

March 2022 Clearwells Alternatives Estimated 20-Year Net Present Value (NPV) Cost Comparison

At-Grade Circular Prestressed Concrete Tanks		At-Grade Rectangular Cast in Place Concrete Tanks		Extend Existing Clearwells Service Life	
<i>Estimated Service Life, years</i>	<i>60 - 100</i>	<i>Estimated Service Life, years</i>	<i>60 - 100</i>	<i>Estimated Service Life, years</i>	<i>20 – 40*</i>
Tanks		Tanks		Clearwells	
Construction Cost	\$5,398,600	Construction Cost	\$9,548,300	Repairs Cost	\$2,600,000 - \$3,800,000
Annual O&M Costs	\$11,000	Annual O&M Costs	\$31,200	Annual O&M Costs	\$63,500
20-Year NPV	\$5,588,600	20-Year NPV	10,088,300	20-Year NPV	\$3,678,800 - \$4,878,800
High Lift Pump Station		High Lift Pump Station		High Lift Pump Station	
Construction Cost	\$4,746,100	Construction Cost	\$4,746,100	Construction Cost	\$4,746,100
Annual O&M Costs	\$148,700	Annual O&M Costs	\$148,700	Annual O&M Costs	\$148,700
20-Year NPV	\$7,277,100	20-Year NPV	\$7,277,100	20-Year NPV	\$7,277,100
Intermediate Pump Station		Intermediate Pump Station		UV Treatment Barrier	
Construction Cost	\$2,554,600	Construction Cost	\$2,554,600	Construction Cost	\$3,900,000
Annual O&M Costs	\$41,100	Annual O&M Costs	\$34,200	Annual O&M Costs	\$63,000
20-Year NPV	\$3,254,600	20-Year NPV	\$3,144,600	20-Year NPV	\$4,980,000
20-Year NPV Storage and Pumping	\$16,110,300	20-Year NPV Storage and Pumping	\$20,459,400	20-Year NPV Storage, Pumping, UV	\$15,885,900 - \$17,085,900

- * With at-grade tanks, the City invests now in new assets with \$16M-\$20M NPV that will last about 100 years.
 With extending the clearwells service life, the City invests now in new and repaired assets with \$16M NPV and then makes a second, similar investment in an estimated 20 to 40 years to provide a 100 year service life.

Cost Estimates Notes:

1. Prestressed concrete tanks annual operations and maintenance (O&M) costs include exterior power washing, recoating, and tuck pointing facia brick / stone at year 20 with tank interior inspections every 5 years.
2. Cast in place concrete tanks annual O&M cost include interior crack repairs, exterior power washing, recoating, and tuck pointing facia brick/stone at year 20 with interior tank inspections every 5 years.

3. Annual O&M costs associated with the clearwells' extended service include concrete crack repair every 10 years; exterior power washing, recoating, and tuck pointing facia brick/stone at year 20 with interior tank inspections every 2 years.
4. A range of estimated costs for extending the clearwells service life are present because of the following uncertainties:
 - a. Current physical condition of clearwells
 - b. Type repairs that are feasible to implement
 - c. Type and extent of repairs WDNR will approve
 - d. Criteria WDNR will use to determine when tanks can be repaired versus must be replaced
5. High Lift Pump Station annual O&M costs include operations and maintenance labor, materials, and electricity.
6. Intermediate Pump Station annual O&M costs include operations and maintenance labor, materials, and electricity.
7. UV Treatment Barrier annual O&M costs include operations and maintenance labor, materials, electricity for UV reactors, and supplemental electricity for High Lift Pumping to compensate for UV system headloss.