

estimated end of life	what	vintage	years of service (2019)	Justification	estimated cost
2019	Security camera system	2004	15	Budgeted replacement. Cameras & DVR	\$ 15,000
2019	MAU Filter Gallery	2004	15	Budgeted replacement. Unit has history of repairs	\$ 20,000
2019	Spectrophotometer - DR4000	1998	21	Support & parts will not be available	\$ 8,900
2020	Ozone reactor PM (2)	2016	3	Fuse, dielectric replacement, cleaning	\$ 18,000
2020	LED lighting upgrade	2004	15	Efficiency. Safety.	\$ 6,000
2020	Chemical lines	2004	15	PVC lines & hosing degrades over time & become brittle. Replace hosing & re-work piping over EQ.	\$ 5,000
2020	UPS for UV	2002	17	no longer supported. UPS technology has advanced making our UPS obsolete. New UPS's should be sized to accommodate new filter UV's	\$ 50,000
2020	Basin Moyno pumps (3) (\$15,000 unit cost)	1988	31	Over 30 yrs old. Pumps have been rebuilt several times. Casing machined surfaces have worn & will not allow	\$ 45,000
2020	Basin Turbidimeters (6) \$2,700 unit cost)	2002	17	HACH discontinued service & parts	\$ 16,200
2020	Filter UV	2004	15	Reliability. Original system is outdated. UV technology has advanced making our system less supported. Critical to water production.	upgrade project
2020	Operator's room	2004	15	Room needs to be renovated due to high traffic & continued, uninterrupted use. New PLC work will require reconfiguring the work station. Asbestos needs to	\$ 20,000
2020	HVAC/ LAB	2004	15	Original Lab HVAC has never worked properly since installation. Unit needs to be rehabed, temp duct work removed & new controls	\$ 10,000
2020	Split filter gallery MAU from pipe gallery. Install radiant heat for pipe gallery.	2004	15	Similar to above. Original design does not work. Filter & pipe gallery unit has never worked properly since installation. Does not heat area in winter. Does not remove humidity. Should explore an alternative.	\$ 20,000
2020	UPS, ozone (additional)	2004	15	Reliability. Utility electrical service is not consistent enough to work with new sensitive controls. This requires incoming electric to be conditioned.	\$ 4,700,000
2020	Pocket Colorimeter (field)	Unknown	Unknown	battery connections failing	\$ 800.00
2020	Turbidimeter - 2100N	1998	21	Support & parts will not be available	\$ 4,000.00
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2021	TSST tank	1988	31	>30 years old, many repairs. Tank is well past it's life span. Design of the tank is not suited for corrosive & coarse mud. New tank should be sized & shaped to better accommodate storage.	?
2021	TSST mixers (2)	2002	17	17 yrs old. expensive rebuilds.	\$ 30,000
2021	centrifuge rebuild P/M w Nozzles	2004	15	Normal wear, Reliability. Design of nozzles & machine's process of coarse material require them to be replaced every 3 years	\$ 30,000
2021	EQ mixers (2)	2002	17	17 yrs old expensive rebuilds.	\$ 30,000
2021	EQ sub Pumps (3)	2002	17	17 yrs old	\$ 45,000
2021	UPS/Server batteries & components	2016	3	Batteries & components to be replaced under normal Preventative maintenance.	\$ 10,000
2021	Roof Filter Building	2002	17	Roof was poorly applied & needs continued repairs. Insulation should also be replaced. Original design was an experiment & is not suited for our application. New roof system should be conventional & glued down.	\$ 75,000
2021	Lowlift pump check valves (2)	1962	57	original valves. #1 & #2 will be replaced by end of 2019. 2 more remain.	\$ 45,000
2021	Dishwasher	2003	16	Motor/pump replaced already, wear & tear, Reliability	\$ 12,000
2022	HL pump & motor rebuilds (3)	2004	15	Normal wear. motors & pumps	\$ 100,000
2022	HL pump control & isolation valves (4)	1988	31	>30 years old, many rebuilds. Pump flow control valves are still supported but have been repaired several times. PLC controls to the valves are outdated & are no longer supported.	
2022	basin catwalk	1962	57	Frame work & supports are corroding. Needs sandblasting & new supports.	\$ 30,000
2022	480v 'GE' motor controls	2004	15	Reliability. Serviceability. Newer technology. VFD's are no longer available	\$ 30,000
2023	Lowlift pump & motor rebuild (1)	2016	3	Typically rebuilding required after 5 years of service	\$ 30,000
2023	Make-up air unit chemical building & HL room (2)	2004	15	Unit has extensive working hours as it never shuts down. Unit has extensive repair history. HL MAU has never worked correctly & has been out-of-service 10 years.	\$ 20,000

