Water Treatment

CONDITION ASSESSMENT REPORT

City Of Burnsville

Executive Summary

BACKGROUND

Black & Veatch (BV) was retained by the City of Burnsville to support capital improvement planning (CIP) for water supply and treatment facilities within the City. The CIP provides planning level costs and timing for asset replacement based on typical service lives of major equipment. Information collected was collated in a new CIP Tool for the City of Burnsville and exports included CIP data in City format (Appendix A) and in WTP Facilities Calculation (Appendix B). Development of the CIP required the completion of the following tasks:

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Water supply and treatment facilities included groundwater wells, surface water intake, and treatment plants. Major sub-systems or components within each facility were also identified to determine replacement costs. The facilities and components were given identification numbers for easy reference and updating in the city's asset management system and the Capital Improvement Plan (CIP). A master version of the asset hierarchy table for the water systems was developed as well. The City facilities established within the CIP include the following:

- 17 Groundwater Well Supply Facilities
- 1 Surface Water Intake Pump Station
- 1 Carbon Injection Building
- Surface Water Treatment Plant including 11 Sub-System Areas
- Groundwater Treatment Plant including 20 Sub-System Areas
- Finished Water Clearwell & High Service Pump Station including 4 Sub-System Areas
- Shared WTP Chemical Feed including 8 Sub-System Areas
- Other Shared WTP Areas exterior to the facilities.

Task 2 – Installation/Rehabilitation/Decommissioning Year

In addition to facility and component definition and identification, installation years for each of the items in the facility inventory was collected. Dates of significant renovation, replacement, or expansion work in the past or near future (i.e. next CIP cycle) were also collected.

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The next step of the desktop evaluation included the development of effective service life (ESL) values for each major type of equipment in the water system. ESL is defined as the typical life expectancy for a piece of equipment before replacement is required and was presented in Appendix C. This value is used as the basis for determining future replacement years in the CIP. The Estimated Remaining Life (ERL) was determined by taking the ESL and subtracting the current age of the component and gives an estimation of the number of years left on the life of the component or process equipment.

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After ERL values were established, criticality scoring for each facility in the water system was determined. The scoring criteria for the criticality of each asset considered factors including public safety/health, regulatory compliance, operations, and political and public relations exposure. The

final criticality scoring were established in a workshop with the City (Appendix D). A criticality adjustment factor was developed to establish priority areas for repair or replacement within the CIP with low, medium, and high criticality facilities receiving a stretched ESL factor of 1.3, 1.15, and 1.0, respectively.

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The next step of the desktop evaluation included the inspection of all components in the system. BV and the City visited every Water Facility on the list and a condition assessment value of 1 (new) to 5 (very poor) was provided in the following categories – Asset Condition (i.e. Failure, Wear, Maintenance Requirement), Function (i.e. Performing Function, Obsolescence, Ability to Meet Regulatory Function), and Utilization (i.e. Ability to meet existing and future load, utilized in operations, damage). Rating criteria and scoring values can be found in Appendix E. Condition scores adjusted ESL through factors of 1.0 (new/perfect condition) to 0.0 (poor condition). The ESL factor was adjusted by both Criticality Factor and condition factor and would establish a replacement year for use in the CIP.

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Conceptual replacement costs for equipment and facilities were developed using updated vendor quotes, RSMeans cost estimation data, or previous City of Burnsville Bid Tabs. Costs included construction and installation costs plus markup for allowances such as equipment installation, taxes, contractor markup, total project contingency, engineering allowance, and city legal and administrative allowances. Engineering allowance adders were applied to construction costs to represent the total project cost to the City. Estimates developed according to a Class 5 estimate with an overall accuracy of ±50%.

Task 7 – Facility Replacement and CIP Scheduling

The water facility replacement CIP was developed by staging discrete facility replacements into future years along with their estimated replacement costs. The CIP includes:

- A near-term period from 2023-2027 with replacement projects identified by year.
- Long-term facility replacement CIP funding requirements compiled in 5-year increments from 2028 to 2053.

The initial replacement year for each facility and/or sub-component was established using the ESL, ERL, and adjustment factors for criticality and condition de-rating. Historical replacement costs were benchmarked using 2023 Cost Basis and the Engineering News & Report's (ENR) Construction Cost Index (CCI). Costs were adjusted using the ENR CCI, and the future replacement year and cost for a 100-year calculation period. The CIP ranking results are summarized in an tables and figures representing the near-term, mid-term, and long-term CIPs can be found in sections labeled Near-Term and Long-Term Results.

RESULTS

Criticality Summary

Results associated with the criticality review is described below:

- Nineteen facilities received a rating as being a "High Criticality" and received a Criticality Adjustment factor of 1.0 (i.e., no stretched ESL). The majority of these facilities were adjusted to "High Criticality" as operation without the asset would have major impact on meeting regulatory requirements for treatment (e.g., higher political risk associated with a failure).
- Twenty-Five facilities were noted as "Medium Criticality" and were assigned a Criticality Adjustment Factor of 1.15. These facilities consisted of wells that served as duty wells with high degree of backup in the supply system.
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Condition Assessment Summary

In general, the majority of facilities and assets were noted to be in good condition with ERL and ESL extending out to the near the full asset's life. A summary of the results for the condition assessment breakdown is presented in Figure 5.

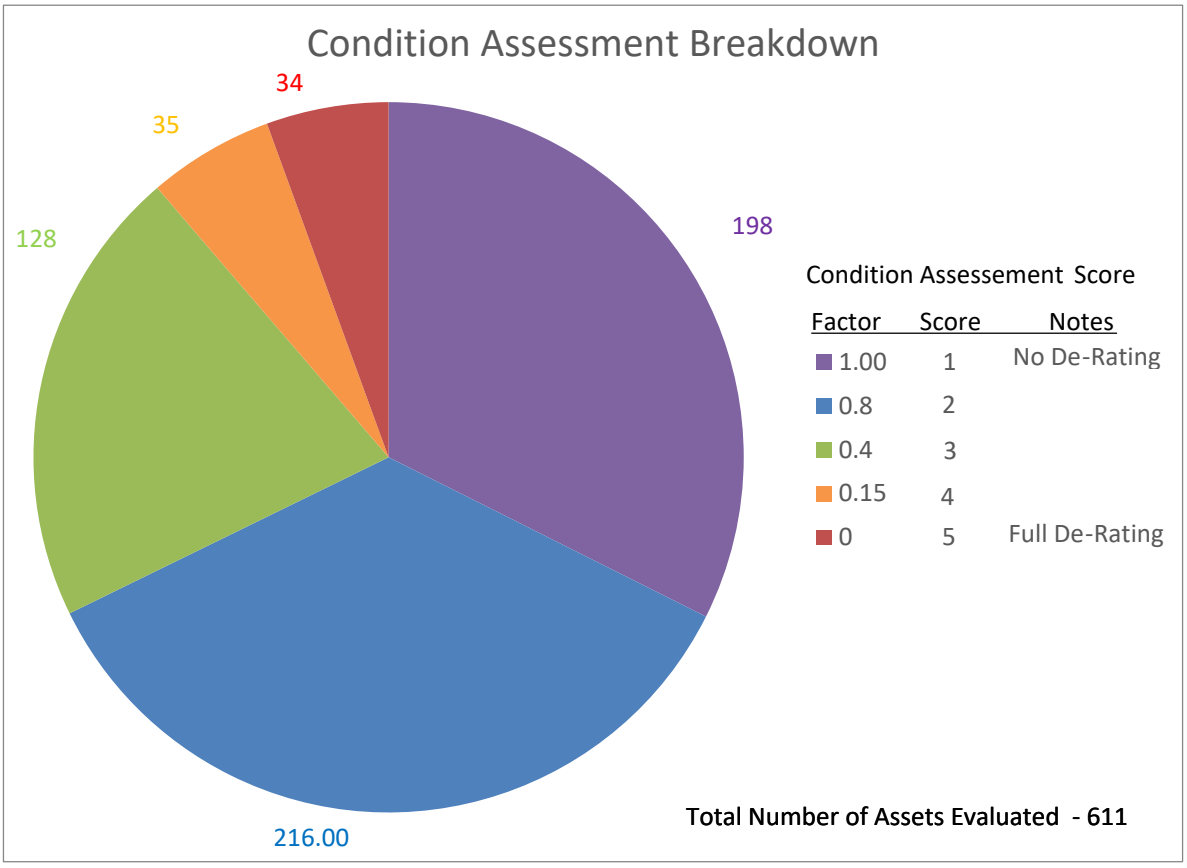

Figure 1 - Condition Assessment Results Summary

Replacement Strategy Groups & Heat Maps

The facility criticality and condition were plotted in a matrix (i.e. heat map) to prioritize grouping and budgeting.

- Figure 6 shows the priority group strategy matrix based on criticality and condition assessment scoring. The highest priority structures are noted as Strategy A and have a high criticality rating (4-5) and a poor condition assessment rating (4-5). It is recommended that the City focus on Group A first, followed by Group B and then Group C. Group D and E are lower priority, and focus should be on maintaining these components.
- Figure 7 showing the total number of components or assets in each Strategy Group.
- Figure 8 summarizing the total cost per Strategy Group and group cost percentages.

		Condition Assessment Rating				
		1	2	3	4	5
Criticality Rating	5 (high)	D	C	B	A	A
	4	D	C	B	A	A
	3	D	D	C	B	B
	2	E	D	D	C	B
	1 (low)	E	E	D	D	C

Strategy A	High Priority for Replacement
Strategy B	Medium Priority for Replacement
Strategy C	Watch List
Strategy D	Maintain
Strategy E	Maintain Strategy - Low Priority

Figure 2 – Priority Group Strategy Matrix based on Criticality and Condition Assessment Scoring

		Condition Assessment Rating					
		1	2	3	4	5	
Criticality Rating	5	60	60	24	8	2	154
	4	39	36	37	16	5	133
	3	84	91	50	8	23	256
	2	2	1	1	1	0	5
	1	13	28	16	2	4	63
		198	216	128	35	34	**611**

Strategy A	31	5%
Strategy B	92	15%
Strategy C	151	25%
Strategy D	294	48%
Strategy E	43	7%

11/20/2023

Figure 3 - Strategy Group Heat Map for number of components

		Condition Assessment Rating					
		1 (new)	2	3	4	5 (poor)	
Criticality Rating	5 (high)	$ 40,513,000	$ 14,245,000	$ 2,570,000	$ 1,342,000	$ 223,000	$ 58,893,000
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	1 (low)	$ 658,000	$ 3,492,000	$ 1,486,000	$ 282,000	$ 65,000	$ 5,983,000
		$ 51,143,000	$ 54,625,000	$ 9,867,000	$ 3,602,000	$ 1,329,000	**$ 120,566,000**

Strategy A	$ 2,628,000	2%
Strategy B	$ 5,682,000	5%
Strategy C	$ 43,371,000	36%
Strategy D	$ 64,654,000	54%
Strategy E	$ 4,231,000	4%

11/20/2023

Figure 4 - Strategy Group Heat Map for Costs (USD)

Strategy Group A Recommendations

The highest priority items are identified in strategy group A which is comprised of 31 assets with an approximate cost of $2.6M. Through previous planning activities by WTP staff, the majority of these assets are either under study, design, or rehabilitation is being executed directly by WTP staff.

Below is a proposed project breakdown summary of these Strategy Group A assets and current status of projects addressing these items:

Table ES.1 – Strategy Group A Project Groupings & Summary

PROJECT GROUPINGS	STATUS	COSTS	NOTE
GWTP Switchgear Section 1	Design Phase	$ 996,000	○ This project includes replacement of the GWTP Switchgear (Section 1), which is a Strategy Group A asset. Additionally, this project includes some electrical improvements targeted at improving pumping efficiency and operational flexibility. ○ This project underwent a procurement phase in 2023 and then was converted to detailed design project in 2024 (currently under design). Project is in CIP and is scheduled for construction in 2026-2027.

PROJECT GROUPINGS	STATUS	COSTS	NOTE
HVAC Assets	Not In Planning	$ 842,000	○ Strategy Group A includes 10 HVAC related assets that are in need of replacement due to poor condition. These assets are generally 1976 era HVAC equipment that is beyond its service life, inoperable, or no longer meet current codes. ○ These assets are not currently planned for replacement and it is recommended they be moved into the study and design phase in 2024. ○ There are an additional 14 HVAC related assets that fall within Strategy Group B, C, and D that it is recommended be replaced under this project. Albeit of a lower priority, including these assets would allow for a more comprehensive and cost efficient approach to replacing the facilities equipment. These additional assets total approximately $500,000.
HSPS Effluent Header	Study Phase	$136,000	○ Sections of the HSPS effluent header were found to have reduced metal thickness and are in need of replacement. This cost is for replacement of the exposed header within the HSPS Room. ○ The 2024 Effluent Flow Meter Study, currently under review by the City, found cracked and failing prestressed concrete effluent pipes extending from the HSPS header out into the WTP yard. Alternatives for replacement are currently being reviewed but range between $1.3M-$2.5M.
GWTP Filter Valve Actuator Rehabilitation	WTP Staff Rehab	$654,000	○ Due to insufficient HVAC ventilation in the GWTP filter area, metal components within the filter are experiencing high rates of corrosion. This corrosion has specifically impacted filter valve actuators and gear boxes which are in need of repair. This comprises 15 of the 31 Strategy Group A assets. ○ Valve and actuator rehabilitation is currently being addressed directly by WTP Operations and Maintenance staff to maintain operability but HVAC should be upgraded in the GWTP filters to prevent future corrosion/repair. ○ Full replacement costs for these items is estimated at ~$654,000 but direct rehabilitation of these assets by WTP Staff is anticipated to reduce that overall cost figure.
	Total	**$2.628M**	**Strategy Group A Assets (Only)**

Near-Term Facility Replacement CIP (2023-2027)

Annual and cumulative costs for the 2023-2027 water system replacement CIP are presented in Figure 9 and Appendix F. The cumulative 5-year costs for the water system facility replacement is $14.7M with the majority of the expense occurring in the initial evaluation year of 2023. The projects consist of upgrades to many of the water facilities within the Burnsville system due to relative age of the facilities. These replacement costs are front loaded because of the components with Negative ERL or Condition De-rating Factor projects ($4.3M of the $14.7M).

The near-term facility replacement Capital Improvement Plan (CIP) projects for the Burnsville Water System are listed in the Referenced Graphs and Table Section, along with relevant facility and replacement cost information. The projects involve upgrades to many of the water facilities due to their relative age. Table 9 provides summaries of criticality rating and condition de-rating factor, while Table 10 shows the facilities that had replacement drivers of either "Condition" or "Negative ERL" to better understand and prioritize the large initial 2023 replacement cost. Annual and cumulative costs for the 2023-2027 water system replacement CIP are presented in Figure 9, with the cumulative 5-year costs being $14.7M, with the majority of the expense occurring in the initial year of 2023 due to components with negative ERL or condition de-rating factor projects.

