

DRAFT



Olympia™

**Drinking Water
Projects**





Drinking Water

The mission of the Drinking Water Utility is to ensure a safe and sustainable supply of drinking water for the community. Four key influencing factors drive the development of the nine water capital project programs identified in the Capital Facilities Plan (CFP):

1. **Regulation/Compliance:** Achieve legal compliance with the Federal Safe Drinking Water Act (SDWA), Washington State Department of Health (DOH) regulations, and the Uniform Fire Code (UFC) fireflow criteria.
2. **Adopted Sustainability Philosophy:** Manage the water in sustainable ways and to develop integrated solutions that solve more than one problem at a time.
3. **Growth:** Accommodate growth as defined by Olympia’s Comprehensive Plan and to continue to provide and improve service to existing customers.
4. **Operational and System Delivery Strategies:** Manage water as a limited resource, meet water regulation objectives using approaches that limit human influence on the naturally good quality of water Olympia has, and implement system changes for cost-effective delivery.

Drinking Water capital facilities are designed and built to provide citizens with safe and sustainable drinking water. Drinking Water capital program activities acknowledge the importance of managing the water as a limited, precious resource that needs to be protected, conserved, and managed responsibly.

The 2015-2020 Water System Plan serves as the basis for the development of the Drinking Water Capital Facilities Plan. The projects contained in the CFP are funded annually through Drinking Water Utility rates and General Facilities Charges (GFCs). Low interest State loans and grants are pursued as available. The 2015-2020 Water System Plan includes a financial strategy for planned capital improvements that involves a combination of cash and debt financing.

Growth-Related Projects

Projects that fall under this category are associated with work needed to accommodate new development and are funded by GFC revenue. When a project serves both new and existing development, a portion of the project cost will also be funded through Drinking Water Utility rates.

<u>Project</u>	<u>Percent Growth-Related</u>
Briggs Well Construction	100%
Kaiser Road Water main	25%
McAllister Wellfield Corrosion Control treatment	31%
McAllister Wellfield Mitigation - Deschutes River	50%
McAllister Wellfield Mitigation - Woodland Creek	50%
Olympia Brewery Water Engineering Analysis	100%
Water System Plan	50%

Level of Service (LOS) Determinations

Level of Service I

The first level of service (LOS I) involves maintaining the current system as-is and addressing the need to remain in regulatory compliance for water quality and quantity requirements.

- Meet minimal standards for water pressure (30 psi) and UFC fireflow criteria.
- Addressing new State and Federal Safe Drinking Water Act requirements.
- Addressing existing system deficiencies due to growth or infrastructure failure.

Level of Service II

The second level of service (LOS II) focuses on more proactive system maintenance and anticipating future regulatory needs.

- Anticipates future water quality regulations and develops facilities that will accommodate the increased requirements prior to the system becoming deficient.
- Goes beyond the required minimum of 30 psi average water pressure for residents and strives to improve the minimum to 40 psi. The higher standard is the most cost-effective approach to anticipating and meeting system growth needs. LOS II also strives to eventually eliminate areas within the system that do not meet UFC fireflow criteria.

Level of Service III

The final level of service (LOS III) recognizes Olympia’s commitment to sustainability and to the approach of managing water as a limited resource. LOS III projects and programs address DOH regulations to a further extent, with the underlying driver to be a responsible water steward and purveyor.

- To comply with DOH regulations, there must be some form of conservation activity within an adopted Water Plan. The degree to which the City of Olympia approaches a conservation program is a component of managing a limited resource.

Capital Facilities Projects by Level of Service	
LOS I	<ul style="list-style-type: none"> • Asphalt Overlay Adjustments
LOS II	<ul style="list-style-type: none"> • Small Diameter Water Pipe replacement • Transmission and Distribution Projects • Water Source Development & Protection • Water System Planning • Water Storage Systems
LOS III	<ul style="list-style-type: none"> • Groundwater Protection/ Land Acquisition • Infrastructure Pre-Design & Planning • Reclaimed Water

Level of Service Standards

Municipal utilities in the United States and elsewhere commonly use LOS standards to evaluate whether the physical systems or operations are functioning to an adequate level. LOS can be defined in terms of the customer’s experience of utility service and/or technical standards based on the professional expertise of Utility staff.

These LOS standards can help guide investments in maintenance and repair and replacement. New assets can be used to establish design criteria and prioritize needs. Using a structured decision process that incorporates LOS standards can help a utility achieve desired service outcomes while minimizing life-cycle costs.

