

# 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 eleven water capital project programs identified in the Capital Facilities Plan (CFP):

1. **Regulation/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:** To manage the water in sustainable ways and to develop integrated solutions that solve more than one problem at a time.
3. **Growth:** To 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:**  
To manage water as a limited resource, meet water regulation objectives using approaches that limit human influence on the naturally good quality of water Olympia now 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.



View from the top of Stevens Reservoir

The 2009-2014 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). State low interest loans and grants are pursued as available. The 2009-2014 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 General Facility Charge (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.

SE Olympia Reservoir .....	60% growth related
Briggs Well .....	100% growth related
McAllister Wellfield Projects .....	31% growth related
Reclaimed Water .....	50% growth related
Kaiser Road Watermain .....	25% growth related
Water System Plan .....	50% growth related

## 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*

- Asphalt Overlay Adjustments
- Emergency Preparedness

### *LOS II*

- Replace Small Diameter Water Piping
- Transmission and Distribution Projects
- Infrastructure Pre-Design & Planning
- Water System Planning
- Water Storage Systems

### *LOS III*

- Reclaimed Water
- Water Source Development
- Groundwater Protection/ Land Acquisition

## **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, repair and replacement; new assets can be used to establish design criteria and prioritize needs. Using a structured decision process that incorporates LOS can help a utility achieve desired service outcomes while minimizing life-cycle costs.

As part of the 2009–2014 Water System Plan, 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
- Focused on customer and community
- Quantifiable and measurable
- Relatively simple to understand and apply
- Constrained by available budgets 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.

## DRINKING WATER PROJECTS

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 fire fighting.

### 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 work hours and within one hour during non-work 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 cleanings are minimal. As the infrastructure ages, maintenance costs will increase.

### Annual Operations & Maintenance Costs

Repair service leak (3/4"–1") .....	\$387 per repair
Install service (meter) on a 3/4" –1" line .....	\$1,589 per service install
Install small main (2" line).....	\$63 per linear foot
Install 6" or larger main.....	\$95 per linear foot
Main line valve installation and replacement.....	\$3,509 per install
Main line (2"–8" line) leak repair.....	\$1,480 per repair
Fire hydrant installation or replacement .....	\$2,915 per install
Fire hydrant repair.....	\$266 per repair
Reservoir maintenance (e.g. Meridian).....	\$27,820 annually
Pump station maintenance .....	\$42,900 per station
McAllister Springs maintenance* .....	\$356,200 annually

\*Not including water quality monitoring costs.

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

<b>Asphalt Overlay Adjustments—Water Program (Program #9021)</b>	
<b>Location</b>	Various locations
<b>Links to Other Projects or Facilities</b>	Street Repair and Reconstruction Projects—Transportation section Asphalt Overlay Adjustments—Wastewater section
<b>Description</b>	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.
<b>Justification (Need/Demand)</b>	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.
<b>Level of Service (LOS)</b>	Established LOS: LOS I See program overview for LOS definitions.
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<i>Goals:</i> PF 6: Provide adequate transmission, distribution, and storage facilities.

# Asphalt Overlay Adjustments— Water Program



Asphalt Overlay



Asphalt Overlay

CAPITAL COSTS	2012	2013-2017	Total
Construction	\$10,000	\$50,000	\$60,000
<b>TOTAL</b>	\$10,000	\$50,000	\$60,000

FUNDING SOURCES	2012	2013-2017	Total
Rates	\$10,000	\$50,000	\$60,000
<b>TOTAL</b>	\$10,000	\$50,000	\$60,000

## 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

<b>Emergency Response (Program #9014)</b>								
<b>Location</b>	Various locations.							
<b>Links to Other Projects or Facilities</b>	N/A							
<b>Description</b>	These projects represent an ongoing effort on the part of the City to protect the water supply, regardless of the nature of the threat. The City conducted a water system vulnerability assessment, which is a component of the Federal and State requirements in the area of emergency preparedness and response. Significant investments have been made in recent years to improve system security and reduce vulnerability to emergencies. Additional funding is planned for 2014.							
<b>Project List</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9d9d9;">YEAR</th> <th style="background-color: #d9d9d9;">PROJECT</th> <th style="background-color: #d9d9d9;">COST ESTIMATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2014</td> <td>Water System Vulnerability Projects</td> <td style="text-align: right;">\$75,000</td> </tr> </tbody> </table>		YEAR	PROJECT	COST ESTIMATE	2014	Water System Vulnerability Projects	\$75,000
YEAR	PROJECT	COST ESTIMATE						
2014	Water System Vulnerability Projects	\$75,000						
<b>Justification (Need/Demand)</b>	The City water supply is currently vulnerable to major fires and natural disasters, particularly earthquakes and floods. This project addresses specific ways in which the City can minimize damage and ensure an adequate supply of water during times of crises. The Federally mandated vulnerability assessment also identified security upgrades necessary to protect the water system from vandalism and terrorism. The project is proactive in nature and addresses the fundamental goals of the Comprehensive Plan related to the City's drinking water system. The Drinking Water Utility will also continue to pursue emergency preparedness grant funding.							
<b>Level of Service (LOS)</b>	Established LOS: LOS 1 See program overview of LOS definitions.							
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<i>Goals:</i> PF 6.6: The water supply system should be protected from contamination.							

