gallon tank. The existing tank does not meet seismic design standards and is at the end of its useful life.

Reservoir Seismic Evaluations

~~The City plans to conduct a seismic evaluation study of the existing reservoirs. Additional capital improvements may be determined based on the findings of the evaluation.~~

Reservoir Coating Program

The City plans to recoat **the interior and exterior of the Finn Hill and Olhava Reservoirs.** ~~four of the existing water reservoirs.~~ Periodic coatings need to be applied to protect the structural steel from corrosion damage.

Finn Hill Reservoir No. 2

~~The City plans to construct a 700,000 gallon reservoir at the Finn Hill Reservoir site. This project eliminates the existing storage deficiency in the West High Zone and provides future storage capacity to eliminate the projected system wide storage deficiency. The new reservoir will be slightly larger than the existing Finn Hill Reservoir. The existing site was arranged to accommodate a second reservoir.~~

Booster Station Projects

Wilderness Park Booster Station Replacement

The City plans to construct a new booster station at the Wilderness Park Reservoir site. The new booster station will transfer supply from the Low Zone to the East High Zone to eliminate the storage deficiency in the East High Zone and provide redundancy to the Pugh and Lincoln Wells. Currently, the City does not have a pumping facility to transfer supply to the East High Zone. The booster station will consist of three 750 gpm pumps, integrated control systems, standby generator, and an automatic transfer switch with a new CMU building.

340 Zone Fire Flow Pump and Zone Expansion

The 340 Zone currently has houses served by a pump for average day and maximum day demands but is served by gravity for fire flow. The high elevations cause pressures to drop below 20 psi during fire flow emergencies when the reservoirs are depleted of operational storage. A fire flow pump is needed to boost flows and pressures in the 340 Zone and would decrease the large dead storage in the Low Zone. This project will be coupled with a zone expansion to address the low pressure at the 4th Avenue Townhomes since work will

need to be performed at the existing booster station. This project will include an additional 250 feet of pipe to expand the zone and the pumps necessary to meet projected demands.

Finn Hill Booster Station Project

The City plans to replace the Viking Avenue Booster Station in order to increase its total capacity. This project eliminates the West High Zone storage deficiency and improves supply reliability to the West High Zone. The new booster station will be equipped with three 1,000 gpm booster pumps and an onsite standby generator. In addition to eliminating the storage deficiency, the booster station will serve as the backup source to the West High Zone.

Pressure Zone Modifications

Finn Hill Area Project

The City plans to move service for approximately 34 homes from the Low Zone to the West High Zone in order to improve service pressures and reduce dead storage in the Low Zone reservoirs. This project includes constructing approximately 500 LF of 8-inch water main along Finn Hill Road between Staffordshire Lane and Terasse Drive.

Distribution System Projects

The following distribution system projects are recommended to increase fire flow, replace undersized water mains, or to accommodate transmission and storage projects.

Lincoln Well Transmission Main

The City plans to construct approximately 3,000 LF of 12-inch transmission main between the Lincoln Well site and the Pugh Reservoir. This project is necessary to increase transmission capacity of the existing 8-inch water main when the second well comes online. The project will be located along Lincoln Avenue between Pugh Road and the well site.

Old Town Water Main Replacement

The City plans to replace the undersized and aging water mains in the “old town” area located south of downtown. This area is primarily residential although a few businesses are located along the waterfront. Existing piping serving the area is approximately 9,000 LF of 4-inch water main and 5,450 LF of 6-inch water main. This project will replace 3,140 LF of 4-inch piping with 8-inch piping along 6th Avenue and Haugen Street. The new piping will serve as a “backbone” for the area and increase fire flow availability.

Big Valley Transmission Main

The City plans to replace the transmission main between Big Valley Road/Bond Road and the Big Valley Wells. The existing water main is a critical link between the Big Valley Wells and the city center. This project consists of 5,200 LF of 12-inch water main. The cost estimate assumes the water main will be installed within the roadway.

Wilderness Park Transmission Main

The City plans to replace the transmission main from the Wilderness Reservoir to the

west side of SR 305. The existing water main is undersized and limits the flow to and from the reservoir. This project will result in an increase in available fire flow to the Low Zone and improved water quality in the area around the reservoir. The project consists of 1,500 LF of 12-inch water main and includes a 200 LF boring beneath SR305. For planning purposes, the boring is assumed to be a 24-inch steelcasing.

Viking Avenue PVR

The Viking Avenue water main currently has very high pressures (180 psi) that need to be reduced. High pressure in the main has caused pipes to burst several times. The City plans to install two PRV systems, including one at the old Viking Avenue Booster station site, to reduce pressure along this main.

Hostmark Transmission Main

The City plans to install a transmission main between the Wilderness Park Booster Station and the East High Zone. This project will allow the City to transfer supply between the Low and East High Zones to improve supply redundancy to both areas. The project consists of approximately 3,000 LF of 12-inch water main along Hostmark Street. A new pressure reducing valve station will be installed to transfer supply from the East High Zone to the Middle Zone.

