



2015 Year End Report Water Distribution/Wastewater Collection

The water distribution and wastewater collection system operations specialists are fully certified by the United States Environmental Protection Agency and the South Dakota Department of Environment and Natural Resources. Our specialists attend continuing education classes and seminars to meet training and certification requirements, and to keep abreast of the ever changing regulations and technology in both fields. Distribution and collection operations specialists strive to give the citizens of Madison the best possible service, and they always go the extra mile.

Following is a summary of some of the work completed by the water distribution and wastewater collection division of the Madison Public Works Department.

- *Wastewater collection* activities included typical items such as manhole casting replacement and adjustment, manhole flow line rehabilitation, vector control, and selective televising of main lines. Other ongoing work includes correcting deficiencies that were identified during the 2009 I & I study, along with other deficiencies as they arise.

We maintain a list of sewer lines that we jet and clean on a monthly basis as preventative maintenance. These lines total approximately 4,437 ft. and were jetted 12 times during the year. We also jet dead end lines through the winter months as a preventative measure. Total footage of jetted/cleaned sewer mains for 2015 is 120,243 feet. Total cost for these tasks in 2015 breaks down to \$28,938.73 in labor cost and \$73,117.50 in equipment cost. This reflects a total of \$102,056.23 in sewer cleaning and jetting. Sewer line cleaning continues to be our largest annual cost expenditure in the Distribution/Collection Department.

- *Water distribution* system items included 326 residential water meter change outs. We continue to implement the ITRON meter reading system which will be phased in during the next three to four years. All new meters are conversions to Itron read meters with the exception of some of the larger industrial meters. This new meter reading system is centered on technology that uses radio waves to communicate readings to a handheld collection unit. Total cost spent for this project since inception is \$401,659.34 with \$82,786.31 coming from 2015.

We repaired seven water main breaks in 2015. The total cost to repair these seven breaks was \$47,267.95. There were also eight leaks on service lines that were repaired by 3rd parties. There was also a leak on a well line at the WTP which was repaired and is not reflected in this total.

Water main flushing is completed in the spring on an annual basis. During flushing operations each valve in the distribution system is operated, and each fire hydrant is operated and serviced. Limited spot flushing takes place in the fall. Before winter sets in all hydrants are checked for proper drainage and marker flags are installed to aid in finding hydrants which have been covered by snow. Total cost of hydrant flushing and exercising valves in 2015 was \$11,275.64 in labor cost and \$9,945.00 in equipment cost for a total of \$21,220.64.



Operations Specialist Shawn McGillivary and Martin Voeltz Replace Water Valve at NW 5th & Josephine



McGillivray and Voeltz Installing a Repair Sleeve

All required water testing, analysis, and reporting was completed for compliance with the Federal Safe Drinking Water Act. This testing included 84 bacteriological samples, 24 fluoride, 1 stage II disinfection byproduct, nitrate, and volatile organic chemicals. The water quality report is also published annually, along with a summary report of sampling and analysis. Disinfection byproducts and average disinfection residual chemical levels are reported to SD-DENR on a quarterly basis. This task required 137.25 hours at a cost of \$4,358.89 in labor and equipment cost of \$2,565.00 for a total of \$6,923.89. Lab fees and postage are not included in this total cost.

Distribution/collection system personnel responded to a total of 52 emergency call outs as opposed to 108 the previous year. 25 of the 52 were outside of normal business hours. There were 21 emergency call outs for sewer problems. Of those 21 sewer calls, none were due to a blockage in the city sewer main.

One Call locate requests for locating water, sewer, and storm sewer lines are handled by distribution operators. There were 1,196 total locates required in 2015. Locating these lines required 874 hours to complete and cost a total of \$51,836.17.

It typically takes 4-5 days to get the aquatic center up and running in the spring and 4-5 days to drain and winterize in the fall. In 2015 the water distribution team spent 189 hours at the outdoor swimming pool. The cost breakdown for work performed is \$5,629.13 in labor and \$3,615.00 in equipment cost for a total of \$9,244.13. There was a broken pipe discovered under the pool during winterization, and repairs are being planned for spring of 2016.

In conjunction with the water main replacement project on SW 4th street, the water distribution department installed new water services to the City Electric Department building and community gardens.