# Emergency Response



Water Supply Protection



Water Supply Protection

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		\$75,000	\$75,000
<b>TOTAL</b>		\$75,000	\$75,000

FUNDING SOURCES	2012	2013-2017	Total
Rates		\$75,000	\$75,000
<b>TOTAL</b>		\$75,000	\$75,000

## Annual Operations and Maintenance

Estimated Costs	Not yet determined
Estimated Revenues	N/A
Anticipated Savings Due to Project	Not yet determined
Department Responsible for Operations	Public Works
Quadrant Location	Citywide



<b>Groundwater Protection/Land Acquisition (Program #9701)</b>											
<b>Location</b>	Various locations. See Project List section.										
<b>Links to Other Projects or Facilities</b>	Critical Habitat Land Acquisition—Storm and Surface Water section Open Space Expansion—Parks, Arts and Recreation section										
<b>Description</b>	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.										
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<b>Justification (Need/Demand)</b>	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.										
<b>Level of Service (LOS)</b>	Established LOS: LOS III See program overview of LOS definitions.										
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 1: Develop utility and land use plans cooperatively.</p> <p>PF 5: Provide adequate supplies of water for future needs.</p> <p>PF 5.2: Reserve water supply rights for at least 50 years in advance of need.</p> <p>PF 6: Provide adequate transmission, distribution, and storage facilities.</p>										



# Groundwater Protection/Land Acquisition



Allison Springs Wetland



Allison Springs Wetland

<b>CAPITAL COSTS</b>	<b>2012</b>	<b>2013-2017</b>	<b>Total</b>
Land & Right-of-Way	\$100,000	\$500,000	\$600,000
<b>TOTAL</b>	\$100,000	\$500,000	\$600,000

<b>FUNDING SOURCES</b>	<b>2012</b>	<b>2013-2017</b>	<b>Total</b>
Rates	\$100,000	\$500,000	\$600,000
<b>TOTAL</b>	\$100,000	\$500,000	\$600,000

## Annual Operations and Maintenance

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

Infrastructure Pre-Design and Planning—Water Program (Program #9903)								
<b>Location</b>	City water service area							
<b>Links to Other Projects or Facilities</b>	Not yet determined							
<b>Description</b>	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.							
<b>Project List</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">YEAR</th> <th style="width: 60%;">PROJECT DESCRIPTION</th> <th style="width: 20%;">COST ESTIMATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2012–2017</td> <td style="text-align: center;"><i>Pre-Design and Planning</i></td> <td style="text-align: center;">\$120,000</td> </tr> </tbody> </table>		YEAR	PROJECT DESCRIPTION	COST ESTIMATE	2012–2017	<i>Pre-Design and Planning</i>	\$120,000
YEAR	PROJECT DESCRIPTION	COST ESTIMATE						
2012–2017	<i>Pre-Design and Planning</i>	\$120,000						
<b>Justification (Need/Demand)</b>	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.							
<b>Level of Service (LOS)</b>	Established LOS: LOS III See program overview of LOS definitions.							
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 6: Provide adequate transmission, distribution, and storage facilities.</p> <p>PF 6.1: Main sizes and storage reservoirs should be designed to meet fire flow needs.</p> <p>PF 6.2: Olympia should design its water supply system to achieve the most favorable, practical fire insurance rating.</p> <p>PF 6.3: Main sizes in newly developing areas should be designed to serve future growth.</p>							

# Infrastructure Pre-Design and Planning— Water Program

No Photo Available

No Photo Available

<b>CAPITAL COSTS</b>	<b>2012</b>	<b>2013-2017</b>	<b>Total</b>
<b>Pre-Design &amp; Planning</b>	\$20,000	\$100,000	\$120,000
<b>TOTAL</b>	\$20,000	\$100,000	\$120,000

<b>FUNDING SOURCES</b>	<b>2012</b>	<b>2013-2017</b>	<b>Total</b>
<b>Rates</b>	\$20,000	\$100,000	\$120,000
<b>TOTAL</b>	\$20,000	\$100,000	\$120,000

