

# Water System

Page	Project	Project Name	2015	2016	2017	2018	2019	5-Year Total
45	96003	Water Meter Replacement Program	170,000	200,000	200,000	200,000	200,000	<b>970,000</b>
46	96008	Water Main Line Oversizing Program	150,000	150,000	150,000	150,000	150,000	<b>750,000</b>
47	96010	Aquifer Storage and Recovery Well #3	268,000	3,205,000	0	0	0	<b>3,473,000</b>
48	96018	Lake Oswego–Tigard Water Partnership	78,714,460	18,804,200	1,186,560	0	0	<b>98,705,220</b>
49	96024	Water Line Replacement Program	143,000	140,000	140,000	140,000	140,000	<b>703,000</b>
50	96028	Fire Hydrant Replacement Program	170,000	100,000	100,000	100,000	100,000	<b>570,000</b>
51	96029	Main Street Waterline Replacement ( <i>Pacific Highway to Tigard Street</i> )	\$106,340	0	0	0	0	<b>\$106,340</b>
52	96030	Pipeline Connecting 550 Zone to 530 Zone ( <i>Bull Mountain Road</i> )	0	0	0	0	2,260,000	<b>2,260,000</b>
53	96031	Fire Flow Improvement Program	90,000	90,000	90,000	90,000	90,000	<b>450,000</b>
54	96033	Well Abandonment ( <i>Tigard High School</i> )	165,000	0	0	0	0	<b>165,000</b>
55	96034	New Water Source Systemwide Improvements Program	290,000	175,000	125,000	125,000	0	<b>715,000</b>
56	96035	Barrows Road/Scholls Ferry Road Water Line Extension ( <i>Phase 2</i> )	345,000	0	0	0	0	<b>345,000</b>
57	96036	Pacific Highway/Gaarde Street Utility Casing Bore Crossing	286,000	0	0	0	0	<b>286,000</b>
58	96040	Cach Reservoir and Pump Station Design	0	0	0	1,050,000	0	<b>1,050,000</b>
<b>Total Funded</b>			<b>80,897,800</b>	<b>22,864,200</b>	<b>1,991,560</b>	<b>1,855,000</b>	<b>2,940,000</b>	<b>110,548,560</b>



# Water Meter Replacement Program

<b>LOCATION</b>	Tigard Water Service Area
<b>PROJECT MANAGER</b>	John Goodrich, <i>Public Works</i>
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	Newer meters more accurately measure the volume of water consumed and require less maintenance.



## PROJECT NEED

Water meters that are defective or at the end of their service life need replacement.

## PROJECT DESCRIPTION

As required, meters are purchased and replaced by Public Works crews.

## PROJECT FUNDING

Actual Through 2013 is not calculated on Programs.

### Water Meter Replacement Program

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	0	30,000	0	0	0	0	0	0
<b>Total Internal Expenses</b>	<b>0</b>	<b>0</b>	<b>30,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>EXTERNAL EXPENSES</b>									
Construction	0	170,000	170,000	170,000	200,000	200,000	200,000	200,000	1,140,000
<b>Total External Expenses</b>	<b>0</b>	<b>170,000</b>	<b>170,000</b>	<b>170,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>1,140,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>170,000</b>	<b>200,000</b>	<b>170,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>1,140,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	170,000	170,000	170,000	200,000	200,000	200,000	200,000	1,140,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>170,000</b>	<b>170,000</b>	<b>170,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>1,140,000</b>



# Water Main Line Oversizing Program

**LOCATION** To Be Determined

**PROJECT MANAGER** Rob Murchison, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** More efficient water flow, decreased water age, increased water quality and fire flow availability.



## PROJECT NEED

Upsize water distribution waterlines.

## PROJECT DESCRIPTION

Waterlines that are in need of upsizing are identified in the city's Water System Master Plan. The city may elect to upsize water transmission lines that are greater than 12 inches in diameter in conjunction with ongoing development.

