



TO: Commissioners Barofsky, Schlossberg, Brown, Carlson, and Morris
FROM: Karen Kelley, Chief Operations Officer, and the Willamette Treatment Plant project team
DATE: October 21, 2025
SUBJECT: Second Source Development – Preliminary Planning Memorandum
OBJECTIVE: Information

ISSUE

The purpose of this memorandum (memo) is to document the need for a second water source, summarize efforts completed to date, discuss the sources of supply that are available, explore the risks and benefits of the supply alternatives, and make a recommendation on how to move forward.

BACKGROUND

The Eugene Water & Electric Board (EWEB) is one of the largest utilities in the Pacific Northwest that relies on a single source of supply to provide potable, emergency, and fire suppression water to nearly 200,000 customers.

Having a single source of water puts the community at extreme risk of experiencing an extended water outage due to a natural disaster like a wildfire or earthquake, chemical spill on the river, equipment failure, or water quality issue in the McKenzie River which could cut off the community's access to water.

This is the Water Utility's single biggest risk to accomplishing EWEB's core values:

- **Safety:** Loss of a water supply would threaten our customers' access to safe drinking water resulting in a potential loss of life. Medical and critical care facilities could struggle to maintain patient health and services in a water emergency. Emergency wells could mitigate some impacts but are not practical and available for all members of our community such as the elderly or those with disabilities. Depressurization of the water system could hinder the ability of Emergency Personnel to respond to fires and other emergencies.
- **Reliability:** An interruption in EWEB's water supply could do lasting harm to EWEB's reputation of being a reliable provider of safe drinking water in our community.
- **Affordability:** Responding to a loss of our water source could be very expensive and result in regulatory mandates that would be less strategic or efficient than addressing

the issue proactively.

- **Environmental Stewardship:** Strategically investing in a second source of supply can have a net positive impact on the local environment and provide an opportunity to expand EWEB's successful watershed protection efforts to a larger watershed.
- **Community/Culture:** A second source of supply is the most effective way to protect all members of our community including those who are disadvantaged or who are less able to prepare for emergencies such as students, the unhoused, senior citizens, etc. Without water, there will be significant impacts to the economic health of the community, medical offices will need to shut down affecting the community's public health, there will be no (or severely limited) water to fight fires and flush toilets, and the overall vitality of the community will be affected.

Disasters are becoming more common, and Hayden Bridge has been in continuous service for 75 years, which is putting the utility at a greater risk than ever before of being unable to deliver water. Hayden Bridge was designed for known disasters 75 years ago and is inadequate to deal with anticipated extreme weather, fire, and earthquakes. A significant amount of work has been done at the plant to protect EWEB from losing the water supply, however, it is difficult to upgrade some of the most critical processes with the need to keep the plant in continuous operation.

Efforts to develop a second source of water and construct a redundant treatment plant with capacities ranging from 10 MGD to 30 MGD have been attempted since the 1960s. Options for regionalization, developing groundwater, building a second intake and plant on the McKenzie River and developing EWEB's water rights on the Willamette River have all been explored and will be discussed in detail in the following sections.

EWEB System Characteristics

The existing EWEB Water system is shown in Attachment A and is comprised of:

- McKenzie River Raw Water Intakes: two intake buildings at the same site built in the 1940s and the 1950s. Partially upgraded in 2014 and 2015 to include new fish screens, backup power generation, and some mechanical and electrical upgrades. Intake currently has a capacity of ~100 MGD.
- Hayden Bridge: conventional filtration plant constructed in 1950. Plant was expanded in the 1970's and again around 2009. 80.0 MGD, but the plant can temporarily produce finished water at rates 10 percent above the capacity.
- 45- and 60-inch finished water transmission mains, constructed in 1948 and 1977 respectively, from Hayden Bridge to the intertie location at I-105 and I-5 where they separate into a 36-inch transmission main to the north, a 42-inch transmission main across Knickerbocker Bridge that reduces to a variety of diameters and runs to E. 40th Ave and the College Hill storage tank sites, and a 42-inch transmission main to the Hawkins Reservoir site.
- Four base level storage sites.
- 27 pump stations and 25 upper-level Reservoirs.

Demands

EWEB's water system demands vary seasonally throughout the year from a low of approximately 13 million gallons per day (MGD) to a maximum day demand (MDD) of approximately 52 MGD with a buildout demand of 72 MGD.

EWEB's demands since the 2015 Water System Master Plan (Master Plan) was completed are shown in Table 1. These numbers show that the overall demands are relatively flat with a slight increase over the last decade.

Table 1. Historical Hayden Bridge Water Production

Year	Maximum Day Demand, MGD	Annual Average Day Demand, MGD	Minimum Day Demand, MGD	Average Low Demand, MGD	Minimum Residential Use, MGD
2016	46.5	24.5	14.6	16.5	10.2
2017	51.0	24.6	15.0	16.5	10.5
2018	48.4	25.7	15.1	16.6	10.6
2019	44.1	24.2	14.9	16.9	10.4
2020	46.6	24.1	15.3	16.6	10.7
2021	48.3	26.3	15.3	17.9	10.7
2022	45.3	23.8	14.9	16.7	10.4
2023	47.3	25.2	14.8	16.2	10.4
2024	50.0	26.4	14.8	17.5	10.4
10 Year Average	47.5	25.0	15.0	16.8	10.5

Base Level Storage

EWEB's base level storage program was laid out in the 2015 Master Plan. The program included providing 45 MG of new seismically resilient storage in the distribution system — which when combined with the 15 MG of storage at Hayden Bridge — would result in a total storage capacity of 60 MG. The following improvements were included in this program:

- E. 40th Ave: construct two 7.5 million-gallon (MG) storage tanks (completed 2024).
- College Hill: construct two 7.5 MG storage tanks (currently under construction).
- Hawkins Hill: demolish the existing 20 MG reservoir built in 1964 and replace with two 7.5 MG storage tanks.
- Santa Clara: decommission existing 20 MG reservoir built in the 1970s and evaluate replacing it. Currently slated for decommissioning in 2027 due to failing cover and liner and nearing the end of its useful life. Because of the high costs to redevelop this site on liquefiable soils, preliminary evaluations have recommended replacing the operational functionality of Santa Clara with a new Willamette WTP.
- Willamette WTP Storage: Two 7.5 MG reservoirs and pump station are included in the Willamette Treatment Plant that would functionally replace the Santa Clara Reservoir.

The total capacity was determined using EWEB's Planning and Design criteria documented in the Master Plan in Chapter 5, included as Attachment B. These criteria require that EWEB has storage capacity to provide 15 percent of the MDD for operational uses, 75 percent of the MDD for emergency storage, and approximately 2 MG for fire suppression (based on Fire Code Requirements). These storage requirements assumed that there would be a second source of water. Without a second source of water, industry best practices would require increasing the emergency component of the total storage volume to 100 – 125 percent of the MDD which requires increasing overall system storage capacity by 18 to 33 MG, as summarized in Table 2.

Table 2. Storage Capacity Requirements

Criteria	Total Required Storage Capacity with a Second Source (MG)	Total Storage Required Capacity without a Second Source and 100% of MDD (MG)	Total Required Storage Capacity without a Second Source and 125% of MDD (MG)
Operational	11	11	11
Emergency	45	60	75
Fire	2	2	2
Total	55	73	88

1. Operational storage is calculated as 15 percent of the system demand because the base level storage provides water to all the upper levels as well as the base.
2. Emergency storage is calculated as a percentage of the base only demand because the upper-level system has emergency storage in each pressure zone.

Resilient Spine Improvements

EWEB has invested in the water system over the last 15 years to increase reliability, resiliency, and redundancy. Despite the challenges associated with a single source of water and treatment plant, EWEB has made significant progress towards hardening the resilient spine of the water system and planning for catastrophic events that could affect our community's public and economic health. Over the last 15 years EWEB has completed the following projects to bolster resiliency:

- **Raw Water Intakes:** Completed seismic upgrades at both intake structures, installed new screens, replaced two pumps, and installed standby power.
- **Hayden Bridge:** Constructed a new basin, new filters, upgraded filter piping, installed standby power, constructed a new onsite hypochlorite disinfection system, built a lab, and completed the seismic improvements that could be done with the plant in service.
- **Transmission system:** constructed new backbone piping along the river /Franklin Blvd, a new Hilyard St transmission main to E. 40th Ave, and have planned improvements for 23rd Ave to the new College Hill storage tanks.
- **Base level storage Program:** Constructed 15 MG of new storage at the E. 40th Ave Storage Tank site and currently constructing 15 MG of storage at the College Hill storage tank site.
- **Emergency Water Stations:** developed 7 emergency well sites to provide short-term water supply that will be available following an event to sustain life.

These projects have started to modernize the water system, however, even with these improvements there are only approximately 1-3 days of storage available to the community depending on the time of year. The full value of these improvements cannot be realized without addressing the biggest vulnerability to the system, the single source of water.

Second Source Goals

For decades, EWEB has recognized the risks of a single source of water and has been working to create a more diverse water supply. These risks are only increasing as wildfires, natural disasters, algal blooms, and contamination risks continue to be more prevalent. While Hayden Bridge has been upgraded and expanded to be more reliable, it continues to age, and the risks of system failure grows. Neighboring utilities have experienced water emergencies and EWEB has narrowly averted several disasters recently. In order to best protect the community a second source of supply should address the following goals:

- Provide an added level of redundancy by being a source of water NOT on the McKenzie River to protect against chemical spills, fires, and other natural disasters in this watershed.
- Supplement the Hayden Bridge water production by operating daily to be able to provide water that is immediately available if Hayden Bridge or the McKenzie River are interrupted.
- Provide a high-quality water source that has similar water quality and chemistry to the McKenzie River source to protect the distribution system and ensure customer confidence.

- Provide a seismically resilient source of water and facilities that will be available for use to aid in recovery after an earthquake.
- Provide sufficient capacity to allow Hayden Bridge to be strategically taken offline during low demand periods for needed maintenance and improvements.
- Be able to operate reliably long-term, including in the event of earthquakes, wildfires, winter storms, or other emergencies so that Hayden Bridge and the distribution system can be repaired and recovered.
- Utilize a robust treatment process capable of dealing with emerging contaminants and a changing climate.
- Provide a source that is within EWEB control, not subject to external interruptions, priorities or control.
- Be readily constructable.
- Develop and protect EWEB's senior water rights for long term supply security.

The ability to achieve these goals will depend on the capacity of a new second source. EWEB has previously contemplated adding sources that would provide anywhere from 10 to 30 MGD of additional capacity. Determining a final capacity and phasing that provides the greatest return on investment will be a key element of the 30 percent design work. The level of service provided by different plant capacities is summarized in Table 3.

Table 3. Level of Service Goals and Plant Capacity Required

Level of Service Goal	Resiliency Provided	Treatment Capacity Required (MGD)
Minimum Residential only Demand	Current minimum Life and Safety after severe disruptive events. Mandatory curtailment during all months and likely closure of industry/business/institutions. Does not support taking Hayden Bridge offline for maintenance.	10 ^a
Current Average Winter Demand (Nov-April)	Minimum residential and business/industry needs for current demands. Possible mandatory curtailment of all outdoor and non-essential uses. Allows Hayden Bridge to be taken down for short periods for maintenance.	~18
Buildout Average Winter Demand (Nov-April)	Future minimum residential business/industry needs for current demands. Possible mandatory curtailment of all outdoor and non-essential uses. This option fully utilizes EWEB's water rights.	19.4 ^b
Current Average Day Demand (Jan-Dec)	Average residential business/industry needs for current demands. Possible voluntary or mandatory curtailment. Realistic curtailment goal during summer months based on comparable utility experiences. Allows Hayden Bridge to be taken down for extended periods of time for major improvements. This option	26

Level of Service Goal	Resiliency Provided	Treatment Capacity Required (MGD)
	requires purchasing federal stored water or additional water rights.	
Buildout Average Day Demand (Jan-Dec)	Future projected average day demands for the water system. Possible voluntary or mandatory curtailment. Realistic curtailment goal during summer months based on comparable utility experiences. Allows Hayden Bridge to be taken down for extended periods of time for major improvements. This option requires purchasing federal stored water or additional water rights.	30

- Previous 30 percent design and costs based on this level of service for the initial phase
- Based on preliminary projections from 2025 Master Plan update (if these are available or use 2015 buildout projections)

Figure 1 shows the water production required to meet seasonal needs over the last 10 years.