## Annual Operations and Maintenance

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

<b>Reclaimed Water—Water Program (Program #9710)</b>	
<b>Location</b>	Capital Campus Downtown Olympia Hawks Prairie Area Port of Olympia
<b>Links to Other Projects or Facilities</b>	N/A
<b>Description</b>	<p>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. System development will be based on the 2005 Reclaimed Water Business Plan and the 2009-2014 Water System Plan. The 2009-2014 Water System Plan includes \$1,000,000 in capital projects to expand the reclaimed water system in 2013-2014. This funding supplements approximately \$800,000 in prior appropriations.</p> <p>In 2011, the Drinking Water Utility conducted a preliminary engineering plan for expansion of the City’s reclaimed water system. The purpose of the project is to help the City prioritize investments in reclaimed water and to inform private and public development projects about targeted reclaimed infrastructure in key areas. Target areas for reclaimed water expansion are the Olympia downtown, State Capitol Campus and surrounding area, and the City’s Westside. Priority reclaimed water projects will be identified in future Capital Facilities Plans once the preliminary engineering plan is completed.</p>
<b>Justification (Need/Demand)</b>	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 Treatment Facility and Hawks Prairie Satellite Treatment Facility to help meet Federal and State water quality discharge standards to protect Budd Inlet. Water treated at the Budd Inlet Treatment Facility 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.
<b>Level of Service (LOS)</b>	Established LOS: LOS III  See program overview of LOS definitions.
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 5: Provide adequate supplies of water for future needs.</p> <p>PF 5.6: Establish multiple sources of water supply.</p> <p>PF 6: Provide adequate transmission, distribution, and storage facilities.</p> <p>ENV 3: Protect and improve local and regional water resources.</p>

# Reclaimed Water—Water Program



Reclaimed Valve Box



Reclaimed Water Sign

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		\$40,000	\$40,000
Construction		\$160,000	\$160,000
<b>TOTAL</b>		\$200,000	\$200,000

FUNDING SOURCES	2012	2013-2017	Total
Rates		\$100,000	\$100,000
General Facility Charges (GFCs)		\$100,000	\$100,000
<b>TOTAL</b>		\$200,000	\$200,000

## Annual Operations and Maintenance

Estimated Costs	Approximately \$25,000
Estimated Revenues	Water sold at 70% of irrigation rate
Anticipated Savings Due to Project	None
Department Responsible for Operations	Public Works
Quadrant Location	No quadrants listed



City of Olympia | Capital of Washington State

<b>Small Diameter Water Pipe Replacement (Program #9408)</b>																																																																																			
<b>Location</b>	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.																																																																																		
<b>Links to Other Projects or Facilities</b>	N/A																																																																																		
<b>Description</b>	<p>Replace small diameter substandard water pipes within the existing system. Project components may include hydraulic modeling, valves, vaults, and water lines.</p> <p>Projects planned for 2012 will use approximately \$400,000 in prior appropriations. Additional appropriations are needed in 2013 and beyond.</p>																																																																																		