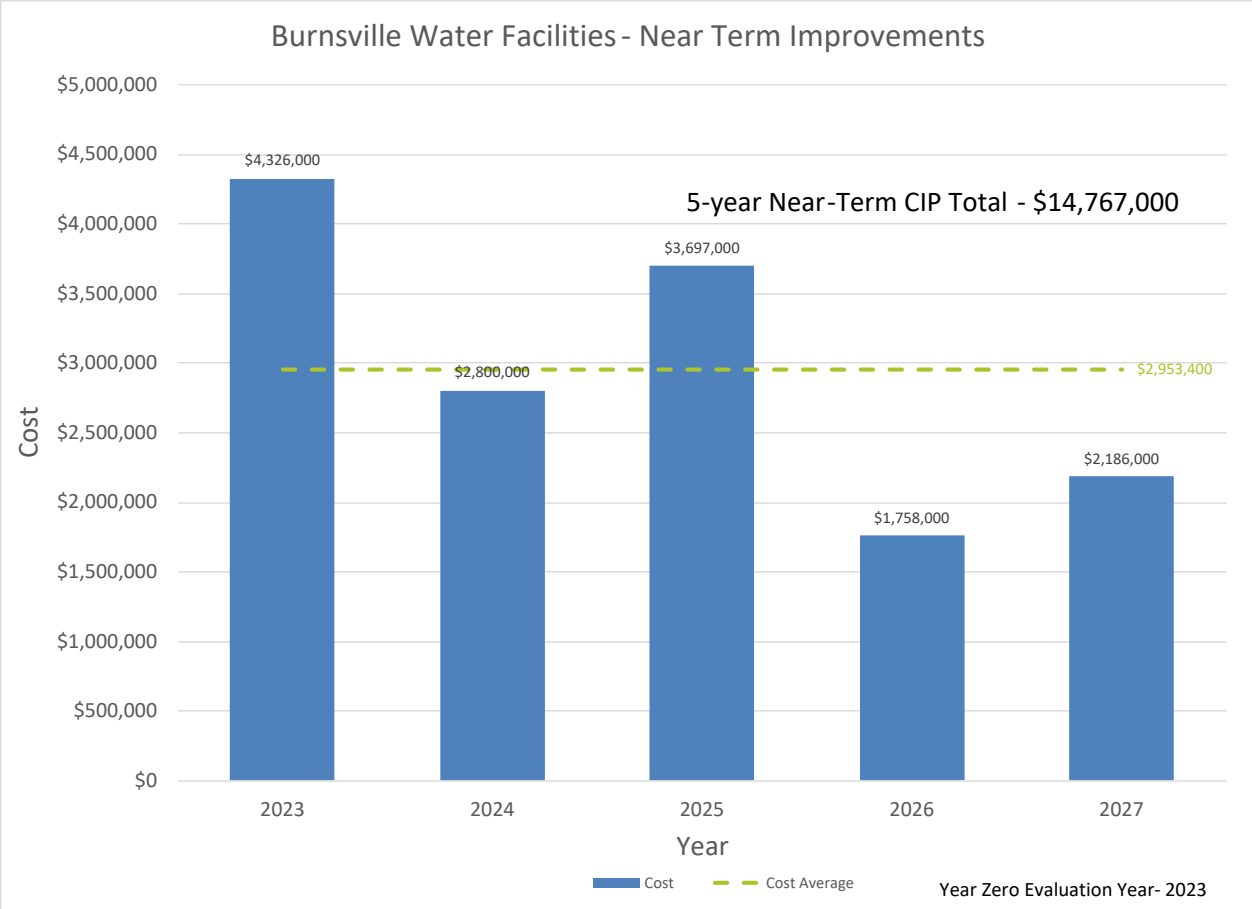

Figure 5 - Near-Term CIP Summary for Years 2023 Through 2027

Long-Term Facility Replacement CIP (2028-2053)

Long-Term Facility Replacement was defined as the 30-year period from 2028 through 2052 and occurring directly after the Near-Term Facility Replacement period. The 5-year period costs and cumulative costs for the long-term facility replacement CIP are illustrated in Figure 10 and Appendix G with the Near-Term 5-year CIP amount provided for reference.

It was noted that there was a significant cost shown in the 2043-2047 CIP planning period. It should be noted that the majority of this cost is the 75-year rehabilitation of the GWTP (originally

installed in 1976). The facility should undergo a facility refresh to ensure it can be used for future use as the production facility for groundwater treatment.

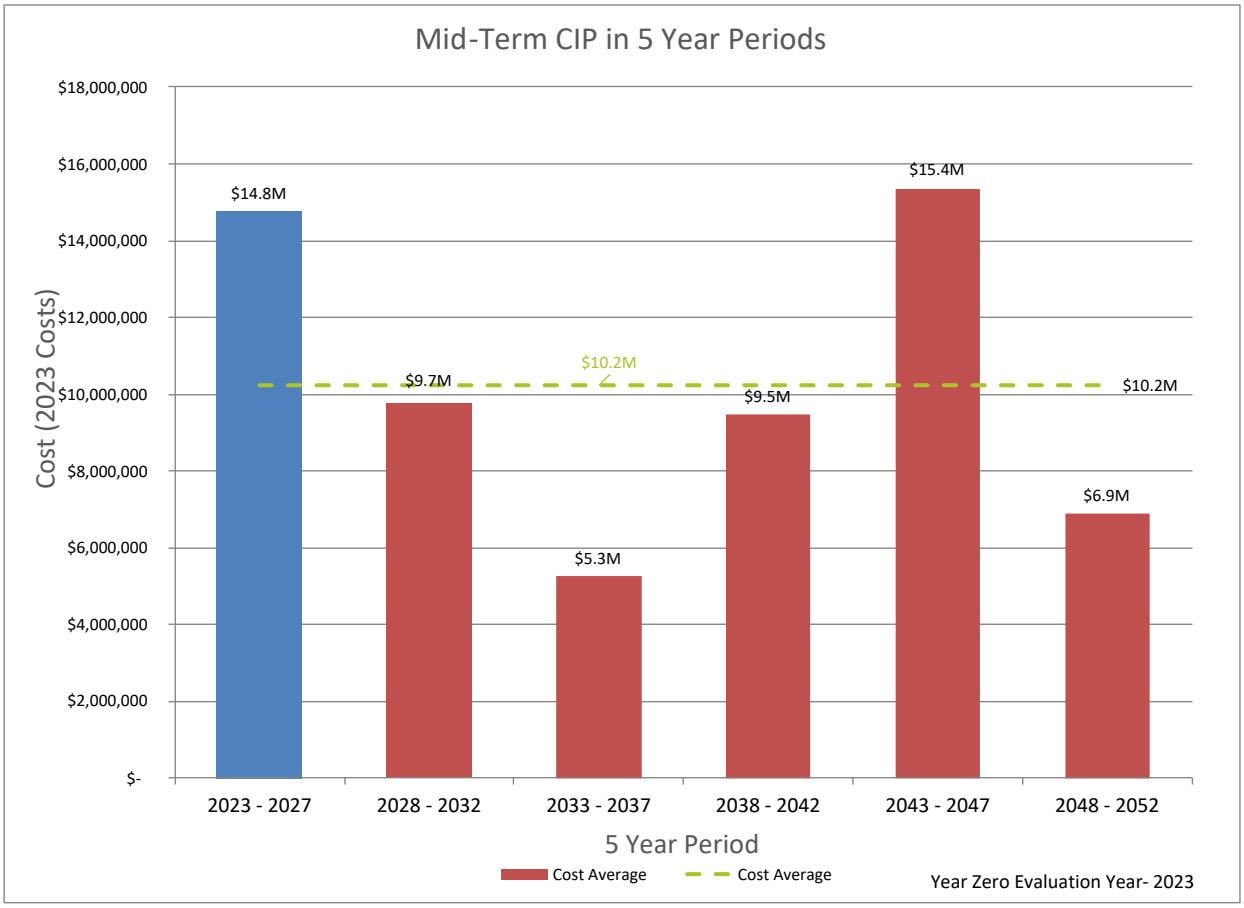

Figure 6 - Long-Term 5-year CIP Costs from 2028 Through 2052

FUTURE WORK

The CIP information presented in this Draft Report is intended to give the City of Burnsville a planning level tool to develop of 5-year CIP budgetary pricing for replacement of equipment. An export of data was provided to the City's Facility Assessor (Kraus Anderson) as Appendix H.

It should be noted that new processes or facilities not in exiting system are not included in the CIP replacements and can be added to the WTP Facility CIP tool at later date. It should also be noted that the costs presented represent the complete replacement of the component and a study should be completed in future years to determine the cost for replacement or repair. Repair costs will likely be less than replacement, but budgetary numbers were taken with the higher value.

Future work may also include the establishment of future CIP projects. These projects may shift costs into projects in later years, if determined by City Staff that annual maintenance can stretch the ESL.

FINAL

TECHNICAL MEMORANDUM – WTP CONDITION ASSESSMENT

Burnsville WTP

PREPARED FOR

City of Burnsville, Minnesota

2 FEBRUARY 2024

BLACK & VEATCH

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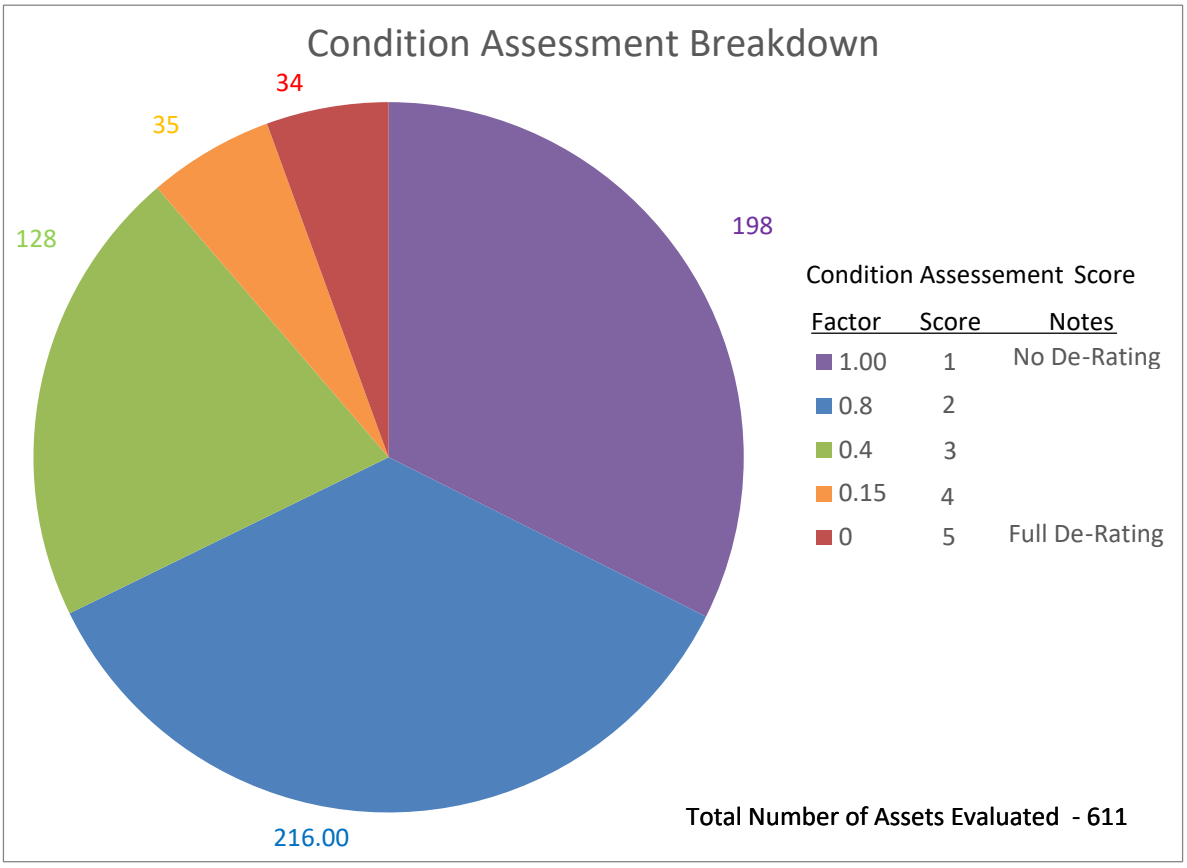

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11/20/2023

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Strategy Group A Recommendations

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Near-Term Facility Replacement CIP (2023-2027)

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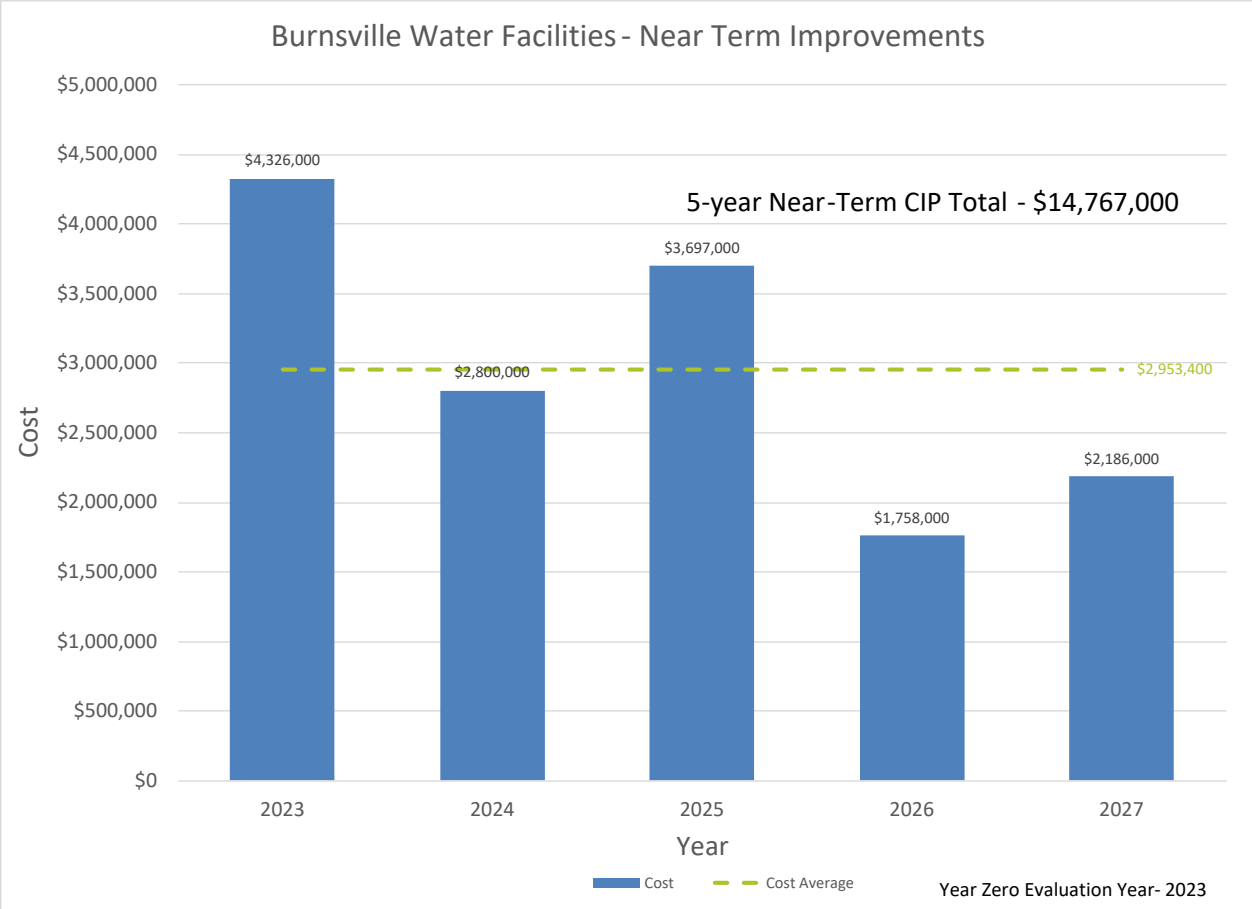


Figure 5 - Near-Term CIP Summary for Years 2023 Through 2027

Long-Term Facility Replacement CIP (2028-2053)

Long-Term Facility Replacement was defined as the 30-year period from 2028 through 2052 and occurring directly after the Near-Term Facility Replacement period. The 5-year period costs and cumulative costs for the long-term facility replacement CIP are illustrated in Figure 10 and Appendix G with the Near-Term 5-year CIP amount provided for reference.

It was noted that there was a significant cost shown in the 2043-2047 CIP planning period. It should be noted that the majority of this cost is the 75-year rehabilitation of the GWTP (originally

installed in 1976). The facility should undergo a facility refresh to ensure it can be used for future use as the production facility for groundwater treatment.

