MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Mital, Brown, Helgeson, Manning and Simpson

FROM: AWS Project Team; Brad Taylor, Water Operations Manager and Mel Damewood, Engineering Manager

DATE: February 20, 2015

SUBJECT: Alternative Water Supply Update

OBJECTIVE: Information Only

Issue

On March 3, 2015, staff will present an update to the Board on the Water Utility's Alternative Water Supply (AWS) Project, a major project within the broader Water Reliability Initiative (WRI), and our efforts towards construction of a second source of supply on the Willamette River.

Background

EWEB is one of the only large utilities in the Pacific Northwest without a redundant water supply system. While the Hayden Bridge Filtration Plant and its McKenzie River supply have served the utility well, the sole reliance on this supply is a vulnerability that the EWEB Board has decided to address.

Alternatives for a redundant supply are not readily available. EWEB has investigated groundwater sources and determined that interferences in the groundwater use of neighboring utilities prevent this from becoming a viable alternative for a primary second source. This left surface water as the best alternative and EWEB has been working on obtaining a water right on the Willamette River for the past several years. This was a complicated and lengthy process but finally in 2014, EWEB solidified a point of diversion on the Willamette River just below the confluence of the Coast Fork and the Middle Fork for approximately 20 million gallons per day (MGD). With this in place, EWEB is diligently working towards the eventual construction of a river intake and treatment plant which would fully utilize the new water right.

This work on a Willamette River intake and treatment plant is just part of EWEB's AWS project. The 2015 Water System Master documents EWEB's current Average Day Demand (ADD) to be approximately 24 MGD. Over the 20 year planning window the ADD is projected to increase to approximately 33 MGD. Average Day Demand represents water use beyond what is essential for non-discretionary use of potable water during an emergency.

The new surface water supply could provide the bulk of the ADD demand, however, additional AWS activities will need to be implemented in the future to fully meet this demand. These activities will entail work on our interties (we have existing interties with Springfield utility Board (SUB) and Rainbow Water District (RWD) that can supply approximately 2 to 3 mgd) as well as potentially some work developing groundwater supplies.

Additionally, EWEB needs to develop a robust Water Curtailment Plan to assist in the reduction of water use during supply disruptions. This is particularly critical during periods of high demand. AMI technology is one option that could be explored as a viable tool to assist in these efforts.

Discussion

The work completed to date on the AWS project is discussed below along with the anticipated future activities. Also discussed are the anticipated expenditures and the proposed funding mechanism as well as a discussion on guidance to be requested of the board.

Work Completed to date

The following sections summarize the work that has been completed to date:

Communication and Community Engagement

Communication efforts regarding the AWS project have been on-going since 2011with market research that led to the 2012 Water Reliability Initiative (WRI) Communication Plan. EWEB has been following the strategy and tasks recommended by this plan since that time. The current status of EWEB's activities related to each strategy is shown in Attachment 1. As communication efforts have progressed, EWEB has continually updated our messaging in response to customer feedback, helping EWEB communicate more clearly about the value of water and that the customer's water bill is an ongoing investment in water reliability.

Property Acquisition

Several properties will need to be obtained for the AWS project. Property is needed for a river intake facility and for a treatment plant. For the river intake, staff has identified two properties, the Wildish Parcel and the Judkins Parcel, that together are suitable for the intake facilities. The majority of the effort to date has been associated with the due diligence activities required for their acquisition. These two properties are shown on Attachment 2. The due diligence activities completed to date are outlined below:

- River Survey: EWEB completed a full bathymetric (underwater topographic) survey of approximately 4,000 feet of the Willamette River. This survey confirmed that multiple areas along the Wildish Property would be suitable for a river intake.

- Topographic Survey: Both properties were surveyed by EWEB surveyors to establish elevations and contouring of the each property.

- Boundary Survey: A boundary survey was completed for both parcels. The Wildish Parcel requires a serial lot line adjustment. The application for this adjustment has satisfied city conditions of approval. Final approval is expected March 11, 2015

- Phase 1 Environmental: EWEB staff completed a Phase 1 environmental study for both properties. This resulted in a geophysical survey of the Wildish site.

- Geophysical Survey: A Geophysical scan was conducted on the Wildish site to identify any potential buried items. Wildish has been asked to excavate areas of concern to verify underground conditions. This excavation is anticipated to begin in early March.