The Drinking Water Utility has developed a set of formal LOS standards. Utility staff used the following criteria in selecting LOS:

- Specific goal or expectation
- Customer and community focus
- Quantifiable and measurable
- Relatively simple to understand and apply
- Available budget constraints for maintenance, repair and replacement

The selected LOS standards are in the following areas:

- System performance (including service interruption due to breakage, pressure, system reliability)
- Sustainability (energy efficiency)
- Customer service (response to water quality and service-related complaints)

These LOS standards have been incorporated in the development of this Capital Facilities Plan. Since regulatory compliance is considered a given, these LOS standards address issues of concern for customers beyond regulatory minimums and those that have an influence on decisions regarding infrastructure investments.

The LOS standards are:

System Performance

- Service interruption due to line breaks–During a three year period, no customer will experience more than two service interruptions due to a line break; such service interruptions will average four hours or less.
- Pressure–Water will be delivered to new construction at a minimum pressure of 40 psi at the service meter.
- System reliability with largest water source off-line–Utility will meet winter-time demands (inside use only) with the loss of our largest water source (McAllister Springs). This would require complete curtailment of all outside and non-essential water use, but would maintain service for critical needs such as drinking, cooking, sanitation and firefighting.

Sustainability

- Energy efficiency–All pumps are rated 80% efficient or higher, unless it is not cost-effective to do so (i.e., the value of energy savings would not pay back the cost of the improvement within five years).

Customer Service

- The Utility responds to main breaks within 15 minutes during business hours and within one hour outside business hours.
- The Utility responds to low pressure and water quality complaints by the end of the following business day.



Annual Operations and Maintenance

The water supplied to Olympia flows through concrete, cast iron, galvanized, asbestos cement (AC), ductile iron, and PVC pipe. These lines, in general, have a life expectancy of at least 50 years. New water lines are typically replaced with ductile iron, ductile iron cement lined, or high density polyethylene (HDPE) pipes. Currently, most maintenance work involves repairs to the older asbestos cement water lines and non-ductile iron connections, and valves within the City. Breaks within these lines are usually caused by age, geological shifts within the ground or from construction work. Replacing these aging facilities will help to reduce operations and maintenance costs.

The annual operations and maintenance costs for both potable water and reclaimed water represent an overall average that is subject to change due to unique circumstances that may be encountered at each location. For new infrastructure, initial operations and maintenance costs for repairs, replacements, and cleaning are minimal. As the infrastructure ages, maintenance costs will increase.

Annual Operations and Maintenance Costs

Repair service leak (3/4"-1").....	\$ 430 per repair
Install service (meter) on a 3/4" -1" line.....	\$ 1,760 per install
Install small main (2" line).....	\$ 69 per linear foot
Install 6" or larger main.....	\$ 105 per linear foot
Main line valve installation and replacement.....	\$ 3,880 per install
Main line (2"-8" line) leak repair.....	\$ 1,640 per repair
Fire hydrant installation or replacement.....	\$ 3,220 per install
Fire hydrant repair.....	\$ 295 per repair
Reservoir maintenance (e.g. Meridian).....	\$ 30,760 annually
Pump station maintenance.....	\$ 47,430 per station

Note: The project components commonly used in Drinking Water Projects are defined in the Glossary section of this document.



Asphalt Overlay Adjustments—Water (Program #9021)

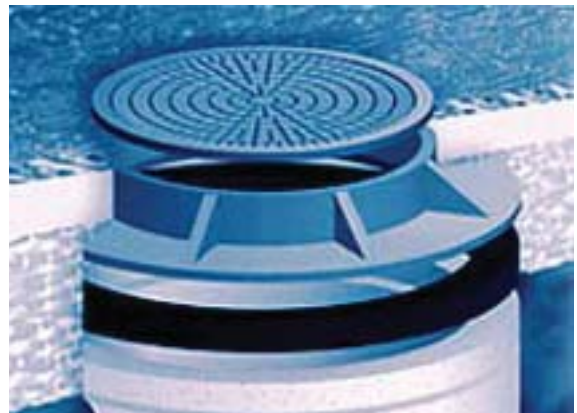
Location	Various locations Citywide.
Links to Other Projects or Facilities	Street Repair and Reconstruction Projects—Transportation section Asphalt Overlay Adjustments—Wastewater section
Description	Make necessary adjustments to raise water system components to street level in conjunction with the annual asphalt overlay/street reconstruction process. This is a pass-through amount that is used by the Transportation Street Repair and Reconstruction Project for water facilities.
Justification (Need/Demand)	Asphalt overlay and street reconstruction projects require the adjustment of water system structures and equipment (e.g., castings, manholes, inlets, and covers) during construction as part of the paving process.
Level of Service (LOS)	LOS I – See program overview for LOS definitions.
Comprehensive Plan and Functional Plan(s) Citations	This program implements the following Olympia Comprehensive Plan goals and policies: GU3: Utilities are developed and managed efficiently and effectively. PU 3.1: Utilities are developed and managed efficiently and effectively. PU7.7: Develop and maintain adequate storage, transmission, and distribution facilities.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 11,000	\$ 55,000	\$ 66,000
TOTAL	\$ 11,000	\$ 55,000	\$ 66,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 11,000	\$ 55,000	\$ 66,000
TOTAL	\$ 11,000	\$ 55,000	\$ 66,000

Annual Operations and Maintenance

Estimated Costs	None (Work conducted by transportation crew.)
Estimated Revenues	None
Anticipated Savings Due to Project	Decreases likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





Groundwater Protection (Program #9701)

Location Various locations Citywide. See Project List.