<b>Project List</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="background-color: #d9ead3; text-align: center;">2012-2017 SMALL DIAMETER WATER PIPE REPLACEMENT LOCATION</th> </tr> <tr> <th style="background-color: #d9ead3; text-align: center;">LOCATION</th> <th style="background-color: #d9ead3; text-align: center;">FROM</th> <th style="background-color: #d9ead3; text-align: center;">TO</th> </tr> <tr> <th style="background-color: #d9ead3; text-align: center;">Street (Quadrant:Map Coordinates)</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>7th Ave (N:C6)</td><td>Central St</td><td>Boundary St</td></tr> <tr><td>Boundary St (N:C6)</td><td>9th Ave</td><td>8th Ave</td></tr> <tr><td>McCormick St ( N:C6)</td><td>4th Ave</td><td>5th Ave</td></tr> <tr><td>Fir St (N:C6)</td><td>4th Ave</td><td>State Ave</td></tr> <tr><td>8th Ave (DT:C5)</td><td>Chestnut St</td><td>Plum St</td></tr> <tr><td>Plum St/Alley (DT:C5)</td><td>7th Ave</td><td>8th Ave</td></tr> <tr><td>Puget St (DT:C5)</td><td>4th Ave</td><td>State Ave</td></tr> <tr><td>Eastside St (N:C5)</td><td>4th Ave</td><td>State Ave</td></tr> <tr><td>Union Ave (N:C6)</td><td>Central St</td><td>Fir St</td></tr> <tr><td>Central St (N:C6)</td><td>13th Ave</td><td>14th Ave</td></tr> <tr><td>Fir St /Alley (N:C6)</td><td>11th Ave</td><td>Union Ave</td></tr> <tr><td>Swanee Place (S:D6)</td><td>Cul-de-sac off 22nd Ave</td><td>West of Brown St</td></tr> <tr><td>Myrtle Pl (S:D6)</td><td>Cul-de-sac off 22nd Ave</td><td>West of Boulevard Rd</td></tr> <tr><td>Amhurst St (S:D7)</td><td>18th Ave</td><td>20th Ave</td></tr> <tr><td>18th Ave (S:D6)</td><td>Brown St</td><td>Boulevard Rd</td></tr> <tr><td>Brown St (S:D6)</td><td>18th Ave</td><td>22nd Ave</td></tr> <tr><td>Wilkins Pl (S:D6)</td><td>Beginning of Cul-de-sac</td><td>End of Cul-de-sac</td></tr> <tr><td>End of Rogers Ct (W:D4)</td><td>South of 11th Ct</td><td>End of Street</td></tr> <tr><td>McCormick St (N:C6)</td><td>13th Ave</td><td>Union Ave</td></tr> <tr><td>13th Ave (N:C6)</td><td>Fir St</td><td>Fairview St</td></tr> <tr><td>Fir St (N:C6)</td><td>14th Ave</td><td>13th Ave</td></tr> <tr><td>Old Port (W:A4)</td><td>Uphill area</td><td>Beach</td></tr> <tr><td>Water St (S:D5)</td><td>22nd Ave</td><td>24th Ave</td></tr> <tr><td>South Bay Road (N:C6)</td><td>Hawthorn Business Park</td><td>Hawthorn Business Park</td></tr> </tbody> </table>		2012-2017 SMALL DIAMETER WATER PIPE REPLACEMENT LOCATION			LOCATION	FROM	TO	Street (Quadrant:Map Coordinates)			7th Ave (N:C6)	Central St	Boundary St	Boundary St (N:C6)	9th Ave	8th Ave	McCormick St ( N:C6)	4th Ave	5th Ave	Fir St (N:C6)	4th Ave	State Ave	8th Ave (DT:C5)	Chestnut St	Plum St	Plum St/Alley (DT:C5)	7th Ave	8th Ave	Puget St (DT:C5)	4th Ave	State Ave	Eastside St (N:C5)	4th Ave	State Ave	Union Ave (N:C6)	Central St	Fir St	Central St (N:C6)	13th Ave	14th Ave	Fir St /Alley (N:C6)	11th Ave	Union Ave	Swanee Place (S:D6)	Cul-de-sac off 22nd Ave	West of Brown St	Myrtle Pl (S:D6)	Cul-de-sac off 22nd Ave	West of Boulevard Rd	Amhurst St (S:D7)	18th Ave	20th Ave	18th Ave (S:D6)	Brown St	Boulevard Rd	Brown St (S:D6)	18th Ave	22nd Ave	Wilkins Pl (S:D6)	Beginning of Cul-de-sac	End of Cul-de-sac	End of Rogers Ct (W:D4)	South of 11th Ct	End of Street	McCormick St (N:C6)	13th Ave	Union Ave	13th Ave (N:C6)	Fir St	Fairview St	Fir St (N:C6)	14th Ave	13th Ave	Old Port (W:A4)	Uphill area	Beach	Water St (S:D5)	22nd Ave	24th Ave	South Bay Road (N:C6)	Hawthorn Business Park	Hawthorn Business Park
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<b>Justification (Need/Demand)</b>	<p>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 2009-2014 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 consistent with population growth. Maintenance records and service complaints are used to identify the lines needing replacement.</p>																																																																																		