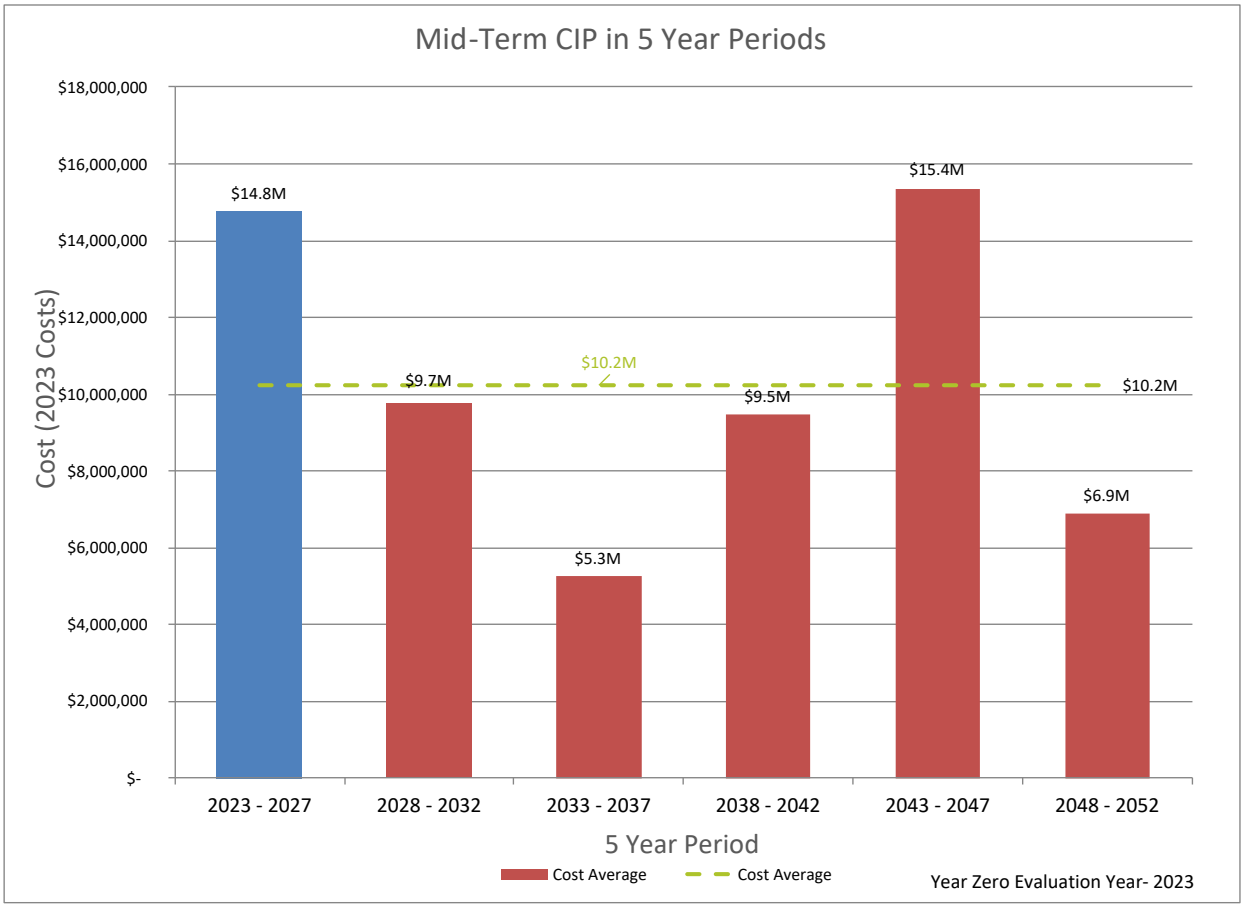


Figure 6 - Long-Term 5-year CIP Costs from 2028 Through 2052

FUTURE WORK

The CIP information presented in this Draft Report is intended to give the City of Burnsville a planning level tool to develop of 5-year CIP budgetary pricing for replacement of equipment. An export of data was provided to the City's Facility Assessor (Kraus Anderson) as Appendix H.

It should be noted that new processes or facilities not in exiting system are not included in the CIP replacements and can be added to the WTP Facility CIP tool at later date. It should also be noted that the costs presented represent the complete replacement of the component and a study should be completed in future years to determine the cost for replacement or repair. Repair costs will likely be less than replacement, but budgetary numbers were taken with the higher value.

Future work may also include the establishment of future CIP projects. These projects may shift costs into projects in later years, if determined by City Staff that annual maintenance can stretch the ESL.

Background

The City of Burnsville provides drinking water for the approximately 64,000 residents through supply, treatment, and distribution facilities. In 2023, the City underwent a capital improvement planning (CIP) process to determine the relative condition of all City assets. Black & Veatch was retained to provide condition assessments for the supply and treatment facilities.

The Raw Water Supply systems include seventeen groundwater wells that draw water from various local aquifers and a surface water intake from the nearby Kraemer Quarry. The Groundwater Treatment Plant (GWTP) is dedicated to treating water from the well system while the Surface Water Treatment Plant (SWTP) treats water from a nearby quarry. Treated effluent water from both facilities are mixed in the WTP Clearwell and pumped to distribution through the High Service Pump Station (HSPS).

Purpose

The purpose of the Water Treatment Plant Condition Assessments was to establish a recommended capital improvement plan (CIP) for replacement of existing water system treatment and distribution system facilities within the City of Burnsville (City). The CIP provides planning level costs for water system facilities and includes cost and timing for asset replacement based on typical service lives of major equipment. To support the development of the CIP, a facility condition assessment was completed in person with a criticality and replacement financial modeling as a desktop evaluation. The CIP will be evaluated on the following time periods:

- Near Term (0-5 years) representing years 2023 through 2027
- Long Term (6-30 years) representing years 2029 through 2052

The assessment generally included the following elements:

- Task 1 - Water Facility Inventory – Develop a comprehensive list of water treatment and distribution system assets
- Task 2 – Determine installation/major rehabilitation/decommissioning year.
- Task 3 - Effective Service Life (ESL) Calculation – Establish ESL for each type of asset to be used in CIP replacement calculations.
- Task 4 - Facility Criticality Ranking – Establish the criticality of each facility and asset.
- Task 5 - Facility Site Tours & Condition Assessment - Conduct facility site tours and determine asset condition/de-rating scores.
- Task 6 - Replacement Costs - Develop facility replacement costs.
- Task 7 - Replacement and CIP Schedule – Develop facility replacement and CIP schedule.

A major deliverable for this work is an electronic tool to aid in future adjustments and revisions to the replacement CIP. The intent of the tool is to be a "living" document to allow for periodic adjustment of CIP projects and estimation of future CIP budgets for the City. The CIP will be provided in the City standard for inclusion of WTP assets into the City-wide Condition Assessment format. Appendix A provides a hardcopy of the City format and electronic copy was delivered for City's use. Appendix B provides the WTP condition assessment and CIP conducted by Black & Veatch for City's use in hardcopy form. The format will be delivered to the City as a macro-enabled Excel spreadsheet upon the completion of the Condition Assessment task. An electronic version of

the CIP will be delivered for City use. Other supporting documents referenced in this Tech Memo and within the Facility Inventory CIP Tool include:

- Appendix A – City CIP Tool
- Appendix B – WTP CIP Tool
- Appendix C – Asset Tagging Convention & Effective Service Life Table
- Appendix D – Facility Criticality Evaluation Criteria & Scoring Strategy
- Appendix E – Facility Condition Assessment Criteria & Scoring Criteria
- Appendix F – Near-Term Water System Facility CIP Project List & Cost Summary
- Appendix G – Long-Term Water System Facility CIP Project List & Cost Summary
- Appendix H – City Condition Assessment Export for Kraus Anderson
- Appendix I – CIP Tool Update Procedure

Condition Assessment & CIP Work Elements

TASK 1 - WATER FACILITY INVENTORY

A comprehensive inventory of existing water system facilities was prepared of all components of the Burnsville Water System. Baseline asset lists were developed from the OpWorks system utilized by the City for Asset Management. Facilities considered for this Phase of the project included vertical facilities (structures) used in the production or distribution of potable water on. Horizontal facilities (pipes) that connect the vertical facilities together or distribution system components (i.e. tanks, valve stations, etc.) were not considered to be part of this exercise. The facility inventory included the following types of facilities:

- Groundwater Wells;
- Surface Water Intake at Kraemer Quarry
- Carbon Injection Building (CIB)
- Groundwater Treatment Plant (GWTP)
- Surface Water Treatment Plant (SWTP)

Each facility also included major sub-systems, or "Components", within each facility. For example, a metering facility would include four components defined under the facility as (a) pre-cast vault, (b) flow measurement device, (c) electrical, and (d) Supervisory Control and Data Acquisition (SCADA). The purpose of defining the components is to give the City a more realistic replacement cost of each sub-system component as the replacement frequency will vary. The facility inventory list, including facility and components, can be found in Appendix A and was developed and reviewed with City Staff.

The items were given Identification numbers based on a modified version of the Asset Tag Naming Convention. The identification number provides a link between the City's asset management system and the CIP for easy reference and updating. The identification number utilizes the following format with the abbreviations as noted below:

W – XXXX – YYY – ZZZ

- W – Utility System Code. Assets within the water system will be preceded by the prefix "W-"
- XXXX – Facility Type Code;

- YYY – Process Area or System Code; and
- ZZZ –Function Code;

A master version of the asset hierarchy table for the water systems was developed in conjunction with the process and can be found in Appendix C for reference. Each facility was also given a unique CIP Number with the respective component assigned an alphabetic letter under the facility. This number is to provide easy reference within the CIP and is for CIP reference only.

TASK 2 – DETERMINE INSTALLATION/MAJOR REHABILITATION/ DECOMMISSIONING YEARS

In addition to facility and component definition and identification, installation years for each of the items in the facility inventory was collected. Dates of significant renovation, replacement, or expansion work in the past or near future (i.e. next CIP cycle) were also collected. This information can be found in the "Task 2 (City)" columns in the Referenced Graphs and Tables Sections as well as Appendix A and Appendix B. A sample is included in Figure 1, which includes the following data:

- Install Year;
- Last Major Equipment Rehabilitation (Rehab) Year;
- Future Scheduled CIP Project (in next 5 years, if applicable); and
- Decommissioning Year (if applicable).

Task 201 - Facility Inventory Listing			City Task 201					
CIP Number (1)	ID (2)	General Description (3)	Install Year	Last Major Equipment Rehab Year (4)	Future Scheduled CIP Project (4)	Decommissioning Year (5)	Baseline Replacement Year (6)	City Task 201 – Facility Info
Infiltration Galleries								
1	W-INGS-RWS-FAC	Girl Scout Infiltration Gallery - 2 pumps (to stabilization) + 2 pumps (to distribution) + Structure + Chemical Facility.	1960	1988	2024		1988	
1A	W-INGS-RWS-PVT	Girl Scout HS Pump 1	1960	1988	2024		1988	
1B	W-INGS-RWS-PVT	Girl Scout HS Pump 2	1960	1988	2024		1988	
1C	W-INGS-RWS-PVT	Girl Scout HS Pump 3	1960	1988	2024		1988	
1D	W-INGS-RWS-PVT	Girl Scout HS Pump 4	1960	1988	2024		1988	
1E	W-INGS-CLG-CFR	Chemical Feed System - Gaseous Chlorine	1960	2020	2024		2020	
1F	W-INGS-CHE-CFR	Chemical Feed System - Fluoride	1960	2020	2024		2020	
1G	W-INGS-RWS-INF	Girl Scout Infiltration Gallery	1960				1960	
1H	W-INGS-RWS-BSN	Girl Scout Pump Stabilization Basin (Clearwell or Retention Basin)	1960	1988			1988	
1J	W-INGS-FAC-BLD	Girl Scout Pump House (Well House or Low Service House)	1960	1988	2024		1988	
1J	W-INGS-FAC-RSL	Girl Scout Pump House (Well House or Low Service House) - Roof	1960	2020	2024		2020	
1J.1	W-INGS-MEC-MES	Girl Scout Well House - HVAC	1960		2024		1960	
1J.2	W-INGS-ELC-ELE	Girl Scout Well House - Electrical	1960		2024		1960	
1J.3	W-INGS-CON-INS	Girl Scout Well House - SCADA	1960		2024		1960	

1. CIP Number
2. Asset ID Matching
3. General Description of Facility (in Black) or Component (in Blue)
4. Installation Year, Last Major Equipment Rehabilitation Year, or Future Scheduled CIP Year
5. Decommissioning Year
6. Baseline Replacement Year

Figure 1 - CIP Tool Snapshot for Facility Inventory Listing and Baseline Replacement Year

A Baseline Evaluation Year was calculated by choosing the most recent date from "Installation Year", "Last Major Equipment Rehab Year", or "Future Scheduled CIP Project Year". The information provided for install year from City records was not comprehensive. Missing information was reviewed by City staff who provided an approximate year to the nearest decade.

Information provided about the Future Decommissioning Year was used to provide a stop to the CIP reoccurrence and the facility was not considered for future CIP costs beyond that year.

TASK 3 - ESTABLISHING EFFECTIVE SERVICE LIFE AND ESTIMATED REMAINING LIFE VALUES FOR WATER FACILITIES

The next step of the desktop evaluation included the development of effective service life (ESL) values for each major type of equipment in the water system. ESL is defined as the typical life expectancy for a piece of equipment before replacement is required. This value is used as the basis for determining future replacement years in the CIP.

Preliminary values for the ESL were developed by reviewing applicable information from the following sources:

- Black & Veatch Asset Management Group;
- Local Government and Municipal Knowledge Base; and
- California State Auditor.

ESL values were reviewed and adjusted with input from City Staff and common values for the water treatment and distribution system can be found in Table 1 and the full list can be found in Appendix C.

Table 1 - Sample ESL for Individual Components in the Water System

ASSET CODE & DESCRIPTION	ESL (YEARS)
ARV – Valve – Air Release Valve	25
ATS – Automatic Transfer Switch	25
BLA – Building – Personnel or Admin Room	25
BLD – Building	75
CIP – Cast in Place Vault	75
CFR – Chemical Feeders/Feed System	10
DEH – Dehumidifier	15
ELE – Electrical (General)	25
EQP – Electrical Equipment - General	25
EXC – Exterior Cladding/Brick	50
FET – Flow Meter / Flow Element	30
FLC – Flocculator – Vertical	25
FMB – Filter, Mixed Bed	30
GEN – Generators	30
INS – Instrumentation & SCADA	15

ASSET CODE & DESCRIPTION	ESL (YEARS)
MCC – Motor Control Center	25
MEC – HVAC Gear	15
MES – HVAC Gear – Composite Structure	15
MTR - Motor	25
PCL – Pump - Centrifugal	25
PHE – Pump – Horizontal End Suction	20
PLC – Programmable Logic Controller	15
PNT – Elevated Storage Reservoir – Painting System	25
PLB – Plumbing – General	25
PVT – Pump – Vertical Turbine	35
RFM – Building Roof Flat Membrane Type or Ballasted	30
RGR – Green Roof with Membrane	40
RSL – Building Roof - Sloped	20
RSS - Building Roofing – Sloped Standing Seam	40
SWG – Switchgear	30
TNC – Tank – Concrete	100
TNK – Tank	20
VBF – Valve – AWWA Butterfly	35
VCK – Valve - Check	25
WEL – Water Well - Vertical	100

Each component in the water system was assigned a respective ESL and an Estimated Remaining Life (ERL) value was calculated using the following equations using 2023 as the Evaluation Year.

$$\textit{Current Age} = \textit{Evaluation Year} - \textit{Baseline Replacement Year}$$

$$\textit{ERL (years)} = \textit{ESL} - \textit{Current Age}$$

A corresponding replacement year was also calculated by adding the ERL to the current 2023 Evaluation year. This calculation and results can be found in the "Life Calculation (Task 3)" columns in Appendix B and an example below in Figure 2.

Task 201 - Facility Inventory Listing			Life Calculation (Task 207)						
CIP Number (1)	ID (2)	General Description	Current Age	Eff Serv Life (Non-Stretched)	Criticality Adjustment Factor (See Task 209 Results)	Expected Life (Adjusted by Criticality)	Estimated Remaining Life (ERL)	Replacement Year (8)	Task 207 - Effective Service Life
			(3)	(4)	(5)	(6)	(7)	2021	
Infiltration Galleries									
1	W-INGS-RWS-FAC	Girl Scout Infiltration Gallery - 2 pumps (to stabilization) + 2 pumps (to distribution) + Structure + Chemical Facility.	34	FAC	1.15	FAC	-	-	
1A	W-INGS-RWS-PVT	Girl Scout HS Pump 1	34	35	1.15	40	6	2028	
1B	W-INGS-RWS-PVT	Girl Scout HS Pump 2	34	35	1.15	40	6	2028	
1C	W-INGS-RWS-PVT	Girl Scout HS Pump 3	34	35	1.15	40	6	2028	
1D	W-INGS-RWS-PVT	Girl Scout HS Pump 4	34	35	1.15	40	6	2028	
1E	W-INGS-CLG-CFR	Chemical Feed System - Gaseous Chlorine	2	20	1.15	23	21	2043	
1F	W-INGS-CHE-CFR	Chemical Feed System - Fluoride	2	20	1.15	23	21	2043	
1G	W-INGS-RWS-INF	Girl Scout Infiltration Gallery	62	100	1.15	115	53	2075	
1H	W-INGS-RWS-BSN	Girl Scout Pump Stabilization Basin (Clearwell or Retention Basin)	34	50	1.15	58	24	2046	
1J	W-INGS-FAC-BLD	Girl Scout Pump House (Well House or Low Service House)	34	75	1.15	86	52	2074	
1J	W-INGS-FAC-RSL	Girl Scout Pump House (Well House or Low Service House) - Roof	2	20	1.15	23	21	2043	
1J.1	W-INGS-MEC-MES	Girl Scout Well House - HVAC	62	15	1.15	17	-45	2024	
1J.2	W-INGS-ELC-ELE	Girl Scout Well House - Electrical	62	20	1.15	23	-39	2024	
1J.3	W-INGS-CON-INS	Girl Scout Well House - SCADA	62	15	1.15	17	-45	2024	

1. CIP Number
2. Asset ID Matching
3. Current Age of Component
4. Effective Service Life – Referenced from Appendix 5C and Table 5-1
5. Criticality Adjustment Factor – Referenced from Criticality Assessment
6. Adjusted Effective Service Life = ESL from (4) x Criticality Adjustment Factor from (5)
7. Estimated Life Remaining (ELR) = ESL from (6) – Current Age from (3)
8. Replacement Year = Current Year + ELR from (7)

Figure 2 - CIP Tool Snapshot for Estimated Life Remaining and Replacement Year Calculation

TASK 4 – FACILITY CRITICALITY RATING

Criticality Rating of Each Facility

After ERL values were established, criticality scoring for each facility in the water system was determined. The scoring criteria for the criticality of each asset considered factors including public safety/health, regulatory compliance, operations, and political and public relations exposure. The specific scoring criteria were established in a workshop with the City and can be found in Appendix D. A summary of the scoring criteria is included in Table 2.

