

# **MEMORANDUM**

EUGENE WATER & ELECTRIC BOARD



TO:	Commissioners Schlossberg, Brown, Carlson, Barofsky and McRae	
FROM:	Karen Kelley, Chief Operations Officer; Wally McCullough, Water Engineerin	
	Supervisor	
DATE:	September 24, 2021	
SUBJECT:	Water Utility Second Source Project	
OBJECTIVE:	Information Only	

#### Issue

The proposed 2022-2026 Water Capital Improvement Plan (CIP) includes significant investments associated with the construction of a second water treatment plant/source of supply on the Willamette River. This memo summarizes the background behind this proposed project and describes the project's capacity, reliability, and other features.

#### Background

EWEB has made numerous attempts to build a second water treatment plant over the last several decades. These have included attempts on both the McKenzie River and the Willamette River. Earlier efforts had a goal of additional capacity while later efforts were focused on enhanced resiliency. Three different properties have been purchased during these efforts and numerous engineering studies completed.

The current effort to develop a Second Source began in 2014 with the following activities occurring through 2017:

- Water Rights. A point of diversion was added to EWEB's claim and recently acquired permit on the Willamette River at a point just below the confluence of the Coast Fork and Middle Fork.
- Property Acquisition. Property was obtained for both a river intake and a water treatment plant. The properties are in South Glenwood off Franklin Blvd/McVay Hwy.
- Design. Preliminary design was completed for the new river intake and treatment plant. The treatment plant was to be a robust normally operating plant with a capacity of approximately 16 million gallons per day (MGD). A preliminary site plan for the proposed treatment plant along with renderings of it are included in Attachment 1.
- Public Outreach. Concurrent with the design effort, EWEB completed an extensive public outreach campaign and program. This included facilitating a Blue-Ribbon Panel to vet the project. This panel included community and stakeholder members with expertise in engineering and treatment plant operations, environmental issues, water quality, emergency management, and community resiliency.

• Land Use. Two Development Issues Meetings were held with City of Springfield (Springfield) staff prior to property acquisition and work was undertaken to add the Second Source Facilities to the Public Facilities Services Plan (PFSP) via an amendment to the plan. This is the first step in the land use process and required approval by Springfield City Council. The topic was presented at two Springfield council meetings in 2016 and in both meetings the Council removed the item from the agenda with no action taken.

Following the 2016 Springfield Council meetings, EWEB wrapped up our preliminary design and put the proposed new water treatment plant on hold. EWEB then shifted focus to establishing an emergency water supply distribution system using groundwater wells in case EWEB is unable to deliver water from the Hayden Bridge Filtration Plant or through the water distribution system.

After our Emergency Water Supply System became more developed, EWEB started planning work once again on the Second Source project. In 2018 funding for the project was placed back in the CIP and the Long-Term Financial Plan (LTFP) and this past year EWEB met with the City of Springfield twice to discuss the project, its placement in Glenwood, and the benefit it would provide to the region.

In addition, recently EWEB completed negotiations with the Springfield Utility Board (SUB) regarding EWEB's property in Glenwood, SUB's adjacent property, and other interests. The result of these negotiations includes, among other items, SUB's acquisition of easements for electric transmission lines across EWEB property and EWEB acquiring a purchase option for adjacent property that could be used to site the treatment plant to better consolidate utilities in the area. This was an issue for Springfield in the 2016 discussions. EWEB's original property and the option property location are shown on the map included as Attachment 2.

With respect to costs, over the last 10-12 years costs allocated for the Second Source in the CIP and LTFP have varied from \$120M to \$0. The current CIP includes approximately \$90M for a Second Source for EWEB which is the cost for a robust treatment plant as envisioned in the completed preliminary design, accounting for inflation.

#### Discussion

As a redundant source intended to provide service to our customers in the event of EWEB losing the Hayden Bridge Filtration Plant/McKenzie River supply, the capacity and reliability of the Second Source project are important. These and other features of the project are discussed below.

#### **Capacity**

The proposed treatment plant will have an emergency supply capacity of approximately 16 Million Gallons per Day (MGD). This is equal to the current wintertime demand which would be enough to keep water flowing to all customers (assuming curtailment of landscape use in peak demand season). If a local event shut down the Hayden Bridge source, and everything else was normal, this would ensure service to businesses and industry. This would be the initial capacity at startup. Once in operation, it is anticipated that testing would confirm the ability to increase loading rates on various process to increase the capacity to the water right limit of 19 MGD.

Treatment plant capacity is related to finished water quality. As proposed, the new Treatment Plant will have robust treatment processes able to treat all anticipated raw water conditions in the Willamette both with respect to water quality and taste/odor to a level higher than Hayden Bridge

drawing from the McKenzie. The proposed plant will be able to provide very high-quality water up to about 10 MGD at lower flows and in emergencies will be able to provide up to approximately 16-19 MGD of water meeting all regulatory requirements.

This is illustrated in the capacity-quality curve for the proposed Filtration Plant shown in Figure 1.