We also work closely with the city engineers' office to design and implement the city's infrastructure improvement plan. We track changes to the GIS mapping system that we submit to the engineer's office for annual update.

Distribution/Collection personnel provided assistance to contractors completing two major projects this past summer. Those projects were the SE 4th Street water main replacement from Washington Avenue to Division Avenue and the water main replacement on SW 4th Street from Egan Avenue to Union Avenue.

Considerable time (389 hours) is also spent assisting other departments with various projects such as snow removal, water issues in parks, potholing utilities for excavation, etc.

If you have any questions on concerns please do not hesitate to contact me.

Respectfully Submitted,

Kim Verhey, Foreman
Water Distribution/Wastewater Collection



Broken Pipe On Well Line at WTP



The Broken Pipe at Well #1 Being Cut Out and Replaced

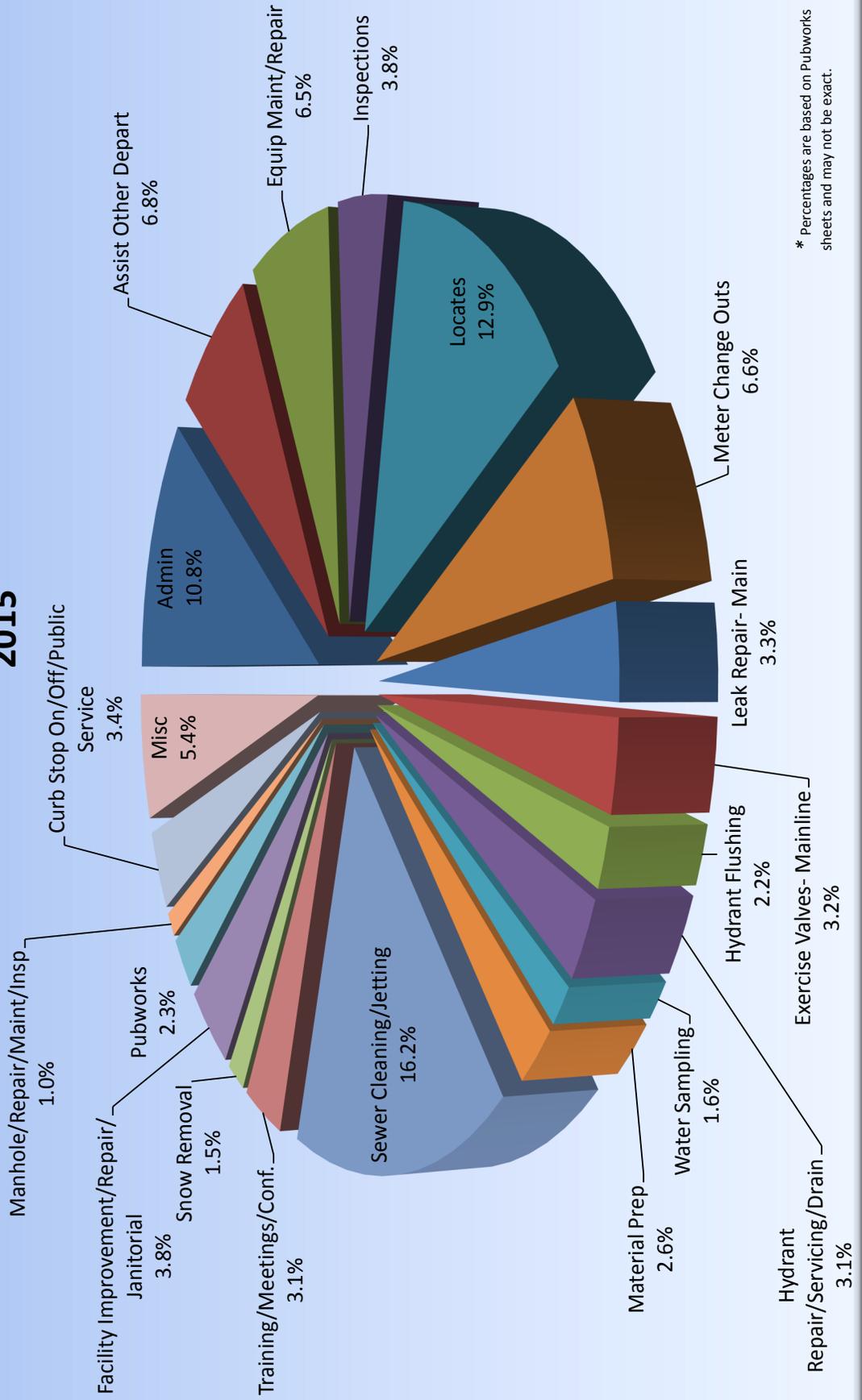
City of Madison Public Works

2015 Water Dist/Sewer Collection Department Task Summary

Task	Activities	Labor	Labor Cost	Eqp Cost	Mat Cost	Total Cost
Admin	229	852.00	\$29,829.79	\$60.00	\$0.00	\$29,889.79
Assist Mechanic	2	5.75	\$162.96	\$0.00	\$0.00	\$162.96
Assist Other Departments	141	389.00	\$11,762.27	\$13,350.00	\$4,495.48	\$29,607.75
Base Stabilization	3	9.00	\$264.96	\$315.00	\$0.00	\$579.96
Building/Structure Repair	4	4.00	\$143.36	\$120.00	\$0.00	\$263.36
Complaint Investigation	6	10.00	\$405.30	\$180.00	\$0.00	\$585.30
Curb stop on/off	79	73.25	\$2,201.12	\$1,762.50	\$23.40	\$3,987.02