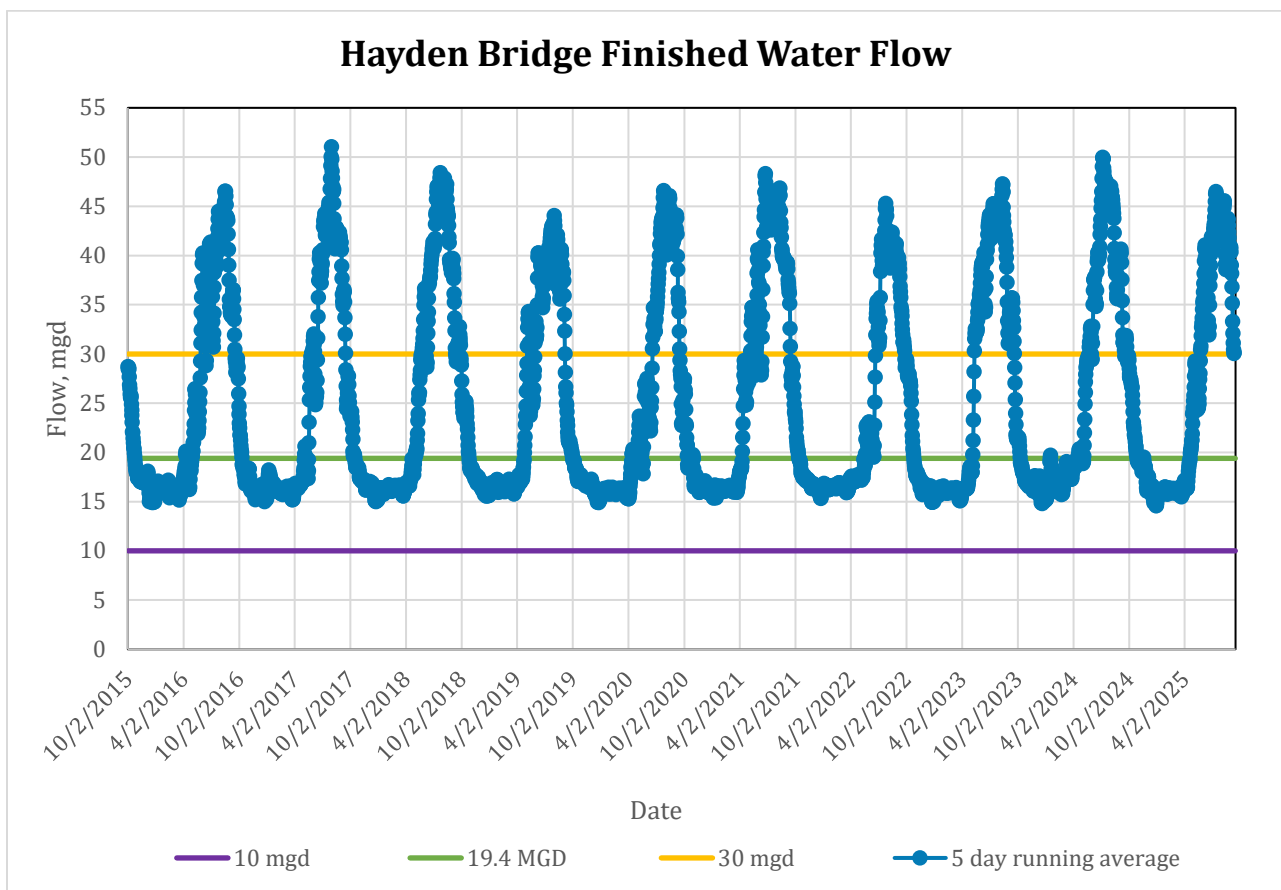


Figure 1. Historical System Demands

EWEB has been attempting to develop a new source of water for over six decades and has explored numerous alternatives. The options are limited and, in the past, have been centered around developing water rights or permits that EWEB already has.

Water Rights

In Oregon, water rights are governed by complex laws that are based on priority, have limited availability, and typically have requirements that they must be used by a specific date or forfeited. A water right begins as a permit and after a water user has demonstrated beneficial use, the water right is certificated by the state and becomes more secure and valuable. There are also rare and valuable claims that exist in Oregon which pre-date Oregon's 1909 water law. EWEB has one of these claims on the Willamette River.

EWEB has various water rights, claims, and permits, on the McKenzie River, the Willamette River, and a groundwater permit, that caps total water uses from all water sources at 300.08 cfs (193.95 MGD), or EWEB's total McKenzie right. This quantity of water is sufficient to supply the community for over 100 years of projected growth.

EWEB has priority (secure) water rights on both the McKenzie River and the Willamette River. The groundwater permit has significant limitations that include limiting the pumping rate from each well, requires an agreement with senior water rights holders to allow impact to their well production, environmental limitations for impacts to neighboring waterways, and limiting our total use to approximately 12 MGD.

A summary of EWEB's water rights is included in Table 4. A more detailed description from Chapter 2 of the Master Plan is included as Attachment D.

Table 4. EWEB Water Rights Summary

Source	Permit #/Certificate #	Priority Date	Authorized Rate (cfs/MGD)	Status/notes
McKenzie River	S-8602/15180	5/16/1925	27.08 cfs/ 17.08 MGD	Certificated right
McKenzie River	S-17358/68537	10/15/1946	90 cfs/58.2 MGD	Certificated right
McKenzie River	S-27441/NA	6/14/1961	183 cfs/118.3 MGD	Extended permit, EWEB only has used 4.82 cfs (3.1 MGD) under this permit to date.
Willamette River	NA/NA ¹	11/31/1886	29.4 cfs/19.0 MGD	Unadjudicated Claim (dedicated 1.5 cfs/0.99 MGD for instream use)
Willamette River	S-54805/NA	8/20/2011	30.9 cfs/20.0 MGD	Permit with a 02/28/2033 development deadline ²

Source	Permit #/Certificate #	Priority Date	Authorized Rate (cfs/MGD)	Status/notes
Confluence Wellfield	G-16371/NA	12/20/2002	18.49 cfs/11.9 MGD	Permit with a 08/13/2028 development deadline ²

1. The Willamette River Rights are currently unadjudicated and it is unknown when adjudication will happen. The permit was obtained to protect EWEB's Willamette Rights.
2. EWEB can seek to extend the development deadline, but acceptance of the extension is not guaranteed and could result in loss of water rights.

Given the difficulty and cost of securing water rights, there are limited options available in the region for developing a second source of supply to meet all or some of the project requirements listed above. The options are limited to:

- Developing a surface water source on the Willamette or McKenzie River.
- Developing a groundwater source.
- Developing a regional water source solution.
- Utilizing potable reuse.

Each of these options will be discussed in the following sections.

SOURCE ALTERNATIVES EVALUATION

EWEB has been actively studying and preparing to diversify its water supply portfolio since the 1960s and has explored a variety of different sources and regionalization plans. An abbreviated timeline of the alternatives studied is included in Figure 2 below and in the Map included as Figure 3.

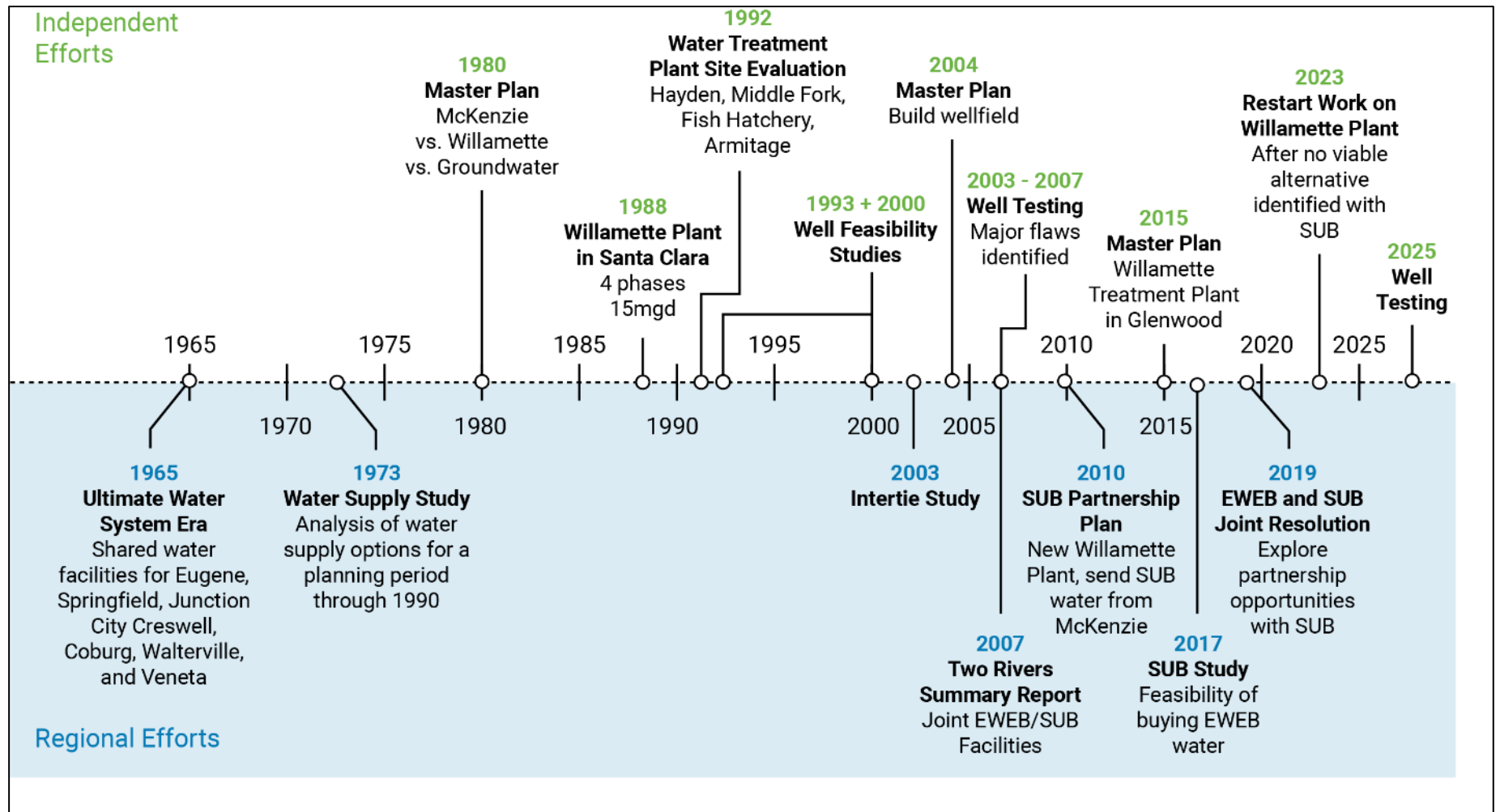


Figure 2. Partial Timeline of Past Efforts to Develop a Second Source

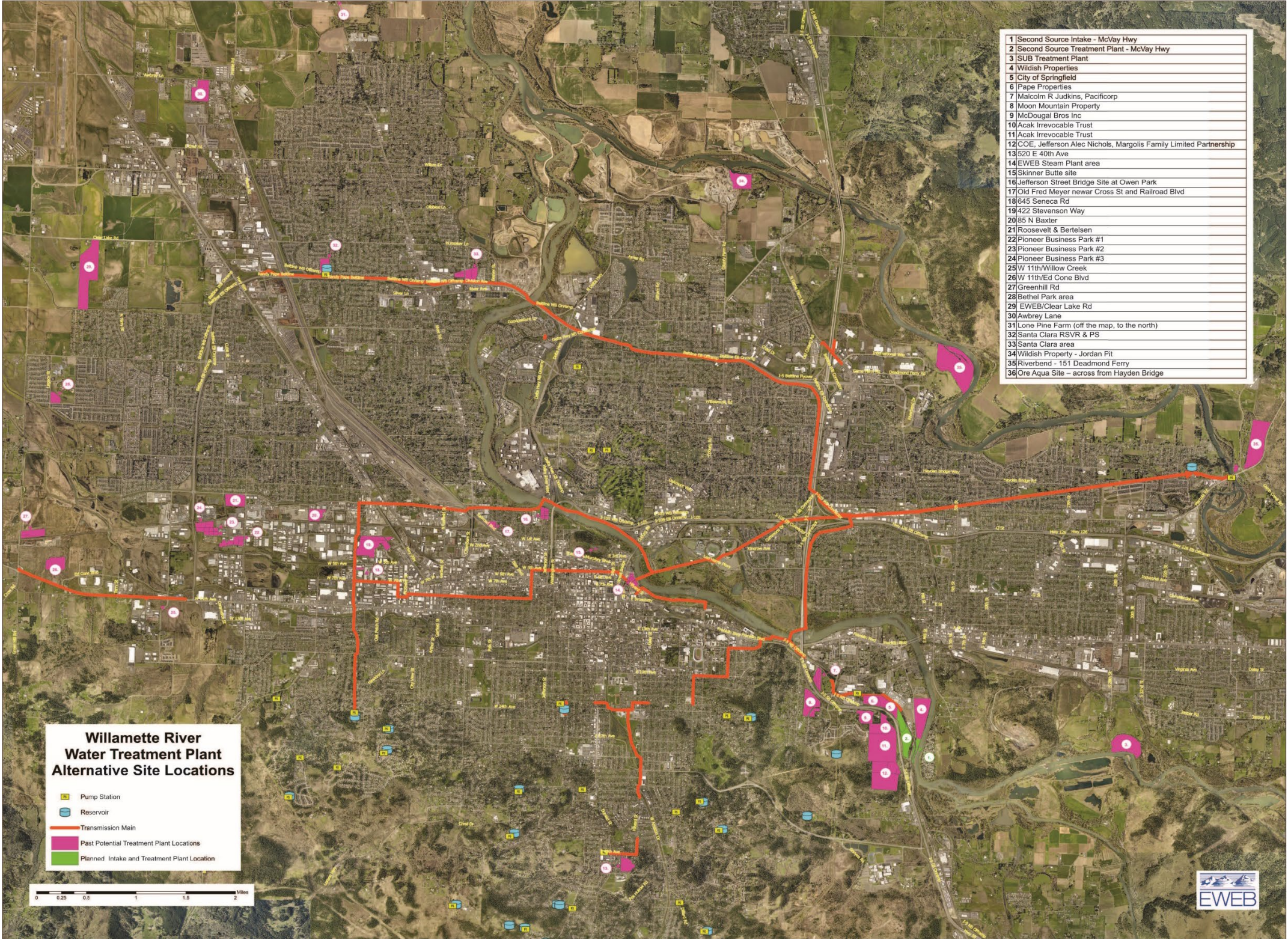


Figure 3. Properties Considered for Development of Second Water Source

As the partial timeline shows, there have been many options that have been studied and canceled throughout the years for various reasons. Past efforts have solidified that there are a limited number of viable alternative sources that are able to meet the majority of the project goals; the remaining alternatives include:

- Alternative 1 - Do nothing
- Alternative 2 - Willamette River Glenwood site
- Alternative 3 - Groundwater
- Alternative 4 - Regional Solutions
- Alternative 5 - McKenzie River
- Alternative 6 - Wastewater reuse

Each alternative will be discussed in detail in the following sections and includes a summary of the history and project elements, the advantages and disadvantages, and the relative costs for each alternative. Relative costs were used for this memo because the political and bidding climate have made cost estimating at a planning level challenging. To overcome these cost estimating challenges, relative costs were used in this evaluation.

