



# Staff Report

---

**Meeting Date:** June 6, 2022  
**From** Jenny Coker, Public Works Director  
**SUBJECT:** Bull Run Water Supply Decision Reevaluation

---

## **DECISION TO BE MADE:**

Reconsideration of the decision to construct a new water treatment plant to treat raw water from the City of Portland's Bull Run water source.

## **PURPOSE / OBJECTIVE:**

Comply with the mandate to meet the treatment requirements for cryptosporidium (either connecting to Portland's new filtration plant or constructing our own treatment facility) by September 30, 2027.

## **BACKGROUND / CONTEXT:**

Given the rising cost of construction, City staff and our consultants have completed an effort to update previous alternative evaluations for the City's long term water supply. In the past 8 weeks, City staff has met with the Portland Water Bureau (PWB) ten times to learn more about the Portland Filtration Plant Schedule, Wholesale Water Supply Agreement, and determine if there is still a window to have Portland supply filtered (treated) water instead of raw (untreated) water as previously decided.

## **Bull Run Water Supply Treatment Options**

Last June the City Council reviewed information and options regarding the City's water supply sources and the mandate to treat the Bull Run Water Source or purchase treated Bull Run Water from the City of Portland. The City entered into a bilateral compliance agreement with the State of Oregon in September 2018 to meet the treatment requirements for cryptosporidium (either connecting to Portland's new filtration plant or constructing our own treatment facility) by September 30, 2027.

Based on the preliminary analysis of the life cycle costs and local control considerations, the Council decided to notify the Portland Water Bureau (PWB) the City's intent to purchase raw Bull Run water from PWB and construct our own water treatment plant in June of 2021. This means the current supply of chlorinated unfiltered water from Portland will no longer be available to the City in September of 2027 as Portland will switch to the treated filtered water supply. The current supply to Sandy will no longer be disinfected with chlorine, or in compliance for cryptosporidium, and will require treatment to be in compliance.

Since the decision in June of 2021, the City's consultant working on the Water Master Plan has been updating the cost estimates for the treatment plant and transmission pipeline in light of the escalating costs and updated PWB bulk water and treated water purchase rate estimates. The escalating construction costs and concerns about the inflationary climate and projected utility increases prompted us to look again at the options and the Portland Water Bureau's plans. Recent meetings with other agencies carry a similar story. Many communities are also facing down significant construction cost escalations for their infrastructure projects such as the Gresham Rockwood water project and the Willamette Water Supply Project.

Portland Water Bureau staff have been very helpful in meeting with us and allowing us to further study the options to make sure we have the best information on our future water supply options before we embark on design and engineering. Staff have met with Water Bureau staff ten separate times to research the possibilities for connecting to Portland's new facilitation plant and possibilities for cost sharing of infrastructure, and Portland also authorized the FCS group to run Sandy specific Portland Water Purchase forecast for filtered versus raw water using the old and new water agreements. The filtration plant is at 90% design and will submit the land use application in June of 2022. Sandy needs to finalize the decision of filtered versus raw water in June of 2022 for Portland to accommodate changes to their plant design.

## **Water Master Plan Update | Capital Improvement Plan**

### Water Sources

The City has three sources of water: Alder Creek, Brownell Springs, and Bull Run. Brownell Springs and Alder Creek have a combined reliable supply capacity of 2.7 million gallons per day (MGD), based on water right priority. There are also junior water rights on Brownell Springs, however these are normally curtailed in the summer peak season. The City's current agreement with PWB allows for a purchase of up to 3 MGD with a minimum of 500,000 GPD.

### Alder Creek Water Treatment Plant

The Alder Creek Water Treatment Plant currently treats an average of 0.9 MGD and can produce a peak of 1.5 MGD in the summer. The Alder Creek Water Treatment Plant is approaching the end of its useful life and has many condition repairs needed to restore functionality and redundancy. Currently only half of the plant is operational. If fully upgraded, Alder Creek could produce up to 2.4 MGD.

### Salmon River Water Rights

The City has an undeveloped water right permit on the Salmon River of 16.2 MGD. However, developing this water right faces significant permit conditions and regulatory challenges for developing on the Salmon or Sandy River. Two options for developing this water right have emerged for a future feasibility study, but the time for developing is

too long and the outcome too uncertain to be used to meet the compliance deadline of 2027.

These two options are 1) a surface water to groundwater transfer of the permit to a well on the Sandy River downstream of the Salmon River confluence; and 2) locating an intake on the Salmon river and building a 4 mile transmission main along highway 26 to Alder Creek Water Treatment Plant.

The Salmon River water right does not expire until 2069, and having these rights, and exploring either a transmission main or a surface to groundwater transfer gives the City a plan for long term water supply for development in the 2042-2052 timeframe.

### **Sandy's Current and Forecasted Water Demand**

Currently Average Daily Demand is 1.2 MGD. Max Day Demand occurs in the summer and is 2.1 MGD. In thirty years, average daily demand is forecasted to be 3.5 MGD with maximum daily demand of 6 MGD, depending on Sandy's growth.

If Alder Creek was upgraded to full production, it could cover Sandy's average daily demands for the next twenty years, to approximately 2042. However, additional supply is needed each year, starting in 2027 to help meet max day demands. The volume of additional supply is highly dependent on the reliable capacity of Alder Creek and the reliable production capacity of the water treatment plant. Again, Alder Creek currently only reliably produces 0.9 MGD due to the condition of the treatment plant.

### **Draft Capital Improvement Plan**

The updated Water Master Plan will include a draft capital improvements plan that will include:

- Reservoir Repairs/replacements and Improvements
- Brownell Springs Improvements
- Alder Creek Treatment Plant Investments
- Portland Water Supply Options
  - New pump station and transmission line of filtered water; or
  - New treatment plant to treat raw water from bull run

### **Ground Water Supply Exploration Update**

Murraysmith recently completed a draft ground water supply exploration update. The findings indicate that the aquifer characteristics are not likely to support groundwater capacities in the 5 MGD range in the shallow alluvial aquifer near the City. However,

there is the possibility of a capacity of 1-2 MGD, but the only real way to confirm is to do a test well.

In terms of water quality, water produced would likely be very good but would require both disinfection and filtration to eliminate the risk from surface water pathogens. The need for additional treatment would have to be evaluated through a pilot well study.

Recommendations from our consultant is that if the City were to continue to explore development of a 1-2 MGD well, due to the uncertainty of sustainable production, the City would need to explore this option in parallel with upgrading Alder Creek Water Treatment Plant and completing the bull run water supply upgrades of either a new transmission pipeline and pump station or a second water treatment plant.

### **KEY CONSIDERATIONS / ANALYSIS:**

Murraysmith conducted a screening analysis looking at a combination of increasing levels of investment at the Alder Creek Water Treatment Plant, coupled with purchase of filtered water or raw water from the City of Portland. In all cases, maximizing production of alder creek water, and minimizing the volume of water purchased from Portland results in the lowest lifecycle cost to the City.

Both options include full upgrade costs for Alder Creek Water Treatment Plant of \$14.4 MGD.

### **Option 1 - New Water Treatment Plant**

The new water treatment plant option used the approach of checking planning level estimates against three new constructed water treatment plants with a capacity of 3 MGD expandable to 5 MGD. Comparable costs were \$18 million for a new water treatment plant construction cost, excluding land purchase. The costs all include contingency and markups for planning, permitting, engineering, construction management, program management, land acquisition, and other costs. 30 year lifecycle costs include water purchase and operations and maintenance costs.

**New Water Plant Cost** \$43,900,000  
**Alder Creek Upgrade Cost** \$14,400,000  
**Total Initial Investment (2026 dollars)** **\$58,400,000**

**30 Year Lifecycle Cost** **\$143,356,000** (includes raw water purchase)  
**Raw Water Purchase** \$6,057,000

**Benefits:** Water treatment plant can be phased construction. City has control of design and construction. Water treatment plant paid by city rate payers. Less expensive to purchase raw water.

**Drawbacks:** City is responsible for operation and compliance of two water treatment plants. Portland's backup ground water supply is not available for raw water. Requires a 3 to 5 acre parcel for construction, and land acquisition and permitting in the schedule provides some uncertainty and schedule concerns. Higher capital costs which translates into higher rate increases over the next several years. Higher lifecycle costs. Risks of Portland rates at expiry of new agreement.