Table 2 - Facility Criticality Evaluation Criteria & Scoring Strategy

CRITERIA	SOURCE	RATING CRITERIA & SCORING SUMMARY
Public Safety/ Volume	City Staff	**Fire Protection/Storage** 0: No effect 1: Little effect 3: Moderate effect. (Requires manual manipulation for operators). 5: Major effect or fire safety issue.
		Water Production 0: No effect 1: Little effect 3: Moderate effect. (Requires manual manipulation for operators). 5: Major effect.
Water Quality Regulatory Compliance	EPA Regulations/ State/City standards	**Water Quality Regulatory Compliance Risk** 0: Facility outage does not affect primary or secondary water regulation 1: Facility outage results in deviation from city SOP/Best Practices for Water Quality management. 3: Facility outage results in not meeting secondary water regulation. 5: Facility outage results in violation of primary water regulations.
Operations	Operations Staff	**Water Delivery Capability** 0: No effect on ability to deliver water 1: Little effect on ability to deliver water 3: Moderate effect on ability to deliver water 5: Major effect on ability to deliver water
		Water Delivery Complexity 0: No required change to deliver water 1: Require minor or simple modifications to deliver water 5: Require complex temporary modifications to deliver water
Political or Public Relation Exposure	City Staff	0: No public or political exposure 1: Minor political or public exposure 3: Public communication and management necessary. 5: Major political and/or public attention demanded

Notes:

1. See Appendix D for full list used in Criticality Scoring.

Adjustment to Effective Remaining Life Values with Criticality Evaluation

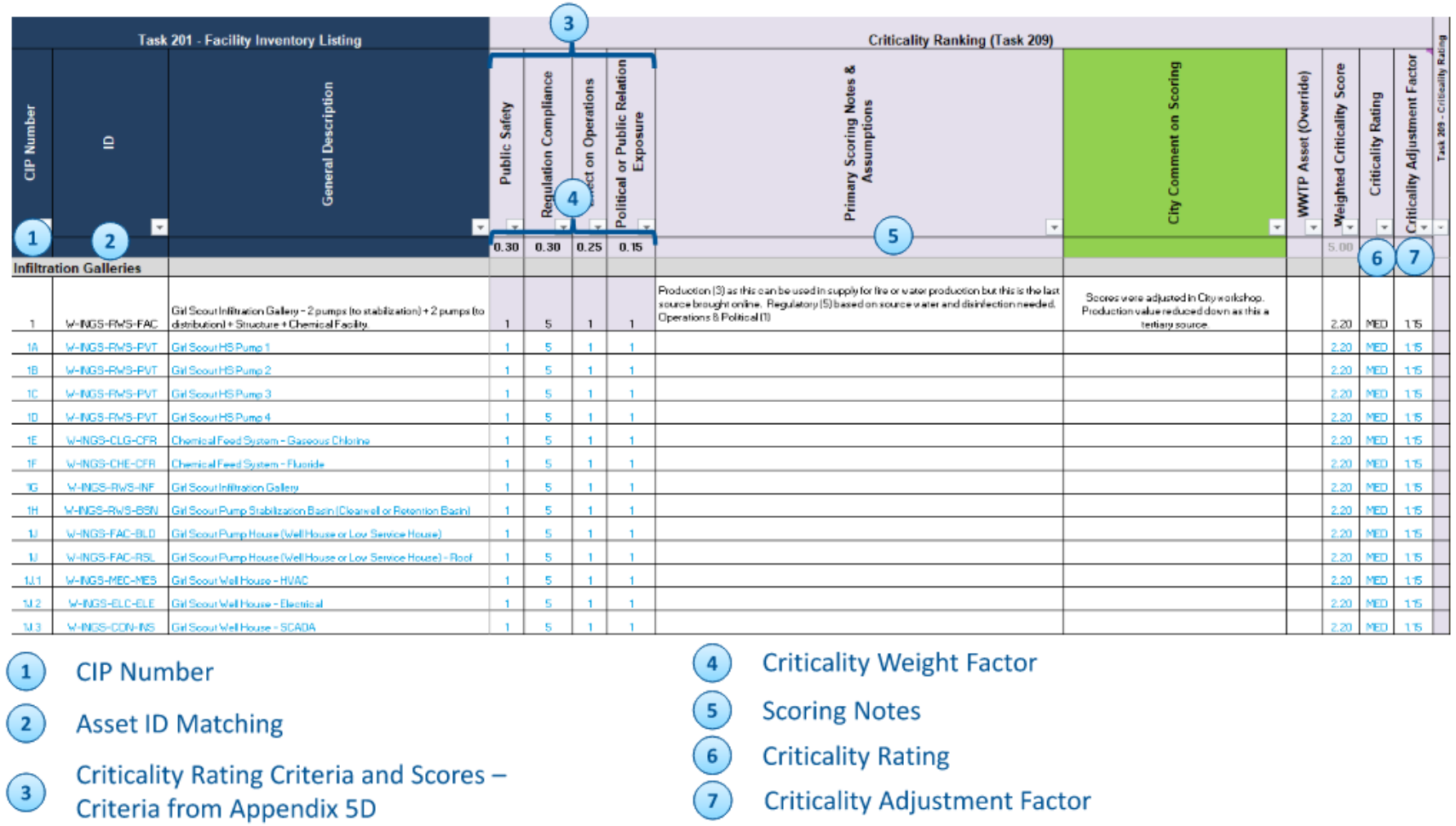
Draft scores were assigned by Black & Veatch and reviewed and adjusted with input from City staff. Each facility was scored using the categories, scoring definitions, and relative weights defined in 2. The weighted criticality score for each facility was then used to assign Criticality Adjustment Factors for each of the facilities as listed in Table 3. The criticality rating and adjustment factors were assigned on a facility level and applied to each component or asset within that facility.

Table 3 - Criticality Rating

CRITICALITY RATING	WEIGHTED CUMULATIVE SCORE RANGE	CRITICALITY ADJUSTMENT FACTOR
High	3.76 – 5.00	1.00
Medium	2.51 – 3.75	1.15
Low	0 – 2.50	1.30

The Criticality Adjustment Factor is also used to stretch the ERL of the less critical facilities in the City's water system. For example, if a pump has a low criticality due to infrequent use in the system or redundancy within the system, then the criticality rating may be "LOW", and the Criticality Adjustment Factor would be 1.30. The pump type would normally warrant replacement every 15 years but since this a low criticality facility, the adjustment provides for replacement every 19.5 years (15-year life X 1.30 Criticality Adjustment Factor).

The results from the criticality rating task can be found in Appendix A under the columns noted "Task 4 - Criticality Ranking" and a CIP Tool snapshot sample of the table can be found in Figure 3.



Task 201 - Facility Inventory Listing			Criticality Ranking (Task 209)											
CIP Number (1)	ID (2)	General Description	Public Safety	Regulation Compliance	Impact on Operations	Political or Public Relation Exposure	Primary Scoring Notes & Assumptions (5)	City Comment on Scoring	WWTP Asset (Override)	Weighted Criticality Score	Criticality Rating (6)	Criticality Adjustment Factor (7)	Task 209 - Criticality Rating
			0.30	0.30	0.25	0.15				5.00			
Infiltration Galleries													
1	W-INGS-RWS-FAC	Girl Scout Infiltration Gallery – 2 pumps (to stabilization) + 2 pumps (to distribution) + Structure + Chemical Facility	1	5	1	1	Production (3) as this can be used in supply for fire or water production but this is the last source brought online. Regulatory (5) based on source water and disinfection needed. Operations & Political (1)	Scores were adjusted in City workshop. Production value reduced down as this a tertiary source.		2.20	MED	1.15	
1A	W-INGS-RWS-PVT	Girl Scout HS Pump 1	1	5	1	1				2.20	MED	1.15	
1B	W-INGS-RWS-PVT	Girl Scout HS Pump 2	1	5	1	1				2.20	MED	1.15	
1C	W-INGS-RWS-PVT	Girl Scout HS Pump 3	1	5	1	1				2.20	MED	1.15	
1D	W-INGS-RWS-PVT	Girl Scout HS Pump 4	1	5	1	1				2.20	MED	1.15	
1E	W-INGS-CLG-CFR	Chemical Feed System - Gaseous Chlorine	1	5	1	1				2.20	MED	1.15	
1F	W-INGS-CHE-CFR	Chemical Feed System - Fluoride	1	5	1	1				2.20	MED	1.15	
1G	W-INGS-RWS-INF	Girl Scout Infiltration Gallery	1	5	1	1				2.20	MED	1.15	
1H	W-INGS-RWS-BSN	Girl Scout Pump Stabilization Basin (Clearwell or Retention Basin)	1	5	1	1				2.20	MED	1.15	
1J	W-INGS-FAC-BLD	Girl Scout Pump House (Well House or Low Service House)	1	5	1	1				2.20	MED	1.15	
1J	W-INGS-FAC-RSL	Girl Scout Pump House (Well House or Low Service House) - Roof	1	5	1	1				2.20	MED	1.15	
1J.1	W-INGS-MEC-MES	Girl Scout Well House - HVAC	1	5	1	1				2.20	MED	1.15	
1J.2	W-INGS-ELC-ELE	Girl Scout Well House - Electrical	1	5	1	1				2.20	MED	1.15	
1J.3	W-INGS-CON-INS	Girl Scout Well House - SCADA	1	5	1	1				2.20	MED	1.15	

1. CIP Number
2. Asset ID Matching
3. Criticality Rating Criteria and Scores – Criteria from Appendix 5D
4. Criticality Weight Factor
5. Scoring Notes
6. Criticality Rating
7. Criticality Adjustment Factor

Figure 3 - CIP Tool Snapshot for Facility Inventory Listing Criticality Scoring Example

TASK 5 – FACILITY SITE TOURS & CONDITION ASSESSMENT

Facility Site Tours

Team members from Black & Veatch and the City participated in the condition assessments in August 2023 and each facility was rated against Facility Condition Scoring Criteria (Appendix E) that was developed jointly by Black & Veatch and the City. Qualitative condition assessments were performed to determine the existing condition of water system facilities and note any deficiencies that would result in de-rating of a facility's ERL due to poor existing conditions.

Facility conditions were scored according to the Condition, Function, and Utilization of the asset, with each category having three sub-categories to provide resolution within the condition assessment. The categories and scoring strategy are summarized in Table 4 and full version can be found in Appendix E.

Table 4 - Facility Condition Assessment Scoring Summary

CRITERIA	SOURCE	RATING CRITERIA & SCORING SUMMARY
Asset Condition	Site Conditions & Operations Staff	**Failure** 1: Chance of failure is minimal. 2: Chance of failure is minimal. 3: Chance of failure is low but present. 4: Chance of failure is real. 5: Failed.
		Wear 1: Negligible wear. 2: All wear within design tolerance. 3: Wear approaching allowable limits. 4: Wear beyond allowable limits. 5: Substantial deterioration.
		Maintenance Requirements 1: No problems beyond normal maintenance. 2: No problems beyond normal maintenance. 3: Problems that will require future attention. 4: Problems identified requiring immediate attention. 5: Dangerous (unsafe to operate) or broken down.

CRITERIA	SOURCE	RATING CRITERIA & SCORING SUMMARY
Function	Site Conditions & Operations Staff	**Performing Function** 1: Easily performing required function 2: Adequately performing required function 3: Performing function but possibly not effectively 4: At lowest level of acceptability in performing required function 5: Not performing function.
		Obsolescence 1: Facilities up-to-date 2: Acceptable related to obsolescence 3: Facilities dated but meeting need. 4: Out-of-date and obsolete facilities (facilities just tolerable) 5: Obsolete
		Ability to Meet Safety Function 1: Meets regulatory and health/safety requirements 3: Minor regulatory and health/safety infraction. Modifications may meet short-term needs. 4: Regulatory or health/safety requirements necessitate planned renewal 5: Does not meet regulatory or health/safety requirement.
Utilization Score	Site Conditions & Operations Staff	**Existing and Future Load** 1: Easily meeting existing and future planned load. 2: Adequately meeting existing and future planned loads 3: Usually meets existing load but occasional failure with financial or public relations consequence. 4: Frequently fails to meet existing and unlikely to meet future planned loads 5: Unable to meet existing or future planned loads
		Utilized in Operations 1: Repeatedly utilized in operation. 2: Frequently utilized in operations. 3: Moderate utilization but reduced economic benefit. 4: Infrequent utilization resulting in poor economic benefit. 5: Not utilized in operations.
		Repair Concerns 1: No repair required for operation. 2: Aesthetic damage only. 3: Moderate damage but cost-effective repair does not return asset to full functionality. 4: Damage necessitates planned renewal and would not be cost effective to repair. 5: Damaged to point of failure.

Notes:

1. See Appendix E for full list used in Condition Assessment Scoring.

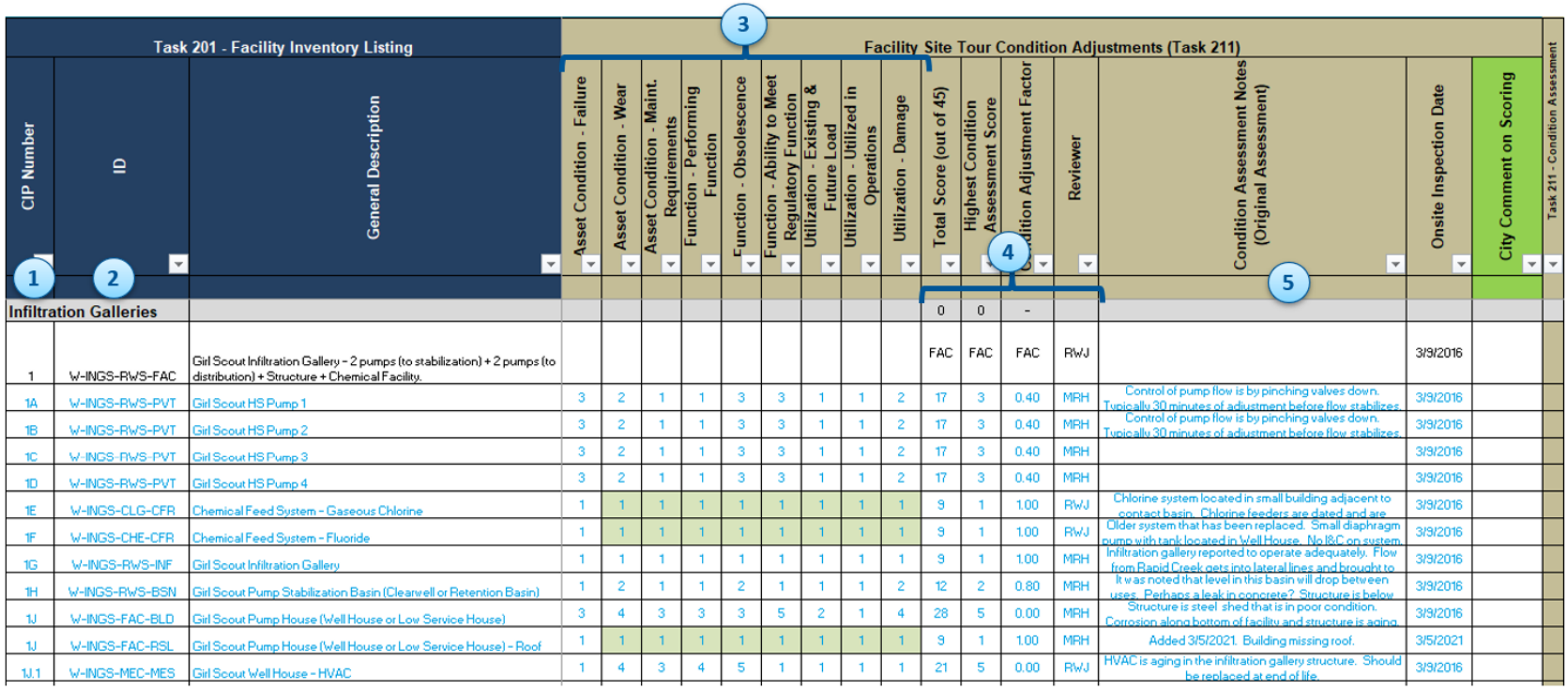
Adjustments to Effective Remaining Life Values with Condition De-rating Evaluation

Asset condition scores were applied to each major component within a facility, and a condition assessment de-rating factor was applied to the ERL. The factor was assigned according to the scale shown in Table 5 with a progressively lower de-rating factor (i.e., shorter remaining life) being applied to assets that had higher, more degraded condition assessments. Results can be found in the "Task 5 - Facility Site Tour Condition Adjustments" columns noted in Appendix B and an example of scoring can be found in Figure 4.