Links to Other Projects or Facilities Critical Habitat Land Acquisition—Storm and Surface Water section
Open Space Expansion—Parks, Arts and Recreation section

Description This program is targeted towards the purchase of land and other activities that will monitor and protect the groundwater that Olympia relies on for its drinking water supply.

Project List	YEAR	PROJECT DESCRIPTION	COST ESTIMATE
	2016-2020	Groundwater Protection (Easements, Appraisals, etc.)—This project is needed for installation of groundwater monitoring wells. Depending on the location of the wells, the City may have to obtain easements on property outside of the right-of-way and pay for those easements. The appraisals will determine the cost of the easements.	\$ 48,000
	2016-2018	Groundwater Monitoring Wells—This project will drill 12 additional groundwater monitoring wells within the capture zones to provide advance warning of any water quality issues that could impact the City’s drinking water sources.	\$ 578,000
	2017-2018	Wellhead Protection Program—This is an annual program (\$200,000) to refine the capture zones for the City’s wells (areas around the wells that capture stormwater which contribute to the aquifers).	\$ 421,000

Justification (Need/Demand) The acquisition of land within the City’s designated groundwater protection areas represents the ultimate groundwater protection strategy. By owning land or easements, the City can control land uses and associated activities on land near its water sources and help prevent contamination of critical groundwater resources.

Level of Service (LOS) LOS III – See program overview of LOS definitions.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU6: Groundwater in the City’s Drinking Water (Wellhead) Protection Areas is protected from contamination so that it does not require additional treatment.
 PU 6.1: Monitor groundwater quality to detect contamination, evaluate pollution reduction efforts, and to understand risks to groundwater.
 PU 5.3: Monitor water levels in aquifers and maintain numerical groundwater models.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 126,400	\$ 336,000	\$ 462,400
Design & Engineering	\$ 31,600	\$ 505,000	\$ 536,600
Land & Right of Way	\$ -	\$ 48,000	\$ 48,000
TOTAL	\$ 158,000	\$ 889,000	\$ 1,047,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 158,000	\$ 889,000	\$ 1,047,000
TOTAL	\$ 158,000	\$ 889,000	\$ 1,047,000

Annual Operations and Maintenance

Estimated Costs	Minimal
Estimated Revenues	None
Anticipated Savings Due to Project	None
Department Responsible for Operations	Public Works
Quadrant Location	South, West





Infrastructure Pre-Design and Planning—Water (Program #9903)

Location City water service area.

Links to Other Projects or Facilities Not yet determined.

Description Perform pre-design evaluation and analysis of water project alternatives in order to recommend projects identified in the Water System Plan and support other City project planning requirements that occur outside of the annual CFP process.

Project List	YEAR	PROJECT DESCRIPTION	COST ESTIMATE
	2016-2021	Pre-Design and Planning	\$ 132,000

Justification (Need/Demand) The City’s Water System Plan and six-year Capital Facilities Plan identify projects from a planning level perspective based on detected deficiencies in a specific portion of the system. They also include planning level cost estimates done at the time the plan was developed and may not include enough detail in the scope to accurately assess project costs. This program evaluates these projects prior to their appropriation in the annual Capital Facilities Plan. It ensures accurate scope of work and cost estimates and a full evaluation of project alternatives. Other uses for this information include project scheduling, assessment of rate impacts and cash flow planning.

Level of Service (LOS) LOS III – See program overview of LOS definitions.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU 7: The drinking water system is reliable and is operated and maintained so that high quality drinking water is delivered to customers.
 PU 7.3: Design Olympia’s water supply system to achieve the most favorable and practical fire insurance rating, consistent with adopted service levels.
 PU 7.7: Develop and maintain adequate storage, transmission and distribution facilities.

Capital Costs:	2016	2017-2021	Total
PreDesign and Planning	\$ 22,000	\$ 110,000	\$ 132,000
TOTAL	\$ 22,000	\$ 110,000	\$ 132,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 22,000	\$ 110,000	\$ 132,000
TOTAL	\$ 22,000	\$ 110,000	\$ 132,000

Annual Operations and Maintenance	
Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide



Reclaimed Water—Water (Program #9710)

Location Various Locations Citywide. See Project List.