## **Option 2 - Transmission Pipeline and Pump Station**

Two pipeline routes were explored in collaboration with the City of Portland, one on Lusted Road and one on Bluff Road. Lusted road is the higher cost option due to the need to tunnel, and has a large schedule risk due to the need to acquire 25 easements from property owners. The Bluff road pipeline route is the recommended route due to alignment in ROW, as well as being less expensive to construct due to no tunneling needed. This option includes 11,500 feet of new 24-inch pipeline, a bluff road pavement overlay, jack and bore installation of pipe underneath Bear Creek, and 5 MGD pump station located at the Portland Filtration Plant.

**New Bluff Road Transmission Pipe and Pump Station Cost:** \$32,800,000  
**Alder Creek Upgrade Cost** \$14,400,000  
**Total Initial Investment (2026 dollars) \$47,200,000**

**30 Year Lifecycle Cost \$85,600,000** (includes filtered water purchase)  
**Filtered Water Purchase** \$10,682,000

**Benefits:** Lowest lifecycle cost. Lowest capital cost. Portland groundwater reserves available to filtration customers providing resiliency to Sandy supply in case of a fire in the Bull Run or Alder Creek. Water treatment plant built by Portland and costs shared by wholesale customer and Portland ratepayer. Lower capital costs for transmission pipeline and pump station and minimal O&M costs. City operates one water treatment plant and pump station (as it does currently) not two treatment plants.

**Drawbacks:** Higher costs for filtered water. Risks to water rate increases after expiration of agreement. Portland chloramine disinfection will require disinfection changes at Alder Creek and Brownell springs. New wholesale agreement conditions. Strategy relies on minimizing Portland water purchases. Relying on Portland in case of an Alder Creek emergency (fire) etc, will have a high cost of taking emergency water.

### **RECOMMENDATION:**

Staff recommends that the City Council reconsiders the Bull Run Water supply decision and direct staff to inform the Portland Water Bureau and the Oregon Health Authority of the city's intent to connect to the new filtration plant.

Purchasing PWB treated water is less expensive for up front capital costs, is less expensive in terms of 30 year lifecycle costs, and provides an additional redundant water source for emergencies with the development of a connection to the Portland ground water supplies. In addition, it saves city operating costs by not having to operate a second treatment plant. Finally, the schedule for building a transmission pipeline and pump station is expected to take five years, which allows the City to better meet the bilateral compliance deadline.

**Next Steps**

Next steps include:

- Decide formally to purchase filtered water (Council)
- Update water rate model and implement rate increases
- Refine condition assessment to maximize Alter Creek Water Treatment Plant and determine water system CIP.
- Complete and adopt Master Plan
- Evaluate land use and permitting associated with transmission pipeline and pump station for filtered water
- Develop funding approach for program and apply for funding
- Hire program manager and design team

**BUDGETARY IMPACT:**

The options of purchasing filtered treated water from Portland Water Bureau or purchasing raw Bull Run Water have different cost projections over a 30-year horizon. Purchasing filtered treated water from Portland Water Bureau, and owning and operating one treatment plant (Alder Creek) has both lower capital costs and lower lifecycle costs. Although purchasing filtered treated water is more expensive, building and operating a pipeline and pump station is less costly compared to building and operating a second water treatment plant.

	<b>Purchase Filtered Water &amp; Upgrade Alder Creek WTP</b>	<b>Purchase Raw Water, Build new WTP &amp; Upgrade Alder Creek WTP</b>	<b>Savings</b>
Capital Cost	\$47.2 Million	\$58.4 Million	\$11.2 Million
30 year Lifecycle Cost	\$85.6 Million	\$143.4 Million	\$57.8 Million

Purchasing filtered water and building a pipeline and pump station would save approximately \$57.8 Million in the first 30 years. This option is also anticipated to save \$11.2 Million in initial capital costs.

Rates a based on the latest Portland Water Bureau forecast rates for 2023-2031 followed by 2% per year average annual rate increases.

More detailed cost information, including reinvestments in the Sandy water distribution system such as reservoirs, which are not yet included in any cost estimates (but are common to both alternatives) will be developed as part of the Water Master Plan. The costs will then be integrated into the water rate model to forecast future rate adjustments.

## **Rate Impacts**

Either option will necessitate the need to continue water rate increases over the next few years. The 9% and 8% increases in 2019 and 2021 have helped ramp up the increases, but in either scenario, the capital construction will need to be debt financed with water rate revenue to provide the debt service and fund balance coverage. We are working with our rate consultants to develop a rate model for the scenarios and funding options. Similar to the wastewater project, we will be pursuing a Clean Water State Revolving Loan, grants, and possibly a WIFIA loan as well, which would help with rate increases.

### **SUGGESTED MOTION LANGUAGE:**

"I move to direct staff to notify City of Portland and the Oregon Health Authority-Drinking Water Services Program of Sandy's intent to purchase filtered treated water from the City of Portland's new filtration plant after September 2027."

### **LIST OF ATTACHMENTS/EXHIBITS:**

- Sandy Water Supply Reconsideration Presentation
- NPV Sandy Water Supply Scenarios

# Bull Run Water Supply Decision Re-Evaluation

June 6, 2022

Presented by:

Jennifer Coker  
Public Works Director

Murraysmith



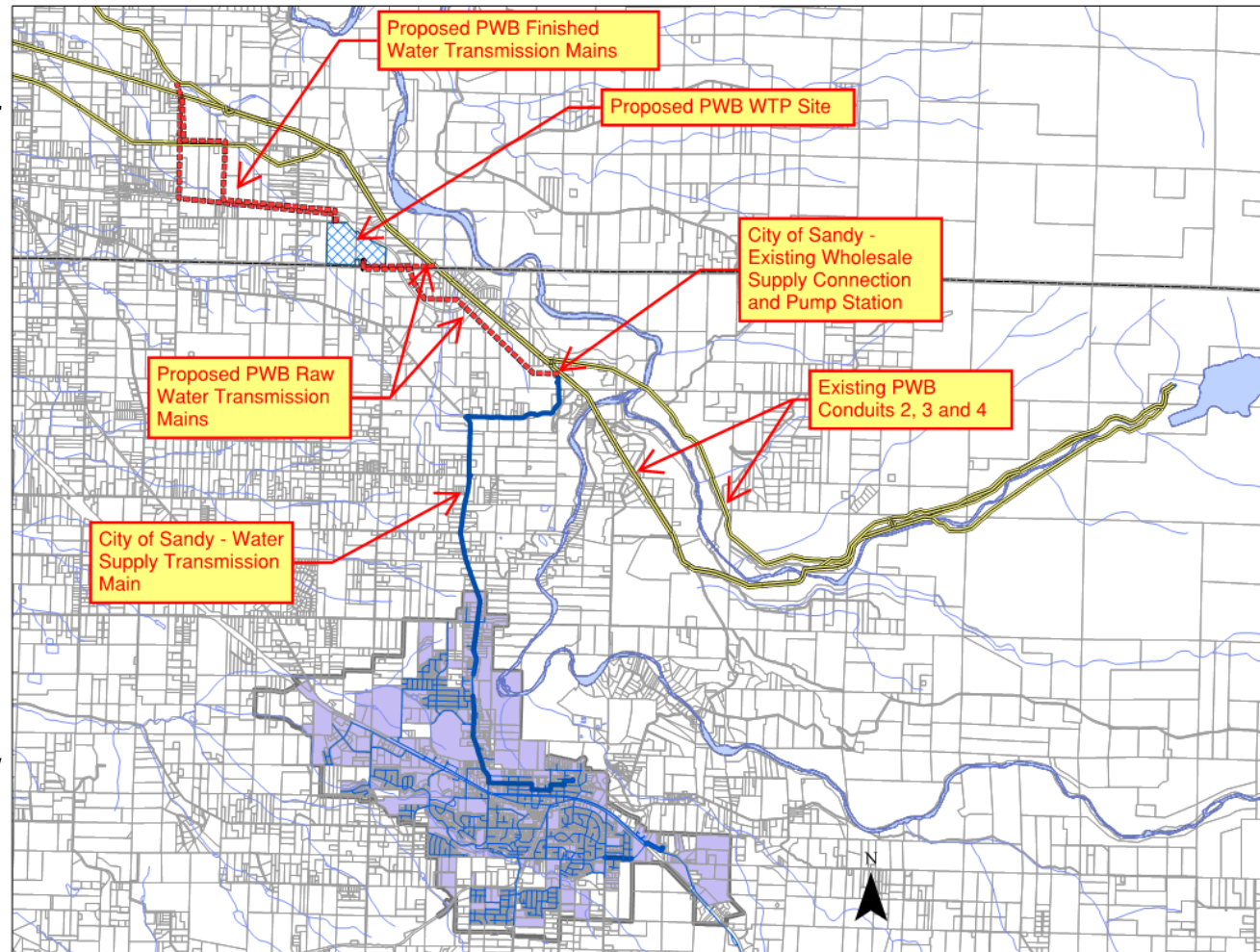


# Presentation Overview

- Background, Drivers
- Existing Water Supply Sources
- Water Demand
- Changes to Portland Supply
- Water Supply Alternatives
- Schedule
- Recommendation & Next Steps
- Q&A

# Changes to Portland Supply

- Portland is building a new filtration plant to meet Surface Water Treatment Rules
  - Must be in service by fall 2027
  - Treated water will not be available to Sandy when plant goes in service without constructing improvements
  - Sandy can buy untreated water from Portland and build a treatment plant
- or*
- Sandy can buy filtered water from Portland and build a new pipeline from Portland's WTP to existing connection at Lusted Road and Hudson Road



# Sandy Water Supply History

**2008** 20-year Water Supply Agreement w/ PWB

**2011** Sandy constructs infrastructure to connect to PWB

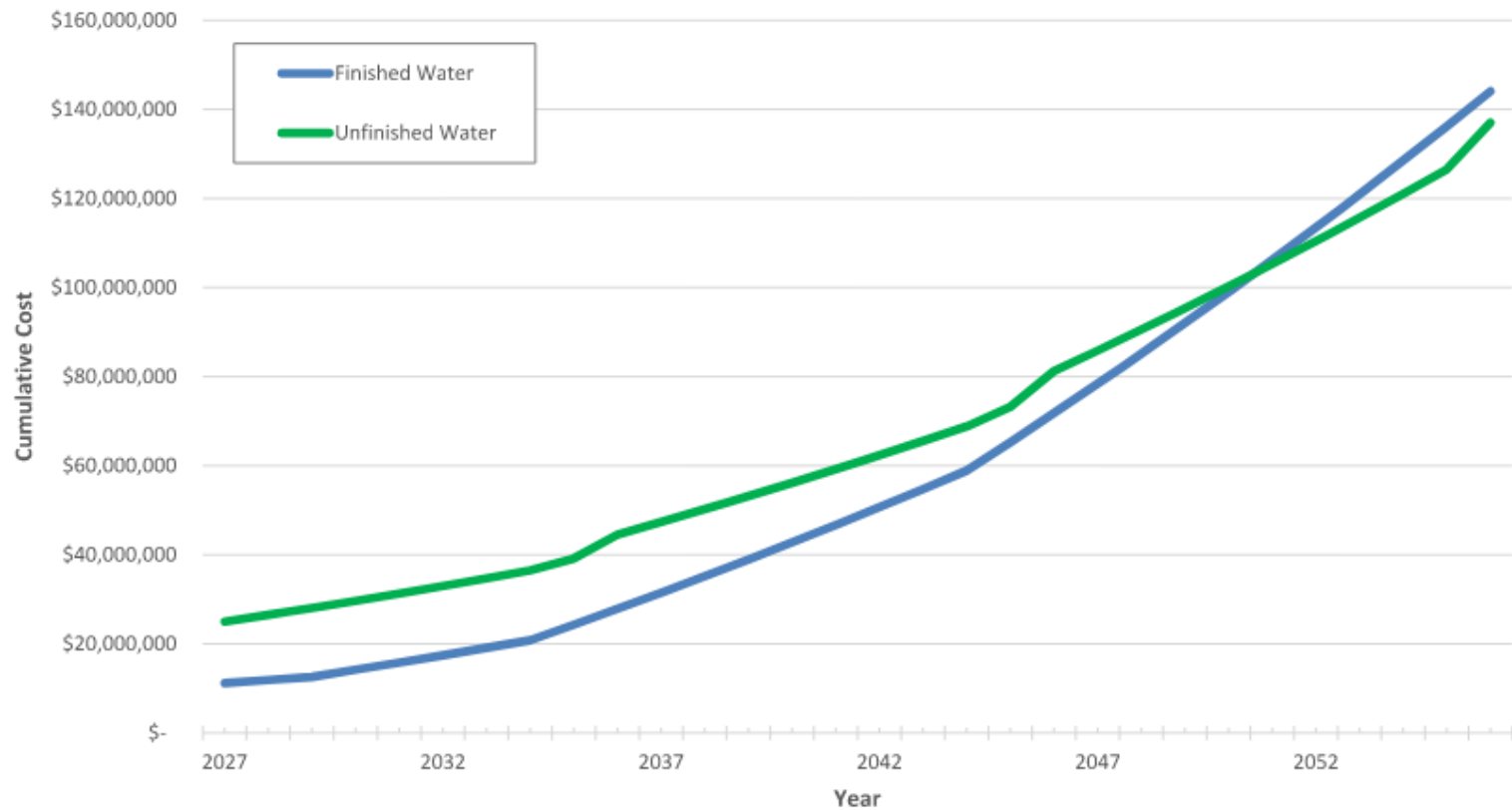
**2018** Sandy Agreement w/OHA treat Bull Run Water for Cryptosporidium by **September 2027**

**June 2021** Sandy chooses water treatment plant & purchase unfiltered water from PWB

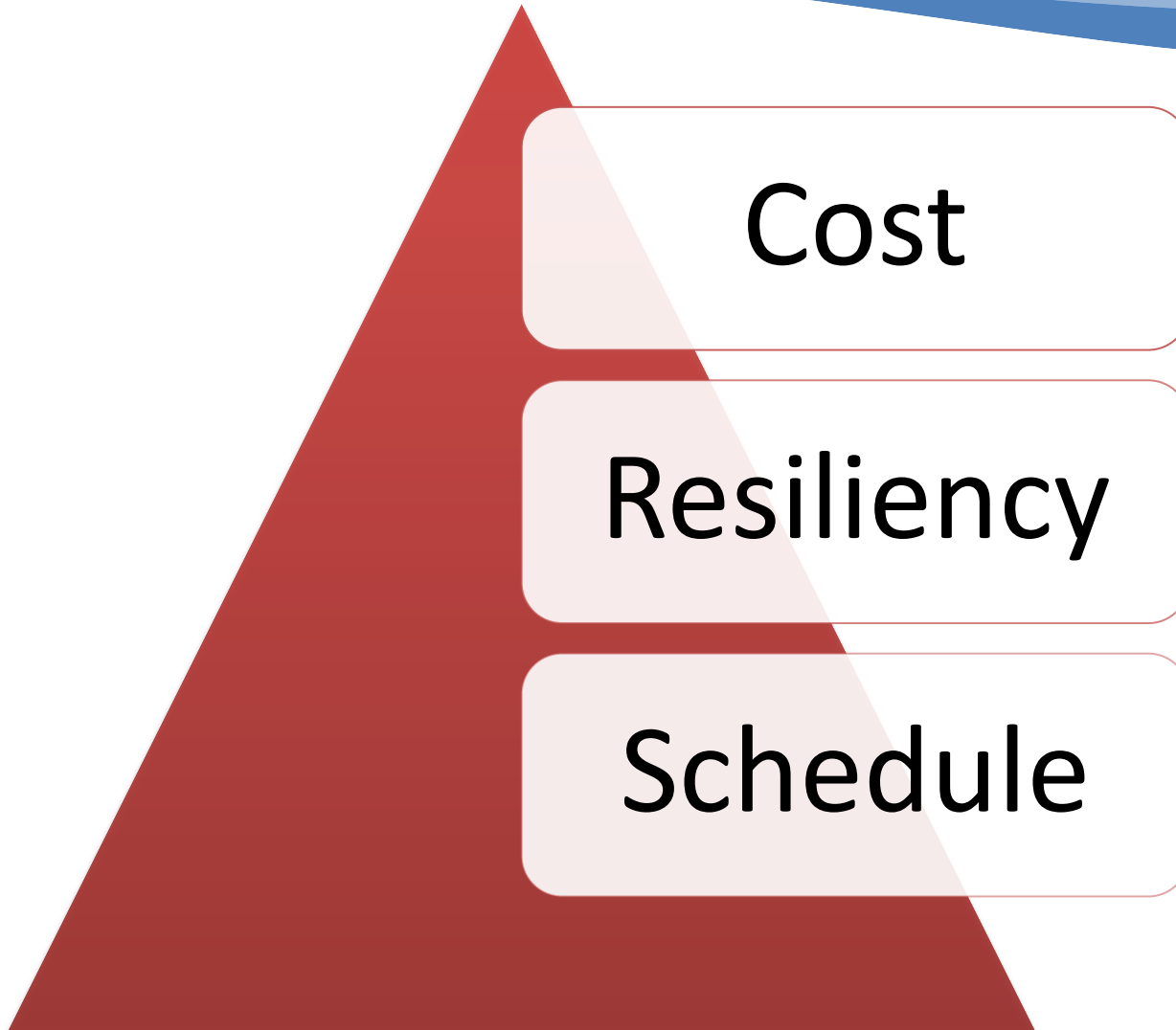
**May 2022** Revisit Decision based on updated costs