- Geotechnical Investigation: Foundation Engineering, Inc performed a geotechnical investigation of both properties. Several borings and test pits were dug on each property. No unusual or unexpected materials were found.

- Land Use/Zoning/Utilities: EWEB attended a development issues meeting with the city of Springfield, SUB, LTD, and the Fire Marshall. Both properties are currently in Springfield's UGB and will likely have to be annexed to the city. The proposed facilities are an allowed use under the properties zoning and no other major issues were identified.

EWEB is in contract to complete purchase of Judkins Property in April 2015. EWEB has created a draft agreement with Wildish to exchange EWEB's Jordan Pit property on the McKenzie River for Wildish property on the Willamette River. The Jordan Pit property was originally obtained for a potential water intake however it is not needed for that function any longer. This property exchange is not likely to require any funds from EWEB to close.

EWEB is still considering treatment plant site alternatives in the vicinity of the river intake properties. The goal is to obtain a treatment plant site by the end of 2015.

Water Quality Sampling

In an effort to provide information for future water treatment plant design criteria on the Willamette River, a long term assessment of water quality characteristics was initiated by EWEB staff on April, 2013. To date, 7 quarterly samples and 1 storm event sample have been collected by staff from the mainstem Willamette River just below the confluence of the Middle Fork and Coast Fork. Samples have been analyzed by certified labs for bacteria, metals, nutrients, volatile and semi-volatile organic compounds and other physical parameters. In addition, staff plan to assess samples for pesticides, waste water compounds, endocrine disruptors and blue-green algae. Complimenting discrete sampling activities, time-series data (turbidity, temperature, conductivity and pH) has also been collected from the site intermittently.

Ongoing sampling efforts in the McKenzie River during this same time period have yielded a similar number of sampling events, which provide a good basis for comparison with Willamette River data.

A coarse review of analytical data received to date, for both the McKenzie and Willamette, indicates more similarities than differences between the two systems. Although anomalies do exist, analytical results from both mainstem sites are relatively consistent. The results are shown in Attachment 3. Metal concentrations appear to fall within an order of magnitude for both sites. The Willamette site did receive the only hits for Cadmium and Lead during this time period, but both concentrations were quite low.

Bacteria and nutrients also appear to be fairly comparable. The Willamette site yielded the highest *E. coli* value, as compared to the highest McKenzie site value, but most were comparable with one outlier. The similar results aren't all that surprising considering the respective watersheds are quite alike, especially when looking at the entire watershed. The Middle Fork Willamette Watershed, which provides the bulk of the flow to the mainstem Willamette, is over 90% forested. The McKenzie Watershed, by comparison, is approximately 89% forested.

In addition to internal sampling efforts, EWEB staff have also begun compiling water quality data from outside sources in order to further understand potential water quality impacts upstream and develop a comprehensive assessment of current and future threats. Both the McKenzie and Upper Willamette watersheds have many similarities in terms of potential water quality threats. These similarities include development, storm runoff, agricultural practices, transportation corridors and large reservoirs capable of producing significant algal blooms. However, there are also notable differences between the two watersheds. Staff are looking to better understand how these differences relate to water quality in the mainstem Willamette and what potential impact they may have on a future water treatment plant operations.

Master Plan Analysis

As part of the 2015 Master Plan, a Resiliency Plan was completed to help EWEB evaluate how the utility will adhere to the guidelines laid out in the Oregon Resiliency Plan (ORP). The ORP defines performance goals for water utilities to have critical infrastructure available following a Cascadia subduction zone earthquake. The areas that are defined include water supply source, major transmission mains, water supply to critical facilities (such as hospitals), water for fire suppression, water available for community distribution, and having the distribution system operational. The performance goals per the ORP require that a water supply source be 20-30% operational and that major transmission mains need to be 80-90% operational within 0-24 hours following an event.

To evaluate how AWS can help EWEB meet these performance goals, the Master Plan evaluated how to deliver water from the new treatment plant into the system. The results show that EWEB will be required to construct a new transmission main (to provide capacity for 20 mgd) from the new treatment plant to the Knickerbocker Bridge and potentially further into our system. Hydraulic analysis is on-going. The new transmission main would be designed and constructed to the most recent seismic design standards to ensure that it will be available and operational following an earthquake.