Links to Other Projects or Facilities N/A

Description This program is targeted towards delivery of reclaimed water. Develop an infrastructure network of “purple pipe” and associated improvements necessary to convey reclaimed water to the City. Reclaimed water is delivered through a completely separate distribution system that consists of purple colored pipes, connections, and distribution points for easy identification. Reclaimed water is recycled municipal wastewater that has been cleaned and treated in order to remove pollutants and contaminants so that the water can be safely reused for a variety of approved uses, such as irrigation.

Project List

YEAR	PROJECT DESCRIPTION	COST ESTIMATE
2018	Port of Olympia Irrigation—This project will eliminate a dead-end irrigation line that has to be manually flushed each year prior to the irrigation system being used. The project will install a system to automate this work.	\$ 50,000
2020	Reclaimed Water Infrastructure—Construct reclaimed water pipes and pumps as the system expands.	\$ 263,000
2020	Reclaimed Water Filling Stations—Install reclaimed water filling stations at convenient locations for contractors to use on construction projects. This project will reduce the likelihood of cross connections occurring and increase the use of reclaimed water.	\$ 105,000

Justification (Need/Demand) Given that sources of potable water are limited, State law and Olympia’s Water System Plan strongly encourage the use of reclaimed water as a resource to help meet current and future water needs. The LOTT Sewer Plan calls for the use of reclaimed water by each of the LOTT partner cities. LOTT is now producing reclaimed water at its Budd Inlet Reclaimed Water Plant and Martin Way Reclaimed Water Plant to help meet Federal and State water quality discharge standards to protect Budd Inlet. Water treated at the Budd Inlet Reclaimed Water Plant is now being used for irrigation at the Port of Olympia, the City’s Percival Landing Park, and near Capitol Lake by the State’s General Administration building.

Level of Service (LOS) LOS III – See program overview of LOS definitions.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU 4: Use Olympia’s water resources efficiently to meet the needs of the community, reduce demand on facilities, and protect the natural environment.
 PU 4.1: Encourage and allow re-use techniques, including rainwater collection, greywater systems, and use of Class A reclaimed water as alternatives to use of potable water, in order to enhance stream flows or recharge aquifers, while also protecting water quality.
 PU 4.6: Advance the use of reclaimed water as defined in Council-adopted policies.

Capital Costs:	2016	2017-2021	Total
Construction	\$ -	\$ 334,400	\$ 334,400
Design and Engineering	\$ -	\$ 83,600	\$ 83,600
TOTAL	\$ -	\$ 418,000	\$ 418,000

Funding Sources:	2016	2017-2021	Total
Construction	\$ -	\$ 334,400	\$ 334,400
Design and Engineering	\$ -	\$ 83,600	\$ 83,600
TOTAL	\$ -	\$ 418,000	\$ 418,000

Annual Operations and Maintenance

Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

Small Diameter Water Pipe Replacement (Program #9408)

Location Various locations based on the Utility's Small Diameter Water Pipe Upgrade Plan. Projects selected are based on service complaints and operation and maintenance records of leaks and main breaks.

Links to Other Projects or Facilities N/A

Description Replace small diameter substandard water pipes within the existing system. Project components may include hydraulic modeling, valves, vaults, and water lines.

Project List

2016-2021 Small Diameter Water Pipe Replacement Location

LOCATION - Street	FROM	TO
7th Avenue	Central Street	Boundary Street
Boundary Street	9th Avenue	8th Avenue
McCormick Street	4th Avenue	5th Avenue
Fir Street	4th Avenue	State Avenue
Giles Street	Thomas Street	Division Street
Percival Street	Harrison Avenue	Jackson Avenue
Puget Street	4th Avenue	State Avenue
Eastside Street	4th Avenue	State Avenue
Union Avenue	Central Street	Fir Street
7th Avenue	Boundary Street	Central Street
Thurston Avenue	Tullis Street	Puget Street
Amhurst Street	18th Avenue	20th Avenue
Clar Mar Lane	To End	To End
Brown Street	18th Avenue	22nd Avenue
Eastside Circle	To End	To End
End of Rogers Court	South of 11th Court	End of Street
McCormick Street	13th Avenue	Union Avenue
13th Avenue	Fir Street	Fairview Street
Fir Street	14th Avenue	13th Avenue
Evergreen Park Lane	At Cul-de-sac	At Cul-de-sac
Water Street	22nd Avenue	24th Avenue

Justification (Need/Demand) The City is responsible for providing domestic and firefighting water flows at minimum pressures as established by the Department of Health. This program implements the improvements outlined in the 2015-2020 Water System Plan. The Plan identifies location, size, and timing of major and minor water main distribution line improvements. The Plan also identifies deficient areas that require looping or upgrading to improve flows and pressures. This project provides improvements to the basic system to assure adequate pressure and flow for domestic and firefighting situations. Maintenance records and service complaints are used to identify the lines needing replacement.