Table 5 - Condition Assessment De-Rating Factor

GREATEST ASSET CONDITION, FUNCTION, OR UTILIZATION SCORE	CONDITION ASSESSMENT DE-RATING FACTOR
1	1.0 (No de-rating)
2	0.80
3	0.40
4	0.15
5	0.00 (Full de-rating)

Condition assessment ratings have been adjusted annually on facility components that have been rehabilitated since the original condition assessment. As facilities or components are renewed during the CIP maintenance process, the scoring values have been reset to "1" using the scoring scale presented in Table 4.



Task 201 - Facility Inventory Listing			Facility Site Tour Condition Adjustments (Task 211)																Task 211 - Condition Assessment
CIP Number	ID	General Description	Asset Condition - Failure	Asset Condition - Wear	Asset Condition - Maint. Requirements	Function - Performing Function	Function - Obsolescence	Function - Ability to Meet Regulatory Function	Utilization - Existing & Future Load	Utilization - Utilized in Operations	Utilization - Damage	Total Score (out of 45)	Highest Condition Assessment Score	Condition Adjustment Factor	Reviewer	Condition Assessment Notes (Original Assessment)	Onsite Inspection Date	City Comment on Scoring	
Infiltration Galleries												0	0	-					
1	W-INGS-RWS-FAC	Girl Scout Infiltration Gallery - 2 pumps (to stabilization) + 2 pumps (to distribution) + Structure + Chemical Facility.										FAC	FAC	FAC	RWJ		3/9/2016		
1A	W-INGS-RWS-PVT	Girl Scout HS Pump 1	3	2	1	1	3	3	1	1	2	17	3	0.40	MRH	Control of pump flow is by pinching valves down. Typically 30 minutes of adjustment before flow stabilizes.	3/9/2016		
1B	W-INGS-RWS-PVT	Girl Scout HS Pump 2	3	2	1	1	3	3	1	1	2	17	3	0.40	MRH	Control of pump flow is by pinching valves down. Typically 30 minutes of adjustment before flow stabilizes.	3/9/2016		
1C	W-INGS-RWS-PVT	Girl Scout HS Pump 3	3	2	1	1	3	3	1	1	2	17	3	0.40	MRH		3/9/2016		
1D	W-INGS-RWS-PVT	Girl Scout HS Pump 4	3	2	1	1	3	3	1	1	2	17	3	0.40	MRH		3/9/2016		
1E	W-INGS-CLG-CFR	Chemical Feed System - Gaseous Chlorine	1	1	1	1	1	1	1	1	1	9	1	1.00	RWJ	Chlorine system located in small building adjacent to contact basin. Chlorine feeders are dated and are	3/9/2016		
1F	W-INGS-CHE-CFR	Chemical Feed System - Fluoride	1	1	1	1	1	1	1	1	1	9	1	1.00	RWJ	Older system that has been replaced. Small diaphragm pump with tank located in Well House. No I&C on system.	3/9/2016		
1G	W-INGS-RWS-INF	Girl Scout Infiltration Gallery	1	1	1	1	1	1	1	1	1	9	1	1.00	MRH	Infiltration gallery reported to operate adequately. Flow from Rapid Creek gets into lateral lines and brought to	3/9/2016		
1H	W-INGS-RWS-BSN	Girl Scout Pump Stabilization Basin (Clearwell or Retention Basin)	1	2	1	1	2	1	1	1	2	12	2	0.80	MRH	It was noted that level in this basin will drop between uses. Perhaps a leak in concrete? Structure is below	3/9/2016		
1J	W-INGS-FAC-BLD	Girl Scout Pump House (Well House or Low Service House)	3	4	3	3	3	5	2	1	4	28	5	0.00	MRH	Structure is steel shed that is in poor condition. Corrosion along bottom of facility and structure is aging.	3/9/2016		
1J	W-INGS-FAC-RSL	Girl Scout Pump House (Well House or Low Service House) - Roof	1	1	1	1	1	1	1	1	1	9	1	1.00	MRH	Added 3/5/2021. Building missing roof.	3/5/2021		
1J.1	W-INGS-MEC-MES	Girl Scout Well House - HVAC	1	4	3	4	5	1	1	1	1	21	5	0.00	RWJ	HVAC is aging in the infiltration gallery structure. Should be replaced at end of life.	3/9/2016		

1. CIP Number
2. Asset ID Matching
3. Condition Rating Criteria and Scores – Criteria from Appendix 5E
4. Condition Adjustment Factor
5. Scoring Notes

Figure 4 - CIP Tool Snapshot for Condition Assessment Scoring Example

The derating scores shown in Appendix A are meant to be a one-time adjustment for baseline conditions in 2023. The condition assessment should be updated in future CIP or master plan cycles to track and adjust conditions of individual components as needed. Additionally, replacement of assets during CIP or maintenance projects should be noted by replacing scores in respective columns as well as the "Last Major Equipment Rehab Year" column from Task 2.

TASK 6 – DEVELOP FACILITY AND EQUIPMENT REPLACEMENT COSTS

Facility and equipment replacement costs were developed to establish budget values for the replacement CIP. Cost estimating was completed to a Class 5 estimate according to the Association for the Advancement of Cost Engineering (AACE) and results in an estimate accuracy of ±50 percent. Total Project Cost estimates were developed in 2023 USD and can be found in Appendix A in columns labeled "Asset Cost Estimate". Sizing and basis of cost information can also be found in those columns and correlated to one of the estimating methods described below.

Costs were developed for each type of facility component. Components within the facility were defined as unit processes (booster pump stations or larger facilities), equipment, or facility assets. Costs were developed either as parametric facility costs or as system equipment costs as noted below and are presented in Appendix C.

Parametric Facility Replacement Costs

Parametric cost estimates were developed for application to the replacement of water system facilities and the respective components within them. Table 6 outlines the values used for estimating replacement costs using parametric costing strategy.

Table 6 - Facility Parametric Cost Values

BUILDING TYPE	PARAMETRIC COST
Brick & Block Facility – Concrete Lower Level/Tank Foundation, Brick & Block Walls, Flat Precast Roof with Membrane roofing	$313/SF
Brick & Block Facility – Spread Frost Footing Foundation, Brick & Block Walls, Asphaltic Shingles Roof	$250/SF
Brick & Block Facility – Slab on Grade Foundation, Brick & Block Walls, Asphaltic Shingles Roof	$200/SF
HVAC Replacement	$25 - $30/SF
Plumbing Replacement (New Construction Plumbing Cost)	$15 - $20/SF
Asphalt Shingle Roof (Replacement)	$20- $24/SF
Electrical	15-20% on Equipment
480 Volt Motor Control Center (MCC)	$10,000 per Section
480 Volt MCC VFD Adder (<50 hp)	$4,000 Adder to Section Cost
480 Volt MCC VFD Adder (>50 hp)	$25,000 for 200HP VFD $22,000 for 150HP VFD $20,000 for 125HP VFD $18,000 for 100HP VFD
Med Voltage Section	$50,000 per Section
Med Voltage Switchgear	$50,000 per section
120 V Panel	$3,000 per Panel
Low Voltage	$20,000 per section
SCADA/PLC, Instrumentation	$20,000-$25,000 per panel
Reservoir – Ground Storage Type	$1.30 per gallon stored
Reservoir – Elevated Storage Type	$1.95 per gallon stored
Communication Panel	$2,500 per panel
Transformer (480 to 220)	$6,000 per transformer
Well Casing	$100 per LF
Notes: Parametric unit costs have been adjusted through ENR CCI to reflect August 2023 costs.	

System Equipment Cost Estimates

System equipment costs were developed with using one of three sources:

- Updated vendor quotes,
- RSMeans cost estimation data (2019, adjusted to 2023).
- Previous City of Burnsville Bid Tabs (Escalated to 2023)

System equipment included pumps, valves, in-facility piping, and treatment equipment. Cost source information can be found in the CIP Tool in Appendix A.

Cost Allowances

Project costs in the CIP Tool are represented as a total project cost which include construction and installation costs for facilities and equipment plus markup for allowances described in Table 7. All costs associated in the CIP are presented on a Total Project Cost basis and includes all applicable markups. The following allowances were included on top of equipment costs and represent a total project cost. Project cost allowances were added depending on the type of cost estimate provided and Table 7 outlines the cost allowances applied.

Table 7 - Cost Allowance Adder Values

COST ALLOWANCE TYPE	COST ESTIMATE TYPE			
	EQUIPMENT WITHOUT INSTALLATION (E)	EQUIPMENT WITH INSTALLATION (I)	PROJECT COST WITHOUT CONTINGENCY (PC)	PROJECT COST WITH CONTINGENCY (P)
Equipment Installation	40%	-	-	-
Taxes for non-exempt	0%	0%	0%	0%
Contractor Markup for Overhead & Profit, O&Ms, Startup, Training, etc.	17%	17%	-	-
Total Project Contingency	35%	35%	35%	-
Engineering Allowance (Study, Design, Construction Phase Services, Resident Engineer, etc.)	23%	23%	23%	23%
City Legal & Administrative Allowances	0%	0%	0%	0%

Engineer allowances adders were applied to construction costs to better represent the total project cost to the City. The value noted in Table 7 is a collective percentage meant to represent the following phases of the entire engineering design - Study Phase (3-5%), Preliminary & Detailed Design (10-13%), Construction Phase Services (3-4%), and Resident Engineer (3-4%). Additional services like Plant Operation, Programming, Alternate Evaluations, etc. are not included in this adder percentage.

TASK 7 – DEVELOP FACILITY REPLACEMENT CIP & SCHEDULE

The water facility replacement CIP was developed by staging discrete facility replacements into future years along with their estimated replacement costs. The CIP includes:

- A near-term period from 2023-2027 with replacement projects identified by year.
- Long-term facility replacement CIP funding requirements compiled in 5-year increments from 2028 to 2053.

Using a facility's ESL, ERL, and adjustment factors for criticality and condition de-rating, an initial replacement year was established for each facility and/or sub-components in the City's inventory. The initial replacement year was calculated as follows:

Initial Replacement Year = 2023+ERL(years) x Criticality Adjustment Factor x Condition De Rating Factor

In some cases, certain facilities and/or equipment had a negative ERL (and initial replacement year prior to 2023) because the asset had already reached the end of its useful life. Within the CIP cycle, these assets were scheduled for replacement in 2023.

Because the CIP is setup to identify funding requirements through 2053, many facilities and equipment items are scheduled for replacement multiple times. Following the initial replacement, subsequent replacements were scheduled into future CIP years as follows:

Future Replacement Year(s) = Initial Replacement Year + (ESL (years) x Criticality Adjustment Factor)

All historical replacement costs were originally developed for facilities in 2023 and were benchmarked using 2023 Cost Basis and Engineering News & Report's (ENR) Construction Cost Index (CCI) at the time of the of the cost estimates (October 2023) was 13,497. The CCI Index provides historic index for regionalized construction costs for similar facilities. To be consistent with other capital costs in this report, the costs in this Tech Memo have been adjusted and all costs are presented with an October 2023 cost basis. The costs were adjusted using the following equation.

$$October\ 2023\ Component\ Cost = \text{Historical}\ Component\ Cost * \frac{13{,}497}{\text{Historical ENR CCI}}$$

A future project cost can be calculated forward using the October 2023 ENR CCI to the future CIP period using the following equation.

$$Future\ Value = \text{October 2023}\ Component\ Cost * \frac{CCI\ Cost\ Index\ Future\ Year}{13{,}497}$$

The Future Replacement Year and Cost are noted in Appendix B under columns "Future Replacement Years and Costs" for a 100-year calculation period. Data is presented in graphs and tables through a 30-year period. Data was extracted from Appendix B and costs were tabulated by year and summed annually. A summary of the CIP ranking results can be found in Appendix below

with information, including tables and figures, representing the representing near-term, mid-term, and long-term CIPs can be found in sections below labeled Near-Term and Long-Term Results.

CIP Results

CIP RESULTS SUMMARY

Facilities criticality and condition assessment evaluations were performed on 66 existing facilities that the City maintains for the operation of the water system including the following:

- 17 Groundwater Well Supply Facilities
- 1 Surface Water Intake Pump Station
- 1 Carbon Injection Building
- 2 Water Treatment Plants
- Surface Water Treatment Plant including 11 Sub-System Areas
- Groundwater Treatment Plant including 20 Sub-System Areas
- Finished Water Clearwell & High Service Pump Station including 4 Sub-System Areas
- Shared WTP Chemical Feed including 8 Sub-System Areas
- Other Shared WTP Areas exterior to the facilities.

A summary of the Criticality and Condition Assessments can be found in the following sections.

Criticality Summary

The facilities were rated against criteria noted in Table 2 and scored against classifications in Table 3. A summary of the results can be found in Table 8.

- Nineteen facilities received a rating as being a "High Criticality" and received a Criticality Adjustment factor of 1.0 (i.e., no stretched ESL). The majority of these facilities were adjusted to "High Criticality" as operation without the asset would have major impact on meeting regulatory requirements for treatment (e.g., higher political risk associated with a failure).
- Twenty-Five facilities were noted as "Medium Criticality" and were assigned a Criticality Adjustment Factor of 1.15. These facilities consisted of wells that served as duty wells with high degree of backup in the supply system.
- Six facilities received classification as "Low Criticality" and were adjusted with a Criticality Adjustment Factor of 1.30. The facilities consisted of wells with lower utilization (i.e. emergency designation) and administrative spaces not providing regulatory functions.

The Criticality Rating is presented for information in respective CIP period tables.

Table 8 - Criticality Rating Summary for Water System

HIGH CRITICALITY FACILITIES (ADJUSTMENT FACTOR = 1.0)	MEDIUM CRITICALITY FACILITIES (ADJUSTMENT FACTOR = 1.15)	LOW CRITICALITY FACILITIES (ADJUSTMENT FACTOR = 1.3)
GWTP Basement Area	Well 1, 2, 4, 5, 7, 8, 9, 11, 12, 13, 14, 15, 16, and 17	Well 3
GWTP North & South Filters	Surface Water Intake Facility	Well 6
GWTP Control Room	SWTP Reclaim Basins	Well 10 (inside Well 9 Facility)
GWTP Laboratory	Carbon Injection	GWTP Administrative Spaces
GWTP Effluent Channel	Polymer Feed Room	SWTP Administrative Spaces
GWTP Reclaim Basin	Phosphate Feed Room	Trash Building
GWTP Server/Security Room	Permanganate Room	
Surface Water Intake Pumps	Fluoride Room	
SWTP Flocculation	Ferric Feed Room	
SWTP Filters & Galleries	GWTP North & South Contact Basins	
SWTP Chlorine Contact Tank		
WTP Electrical Rooms		
SWTP Blowers Room		
WTP Clearwell		
High Service Pump Station		
Hypochlorite Feed Areas		
WTP Engine-Generator		

Condition Assessment Summary

In general, the majority of facilities and assets were noted to be in good condition with ERL and ESL extending out to the near the full asset's life. A summary of the results for the condition assessment breakdown is presented in Figure 5 and approximately 67 percent of the City's facilities received either "No de-rating" or "Minor de-rating" score with de-rating factor of 1.00 or 0.8, respectively. The full de-rating factor was applied to 38 of the 426 assets (6% of the assets). The majority of these assets were found in facilities where the majority of assets were in negative ERL condition. These facilities will be replaced as a whole, and condition assessment renewed for that asset.