<b>Small Diameter Water Pipe Replacement (Program #9408)</b>	
<b>Level of Service (LOS)</b>	Established LOS: LOS II See program overview of LOS definitions.
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 5: Provide adequate supplies of water for future needs.</p> <p>PF 6: Provide adequate transmission, distribution, and storage facilities.</p> <p>PF 6.1: Main sizes and storage reservoirs should be designed to meet fire flow needs.</p> <p>PF 6.2: Olympia should design its water supply system to achieve the most favorable, practical fire insurance rating.</p>

# Small Diameter Water Pipe Replacement



Small Diameter Pipe



Small/Large Diameter Pipe

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		\$475,000	\$475,000
Construction		\$1,900,000	\$1,900,000
<b>TOTAL</b>		\$2,375,000	\$2,375,000

FUNDING SOURCES	2012	2013-2017	Total
Rates		\$2,375,000	\$2,375,000
<b>TOTAL</b>		\$2,375,000	\$2,375,000

## 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



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<b>Transmission &amp; Distribution Projects—Water Program (Program #9609)</b>																																
<b>Location</b>	Various locations within the existing system as service complaints and operation and maintenance records indicate. See Project List section.																															
<b>Links to Other Projects or Facilities</b>	Boulevard Road Intersection—Transportation Impact Fee section Fones Road—Transportation Impact Fee section Thurston County CFP																															
<b>Description</b>	<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, such as the McAllister Wellfield.</p> <p>This CFP includes a service meter replacement plan that includes a four-year transition to automated meter reading technology. The Utility developed a service meter strategic plan that identified automated meter reading technology as the most cost-effective long-term approach. The service meter replacement plan will improve meter reading accuracy, increase operations and maintenance efficiencies, and support water conservation efforts.</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>																															
<b>Project List</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #d9ead3;"> <th style="text-align: center;">YEAR</th> <th style="text-align: center;">PROJECT DESCRIPTION (Quadrant:Map Coordinate)</th> <th style="text-align: center;">COST ESTIMATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2012–2014</td> <td><i>Water Service Meter Replacement—Transition to Automated Meter Reading.</i> This project includes years two through four in a four-year phased water meter replacement program including a transition to automated meter reading technology.</td> <td style="text-align: right;">\$3,750,000</td> </tr> <tr> <td style="text-align: center;">2012–2017</td> <td><i>Distribution System Oversizing</i></td> <td style="text-align: right;">\$150,000</td> </tr> <tr> <td style="text-align: center;">2013</td> <td><i>AC Pipe Replacement—Boulevard Rd Roundabout at 22nd Ave (S:D6)</i></td> <td style="text-align: right;">\$132,000</td> </tr> <tr> <td></td> <td><i>Hoffman Rd Extension to New 417 Zone Reservoir (S:E7).</i> This project will install a new 12-inch watermain to connect existing distribution piping in Morse-Merryman Road to the planned new reservoir in SE Olympia.</td> <td style="text-align: right;">\$676,500</td> </tr> <tr> <td style="text-align: center;">2014</td> <td><i>Pressure Reducing Valve—East Bay Drive (N:B5).</i></td> <td style="text-align: right;">\$247,000</td> </tr> <tr> <td style="text-align: center;">2015</td> <td><i>AC Pipe Replacement—Boulevard Rd Roundabout at Morse Merryman Rd (S:E6)</i></td> <td style="text-align: right;">\$483,500</td> </tr> <tr> <td></td> <td><i>Fones Rd Booster Station Rehabilitation Construction (N:C7).</i> Upgrade of booster pump station to address current deficiencies in the electrical system, confined space entry, ventilation, and aging pumping equipment.</td> <td style="text-align: right;">\$1,086,100</td> </tr> <tr> <td></td> <td><i>Fones Rd Water Main Construction (N:C7).</i> This project replaces an AC watermain in Fones Road from Pacific Avenue to 18th Avenue, to be coordinated with a planned roadway reconstruction.</td> <td style="text-align: right;">\$2,301,600</td> </tr> <tr> <td></td> <td><i>Kaiser Rd Watermain Extension to Evergreen Park Drive (W:B2).</i> This project will install a new 12-inch watermain 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 general facility charges (GFCs).</td> <td style="text-align: right;">\$762,500</td> </tr> </tbody> </table>		YEAR	PROJECT DESCRIPTION (Quadrant:Map Coordinate)	COST ESTIMATE	2012–2014	<i>Water Service Meter Replacement—Transition to Automated Meter Reading.</i> This project includes years two through four in a four-year phased water meter replacement program including a transition to automated meter reading technology.	\$3,750,000	2012–2017	<i>Distribution System Oversizing</i>	\$150,000	2013	<i>AC Pipe Replacement—Boulevard Rd Roundabout at 22nd Ave (S:D6)</i>	\$132,000		<i>Hoffman Rd Extension to New 417 Zone Reservoir (S:E7).</i> This project will install a new 12-inch watermain to connect existing distribution piping in Morse-Merryman Road to the planned new reservoir in SE Olympia.	\$676,500	2014	<i>Pressure Reducing Valve—East Bay Drive (N:B5).</i>	\$247,000	2015	<i>AC Pipe Replacement—Boulevard Rd Roundabout at Morse Merryman Rd (S:E6)</i>	\$483,500		<i>Fones Rd Booster Station Rehabilitation Construction (N:C7).</i> Upgrade of booster pump station to address current deficiencies in the electrical system, confined space entry, ventilation, and aging pumping equipment.	\$1,086,100		<i>Fones Rd Water Main Construction (N:C7).</i> This project replaces an AC watermain in Fones Road from Pacific Avenue to 18th Avenue, to be coordinated with a planned roadway reconstruction.	\$2,301,600		<i>Kaiser Rd Watermain Extension to Evergreen Park Drive (W:B2).</i> This project will install a new 12-inch watermain 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 general facility charges (GFCs).	\$762,500
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<b>Transmission &amp; Distribution Projects—Water Program (Program #9609)</b>	
<b>Justification (Need/Demand)</b>	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 fireflow 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.
<b>Level of Service (LOS)</b>	Established LOS: LOS II See program overview of LOS definitions.
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 5: Provide adequate supplies of water for future needs</p> <p>PF 6: Provide adequate transmission, distribution, and storage facilities.</p> <p>PF 6.1: Main sizes and storage reservoirs should be designed to meet fire flow needs.</p> <p>PF 6.2: Olympia should design its water supply system to achieve the most favorable, practical fire insurance rating.</p> <p>PF 6.3: Main sizes in newly developing areas should be designed to serve future growth.</p>