Level of Service (LOS) LOS II – See program overview of LOS definitions.



Small Diameter Water Pipe Replacement (Program #9408) Continued

Comprehensive Plan and Functional Plan(s) Citations

This program implements the following Olympia Comprehensive Plan goals and policies:

GU 7: The drinking water system is reliable and is operated and maintained so that high quality drinking water is delivered to customers.

PU 7.3: Design Olympia’s water supply system to achieve the most favorable and practical fire insurance rating, consistent with adopted service levels.

PU 7.7: Develop and maintain adequate storage, transmission and distribution facilities.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 420,000	\$ 2,100,000	\$ 2,520,000
Design and Engineering	\$ 105,000	\$ 525,000	\$ 630,000
TOTAL	\$ 525,000	\$ 2,625,000	\$ 3,150,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 525,000	\$ 2,625,000	\$ 3,150,000
TOTAL	\$ 525,000	\$ 2,625,000	\$ 3,150,000

Annual Operations and Maintenance

Estimated Costs	None (pipe replacements)
Estimated Revenues	N/A
Anticipated Savings Due to Project	Decreases cost of line breaks — estimated at \$1,400 per repair. Some main breaks also require extensive road restoration costs.
Department Responsible for Operations	Public Works
Quadrant Location	Citywide



Transmission & Distribution Projects—Water (Program #9609)

Location	Various locations within the existing system as service complaints and operation and maintenance records indicate. See Project List.
Links to Other Projects or Facilities	Sewer Pipe Extensions—Sewer Program Boulevard Road Intersection—Transportation Impact Fee section Fones Road—Transportation Impact Fee section Thurston County CFP
Description	<p>This program includes projects necessary to rehabilitate and replace existing transmission and distribution facilities, including water mains, valves, fire hydrants, service meters and booster pump stations. These projects are targeted to respond to identified capacity problems (related to flow, pressure, firefighting) as well as to replace infrastructure that is beyond its useful life. This program also includes installation of new transmission mains to connect new key facilities to the system.</p> <p>Projects are often coordinated with other public works projects (e.g., road improvements), to take advantage of cost efficiencies and to minimize inconvenience to citizens. Specific components covered under this program include hydrants, hydraulic modeling, valves, vaults, water lines, and water system structures and equipment.</p>

Project List

YEAR	PROJECT DESCRIPTION (Quadrant:Map Coordinate)	COST ESTIMATE
2016	AC Pipe Replacement—Boulevard Road Roundabout at Morse-Merryman Road (S:E6)—This project will replace asbestos cement water main in conjunction with the future roundabout at Morse-Merryman and Boulevard Roads.	\$ 820,000
2016-2021	Asbestos Cement (AC) and Aging Pipe Replacement—This is an annual project to replace substandard AC pipe throughout the City. Each year based on maintenance records the City will choose which pipes to replace based on age and material. Currently 40% of the City's water system is comprised of AC pipe which is prone to leaking and breaks.	\$ 3,150,000
2016-2021	Asset Management Program—This project will begin the process to provide an asset management plan to replace, rehabilitate, and maintain the City's water system to ensure it is reliable.	\$ 318,000
2016-2021	Corrosion Control Aeration Tower Condition Assessment & Upgrades—The City has three corrosion control towers that will need periodic large scale maintenance that is beyond the normal day to day maintenance. This project will assess the work that is needed and perform the upgrades.	\$ 156,000
2016-2021	Cross Country Mains—This project will identify watermains that are located outside of roadways and cross through neighborhoods. The project will determine if the watermains have easements and if they should be relocated to areas that have easier access for maintenance.	\$ 156,000
2016-2021	Distribution Main Condition Assessment—This project is a part of the asset management program to assess the condition and reliability of the distribution mains to prioritize repair or replacement.	\$ 156,000
2016-2021	Distribution System Oversizing	\$ 168,000
2016	Eastside Booster Pump Station Upgrade: upgrade pumps, motors, and associated controls increase system reliability and energy efficiency	\$ 322,000
2016	Fones Road Booster Station Replacement (N:C7)—This project will build a new booster pump station to address current deficiencies in the electrical system, confined space entry, ventilation, and aging pumping equipment of the existing station. This project will also include demolition of the existing, obsolete booster pump station.	\$ 1,285,000
2016-2021	On-site Generator Replacement Plan—This project sets aside money to enable replacement of on-site generators located at the water pumping facilities. The generators will be replaced as their useful life nears an end.	\$ 237,000
2016	Percival Bridge Stabilization—This project will reinforce a bridge abutment in order to stabilize the foot bridge that supports a drinking water main.	\$ 100,000