Emergency Preparedness

EWEB's efforts towards emergency preparedness have been focused in two areas; communications and emergency water delivery. EWEB's communication efforts have been discussed previously.

The emergency water delivery system effort began in 2012. EWEB started with the purchase of one trailer. This was retrofitted with plumbing and pumping system equipment to be able to provide water from a pressurized or non pressurized system. EWEB also researched and invested in collapsible containers to carry potable water to distribution sites.

Following this investment there was a period of evaluation and experimentation. The trailer was set up in our yard and at events to test how well the systems worked. Further modifications were made to our first trailer and two additional trailers were purchased. There will be distribution manifold testing in the coming weeks after which these trailers will be retrofitted with plumbing and pumping system equipment similar to our first trailer.

Expenditures to date for the emergency water delivery system totals approximately $220,000.

Next Steps and High Level Schedule

The work necessary to successfully complete the AWS project is shown on Attachment 4. The activities are shown at a high level. As we get further into the project, the schedule will be broken down into greater detail. Our future planned activities are discussed below:

Communications

Community engagement will be an on-going process until the end of the project. The WRI communication strategy has been planned to ramp up just ahead of planned rate increases with the intention of helping customers understand what they are buying with their rate dollar and that the Commissioners are focused on affordability while assuring water reliability. The intensity of WRI communication is planned to peak during the construction phase of AWS development but is being crafted to sustain water reliability messaging well into the future.

Emergency Water Supply Efforts

EWEB's emergency water supply efforts will also continue well into the future. In the near term, our existing fleet of trailers and distribution facilities will be completed and tested. This will be the bulk of the effort in 2015.

Late in 2015 we will also be researching and evaluating options for the purchase of a trailer with treatment equipment that would have the ability to treat river water to potable water standards. Several other utilities are looking into these also so we will be consulting with them to ensure that we make the right decisions moving forward.

In the long term, EWEB's efforts will be focused on maintaining, testing, and practicing using the distribution trailers and equipment. Even with a second water supply there will still be local outages that could require the use of this equipment.

Commissioners will see this as an item in the 2015 water capital budget true-up in May. Rollover and potentially some transfer funds will be in the true-up to accommodate this years efforts.

New River Intake

Work on the proposed new intake will be the first task undertaken for the new AWS facilities. In 2015 state and federal permit applications will be submitted for the in-river work to initiate the permit process. This will be the most difficult of all permitting efforts for the entire project and will likely require a multi-year effort. The goal is to get it started as soon as possible to avoid any delays in completion of the overall project. Final design and construction of the intake will not take long relative to the treatment plant design and construction. As such, this work will be coordinated with the construction of the treatment plant.

Treatment Plant

2016 will be a critical year for the treatment plant. In order to complete the treatment plant construction by the end of 2021, conceptual design needs to be complete by the end of 2016 or early 2017. EWEB already has a team pulled together to help set the design criteria for the plant. This team has met several times in 2014 and regular meetings will occur in 2015, likely extending through the course of the project. In addition, in late 2015 an outside consultant will be retained to assist in the conceptual design and cost estimating for the plant.

Once conceptual design is complete, final design and permitting efforts will begin, continuing through 2018. The current plan is for construction to begin in 2019 and be completed by the end of 2021. As noted on the schedule in Attachment 4, construction will not begin on the treatment plant until permitting is complete for the new intake.

Current Estimate and Funding

The anticipated annual expenditures for the AWS project are shown on Attachment 4. These match the amounts in the current CIP except for the first 3 years, 2015-2017. For 2015 the current CIP does not include the property purchase which is the majority of the amount shown. For 2016 and 2017, the estimated amounts increased by approximately $400,000 each year to reflect planned activities. These estimated amounts as well as the overall project costs will be refined as we get further into the project.

The AWS project is the Water Utility's only Type 3 project and will be funded with a combination of bonds and AWS designated funds. At a future Board meeting, staff will request that the Board approve a resolution which will authorize EWEB to be reimbursed from future bond proceeds for AWS costs paid using other funds. Once the scope of the AWS project has been determined, staff will also request the Board to approve a resolution authorizing the issuance of bonds. By charter, the City Council must grant EWEB authority to issue bonds. The bond issuance process may take eight months from the time the EWEB Board first considers the resolution until funds are received.