Alternative 1 – Do Nothing

This alternative involves cancelling current efforts to develop a second source of water on the Willamette River and continuing to put effort and funds into renewal and replacement of the existing water system to create as much resiliency and redundancy as possible with the given limitations. With this alternative, there comes an acceptance of the risk that the community could see periods without drinking water. There may also be a need to build more base level storage to increase the amount of emergency water available to buffer the system if the Hayden Bridge supply is interrupted.

Advantages

There are few advantages with this alternative which include:

- EWEB has sufficient water rights and capacity at the intake, treatment plant, and pipelines to continue to meet demands for the foreseeable future.
- The water quality of McKenzie River is known to be treatable and provides a high-quality product.
- Staff are fully trained to operate the intake and Hayden Bridge.
- EWEB has full control over the operations and maintenance of this alternative.
- Relatively constructable.
- Allows EWEB to focus efforts and funding on renewing existing infrastructure

Disadvantages

The disadvantages include:

- Does not provide a redundant source of water to the McKenzie River.
- Water may not be available to customers after an emergency.
- Requires investment in less strategic projects such as building additional storage across the system.

- Santa Clara Reservoir may need to be replaced to provide operational flexibility for Hayden Bridge.
- A system wide outage would likely heavily impact commercial, industrial, and institutional water users resulting in significant economic losses for the community.
- There could be reputational impacts for EWEB if a system wide outage were to occur.
- Does not provide facilities that will be available if Hayden Bridge or the intake experiences a failure.
- EWEB will likely not be able to supply water for an extended period of time after a major earthquake.
- Does not allow Hayden Bridge to be taken offline for any significant periods of time for major upgrades or planned maintenance.
- EWEB would not be compliant with the requirements of the Oregon Resilience Plan.

Costs: \$-\$\$\$

The cost impacts of this option require master planning level efforts to determine how best to mitigate the ongoing risks without a second supply. Detailed engineering evaluations will be needed to evaluate the condition of the existing facilities and determine how to create added redundancy in the system.

Also, there are unknown cost impacts with the likely increase in storage requirements that could total over \$100 million. Santa Clara is reaching the end of its useful life, is seismically unsound, and very expensive to rehabilitate due to liquifiable soils. Additional base-level storage sites could be difficult and expensive to develop. This alternative could end up being nearly as costly as a new treatment plant without providing source redundancy or additional hardening of Hayden Bridge.

Alternative 2 – Willamette River – Glenwood Intake and Plant

There has been a significant amount of work to develop a new surface water source on the Willamette River completed in the past. Multiple locations for the intake and plant have been explored across the community, shown in Figure 3. The sites that were the most thoroughly studied were:

- Treatment plant and intake at EWEB's old headquarters site.
- Treatment plant at Santa Clara Reservoir Site with a river intake or wastewater reuse.
- Glenwood Intake – with multiple treatment plant location alternatives.

EWEB has multiple points of diversion (POD) on the Willamette River, associated with our water rights, that made each of these locations viable; however, projects have been canceled or deferred at all sites for various reasons.

In the 1990's, EWEB completed extensive studies to locate a treatment plant next to our Santa Clara reservoir with an intake immediately upstream of the MWMC wastewater outfall; however, this option was evidently abandoned in the early 2000's in favor of exploring groundwater supplies. In approximately 2013, after groundwater was determined to be infeasible, several sites were studied to construct an intake in the vicinity of EWEB's steam plant. However, it was determined that there was a contaminant plume that was heading for the Willamette River near

the proposed intake and concerns about upstream urban stormwater and industrial users, eliminating this as an option for a new plant. This information resulted in EWEB working with the Oregon Water Resources Department (OWRD), the jurisdiction having authority over water rights, to add a new POD as far upstream as possible on the Willamette River. In 2015, a new POD was added just downstream of the confluence of the Coast and Middle Forks of the Willamette River.

After the POD was added, EWEB started work on developing a source of water with an intake in the Glenwood region of Springfield near the POD. The project included a new raw water intake, raw water pipelines, a new treatment plant with the ability to treat 19 MGD, and a new transmission main to connect into the existing water system. EWEB evaluated multiple sites to make this viable, as shown in Figure 3. To move this forward, EWEB completed the following work between 2015 and 2017:

- Purchased property in Glenwood for the intake and the treatment plant. The treatment plant was purchased through the condemnation process but settled before the court date and was officially purchased under the threat of condemnation.
- Developed a permitting strategy for the required federal and state permits.
- Completed a preliminary design effort for the intake and treatment plant.
- Initiated Land Use Applications for a Public Facilities Services Plan (PFSP) Amendment, Springfield Development Code (Code) Amendment and a Glenwood Refinement Plan (Plan) Amendment.
- Public outreach including hosting a Blue-Ribbon Panel.
- Completed preliminary surveying of the river and the properties.
- Completed a value engineering exercise for the treatment plant that included reducing the plant capacity initially to 10 MGD with capacity to “ramp up” to 19.4 MGD at a reduced water quality and then upgrading the plant in the future to 30 MGD once federal stored water was obtained.

The treatment plant and intake properties are in the Glenwood area of Springfield and therefore are subject to the Glenwood Refinement Plan, which does not include provisions for High Impact Utility Facilities, which the treatment plant is considered. Furthermore, the Code requires that all High Impact Public Utility Facilities be included on the PFSP project lists or have an approved discretionary use permit. In 2016, the City of Springfield suggested that EWEB apply to initiate an amendment to the PFSP and amend the Code and Plan to allow for High Impact Utility Facilities. The initiation for the PFSP amendment required Springfield City Council approval. At the public meeting to approve the initiation, the City Council denied the application. After the land use applications were denied, the EWEB Board elected to delay the project and shift focus on developing emergency well sites and to make significant investments in seismically hardening EWEB’s resilient spine, including constructing new transmission mains and base level storage tanks.

In 2022, the board directed staff to renew efforts to build the project developed in 2017 with the goal of starting construction in 2026. The following work has been completed to move the project in its current iteration forward:

- Submitted Federal and State Permit applications for the withdrawal of 30 MGD from the Willamette River, with an anticipated approval date of the end of 2025.
- Submitted the required land Use applications with an anticipated approval of early to mid-2026.
- Selected a Design Consultant with an anticipated October 2025 contract award.
- Updated the old cost estimates to bring the costs closer in line with current economic conditions. The cost estimate will be further refined during the 30 percent design process.
- Finished the surveying of the intake and treatment plant to be used in design.
- Completed preliminary geotechnical work.
- Started public outreach, created a website, and hosted two public events, one for water industry users and one for neighbors.
- Completed the preliminary transmission pipeline design.
- Updated renderings for the Intake and Treatment Plant.
- Completed preliminary design and value engineering for the raw water intake.
- Purchased Wetland Mitigation credits to allow development of treatment plant site.
- Modeled thermal impacts of the water withdrawals and submitted the required 401 certification application.
- Started work on a thermal trading plan and conducted preliminary consultations with DEQ.

Advantages

There are many advantages associated with Alternative 2 which include:

- Develops an independent source from the McKenzie River.
- Due to existing progress on permitting, land acquisition, water rights and other long timeframe processes, source can be brought online faster than most other options.
- Water has similar chemistry to McKenzie River and will require minimal blending with the Hayden Bridge finished water.
- Capable of withstanding and being fully operational after a major earthquake.
- Pre-1909 water right claim and federal stored water provides a reliable and stable long-term supply.
- EWEB already purchased property of adequate size, at the right elevation, out of the floodway, near the intake, and with the right geotechnical conditions for constructing critical water facilities to modern seismic standards.
- Permitting is well underway and on track for approval.
- There is community support for developing the Willamette source.
- There is an opportunity to expand EWEB's source water protection program to the Willamette River.
- Would have the ability to be expanded to the full 30 MGD capacity if EWEB elects to buy federally stored water or obtain further water rights.
- EWEB would have full control over the Operations and Maintenance of the facility and water would be fully available to EWEB customers in an emergency.

- Is readily constructable using common and proven construction techniques.
- Develops and protects EWEB's Willamette water rights.
- Will allow EWEB to take Hayden Bridge strategically offline during low demand periods.
- Can supplement Hayden Bridge's operation and be immediately available if something happens to the McKenzie River or Hayden Bridge.
- Provides a transmission path into the base level reservoirs that does not require a river crossing.

Disadvantages

There are some disadvantages with this option that include:

- Requires large capital outlays in the near future that will require substantial rate increases.
- Potential legal challenges from environmental groups related to water withdrawal.
- Water rights are extremely limited on the Willamette River and further expansion may be difficult and expensive.
- Willamette water will require more treatment than the McKenzie River and will have higher O&M costs.

Phasing:

In the 10 years since the previous 30 percent design, the world and EWEB's demands have changed, which warrants reconsideration of planned phasing. Prices rapidly escalated during COVID and now face pressures due to increasing tariffs. The regulatory environment continues to become more challenging with ever increasing barriers and costs to accomplishing work and there is less certainty of what will be allowed or permissible in the future. A summary of concerns about the current project phasing plan are listed below.

- The concept of "ramping up" the plant at reduced water quality has not been tested to make sure it wouldn't create issues with water chemistry and blending of water, EWEB operators do not have experience with how this would work, and it has not been vetted with regulators.
- If constructed in phases, future construction will likely be more expensive overall than it would be to construct a plant to the full water right today.
- Initial 10 MGD phase may not provide a way to take Hayden Bridge offline for needed maintenance and improvements until plant is expanded to 19 MGD.
- Initial phasing will not be able to meet most second source goals without sacrificing water quality and/or extreme curtailment measures beyond what has been demonstrated to be reasonable in neighboring communities.

Costs: \$\$\$

The cost estimate is \$160 million for Alternative 2 with an initial plant capacity of 10 MGD. Costs are rapidly changing in this economic environment and are hard to predict without design documents. It is recommended that 30 percent design efforts present detailed analysis and costs for plant capacity to ultimately provide 30 MGD of treatment and evaluate initial phasing of

options including 10 MGD, 19 MGD, and 30 MGD for the Board's consideration and to determine the best return on investment.

Alternative 3 – Groundwater

EWEB has water rights for a confluence well field in North Eugene. The concept has been studied multiple times over the last 60 years. Currently, EWEB has five monitoring wells and two production wells that do not have pumps or any treatment capacity associated with them.

Prior to 2001, EWEB completed multiple feasibility and conceptual planning and modeling studies that determined a wellfield with a capacity of 12 MGD on a continual basis, emergency short term capacity for 20 MGD for four days, and 30 MGD for one day, was feasible. They further characterized the confluence aquifer system as consisting of a shallow unconfined (water table) aquifer, an intermediate semi-confined to confined aquifer, and a deep confined aquifer and determined that the groundwater was likely recharged by precipitation, groundwater flows from upgradient areas, and nearby rivers.

In 2003 and 2004, in response to EWEB's attempts to secure water rights, SUB and RWD completed their own studies to show there would be a significant impact to their well production. When multiple well pumps are used at the same time, the depressions in the groundwater table can overlap causing interference between wells even when there is downgradient flow, as shown in Figure 4.

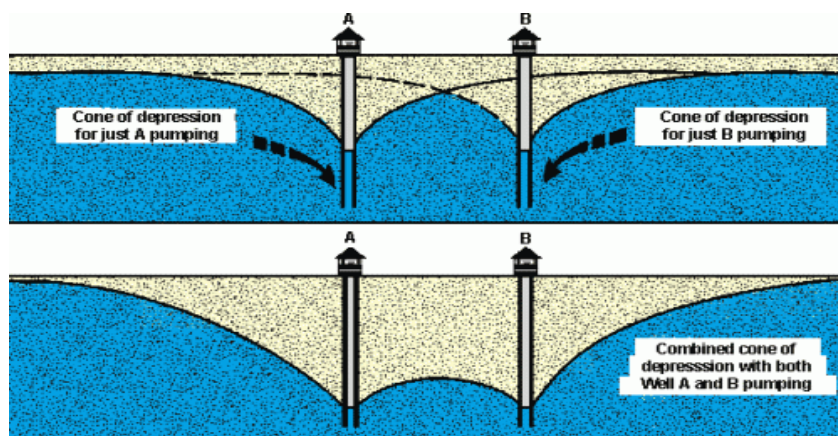


Figure 4. Groundwater Pumping and Interference

As a result of the SUB and RWD studies and comments during the permitting process in March of 2008, OWRD issued a Proposed Final Order for EWEB's permit application that included capacity restrictions and concluded that the wells had a high potential for being under the influence of surface water. EWEB appealed the decision in May of 2008, and in July of that year a Final Order and Permit were issued that limited EWEB's wellfield capacity to 12 MGD, eliminated emergency use provisions, put restrictions on capacity at specific wells, required mitigation of impacts to nearby waterways, and required an intergovernmental agreement between SUB, RWD, and EWEB that addresses interference issues resulting from EWEB's wells. The permit and a map of the proposed well field are included in Attachment E.

In 2005, work towards developing a wellfield was cancelled because the permit OWRD issued made developing a groundwater system extremely difficult and costly and fraught with conflict with neighboring water providers.

EWEB still has water rights to develop a 12 MGD wellfield. Water quality sampling was completed in 2025, at one well, to determine if the well water quality had changed since the early 2000s. The results are included in Attachment E and are partially summarized below in Table 5. Table 5 includes water quality testing results for the Willamette River and the McKenzie River for reference.

Table 5. Well Water Quality Sampling Data

Analyte Name	Well Result	Normal McKenzie Result Range	Normal Willamette Result Range	Units	EPA Limit	Analyte Comments
Health Impacts						
Arsenic	0.003	ND	ND	mg/L	0.010	Naturally occurring mineral element found in soil, rocks, and water, which can enter the body through contaminated drinking water, food, and air. The maximum contamination level (MCL) is 0.010 mg/L.
Lead	0.00015	ND	ND	mg/L	0.010	
Nitrate as N	0.27	ND - 0.15	ND - 0.16	mg/L	10	
Perfluorohexanesulfonic acid (PFHxS)	0.45	ND	ND	ng/L	10	Persistent, human-made chemical belonging to the PFAS family, used in consumer products like stain-resistant textiles and food packaging, as well as in firefighting foams, due to its water- and grease-resistant properties.
Perfluorooctanesulfonic acid (PFOS)	0.6	ND	ND	ng/L	4	Persistent, human-made chemical belonging to the PFAS family, used historically in products like stain-resistant fabrics, firefighting foams, and non-stick coatings for its water- and grease-repellent properties.
1,1,2-Trichloroethane	0.00010	ND	ND	mg/L	0.005	Used as a solvent and as an intermediate in the production of the chemical, 1,1-dichloroethane.
Toluene	0.0029	ND	ND	mg/L	1	Aromatic hydrocarbon found in crude oil and coal, used as a solvent and in gasoline. It appears as a clear, colorless liquid with a characteristic sweet odor and can be found in paints, paint thinners, glues, and other common products. Toluene MCL is 1 mg/L.