Transmission & Distribution Projects—Water (Program #9609) continued

Project List (continued)	YEAR	PROJECT DESCRIPTION (Quadrant:Map Coordinate)	COST ESTIMATE
	2016	PRV Telemetry (Radio-Based)—This project will enable data from the pressure reducing valves to be transmitted to the telemetry system by radio. Data such as upstream and downstream pressure, and valve position (open or closed) will enable efficient and reliable operation of the valves ensuring fire flow is available when needed.	\$ 53,000
	2016	West Bay Booster Station Pump and Electrical Upgrade—This project will replace the existing pumps and related equipment that are past their useful life and upgrade associated electrical components. The last major upgrades of the station was in 1997.	\$ 520,000
	2017	McCormick Valve House—This will replace the original pipes and valves installed when the Fir Street tanks were constructed in 1935.	\$ 158,000
	2017	Kaiser Road Water main Extension to Evergreen Park Way (W:B2)—This project will install a new 12-inch water main from the LOTT sewer lift station to Evergreen Park Drive, increasing service reliability to the Evergreen State College area. This project is partially funded by GFCs.	\$ 798,000
	2018-2021	Booster Station Upgrade/Rehabilitation—This is a project to upgrade pumps, electrical and other associated upgrades and rehabilitation necessary to keep the system running and reliable. Construction will occur approximately every five years at sites identified by operations staff as requiring the most upgrades.	\$ 632,000
	2019	Pressure Reducing Valve (PRV) - East Bay Drive: Installation of PRV stations to reduce high pressures in the waterlines along East Bay Drive and allow water to flow from Zone 247 to Zone 226.	\$ 260,000
	2020	Fones Road Water Main Construction (N:C7)—This project replaces an AC water main in Fones Road from Pacific Avenue to 17th Avenue, to be coordinated with a planned roadway reconstruction.	\$ 2,415,000
Justification (Need/Demand)	This program will ensure that existing distribution and transmission facilities are rehabilitated and replaced as needed in order to continue to secure a safe and sustainable water supply. Priority projects are targeted to those areas of the water system that fall short of meeting DOH standards for water pressure and UFC fire flow criteria or have ongoing maintenance problems (e.g., a history of repeated main breaks). This program also provides funding for the installation of new transmission mains to connect new critical source and storage facilities to the water system.		
Level of Service (LOS)	LOS II – See program overview of LOS definitions.		
Comprehensive Plan and Functional Plan(s) Citations	<p>This program implements the following Olympia Comprehensive Plan goals and policies:</p> <p>GU 7: The drinking water system is reliable and is operated and maintained so that high quality drinking water is delivered to customers.</p> <p>PU 7.3: Design Olympia's water supply system to achieve the most favorable and practical fire insurance rating, consistent with adopted service levels.</p> <p>PU 7.4: Continue and improve maintenance management, including preventive maintenance, repairs and replacements.</p> <p>PU 7.6: Continue to improve operations and maintenance program management, including safety, asset management and meter replacement.</p> <p>PU 7.7: Develop and maintain adequate storage, transmission and distribution facilities.</p>		

Transmission & Distribution Projects—Water (Program #9609) continued

Capital Costs:	2016	2017-2021	Total
Construction	\$ 3,027,800	\$ 6,395,400	\$ 9,423,200
Design and Engineering	\$ 835,200	\$ 1,445,600	\$ 2,280,800
TOTAL	\$ 3,863,000	\$ 7,841,000	\$ 11,704,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges	\$ -	\$ 199,500	\$ 199,500
Rates	\$ 3,863,000	\$ 7,641,500	\$ 11,504,500
TOTAL	\$ 3,863,000	\$ 7,841,000	\$ 11,704,000

Annual Operations and Maintenance

Estimated Costs	Minimal maintenance on new transmission main.
Estimated Revenues	N/A
Anticipated Savings Due to Project	Decreases cost of line breaks — estimated at \$1,400 per repair. Some main breaks also require extensive road restoration costs.
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





Water Source Development and Protection (Program 9700)

Location Various locations Citywide. See Project List.

Links to Other Projects or Facilities N/A

Description The overall goal of this project is to develop and maintain a water source system that provides adequate water source and water quality in compliance with Federal and State safe drinking water standards. It would also ensure that storage reservoirs are sized sufficiently to have reserve water for fire fighting. Specific project types include water source reliability, water quality and treatment, water system structures and equipment.