To reduce the total bond amount, in December 2013 the Board approved an additional 3% rate increase effective February 2014 to begin setting aside funds for AWS. In the 11 remaining months of the 2014 calendar year $890,000 was transferred to the AWS Designated Fund. Approximately $1,000,000 per year will be transferred to the AWS fund to be used for future AWS expenses and reduce the amount of bonds issued for AWS construction.

In addition, each spring the Board reviews and approves transfers among working cash, reserves and designated funds and has the opportunity to make additional AWS Designated Fund deposits. The AWS Designated Fund combined with Board approved rate increases will provide the resources necessary to support the construction costs and debt service expenses associated with the AWS project.

Direction from Board

As we proceed with the AWS project, there will be many instances where guidance will be sought from the Board which will affect the AWS project and its funding as well as the long term financial plan. These include:

Capacity of First Phase

The current estimate for the AWS project included in the CIP was based on the cost estimates originally prepared for a treatment plant and intake at our Headquarters Site. These costs were adjusted to reflect a 20 MGD river intake and a treatment plant with a capacity of approximately 10 MGD. Recall that our water right is for approximately 20 MGD and our current ADD is 24.

As we get further into conceptual design and site specific cost estimates should we be looking to construct a larger plant in the first phase? What if it becomes apparent that with the current CIP amount we can construct a larger plant? Should we? Alternatively, if existing allocated funds are

not sufficient for the desired capacity, should we re-prioritize other projects or discuss rate impacts?

The Timing of Subsequent Phases for Full Capacity
We don't anticipate being able to construct a 20 MGD plant with the available funds, thus requiring a second phase. When should this occur? In the 10 year CIP? Or within the 20 year Master Plan view?

TBL Assessment
A triple bottom line assessment will be completed for selected improvements where alternatives analysis is 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 March 3, 2015 Board meeting. If you have any questions, please call Brad Taylor at 541-685-7385 or email brad.taylor@eweb.org.

Attachment 1:

Water Reliability Initiative Communications Status

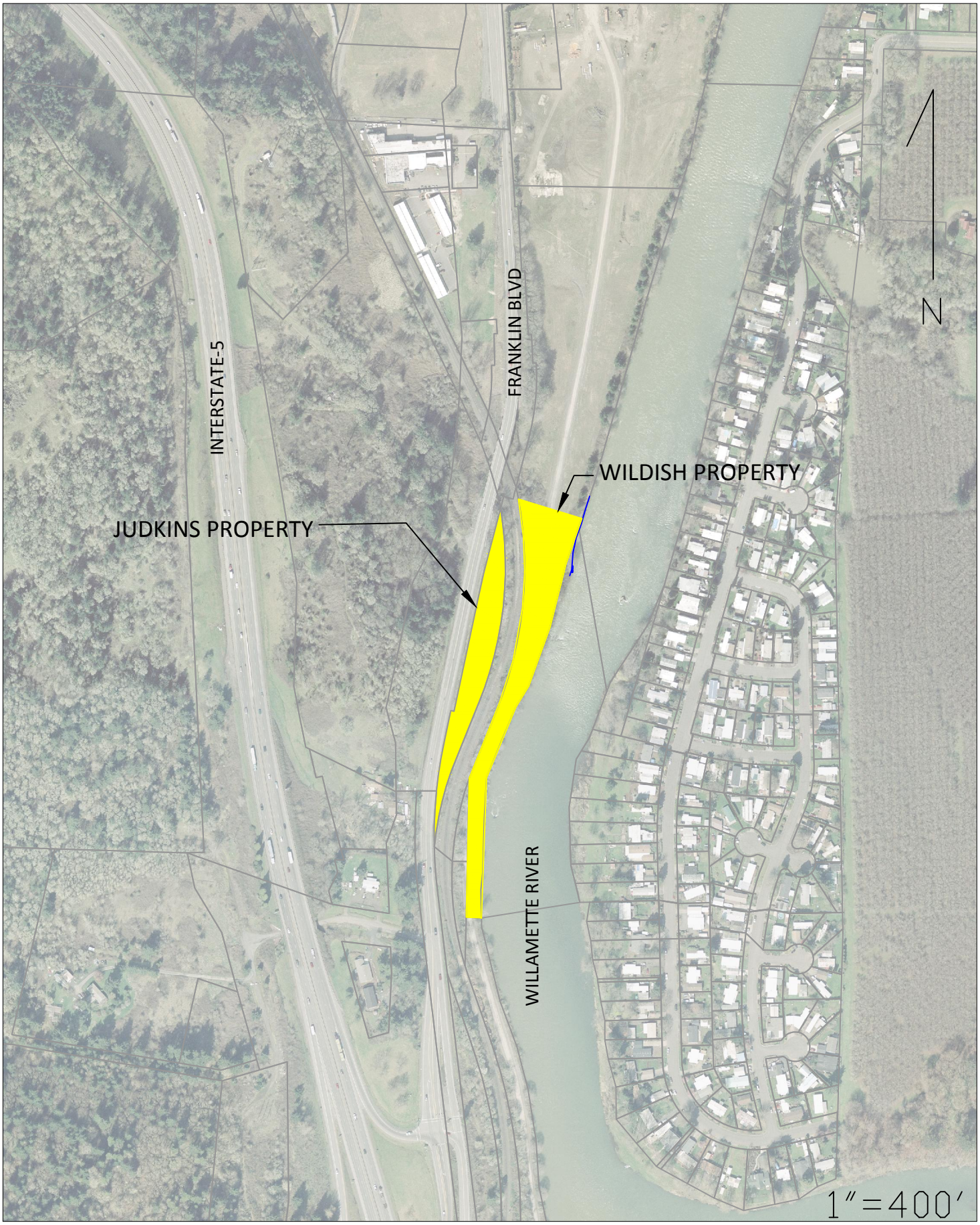
In 2011 EWEB conducted market research that resulted in the 2012 Water Reliability Initiative Communication Plan. The plan included a task list. Task progress from late 2012 to 4th Q 2014 is summarized in the table below. Activity in the 1st Q 2015 is not included in this summary.