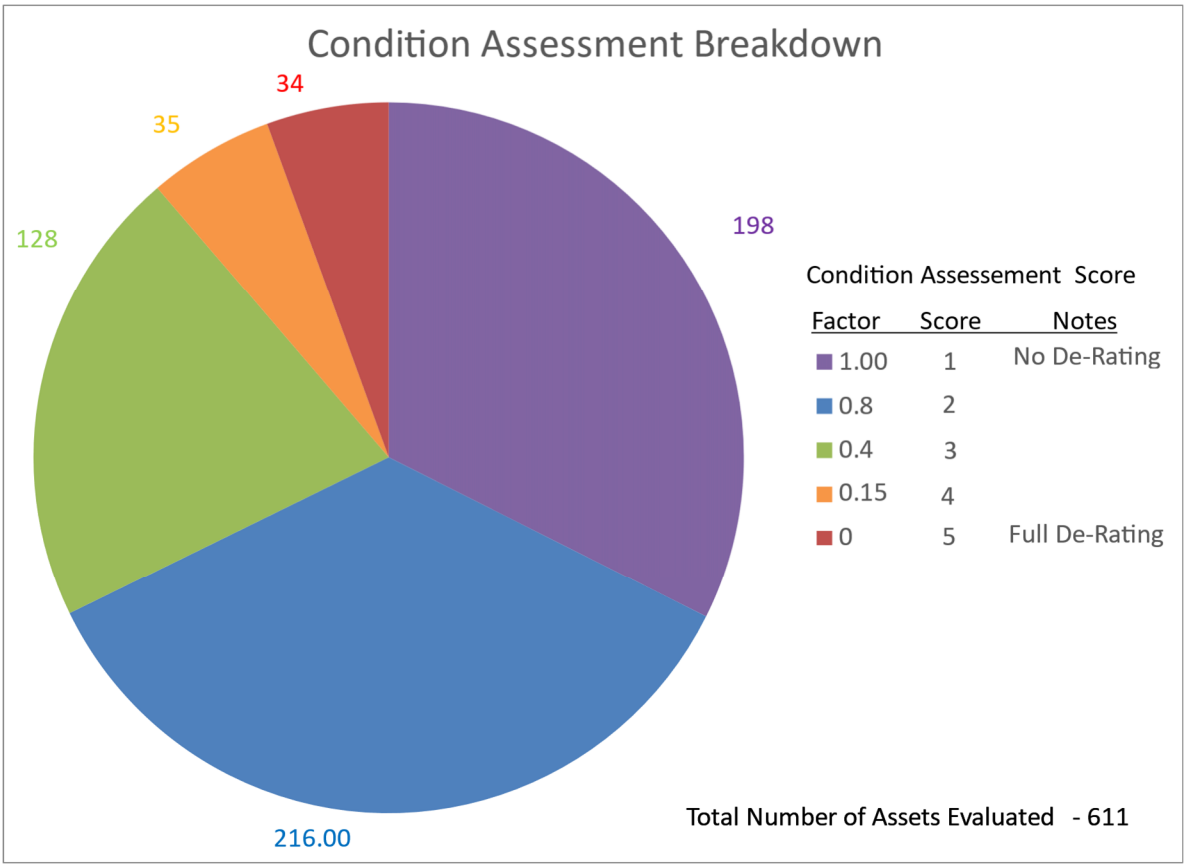


Figure 5 - Condition Assessment Results Summary

REPLACEMENT STRATEGY GROUPS & HEAT MAPS

The facility criticality and condition can be plotted in a matrix and provides the City for a priority grouping and budgeting. Figure 6 illustrates the group placing based off Criticality Rating (Y axis scored 1 (low) to 5 (high)) and Condition Assessment (X axis scored 1 (new) to 5 (poor)).

		Condition Assessment Rating				
		1	2	3	4	5
Criticality Rating	5 (high)	D	C	B	A	A
	4	D	C	B	A	A
	3	D	D	C	B	B
	2	E	D	D	C	B
	1 (low)	E	E	D	D	C

Strategy A	High Priority for Replacement
Strategy B	Medium Priority for Replacement
Strategy C	Watch List
Strategy D	Maintain
Strategy E	Maintain Strategy - Low Priority

Figure 6 – Priority Group Strategy Matrix based on Criticality and Condition Assessment Scoring

As an example, Strategy A is noted as the Highest Priority Structures. These components were rated high in criticality (4 to 5 rating) and rated poorly (4 to 5) for condition assessment. The City should focus on Group A Strategy component first as these assets are in poor condition and also highly critical to the production of the City's water. After addressing Group A, the City should focus on Group B and then Group C. Group D and E are considered to be lower priority and focus should be on maintaining these components to ensure they remain in good working order. The Strategy Group rating is noted for each component in Appendix B.

It should be noted that the condition assessment will change with projects replacing or rehabbing the component. Breakdown of data can be presented in heat map format and Figure 7 presents the total number of components in each Strategy Group as well as breakdown of percentages. Figure 8 summarizes the total cost per Strategy Group and group cost percentages.

		Condition Assessment Rating					
		1	2	3	4	5	
Criticality Rating	5	60	60	24	8	2	154
	4	39	36	37	16	5	133
	3	84	91	50	8	23	256
	2	2	1	1	1	0	5
	1	13	28	16	2	4	63
		198	216	128	35	34	**611**

Strategy A	31	5%
Strategy B	92	15%
Strategy C	151	25%
Strategy D	294	48%
Strategy E	43	7%

11/20/2023

Figure 7 - Strategy Group Heat Map for number of components

		Condition Assessment Rating					
		1 (new)	2	3	4	5 (poor)	
Criticality Rating	5 (high)	$ 40,513,000	$ 14,245,000	$ 2,570,000	$ 1,342,000	$ 223,000	$ 58,893,000
	4	$ 1,631,000	$ 24,412,000	$ 1,249,000	$ 644,000	$ 419,000	$ 28,355,000
	3	$ 8,260,000	$ 12,466,000	$ 4,556,000	$ 1,241,000	$ 622,000	$ 27,145,000
	2	$ 81,000	$ 10,000	$ 6,000	$ 93,000	$ -	$ 190,000
	1 (low)	$ 658,000	$ 3,492,000	$ 1,486,000	$ 282,000	$ 65,000	$ 5,983,000
		$ 51,143,000	$ 54,625,000	$ 9,867,000	$ 3,602,000	$ 1,329,000	**$ 120,566,000**

Strategy A	$ 2,628,000	2%
Strategy B	$ 5,682,000	5%
Strategy C	$ 43,371,000	36%
Strategy D	$ 64,654,000	54%
Strategy E	$ 4,231,000	4%

11/20/2023

Figure 8 - Strategy Group Heat Map for Costs (USD)

NEAR-TERM FACILITY REPLACEMENT CIP (2023-2027)

The near-term facility replacement CIP projects are listed in the Referenced Graphs and Table Section at the end of this technical memorandum (see Referenced Table Section). The listing is provided along with relevant facility and replacement cost information. The projects consist of upgrades to many of the water facilities within the Burnsville system due to relative age of the facilities. Summaries of criticality rating and condition de-rating factor are also presented in Table 9. Condition derating factors were assigned as the highest de-rating factor given for individual components within the facility and corresponded to the varying conditions depending on the onsite investigations.

To better understand and prioritize the large initial 2023 replacement cost, Table 10 was added, which shows those facilities that had replacement drivers of either "Condition" or "Negative ERL". Condition drivers were listed if a facility or component received a low condition de-rating factor as a result of the condition assessments that reduced its ERL in to a "replace immediately" status. A Negative ERL Facility included those facilities whose ERL was past due and the facility should have previously been replaced. The dates noted in Table 10 show the year that the facility should have been replaced based on the component's ESL.

Annual and cumulative costs for the 2023-2027 water system replacement CIP are presented in Figure 9. The cumulative 5-year costs for the water system facility replacement is $14.7M with the majority of the expense occurring in the initial evaluation year of 2023. These replacement costs are front loaded because of the components with Negative ERL or Condition De-rating Factor projects ($4.3M of the $14.7M).

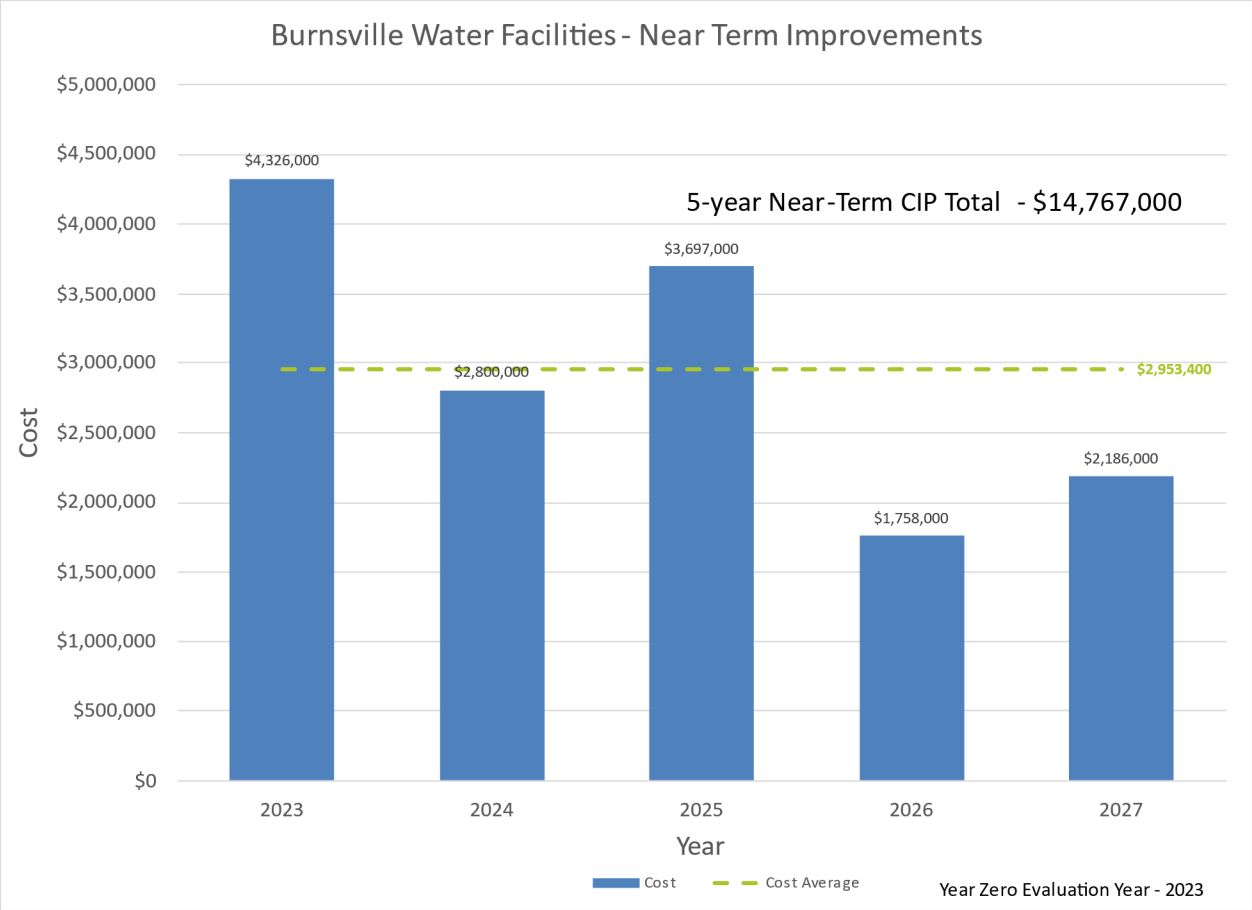


Figure 9 - Near-Term CIP Summary for Years 2023 Through 2027

LONG-TERM FACILITY REPLACEMENT CIP (2028-2053)

Long-Term Facility Replacement was defined as the 30-year period from 2028 through 2052 and occurring directly after the Near-Term Facility Replacement period. The 5-year period costs and cumulative costs for the long-term facility replacement CIP are illustrated in Figure 10 with the Near-Term 5-year CIP amount provided for reference. The long-Term CIP Project List with respective projects and cost summary for each 5-year period can be found in Appendix G.

It was noted that there was a significant cost shown in the 2043-2047 CIP planning period. It should be noted that the majority of this cost is the 75-year rehabilitation of the GWTP (originally installed in 1976). The facility should undergo a facility refresh to ensure it can be used for future use as the production facility for groundwater treatment.

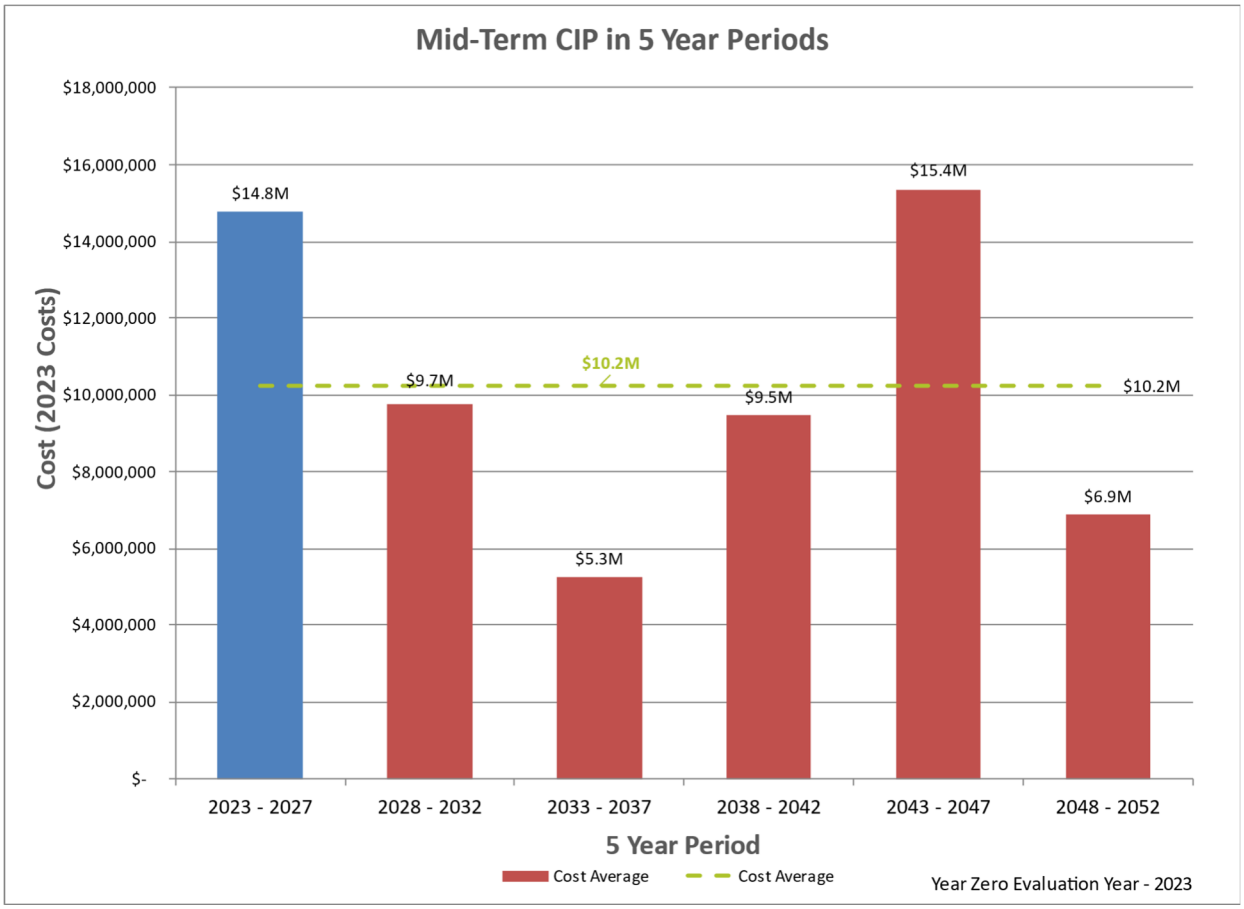


Figure 10 - Long-Term 5-year CIP Costs from 2028 Through 2052

Referenced Graphs and Tables

Table 9: Near Term Collections Facility Replacment CIP (2021-2025)