Analyte Name	Well Result	Normal McKenzie Result Range	Normal Willamette Result Range	Units	EPA Limit	Analyte Comments
Aesthetic Impacts						
Iron	1.3	ND	0.25	mg/L	0.3	Iron has a secondary standard level of 0.3 mg/L. Above this value you can see rusty color, sediment, metallic taste, and reddish or orange staining.
Magnesium	6.3	1.2 - 2.0	1.5 - 1.6	mg/L	n/a	
Manganese	0.042	ND	0.013 - 0.023	mg/L	0.05	Manganese has a secondary standard level of 0.05 mg/L. Above this value you can see black to brown color, black staining and bitter metallic taste.
Silica	35	14 - 19	14 - 15	mg/L	n/a	Forms a white, chalky residue on surfaces like dishes, faucets, and shower doors. Can also accumulate as a hard mineral scale inside boilers, water heaters, and other plumbing. Silica levels of 20-25 mg/L are often problematic for household issues like etched glassware and stubborn deposits.
Color, Apparent	15	ND	ND - 15	Color Units	15	Visible tint at 15
Methylene Blue Active Substances	0.043	ND	ND	mg/L	0.5	Group of anionic surfactants, MBAS are used to detect detergents and foaming agents in water.
Odor	2	ND	1.2 - 2.9	T.O.N.	3	
Hardness (as CaCO ₃)	51	13 - 19	16 - 21	mg/L	n/a	The Well water would be noticeably "harder". Higher mineral content could cause noticeable changes such as altered taste, spots on glassware and/or shower doors, or issues with soap lathering.
Specific Conductance	150	58 - 76	49 - 62	umhos/cm	n/a	
Total Dissolved Solids	96	44 - 58	33 - 67	mg/L	500	
Total Solids	110	49 - 62	44 - 79	mg/L	n/a	

Units: mg/L – milligrams per liter, ng/L – nanograms per liter, T.O.N – threshold odor number, umhos/cm – microhms/centimeter

The water quality results indicate that the wells will likely require some form of advanced treatment and disinfection to meet state requirements and to match the water chemistry of Hayden Bridge. This provides corrosion control for when the water is blended to prevent aesthetic concerns or more serious water quality disasters like what happened in Flint, Michigan. Additionally, the water quality sampling has indicated a PFAS level below the reporting limit, but there may still be a need to treat for it due to public perception and health concerns. If wells are

found to be under the influence of surface water or EWEB decides to treat for PFAS, additional expensive treatment such as filtration and UV may be required to meet regulatory standards. These treatment technologies add approximately \$5 million per MGD to the overall cost of the project.

There are two ways that treatment could be accomplished: build a treatment system at each well or construct centralized treatment. EWEB does not currently own sufficient property to construct wells or to construct treatment facilities.

The wells could be constructed to be continuously used or only operated in the event of an emergency.

Alternative 3a – Continuous Use Wells

Alternative 3a would involve developing EWEB's wellfield to the maximum capacity. This alternative would require purchasing property, securing agreements with SUB and RWD, drilling up to 12 wells – one at a time – to ensure they do not affect SUB and RWD, and constructing treatment systems.

Advantages

The advantages of Alternative 3a include:

- Utilizes EWEB's Groundwater Permit.
- Develops a redundant seismically resilient source that will be operational immediately if there is an outage at Hayden Bridge.
- Resilient to wildfires and other water quality events in the watersheds
- Potentially less O&M costs depending on what treatment ends up being required.

Disadvantages

The disadvantages of Alternative 3a include:

- Expensive with similar costs to developing a source on the Willamette River.
- EWEB does not own property to develop a wellfield or treatment facilities.
- Property near the wells would likely be in the floodplain and could be on liquefiable soil increasing the costs of construction.
- Requires the creation of a water protection zone within the City of Eugene to protect the groundwater if the water is pumped directly into the distribution system.
- Potentially requires PFAS treatment which could add up to \$60 million to the cost of the project and carries significant risk related to public perception.
- Requires permits and agreements with senior water rights holders, which are not guaranteed to be signed.
- The 12 MGD capacity is not guaranteed. The actual capacity has not been determined, and wells need to be drilled and tested one at a time and proved to not interfere with neighboring wells or adjacent waterways.
- Creates potential water quality problems by blending water with differing water chemistry.
- Capacity is not sufficient to take Hayden Bridge offline during low flow events.

- EWEB would not have full control over the water; the capacity would be limited by what neighboring utilities are doing.
- Does not develop EWEB's Willamette River water rights.
- Wells could potentially be under the influence of surface water creating additional treatment requirements.
- Is not readily constructable.

Costs: \$\$\$\$

The costs of this option were not fully developed but given that treatment is required, significant property acquisitions would need to be made, unknown treatment requirements, and complicated regulatory framework, it is assumed that the costs are likely to exceed those to build on the Willamette River.

Alternative 3b: Groundwater for Emergency Only

The wellfield could be developed and only operated in emergency situations. This alternative would still require the same elements as Alternative 3a but would have lower Operations and Maintenance (O&M) costs because it does not run all the time. However, lack of operation could complicate startup in emergency situations. It takes time and testing to bring facilities online if not in regular service and operation is not guaranteed after equipment has been sitting unused.

Advantages

The advantages of Alternative 3b include:

- Utilizes EWEB's Groundwater Permit.
- Lower O&M costs than Alternative 3a.

Disadvantages

This alternative has the same disadvantages as Alternative 3a, with the addition that the source would not be readily available after an event which could allow system to depressurize and not meet second source goals.

Alternative 4 – Regional Solutions

EWEB has been evaluating regional water supply solutions since the 1960s which have included the following:

- 1960s: Developing an "Ultimate Water System" which would be one regional water supplier for the Eugene/Springfield metropolitan area, a concept formalized in the late 1960s during a period of large population growth in the region. Water demands never reached the levels to warrant this moving forward.
- 1970s and 1990s: Creating a combined SUB and EWEB water system.
- 2003: Region 2050 Plan which created a regional plan for SUB and EWEB to provide water to all the satellite communities.
- 2007: Development of the Two Rivers Two Cities Concept.
- 2010: SUB Partnership Plan – Included a new regional plant on the Willamette River and EWEB providing water to SUB from Hayden Bridge, eliminating their new plant on the

McKenzie River.

- 2019: Joint resolution between SUB and EWEB to explore partnerships.
- 2025: Engineering project scoping improvements for improving one intertie.

Many of these past efforts were based on adding regional capacity to meet projected water demand growth. The projected growth would have required the utilities to combine resources to meet the areas demands, but the demand growth never happened and instead water demands started to decline across the nation due in part to conservation efforts, modern plumbing codes, and changing land use codes.

Today, both EWEB and SUB are planning to build new treatment plants. SUB plans to build a plant on the McKenzie River and EWEB has been planning and preparing to build a plant on the Willamette River, making this appear to be an ideal time to explore regional partnership solutions to enhance the resiliency of the entire community. The partnership opportunities range from a relatively simple project of improving interties between neighboring utilities to very complex opportunities to build joint treatment facilities.

Alternative 4a – Improve Interties

It is impossible to ignore the geographic proximity of our communities and the additional resiliency potential that it provides through interconnections between the two water systems.

Interties do not meet the goals of a second source, as the supply of water to EWEB will not be guaranteed, and instead is subject to another utility's capability to have excess capacity during an emergency. For example, EWEB was unable to supply water to SUB through interties during the Ice Storm of 2024 due to our own reduced capacity from power outages at Hayden Bridge. During EWEB's close call with the Holiday Farm Fire threat to Hayden Bridge, SUB was facing similar obstacles and didn't have excess capacity to support EWEB. Interties will continue to have limitations, but they should continue to be a valuable component of a resilient water supply portfolio.

Advantages:

The advantages of Alternative 4a include:

- Provide added stability and redundancy.
- Relatively inexpensive.
- Readily constructable.
- Property is available at most intertie locations.
- Minimal permitting requirements.
- No water rights issues.
- Minimal O&M costs.

Disadvantages:

The disadvantages of Alternative 4a include:

- Will not be immediately available after an event, requires communication between both utilities and valves to be manually opened to allow water to flow.

- Water source is not guaranteed and dependent on improvements to SUB's system, water demands, and other factors beyond EWEB's control
- Previous studies have shown that mandatory curtailment of both SUB and EWEB customers would be required for SUB to meaningfully supply EWEB. Even with severe mandatory curtailment, SUB may not be able to supply sufficient water to EWEB to maintain water system pressure.
- Reliability depends largely on SUB's ability to complete their McKenzie Treatment Plant.
- A water quality event in the McKenzie River would likely reduce SUB's overall capacity and ability to provide EWEB water.
- Likely does not provide enough capacity to strategically take Hayden Bridge offline to allow for maintenance or improvement projects.
- EWEB does not have control over the operation and maintenance of the source.
- Unknown how blending would affect EWEB's water quality.
- Would not provide a source of water in a regional event such as an earthquake.

Alternative 4b – Joint Treatment Facility

Multiple efforts have been initiated to try and develop a regional solution in lieu of EWEB and SUB both building their own treatment plants and relying on interties, including as recently as in 2025.

One of EWEB's goals for investigating the feasibility of a partnership has been to reduce overall project costs. However, cost savings are not guaranteed and other partnerships in the Pacific Northwest such as the Willamette Water Supply Program have demonstrated the challenges of regional partnerships. EWEB's needs are centered around resiliency and not growth, so we will require the same treatment capacity whether in a stand-alone facility or capacity added to a joint facility.

A shared treatment plant would need to be sized to meet EWEB's needs plus the additional capacity to meet SUB's needs. The cost of a joint facility will increase roughly proportional to capacity, with minor opportunities for cost savings like joint administrative space, reduced overall land development footprint, and economies of scale during construction. However, these savings would likely be more than offset by the need for one utility to construct extensive piping improvements to convey water back to their system.

A joint facility would likely have slightly lower Operation and Maintenance costs over operating two separate facilities. However, the complexity of designing regional facilities with multiple stakeholders could further drive-up overall project costs due to delays in decision making and the need for complicated operational agreements between two entities.

The advantages and disadvantages below apply only to the concept of reopening the conversation about regional facilities with SUB and/or other local water utilities. Since these efforts have consistently stalled over many decades, EWEB has pinpointed several disadvantages and few advantages to pursuing this alternative at this point.

Advantages:

The advantages of Alternative 4b include:

- Could consolidate treatment facilities, eliminating the need for four treatment plants for 2 communities.
- Environmentally practical solution.
- Potentially lower Operations and Maintenance costs.
- Potential to slightly lower overall project costs.

Disadvantages:

The disadvantages of Alternative 4b include:

- All past efforts have failed to gain any traction, so future conversations are unlikely to identify a mutually beneficial new solution.
- Partnerships require common priorities, which, for a variety of reasons, we have been unable to agree upon.
- Adds number of stakeholders that must reach consensus on design and level of service goals.
- Project delivery would likely be delayed over an EWEB only solution with resulting cost increases
- Significant cost saving solutions may not be realized.
- Smaller communities may lack the resources and infrastructure to connect to EWEB's system and participate in construction of a new plant.

Cost: \$\$\$-\$\$\$\$

Construction of a shared treatment plant would likely be similar to an EWEB only solution, but overall project costs are more likely to increase due to complexity and delays of the project.

Alternative 5 - McKenzie River Options

Multiple alternatives have been initiated over the last 60 years to construct a new treatment plant and intake on the McKenzie River. EWEB has considered options that have included:

- Building a redundant intake and treatment facility near Hayden Bridge: EWEB purchased a fish hatchery site across from the existing intakes in the 1990's. The project was evaluated to add capacity.
- Building an intake and treatment plant near Riverbend Hospital: property was considered for purchase for this option.
- Building an intake and treatment plant near Armitage Park: the Jordon Pit site was purchased for a treatment plant in the 1980's and subsequently traded for the Glenwood Intake property. This alternative was deemed too risky due to contamination concerns from I5 and Springfield.

For this memo, two alternatives were considered viable on the McKenzie River: harden Hayden Bridge to make it seismically resilient and build a redundant intake and treatment plant at the fish hatchery site across from Hayden Bridge.

Alternative 5a – Harden Hayden Bridge

Alternative 5a involves completing extensive seismic and resiliency upgrades at the Hayden Bridge Raw Water Intakes and Filtration Plant. The upgrades would include completing new

engineering studies of each facility and then designing and completing the upgrades. This option would likely require a combination of improvements to the existing infrastructure and building new or redundant infrastructure in parallel for those processes that cannot be taken offline.

Advantages

The advantages of this alternative include:

- Utilizes existing infrastructure.
- Potentially the least costly option.
- Adequate existing water rights.
- Could construct enough redundancy to take key processes offline for maintenance and improvements depending on scope.
- Provides a high-quality source.
- Minimal permitting and environmental hurdles.
- EWEB has control over the operations and maintenance of the improvements.
- EWEB owns and controls property for the improvements.

Disadvantages

The disadvantages of this alternative include:

- Does not provide a redundant source that will be available if something happens to the McKenzie River.
- May not be feasible to bring all facilities up to current seismic codes.
- Requires additional investments in the system to increase storage and may require rebuilding Santa Clara to meet operational needs.
- Does not develop and secure EWEB's water rights on the Willamette River and developing a new surface water source is becoming more difficult and may be impossible in the future.
- Limited space to construct new and redundant facilities.
- May require inefficient and complicated construction projects to work around plant operating 24/7.
- Risks to system of doing major construction around the only operating water production facility.
- Relies on aging transmission mains with complex river crossings to deliver water from plant to the base-level storage system.