## PROJECT FUNDING

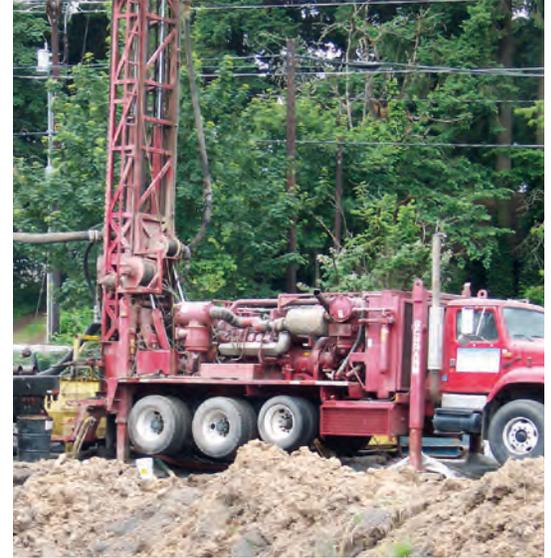
Actual Through 2013 is not calculated on Programs.

### Water Main Line Oversizing

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	5,000	5,000	0	0	0	0	0	5,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>5,000</b>	<b>5,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,000</b>
<b>EXTERNAL EXPENSES</b>									
Construction	0	150,000	150,000	150,000	150,000	150,000	150,000	150,000	900,000
<b>Total External Expenses</b>	<b>0</b>	<b>150,000</b>	<b>900,000</b>						
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>155,000</b>	<b>155,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>905,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	0	0	150,000	150,000	150,000	150,000	150,000	750,000
Water CIP Fund	0	155,000	155,000	0	0	0	0	0	155,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>155,000</b>	<b>155,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>905,000</b>

# Aquifer Storage and Recovery Well #3

<b>LOCATION</b>	13001 SW Bull Mountain Road
<b>PROJECT MANAGER</b>	Rob Murchison, <i>Public Works</i>
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	Water can be stored during periods of low demand and withdrawn during periods of high demand, lessening the need to expand the water treatment plant or purchase additional water supplies.



## PROJECT NEED

The Water System Master Plan has identified the need to expand the city's Aquifer Storage and Recovery program to meet its long-term water demands.

## PROJECT DESCRIPTION

The project improvements include the construction of a well house containing pump, motor, various motor controls, power supply, pipes and valves and a chlorination system all constructed to integrate with the existing well that was installed in FY 2007–08. Once fully developed, the improvements could supply up to 2,500,000 gallons of water per day into the city's distribution system.

### Aquifer Storage & Recovery Well #3

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	30,000	10,000	18,000	0	0	0	0	48,000
Construction Management	0	0	110,000	0	205,000	0	0	0	205,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>30,000</b>	<b>120,000</b>	<b>18,000</b>	<b>205,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>253,000</b>
<b>EXTERNAL EXPENSES</b>									
Design and Engineering	0	350,000	530,000	250,000	0	0	0	0	600,000
Construction	0	0	2,517,000	0	3,000,000	0	0	0	3,000,000
Prior Life-to-Date	790,799	0	0	0	0	0	0	0	790,799
<b>Total External Expenses</b>	<b>790,799</b>	<b>350,000</b>	<b>3,047,000</b>	<b>250,000</b>	<b>3,000,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,390,799</b>
<b>Total Tigard Project Expense</b>	<b>790,799</b>	<b>380,000</b>	<b>3,167,000</b>	<b>268,000</b>	<b>3,205,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,643,799</b>
<b>REVENUE FUNDING SOURCE</b>									
Water CIP Fund	790,799	380,000	3,167,000	268,000	3,205,000	0	0	0	4,643,799
<b>Total Tigard Project Revenues</b>	<b>790,799</b>	<b>380,000</b>	<b>3,167,000</b>	<b>268,000</b>	<b>3,205,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,643,799</b>



# Lake Oswego – Tigard Water Partnership

**LOCATION** Tigard Water Service Area

**PROJECT MANAGER** Rob Murchison, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** Once completed, Tigard and Lake Oswego will have constructed a facility through which they can effectively manage their own water supply and rates.



## PROJECT NEED

In the desire to secure supply and rate certainty, Tigard entered into a partnership agreement with the City of Lake Oswego in 2008 to secure water rights and construct a water treatment plant sourced by the Clackamas River.

## PROJECT DESCRIPTION

The project includes reconstruction and expansion of the raw water intake structure and water treatment plant, new transmission piping, storage and pumping facilities. Construction is scheduled for completion in 2016.