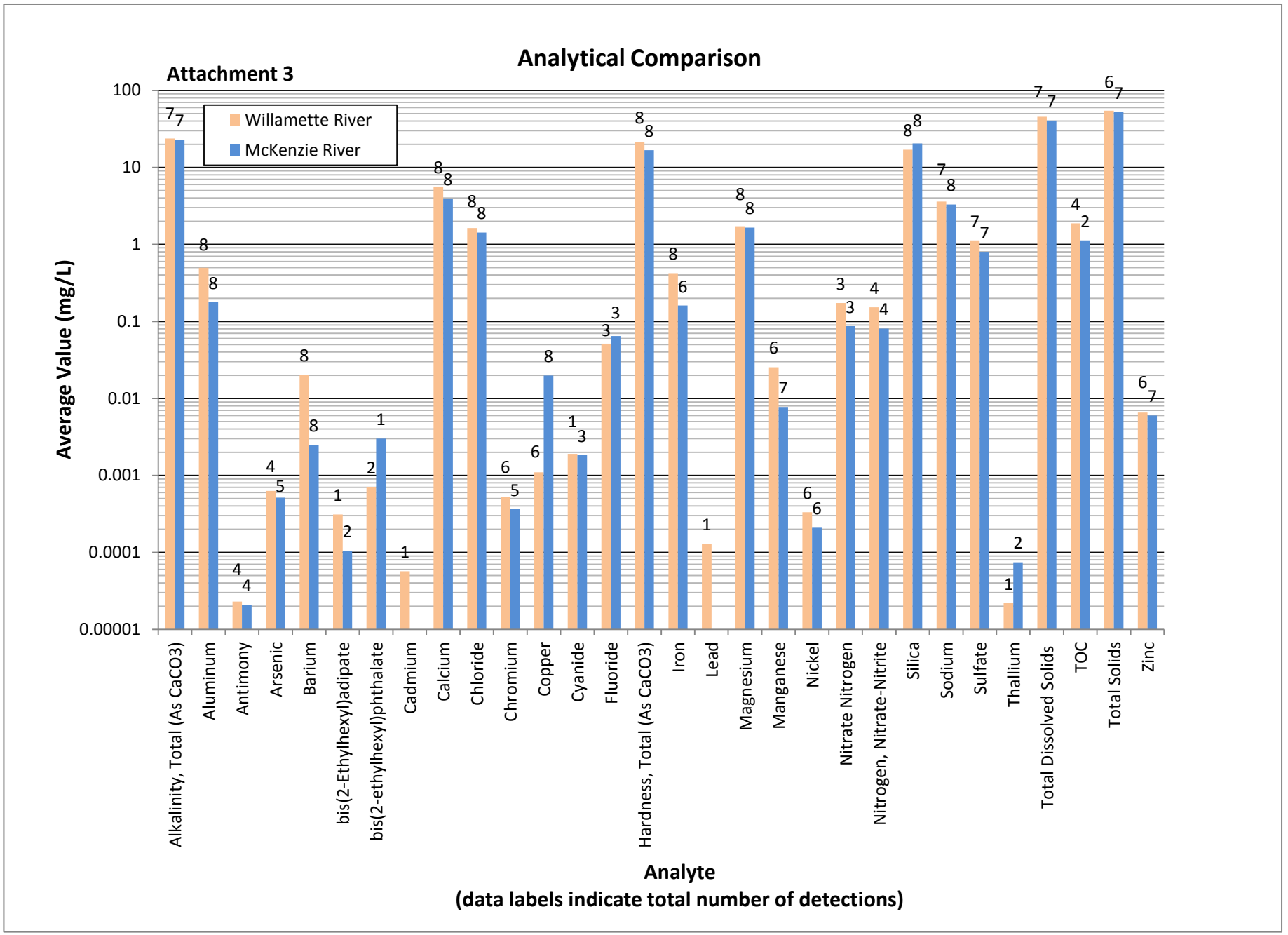
Strategy	Current Status
Stakeholder Conversations	**December 2014**
Policy briefings	• 3rd Q 2013: Policymaker and media tour of Hayden Bridge Filtration Plant • 3rd Q 2014: Joint City Council/EWEB Board meeting
Government relations	• Jeannine Parisi advising
Highly Interested & Interested Parties Outreach	• 1st Q 2014: League of Women's Voters • 2nd Q 2014: Friendly Area Neighbors; Neighborhood Association Leaders Council • 3rd Q: Green Lane • 4th Q 2014: Jeannine met with Councilor Chris Pryor
Not Yet Interested Parties Outreach	• 2nd Q 2014: Water distribution trailer article in Current Connections and in the City Council Newsletter; City of Eugene Public Works Open House • 3rd Q 2014: Several neighborhood association picnics
EWEB staff update	• Internal communication plan integrated into the initial plan in 2013 • 2nd Q 2014: Water distribution trailer article in EWEB Daily News; First week of May publish water related internal communication about Drinking Water Week and PNWS-AWWA Conference
Technical Investigations	**October 2014**
Water rights	• Willamette River permit issued February 2013; in addition to groundwater permit • 2014: Willamette River permit property negotiations • Willamette River permit property due diligence stage; preparing messaging for 2015
System assessment	• The 2014 Master Plan Update will include a comprehensive system assessment; due April 2015
Peer communities	• Consultant included an overview of peer community water supply status as part of the 2013 Water Forum • 1st Q 2014: Integrated 2013 peer community assessment into Speaker's Bureau slideshow • 4th Q 2014: The emergency water supply storage container promotion featured partnership with peer communities. • Oregon City and Clackamas River Water Providers will be