Costs: \$\$\$-\$\$\$\$

The costs will vary based on the scope of work and how much redundancy is desired to be added to Hayden Bridge. Similar to the "do nothing" alternative, this alternative would likely require increasing the amount of base level storage in the system at substantial cost.

Alternative 5b - Parallel Plant and Intake at the Old Fish Hatchery site on the McKenzie River

Alternative 5b includes building a redundant intake and treatment plant at the EWEB owned property across from the existing intake, constructing a parallel treatment plant, building additional finished water storage, constructing a second finished water pump station, and

constructing new finished water pipeline crossing of the McKenzie River to tie into the existing transmission mains. The capacity for the improvements could be based on any number of criteria and could be constructed up to EWEB's McKenzie River water rights. For this exercise it was assumed that EWEB would construct a similar plant to what would be constructed on the Willamette River.

Advantages

The advantages of this option include:

- Provides redundancy for the intake, treatment plant, storage and pumping into the distribution system.
- EWEB owns property for this alternative.
- Hayden Bridge can be taken offline after the redundant plant is complete for improvements and maintenance during low demand periods.
- Provides modern facilities built to current seismic codes.
- Provides a known water quality with known treatment requirements.
- Operators are skilled at treating McKenzie River water.
- There is already a robust source water protection program in place.
- EWEB has control over the operations and maintenance of the improvements.
- Provides a long-term water source.
- Would be available if something happened to the main Hayden Bridge plant.
- Would be able to withstand an earthquake.
- Water Rights and space available to substantially increase or expand capacity if needed.

Disadvantages

The disadvantages of this alternative include:

- There are unknown permitting requirements. It is unknown at this time if a second intake across the river from EWEB's existing river would be allowed by the US Army Corps, Division of State Lands, National Marine Fisheries Service, or the Department of Environmental Quality and could delay project implementation.
- The space requirements for new treatment, finished water pumping and storage facilities have not been evaluated.
- Would rely on the same aging transmission mains and a new expensive river crossing to deliver water from plant to the base-level storage system.
- This alternative would result in restarting planning and permitting work and would likely take longer and cost more money than developing the Willamette River source.
- Does not create a redundant river source; the utility would still be susceptible to wildfires, algal toxins, chemical spills, or other events that make it so the McKenzie River water cannot be treated or that treatment costs become untenable.
- Does not develop and secure EWEB's water rights on the Willamette River and developing a new surface water source is becoming more difficult and may be impossible in the future.

Costs: \$\$\$-\$\$\$\$

Project costs would be equal to or more than building facilities on the Willamette River depending on the capacity of the treatment plant. Because preliminary work has not been completed on this site it is unknown what permitting, land use, and constructability concerns there may be and may result in significant increases in costs over Alternative 2.

Alternative 6 – Wastewater Reuse

The concept of using direct wastewater reuse is becoming more popular as water resources are being stretched, particularly in California and drier climates. San Diego and Los Angeles are currently working on implementing direct reuse. This alternative was first studied by EWEB in the 1990s. At that time, a treatment plant was proposed to be constructed at the Santa Clara Reservoir at 1000 Ruby Ave., which is close to the wastewater plant.

There are significant risks, disadvantages, and very few advantages with this alternative.

Advantages

The advantages associated with Alternative 6 include:

- Provides beneficial use for wastewater effluent.
- Would be readily available immediately after an event at Hayden Bridge.
- Would be constructed to withstand an earthquake.

Disadvantages

The disadvantages associated with Alternative 6 include:

- Permitting requirements are unknown.
- Expensive to treat wastewater effluent for potable water uses.
- Unknown water quality.
- Availability of water is unknown.
- The Santa Clara Reservoir site has liquefiable soils.
- It is the most expensive alternative.
- Negative public perception is associated with this alternative.
- Unknown if sufficient treatment capacity could be built to take Hayden Bridge offline during low demand periods.
- EWEB would not have full control over the source water and how much or when it is available.
- Effluent from the wastewater treatment plant may be unavailable following an earthquake due to damage to the sewer system or plant itself.
- Does not develop EWEB's water rights on the Willamette River.
- Is not readily constructable.
- Permitting is complicated, expensive, and not guaranteed to be approved.
- Agreements would be needed with the Metropolitan Waste Management Commission (MWMC).

Costs: \$\$\$\$

This is the most expensive and riskiest option presented.

FINANCIAL IMPACT

Sourcing funds to support a construction effort for the second source project will require borrowing. This is standard practice in EWEB's capital project planning. Alternative funding options continue to be evaluated and monitored. One such alternative, the Water Infrastructure Finance and Innovation Act (WIFIA) is a source of federal financing that supports large-scale projects and historically has been a good financing option for municipal water systems. The WIFIA program provides long-term, low-cost loans with interest rates equal to or greater than US Treasury securities. While typically advantageous, the WIFIA rate can be less beneficial in market conditions where long-term Treasury rates are high compared to tax-exempt municipal bond rates. This is the case now. The Water Utility holds a high credit rating and can issue tax-exempt municipal debt with a lower interest rate than a WIFIA loan. Leveraging the Water Utility's municipal bond capability to fund the entire second source project is currently projected to be more efficient and cost effective.

The high level of borrowing is forecast to significantly pressure the debt service coverage (DSC) metric. This metric is a measure of revenue available for debt service divided by the annual debt service. The Board target for this metric is 2.0x. Assuming Alternative 2, revenue requirement increases are required in the back half of the 10-year long-term financial plan to keep DSC at target. This contrasts with cost-based revenue requirement increases in the near term of the plan.

For the average residential customer, the monthly bill is estimated to be \$16 higher after ten years due to borrowing for Alternative 2. A preliminary presentation of the long-term financial plan is included as Attachment E.

RISKS

Developing a second source of water for a community of EWEB's size is a complicated project with many associated risks. As part of this evaluation EWEB's Risk Assessment Tool was used to quantify the risks. The resulting summary sheets are available upon request.

Risks of Not Doing the Project

Without a second source, EWEB is extremely vulnerable to all natural disasters, equipment failures, chemical spills, and water quality events that can leave the community without a viable source of water. This means that public health, the local economy, and EWEB's revenue would all be severely affected. There is also a risk that a long-term outage of Hayden Bridge or the McKenzie River could lead to illness or in extreme circumstances loss of life.

The regulatory framework is becoming more complex and water rights development is becoming more contentious. There are risks associated with not developing our Willamette River Permit by 2033. In the past extensions were possible to obtain, but given new regulatory and environmental pressures, those extensions are no longer guaranteed to be approved. Without developing the source, EWEB is at risk of losing its permit, which could affect the ability to develop this right in the future. Additionally, federal and state permitting is on track for approval by the end of 2025.

The permits are good for 5 years and then require exemptions. Much like the water rights, the permits are becoming more contentious, and an extension is not guaranteed. The property was purchased through the condemnation process, which was ultimately settled outside of court, but still has a timeline associated with it for development of the property which means that the previous owner would have rights to get the property back.

While the capital costs are high, delaying or canceling the project also runs the risk of being more costly over the long term. Additionally, system improvements in the current CIP were determined under the assumption that there would be a second source of water. Without a second source significantly less strategic investments of the similar scale of cost as the Willamette treatment plant would be required to maintain system operation including:

- Reconstruction of the Santa Clara Reservoir and Pump Station –~\$80 million. Currently this site is being evaluated for demolition because it does not contribute to EWEB’s emergency storage, and the facility is failing. It is used as an operational tool to maintain pressures in the system. This functionality is planned to be replaced with the pump station at the new treatment plant, but without a new treatment plant, Santa Clara may be needed for operational purposes.
- Hayden Bridge Finished Water Storage and Pumping Bypass: \$5-10 million. Currently the finished water storage reservoir and pump station operate continuously to pump water into the distribution system. The reservoir is leaking and potentially needs improvements; however, it cannot be taken offline until a bypass around the facility is constructed. This will require a redundant finished water pump station and significant piping improvements.
- 20-35 MG of additional Base Level Storage– \$40-\$70 million
- Knickerbocker Bridge Improvements - \$20 million. EWEB’s most critical river crossing is over the Willamette River on the Knickerbocker Bridge. The bridge does not meet current seismic codes. This project would become more critical and would move up in the plan of improvements without a plant at the Willamette site.

Risks of Completing the Project

In addition, there are risks associated with developing the second source. These risks include changes in our compliance requirements, the need for additional staff, there is potential for costs to be higher than estimated due to the number of unknowns surrounding the project, there are land use risks, and risks associated with potential environmental groups concerned over the new withdrawal from the river. These risks can be mitigated through careful management of the project and proactive public outreach campaigns.

The risk analysis is available upon request.

Evaluation Summary

The advantages, disadvantages, and costs for each alternative are summarized in Table 6 below and demonstrate that developing a second source of supply on the Willamette River provides the only alternative that meets all of EWEB’s project objectives.

Table 6. Summary of Alternatives

Alternative	Cost	Source Water Quality Similar to McKenzie River	Seismic Resiliency	Capacity to Take Hayden Bridge Plant and Intake Offline	Water Delivery	Robust treatment process	Control of Water Supply and delivery	Property Ownership	Readily Constructable	Years to Constructability	Develops and Protects EWEB's Water Rights
No Action	\$-\$\$	✓	✗	✗	✓	✓	✓	✓	✓	0	✗
Willamette River - Glenwood	\$\$\$	✓	✓	✓	✓	✓	✓	✓	✓	2	✓
Groundwater											
Groundwater - Everyday Use	\$\$\$-\$\$\$\$	✗	✓	✗	✗	✓	✗	✗	✓	10+	✗
Groundwater - Emergency Only	\$\$\$-\$\$\$\$	✗	✓	✗	✗	✓	✗	✗	✗	10+	✗
Regional Solutions											
Interties	\$-\$\$	✓	✓	✗	✗	○	✗	✓	✗	1	✗
Joint Facilities	\$\$\$-\$\$\$\$	○	✓	✓	✓	✓	✗	✓	✗	10	○
McKenzie River											
Harden Hayden Bridge	\$\$\$	✓	○	✗	✓	✓	✓	✓	✓	5	✗
Hatchery Intake and Plant	\$\$\$	✓	✓	✓	✓	✓	✓	✓	✗	10	✗
Other											
Reclaimed Water	\$\$\$\$\$+	✗	✓	✓	✓	✓	✗	✗	✗	10+	✗

✗ Fatal Flaw ○ Significant Risk ✓ Meets Resiliency Goals

CONCLUSIONS AND RECOMMENDATIONS

The information contained in the above sections demonstrates that over the last 60 years EWEB has extensively studied nearly every option to provide our community with a second source of water. There are very limited options for developing a second source of water that meets EWEB's overall goals. The Willamette Treatment Plant provides the most reliable and readily implementable option and is comparable in cost to most other options. Staff recommends initiating a 30 percent preliminary design and developing a scope and cost estimate for a Willamette Treatment Plant with an initial capacity of 10 MGD, 19.4 MGD, and 30 MGD and to bring those to the board for further consideration and guidance.

Additionally, staff recommend that regardless of the complexities with regional treatment solutions, work should continue to improve the interties and to construct the new treatment plant on the Willamette River to be easily expandable in the future if political conditions change and a joint solution becomes advantageous for both utilities

NEXT STEPS

The next steps are summarized below and shown in the proposed project schedule in Figure 5.

- Complete preliminary design and cost for alternatives for a plant with an initial capacity of 10 MGD, 19.4 MGD, and 30 MGD plants by May 2026.
- Present preliminary design alternatives for approval to the board at the June 2026 board meeting.
- Obtain approval for the required Code and Plan Amendments from City of Springfield.
- Obtain Federal and State permits, anticipated approval Spring 2026.
- Complete the DEQ required thermal trading plan, anticipated approval Spring 2026.
- Begin detailed design in Summer of 2026.
- Start construction late 2026.

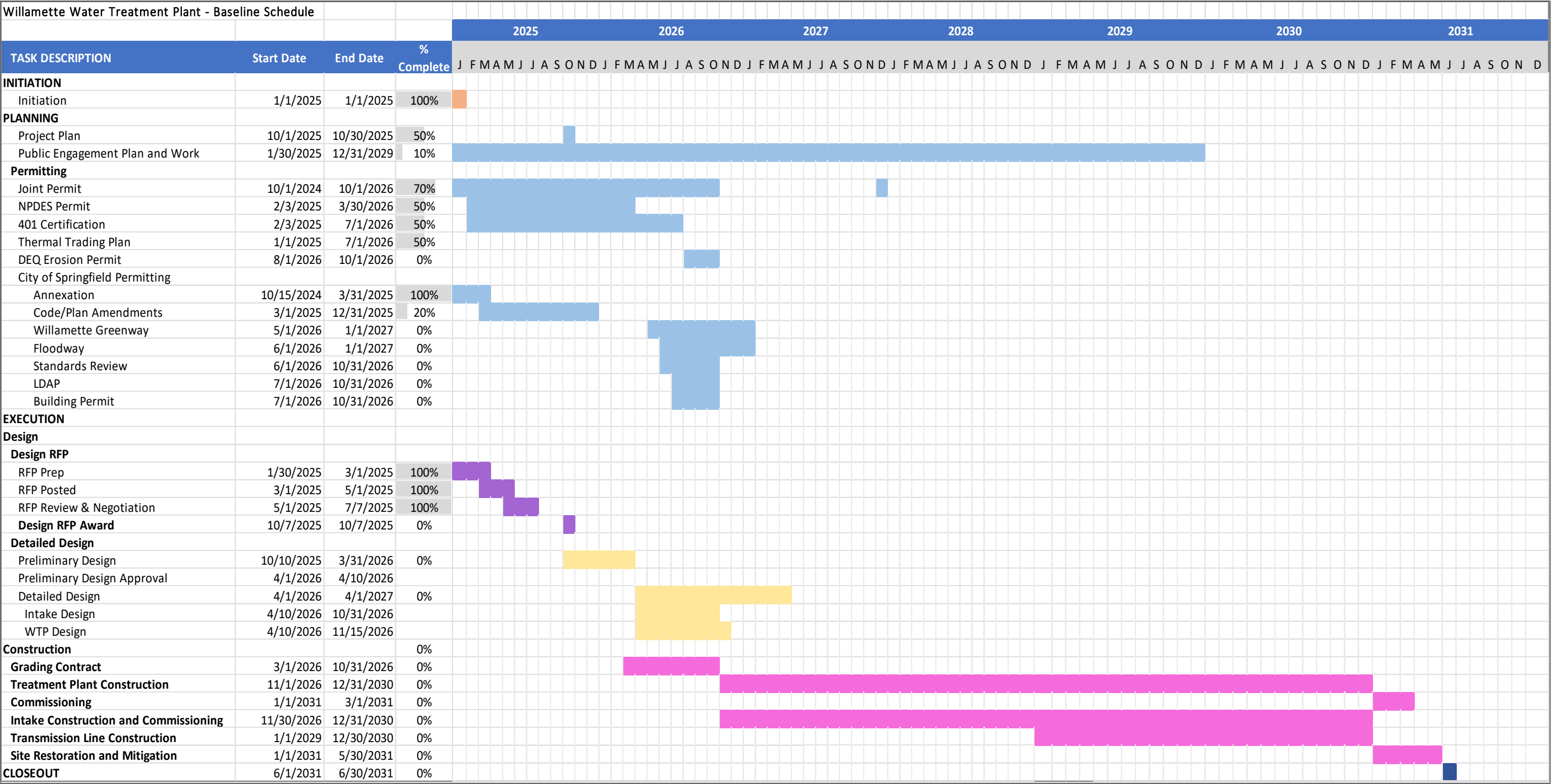


Figure 5. Proposed project schedule

Requested Board Action

Information only.