Curb/Gutter Repair	12	87.00	\$2,527.18	\$2,935.00	\$1,046.29	\$6,508.47
Equipment Maintenance/Repair	125	382.25	\$11,233.12	\$3,142.50	\$10.30	\$14,385.92
Exercise Valves - Mainline	49	224.00	\$6,538.19	\$5,460.00	\$0.00	\$11,998.19
Facility Improvements	2	1.25	\$36.51	\$22.50	\$0.00	\$59.01
Hydrant - Drain To Prevent Freezing	7	26.75	\$772.67	\$537.50	\$0.00	\$1,310.17
Hydrant - Flushing	30	166.50	\$4,737.45	\$4,485.00	\$0.00	\$9,222.45
Hydrant - Install New	13	53.75	\$1,685.83	\$2,891.25	\$3,676.61	\$8,253.69
Hydrant - Repair/Serviceing	31	130.00	\$3,753.98	\$3,367.50	\$0.00	\$7,121.48
Hydrant - Replacement	6	29.25	\$867.81	\$2,797.50	\$562.68	\$4,227.99
Inspections/Contractor	148	282.50	\$9,617.10	\$7,665.00	\$0.00	\$17,282.10
Install New Service	31	44.75	\$1,287.47	\$502.50	\$4,431.36	\$6,221.33
Install New Water Main	65	265.75	\$8,146.66	\$4,340.00	\$43.84	\$12,530.50
Janitorial	28	37.00	\$1,112.16	\$0.00	\$0.00	\$1,112.16
Leak Detection	24	52.00	\$1,681.31	\$1,312.50	\$0.00	\$2,993.81
Leak Repair	5	21.00	\$666.50	\$1,286.25	\$833.74	\$2,786.49
Leave	212	1,320.25	\$36,791.76	\$0.00	\$0.00	\$36,791.76
Locates	296	873.75	\$28,083.67	\$23,752.50	\$0.00	\$51,836.17
Manhole - Inspections	2	4.50	\$129.46	\$183.75	\$0.00	\$313.21
Manhole - Raising	2	4.50	\$132.48	\$135.00	\$0.00	\$267.48
Manhole - Replacement	22	62.00	\$1,793.34	\$1,222.50	\$72.66	\$3,088.50
Mapping Line Changes	11	49.50	\$1,437.21	\$682.50	\$0.00	\$2,119.71
Material Prep Water	124	247.75	\$7,385.15	\$3,430.00	\$430.88	\$11,246.03
Meetings/Conferences	66	174.50	\$5,787.72	\$2,111.25	\$0.00	\$7,898.97