### Lake Oswego – Tigard Water Partnership

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	171,500	171,500	401,500	171,500	0	0	0	<b>744,500</b>
<b>Total Internal Expenses</b>	<b>0</b>	<b>171,500</b>	<b>171,500</b>	<b>401,500</b>	<b>171,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>744,500</b>
<b>EXTERNAL EXPENSES</b>									
Project Management	0	4,201,915	4,201,915	3,270,915	266,826	0	0	0	<b>7,739,656</b>
Design and Engineering	0	2,055,575	2,055,575	286,723	23,106	0	0	0	<b>2,665,404</b>
Construction	0	32,756,687	61,588,310	74,455,322	18,342,768	1,186,560	0	0	<b>126,741,337</b>
Prior Life-to-Date	26,793,758	0	0	0	0	0	0	0	<b>26,793,758</b>
<b>Total External Expenses</b>	<b>26,793,758</b>	<b>39,014,177</b>	<b>67,845,800</b>	<b>78,312,960</b>	<b>18,632,700</b>	<b>1,186,560</b>	<b>0</b>	<b>0</b>	<b>163,940,155</b>
<b>Total Tigard Project Expense</b>	<b>26,793,758</b>	<b>39,185,677</b>	<b>68,017,300</b>	<b>78,714,460</b>	<b>18,804,200</b>	<b>1,186,560</b>	<b>0</b>	<b>0</b>	<b>164,684,655</b>
<b>REVENUE FUNDING SOURCE</b>									
Water CIP Fund	26,793,758	39,185,677	68,017,300	78,714,460	18,804,200	1,186,560	0	0	<b>164,684,655</b>
<b>Total Tigard Project Revenues</b>	<b>26,793,758</b>	<b>39,185,677</b>	<b>68,017,300</b>	<b>78,714,460</b>	<b>18,804,200</b>	<b>1,186,560</b>	<b>0</b>	<b>0</b>	<b>164,684,655</b>

# Water Line Replacement Program

<b>LOCATION</b>	To Be Determined
<b>PROJECT MANAGER</b>	Rob Murchison, <i>Public Works</i>
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	Newer waterlines are less prone to failure and require less maintenance. In addition, fewer leaking pipes will result in reduced 'unaccounted for' water loss.



## PROJECT NEED

Waterlines that are defective or at the end of their service life need replacement.

## PROJECT DESCRIPTION

As required, waterlines are replaced by Public Works crews or private contractors.

## PROJECT FUNDING

Actual Through 2013 is not calculated on Programs.

### Water Line Replacement Program

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	5,000	5,000	8,000	5,000	5,000	5,000	5,000	<b>33,000</b>
Construction Management	0	5,000	5,000	5,000	5,000	5,000	5,000	5,000	<b>30,000</b>
<b>Total Internal Expenses</b>	<b>0</b>	<b>10,000</b>	<b>10,000</b>	<b>13,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>63,000</b>
<b>EXTERNAL EXPENSES</b>									
Public Involvement	0	5,000	5,000	5,000	5,000	5,000	5,000	5,000	<b>30,000</b>
Design and Engineering	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000	<b>150,000</b>
Construction	0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	<b>600,000</b>
<b>Total External Expenses</b>	<b>0</b>	<b>130,000</b>	<b>780,000</b>						
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>140,000</b>	<b>140,000</b>	<b>143,000</b>	<b>140,000</b>	<b>140,000</b>	<b>140,000</b>	<b>140,000</b>	<b>843,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	140,000	140,000	143,000	140,000	140,000	140,000	140,000	<b>843,000</b>
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>140,000</b>	<b>140,000</b>	<b>143,000</b>	<b>140,000</b>	<b>140,000</b>	<b>140,000</b>	<b>140,000</b>	<b>843,000</b>



# Fire Hydrant Replacement Program

**LOCATION** Citywide

**PROJECT MANAGER** John Goodrich, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** Newer fire hydrants are less prone to leakage reducing 'unaccounted for' water loss and they require less maintenance.



## PROJECT NEED

There are currently 2,041 fire hydrants located throughout the city. Of these, 550 have been identified for replacement due to unavailable replacement or service parts limiting the ability to adequately maintain them.

## PROJECT DESCRIPTION

This project allows for the replacement of 50 hydrants per year. It is estimated that it will take approximately 11 years to replace all 550 hydrants. The city is currently in the third year of the program.

## PROJECT FUNDING

Actual Through 2013 is not calculated on Programs.