Project List:

YEAR	PROJECT/LOCATION	COST ESTIMATE
2016-2020	McAllister Mitigation (Smith Property Restoration)–This is an annual project to restore the Smith farm located near the Deschutes River as part of the mitigation plan related to the operations of the new McAllister Wellfield. Improvements include the construction of an engineered wetland, reforestation of a riparian zone along the Deschutes River, and also river bank stabilization to prevent erosion and improve fish habitat. This project is partially funded by GFCs.	\$ 640,000
2016-2020	McAllister Wellfield Mitigation (Woodland Creek Infiltration Facility) O&M Costs–This is a joint project with Lacey that Olympia will participate in the operations and maintenance costs as part of the mitigation for the McAllister Wellfield project. This project is partially funded by GFCs.	\$ 75,000
2016	Indian Summer Well Chlorination–This project will replace an on-site chlorine generation system that is costly to maintain and unreliable. The new chlorination system is hypochlorination- a liquid-that is relatively safe to use and the equipment is easier to maintain.	\$ 158,000
2016	McAllister Corrosion Control–This project will install an aeration tower at the Meridian Reservoirs to raise the pH of the McAllister well water to meet Federal and State safe drinking water standards. This project is partially funded by GFCs.	\$ 3,300,000
2016	Shana Park Well Source Contingency Plan–This project will assess the possible impact to this source from nitrates and determine the future use of the well as an emergency source, drill a new well, or treat for nitrates when the need arises.	\$ 158,000
2020	Olympia Brewery Water Engineering Analysis–This project continues the study to determine the best way to develop this new source in conjunction with Tumwater and Lacey. This project is partially funded by GFCs.	\$ 53,000

Justification (Need/Demand) The Safe Drinking Water Act (SDWA) of 1974 signaled the beginning of a new age in public water supply. The detection of organic contaminants in drinking water throughout the United States spurred the passage of the SDWA.
The 2015–2020 Water System Plan calls for additional source water quality treatment in various areas of the City to meet State drinking water requirements.

Level of Service (LOS) LOS II – See program overview of LOS definitions.



Water Source Development and Protection (Program 9700) Continued

Comprehensive Plan and Functional Plan(s) Citations

This program implements the following Olympia Comprehensive Plan goals and policies:

GU 5: Adequate supplies of clean drinking water are available for current and future generations and instream flows and aquifer capacity are protected.

PU 5.1: Reserve water supply rights for at least 50 years in advance of need, so that supplies can be protected from contamination and they are not committed to lower priority uses.

PU 5.2: Develop and maintain multiple, geographically-dispersed sources of water supply to increase the reliability of the system.

GU 7: The drinking water system is reliable and is operated and maintained so that high quality drinking water is delivered to customers.

PU 7.2: Maintain 100 percent compliance with all state and federal requirements, and continually improve our water quality management program.

PU 7.3: Design Olympia’s water supply system to achieve the most favorable and practical fire insurance rating, consistent with adopted service levels.

PU 7.7: Develop and maintain adequate storage, transmission and distribution facilities.

Capital costs:	2016	2017-2021	Total
Construction	\$ 3,740,800	\$ 384,000	\$ 4,124,800
Design & Engineering	\$ 110,200	\$ 149,000	\$ 259,200
TOTAL	\$3,851,000	\$ 533,000	\$ 4,384,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges	\$ 1,140,500	\$ 293,000	\$ 1,433,500
Rates	\$ 2,710,500	\$ 240,000	\$ 2,950,500
TOTAL	\$3,851,000	\$ 533,000	\$ 4,384,000

Annual Operations and Maintenance	
Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	N/A



Water Storage Systems (Program #9610)

Location Various locations Citywide. See Project List.

Links to Other Projects or Facilities N/A

Description The overall goal of this project is to develop and maintain a water reservoir system that provides adequate water storage and “chlorine contact time” in compliance with Federal and State safe drinking water standards. It would also ensure that storage reservoirs are sized sufficiently to have reserve water for firefighting. Specific project types include reservoirs, water lines, seismic upgrades, water quality and treatment, water system structures and equipment.

Project List:

YEAR	PROJECT/LOCATION	COST ESTIMATE
2017	Hoffman Court Reservoir Interior Coating Replacement	\$ 607,000
2017	Elliot Reservoir – Seismic Retrofit—This project will complete recommended seismic retrofits to the Elliot Reservoir. Improvements will include interior column wrapping, dowels to tie roof slab to perimeter walls, and perimeter retaining wall.	\$ 1,313,000
2017	Fir Street #1 and #2 Reservoirs – Seismic Retrofit—This project will complete recommended seismic retrofits to Fir Street Reservoirs. Improvements will include the addition of perimeter walls with reinforcing cables and the addition of collars on the interior columns.	\$ 1,050,000
2018-2020	Storage Reservoir Coatings (Interior/Exterior)—This project provides for the recoating of existing steel storage reservoirs on the inside and outside to prolong their life by preventing rust and corrosion.	\$ 630,000

Justification (Need/Demand)

The Safe Drinking Water Act (SDWA) of 1974 signaled the beginning of a new age in public water supply. The detection of organic contaminants in drinking water throughout the United States spurred the passage of the SDWA.