Attachments

Attachment A – Water System Map

Attachment B – 2015 Water System Master Plan - Planning and Design Criteria

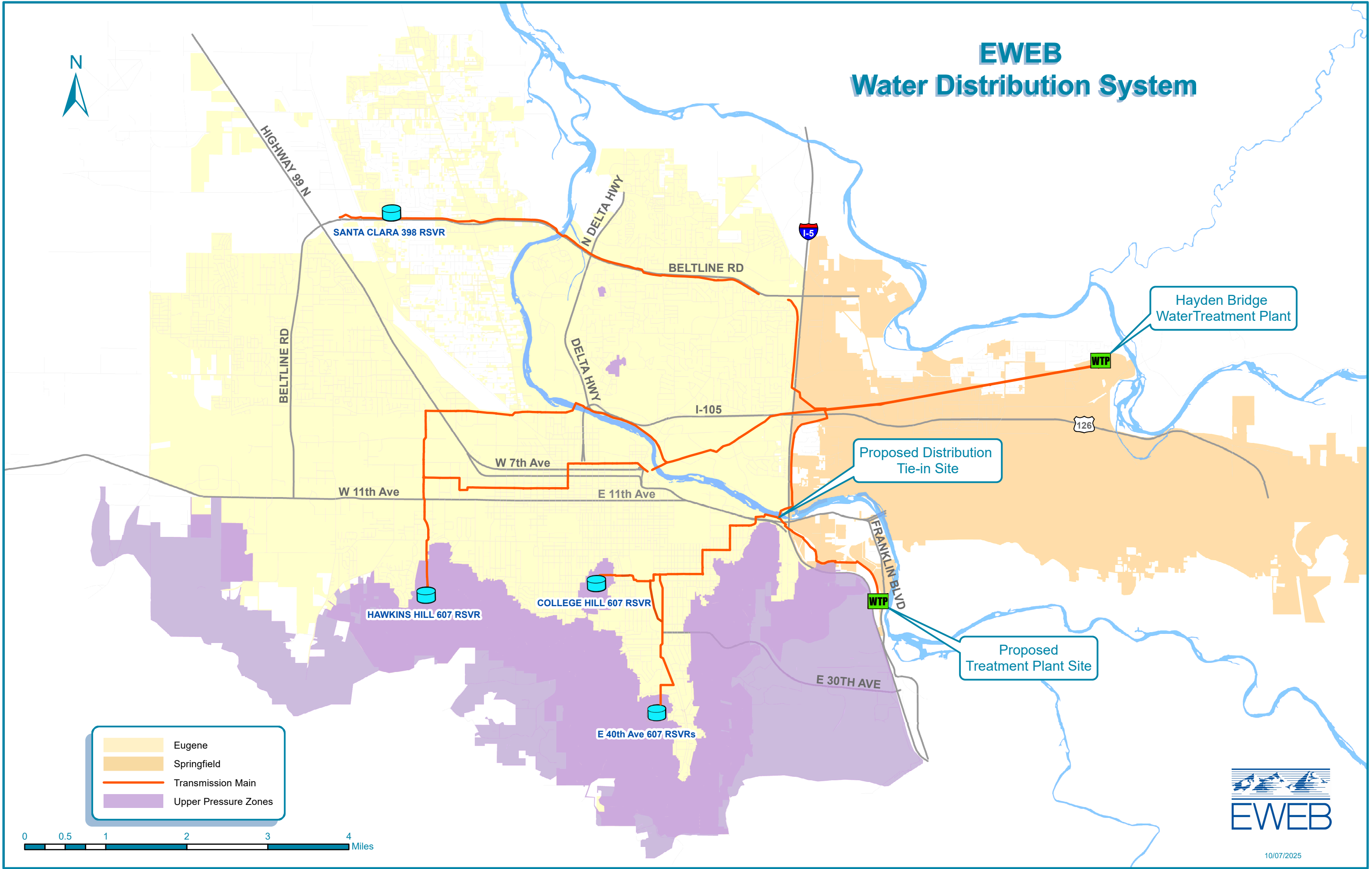
Attachment C – 2015 Water System Master Plan – Water Rights Summary

Attachment D – Groundwater Permit, Wellfield Map, and 2025 Well Water Quality Testing Results

Attachment E – Preliminary Summary of Water LTFP – Alternative 2 Willamette River Intake

ATTACHMENT A – Water System Map

EWEB Water Distribution System



Hayden Bridge
Water Treatment Plant

Proposed Distribution
Tie-in Site

Proposed
Treatment Plant Site



ATTACHMENT B – 2015 Water System Master Plan – Planning and Design Criteria

5.4 PUMP STATION CAPACITY

Pump stations are used by EWEB to pump water from the HBWFP to the Base Level and to move water to the storage reservoirs (open-end pump stations). There are also a few service areas without storage that are served by closed-end pump stations. Each pump station in the EWEB system has a firm capacity which is defined as the capacity with the largest pump out of service. Sufficient firm capacity should be provided to meet the following conditions:

1. Open-End Pump Stations: The firm capacity for open-end pump stations should equal the MDD of the service area served by the reservoir that is filled by the pump station plus the MDD of any other service areas served by the same reservoir. A manual transfer switch and plug will be used to allow connection of a portable generator which will be brought to the site by EWEB during a prolonged power outage.
2. Closed-End Pump Stations: The pumping capacity for closed-end pump stations should equal the MDD concurrent with fire flow required for the service area or the peak hour demand, whichever is larger. These pump stations should be equipped with an on-site back-up power generator.

5.5 WATER STORAGE CAPACITY

The required water storage capacity is determined based on the following three components:

- Operational Storage;
- Fire Storage; and
- Emergency Storage.

Each storage component is discussed below.

5.5.1 Operational Storage

Typically, operational storage is used to meet water demands in excess of water supply to the service area, including peak hourly demands. Operational storage is replenished during hours when demand is less than the available water supply for the service area.

According to AWWA guidelines, operational storage is often estimated at 25 percent of the MDD. However, the actual operational storage as a percentage of the MDD will vary based on the size of the service area. Larger areas require a smaller percentage due to attenuation within the area. Based on an analysis of EWEB's review of its operation, the maximum operational storage required in the Base Level is approximately 15 percent of the MDD. This same analysis established the operational storage as 25 percent of the MDD for service levels 703 to 975, and 30 percent for service levels 1150 and above.

5.5.2 Fire Storage

Fire storage is the volume of water storage reserved for fire flows. The fire storage volume for a service area is determined by multiplying the required maximum fire flow by the required duration. For example, for a service area with an industrial land use without sprinklers, the fire flow requirement would be computed as:

$$\begin{array}{rcl} \text{Fire Flow (Table 5-1)} & = & 8,000 \text{ gpm} \\ \text{Duration (Table 5-1)} & = & 4 \text{ hours} \\ 8,000 \text{ gpm} \times 4 \text{ hours} \times 60 \text{ minutes/hour} & = & 1,920,000 \text{ gallons} \end{array}$$

It is assumed that no more than one fire would occur in any service area at any one time.

5.5.3 Emergency Storage

A reserve of stored water is also required to meet demands during an emergency. An emergency is defined as an unforeseen or unplanned event that may degrade the quality or quantity of potable water supplies available to serve customers.

Determination of the required volume of emergency storage is a policy decision based on the assessment of the risk of failures and the desired degree of system reliability. The amount of required emergency storage is a function of several factors including the diversity of the supply sources, redundancy and reliability of the production facilities, and the anticipated length of the emergency outage. EWEB has historically required a storage volume in each service area of 74 percent of MDD for emergencies. This value is based on EWEB's 2001 Water Supply Shortage Contingency Plan, and is calculated assuming that the emergency occurs during a MDD condition, and that use continues for 12 hours at the MDD rate and then drops to an ADD rate. If the emergency lasts for 24 hours, that the resulting water use equals 74 percent of the MDD. This number has been rounded to 75 percent of MDD.

The single largest risk faced by EWEB is the loss of supply from the McKenzie River as a result of an accidental spill into the river or a catastrophic failure at the HBWFP. Experience has shown that community response to a rationing event can initially be relatively slow and that a spill can take many days to clear the system. If EWEB were to continue with the single source of supply, the amount of emergency storage would need to be increased. Since EWEB is planning an Alternative Water Supply from the Willamette River, 75 percent of the MDD is an appropriate amount of emergency storage.

5.5.4 Total Storage Capacity Recommended

The total storage required will be assessed for each service area based on the operational, fire and emergency storage associated with the respective area. In addition, the ability to move water between service areas will also be considered in the assessment of the storage requirements.

ATTACHMENT C – 2015 Water System Master Plan – Water Rights Summary

Chapter 3 describes EWEB's existing water system.

3.1 INTRODUCTION

The purpose of this section is to provide an overview of the EWEB water system including the sources of supply, treatment, and the distribution system which includes pumping and storage facilities. EWEB's distribution system is shown on Figure 3-1.

3.2 SOURCE OF SUPPLY

EWEB's existing sources of supply consist of the following:

- McKenzie River source and intakes;
- Willamette River source;
- Groundwater sources; and
- Interties with nearby utilities.

Each source of supply is discussed in further detail in the following subsections.

3.2.1 McKenzie River Source of Supply

This section discusses EWEB's McKenzie River Water Rights and the Raw Water Intakes.

3.2.1.1 [McKenzie River Water Rights](#)

EWEB holds three municipal water right permits on the McKenzie River which EWEB currently relies on exclusively on for water supply. The water right permits authorize the use of up to approximately 300 cubic feet per second (cfs), or 194 million gallons per day (mgd). All three of the water rights have a point of diversion located at EWEB's Raw Water Intakes located near the intersection of Marcola and Hayden Bridge Roads in Springfield at approximately River Mile 14.1. The water right permits and their priority dates are summarized in Table 3-1 below.

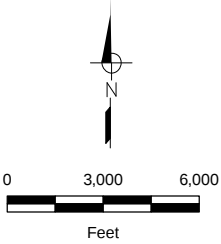
Table 3-1. EWEB McKenzie River Water Rights			
Permit No.	Priority Date	Quantity (cfs/mgd)	Status
8602	05/16/1925	27.08/17.5	Certificate No. 15180
17358	10/15/1976	90.0/58.2	Certificate No. 68537
27441	06/14/1961	183.0/118.3	Extension Application File #S-35037

EWEB's Certificates 15180 and 68537 are highly reliable based on priority dates.