### Fire Hydrant Replacements Program

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>EXTERNAL EXPENSES</b>									
Construction	0	100,000	100,000	170,000	100,000	100,000	100,000	100,000	670,000
<b>Total External Expenses</b>	<b>0</b>	<b>100,000</b>	<b>100,000</b>	<b>170,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>670,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>100,000</b>	<b>100,000</b>	<b>170,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>670,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	100,000	100,000	170,000	100,000	100,000	100,000	100,000	670,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>100,000</b>	<b>100,000</b>	<b>170,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>670,000</b>



# Main Street Waterline Replacement

## (Pacific Highway to Tigard Street)

<b>LOCATION</b>	Main Street (Downtown Tigard)
<b>PROJECT MANAGER</b>	Kim McMillan, Public Works
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	Improve system reliability.



### PROJECT NEED

Upsizing the waterlines is needed according to the Water System Master Plan to meet reliability and capacity needs. Since Main Street is currently under construction, replacing these lines now provides an excellent economy of scale in reducing construction costs.

### PROJECT DESCRIPTION

The project will replace an existing 8-inch line with a 16-inch line from Burnham Street to Tigard Street and a new 8-inch line from Burnham Street south to Pacific Highway.

### Main Street Waterline Replacement

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	35,000	35,000	7,000	0	0	0	0	42,000
Construction Management	0	28,000	35,000	0	0	0	0	0	28,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>63,000</b>	<b>70,000</b>	<b>7,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>70,000</b>
<b>EXTERNAL EXPENSES</b>									
Design and Engineering	0	55,000	55,000	0	0	0	0	0	55,000
Construction	0	397,360	496,700	99,340	0	0	0	0	496,700
Prior Life-to-Date	26,494	0	0	0	0	0	0	0	26,494
<b>Total External Expenses</b>	<b>26,494</b>	<b>452,360</b>	<b>551,700</b>	<b>99,340</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>578,194</b>
<b>Total Tigard Project Expense</b>	<b>26,494</b>	<b>515,360</b>	<b>621,700</b>	<b>106,340</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>648,194</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	46,382	56,000	9,571	0	0	0	0	55,953
Water CIP Fund	26,494	468,978	565,700	96,769	0	0	0	0	592,241
<b>Total Tigard Project Revenues</b>	<b>26,494</b>	<b>515,360</b>	<b>621,700</b>	<b>106,340</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>648,194</b>



# Pipeline Connecting 550' Zone to 530' Zone

*(Bull Mountain Road)*

**LOCATION** Bull Mountain Road

**PROJECT MANAGER** Rob Murchison, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** Deficiency will be eliminated providing adequate capacities to meet the area's firefighting demands.



## PROJECT NEED

Alleviate the largest firefighting water deficiency in the city's distribution system.

## PROJECT DESCRIPTION

The project, as identified in the Water Master Plan, will connect the 530-foot and the 550-foot pressure zones.

### Pipeline Connecting 550 Zone to 530 Zone

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	0	0	0	0	0	0	111,000	<b>111,000</b>
Construction Management	0	0	0	0	0	0	0	100,000	<b>100,000</b>
<b>Total Internal Expenses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>211,000</b>	<b>211,000</b>
<b>EXTERNAL EXPENSES</b>									
Public Involvement	0	0	0	0	0	0	0	11,100	<b>11,100</b>
Design and Engineering	0	0	0	0	0	0	0	437,900	<b>437,900</b>
Construction	0	0	0	0	0	0	0	1,600,000	<b>1,600,000</b>
<b>Total External Expenses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,049,000</b>	<b>2,049,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,260,000</b>	<b>2,260,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water CIP Fund	0	0	0	0	0	0	0	2,260,000	<b>2,260,000</b>
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,260,000</b>	<b>2,260,000</b>

# Fire Flow Improvement Program

<b>LOCATION</b>	To Be Determined
<b>PROJECT MANAGER</b>	Rob Murchison, <i>Public Works</i>
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	Deficiency will be eliminated providing adequate capacities to meet the area's firefighting demands.

## PROJECT NEED

Improve firefighting flow capacity.

## PROJECT DESCRIPTION

The project works within identified areas of the city and provides the necessary piping, etc., to improve the water distribution system. Most of this work is undertaken by Public Works crews as resources can be allocated.

## PROJECT FUNDING

Actual Through 2013 is not calculated on Programs.