	launching container distribution in 2015. Other Portland Metro Area partnerships are pending.
Expert panel/business case evaluation	• 2015 rates will be implemented in February 2015. Discussion regarding 2016 business case begins in 1Q 2015.
Partnerships	**December 2014**
Water supplier: listening process	Not ready to implement
"Water Summit" or symposium	• Water Forum with major customers held November 2013 • Business Continuity Planning Workshop held August 13, 2014 • Business Continuity Planning Workshop scheduled for August 12, 2015 and will feature presenters from the Red Cross.
Water Emergency Preparedness partnership with the Red Cross	• Co-presenting with the Red Cross for some of the Speaker's Bureau presentations • The 3-gallon emergency water supply storage container promotion features agreement with the American Red Cross and partnership with peer communities as well as the private sector • A joint exercise in October 11, 2014 is considered a success.
Water Emergency Preparedness partnership with LPC	• 1st Q 2014: Jill Hoyenga developing a partnership with Lane Preparedness Coalition and City of Eugene Office of Emergency Management • 4th Q 2014: Jill Hoyenga was affirmed as the 2015 Lane Preparedness Coalition (LPC) Chair. LPC goals align with Water Reliability Initiative emergency preparedness messaging goals.
City of Eugene Office of Emergency Management	• 2014 funding partner for the emergency water storage container project • The Secretary of the Lane Preparedness Coalition is with the city of Eugene Office of Emergency Management. • 2015 funding partner for the emergency water storage container project
Rainbow Water District	• 2014 funding partner for the emergency water storage container project • 2015 funding partner for the emergency water storage container project
Springfield Utility Board	• 2015 funding partner for the emergency water storage container project
Community Conversation	**December 2014**
Media Strategy	• Developed in June 2013 and included in the 2014 Water Reliability Communications Plan • Align with media strategy in 2015
Website	• 1st Q; 2013 CCR posted online includes water reliability