SR 305 Crossing

The City plans to replace the transmission main that crosses SR 305 at Hostmark. The existing water main is an old and undersized pipe that serves the downtown area.

Liberty Ridge Fire Flow

The Liberty Ridge Apartments require a minimum of 2,5000 gmp for fire flow. They are at a higher elevation than most of the Low Zone and are served by 6-inch piping from the south. An additional 8-inch pipe from Bond Road to 1st Avenue NE at the south end of the complex would loop the service and increase fire flow to above 2,500.

Water Main Replacement Program

The City has scheduled specific water main replacements for the next 6 years and will continue replacing aging water mains annually. Which mains will be replaced beyond what is currently scheduled will depend on the needs of the system and the known pipe conditions at that time.

Finn Hill Transmission Main

The City plans to install a transmission main between the Finn Hill Reservoir and Viking Avenue. This project will improve fire flow availability along Viking Avenue. The project consists of approximately 2,000 LF of 12-inch water main along Finn Hill Road.

3rd Avenue Water Main Extension

Replacement of existing 4-inch main with new 8-inch main along 3rd Avenue, from Moe Street to Iverson Street.

Miscellaneous Projects

Meter Upgrade and Replacement Program

The City plans to replace all existing meters in their water system. The new meters will have remote read capability and will be a higher quality magnetic meter. This project is intended to help reduce water loss and improve the efficiency of the water system.

Telemetry System Upgrades

The City plans to replace the current telemetry system. This project will upgrade the central control system so that the City will have better remote operation of its water and sewer facilities.

Public Works Complex

The City plans to construct a Public Works Complex which will provide a maintenance and operations center for the water, sanitary sewer, storm sewer, solid waste, roads and parks departments. The water utility is expected to fund 20% of the project costs.

Intrusion Alarms

The City plans to install intrusion alarms at several of its facility sites. Many sites have security provisions, such as fencing and door locks, but intrusion alarms will help quickly notify the City in the event an unwarranted person has entered the facility.

Manganese Treatment

The Westside Well and Pugh/Lincoln Well #2 will receive treatment for manganese. The appropriate treatment method will be determined during project development.

Water Facilities Funding Strategy

Municipal utilities in Washington State are operated as enterprise funds and are required by state law to operate with a balanced budget. Therefore, the City must decide how it will finance its utility capital improvements as well as provide funds to operate the utility through some combination of user rates, debt, and contributions. It must then establish user rates at a level that is sufficient to operate and maintain its facilities, pay debt service on any debt issued, and maintain reasonable cash reserves.

Funding the Water System's capital improvements comes from the Water Enterprise Fund, which is intended to be self-sufficient. Revenue is from monthly rates from both residential and commercial users, and through one-time utility connection charges. The combination of these revenue sources funds the water utility's operational expenses, debt reduction, maintenance and capital improvements.

The ~~2014~~ 2007-Water System Plan provided a financial analysis of the water utility's anticipated monthly rate revenues and projected operational expenses over a six-year period. It also provided an analysis for projected connection charge revenues, which are used to upgrade and expand the water system. Based upon the Plan's financial analysis, the City has adequate operating revenue to meet its existing and projected operating expenses, as well as its 6-year CIP project list.

The City has seen an increase in the amount of revenue since the 2007 Water System Plan, and based upon projected revenue and an increase in water rates approved in 2014, the expected revenue is sufficient to complete system upgrades. ~~It should be noted that new connection charges, which occur at the time of building permit issuance, in 2008 have not met the Water Plan's projections—evidence of the national and global economic environment. **In addition,** the City, however, does have **has** several options for funding the CIP should revenue projections be less due to the slower than expected growth or decreased water consumption. Projects identified on the 6-year CIP intended to accommodate system growth can be delayed until such time as needed. Further, additional revenue sources such as public works loans, revenue bonds, or rate increases can be utilized when necessary. The anticipated long-term coordinated water supply, storage and distribution agreement with KPUD may also decrease or eliminate the need to implement some of the identified 6-year and longer-term 2025-capital improvements. The City's Water System next functional plan shall take both these external and internal circumstances into consideration when evaluating the system and forming the recommended project list.~~

System Expansion Projects Funding

For future proposed developments that currently do not have the City's water system readily available, the City generally requires the developer or landowner to agree to execute a utility extension agreement. Through the agreement, the City requires the developer or property owner to pay all costs associated with designing, engineering, and constructing the extension to City standards. This agreement does not, however, guarantee or reserve water capacity within the system. Capacity is only assured when a building permit is actually issued. This agreement also requires the developer/landowner to turn over and dedicate any capital facilities to the City at no cost. All agreements must be approved by the City Council. The City anticipates this process will be used more often to serve development occurring throughout the underdeveloped areas of the city and the urban growth area.