# Transmission & Distribution Projects— Water Program



Equipment



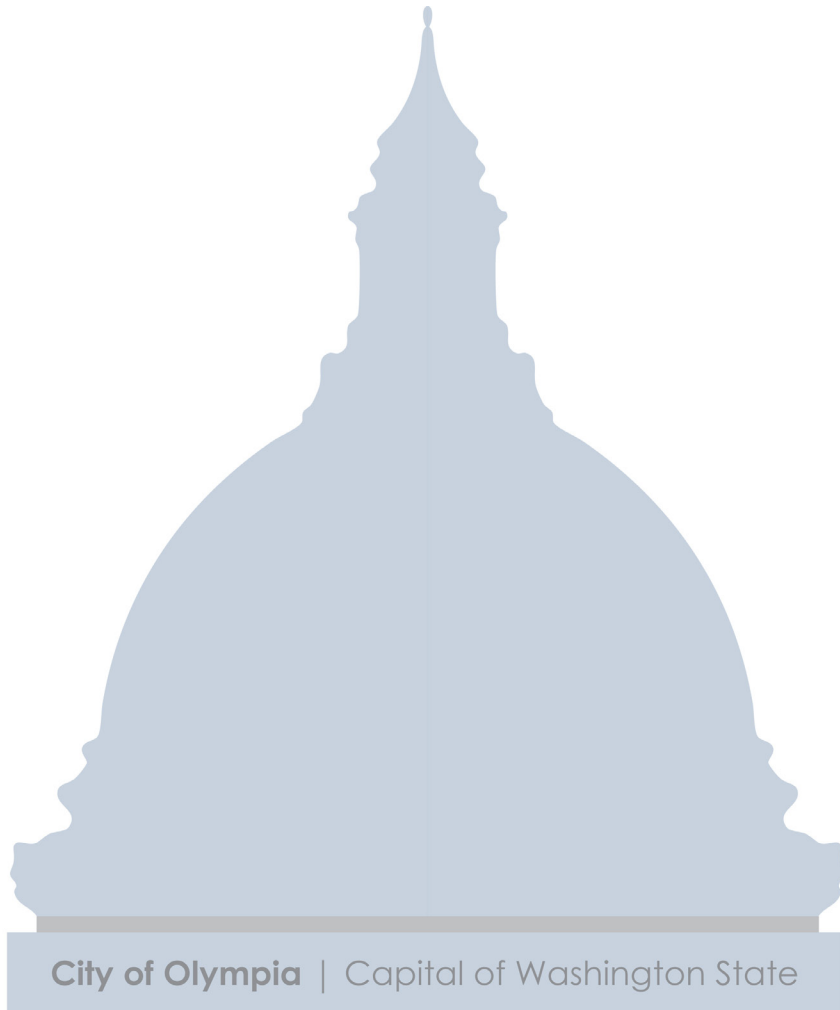
Equipment

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		\$460,300	\$460,300
Construction	\$1,275,000	\$7,853,900	\$9,128,900
<b>TOTAL</b>	<b>\$1,275,000</b>	<b>\$8,314,200</b>	<b>\$9,589,200</b>

FUNDING SOURCES	2012	2013-2017	Total
Rates	\$1,275,000	\$8,123,575	\$9,398,575
General Facility Charges (GFCs)		\$190,625	\$190,625
<b>TOTAL</b>	<b>\$1,275,000</b>	<b>\$8,314,200</b>	<b>\$9,589,200</b>

## 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



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Water Source Development & Protection (Program #9700)															
<b>Location</b>	Various locations. See Project List section.														
<b>Links to Other Projects or Facilities</b>	N/A														
<b>Description</b>	There are two types of projects under this general heading: 1) projects to protect and upgrade existing water sources, including the addition of water treatment, and 2) projects to secure and develop new sources of drinking water. The first project type is in response to specific problems and issues related to water source development and protection. The second type is related to an ongoing effort to obtain additional water rights and water sources that will ensure an adequate water supply in the future. Projects may include the acquisition of water rights, which provides for adequate future water supplies to ensure uninterrupted operation of the City’s water system. Project components may also include water quality and treatment, watershed modeling and planning, groundwater protection plans, water source structures and equipment, and wells.														
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<b>Justification (Need/Demand)</b>	The City’s Comprehensive Plan calls for securing additional water rights to meet 50 years of projected demands, as well as to geographically disperse water sources. The City is also obligated under the Growth Management Act to plan for growth within its urban growth area looking out at least 20 years. The Water Utility relies on McAllister Springs for over 70 percent of its supply. McAllister Springs is vulnerable to a railway spill or contamination from surface water runoff. For the past decade, the City has pursued the development of the McAllister Wellfield to replace McAllister Springs as a more protected source. In addition, the Utility is pursuing other water sources in different geographical areas in order to better diversify its supply and be better positioned to respond to system failures. The Utility must also diligently continue to protect and upgrade its water sources in order to ensure that the community’s drinking water remains safe.														