# Previous Analysis

## Cumulative Cost of Water Supply



# Decision Drivers



# Existing Water Supply

## Today, water is supplied from three sources

### Portland Wholesale Supply

Purchase unfiltered treated water from Portland : 3 (mgd)

### Alder Creek Surface Water Source

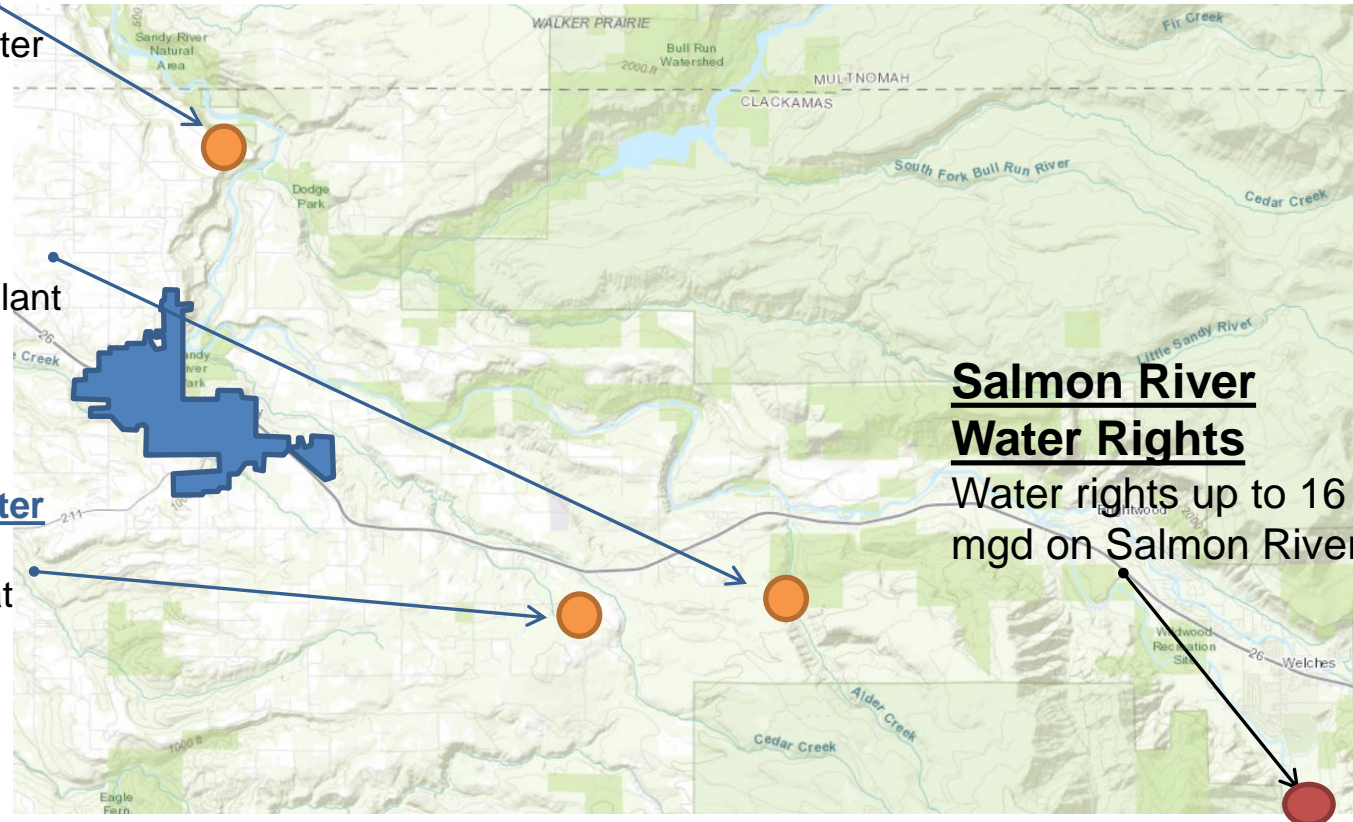
City owned Water Treatment Plant on Alder Creek: 0.9 mgd

### Brownell Springs Groundwater Source

City owned groundwater well at Brownell Springs: 0.12 mgd

### Salmon River Water Rights

Water rights up to 16 mgd on Salmon River



# Groundwater

- Water Rights Review
  - Brownell Springs & Alder Creek @ 2.7 MGD water right priority
  - Undeveloped Salmon River Permit – 16.2 MGD– significant regulatory hurdles.
    - Surface water to groundwater transfer of permit to a well on the Sandy River downstream of Salmon River confluence may be feasible.
    - Uncertain outcome, cannot happen by 2027
- Groundwater Review
  - Unlikely a wellfield could produce 5 MGD

# Compliance Status with OHA

Bilateral Compliance Agreement	Date Issued	Due Date	Closed Date
Submit Master Plan	Sept 2018	December 2020	<b>OVERDUE</b>
Begin Construction	Sept 2018	July 31, 2024	
Correct Water Quality Deficiencies	Sept 2018	September 30, 2027	