Meter Changeouts	328	380.50	\$11,156.21	\$10,957.50	\$64,696.40	\$86,810.11
Meter Reading - Govt' Reads	8	4.25	\$124.18	\$97.50	\$0.00	\$221.68
Meter Repairs	33	32.25	\$960.15	\$885.00	\$642.00	\$2,487.15
Misc	34	53.25	\$1,644.07	\$1,027.50	\$11.70	\$2,683.27
Mowing/Ground Maintenance	1	1.00	\$28.34	\$0.00	\$0.00	\$28.34
Public Service	53	52.50	\$1,564.59	\$1,080.00	\$243.05	\$2,887.64
Pubworks	623	156.25	\$4,531.50	\$0.00	\$0.00	\$4,531.50
Repair/Replace Outlet Pipe	1	1.00	\$29.44	\$30.00	\$0.00	\$59.44
Sewer Line - Cleaning	207	1,001.25	\$28,938.73	\$73,117.50	\$0.00	\$102,056.23
Sewer Lines - Jet	5	7.75	\$225.41	\$157.50	\$0.00	\$382.91
Snow Removal	14	78.00	\$2,593.97	\$7,023.75	\$0.00	\$9,617.72
Storm Drain Maintenance	2	2.00	\$71.68	\$60.00	\$0.00	\$131.68
Storm Sewer Lines	7	37.50	\$1,116.50	\$697.50	\$0.00	\$1,814.00
Training	24	50.00	\$1,499.37	\$646.25	\$0.00	\$2,145.62
Tv Inspection	4	11.00	\$322.74	\$468.75	\$0.00	\$791.49
Valve Box-Repair/Maintance/Adjust	25	65.25	\$1,884.94	\$1,657.50	\$93.16	\$3,635.60
Water Main Line - Repair	72	347.00	\$11,634.52	\$17,388.75	\$7,594.99	\$36,618.26
Water Main Valve - Replace	28	120.75	\$3,759.12	\$4,922.50	\$5,241.13	\$13,922.75
Water Main-Tap Service Line	4	4.50	\$130.28	\$75.00	\$443.46	\$648.74
Water Sampling	47	137.25	\$4,358.89	\$2,565.00	\$0.00	\$6,923.89
Water Service Line - Repair	12	25.00	\$829.76	\$472.50	\$0.00	\$1,302.26
Water Service Line - Replace	20	96.25	\$2,847.30	\$3,322.50	\$60.84	\$6,230.64
Tasks:	3,327.00	8,548.00	\$ 261,226.07	\$ 214,702.50	\$ 94,653.97	\$ 570,582.54

