



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson
FROM: Mel Damewood, Chief Water Engineering & Operations Officer
Wally McCullough, Water Engineering Supervisor
DATE: July 10, 2018
SUBJECT: Water 10-Year Capital Improvement Plans (CIP)
OBJECTIVE: Board Action – Approval of 2018 Water 10 Year CIP

Issue

On July 10, 2018, EWEB management will present to the Board the 10-Year (2019-2028) Water Capital Improvement Plan (CIP) for approval. Management is requesting Board approval of the first five (5) years of the CIP and the 2019 capital budget. This decision will also provide direction for acceleration of the AMI deployment schedule.

Background

During the May 2018 Board Meeting, EWEB staff presented to the Board a revised 5-year CIP for the Water Utility. The revised CIP included changes to reflect revised estimates, emergent priorities, and project deferrals which affected the CIP since it was first approved in July of 2017. The true up included mostly a detailed look at the 2017-2018 years. The CIP presented herein provide a more detailed review of the 10-year overall outlook (years 2019-2028).

The 10 year CIP was reviewed and updated with the following guidelines per latest strategic directions:

1. Reliability: Replacement of aging infrastructure.
 - AMI – Water smart meter implementation, 2019-2021, with some adjustment to Type I and Type II infrastructure project timing.
2. Resiliency: A focus to continue projects that contribute water system emergency preparedness, including EWEB's work with fixed emergency water stations. Another area that the Water Utility did not want to defer for the sake of AMI schedule, was work on reservoirs, transmission, and key pump stations that were specifically tied to resiliency efforts for the utility.
3. Responsibility (controlling rates, reflecting customer values):
 - Keeping the Water Year-End capital reserves target at or above \$7.0 million at year end and steady through the LTFP.

- Setting yearly total spending limits based on projected zero percent rate increases through 2021.
- Setting yearly total capital spending targets (ave. \$17.2 Million/year). Annual depreciation is \$6.1 million/year, so water spending versus depreciation is at a 2.8 ratio. This can be easily skewed due to a high rate of large replacements and resiliency efforts in Type II projects. From a Type 1 perspective, the Renewal and Replacement is at average of \$7.8 million/year.

Similar to previous capital board memos, expenditures are classified by three types, including the following:

Type 1 capital is a collection of routine capital work under specific categories (Transmission, Distribution, Buildings). This work is funded through rates. Examples of Type 1 capital include water main replacements, pump station upgrades, etc.

Type 2 capital is for discrete projects with defined time periods and lifetime expenditures over \$1 million. Depending on the project, this work can be funded through either rate or bond funds. Examples of Type 2 capital include large reservoir replacements and Hayden Bridge Filtration Plant Improvements.

Type 3 capital is for large strategic programs with long-term impacts. These programs are generally bond-financed and include examples like the Second Source and Emergency Water Projects.

Discussion

Last fall, the Board requested that staff provide the Board with some benchmarking information on the capital spending as it relates to others in the industry. Working with *2017 AWWA Utility Benchmarking* results, EWEB staff conducted an analysis to compare the amount of renewal and replacement spending as compared to useful life and where EWEB matched with other reporting utilities.

Although still considered draft in results, the data still needs to be scrubbed to ensure an accurate comparison with capital spending within renewal and replacement projects. Preliminary results for 2017 indicate that EWEB spending is in the median range for benchmarking comparators for Transmission and Distribution, and Pumping Plant. The Treatment Plant spending was high due to the last of the treatment plant upgrades being completed. The Source of Supply was less spending due to the improvements there being completed and no spending occurred at the Raw Water Intake in 2017.

Table 1 – 2017 EWEB Capital R&R Spending and Benchmarking

	Capital Spend	Present Worth of R&R needs	System Renewal and Replacement (%)	Weighted Useful Life (years)	AWWA Percentile Combined Water Utilities
WATER INTANGIBLES	\$ -	\$ 8,711	0.0%	46.83	N/A
SOURCE OF SUPPLY	-	8,395,833	0.0%	49.02	< 25th
PUMPING PLANT	622,949	16,610,895	3.8%	26.99	Median
TREATMENT PLANT	1,448,096	25,468,139	5.7%	48.92	>75th
WATER T&D PLANT	6,288,889	471,971,775	1.3%	49.97	Median
WATER GEN PLANT	1,014,808	16,412,775	6.2%	36.46	N/A
	\$ 9,374,742	\$ 538,868,128	1.7%		

Staff hopes to bring an outlook of the first 5-years of capital spending within the 10-year CIP for benchmarking purposes soon to the Board.

Another standard key financial ratio that aids in capital spending is the Age of System Ratio, which is the accumulated depreciation divided by the total asset cost. Accumulated depreciation indicates the assets financial depreciation life, which is indicative of the operational life as well. In general, an Age of System number greater than 50% indicates the need for capital spending. For a better understanding of where to spend capital and at what rate, staff has completed a high level review summarized in Table 2.

