



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Mital, Helgeson, Manning and Simpson
FROM: Mel Damewood, Engineering Manager
DATE: December 18, 2014
SUBJECT: Water Master Plan Update
OBJECTIVE: Information Only

Issue

On January 6, 2015, staff will present an update to the Board on the 2014 Water Master Plan Update.

Background

Oregon Administrative Rule (OAR) 333-061-0060 requires that community water systems serving more than 300 people maintain a master plan which is prepared by a licensed professional engineer. For a system serving more than 10,000 people, the master plan shall be submitted to and approved by the Oregon Health Authority every 10 years.

The OAR requires that the Master Plan evaluate the needs of the water system for a minimum of a 20 year period and include at a minimum the following elements;

- Summary of a plan to address water system deficiencies.
- Description of the existing water system, water quality, and level of service goals.
- An estimate of projected demands and growth within the system.
- An engineering evaluation of the existing facilities to meet water quality and service level goals.
- Identification of alternative engineering solutions and associated capital and operation and maintenance costs to correct deficiencies and meet anticipated growth.
- A description of alternatives to finance the water system improvements.
- A recommended water system improvement program (CIP).

EWEB last completed an update to the Master Plan in 2004. In late 2013, plans were put in place to begin the update in 2014.

Relationship of the Master Plan to the Water Reliability Initiative and AWS

The term Water Reliability Initiative was first used by EWEB in mid-2013 to represent the water utility's ongoing efforts around reliability. The utility is currently focused on the following two equally important efforts to create a robust and reliable water system:

- 1) The continued investment in infrastructure replacement/rehabilitation i.e. the bulk of our current Capital Improvement Program (CIP), and
- 2) Development of an Alternative Water Supply (AWS).

The 2014 Water Master Plan Update is primarily focused on Item 1 above, by updating our existing CIP for the next 10 years. The CIP is, in essence, a list of projects planned for the next ten years,

primarily related to the replacement or rehabilitation of aging infrastructure. The Master Plan process, as described above develops, prioritizes, and optimizes the list of projects in the CIP.

Item 2 above, AWS, due to its size and scope, is being handled with a planning process outside of the master plan work. However, the Master Plan is including AWS in the analysis of the system to determine how it affects required upgrades.

Discussion

EWEB contracted with West Yost Associates in early 2014 to assist with the completion of the Water Master Plan Update to meet the goals of improving reliability, identifying system deficiencies, and determining future system requirements. Work has been ongoing to update EWEB's hydraulic model, identify existing and future water system deficiencies, project future demands, update EWEB's service standards, evaluate the most cost effective way to develop a resilient spine in our system, and identify opportunities to simplify system operations.

Work Completed to date

The following sections summarize the work that has been completed to date and the preliminary results.

Demand Projections

Since the 2004 Master Plan was completed, EWEB, similar to the rest of the nation, has seen a drastic decline in water demands. The maximum day demands for the system have dropped from 64.5 million gallons per day (mgd) in 2004 to 49.6 mgd in 2013. As a result of this decline this master plan update is not focused on growth but instead on improving system reliability and rehabilitating our existing infrastructure.

Base Level Optimization (The Base Level serves the area below elevation 500 feet.)

The hydraulic model was used to evaluate the base level system to determine the most efficient way to leverage existing and needed infrastructure. Preliminary recommendations include:

- Multiple transmission system upgrades including upgrading transmission to the new proposed Water Treatment Plant.
- Dividing the Hawkins Hill Reservoir into two separate halves to provide operational flexibility and to allow for significant seismic upgrades to be completed.
- Construction of a new Elliott Reservoir and decommissioning of the existing College Hill 607 Reservoir.
- Rebuilding of the Santa Clara Pump Station and Reservoir to improve operations and provide seismically sound infrastructure.

Upper Level Optimization

The hydraulic model was used to evaluate a way to simplify overall operations of facilities in the south hills. Preliminary recommendations include:

- Creation of a central pivot point which can supply water east or west by improving connections between the Willamette, Crest, Dillard, and City View service areas.
- Combining systems to reduce overall required storage and improve water quality.
- Installing pressure reducing valves between higher service areas and lower service areas to provide a redundant water supply in the event of an emergency.
- Upgrading older pump stations to improve operation and reliability.

Main Replacements

EWEB staff has created a plan to prioritize main replacements within the system. The next challenge will be integrate this system in to the new Oracle asset management system.

Main Improvements

The hydraulic model was used to define areas that do not meet EWEB's service standards including:

- Low pressure areas have been identified at service area boundaries.
- Areas have been identified that do not meet minimum fire flow requirements.

Hayden Bridge Intakes and Filtration Plant

While significant upgrades have been completed at Hayden Bridge, several projects remain. These include:.

- Rehabilitation of one raw water pipeline
- Completion of the filter improvements, the South Filters still need upgrading.
- Replacement of the Disinfection System.
- Completion of the planned Seismic Upgrades
- Standby Power Improvements

Resiliency

A resiliency plan chapter is being added to this Master Plan. The chapter addresses the impacts that are likely to occur following the Cascadia Subduction Zone Earthquake. The results of this chapter are a plan to create a resilient backbone for the system and to define required design criteria to be used in designing infrastructure upgrades.

Impacts to Capital Plan and Long Term Financial Plan

The impacts to the CIP and the long term financial plan are still being determined. It is not anticipated however that the impact will be significant. Placeholders have been inserted into the CIP for many of the noted improvements in anticipation of their identification in the Master Plan.

Next Steps

The final results will be determined over the next month and the CIP will be developed. Final results and a complete Master Plan will be presented to the Board at the April board meeting.

TBL Assessment

A triple bottom line assessment will be completed for selected improvements where appropriate.

Recommendation

None. This is an information item only.

Requested Board Action

None. This is an information item only. Staff will be available to answer questions at the January 7, 2015 Board meeting. If you have any questions, please call Mel Damewood at 541-685-7145 or email mel.damewood@eweb.org.