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2023	Filter valve actuators (18)	2002	17	Older EIM valves actuators have been unreliable is installation. We have changed out (6) filter effluent actuators with Rotork & have been working flawlessly.	\$ 108,000
2023	Roof Sludge plant	1988	31	>30 yrs old. Sky lights are failing due to UV & weather elements.	\$ 42,000
2023	*Lowlift well, 30" intake valve (1)	1962	57	original 1962 main valve no longer works reliably. Valve remains permanently open due to unreliable actuator & valve operation.	\$ 20,000
2023	*Lowlift well, isolation valves (2)	1962	57	original valves. These valves still operate yet should be replaced. Actuator & stems have been repaired. These are the only way to isolate the pump wells from the river.	\$ 10,000
2023	*Removal of old auxiliary pump piping from Lowlift well.	1962	57	This pipe no longer serves a purpose & needs to be removed. Other supports should be removed.	\$ 5,000
2023	Autoclave	1993	26	Heater failure	\$ 15,000.00
2023	Incubator	1998	21	Heater or mechanical fan failure	\$ 7,500.00
2024	EQ pumps (3)	2002	17	17 yrs old.	\$ 20,000
2025	HL #4	1988	31	>30 yrs old, many repairs. This pump was not replaced in 2004 upgrade since it was freshly rebuilt prior. No further repairs not possible due to excessive machining of the pump casing. Last repair used custom machined parts making original parts obsolete.	\$ 40,000
2025	Basin reactor gearing (3)	2004	15	Normal wear, Reliability.	\$ 70,000

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2025	Thickener cover & structure	2004	15	Cover over tank was installed in 2004 to protect thickener from freezing. Original design was inadequate. Tarp, cabling & wood frame work should be replaced w/ permanent structure & cover.	\$ 40,000
2025	Quanti Tray Sealer	2010	9	Normal wear & tear (motor & heater failure)	\$ 5,500
2026	TOC Analyzer	2006	13	Age of controlling computer & software availability, Wear & tear	\$ 40,000
2028	Basin covers (3) (\$15,000 unit cost)	2016	3	Covers will need to be replaced due to UV damage & normal usage	\$ 45,000
TBD	Plate settler tanks & mixers (2)	1988	31	>30 yrs old. Plate settlers are beginning to corrode. They should be isolated, repaired & new protective coating applied. Mixer drive remains operative but should be rebuilt with new bearings. Mixer lower bearing should be further evaluated.	\$ 126,000
TBD	Chemical Storage tanks	2004	15		
TBD	Chemical flow meters (6)	2002	17		\$ 36,000
	(* Lowlift study to wells, structure & intake screening (combination of above Lowlift items)	1962	57	The 1962 lowlift pumping building design is original. The intake screens are not adequate to address fish issue. Traveling screens were discussed. Wells need to be updated: flooring is deteriorating. Access to wells are not safe. Last upgrade raised level of pumps but not electric & motor starters. These should all be considered for a comprehensive review rather than handled individually.	\$ 100,000
	Process piping, fittings & valves		2019	Original piping, valves, fittings & hardware are corroding. Need thorough evaluation for replacement, sandblasting & recoat or elimination.	\$ 50,000
	HVAC & duct work, main plant	2004	15	Similar to above. Original design does not work. Numerous attempts to balance system as well as repairs.	\$ 10,000
	Septic system	1962	57	Plant needs to be tied into the sewer system. Septic system is not designed properly for the facility & continually backs up into sludge plant.	\$ 100,000
					\$ 6,135,800
	TOC Analyzer-software upgrade only				\$ 1,500.00