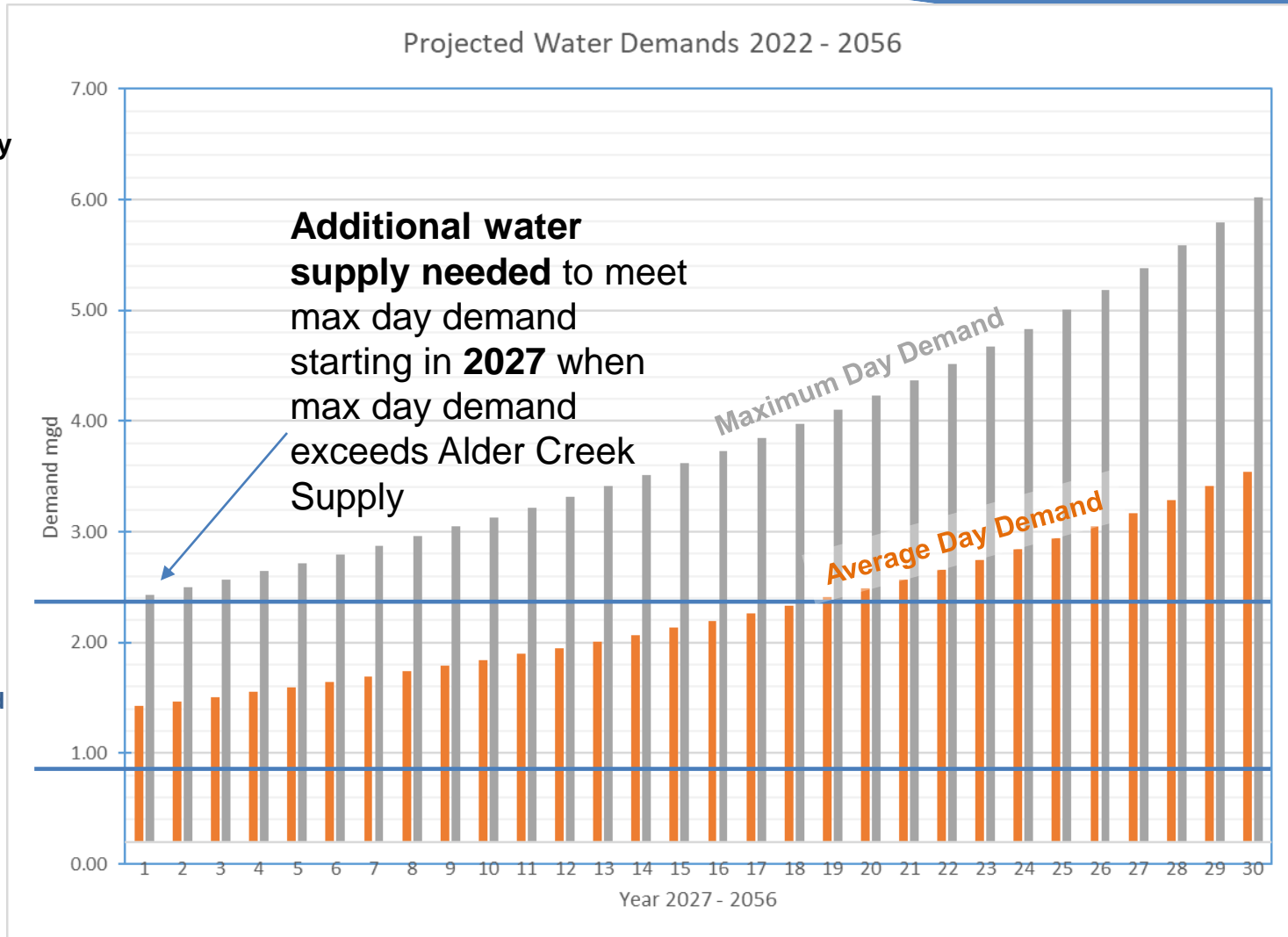


# Water Demand

- **Additional water supply needed in 2027** to meet max day demand
- **Size of additional supply varies** depending on capacity of Alder Creek
- **Brownell Springs provides** additional 0.12 mgd in the winter
- **Max day demand** occurs in summer
- **Today max day demand** is 2.1 mgd (ADD is 1.2 mgd)

**ALDER CREEK**  
Maximum future capacity 2.4 mgd

**ALDER CREEK**  
Current reliable capacity 0.9 mgd



# Water Supply Alternatives Screening



# Future Water Supply Alternatives

## Evaluating Alder Creek Alternatives

All options assume Alder Creek improvements are completed before 2027

Note: Maximum capacity from Alder Creek requires additional source to meet max day demand

Alternative	Capacity	Cost	Benefits/Risk
Minor Maintenance	0.9 mgd	\$ 1M	<ul style="list-style-type: none"><li>• Requires most water from Portland</li><li>• Alder Creek has approx. 10-year life expectancy without significant upgrades</li><li>• Does not Maximize Alder Creek supply</li></ul>
Major Maintenance	1.4 mgd	\$ 4.2M	<ul style="list-style-type: none"><li>• Reduces water needed from Portland</li><li>• Restores reliable long-term water supply</li><li>• Does not Maximize Alder Creek supply</li></ul>
Partial Replacement	2.4 mgd	\$ 14.4M	<ul style="list-style-type: none"><li>• Maximizes Supply from Alder Creek</li><li>• Requires least water from Portland</li><li>• Restores reliable long-term water supply</li></ul>

# Water Supply Alternatives Screening

## Upgrade existing supply at Alder Creek, Plus

- Maintain existing capacity of 0.9 mgd with minor maintenance
- Improve supply to 1.4 mgd with major maintenance
- Maximize supply to 2.4 mgd with upgrades and partial replacement

## A) Purchase raw water from Portland; or

- Build a water treatment plant

## B) Purchase filtered water from Portland

- Build a pipeline to connect to Portland's WTP

# Pipeline Alternatives for Finished Water

## Potential PWB Backfeed Pipeline

Would need to be oversized to feed Sandy

## Bluff Rd. Pipeline

New low-head pump station – 5 mgd

PWB obtaining easement

New pipeline  
11,500 FT – 24" dia.

Exist.  
Connection and  
pumpstation

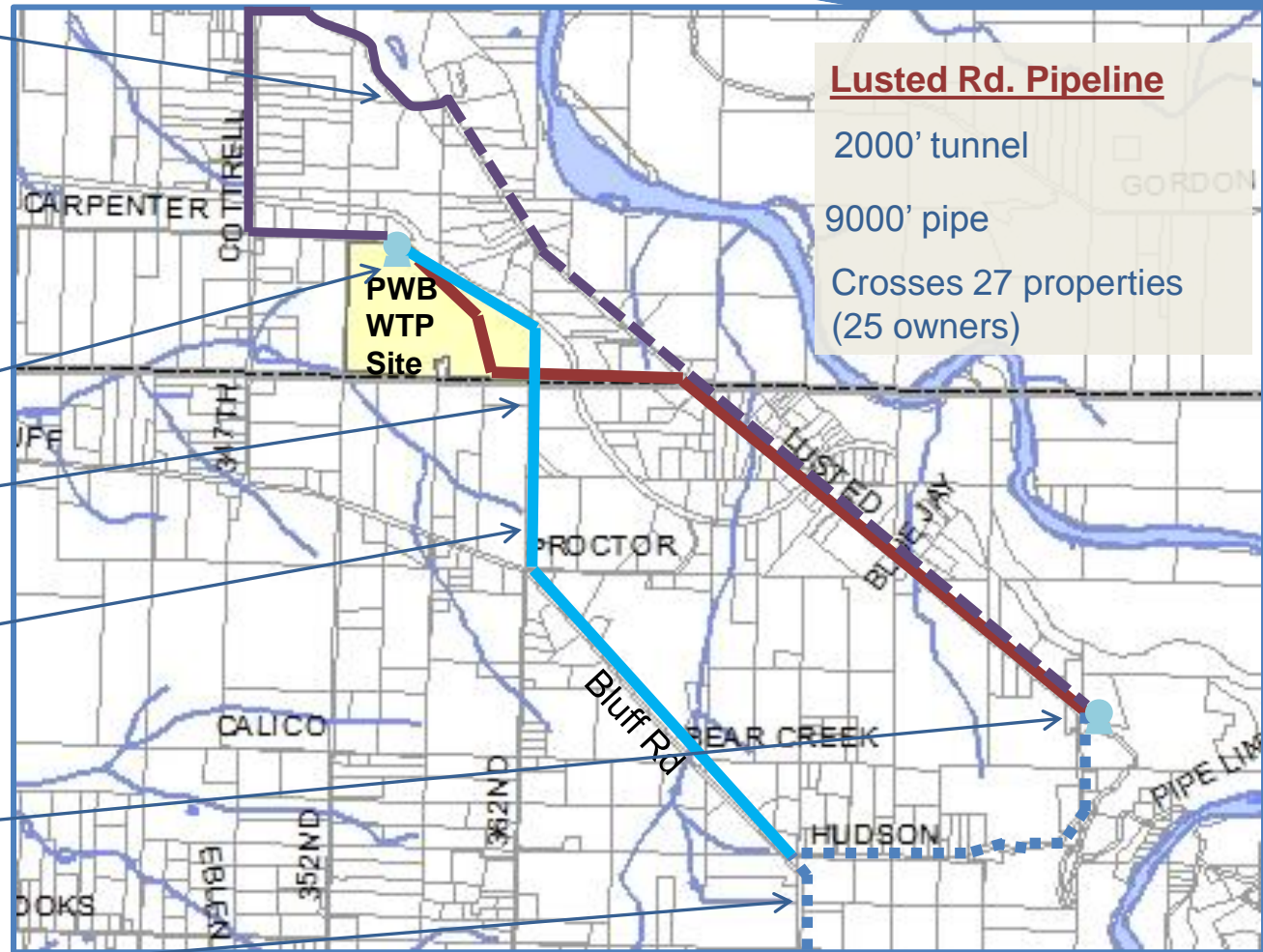
Exist. Sandy  
supply pipeline

## Lusted Rd. Pipeline

2000' tunnel

9000' pipe

Crosses 27 properties  
(25 owners)