<b>Water Source Development &amp; Protection (Program #9700)</b>	
<b>Level of Service (LOS)</b>	<p>Established LOS: LOS II</p> <p>See program overview of LOS definitions.</p>
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 5.1: Water system planning should be sensitive to the impact of water policy on instream flows.</p> <p>PF 5.2: Reserve water supply rights for at least 50 years in advance of need.</p> <p>PF 5.5: Olympia should encourage multi-jurisdictional approaches to water rights and source development.</p> <p>PF 5.6: Establish multiple sources of water supply.</p>

# Water Source Development & Protection



Wellhead Protection Land Acquisition



Wellhead Protection Land Acquisition

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering	\$369,000	\$240,000	\$609,000
Construction	\$1,476,000	\$960,000	\$2,436,000
<b>TOTAL</b>	<b>\$1,845,000</b>	<b>\$1,200,000</b>	<b>\$3,045,000</b>

FUNDING SOURCES	2012	2013-2017	Total
Rates	\$1,273,050		\$1,273,050
General Facility Charges (GFCs)	\$571,950	\$1,200,000	\$1,771,950
<b>TOTAL</b>	<b>\$1,845,000</b>	<b>\$1,200,000</b>	<b>\$3,045,000</b>

## Annual Operations and Maintenance

Estimated Costs	Briggs Well—\$40,350 annually; McAllister Wellfield—\$379,200 annually, offset by replacement of McAllister Springs—not all new costs
Estimated Revenues	N/A
Anticipated Savings Due to Project	Avoids costly additional treatment at McAllister Springs
Department Responsible for Operations	Public Works
Quadrant Location	South

<b>Water Storage Systems (Program #9610)</b>													
<b>Location</b>	Various locations. See Project List section.												
<b>Links to Other Projects or Facilities</b>	N/A												
<b>Description</b>	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, water quality and treatment, water system structures and equipment.												
<b>Project List:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #d9ead3;"> <th style="text-align: center;">YEAR</th> <th style="text-align: center;">PROJECT/LOCATION</th> <th style="text-align: center;">COST ESTIMATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2013</td> <td><i>New 417 Zone (SE Olympia) Reservoir Construction.</i> This project will construct a new storage tank in SE Olympia to address storage deficiencies. This project is partially funded by general facility charges (GFCs).</td> <td style="text-align: right;">\$6,300,000</td> </tr> <tr> <td style="text-align: center;">2014</td> <td><i>Elliott Street Reservoir Painting</i></td> <td style="text-align: right;">\$508,000</td> </tr> <tr> <td style="text-align: center;">2014</td> <td><i>Hoffman Court Reservoir Interior Coating Replacement</i></td> <td style="text-align: right;">\$577,700</td> </tr> </tbody> </table>	YEAR	PROJECT/LOCATION	COST ESTIMATE	2013	<i>New 417 Zone (SE Olympia) Reservoir Construction.</i> This project will construct a new storage tank in SE Olympia to address storage deficiencies. This project is partially funded by general facility charges (GFCs).	\$6,300,000	2014	<i>Elliott Street Reservoir Painting</i>	\$508,000	2014	<i>Hoffman Court Reservoir Interior Coating Replacement</i>	\$577,700
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2014	<i>Hoffman Court Reservoir Interior Coating Replacement</i>	\$577,700											
<b>Justification (Need/Demand)</b>	<p>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.</p> <p>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.</p> <p>The proposed 2009–2014 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.</p>												
<b>Level of Service (LOS)</b>	<p>Established LOS: LOS II</p> <p>See program overview of LOS definitions.</p>												
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 6: Provide adequate transmission, distribution and storage facilities.</p> <p>PF 6.1: Main sizes and storage reservoirs should be designed to meet fire flow needs.</p> <p>PF 6.6: The water supply system should be protected from contamination.</p>												

# Water Storage Systems



Bush Street Reservoir



Stevens Field Reservoir

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		\$217,140	\$217,140
Construction		\$7,168,560	\$7,168,560
<b>TOTAL</b>		<b>\$7,385,700</b>	<b>\$7,385,700</b>

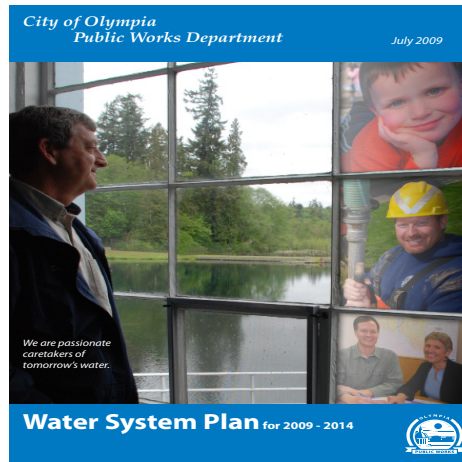
FUNDING SOURCES	2012	2013-2017	Total
Rates		\$3,605,700	\$3,605,700
General Facility Charges (GFCs)		\$3,780,000	\$3,780,000
<b>TOTAL</b>		<b>\$7,385,700</b>	<b>\$7,385,700</b>

## Annual Operations and Maintenance

Estimated Costs	\$50,000; in addition, new 417 Zone reservoir construction requires \$3,300 annually.
Estimated Revenues	N/A
Anticipated Savings Due to Project	None
Department Responsible for Operations	Public Works
Quadrant Location	South, West