Table 2 - High Level Water Capital Financial Indicators

ASSET_CLASS_TYPE	TOTAL ASSET COST (MM)	ACCUM_DEPR (MM)	Calculated Age of System	2017 Depreciation Expense (MM)	proposed 2019 investment (MM)	Calculated Capital to Dep 2019 ratio
SOURCE OF SUPPLY	\$24.6	\$4.9	19.83%	\$0.5	\$0	0
PUMPING PLANT	\$12.5	\$7.7	61.47%	\$0.4	\$1.0	2.7
TREATMENT PLANT	\$35.4	\$8.3	23.35%	\$0.8	\$2.0	2.5
WATER T&D PLANT	\$164.7	\$79.4	48.21%	\$2.7	\$3.2	1.2
WATER GEN PLANT	\$36.8	\$13.6	37.01%	\$1.7	\$10.6	6.1

For example, the Pumping Plant age of system is at 61%, which indicates that a higher level of capital spending in that area is needed to decrease the accumulated depreciation. And the 2.7 ratio

of capital to depreciation is an indicator we are investing in capital at a rate faster than the rate of depreciation.

Phase two of the capital benchmarking will include breaking down Water capital spending into further financial categories and include additional considerations like risk and reliability. We will also forward the AWWA Benchmarking as indicated above.

Water Utility Capital Improvement Plan

2019-2028 Water CIP: Accelerated AMI Roll-Out

Using an accelerated AMI deployment schedule (2-Year), the proposed 2019-2028 Water CIP includes 10-year total expenditures of \$212.2 million, compared to \$157.8 million in last year's 2018-2027 CIP. Much of the \$54.4 M increase from the previous plan is due to the AMI project (\$17.5M) and the addition of \$40.0MM for the Second Source Treatment Plant in 2026.

For the accelerated AMI roll out, the roll-out schedule shown on the current CIP is from 2019-2020. A reduction of \$2.5 million in Type 1 capital work was needed to balance out workload as many FTE will be required to support a contractor to conduct a 2-year deployment. Also, one reservoir (Willamette 800) Type 2 capital project would also need to be deferred until after AMI is completed.

As mentioned previously, a more feasible deployment schedule will have AMI implementation complete by the end of 2021. This scenario will require less reduction in Type 1 capital work, in the neighborhood of \$1.5 million/year. As the water utility ramps up the program a more accurate assessment will be made as to the feasibility of either a 2 or 3 year implementation.

For Water, an expedited deployment for AMI should provide benefits not only for the customer, but a focused deployment should also gain some efficiencies and reduce costs. For the customer, leak detection is an immediate benefit, as other agencies have found, about 10% of customers find a service leak on the customer side when AMI meters are placed into a typical service area. For EWEB, cost savings for the AMI project should be gained by a well-planned and focused deployment.

2019 Water Capital Budget and First Five Years.

The proposed 2019 Water budget and ten-year 2019-2028 CIP, is included as Attachment 1. For 2019, the Type 1, 2 and 3 expenditures total approximately \$16.8M. This is approximately \$3.2M higher than that presented last year for 2019. This increase is principally due to the addition of AMI offset by reductions in Type 1 work and the deferral of one Type 2 project.

The proposed CIP for the first five years is approximately \$10.6M higher than that presented last year. This increase is similarly due to AMI, offset with the associated reductions and deferrals.

For the first five years, Type 1 projects decrease for the first two years to accommodate AMI, returning to 'normal' renewal and replacement work in 2021. Similar to previous years, main replacement and improvement work is the largest component in the Type 1 Work.

For Type 2, the largest project is AMI in 2019 and 2020. Other projects in the first five years include completion of the new disinfection system at Hayden Bridge and the start of our base level reservoir replacement program with two new base level reservoirs completed in the first five years of the CIP. These will be located at EWEB's Hilyard (Elliot) site and at our Hawkins Reservoir site.

Type 2 IT projects for the first five years have been deferred to accommodate AMI with the CIS replacement program starting in 2022. This is followed by replacement of the financial systems and WAM in the later years of the CIP.

For 2019, significant projects are summarized below by project Type.

Type 1:

- Main Replacement Program. Similar to previous years the most significant Type 1 work will be associated with our main replacement program. While the number of projects in 2019 will be reduced to accommodate AMI, strategic projects will be completed to keep ahead of the City Street Rebuild Program.

The rest of the Type 1 work is distributed among pump stations, small Hayden Bridge and IT projects, along with fleet expenditures.