DISTRIBUTION/COLLECTION - Job Task Breakout

2015

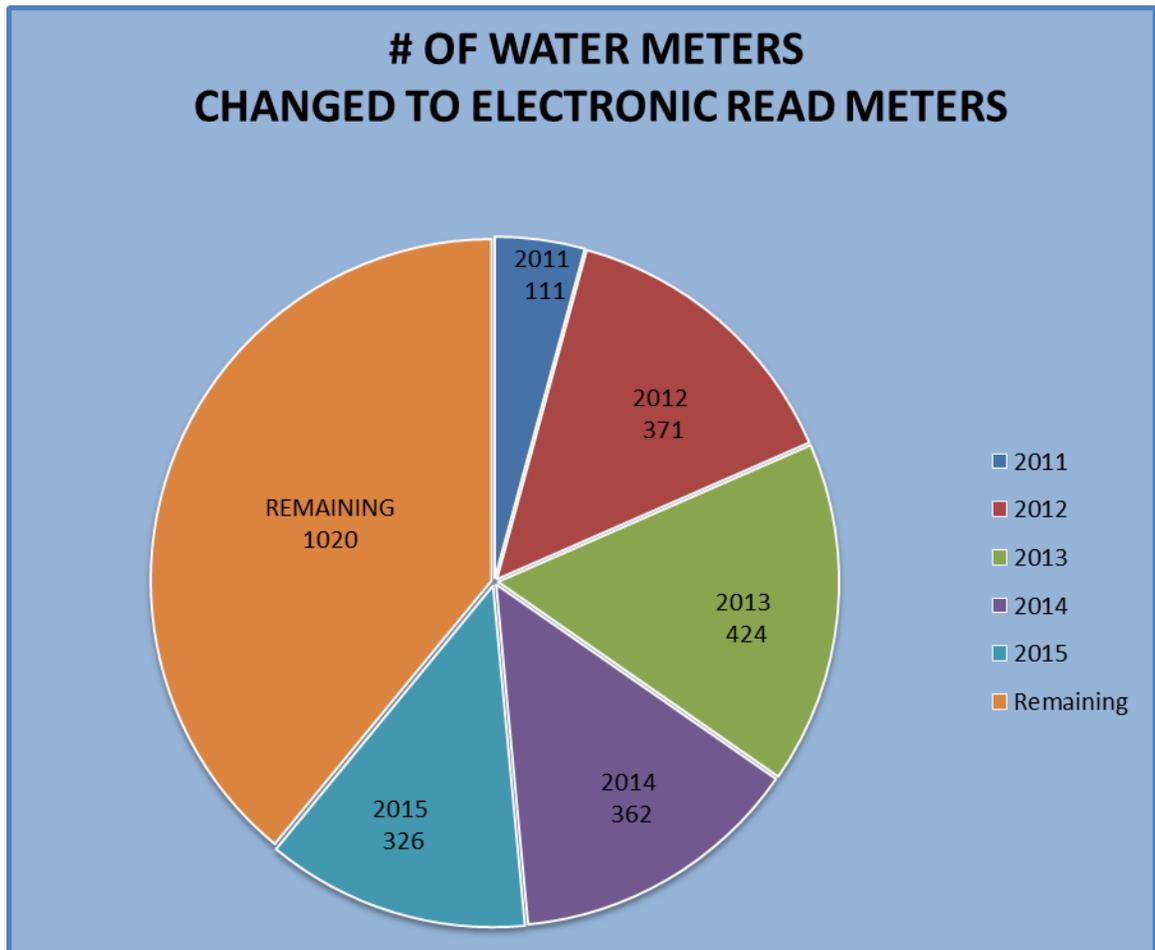


* Percentages are based on Pubworks sheets and may not be exact.

Water Meter Change Out Program - Summary and History

<u>YEAR</u>	<u># OF METERS</u>	
	<u>CHANGED</u>	<u>COST</u>
2011	111	\$ 27,746.52
2012	371	\$ 79,114.15
2013	424	\$ 103,110.60
2014	362	\$ 108,901.76
2015	326	\$ 82,786.31
Total	1594	\$ 401,659.34

Total Meters	2614	
Installed	1594	60.98%
Remaining	1020	39.02%



Total Cost for Meter Replacement Project—2015

Reporting Dates Year 2015

City of Madison Public Works Project Task Cost Summary

Sorted by Project Number

Project Number / Name

5 / Water Meter Changeouts

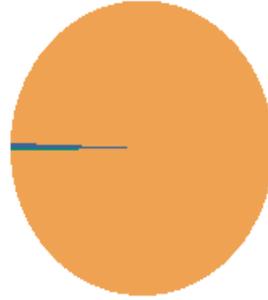
Task Code	Task Name	Activity Count	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Overhead Cost	Total Cost
606	Material Prep Water	6	13.0	\$384.37	\$112.50	\$0.00	\$0.00	\$0.00	\$496.87
608.01	Meter Changeouts	305	353.5	\$10,366.31	\$10,357.50	\$61,443.48	\$0.00	\$0.00	\$82,167.29
608.02	Meter Repairs	1	0.8	\$21.65	\$22.50	\$78.00	\$0.00	\$0.00	\$122.15
5 / Water Meter Changeouts Totals									\$82,786.31