# Portland Supply Alternatives

## **We also considered new pipeline in Lusted Road.**

- Included a 2,000 ft tunnel and 200' deep bore shaft – high risk
- Required property acquisition from 25 property owners along Lusted Road – high risk
- Cost was higher than Bluff Road option

# Screening: Raw Water Alternatives

Raw Water Alternatives	Initial Investment (2026 Dollars)	Lifecycle Cost (30 years)	Water Purchase	O & M
(R1) New Plant + Alder minor	\$43,947,000 \$ 1,033,000	<b>\$176,607,000</b>	\$37,756,000	\$27,300,000
<b>TOTAL</b>	<b>\$44,900,000</b>	<i>Build a new WTP and perform minor maintenance at Alder Creek. Alder Creek contributes today's amount 0.9 MGD</i>		
(R2) New Plant + Alder major maintenance	\$43,947,000 \$ 4,164,000	<b>\$161,668,000</b>	\$17,835,000	\$36,270,000
<b>TOTAL</b>	<b>\$48,100,000</b>	<i>Major maintenance at Alder Creek includes new filters, control repair/upgrades. Alder Creek contributes 1.4 MGD.</i>		
(R3) New Plant + Upgrade Alder Creek	\$43,947,000 \$ 14,407,000	<b>\$143,356,000</b>	\$6,057,000	\$32,240,000
<b>TOTAL</b>	<b>\$58,400,000</b>	<i>Partial replacement of Alder Creek includes new filters, new control, new process piping and upgraded pump station. Alder Creek contributes 2.4 MGD</i>		

# Screening: Filtered Water Alternatives

Filtered Water Alternative	Initial Investment (2026 \$)	Lifecycle Cost (30 years)	Water Purchase	O & M
(FB1) New Bluff Rd Pipe Alder Creek minor maintenance	\$32,784,000	<b>\$177,700,000</b>	\$75,061,000	\$4,977,000
<b>TOTAL</b>	\$1,033,000 <b>\$33,817,000</b>	11,500 LF of 24" pipe including 5 mgd pump station. Alder Creek produces current rate for 10 years		
(FB2) New Bluff Rd Pipe Alder Creek major maintenance	\$32,784,000	<b>\$119,289,000</b>	\$31,146,000	\$14,208,000
<b>TOTAL</b>	\$4,164,000 <b>\$36,948,000</b>	11,500 LF of 24" pipe including 5 mgd pump station. Increase Alder Creek production to 1.4 MGD		
(FB3) New Bluff Rd Pipe Upgrade Alder Creek	\$32,784,000	<b>\$85,618,000</b>	\$10,682,000	\$10,177,000
<b>TOTAL</b>	\$14,407,000 <b>\$47,190,000</b>	11,500 LF of 24" pipe including 5 mgd pump station. Increase Alder Creek production to 2.4 MGD		



# Supply Alternatives Filtered vs. Unfiltered Water Purchase

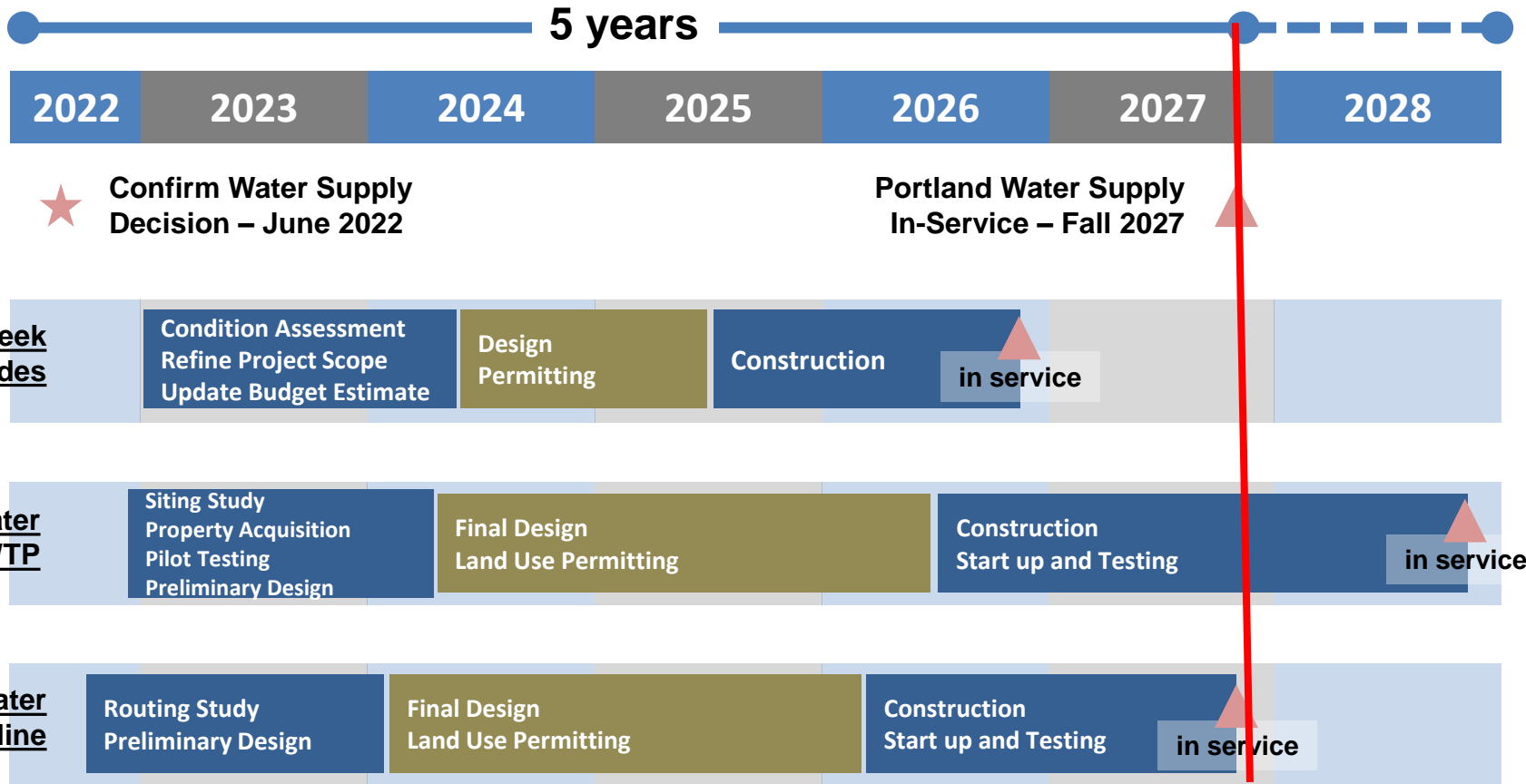
CRITERIA	PURCHASE FILTERED WATER FROM PDX BUILD BLUFF ROAD PIPELINE			PURCHASE RAW WATER FROM PDX BUILD WATER TREATMENT PLANT			
Water Supply Cost (30-yr cost in 2026 \$)	LifeCycle Cost:	<b>\$85.6M</b>	<b>+</b>	LifeCycle Cost:	<b>\$143.4M</b>	<b>-</b>	
	Total Investment:	<b>\$47.2M</b>		Total Investment:	<b>\$ 58.4M</b>		
Cost of Portland Water (in 2026 \$)	30-yr Cost:	<b>\$10.7M</b>	<b>-</b>	30-yr Cost:	<b>\$ 6.1M</b>	<b>+</b>	
Implementation Risk	<ul style="list-style-type: none"> <li>* Entire pipeline must be built - <u>can't</u> be phased</li> <li>* Requires easement along Carpenter Lane</li> <li>* All construction is outside the City</li> <li>* Without pipeline, City can't meet summer demand in 2027</li> </ul>			<b>-</b>	<ul style="list-style-type: none"> <li>* WTP can be built in phases - 1 mgd, 2 mgd, etc.</li> <li>* Requires one (1) 3-to-5-acre property near existing pipeline</li> <li>* Land use permitting provides some uncertainty</li> </ul>		<b>+</b>

# Supply Alternatives including Alder Creek Upgrades

Alternatives comparison assuming up front investment to maximize Alder Creek supply  
CONT...