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027
1.02	W-WL01-MEC-MEC - Well 1 HVAC	MED (1.15)	0.40	2031	2027					$ 22,000
1.03	W-WL01-RWS-PIV - Well 1 Piping and Valves	MED (1.15)	0.80	2023	2023	$ 39,000				
1.04	W-WL01-RWS-PVT - Well 1 - Motor to Pump	MED (1.15)	0.15	2054	2024		$ 185,000			
1.05	W-WL01-ELC-ELE - Well 1 - Electrical PP/LP/SSRV	MED (1.15)	0.40	2024	2024		$ 155,000			
1.06	W-WL01-RWS-INS - Well 1 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
2.02	W-WL02-MEC-MEC - Well 2 HVAC	MED (1.15)	0.40	2023	2023	$ 16,000				
2.03	W-WL02-RWS-PIV - Well 2 Piping and Valves	MED (1.15)	1.00	2024	2024		$ 39,000			
2.04	W-WL02-RWS-PVT - Well 2 Motor to Pump	MED (1.15)	0.80	2054	2024		$ 185,000			
2.05	W-WL02-ELC-ELE - Well 2 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023	2023	$ 155,000				
2.06	W-WL02-RWS-INS - Well 2 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
3.03	W-WL03-MEC-MEC - Well 3 HVAC	LOW (1.3)	0.40	2023	2023	$ 39,000				
3.05	W-WL03-RWS-PVT - Well 3 Rigth Angle Drive/Pump/Piping	LOW (1.3)	0.80	2061	2025			$ 185,000		
3.07	W-WL03-RWS-INS - Well 3 SCADA & Instrumentation	LOW (1.3)	0.40	2028	2025			$ 97,000		
4.03	W-WL04-MEC-MEC - Well 4 HVAC	MED (1.15)	0.00	2023	2023	$ 32,000				
4.04	W-WL04-RWS-PIV - Well 4 Piping and Valves	MED (1.15)	1.00	2027	2027					$ 39,000
4.06	W-WL04-ELC-ELE - Well 4 - Electrical LP	MED (1.15)	0.40	2023	2023	$ 39,000				
4.07	W-WL04-RWS-INS - Well 4 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
4.1	W-WL04-FAC-RFM - Well 4 Roof	MED (1.15)	1.00	2023	2023	$ 57,000				
5.03	W-WL05-MEC-MEC - Well 5 HVAC	MED (1.15)	0.15	2023	2023	$ 32,000				
5.06	W-WL05-ELC-ELE - Well 5 - Electrical LP	MED (1.15)	0.40	2023	2023	$ 39,000				
5.07	W-WL05-RWS-INS - Well 5 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
6.01	W-WL06-RWS-FET - Well 6 Flow Meter	LOW (1.3)	0.80	2023	2023	$ 28,000				
6.03	W-WL06-MEC-MEC - Well 6 HVAC	LOW (1.3)	0.40	2023	2023	$ 32,000				
6.06	W-WL06-ELC-ELE - Well 6 - Electrical LP	LOW (1.3)	1.00	2023	2023	$ 39,000				
6.07	W-WL06-RWS-INS - Well 6 SCADA & Instrumentation	LOW (1.3)	0.40	2028	2025			$ 97,000		
6.1	W-WL06-FAC-RFM - Well 6 Roof	LOW (1.3)	0.40	2029	2026				$ 57,000	
7.03	W-WL07-MEC-MEC - Well 7 HVAC	MED (1.15)	0.40	2023	2023	$ 21,000				
7.06	W-WL07-ELC-ELE - Well 7 - Electrical LP	MED (1.15)	0.40	2023	2023	$ 39,000				
7.07	W-WL07-RWS-INS - Well 7 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
8.02	W-WL08-RWS-WLE - Well 8 Engine	MED (1.15)	0.80	2042	2024		$ 174,000			
8.03	W-WL08-MEC-MEC - Well 8 HVAC	MED (1.15)	0.40	2023	2023	$ 19,000				
8.05	W-WL08-RWS-PVT - Well 8 Rigth Angle Drive/Pump/Piping	MED (1.15)	0.80	2057	2027					$ 185,000
8.06	W-WL08-ELC-ELE - Well 8 - Electrical LP	MED (1.15)	0.40	2023	2023	$ 39,000				
8.07	W-WL08-RWS-INS - Well 8 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
9.02	W-WL09/10-MEC-MEC - Well 9 HVAC	MED (1.15)	0.15	2023	2023	$ 72,000				
9.04	W-WL09/10-RWS-PVT - Well 9 Pump/Motor/Piping	MED (1.15)	0.80	2059	2027					$ 185,000
9.05	W-WL09/10-ELC-ELE - Well 9&10 - Electrical PP/LP/SSRV	MED (1.15)	0.15	2023	2023	$ 214,000				
9.06	W-WL09/10-RWS-INS - Well 9 & 10 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
9.09	W-WL09/10-FAC-RSS - Well 9 & 10 Roof	MED (1.15)	0.80	2023	2023	$ 46,000				
9.13	W-WL09/10-ELC-MCC - Well 10 Pump/Motor/Piping	LOW (1.3)	0.00	2023	2023	$ 39,000				
11.02	W-WL11-MEC-MEC - Well 11 HVAC	MED (1.15)	0.40	2023	2023	$ 13,000				

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027
11.04	W-WL11-RWS-PVT - Well 11 Pump/Motor/Piping	MED (1.15)	0.40	2058	2026				$ 185,000	
11.05	W-WL11-ELC-ELE - Well 11 - Electrical PP/LP/SSRV	MED (1.15)	0.40	2023	2023	$ 155,000				
11.06	W-WL11-RWS-INS - Well 11 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
12.02	W-WL12-MEC-MEC - Well 12 HVAC	MED (1.15)	0.40	2023	2023	$ 16,000				
12.05	W-WL12-ELC-ELE - Well 12 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023	2023	$ 155,000				
12.06	W-WL12-RWS-INS - Well 12 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
13.02	W-WL13-MEC-MEC - Well 13 HVAC	MED (1.15)	0.40	2023	2023	$ 24,000				
13.05	W-WL13-ELC-ELE - Well 13 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023	2023	$ 155,000				
13.06	W-WL13-RWS-INS - Well 13 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
14.02	W-WL14/15-RWS-GEN - Well 14/15 Generator	MED (1.15)	0.80	2025	2026				$ 486,000	
14.03	W-WL14/15-MEC-MEC - Well 14/15 HVAC	MED (1.15)	0.40	2023	2023	$ 44,000				
14.06	W-WL14/15-ELC-ELE - Well 14/15 - Electrical PP/LP/SSRV	MED (1.15)	0.40	2026	2026				$ 214,000	
14.07	W-WL14/15-RWS-INS - Well 14/15 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 165,000			
14.13	W-WL14/15-RWS-PVT - Well 15 Motor to Pump	MED (1.15)	0.80	2030	2026				$ 291,000	
16.02	W-WL16-MEC-MEC - Well 16 HVAC	MED (1.15)	0.40	2023	2023	$ 18,000				
16.04	W-WL16-RWS-PVT - Well 16 Motor to Pump	MED (1.15)	0.80	2057	2027					$ 185,000
16.05	W-WL16-ELC-ELE - Well 16 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023	2023	$ 155,000				
16.06	W-WL16-RWS-INS - Well 16 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
17.02	W-WL17-MEC-MEC - Well 17 HVAC	MED (1.15)	0.40	2023	2023	$ 21,000				
17.06	W-WL17-RWS-INS - Well 17 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000			
20.01	W-SWI-ELC-VFD - Quarry Intake Drive 1	HIGH (1)	0.80	2028	2027					$ 195,000
20.02	W-SWI-ELC-VFD - Quarry Intake Drive 2	HIGH (1)	0.80	2028	2027					$ 195,000
20.03	W-SWI-RWS-PQA - Quarry Pump & Motor 1	HIGH (1)	0.80	2024	2024		$ 155,000			
20.04	W-SWI-RWS-PQA - Quarry Pump & Motor 2	HIGH (1)	0.80	2027	2027					$ 155,000
20.07	W-SWI-RWS-PLC - SCADA PLC	MED (1.15)	0.80	2025	2025			$ 117,000		
20.03	W-GWTP-FAC-EXC - Building - Exterior Retaining Walls	LOW (1.3)	0.15	2041	2027					$ 97,000
20.04	W-GWTP-FAC-INS - Plant Fiber Loop	LOW (1.3)	0.80	2035	2025			$ 97,000		
20.15	W-GWTP-MEC-MEC - GWTP Pipe Gallery - HVAC	HIGH (1)	0.00	2027	2027					$ 134,000
20.17	W-GWTP-ELC-ELE - GWTP Pipe Gallery - Electrical	HIGH (1)	0.40	2023	2023	$ 82,000				
21.21	W-GWTP-MEC-MEC - GWTP North Filter - HVAC	HIGH-WTP (1)	0.00	2030	2027					$ 129,000
22.21	W-GWTP-MEC-MEC - GWTP South Filter - HVAC	HIGH-WTP (1)	0.00	2030	2027					$ 129,000
23.02	W-GWTP-MEC-PLB - Control Room - Plumbing	HIGH-WTP (1)	0.40	2023	2023	$ 17,000				
23.12	W-GWTP-MEC-PLB - Lab Room - Plumbing	HIGH-WTP (1)	0.40	2034	2027					$ 15,000
25.51	W-GWTP-ADM-BLA - Bathroom 1 - Personnel Room	LOW (1.3)	1.00	2023	2023	$ 42,000				
25.52	W-GWTP-MEC-PLB - Bathroom 1 - Plumbing	LOW (1.3)	0.40	2023	2023	$ 6,000				
25.53	W-GWTP-MEC-MEC - Bathroom 1 - HVAC	LOW (1.3)	0.00	2027	2027					$ 10,000
25.54	W-GWTP-ELC-ELE - Bathroom 1 - Electrical	LOW (1.3)	0.80	2023	2023	$ 6,000				
25.61	W-GWTP-ADM-BLA - Bathroom 2 - Personnel Room	LOW (1.3)	1.00	2023	2023	$ 42,000				
25.62	W-GWTP-MEC-PLB - Bathroom 2 - Plumbing	LOW (1.3)	0.40	2023	2023	$ 6,000				
25.63	W-GWTP-MEC-MEC - Bathroom 2 - HVAC	LOW (1.3)	0.00	2027	2027					$ 10,000
25.64	W-GWTP-ELC-ELE - Bathroom 2 - Electrical	LOW (1.3)	0.80	2023	2023	$ 6,000				
25.71	W-GWTP-MEC-MEC - Storage Room - HVAC	LOW (1.3)	0.00	2027	2027					$ 6,000
25.72	W-GWTP-ADM-BLA - Storage Room	LOW (1.3)	1.00	2023	2023	$ 19,000				

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027
25.81	W-GWTP-MEC-MEC - Hallways - HVAC	MED (1.15)	0.15	2027	2027					$ 93,000
25.83	W-MNT-MEC-DHU - DH6	MED (1.15)	0.40	2031	2027					$ 6,000
31.16	W-SWTP-MEC-PLB - Flocculation Room - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 56,000
31.17	W-SWTP-MEC-MEC - Flocculation Room - HVAC	HIGH-WTP (1)	0.00	2023	2023	$ 93,000				
31.19	W-SWTP-MEC-UHE - UH6	HIGH-WTP (1)	0.40	2023	2023	$ 4,000				
31.2	W-SWTP-MEC-UHE - UH7	HIGH-WTP (1)	0.40	2023	2023	$ 4,000				
31.21	W-SWTP-MEC-UHE - UH8	HIGH-WTP (1)	0.40	2023	2023	$ 4,000				
32.03	W-SWTP-MEC-MEC - Filter Gallery - HVAC	HIGH-WTP (1)	0.00	2023	2023	$ 128,000				
32.05	W-SWTP-INS-PLC - SCADA PLC	HIGH-WTP (1)	0.80	2023	2023	$ 249,000				
32.06	W-SWTP-MEC-UHE - UH10	MED (1.15)	0.40	2025	2024		$ 7,000			
32.07	W-SWTP-MEC-UHE - UH11	MED (1.15)	0.40	2025	2024		$ 7,000			
32.08	W-SWTP-MEC-UHE - UH12	MED (1.15)	0.40	2025	2024		$ 7,000			
32.09	W-SWTP-MEC-DHU - DH3	MED (1.15)	0.40	2025	2024		$ 7,000			
32.33	W-SWTP-RWS-MXR - SWTP Inline Rapid Mixer - Static Mixer	HIGH-WTP (1)	1.00	2023	2023	$ 15,000				
32.67	W-SWTP-FLT-AEL - Chlorine Analyzer Pump SWTP	HIGH-WTP (1)	1.00	2023	2023	$ 15,000				
32.68	W-SWTP-FLT-AEL - Chrlorine Analyzer- SWTP Finished	HIGH-WTP (1)	1.00	2023	2023	$ 15,000				
32.69	W-SWTP-FLT-AEL - Fluoride Analyzer SWTP	HIGH-WTP (1)	1.00	2023	2023	$ 15,000				
32.72	W-SWTP-MEC-PLB - Pipe Gallery - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 75,000
32.73	W-SWTP-MEC-MEC - Pipe Gallery - HVAC	HIGH-WTP (1)	0.00	2023	2023	$ 128,000				
32.75	W-SWTP-MEC-UHE - UH1	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
32.76	W-SWTP-MEC-UHE - UH2	HIGH-WTP (1)	1.00	2023	2023	$ 7,000				
32.77	W-SWTP-MEC-UHE - UH3	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
32.78	W-SWTP-MEC-DHU - DH1	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
32.79	W-SWTP-MEC-DHU - DH2	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
32.8	W-SWTP-MEC-DHU - DH4	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
33.01	W-SWTP-FLT-PLB - Filter Room - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 50,000
33.02	W-SWTP-FLT-MEC - Filter Room - HVAC	HIGH-WTP (1)	0.15	2023	2023	$ 86,000				
33.04	W-MNT-MEC-UHE - UH4	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
33.05	W-MNT-MEC-UHE - UH5	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
34.04	W-SWTP-RWS-PSM - SWTP Reclaim Tank Reclaim Pump #1	MED (1.15)	0.80	2025	2025			$ 39,000		
34.05	W-SWTP-RWS-PSM - SWTP Reclaim Tank Reclaim Pump #2	MED (1.15)	0.80	2025	2025			$ 39,000		
34.07	W-SWTP-RCS-PSM - SWTP Reclaim Tank Sludge Pump #1	MED (1.15)	1.00	2025	2026				$ 39,000	
34.08	W-SWTP-RCS-PSM - SWTP Reclaim Tank Sludge Pump #2	MED (1.15)	1.00	2025	2026				$ 39,000	
36.02	W-MNT-MEC-ACU - SWTP Electrical Room AC	HIGH-WTP (1)	0.40	2023	2023	$ 49,000				
36.03	W-SWTP-MEC-MEC - Electrical Room - HVAC	HIGH-WTP (1)	0.40	2023	2023	$ 14,000				
36.03	W-SWTP-MEC-MEC - SWTP Mechanical Room HVAC	LOW (1.3)	0.40	2028	2025			$ 8,000		
36.05	W-MNT-MEC-UHE - UH9	LOW (1.3)	0.40	2028	2025			$ 4,000		
37.01	W-SWTP-AIR-CMP - SWTP Air Compressor Skid	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
37.05	W-SWTP-MEC-PLB - Blower Room - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 7,000
37.06	W-SWTP-MEC-MEC - SWTP Blower Room HVAC	HIGH-WTP (1)	0.40	2023	2023	$ 13,000				
38.02	W-SWTP-MEC-MEC - Hallways - HVAC	LOW (1.3)	0.40	2028	2025			$ 12,000		
40.03	W-FWC-FWS-LET - Clearwell Tank Level Sensor - Float	HIGH-WTP (1)	1.00	2023	2023	$ 15,000				
40.04	W-FWC-FWS-VCK - Swinging Gate Overflow Valves	HIGH-WTP (1)	0.40	2023	2023	$ 68,000				