Tasks: 3

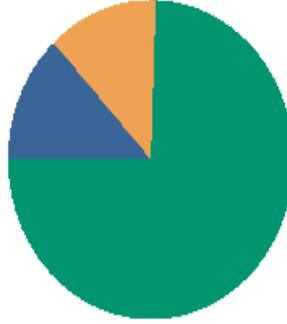
Production Units
Cost per Unit

Estimated Cost
Remaining Funds

Cost Summary by Task



Project Cost Components



Total Cost for Meter Replacement Project—All Dates

Reporting Dates All Dates

City of Madison Public Works

Project Task Cost Summary

Sorted by Project Number

Project Number / Name

5 / Water Meter Changeouts

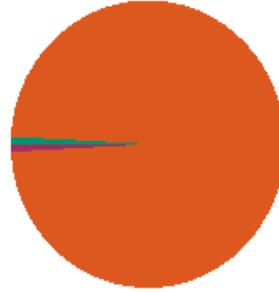
Task Code	Task Name	Activity Count	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Overhead Cost	Total Cost
603	Curb stop on/off	3	3.8	\$101.37	\$112.50	\$0.00	\$0.00	\$0.00	\$213.87
615	Locates	3	3.0	\$59.69	\$56.25	\$0.00	\$0.00	\$0.00	\$115.94
606	Material Prep Water	42	79.8	\$2,216.81	\$967.50	\$134.90	\$0.00	\$0.00	\$3,319.21
608.01	Meter Changeouts	1658	1,964.0	\$50,090.18	\$55,453.75	\$292,326.45	\$0.00	\$0.00	\$397,870.38
608.02	Meter Repairs	18	19.8	\$542.44	\$592.50	\$2,087.60	\$0.00	\$0.00	\$3,222.54
118	Misc	1	1.5	\$30.69	\$112.50	\$134.90	\$0.00	\$0.00	\$278.09
5 / Water Meter Changeouts Totals		1,725	2,071.8	\$53,041.17	\$57,295.00	\$294,683.85	\$0.00	\$0.00	\$405,020.02

Tasks: 6

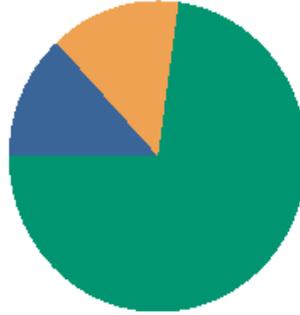
Production Units 0.00
Cost per Unit \$0.00

Estimated Cost \$0.00
Remaining Funds -\$405,020.02

Cost Summary by Task



Project Cost Components



Estimated Start 01/01/2012
End 12/31/2017
Calendar Days 2,192
Work Days 1,565

Actual Start 04/16/2011
End 01/22/2016
Calendar Days 1,678
Work Days 1,245

Percent Complete 0.00%

City of Madison Public Works

Project Cost Comparison Summary

Reporting Dates Year 2015

Sorted by Project Number

Project Number / Name	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Overhead Cost	Total Cost	Unit Costs	Completion Status/Active
215 2015 IIP Project SE 4th Street	\$15,043.02	\$10,253.75	\$98.68	\$0.00	\$0.00	\$25,395.45	\$0	Y 100% Y
300 Christmas Tree Project	\$262.40	\$165.00	\$337.05	\$0.00	\$0.00	\$764.45	\$0	N 0% Y
417 Hospital Construction	\$1,129.37	\$1,027.50	\$0.00	\$0.00	\$0.00	\$2,156.87	\$0	Y 100% Y
432 WMB SE 2nd and S Harth 1/5/15	\$1,560.94	\$967.50	\$3,078.50	\$0.00	\$0.00	\$5,606.94	\$0	Y 100% Y
433 WMB - 915 NE 6	\$712.83	\$1,393.75	\$420.46	\$0.00	\$0.00	\$2,527.04	\$0	Y 100% Y
434 WMB 419 S. Washington	\$8,182.29	\$9,728.75	\$3,803.05	\$0.00	\$0.00	\$21,714.09	\$0	Y 100% Y
435 WMB NW 4th & Olive	\$676.80	\$1,813.75	\$887.27	\$0.00	\$0.00	\$3,377.82	\$0	Y 100% Y
436 WMB 612 NW 5th	\$1,056.82	\$2,261.25	\$1,015.18	\$0.00	\$0.00	\$4,333.25	\$0	Y 100% Y
437 WMB 800 Blk SW 7th	\$918.87	\$2,525.00	\$723.98	\$0.00	\$0.00	\$4,167.85	\$0	Y 100% Y
438 WMB 702 SW 2nd	\$2,174.02	\$2,715.00	\$651.96	\$0.00	\$0.00	\$5,540.98	\$0	Y 100% Y
5 Water Meter Changeouts	\$10,772.33	\$10,492.50	\$61,521.48	\$0.00	\$0.00	\$82,786.31	\$0	N 0% Y
901 BB Teener Field	\$144.32	\$127.50	\$4,101.62	\$0.00	\$0.00	\$4,373.44	\$0	N 0% Y

Grand Total \$42,633.98 \$43,471.25 \$76,639.23 \$0.00 \$162,744.46

Projects: 12