Type 2:

- AMI will start in earnest in 2019 as the largest project in the CIP.
- Hayden Bridge Filter Disinfection System Replacement. In 2019, construction will be completed on a two year project to replace the gas chlorine system at Hayden Bridge. The new system will generate liquid chlorine on-site.
- Hayden Bridge Water Quality Lab and Backup Services Building. Construction will begin in 2019 on a new building housing a new water quality lab and backup facilities for dispatch, power trading, and data. This will be completed in 2020.

Type 3:

- Focus will be on completion of additional permanent emergency water distribution sites.

Reserves

The projected year end Capital Reserve balance starts at \$8.4M in 2019 then is reduced to \$7M over the remainder of the 10 year CIP with the reduction due to AMI funding contributions.

Triple Bottom Line Assessment

Most individual projects contained within the CIP have undergone or will undergo (depending on year implemented) a TBL assessment at their appropriate level.

Recommendation

Management recommends approval of the first five years of both the 2019-2028 Water Utility 10-Year CIP and the capital budget for 2019 as outlined in the first year of the CIP. Water also recommends that the Board approve the presented AMI roll-out scenario

Requested Board Action

Approval of the first five years of the 2019 Water Utility 10-Year CIP (2019-2028) and the capital budget for 2019 as outlined in the first year of the CIP.

If you have any questions please contact Mel Damewood, Chief Water Engineering and Operations Officer at 541-685-7145 or email mel.damewood@eweb.org

cc: Frank Lawson
Sue Fahey

Attachments:

1. 2019 -2028 Water CIP

Attachment 1 - 2 Year AMI Rollout

Water Capital Improvement Plan: 2019-2028

<u>Funds Available</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>5 Year Total</u> <u>2019-2023</u>	<u>5 Year Total</u> <u>2024-2028</u>	<u>10 Year Total</u>
Capital Reserve Balance (Includes Bond Funds)	\$ 14,510,000	\$ 8,390,000	\$ 7,000,000	\$ 12,000,000	\$ 12,000,000	\$ 7,000,000	\$ 7,000,000	\$ 47,000,000	\$ 7,000,000	\$ 7,000,000			
<u>Annual Revenue</u>													
Customer Contributions	\$ 1,169,000	\$ 1,204,000	\$ 1,240,000	\$ 1,277,000	\$ 1,316,000	\$ 1,355,000	\$ 1,396,000	\$ 1,438,000	\$ 1,481,000	\$ 1,525,000			
Water Rates and Reserves	\$ 9,099,000	\$ 15,029,000	\$ 12,930,000	\$ 7,830,000	\$ 10,647,000	\$ 12,156,000	\$ 13,807,000	\$ 16,869,000	\$ 16,875,000	\$ 17,468,000			
SDC	\$ 450,000	\$ 2,163,000	\$ 2,468,000	\$ 464,000	\$ 468,000	\$ 484,000	\$ 499,000	\$ 516,000	\$ 532,000	\$ 550,000			
Subtotal - Annual Revenue	\$ 10,718,000	\$ 18,396,000	\$ 16,638,000	\$ 9,571,000	\$ 12,431,000	\$ 13,995,000	\$ 15,702,000	\$ 18,823,000	\$ 18,888,000	\$ 19,543,000			
Total Funds	\$ 25,228,000	\$ 26,786,000	\$ 23,638,000	\$ 21,571,000	\$ 24,431,000	\$ 20,995,000	\$ 22,702,000	\$ 65,823,000	\$ 25,888,000	\$ 26,543,000			
<u>Expenditures</u>													
<u>Type 1 - General Capital (rate funded)</u>													
Source - Intake and Hayden Bridge	\$ 216,000	\$ 117,000	\$ 339,000	\$ 124,000	\$ 128,000	\$ 131,000	\$ 135,000	\$ 139,000	\$ 144,000	\$ 148,000	\$ 924,000	\$ 697,000	\$ 1,621,000
Distribution - Pump Stations & Reservoirs	\$ 999,000	\$ 997,000	\$ 1,388,000	\$ 754,000	\$ 603,000	\$ 621,000	\$ 640,000	\$ 659,000	\$ 678,000	\$ 699,000	\$ 4,741,000	\$ 3,297,000	\$ 8,038,000
Distribution - Pipelines	\$ 2,060,000	\$ 2,122,000	\$ 4,469,000	\$ 4,603,000	\$ 4,741,000	\$ 4,884,000	\$ 5,030,000	\$ 5,181,000	\$ 5,337,000	\$ 5,497,000	\$ 17,995,000	\$ 25,929,000	\$ 43,924,000
Distribution - Services & Meters	\$ 1,030,000	\$ 1,061,000	\$ 1,694,000	\$ 1,745,000	\$ 1,797,000	\$ 1,851,000	\$ 1,906,000	\$ 1,963,000	\$ 2,022,000	\$ 2,083,000	\$ 7,327,000	\$ 9,825,000	\$ 17,152,000
Information Technology	\$ 146,000	\$ 141,000	\$ 261,000	\$ 191,000	\$ 246,000	\$ 99,000	\$ 141,000	\$ 186,000	\$ 161,000	\$ 256,000	\$ 985,000	\$ 843,000	\$ 1,828,000
Buildings & Land	\$ 52,000	\$ 29,000	\$ 18,000	\$ 18,000	\$ 25,000	\$ 34,000	\$ 36,000	\$ 36,000	\$ 70,000	\$ 70,000	\$ 142,000	\$ 246,000	\$ 388,000
Fleet	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 2,700,000	\$ 2,700,000	\$ 5,400,000
Total Type 1 Expenditures	\$ 5,043,000	\$ 5,007,000	\$ 8,709,000	\$ 7,975,000	\$ 8,080,000	\$ 8,160,000	\$ 8,428,000	\$ 8,704,000	\$ 8,952,000	\$ 9,293,000	\$ 34,814,000	\$ 43,537,000	\$ 78,351,000
<u>Type 2 - Rehabilitation & Expansion Projects (rate & bond funded)</u>													
<u>Rate Funded Type 2 Projects</u>													
Information Technology	\$ 310,000	\$ 191,000	\$ 389,000	\$ 800,000	\$ 1,062,000	\$ 820,000	\$ 879,000	\$ 1,125,000	\$ 20,000	\$ 305,000	\$ 2,752,000	\$ 3,149,000	\$ 5,901,000
Subtotal - Rate Funded Projects	\$ 310,000	\$ 191,000	\$ 389,000	\$ 800,000	\$ 1,062,000	\$ 820,000	\$ 879,000	\$ 1,125,000	\$ 20,000	\$ 305,000	\$ 2,752,000	\$ 3,149,000	\$ 5,901,000
<u>Bond Eligible Type 2 Projects</u>													
Source - Intake and Hayden Bridge	\$ 1,803,000	\$ 1,008,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,344,000	\$ 2,811,000	\$ 1,344,000	\$ 4,155,000
Distribution - Pump Stations & Reservoirs	\$ 515,000	\$ 3,183,000	\$ 7,103,000	\$ 5,346,000	\$ 7,825,000	\$ 4,537,000	\$ 5,903,000	\$ 8,487,000	\$ 9,394,000	\$ 8,063,000	\$ 23,972,000	\$ 36,384,000	\$ 60,356,000
Distribution - Pipelines	\$ 103,000	\$ 1,061,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,164,000	\$ -	\$ 1,164,000
Advanced Meters (Water)	\$ 8,652,000	\$ 8,912,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,564,000	\$ -	\$ 17,564,000
Buildings & Lands	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal - Bond Eligible Projects	\$ 11,073,000	\$ 14,164,000	\$ 7,103,000	\$ 5,346,000	\$ 7,825,000	\$ 4,537,000	\$ 5,903,000	\$ 8,487,000	\$ 9,394,000	\$ 9,407,000	\$ 45,511,000	\$ 37,728,000	\$ 83,239,000
Total Type 2 Expenditures	\$ 11,383,000	\$ 14,355,000	\$ 7,492,000	\$ 6,146,000	\$ 8,887,000	\$ 5,357,000	\$ 6,782,000	\$ 9,612,000	\$ 9,414,000	\$ 9,712,000	\$ 48,263,000	\$ 40,877,000	\$ 89,140,000
<u>Type 3 - Strategic Projects & Programs (bond funded)</u>													
Emergency Water Supply	\$ 412,000	\$ 424,000	\$ 437,000	\$ 450,000	\$ 464,000	\$ 478,000	\$ 492,000	\$ 507,000	\$ 522,000	\$ 538,000	\$ 2,187,000	\$ 2,537,000	\$ 4,724,000
Second Source Treatment Plant	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40,000,000	\$ -	\$ -	\$ -	\$ 40,000,000	\$ 40,000,000
Total Type 3 Expenditures	\$ 412,000	\$ 424,000	\$ 437,000	\$ 450,000	\$ 464,000	\$ 478,000	\$ 492,000	\$ 40,507,000	\$ 522,000	\$ 538,000	\$ 2,187,000	\$ 42,537,000	\$ 44,724,000
Total Expenditures	\$ 16,838,000	\$ 19,786,000	\$ 16,638,000	\$ 14,571,000	\$ 17,431,000	\$ 13,995,000	\$ 15,702,000	\$ 58,823,000	\$ 18,888,000	\$ 19,543,000	\$ 85,264,000	\$ 126,951,000	\$ 212,215,000
Predicted YE Capital Reserve Bal. (Includes Bond Funds)	\$ 8,390,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000			