Figure 1. Capacity/Quality Curve for Proposed Treatment Plant

## Reliability

The reliability of the Second Source Project is dependent on three items:

- 1) The reliability of the source or the ability to draw water from the Willamette River the 'water rights' EWEB has on the river.
- 2) The reliability of the river intake and water treatment plant
- 3) The reliability of the transmission and distribution system

Each of these are discussed below.

## Source Reliability

Water rights i.e., permits, claims, certificates, instream rights, etc., are very complicated. The items applicable to EWEB's ability to draw water from the Willamette River at the Second Source location are summarized in Table 1:

Table 1. Applicable Second Source Water Rights

Pre-1909 EWEB Surface	EWEB holds a pre-1909 Surface Water Registration C	laim
Water Registration:	on the Willamette River which was first used in 1887.	This

SW-354	claim will need to be confirmed through a process known as		
	adjudication where pre-1909 claims are confirmed.		
	Adjudication for the Willamette River is not anticipated to		
	be completed for decades, 50 plus years. Until then this		
	claim is available to use and approximately 19MGD is		
	allowed for withdrawal at the Second Source site. EWEB is		
	actively managing this claim with annual use.		
1983 State of Oregon	This is the certificate established by the State which		
Certificate: 59549	establishes minimum instream flows in the reach of the		
	Willamette River where our second source is located.		
2013 EWEB Permit:	EWEB acquired this permit to increase the level of certainty		
54805	for its authorization to use Willamette River water. It		
	reflects the authorization of EWEB's registration SW-354		
	but is subject to the "senior" instream rights established by		
	Certificate 59549. If during the adjudication process SW-		
	354 is confirmed, this permit expires.		
	Being subject to instream flows, the ability to withdraw		
	water under this permit is subject to how much water is in		
	the river. A previous analysis concluded that if future flows		
	continue to reflect the trends seen in historical flow records,		
	EWEB could expect Permit S-54805 to be relatively		
	reliable. Water is, however, expected to be unavailable		
	under the permit during at least some portion of most years		
	and a large portion of the time in very dry years		

In addition to the above, EWEB is pursuing other avenues to supplement the amount of water that can be withdrawn from the Willamette River. Currently the most likely future opportunity is with access to Federal stored water. This is the water stored behind the Federal dams in the Willamette Basin. Access to this water has required a reallocation of the storage space to allow for municipal/industrial use. Processes to access stored water for municipal/industrial use are in development and EWEB along with several other Willamette Basin water providers are involved that have supported recent legislation at the State and Federal level related to this. Use of stored water used for municipal purposes would not be subject to instream water rights, such as Certificate 59549.

#### Treatment Plant and Intake

The proposed treatment plant and intake will be robust and designed to be very reliable with the following features:

- The proposed plant will have redundancy in process and equipment. When failures do occur, there will be a backup.
- It will have the appropriate treatment process to handle most river quality situations with ease.

The level of service goals for the proposed plant are shown in Table 2.

Table 2. Proposed Treatment Plant Level of Service Goals

Parameter	Proposed Treatment Plant Level of Service Goal
Capacity/Water Quality	
Quality Equal to or Better than Hayden Bridge	Up to 10 MGD
Quality Meeting Current Regulatory Limits	Up to 16 MGD
Ability to Treat during Fuel Spill	Yes
Ability to Treat Following Fire in Watershed	Yes
Ability to Treat for Algae Toxins	Yes
Ability to Meet Anticipated Future Regulations	Yes
Resiliency/Recovery Time	24 Hours to 100% Capacity
(Note - The EWEB water system has approximately 1 to 2 days	following event – 16 MGD
demand's worth of water in reservoirs when the Hayden Bridge	
source is lost i.e., no home water delivery or sanitation after a	
couple days)	

#### Transmission/Distribution

The proposed project and associated costs include a new robust transmission line from the treatment plant location to our existing transmission system near the Knickerbocker Bridge. The current CIP includes numerous resiliency upgrades to the existing transmission system which will help ensure that the water can be delivered throughout Eugene. These include:

- 1) A planned seismic upgrade of the Knickerbocker Bridge.
- 2) A redundant crossing of the Willamette River at the EWEB Headquarters (HQ) Site.
- 3) Completion of the HQ to Knickerbocker Transmission Main. The second phase of this threephase project is currently in construction.
- 4) New transmission lines to the E 40<sup>th</sup> and College Hill Base Level Reservoir sites.

A map showing the planned transmission improvements is included as Attachment 3.

#### Water Quality/Blending

As proposed the new treatment plant would operate daily to ensure its reliability and operation when needed, producing about 5 MGD. This water would enter our transmission system at Knickerbocker Bridge, into the transmission main supplying water to the bulk of South Eugene. The rest of the service area would receive water from our Hayden Bridge Plant.

While water quality testing shows no issues with mixing the source waters, there may be public perceptions of quality to overcome. Some customers looking at the data will see that the higher quality water from the new treatment plant is going to South Eugene while North and West Eugene are getting water from the older Hayden Bridge Plant. Other customers may have the perception that McKenzie River will always be better than the Willamette or vice versa. In both cases, the finished water from the plants will meet or exceed established water quality standards.