	content and messaging is aligned throughout; • 3rd Q 2014: The role of water conservation in water reliability webpage; 3-gallon emergency water supply storage bottle online order form • 4th Q 2014: Full annual review and update of the Water Reliability library of web pages was conducted
Online surveys	• Conducted throughout 2013 • Reevaluating the format and instruments for surveys
Social media	• 2014: Drinking Water Week; 3-gallon emergency water supply container; Business Continuity Planning Workshop • 2015 Water Reliability Initiative social media themes are in development
Video	• 2014: In addition to the draft script written by Barney & Worth • 2015: Public Affairs plans a Water Reliability video series
Targeted mailings	• Integrated WRI messaging into the peak hour newsletter mailings June 2014 and October 2014 • 3rd Q 2014: Business Continuity Planning Workshop postcards
Bill Inserts	• Summer 2014: Do you know the value of your water?" • The Regional Water Communications stakeholders confirmed interest in developing a new 2015 "Value of Water" bill insert
Publications	• Published Drinking Water Savvy information sheets in May, June, July of 2013 • Published Drinking Water Savvy information sheets in June and July of 2014 • Began development of 2015 Water Reliability Infographic
Public forums	• 1st Q 2014: Community Panel convened on the topic of WRI • Community panel scheduled for 3rd Q 2015
Speakers bureau	• Presentation developed in the 1st Q as co-presentation with the Red Cross • Some neighborhood associations (winter storm emergency preparedness presentation and WRI)
Events	• The Incident Response Water Trailer was featured at the Disaster Relief Trials October 2014 and EWEB's Run to Stay Warm event in November 2014

ATTACHMENT 2: OVERVIEW OF INTAKE PROPERTIES




Attachment 3
Analytical Comparison
Willamette River
McKenzie River
Average Value (mg/L)
100
10
1
0.1
0.01
0.001
0.0001
0.00001
Alkalinity, Total (As CaCO3)
Aluminum
Antimony
Arsenic
Barium
bis(2-Ethylhexyl)adipate
bis(2-ethylhexyl)phthalate
Cadmium
Calcium
Chloride
Chromium
Copper
Cyanide
Fluoride
Hardness, Total (As CaCO3)
Iron
Lead
Magnesium
Manganese
Nickel
Nitrate Nitrogen
Nitrogen, Nitrate-Nitrite
Silica
Sodium
Sulfate
Thallium
Total Dissolved Solids
TOC
Total Solids
Zinc
Analyte
(data labels indicate total number of detections)

Attachment 4

AWS High Level Schedule

Task	2015				2016				2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.0 Communications & Community Outreach																												
2.0 Emergency Preparedness																												
3.0 Intake and WTP Property Acquisition																												
4.0 Intake																												
Design and Permitting					Could Be Difficult- Allow 3-4 Years																							
Construction																	One year of construction - coordinate with plant const.											
5.0 Treatment Plant																												
Pre-Design - Plant Design/Operational Criteria Set					Plant Conceptual Design Set																							
Final Design - Permitting																												
Construction																		Will not start until Intake permitting is complete										
6.0 Transmission Improvements																												
Design/Construction																					Required to deliver water into system.							
Anticipated Annual Expenditures	$ 2,000,000				$ 500,000				$ 500,000				$ 6,000,000				$ 19,000,000				$ 20,000,000				$ 20,000,000			