### Annual Fire Flow Improvement Program

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	5,000	5,000	0	0	0	0	0	5,000
Construction Management	0	5,000	5,000	0	0	0	0	0	5,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>10,000</b>	<b>10,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10,000</b>
<b>EXTERNAL EXPENSES</b>									
Design and Engineering	0	15,000	15,000	15,000	15,000	15,000	15,000	15,000	90,000
Construction	0	75,000	75,000	75,000	75,000	75,000	75,000	75,000	450,000
<b>Total External Expenses</b>	<b>0</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>540,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>100,000</b>	<b>100,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>550,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	0	0	90,000	90,000	90,000	90,000	90,000	450,000
Water CIP Fund	0	100,000	100,000	0	0	0	0	0	100,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>100,000</b>	<b>100,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>550,000</b>



# Well Abandonment

## (Tigard High School)

**LOCATION** Tigard High School

**PROJECT MANAGER** Rob Murchison, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** The likelihood of contamination of ASR #3 will be reduced.



### PROJECT NEED

The well water is suspected of seeping into the impact area of Aquifer Storage and Recovery (ASR) #3. In order to fully develop ASR #3, mitigation is necessary.

### PROJECT DESCRIPTION

In order to meet the necessary regulatory approval, the project will include an engineering study and accompanying recommendations meeting the necessary standards. Likely improvements will include removal of the pump, shaft and pump motor.

### Tigard High School Well Abandonment

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	0	0	5,000	0	0	0	0	5,000
Construction Management	0	0	0	5,000	0	0	0	0	5,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10,000</b>
<b>EXTERNAL EXPENSES</b>									
Public Involvement	0	0	0	5,000	0	0	0	0	5,000
Design and Engineering	0	0	0	25,000	0	0	0	0	25,000
Construction	0	0	0	125,000	0	0	0	0	125,000
<b>Total External Expenses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>155,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>155,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>165,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>165,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water CIP Fund	0	0	0	165,000	0	0	0	0	165,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>165,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>165,000</b>

# New Water Source Systemwide Improvements Program

<b>LOCATION</b>	To Be Determined
<b>PROJECT MANAGER</b>	Rob Murchison, <i>Public Works</i>
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	Stable and reliable water system meeting all requirements.



## PROJECT NEED

Improvements may be needed to Tigard's water system when the Lake Oswego–Tigard Water Partnership improvements are complete.

## PROJECT DESCRIPTION

Depending on needs determined by engineering analysis and modeling; various minor improvements to the distribution, storage and pumping systems may be necessary.

### New Water Source Systemwide Improvements

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	20,000	20,000	15,000	15,000	10,000	10,000	0	70,000
Construction Management	0	20,000	20,000	15,000	15,000	10,000	10,000	0	70,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>20,000</b>	<b>20,000</b>	<b>15,000</b>	<b>15,000</b>	<b>10,000</b>	<b>10,000</b>	<b>0</b>	<b>70,000</b>
<b>EXTERNAL EXPENSES</b>									
Public Involvement	0	0	20,000	20,000	20,000	5,000	5,000	0	50,000
Design and Engineering	0	170,000	25,000	25,000	0	0	0	0	195,000
Construction	0	0	125,000	215,000	125,000	100,000	100,000	0	540,000
<b>Total External Expenses</b>	<b>0</b>	<b>170,000</b>	<b>170,000</b>	<b>260,000</b>	<b>145,000</b>	<b>105,000</b>	<b>105,000</b>	<b>0</b>	<b>785,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>210,000</b>	<b>210,000</b>	<b>290,000</b>	<b>175,000</b>	<b>125,000</b>	<b>125,000</b>	<b>0</b>	<b>925,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water CIP Fund	0	210,000	210,000	290,000	175,000	125,000	125,000	0	925,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>210,000</b>	<b>210,000</b>	<b>290,000</b>	<b>175,000</b>	<b>125,000</b>	<b>125,000</b>	<b>0</b>	<b>925,000</b>



# Barrows Road/Scholls Ferry Road Water Line Extension (Phase 2)

**LOCATION** Barrows Road and Scholls Ferry Road

**PROJECT MANAGER** Rob Murchison, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** This project will be a part of the 'back-bone' water supply and distribution system to serve River Terrace.



## PROJECT NEED

In conjunction with the development of the River Terrace Planning Area, the city's water supply will need to be extended to meet requirements.

## PROJECT DESCRIPTION

This project will extend an 18-inch waterline from existing facilities in Barrows Road to improvements completed in conjunction with Phase 1 (FY 2013–14) at the intersection of Scholls Ferry Road and Roy Rogers Road.