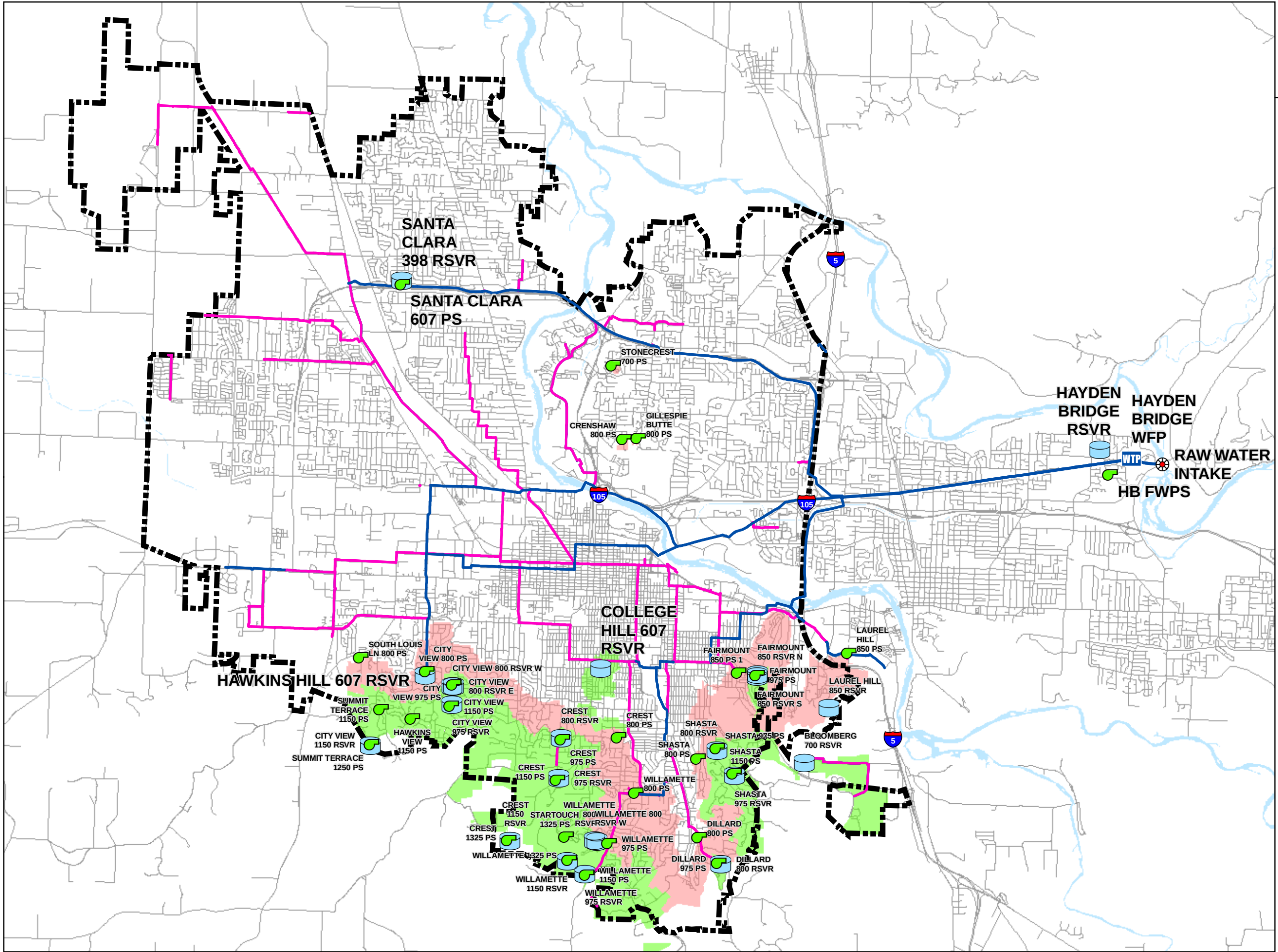
(THIS PAGE LEFT BLANK INTENTIONALLY)

FIGURE 3-1
EWEB
2015 Water System Master Plan

EWEB
WATER SYSTEM



- LEGEND**
- Water Filtration Plant
 - Raw Water Intake
 - Pump Station
 - Reservoir
 - Major Pipelines**
 - Major Distribution Main (16"-20")
 - Transmission Main (24" and Greater)
 - 800/850 Service Level
 - Other Upper Service Levels
 - EWEB Service Area



(THIS PAGE LEFT BLANK INTENTIONALLY)

EWEB submitted an extension application for permit S-27441 to the Oregon Water Resources Department (OWRD) requesting more time to develop it. On January 6, 2004, OWRD provided public notice of the extension but, to date, the proposed final order has not been issued. EWEB's ability to obtain additional water under this permit may be subject to permit extension conditions. The Oregon Department of Fish and Wildlife (ODFW) has identified flows necessary to "maintain the persistence" of listed fish. The extent of the impacts of ODFW's conditions is unknown at this time.

3.2.1.2 Raw Water Intakes

EWEB owns and operates two adjacent water intakes on the west bank of the McKenzie River, just upstream of Hayden Bridge Road, with a combined capacity of approximately 100 mgd. The 36-inch diameter and 42-inch diameter steel raw water transmission mains, constructed in 1950 and 1951 respectively, convey water approximately 2,000 feet to the Hayden Bridge Water Filtration Plant (HBWFP).

Intake 1, constructed in the 1950's, is the older of the two intakes. It consists of a single inlet channel and three pumps that pump water to the filtration plant. In 2014, EWEB completed extensive seismic upgrades, replaced all of the piping and valves, removed two pumps, installed two new pumps with variable frequency drives to improve operational flexibility, removed the old screens and replaced them with new screens in the river with an air burst cleaning system.

Intake 2, constructed in the 1960s, consists of two independent intake channels and four pumps which pump water to the filtration plant. In 2015 EWEB completed extensive seismic upgrades, replaced all of the piping and valves, installed new in-river screens, and installed a 400 foot section of 54-inch diameter steel raw water transmission main.

3.2.2 Willamette River Source of Supply

EWEB holds a pre-1909 Surface Water Registration Claim on the Willamette River. The water claim was first used from March 26, 1887 through 1927. Prior to 1909, Oregon law recognized the right to obtain vested water rights in accordance with local custom. On February 24, 1909, the Water Rights Act, a comprehensive water code, was passed which established pre-existing rights to use water through a process known as adjudication. Adjudication for the Willamette River (with the exception of a few tributaries) has not been completed. In 1987, the Oregon legislature enacted a registration process for recording claims of water in unadjudicated areas. EWEB registered its Willamette River claim (Surface Water Registration 354) for 30.9 cfs (approximately 20 mgd) under this mandate.

The OWRD received hundreds of claims for water rights in unadjudicated areas, one of which was Portland General Electric (PGE) for a claim, with a priority date of June 3, 1889, of 11,754 cfs from the Willamette River at Willamette Falls. Flow data for the Willamette River shows that during low flow periods in the summer, the entire river flow is often less than PGE's claim. In 1993, House Bill 2110 was passed by the state legislature to protect municipalities that could be impacted by PGE's claim.

To increase the level of certainty for its authorization to use Willamette River water, on December 27, 2010, EWEB applied for a surface water permit (Application S-87675) that reflected the authorization provided by EWEB's existing Surface Water Registration. On February 28, 2013, OWRD issued Permit S-54805, which authorizes the use of up to 30.9 cfs (approximately 20 mgd) from the Willamette River for municipal use. Permit S-54805 maintains EWEB's previous total combined maximum authorized rate under all of its water rights at 300.08 cfs and stipulates that use is only allowed when flows of 2,500 cfs in November through May and 2,000 cfs from June through October are met below the confluence of the Coast Fork and Middle Fork of the Willamette River.

In March 2014, EWEB submitted a request to modify the permit to add an upstream point of diversion to SW-354. The modification was granted provided EWEB dedicate a 1.5 cfs portion of SW-354 instream right. Based on this transaction, the municipal use portion of SW-354 has been reduced to approximately 29.4 cfs (approximately 19 mgd). EWEB has begun the process to redevelop this source of supply.

3.2.3 Groundwater

EWEB holds a ground water right for municipal purposes in addition to its surface water rights. Permit G-16371 authorizes the use of up to 18.49 cfs (12.0 mgd) of groundwater from 12 wells. The pumping rate for wells within 1 mile of Ayers Pond cannot exceed 4.998 cfs (2.7 mgd) unless OWRD approves a plan to mitigate impacts on the Willamette River. Further, use of water under this groundwater permit, in combination with EWEB's surface water permit and certificates, is limited to a total of 300.08 cfs. In addition, EWEB is required to have an intergovernmental agreement with the Springfield Utility Board (SUB) and Rainbow Water District (RWD) before using any water under this permit. Permit G-16371 has a development deadline of August 13, 2028. To date only two wells have been drilled. The wells do not have power, pumps, or distribution connections because EWEB is still evaluating how to best utilize this water supply for redundancy in the system.

3.2.4 Interties

EWEB has five interconnections with two municipal water supply systems: SUB and RWD. Interties between the utilities are used to increase reliability of the water systems and to assist each utility when a supply issue arises. The interties are located near major transmission mains or large-diameter distribution pipes of each utility that are in close proximity to each other. Minor pressure differences exist between the systems, such that four of the five interties will produce variation in customer pressures during their use; nonetheless, the interties will still function in times of emergency. One of the interties has a portable pump station with a design capacity of 2,500 gallons per minute (gpm) to deliver water from the EWEB system into the SUB/RWD system. This intertie also has bypass piping allowing water to flow by gravity back into the EWEB system.

ATTACHMENT D – Groundwater Permit, Wellfield Map, and 2025 Well Water Quality Testing Results

STATE OF OREGON

COUNTY OF LANE

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

EUGENE WATER AND ELECTRIC BOARD
PO BOX 10148; 500 E 4TH AVE
EUGENE, OREGON 97440-2148

The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-15857

SOURCE OF WATER: WELL 1, WELL 2, WELL 3 (LANE 61477), WELL 4, WELL 5 (LANE 61476), WELL 6, WELL 7, WELL 8, WELL 9, WELL 10, WELL 11 AND WELL 12 IN WILLAMETTE RIVER BASIN

PURPOSE OR USE: MUNICIPAL USE

MAXIMUM RATE: 18.49 CUBIC FEET PER SECOND (CFS);

BEING A CUMULATIVE RATE OF NOT MORE THAN 4.998 CFS FROM WELL 1, WELL 4, WELL 7, WELL 9, WELL 10, WELL 11, AND WELL 12, FURTHER LIMITED TO A MAXIMUM RATE OF 2.5 CFS FOR EACH WELL;

AND A CUMULATIVE RATE OF NOT MORE THAN 13.49 CFS FROM WELL 2, WELL 3 (LANE 61477), WELL 5 (LANE 61476), WELL 6, AND WELL 8, FURTHER LIMITED TO A MAXIMUM RATE OF 2.698 CFS FOR EACH WELL

PERIOD OF USE: YEAR ROUND

DATE OF PRIORITY: DECEMBER 20, 2002

WELL LOCATIONS:

WELL 1: SE $\frac{1}{4}$ NE $\frac{1}{4}$, SECTION 17, T17S, R3W, W.M.; 2050 FEET SOUTH AND 270 FEET WEST FROM THE NE CORNER OF SECTION 17

WELL 2: NW $\frac{1}{4}$ NW $\frac{1}{4}$, SECTION 9, T17S, R3W, W.M.; 600 FEET SOUTH AND 400 FEET EAST FROM NW CORNER, SECTION 9

WELL 3 (LANE 61477) : NE $\frac{1}{4}$ NW $\frac{1}{4}$, SECTION 16, T17S, R3W, W.M.; 30 FEET SOUTH AND 2180 FEET EAST FROM THE NW CORNER OF SECTION 16

WELL 4: SE $\frac{1}{4}$ SE $\frac{1}{4}$, SECTION 8, T17S, R3W, W.M.; 50 FEET NORTH AND 50 FEET WEST FROM SE CORNER, SECTION 8

WELL 5 (LANE 61476): NW $\frac{1}{4}$ SW $\frac{1}{4}$, SECTION 9, T17S, R3W, W.M.; 1880 FEET NORTH AND 500 FEET EAST FROM SW CORNER, SECTION 9

WELL 6: SE $\frac{1}{4}$ NW $\frac{1}{4}$, SECTION 16, T17S, R3W, W.M.; 2270 FEET SOUTH AND 2250 FEET EAST FROM NW CORNER, SECTION 16

WELL 7: NW $\frac{1}{4}$ NW $\frac{1}{4}$, SECTION 8, T17S, R3W, W.M.; 4065 FEET NORTH AND 310 FEET EAST FROM SW CORNER, SECTION 8

WELL 8: SE $\frac{1}{4}$ NW $\frac{1}{4}$, SECTION 9, T17S, R3W, W.M.; 1825 FEET SOUTH AND 1435 FEET EAST FROM NW CORNER, SECTION 9

WELL 9: SE $\frac{1}{4}$ NW $\frac{1}{4}$, SECTION 17, T17S, R3W, W.M.; 2190 FEET SOUTH AND 1750 FEET EAST FROM NW CORNER, SECTION 17

WELL 10: SW $\frac{1}{4}$ SE $\frac{1}{4}$, SECTION 8, T17S, R3W, W.M.; 110 FEET NORTH AND 1810 FEET WEST FROM SE CORNER, SECTION 8

WELL 11: SE $\frac{1}{4}$ SW $\frac{1}{4}$, SECTION 8, T17S, R3W, W.M.; 130 FEET NORTH AND 2200 FEET EAST FROM SW CORNER, SECTION 8

WELL 12: SW $\frac{1}{4}$ NE $\frac{1}{4}$, SECTION 8, T17S, R3W, W.M.; 3150 FEET NORTH AND 3300 FEET EAST FROM SW CORNER, SECTION 8

THE PLACE OF USE IS WITHIN THE SERVICE BOUNDARY OF EUGENE WATER AND ELECTRIC BOARD

The use of water under this permit or subsequent certificate, in combination with the water rights originating under Applications S-10168, S-22037, and S-35037 shall not exceed a total of 300.08 cubic feet per second.

Measurement, recording and reporting conditions:

- A. Before water use may begin under this permit, the permittee shall install a totalizing flow meter or other suitable measuring device as approved by the Director at each point of appropriation. The permittee shall maintain the meter or measuring device in good working order, shall keep a complete record of the amount of water used each month, and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water-use information, including the place and nature of use of water under the permit.

- B. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

The water user shall develop a plan to monitor and report the impact of water use under this permit on water levels within the aquifer that provides water to the permitted well(s). The plan shall be submitted to the Department within one year of the date the permit is issued and shall be subject to the approval of the Department. At a minimum, the plan shall include a program to periodically measure static water levels within the permitted well(s) or an adequate substitute such as water levels in nearby wells. The plan shall also stipulate a reference water level against which any water-level declines will be compared. If a well listed on this permit (or replacement well) displays a total static water-level decline of 25 or more feet over any period of years, as compared to the reference level, then the water user shall discontinue use of, or reduce the rate or volume of withdrawal from, the well(s). Such action shall be taken until the water level recovers to above the 25-foot decline level or until the Department determines, based on the water user's and/or the Department's data and analysis, that no action is necessary because the aquifer in question can sustain the observed declines without adversely impacting the resource or senior water rights. The water user shall in no instance allow excessive decline, as defined in Commission rules, to occur within the aquifer as a result of use under this permit.

Use of any or all water under this permit is only allowed if an Intergovernmental Agreement is in place between the Eugene Water and Electric Board, Springfield Utility Board, and the Rainbow Water district that addresses injury issues with senior users.