<b>Water System Planning (Program #9906)</b>								
<b>Location</b>	Planning activities, therefore not applicable							
<b>Links to Other Projects or Facilities</b>	N/A							
<b>Description</b>	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 last Water System Plan update was adopted in 2009. The next update will occur in 2014. Other smaller-scale planning efforts to evaluate project alternatives may also be conducted under this program. This program is partially funded by general facility charges (GFCs).							
<b>Project List</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9d9d9;">YEAR</th> <th style="background-color: #d9d9d9;">PROJECT</th> <th style="background-color: #d9d9d9;">COST ESTIMATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2014</td> <td>Update of Six-Year Water System Plan</td> <td style="text-align: right;">\$300,000</td> </tr> </tbody> </table>		YEAR	PROJECT	COST ESTIMATE	2014	Update of Six-Year Water System Plan	\$300,000
YEAR	PROJECT	COST ESTIMATE						
2014	Update of Six-Year Water System Plan	\$300,000						
<b>Justification (Need/Demand)</b>	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 2009-2014 Water System Plan also included a 50-year planning horizon for water demand and water supply.							
<b>Level of Service (LOS)</b>	Established LOS: LOS III See program overview of LOS definitions.							
<b>Comprehensive Plan and Functional Plan(s) Citations</b>	<p><i>Goals:</i></p> <p>PF 5: Provide adequate supplies of water for future needs.</p> <p>PF 6: Provide adequate transmission, distribution, and storage facilities.</p> <p>PF 6.5: Olympia’s Water System Master Plan shall establish the standards for development and improvement of the water system.</p> <p>ENV 3.7: Regularly review the effectiveness and adequacy of ordinances and requirements.</p> <p>ENV 6.1: Include environmental protection and enhancement as an integral part of all its planning efforts.</p>							

# Water System Planning



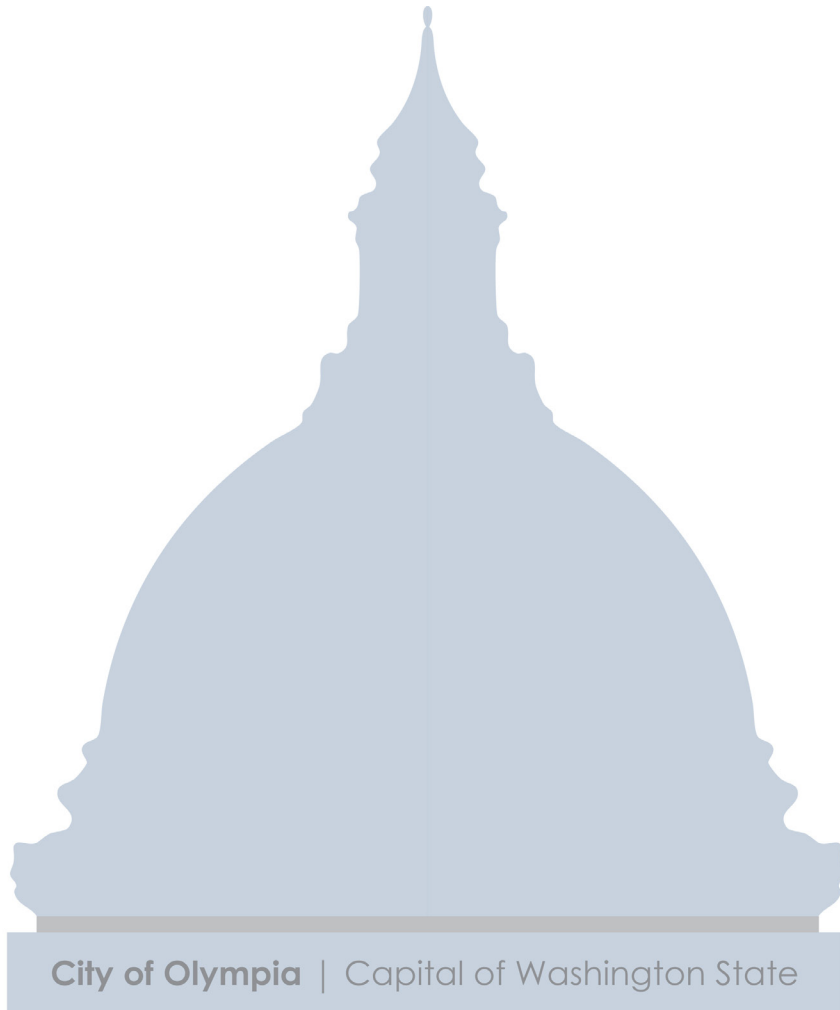
CAPITAL COSTS	2012	2013-2017	Total
Pre-Design & Planning		\$300,000	\$300,000
<b>TOTAL</b>		\$300,000	\$300,000

FUNDING SOURCES	2012	2013-2017	Total
Rates		\$150,000	\$150,000
General Facility Charges (GFCs)		\$150,000	\$150,000
<b>TOTAL</b>		\$300,000	\$300,000

## 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	No quadrants listed





City of Olympia | Capital of Washington State