### Barrows Road/Scholls Ferry Road 16" Line Extensions

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	37,500	37,500	12,000	0	0	0	0	49,500
Construction Management	0	124,500	124,500	25,000	0	0	0	0	149,500
<b>Total Internal Expenses</b>	<b>0</b>	<b>162,000</b>	<b>162,000</b>	<b>37,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>199,000</b>
<b>EXTERNAL EXPENSES</b>									
Design and Engineering	0	52,000	60,000	8,000	0	0	0	0	60,000
Construction	0	805,000	805,000	300,000	0	0	0	0	1,105,000
Prior Life-to-Date	68,212	0	0	0	0	0	0	0	68,212
<b>Total External Expenses</b>	<b>68,212</b>	<b>857,000</b>	<b>865,000</b>	<b>308,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,233,212</b>
<b>Total Tigard Project Expense</b>	<b>68,212</b>	<b>1,019,000</b>	<b>1,027,000</b>	<b>345,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,432,212</b>
<b>REVENUE FUNDING SOURCE</b>									
Water SDC Fund	68,212	1,019,000	1,027,000	345,000	0	0	0	0	1,432,212
<b>Total Tigard Project Revenues</b>	<b>68,212</b>	<b>1,019,000</b>	<b>1,027,000</b>	<b>345,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,432,212</b>

# Pacific Highway/Gaarde Street Utility Casing Bore Crossing

<b>LOCATION</b>	Pacific Highway/Gaarde Street
<b>PROJECT MANAGER</b>	Rob Murchison, <i>Public Works</i>
<b>FUNDING STATUS</b>	Fully Funded
<b>PROJECT RESULTS</b>	The casing will be in place and easily incorporated into the future waterline projects when needed.



## PROJECT NEED

There will be specific needs identified to integrate water from the Partnership into Tigard's water supply system.

## PROJECT DESCRIPTION

The project will install a 36-inch casing for a future waterline to cross Pacific Highway near the intersection of Pacific Highway/Gaarde Street/McDonald Street. To take advantage of the economy of scale, it is proposed that this casing be installed as part of the construction at the intersection (96030).

### Pacific Highway/Gaarde Street Utility Casing Bore Crossing

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	0	0	11,000	0	0	0	0	11,000
<b>Total Internal Expenses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11,000</b>
<b>EXTERNAL EXPENSES</b>									
Design and Engineering	0	0	0	75,000	0	0	0	0	75,000
Construction	0	0	0	200,000	0	0	0	0	200,000
<b>Total External Expenses</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>275,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>275,000</b>
<b>Total Tigard Project Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>286,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>286,000</b>
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	0	0	143,000	0	0	0	0	143,000
Water CIP Fund	0	0	0	143,000	0	0	0	0	143,000
<b>Total Tigard Project Revenues</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>286,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>286,000</b>



# Cach Reservoir and Pump Station Design

**LOCATION** Cach property on Bull Mountain

**PROJECT MANAGER** Rob Murchison, *Public Works*

**FUNDING STATUS** Fully Funded

**PROJECT RESULTS** The project will provide additional storage and pumping facilities addressing system deficiencies and development demands.

## PROJECT NEED

In conjunction with the development of the River Terrace Planning Area and to address storage and pumping deficiencies identified in the River Terrace Updated Water Master Plan, system improvements are required.

## PROJECT DESCRIPTION

The project is for the design of a new water reservoir and the design for the replacement of a temporary pump station for the city's 550-foot service area. The reservoir will be constructed on the former Cach property. A new permanent pump station will replace an existing temporary pump station on the Menlor Reservoir site to move water from the 410-foot to the 550-foot service areas.

### Cach Reservoir and Pump Station Design

	Actual 2013	Projected 2014	Revised 2014	2015	2016	2017	2018	2019	Project Total
<b>INTERNAL EXPENSES</b>									
Project Management	0	0	0	0	0	0	50,000	0	50,000
<b>Total Internal Expenses</b>	0	0	0	0	0	0	50,000	0	50,000
<b>EXTERNAL EXPENSES</b>									
Design and Engineering	0	0	0	0	0	0	1,000,000	0	1,000,000
<b>Total External Expenses</b>	0	0	0	0	0	0	1,000,000	0	1,000,000
<b>Total Tigard Project Expense</b>	0	0	0	0	0	0	1,050,000	0	1,050,000
<b>REVENUE FUNDING SOURCE</b>									
Water Fund	0	0	0	0	0	0	1,050,000	0	1,050,000
<b>Total Tigard Project Revenues</b>	0	0	0	0	0	0	1,050,000	0	1,050,000



# Water System Project Locations

**CITYWIDE PROJECTS** 96003, 96008, 96024, 96028, 96031 and 96034