CRITERIA	PURCHASE FILTERED WATER FROM PDX BUILD BLUFF ROAD PIPELINE		PURCHASE RAW WATER FROM PDX BUILD WATER TREATMENT PLANT	
Water Filtration	<ul style="list-style-type: none"> <li>* Water Treatment Plant (WTP) built by Portland</li> <li>* WTP cost shared by wholesale purchasers &amp; Portland rate payers</li> </ul>	+	<ul style="list-style-type: none"> <li>* City builds and owns new WTP</li> <li>* WTP paid for by City Rate Payers</li> </ul>	-
Operational Complexity	<ul style="list-style-type: none"> <li>* Minimal O&amp;M cost for pipeline</li> <li>* Need To evaluate disinfection approach</li> <li>* City operates only upgraded Alder Creek WTP and new pumpstation</li> <li>* PWB responsible for compliance</li> </ul>	+	<ul style="list-style-type: none"> <li>* City operates two water treatment plants</li> <li>* Higher O&amp;M cost</li> <li>* City responsible for compliance</li> </ul>	-
Resilience / Reliability	Portland groundwater supply provides redundancy	+	Portland groundwater supply <b>not</b> available for raw water option	-

# Water Supply Program Schedule



# Recommendation

- Upgrade Alder Creek & Install Bluff Road Water Transmission Pipe, **purchase filtered water**
- Capital Cost **\$47.2 Million**
- 30-year Lifecycle cost **\$85.6 Million**
- Lowest Capital and Lifecycle Costs, Faster Schedule, and Resiliency/Groundwater access

# Next Steps

- **Council Formalize** purchase decision
- **Refine condition assessment** to maximize Alder Creek WTP and determine water system CIP
- **Complete Master Plan**
- **Evaluate land use and permitting** associated with building a pipeline
- **Develop funding** approach for program
- **Hire** program manager/design team

# Questions





		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	
		Cost	Net Present Value (\$2028)	Lifecycle cost	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Water Purchase (gd)</b>		\$ 410,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	
<b>Annual Wholesale Cost Increase</b>		2%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>PV</b>		\$ 75,001.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>ANNUAL O&amp;M COST</b>		\$ 4,820.18	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	\$ 289.80	
<b>New Pipe</b>		\$ 1,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Property Cost</b>		\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Alter Creek Repairs</b>		\$ 200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>NPV (cost in \$2028)</b>		\$ 116,360.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Check w/ NPV formula</b>		\$116,360.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>FL2 Finished Water + New Lusted Rd Pipe + Alder Creek Major Maintenance</b>		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	
<b>Description/Notes</b>		Cost	Net Present Value (\$2028)	Lifecycle cost	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>CAPITAL COSTS</b>		\$ 46,646.625	\$ 46,646.625	\$ 46,646.625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>11,000 F124" Pipe + 5 mgd pump station</b>		\$ 46,646.625	\$ 46,646.625	\$ 46,646.625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Property Cost</b>		\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Alter Creek Repairs</b>		\$ 4,646.625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>ANNUAL WHOLESALE WATER PURCHASE</b>		\$ 31,362.187	\$ 60,771.204	\$ -	\$ 103,664	\$ 176,871	\$ 176,868	\$ 176,865	\$ 176,862	\$ 176,859	\$ 176,856	\$ 176,853	\$ 176,850	\$ 176,847	\$ 176,844	\$ 176,841	\$ 176,838	\$ 176,835	\$ 176,832	\$ 176,829	\$ 176,826	\$ 176,823	\$ 176,820	\$ 176,817	\$ 176,814	\$ 176,811	\$ 176,808	\$ 176,805	\$ 176,802	\$ 176,799	\$ 176,796	\$ 176,793	\$ 176,790	\$ 176,787	\$ 176,784	\$ 176,781	\$ 176,778
<b>Wholesale rate per CDF - rate water</b>		\$ -	\$ -	\$ -	\$ 103,664	\$ 176,871	\$ 176,868	\$ 176,865	\$ 176,862	\$ 176,859	\$ 176,856	\$ 176,853	\$ 176,850	\$ 176,847	\$ 176,844	\$ 176,841	\$ 176,838	\$ 176,835	\$ 176,832	\$ 176,829	\$ 176,826	\$ 176,823	\$ 176,820	\$ 176,817	\$ 176,814	\$ 176,811	\$ 176,808	\$ 176,805	\$ 176,802	\$ 176,799	\$ 176,796	\$ 176,793	\$ 176,790	\$ 176,787	\$ 176,784	\$ 176,781	\$ 176,778
<b>Water Purchase (gd)</b>		\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000		
<b>Annual Wholesale Cost Increase</b>		2%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>PV</b>		\$ 31,362.187	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>ANNUAL O&amp;M COST</b>		\$ 14,873.460	\$ 28,181.14	\$ 418,688	\$ 420,366	\$ 422,044	\$ 423,722	\$ 425,400	\$ 427,078	\$ 428,756	\$ 430,434	\$ 432,112	\$ 433,790	\$ 435,468	\$ 437,146	\$ 438,824	\$ 440,502	\$ 442,180	\$ 443,858	\$ 445,536	\$ 447,214	\$ 448,892	\$ 450,570	\$ 452,248	\$ 453,926	\$ 455,604	\$ 457,282	\$ 458,960	\$ 460,638	\$ 462,316	\$ 463,994	\$ 465,672	\$ 467,350	\$ 469,028	\$ 470,706	\$ 472,384	
<b>New Pipe</b>		\$ 1,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Property Cost</b>		\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Alter Creek Repairs</b>		\$ 200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>NPV (cost in \$2028)</b>		\$ 142,822.073	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Check w/ NPV formula</b>		\$142,822.073	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>FL3 Finished Water + New Lusted Rd Pipe + Upgrade Alder Creek (Partial Replacement)</b>		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	
<b>Description/Notes</b>		Cost	Net Present Value (\$2028)	Lifecycle cost	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>CAPITAL COSTS</b>		\$ 66,666.750	\$ 66,666.750	\$ 66,666.750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>11,000 F124" Pipe + 5 mgd pump station</b>		\$ 66,666.750	\$ 66,666.750	\$ 66,666.750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Property Cost</b>		\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Alter Creek Repairs</b>		\$ 14,666.750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>ANNUAL WHOLESALE WATER PURCHASE</b>		\$ 16,881.782	\$ 31,814.743	\$ -	\$ 103,664	\$ 176,871	\$ 176,868	\$ 176,865	\$ 176,862	\$ 176,859	\$ 176,856	\$ 176,853	\$ 176,850	\$ 176,847	\$ 176,844	\$ 176,841	\$ 176,838	\$ 176,835	\$ 176,832	\$ 176,829	\$ 176,826	\$ 176,823	\$ 176,820	\$ 176,817	\$ 176,814	\$ 176,811	\$ 176,808	\$ 176,805	\$ 176,802	\$ 176,799	\$ 176,796	\$ 176,793	\$ 176,790	\$ 176,787	\$ 176,784	\$ 176,781	\$ 176,778
<b>Wholesale rate per CDF - rate water</b>		\$ -	\$ -	\$ -	\$ 103,664	\$ 176,871	\$ 176,868	\$ 176,865	\$ 176,862	\$ 176,859	\$ 176,856	\$ 176,853	\$ 176,850	\$ 176,847	\$ 176,844	\$ 176,841	\$ 176,838	\$ 176,835	\$ 176,832	\$ 176,829	\$ 176,826	\$ 176,823	\$ 176,820	\$ 176,817	\$ 176,814	\$ 176,811	\$ 176,808	\$ 176,805	\$ 176,802	\$ 176,799	\$ 176,796	\$ 176,793	\$ 176,790	\$ 176,787	\$ 176,784	\$ 176,781	\$ 176,77