One of the federally-mandated standards of the SDWA is adequate “chlorine contact time.” When added to drinking water, chlorine is a disinfecting agent. The chlorine needs time, however, to react with the water to provide adequate disinfection. Water reservoirs provide the safest and most effective method to ensure that chlorine levels and contact times are adequate to meet disinfection levels. Reservoirs also provide water storage to allow for proper domestic and firefighting flows.

The 2015-2020 Water System Plan calls for additional storage in the southeast area of the City to meet State drinking water requirements. This new reservoir in the 417 Zone will provide adequate storage for at least the next 25 years.

Updated evaluations of the Fir Street and Elliot reservoirs completed in 2011 call for seismic upgrades to improve the structural integrity of the reservoirs.

Level of Service (LOS) LOS II – See program overview of LOS definitions.

Comprehensive Plan and Functional Plan(s) Citations

This program implements the following Olympia Comprehensive Plan goals and policies:

GU 7: The drinking water system is reliable and is operated and maintained so that high quality drinking water is delivered to customers.

PU 7.3: Design Olympia’s water supply system to achieve the most favorable and practical fire insurance rating, consistent with adopted service levels.

PU 7.7: Develop and maintain adequate storage, transmission and distribution facilities.

Water Storage Systems (Program #9610) continued

Capital costs:	2016	2017-2021	Total
Construction	\$ -	\$ 2,880,000	\$ 2,880,000
Design & Engineering	\$ -	\$ 720,000	\$ 720,000
TOTAL	\$ -	\$ 3,600,000	\$ 3,600,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges	\$ -	\$ -	\$ -
Rates	\$ -	\$ 3,600,000	\$ 3,600,000
TOTAL	\$ -	\$ 3,600,000	\$ 3,600,000

Annual Operations and Maintenance

Estimated Costs	\$50,000. In addition, Log Cabin Reservoir requires \$3,300 annually.
Estimated Revenues	N/A
Anticipated Savings Due to Project	None
Department Responsible for Operations	Public Works
Quadrant Location	South, West





Water System Planning (Program 9906)

Location	N/A (Planning activities)						
Links to Other Projects or Facilities	N/A						
Description	Various types of planning efforts are needed on an on-going basis to ensure that the Utility is able to meet future growth needs, maintain regulatory compliance, and invest money wisely in infrastructure. Planning efforts under this program are targeted towards the comprehensive Water System Plan, updated every six years per State requirements. The 2015 Water System Plan was adopted in 2015. Work on the 2015-2020 Water System Plan began in 2013. Other smaller-scale planning efforts to evaluate project alternatives may also be conducted under this program. This program is partially funded by GFCs.						
Project List:	<table border="1"> <thead> <tr> <th>YEAR</th> <th>PROJECT/LOCATION</th> <th>COST ESTIMATE</th> </tr> </thead> <tbody> <tr> <td>2020</td> <td>Update of six-year Water System Plan</td> <td>\$ 315,000</td> </tr> </tbody> </table>	YEAR	PROJECT/LOCATION	COST ESTIMATE	2020	Update of six-year Water System Plan	\$ 315,000
YEAR	PROJECT/LOCATION	COST ESTIMATE					
2020	Update of six-year Water System Plan	\$ 315,000					
Justification (Need/Demand)	Under State drinking water requirements, the City must complete a comprehensive Water System Plan update every six years. The Water System Plan outlines capital improvements, program efforts, and financial strategies that are necessary to ensure that the Water Utility can meet growth demands, be in regulatory compliance and maintain existing facilities over a 20-year horizon. For the first time, the 2015-2020 Water System Plan also included a 50-year planning horizon for water demand and water supply.						

Level of Service (LOS)	LOS II – See program overview of LOS definitions.
Comprehensive Plan and Functional Plan(s) Citations	<p>This program implements the following Olympia Comprehensive Plan goals and policies:</p> <p>PU 3.2: Regularly revise the Olympia Municipal Code and Engineering Development and Design Standards to give detailed guidance on how utility services should be delivered and paid for in accordance with the principles established in this Comprehensive Plan.</p> <p>PU 3.3: Update all utility master plans regularly and in accordance with state law.</p> <p>PU 7.1: Maintain and update the Water System Plan , Engineering Design and Development Standards and Olympia Municipal Code to ensure drinking water utility facilities meet the requirements of the Growth Management Act , North Thurston County Coordinated Water System Plan, Washington Department of Health and Olympia Fire Code.</p>

Capital Costs:	2016	2017-2021	Total
Pre-Design & Planning	\$ -	\$ 315,000	\$ 315,000
TOTAL	\$ -	\$ 315,000	\$ 315,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges (GFCs)	\$ -	\$ 157,500	\$ 157,500
Rates	\$ -	\$ 157,500	\$ 157,500
TOTAL	\$ -	\$ 315,000	\$ 315,000

Annual Operations and Maintenance	
Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	N/A