The difference in source water for different areas can be solved by blending the water from the two plants prior to entering our system. This, however, would be very expensive requiring pipelines, valving, and potentially a couple river/highway crossings.

Alternatively, the issue can be countered with public education - explaining the fact that it is all high-quality water. Most water utilities with multiple sources do not blend the different source waters prior to entering the system.

#### Partnership Opportunities

Potential partnerships with the Springfield Utility Board (SUB) on use of Willamette River water have been discussed in the past and culminated in the July 2019 Joint Resolution (EWEB No. 1919; SUB No. 2019-5). This resolution directed the General Managers to study how the two utilities could put their respective water rights on the Willamette River to beneficial use more effectively by working together rather than separately.

Since 2019, most of the discussions with SUB on water supply have been focused on the potential for enhancing the interties between the two utilities. The intertie intergovernmental agreement between EWEB, SUB and Rainbow Water District is in process of being updated. Due to SUB's priority to negotiate land, an asset transfer, and establish electric transmission lines in Glenwood, over the past 18 months there have been few meetings on this effort. The land and asset agreements were signed by EWEB and SUB earlier this month (September 2021).

Presently, SUB is putting effort into constructing a new surface water treatment plant on the McKenzie and is not currently focused on the Willamette River or their existing 6.6 MGD Willamette River Plant. SUB's existing water plant uses a slow-sand filtration process, and while it was not designed to meet the same standards as our Willamette River Plant preliminary design, it currently meets SUB's needs.

As such, it does not appear that there are benefits for SUB to participate in a new Willamette River Treatment Plant at this time. In the future however, to protect their water rights and/or if SUB is required to upgrade or expand their existing Willamette River plant, the opportunity would be there for SUB to consider 'buying into' the new EWEB plant if it is a cost-effective alternative for them.

#### Outside Funding Opportunities

Obtaining some level of outside funding would obviously alleviate pressure on the LTFP due to this project. Depending on the timing, as a rough estimate for every \$5 million of avoided capital financed by EWEB, a 1% rate increase is avoided.

In addition to EWEB's own municipal bonding options, outside financing options that might be available to EWEB for the Second Source Project include:

- The Drinking Water State Revolving Fund (DWSRF) program. This is a federal-state partnership to help ensure safe drinking water. It is a loan program that can incorporate partial grants in some instances.
- The Water Infrastructure Finance and Innovation Act (WIFIA) program. This is a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. The WIFIA program offers longer-term, supplemental loans for regionally and nationally significant projects. WIFIA works separately from, but in coordination with, the State DWSRF programs to provide low-cost financing for large dollar-value projects.
- A variety of other grant programs at the federal and state level, but in most instances, these

are tailored to meet the needs of water systems much smaller than EWEB.

Also, at the time of this memo, Congress and the Executive Branch are pursuing passage of a historic national infrastructure bill with water/wastewater infrastructure investment as a key element of this legislation. Presently, the infrastructure bill aims to use existing programs like the DWSRF and WIFIA to disburse the new funding infusion. Discussions in Congress are contemplating increasing the ratio of grant relative to loan in federal-state water infrastructure financing tools.

Finally, because of recent federal assistance to states over the last year and a potentially promising state revenue forecast, there could be opportunities in the 2022 Oregon Legislative Session for EWEB to seek a discretionary appropriation of funds from the Legislature for drinking water infrastructure, although the availability of funds is not known at this time.

In anticipation of pursuing some level of external financing, EWEB is currently looking at ways to 'carve' out smaller portions of the Second Source project that may be easier to seek outside funding for compared to the overall project.

#### Next Steps

While much work has gone into the current second source project, much work remains. The following activities/decisions are necessary for EWEB to construct a second source on the Willamette River:

- 1) The EWEB Board needs to decide if they support the current approach and timeline to implementing a second source, including potentially the maximum level of investment.
- 2) EWEB needs to meet with the City of Springfield and resolve any issues with the treatment plant location in Glenwood. As part of these discussions, the location of the treatment plant (preferred property, option property, other?) needs to be resolved.
- Land use permitting should begin. This would start by getting the treatment plant location on the PFSP followed by amendments to the Glenwood Refinement Plan and Springfield Development Code.
- 4) Environmental permitting should begin. Once the river intake design is confirmed, EWEB needs to submit for the appropriate Army Corp of Engineers and State Division of State Lands permits for in-river construction.

Following the above, the project would follow the steps of a 'normal' project with design and construction activities.

## **Recommendation/Requested Board Action**

Input is sought from the Board on the items presented herein, including the scope, commitment to fund the project, and pursuit of next planning steps. This is an update on a long-term strategic project. Board feedback to help ensure we are moving in the right direction is requested. Staff will be available to answer questions at the October 5, 2021, Board meeting.

If you have any questions please contact Karen Kelley, Chief Operations Officer at 541-685-7153 or karen.kelley@eweb.org







# CHEMICAL AND OZONE **GENERATION BUILDINGS**

EUGENE WATER AND ELECTRIC BOARD NEW WTP PRELIMINARY DESIGN

**VIEW FROM I-5 LOOKING SOUTH** 

G-10