The combined pumping rate from all wells that are less than one mile from Ayers Pond (Well 1, Well 4, Well 7, Well 9, Well 10, Well 11, and Well 12 in the current proposed wellfield configuration) shall not exceed 4.998 cfs unless the Department approves a plan to mitigate impacts on the Willamette River.

The combined pumping rate from all wells that are less than one mile from the Willamette River (only Well 7 in the current proposed wellfield configuration) shall not exceed 4.998 cfs unless the Department approves a plan to mitigate impacts on the Willamette River.

The wells shall be completed to produce water from the confined portion of the alluvial aquifer system at depths greater than about 100 feet below land surface.

The applicant shall submit an updated water management and conservation plan consistent with current Oregon Administrative Rule Chapter 690, Division 86 within two years of issuance of this permit. Extensions for this submission may be allowed for good cause.

The use may be restricted if the quality of hydraulically connected surface waters or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards due to reduced flows.

STANDARD CONDITIONS

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

If the number, location, source, or construction of any well deviates from that proposed in the permit application or required by permit conditions, this permit may not be valid, unless the Department authorizes the change in writing.

If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

The well(s) shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine water level elevation in the well at all times.

Where two or more water users agree among themselves as to the manner of rotation in the use of water and such agreement is placed in writing and filed by such water users with the watermaster, and such rotation system does not infringe upon such prior rights of any water user not a party to such rotation plan, the watermaster shall distribute the water according to such agreement.

Prior to receiving a certificate of water right, the permit holder shall submit the results of a pump test meeting the department's standards, to the Water Resources Department. The Director may require water level or pump test results every ten years thereafter.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

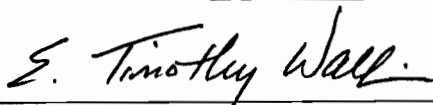
By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

The use of water shall be limited when it interferes with any prior surface or ground water rights.

The permit holder shall commence and complete the construction of any proposed works within 20 years from the date of permit issuance. The Department may order and allow an extension of time to complete construction or to perfect a water right beyond 20 years from the date of permit issuance.

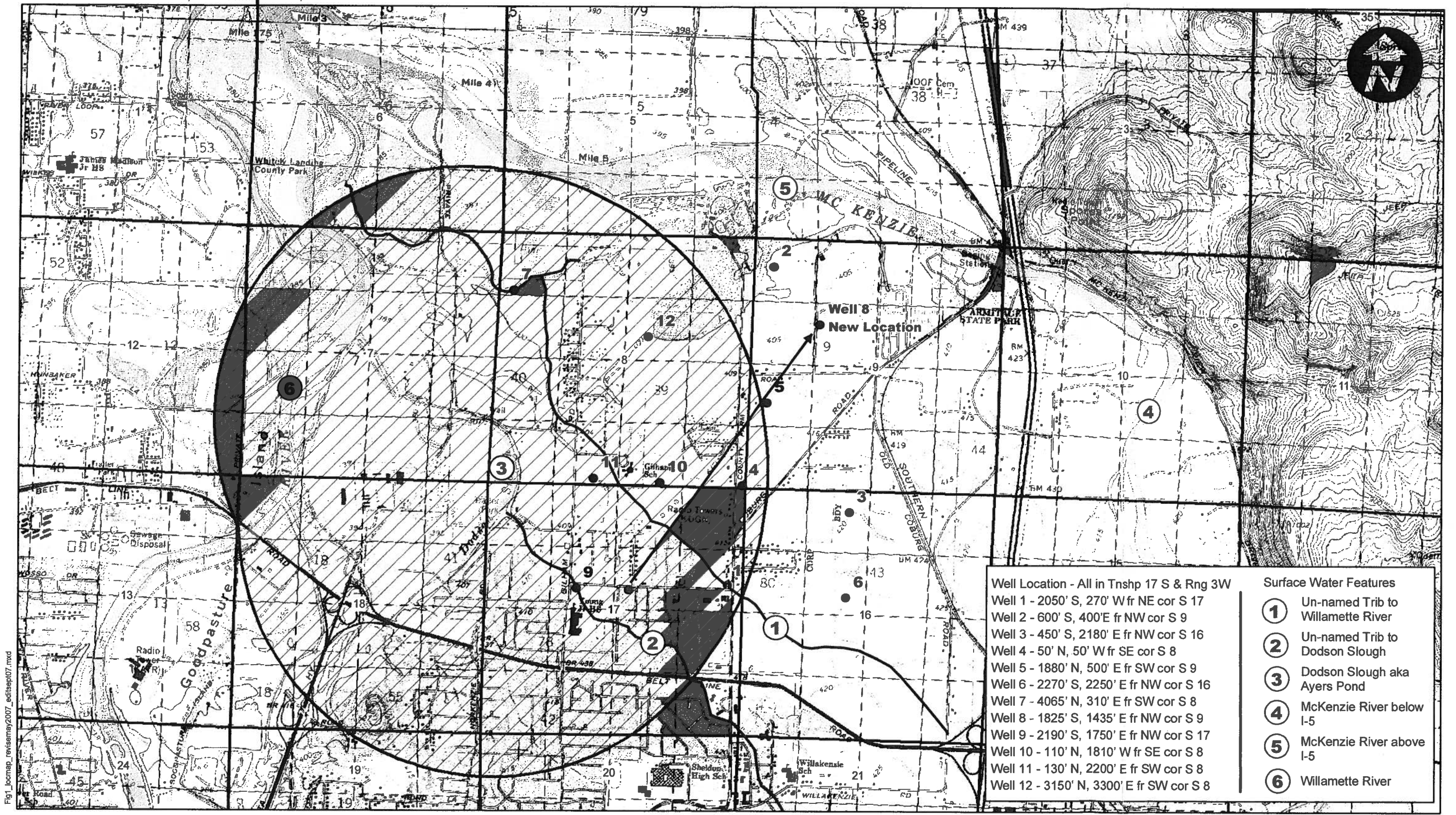
Within one year after complete application of water to the proposed use, the permittee shall submit a claim of beneficial use, which includes a map and report, prepared by a Certified Water Rights Examiner (CWRE).

Issued August 13, 2008



for Phillip C. Ward, Director
Water Resources Department

T17S, R4W WM. T17S, R3W WM.



- | | |
|--|--|
| Well Location - All in Tnshp 17 S & Rng 3W | |
| Well 1 - 2050' S, 270' W fr NE cor S 17 | |
| Well 2 - 600' S, 400' E fr NW cor S 9 | |
| Well 3 - 450' S, 2180' E fr NW cor S 16 | |
| Well 4 - 50' N, 50' W fr SE cor S 8 | |
| Well 5 - 1880' N, 500' E fr SW cor S 9 | |
| Well 6 - 2270' S, 2250' E fr NW cor S 16 | |
| Well 7 - 4065' N, 310' E fr SW cor S 8 | |
| Well 8 - 1825' S, 1435' E fr NW cor S 9 | |
| Well 9 - 2190' S, 1750' E fr NW cor S 17 | |
| Well 10 - 110' N, 1810' W fr SE cor S 8 | |
| Well 11 - 130' N, 2200' E fr SW cor S 8 | |
| Well 12 - 3150' N, 3300' E fr SW cor S 8 | |
-
- | | |
|------------------------|-----------------------------------|
| Surface Water Features | |
| ① | Un-named Trib to Willamette River |
| ② | Un-named Trib to Dodson Slough |
| ③ | Dodson Slough aka Ayers Pond |
| ④ | McKenzie River below I-5 |
| ⑤ | McKenzie River above I-5 |
| ⑥ | Willamette River |

Fig1_locmap_revisemay2007_editssept07.mxd

Legend

- EWEB Confluence Wellfield Well Locations
- Previous location for Well 8
- Direction of movement of new locations for EWEB Well 8
- Tributary identified in OWRD initial application review
- ▨ Ayres Pond (Dodson Slough) 1 Mile Buffer

0 660 1,320 2,640 3,960 5,280 Feet

RECEIVED
OCT 02 2007
 WATER RESOURCES DEPT
 SALEM, OREGON

Figure 1
 General Location Map
 Permit Application G-15857
 Eugene Water and Electric Board



EWEB Water Quality Laboratory

3957 Hayden Bridge Rd

Springfield, OR 97477

(541) 685-7860

ORELAP ID #OR100003

EPA Lab ID # OR00052

26 September 2025

Eugene Water & Electric Board

3957 Hayden Bridge Rd

Springfield, OR 97477

RE: Other - Groundwater Well Project

Testing results are enclosed for samples received by the laboratory on 09/16/25 12:10. The results in this report relate only to the parameters tested and the samples analyzed as requested on the chain of custody document. This analytical report was generated on 9/26/2025 12:08:22PM, and is the final version superceding any previous versions. This analytical report may only be reproduced in its entirety and with the written approval of EWEB Water Quality Laboratory management.

If you have any questions concerning these test results, please feel free to contact EWEB Water Quality Laboratory at (541) 685-7860 or laboratory@eweb.org.

Authorized for release by

**EWEB Water Quality Laboratory**

3957 Hayden Bridge Rd

(541) 685-7860

ORELAP ID #OR100003

EPA Lab ID # OR00052

Client: EWEB**Project:** Other**Work Order:** 2511602**PWS #:** [none]**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Collected	Collected By	Received	Notes
Well #PW02-02 L58583	2511602-01	Water Other	09/16/25 11:00	Brenda Casarez	09/16/25 12:10	



EWEB Water Quality Laboratory
3957 Hayden Bridge Rd
(541) 685-7860
ORELAP ID #OR100003
EPA Lab ID # OR00052

Client: EWEB
Project: Other

Work Order: 2511602
PWS #: [none]

CASE NARRATIVE

This report contains analytical results for the sample(s) as received by EWEB Water Quality Laboratory. This report complies with the requirements of current TNI (The NELAC Institute) standards.

The sample(s) met all acceptance criteria unless noted. Sample(s) were processed and analyzed according to EWEB Water Quality Laboratory quality assurance policies and procedures. There were no analytical or quality issues except as noted or qualified on this report.



EWEB Water Quality Laboratory
3957 Hayden Bridge Rd
(541) 685-7860
ORELAP ID #OR100003
EPA Lab ID # OR00052

Client: EWEB
Project: Other

Work Order: 2511602
PWS #: [none]

Well #PW02-02 L58583
2511602-01 (Water Other)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method
Microbiology							
Total Coliforms	ND	1.0	MPN/100 mL	1	09/16/25 13:19	09/17/25 14:08	SM 9223 B Colilert Quanti-Tray
E. Coli	ND	1.0	MPN/100 mL	1	09/16/25 13:19	09/17/25 14:08	SM 9223 B Colilert Quanti-Tray
Field Testing							
pH	8.1		pH Units	1	09/16/25	09/16/25	SM 4500 H+B
Temperature	15.4		°C	1	09/16/25	09/16/25	EPA 170.1



EWEB Water Quality Laboratory
3957 Hayden Bridge Rd
(541) 685-7860
ORELAP ID #OR100003
EPA Lab ID # OR00052

Client: EWEB	Work Order: 2511602
Project: Other	PWS #: [none]

Accredited Analyses Included in this Report

Analyte	Matrix	Method	Accreditation
Total Coliforms	Water Other	SM 9223 B Colilert Quanti-Tray	ORELAP
E. Coli	Water Other	SM 9223 B Colilert Quanti-Tray	ORELAP

Accreditation	Description	Number	Expires
ORELAP	Accredited in accordance with NELAP	OR100003	08/14/2025

**EWEB Water Quality Laboratory**

3957 Hayden Bridge Rd

(541) 685-7860

ORELAP ID #OR100003

EPA Lab ID # OR00052

Client: EWEB**Project:** Other**Work Order:** 2511602**PWS #:** [none]**Notes and Definitions**

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
RCV Percent Recovery of target analyte
RPD Relative Percent Difference

ATTACHMENT E – Preliminary Summary of Water LTFP – Alternative 2 Willamette River Intake

Summary of Water LTFP Revenue Requirement Assumptions and Outcomes (000's omitted)

Key Metrics (Dollars in \$000,s)	Target	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Total Cash Reserves	\$14,680	\$21,000	\$21,300	\$23,400	\$31,700	\$37,900	\$45,200	\$52,800	\$57,900	\$63,200	\$69,900	
Days Cash	> 150 days	248	274	299	377	389	447	501	524	541	579	
												10-yr Total
Annual Capital Investment		\$51,800	\$70,200	\$77,600	\$73,400	\$34,800	\$37,800	\$38,500	\$26,800	\$20,200	\$19,800	\$450,900
Use of Rate Stabilization Funding		\$2,500										
Bond Issuance		\$143,800			\$95,800			\$27,000				\$266,600
Total Debt		\$247,300	\$241,600	\$235,600	\$325,100	\$317,100	\$309,600	\$328,700	\$320,000	\$311,000	\$301,500	
Annual Debt Service		\$7,400	\$16,800	\$16,800	\$16,800	\$23,000	\$22,200	\$22,200	\$23,900	\$23,900	\$23,900	
Debt Service Coverage Ratio	2.00-2.50	3.53	2.01	2.27	2.30	2.00	2.10	2.13	2.00	2.02	2.06	
Revenue Requirement Assumptions	10 Year Compound	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
General Rate Increase		6.00%	8.00%	7.50%	3.00%	2.50%	2.00%	2.00%	2.00%	2.00%	2.00%	
Second Source Increase			9.50%			15.00%			0.50%	0.50%		
Change in Revenue Requirement	80.67%	6.00%	17.50%	7.50%	3.00%	17.50%	2.00%	2.00%	2.50%	2.50%	2.00%	

Key Assumptions

- Annual consumption of approximately 7.8 million kgal
- Includes watershed recovery fee revenue sunseting June 2026
- Contribution margin risk tolerance \$1.4 million which represents 95% of historical 5-year average
- Bond issuance: \$143.8 million in 2026, \$95.8 million in 2029, \$27 million in 2032
- System Development Charge reserve draw of \$500,000 for debt service payments in 2026
- Rate Stabilization Fund expected to be drawn in 2026 to fund capital projects
- Second Source Willamette Treatment Plant full design & construction included