Discount Rate		3.00%																																		
NPV (2020 \$1000)		\$ 37,458,558	\$ 607,491	\$ 824,268	\$ 618,954	\$ 598,029	\$ 707,504	\$ 826,742	\$ 887,961	\$ 966,743	\$ 1,038,169	\$ 1,104,361	\$ 1,172,778	\$ 1,252,415	\$ 1,330,360	\$ 1,407,585	\$ 1,731,982	\$ 1,355,384	\$ 1,340,877	\$ 1,724,824	\$ 1,426,474	\$ 618,507	\$ 2,068,708	\$ 2,108,561	\$ 2,208,271	\$ 2,307,880	\$ 2,405,304	\$ 2,492,768	\$ 2,788,542	\$ 2,962,711	\$ 3,137,588	\$ 3,312,970				
Lifecycle cost (20 years)		\$ 178,288,586	\$ 37,458,558	\$ 425,716	\$ 602,286	\$ 878,348	\$ 783,387	\$ 889,748	\$ 985,879	\$ 1,108,404	\$ 1,227,236	\$ 1,354,975	\$ 1,503,378	\$ 1,763,730	\$ 1,933,873	\$ 2,128,397	\$ 2,698,371	\$ 2,496,963	\$ 2,172,285	\$ 2,820,388	\$ 3,182,115	\$ 1,117,201	\$ 3,731,210	\$ 4,040,222	\$ 4,386,187	\$ 4,801,432	\$ 5,157,812	\$ 5,658,440	\$ 6,198,336	\$ 6,783,893	\$ 7,387,881	\$ 8,027,881				
Check w/ NPV formula		\$ 52,867,264																																		
<b>#81</b>	<b>Finished Water + NewBluff Rd Pipe + Upgrade Alder Creek (Partial Replacement)</b>	2022	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056			
Description/Notes		Cost	Net Present Value (2020)	Lifecycle cost																																
CAPITAL COSTS		\$ 47,190,333	\$ 47,190,333																																	
11,500 Ft.12" Pipe + 5 mgd pump station		New Pipe	\$ 31,855,276	\$ 31,855,276																																
Level = 4 AC x 515sf		Property Cost	\$ 628,545	\$ 628,545																																
Alder Creek Repairs		\$ 14,406,513	\$ 14,406,513																																	
ANNUAL WHOLESALE WATER PURCHASE		\$ 18,681,782	\$ 21,814,743	\$ 183,886	\$ 174,877	\$ 178,568	\$ 184,081	\$ 191,003	\$ 197,789	\$ 204,233	\$ 211,798	\$ 219,484	\$ 227,400	\$ 235,656	\$ 244,263	\$ 253,231	\$ 262,570	\$ 272,291	\$ 282,404	\$ 292,919	\$ 303,846	\$ 315,195	\$ 326,976	\$ 339,200	\$ 351,878	\$ 365,021	\$ 378,649	\$ 392,782	\$ 407,430	\$ 422,603	\$ 438,311	\$ 454,564	\$ 471,372	\$ 488,745	\$ 506,684	
50.7% of Finished Water cost		Wholesale cost 50% of pipe water	\$ 9,340,891	\$ 10,907,371	\$ 91,943	\$ 87,438	\$ 89,284	\$ 92,040	\$ 95,003	\$ 98,192	\$ 101,597	\$ 105,216	\$ 109,050	\$ 113,109	\$ 117,503	\$ 122,142	\$ 127,030	\$ 132,178	\$ 137,586	\$ 143,264	\$ 149,222	\$ 155,470	\$ 162,018	\$ 168,876	\$ 176,054	\$ 183,562	\$ 191,410	\$ 199,608	\$ 208,166	\$ 217,094	\$ 226,412	\$ 236,130	\$ 246,258	\$ 256,796	\$ 267,754	
Water Purchase gpd		\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000		
Annual Wholesale Cost increase		2%	\$ 148,188	\$ 165,953	\$ 185,051	\$ 196,181	\$ 208,521	\$ 223,270	\$ 239,649	\$ 257,868	\$ 278,127	\$ 299,626	\$ 323,565	\$ 350,144	\$ 379,573	\$ 412,052	\$ 448,881	\$ 490,360	\$ 536,889	\$ 588,868	\$ 646,707	\$ 710,816	\$ 782,605	\$ 862,584	\$ 951,163	\$ 1,049,842	\$ 1,159,121	\$ 1,279,500	\$ 1,401,479	\$ 1,535,558	\$ 1,682,237	\$ 1,842,116	\$ 2,015,895	\$ 2,204,274	\$ 2,407,853	
PV		\$ 10,681,752	\$ 10,681,752																																	
ANNUAL O&M COST		\$ 18,177,353	\$ 16,416,628	\$ 328,363	\$ 338,162	\$ 348,287	\$ 358,746	\$ 369,568	\$ 380,811	\$ 392,571	\$ 404,854	\$ 417,670	\$ 431,028	\$ 445,038	\$ 459,801	\$ 475,428	\$ 491,932	\$ 509,415	\$ 527,888	\$ 547,361	\$ 567,844	\$ 589,347	\$ 611,880	\$ 635,453	\$ 660,076	\$ 685,759	\$ 712,502	\$ 740,325	\$ 769,238	\$ 799,251	\$ 830,374	\$ 862,617	\$ 896,000	\$ 930,533	\$ 966,226	
O&M Cost Pipe + PS		\$ 68,303	\$ 68,303	\$ 70,352	\$ 72,453	\$ 74,607	\$ 76,816	\$ 79,082	\$ 81,407	\$ 83,794	\$ 86,246	\$ 88,766	\$ 91,357	\$ 94,021	\$ 96,761	\$ 99,579	\$ 102,478	\$ 105,461	\$ 108,531	\$ 111,690	\$ 114,941	\$ 118,287	\$ 121,731	\$ 125,275	\$ 128,921	\$ 132,671	\$ 136,528	\$ 140,495	\$ 144,575	\$ 148,770	\$ 153,083	\$ 157,517	\$ 162,084	\$ 166,787	\$ 171,629	\$ 176,612
O&M Cost Alder Creek		\$ 11,500,000	\$ 261,000	\$ 278,500	\$ 296,100	\$ 313,800	\$ 331,600	\$ 349,500	\$ 367,600	\$ 385,900	\$ 404,400	\$ 423,100	\$ 442,000	\$ 461,100	\$ 480,400	\$ 500,000	\$ 519,900	\$ 539,900	\$ 560,100	\$ 580,600	\$ 601,300	\$ 622,200	\$ 643,300	\$ 664,600	\$ 686,100	\$ 707,800	\$ 729,700	\$ 751,800	\$ 774,100	\$ 796,600	\$ 819,300	\$ 842,200	\$ 865,300	\$ 888,600	\$ 912,100	
O&M rate increase		3.00%	\$ 18,177,353	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363	\$ 328,363
PV		\$ 18,177,353	\$ 18,177,353																																	
Capital Replacement Cost		\$ 500,000	\$ 396,287	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 606,816	
Alder Creek		\$ 250,000	\$ 196,287	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 356,529		
PV		\$ 500,000	\$ 500,000																																	
Discount Rate		3.00%	\$ 52,867,264																																	
NPV (2020 \$1000)		\$ 16,456,746	\$ 16,456,746	\$ 47,518,638	\$ 477,401	\$ 484,268	\$ 488,954	\$ 518,484	\$ 513,023	\$ 510,239	\$ 508,473	\$ 506,723	\$ 504,991	\$ 503,278	\$ 501,577	\$ 499,892	\$ 498,229	\$ 496,578	\$ 494,943	\$ 493,327	\$ 491,725	\$ 490,139	\$ 488,567	\$ 487,011	\$ 485,469	\$ 483,941	\$ 482,427	\$ 480,928	\$ 479,444	\$ 477,974	\$ 476,518	\$ 475,076	\$ 473,648	\$ 472,234	\$ 470,834	
Check w/ NPV formula		\$ 66,549,478																																		