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027
41.02	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Filters	HIGH (1)	0.80	2028	2027					$ 15,000
41.03	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Finished	HIGH-WTP (1)	0.80	2023	2023	$ 15,000				
41.04	W-GWTP-INS-AEL - Turbitidity Meter - GWTP Finished	HIGH-WTP (1)	0.80	2028	2027					$ 15,000
41.05	W-HSPS-INS-AEL - Chlorine Analyzer - Combined Finished	HIGH-WTP (1)	0.80	2023	2023	$ 15,000				
41.06	W-HSPS-INS-AEL - Fluoride Analyzer Combined	HIGH-WTP (1)	0.80	2023	2023	$ 15,000				
41.07	W-HSPS-FWS-ARS - HSP 1 Air Relief	HIGH-WTP (1)	0.80	2023	2023	$ 5,000				
41.08	W-HSPS-FWS-VCK - HSP 1 Check Valve	HIGH-WTP (1)	0.80	2023	2023	$ 39,000				
41.09	W-HSPS-FWS-FET - HSP 1 Flow Meter	HIGH-WTP (1)	0.40	2023	2023	$ 37,000				
41.1	W-HSPS-ELC-VFD - HSP 1 HSP Drive	HIGH-WTP (1)	0.80	2023	2025			$ 616,000		
41.11	W-HSPS-FWS-PVT - HSP 1 Pump & Motor	HIGH-WTP (1)	0.80	2025	2025			$ 404,000		
41.12	W-HSPS-FWS-VBF - HSP 1 Valve	HIGH-WTP (1)	0.80	2023	2023	$ 9,000				
41.13	W-HSPS-FWS-ARS - HSP 2 Air Relief	HIGH-WTP (1)	0.80	2023	2023	$ 5,000				
41.14	W-HSPS-FWS-VCK - HSP 2 Check Valve	HIGH-WTP (1)	0.80	2023	2023	$ 58,000				
41.15	W-HSPS-FWS-FET - HSP 2 Flow Meter	HIGH-WTP (1)	0.40	2023	2023	$ 52,000				
41.18	W-HSPS-FWS-VBF - HSP 2 Valve	HIGH-WTP (1)	0.80	2023	2023	$ 19,000				
41.19	W-HSPS-FWS-ARS - HSP 3 Air Relief	HIGH-WTP (1)	0.80	2023	2023	$ 5,000				
41.2	W-HSPS-FWS-VCK - HSP 3 Check Valve	HIGH-WTP (1)	0.80	2023	2023	$ 72,000				
41.21	W-HSPS-FWS-FET - HSP 3 Flow Meter	HIGH-WTP (1)	0.40	2023	2023	$ 63,000				
41.24	W-HSPS-FWS-VBF - HSP 3 Valve	HIGH-WTP (1)	0.80	2023	2023	$ 22,000				
41.25	W-HSPS-FWS-ARS - HSP 4 Air Relief	HIGH-WTP (1)	0.80	2023	2023	$ 5,000				
41.26	W-HSPS-FWS-VCK - HSP 4 Check Valve	HIGH-WTP (1)	0.80	2023	2023	$ 72,000				
41.27	W-HSPS-FWS-FET - HSP 4 Flow Meter	HIGH-WTP (1)	0.40	2023	2023	$ 63,000				
41.29	W-HSPS-FWS-PVT - HSP 4 Pump & Motor	HIGH (1)	0.40	2038	2024		$ 546,000			
41.3	W-HSPS-FWS-VBF - HSP 5 Valve	HIGH (1)	0.80	2023	2023	$ 22,000				
41.31	W-HSPS-FWS-ARS - HSP 5 Air Relief	HIGH (1)	0.80	2023	2023	$ 5,000				
41.32	W-HSPS-FWS-VCK - HSP 5 Check Valve	HIGH (1)	0.80	2023	2023	$ 58,000				
41.33	W-HSPS-FWS-FET - HSP 5 Flow Meter	HIGH (1)	0.40	2023	2023	$ 52,000				
41.36	W-HSPS-FWS-VBF - HSP 5 Valve	HIGH (1)	0.80	2023	2023	$ 19,000				
41.37	W-HSPS-FWS-ARS - HSP 6 Air Relief	HIGH (1)	0.80	2023	2023	$ 5,000				
41.38	W-HSPS-FWS-VCK - HSP 6 Check Valve	HIGH-WTP (1)	0.80	2023	2023	$ 39,000				
41.39	W-HSPS-FWS-FET - HSP 6 Flow Meter	HIGH-WTP (1)	0.40	2023	2023	$ 37,000				
41.4	W-HSPS-ELC-VFD - HSP 6 HSP Drive	HIGH-WTP (1)	0.40	2025	2025			$ 616,000		
41.42	W-HSPS-FWS-VBF - HSP 6 Valve	HIGH-WTP (1)	0.80	2023	2023	$ 9,000				
41.43	W-HSPS-MEC-MEC - Intake Louver #1	HIGH-WTP (1)	0.15	2033	2027					$ 10,000
41.44	W-HSPS-MEC-MEC - Intake Louver #2	HIGH-WTP (1)	0.15	2033	2027					$ 10,000
41.45	W-HSPS-MEC-MEC - Vent Fan #1	HIGH-WTP (1)	0.15	2033	2027					$ 15,000
41.46	W-HSPS-MEC-MEC - Vent Fan #2	HIGH-WTP (1)	0.15	2033	2027					$ 15,000
41.51	W-HSPS-FWS-PIP - HSP Room - Process Piping	HIGH-WTP (1)	0.15	2026	2023	$ 136,000				
41.52	W-HSPS-MEC-PLB - HSP Room - Plumbing	HIGH-WTP (1)	0.40	2023	2023	$ 45,000				
41.53	W-HSPS-ELC-ELE - HSP Room - Electrical	HIGH-WTP (1)	0.80	2023	2023	$ 45,000				
41.54	W-HSPS-MEC-MEC - HSP Room - HVAC	HIGH-WTP (1)	0.15	2027	2027					$ 74,000
41.55	W-HSPS-MEC-DHU - HSP Dehumidifier	HIGH-WTP (1)	0.40	2023	2023	$ 7,000				
42.01	W-HSPS-ELC-SWG - Section 1 - Switch Gear	HIGH-WTP (1)	0.15	2025	2025			$ 996,000		

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027
42.02	W-HSPS-ELC-TFR - Section 2 - Transformer	HIGH-WTP (1)	0.40	2025	2025			$ 332,000		
42.09	W-HSPS-MEC-MEC - Lower Electrical Room - HVAC	HIGH-WTP (1)	0.00	2025	2023	$ 95,000				
43.07	W-HSPS-CMS -CMP - Compressor and Reciever	HIGH-WTP (1)	0.80	2023	2023	$ 49,000				
50.02	W-CF-FER-PAD - Ferric Pump	MED (1.15)	0.40	2030	2026				$ 19,000	
50.05	W-CF-MEC-MEC - Ferric Room HVAC Systems	MED (1.15)	0.00	2025	2027					$ 12,000
50.06	W-CF-MEC-PLB - Ferric Room Plumbing	MED (1.15)	0.00	2037	2023	$ 7,000				
50.09	W-CF-MEC-UHE - EH3	MED (1.15)	0.00	2025	2023	$ 4,000				
52.1	W-CF-NOCL-FLT - Brine Water Filters	HIGH-WTP (1)	1.00	2025	2025			$ 4,000		
52.14	W-CF-MEC-PLB - HYPO Brine Room - Plumbing	HIGH-WTP (1)	0.00	2040	2023	$ 10,000				
52.15	W-CF-MEC-MEC - HYPO Brine Room - HVAC	HIGH-WTP (1)	0.00	2030	2023	$ 17,000				
52.17	W-CF-MEC-UHE - UH11	HIGH (1)	0.40	2030	2026				$ 4,000	
52.18	W-CF-MEC-DHU - DH11	HIGH (1)	0.40	2030	2026				$ 7,000	
53.09	W-CF-NOCL-AEL - Hardness Analyzer HYPO Skid 1	HIGH-WTP (1)	1.00	2025	2025			$ 15,000		
53.1	W-CF-NOCL-AEL - Hardness Analyzer HYPO Skid 2	HIGH-WTP (1)	1.00	2025	2025			$ 15,000		
53.15	W-CF-NOCL-FLT - HYPO Generation Room Water Filters	HIGH-WTP (1)	1.00	2025	2025			$ 4,000		
53.21	W-CF-MEC-UHE - UH10	HIGH-WTP (1)	0.40	2030	2026				$ 7,000	
53.22	W-CF-MEC-DHU - DH10	HIGH-WTP (1)	0.40	2030	2026				$ 7,000	
53.56	W-CF-NOCL-PDM - HYPO Pump Room Pump #1	HIGH-WTP (1)	0.40	2030	2026				$ 23,000	
53.57	W-CF-NOCL-PDM - HYPO Pump Room Pump #2	HIGH-WTP (1)	0.40	2030	2026				$ 23,000	
53.58	W-CF-NOCL-PDM - HYPO Pump Room Pump #3	HIGH-WTP (1)	0.40	2030	2026				$ 23,000	
53.59	W-CF-NOCL-PDM - HYPO Pump Room Pump #4	HIGH-WTP (1)	0.40	2030	2026				$ 23,000	
53.6	W-CF-NOCL-PDM - HYPO Pump Room Pump #5	HIGH-WTP (1)	0.40	2030	2026				$ 23,000	
53.61	W-CF-NOCL-PDM - HYPO Pump Room Pump #6 (shelf Spare)	HIGH-WTP (1)	0.40	2030	2026				$ 23,000	
53.67	W-CF-MEC-MEC - HYPO Pump Room - HVAC	HIGH-WTP (1)	0.40	2030	2026				$ 58,000	
54.03	W-CF-POP-PPS - Permanganate GWTP Pump	MED (1.15)	1.00	2025	2026				$ 39,000	
54.04	W-CF-POP-PPS - Permanganate SWTP Pump	MED (1.15)	1.00	2025	2026				$ 39,000	
54.06	W-CF-SAF-EWS - EW Permanganate Room	MED (1.15)	0.00	2031	2023	$ 5,000				
54.09	W-CF-MEC-PLB - Permanganate Room - Plumbing	MED (1.15)	0.00	2037	2023	$ 8,000				
54.1	W-CF-MEC-MEC - Permanganate Room - HVAC	MED (1.15)	0.00	2025	2027					$ 14,000
54.12	W-CF-MEC-UHE - EH2	MED (1.15)	0.40	2025	2024		$ 4,000			
55.09	W-CF-SAF-EWS - EW Phosphate Room	MED (1.15)	0.00	2035	2023	$ 5,000				
55.12	W-CF-MEC-PLB - Phosphate Room - Plumbing	MED (1.15)	0.00	2041	2023	$ 15,000				
55.13	W-CF-MEC-MEC - Phosphate Room - HVAC	MED (1.15)	0.00	2029	2027					$ 23,000
56.04	W-CF-POL-PPS - Poly Pump #2	MED (1.15)	1.00	2025	2026				$ 39,000	
56.09	W-CF-SAF-EWS - EW Polymer Room	MED (1.15)	0.00	2031	2023	$ 5,000				
56.12	W-CF-MEC-PLB - Polymer Room - Plumbing	MED (1.15)	0.00	2037	2023	$ 3,000				
56.13	W-CF-MEC-MEC - Polymer Room - HVAC	MED (1.15)	0.00	2025	2027					$ 5,000
56.15	W-MNT-MEC-UHE - EH4	MED (1.15)	0.00	2025	2023	$ 4,000				
60.06	W-CIB-MEC-PLB - CIB - Plumbing	MED (1.15)	0.00	2040	2023	$ 18,000				
60.07	W-CIB-MEC-MEC - CIB - HVAC	MED (1.15)	0.00	2028	2023	$ 30,000				
60.09	W-CIB-SAF-EWS - EW PAC Buillding	MED (1.15)	0.00	2034	2023	$ 5,000				
60.12	W-CIB-ELC-ELE - PAC control panel	MED (1.15)	0.15	2040	2026				$ 97,000	

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027
					Annual Total	$ 4,326,000	$ 2,800,000	$ 3,697,000	$ 1,765,000	$ 2,186,000
					O&M Funding Source	$ -	$ -	$ -	$ -	$ -
					CIP Funding Source	$ 4,326,000	$ 2,800,000	$ 3,697,000	$ 1,758,000	$ 2,186,000

Notes

1) Original Replacment Year indicate replacement year without Condition De-Rating Factor adjustment. Dates noted in parenthases are assets with negative Effective Life Remaining and pushed into 2020 replacement date.

2) Condition Assessment Replacment Year indicate the adjusted year with Condition De-Rating Factor applied.

Table 10: Near-Term Replacement Driver CIP Summary for Condition or Negative Effective Life Remaining Status

Asset Numb	Description	Criticality Rating	Condition De-Rating Factor	Drivers		Scheduled CIP or Replacement Year	Replacement Cost ($)
				Condition Drivers	Negative ERL Facility		2023
1.03	W-WL01-RWS-PIV - Well 1 Piping and Valves	MED (1.15)	0.80	-	YES (2022)		$39,000
1.04	W-WL01-RWS-PVT - Well 1 - Motor to Pump	MED (1.15)	0.15	YES	-	CIP - 2024	$185,000
1.05	W-WL01-ELC-ELE - Well 1 - Electrical PP/LP/SSRV	MED (1.15)	0.40	-	YES (1993)	CIP - 2024	$155,000
2.02	W-WL02-MEC-MEC - Well 2 HVAC	MED (1.15)	0.40	-	YES (1983)		$16,000
2.05	W-WL02-ELC-ELE - Well 2 - Electrical PP/LP/SSRV	MED (1.15)	0.80	-	YES (1995)		$155,000
3.03	W-WL03-MEC-MEC - Well 3 HVAC	LOW (1.3)	0.40	-	YES (1988)		$39,000
4.02	W-WL04-RWS-WLE - Well 4 Engine	MED (1.15)	0.15	YES	-	CIP - 2036	$174,000
4.03	W-WL04-MEC-MEC - Well 4 HVAC	MED (1.15)	0.00	YES	YES (1986)		$32,000
4.05	W-WL04-RWS-PVT - Well 4 Rigth Angle Drive/Pump/Piping	MED (1.15)	0.00	YES	-	CIP - 2033	$185,000
4.06	W-WL04-ELC-ELE - Well 4 - Electrical LP	MED (1.15)	0.40	-	YES (1998)		$39,000
4.1	W-WL04-FAC-RFM - Well 4 Roof	MED (1.15)	1.00	-	YES (2004)		$57,000
5.03	W-WL05-MEC-MEC - Well 5 HVAC	MED (1.15)	0.15	YES	YES (1987)		$32,000
5.06	W-WL05-ELC-ELE - Well 5 - Electrical LP	MED (1.15)	0.40	-	YES (1999)		$39,000
6.01	W-WL06-RWS-FET - Well 6 Flow Meter	LOW (1.3)	0.80	-	YES (2019)		$28,000
6.03	W-WL06-MEC-MEC - Well 6 HVAC	LOW (1.3)	0.40	-	YES (1990)		$32,000
6.06	W-WL06-ELC-ELE - Well 6 - Electrical LP	LOW (1.3)	1.00	-	YES (2003)		$39,000
7.03	W-WL07-MEC-MEC - Well 7 HVAC	MED (1.15)	0.40	-	YES (1988)		$21,000
7.06	W-WL07-ELC-ELE - Well 7 - Electrical LP	MED (1.15)	0.40	-	YES (2000)		$39,000
7.09	W-WL07-FAC-BLD - Well 7 Building	MED (1.15)	0.15	YES	-		$267,000
8.03	W-WL08-MEC-MEC - Well 8 HVAC	MED (1.15)	0.40	-	YES (1988)		$19,000
8.06	W-WL08-ELC-ELE - Well 8 - Electrical LP	MED (1.15)	0.40	-	YES (2000)		$39,000
9.02	W-WL09/10-MEC-MEC - Well 9 HVAC	MED (1.15)	0.15	YES	YES (1992)		$72,000
9.05	W-WL09/10-ELC-ELE - Well 9&10 - Electrical PP/LP/SSRV	MED (1.15)	0.15	YES	YES (2004)		$214,000
9.09	W-WL09/10-FAC-RSS - Well 9 & 10 Roof	MED (1.15)	0.80	-	YES (2021)		$46,000
9.12	W-WL09/10-RWS-PVT - Well 10 Pump/Motor/Piping	LOW (1.3)	0.15	YES	-	CIP - 2019	$185,000
9.13	W-WL09/10-ELC-MCC - Well 10 Pump/Motor/Piping	LOW (1.3)	0.00	YES	YES (2008)		$39,000
11.02	W-WL11-MEC-MEC - Well 11 HVAC	MED (1.15)	0.40	-	YES (1998)		$13,000
11.05	W-WL11-ELC-ELE - Well 11 - Electrical PP/LP/SSRV	MED (1.15)	0.40	-	YES (2010)		$155,000
12.02	W-WL12-MEC-MEC - Well 12 HVAC	MED (1.15)	0.40	-	YES (2005)		$16,000
12.05	W-WL12-ELC-ELE - Well 12 - Electrical PP/LP/SSRV	MED (1.15)	0.80	-	YES (2017)		$155,000
12.08	W-WL12-FAC-BLD - Well 12 Building	MED (1.15)	0.15	YES	-		$200,000
13.02	W-WL13-MEC-MEC - Well 13 HVAC	MED (1.15)	0.40	-	YES (1995)		$24,000
13.05	W-WL13-ELC-ELE - Well 13 - Electrical PP/LP/SSRV	MED (1.15)	0.80	-	YES (2007)		$155,000
14.03	W-WL14/15-MEC-MEC - Well 14/15 HVAC	MED (1.15)	0.40	-	YES (2007)		$44,000
14.06	W-WL14/15-ELC-ELE - Well 14/15 - Electrical PP/LP/SSRV	MED (1.15)	0.40	-	YES (2019)	CIP - 2026	$214,000
16.02	W-WL16-MEC-MEC - Well 16 HVAC	MED (1.15)	0.40	-	YES (2010)		$18,000
16.05	W-WL16-ELC-ELE - Well 16 - Electrical PP/LP/SSRV	MED (1.15)	0.80	-	YES (2022)		$155,000
17.02	W-WL17-MEC-MEC - Well 17 HVAC	MED (1.15)	0.40	-	YES (2022)		$21,000
20.03	W-SWI-RWS-PQA - Quarry Pump & Motor 1	HIGH (1)	0.80	-	YES (2021)	CIP - 2024	$155,000
20.03	W-GWTP-FAC-EXC - Building - Exterior Retaining Walls	LOW (1.3)	0.15	YES	-		$97,000
20.15	W-GWTP-MEC-MEC - GWTP Pipe Gallery - HVAC	HIGH (1)	0.00	YES	YES (1991)	CIP - 2027	$134,000
20.17	W-GWTP-ELC-ELE - GWTP Pipe Gallery - Electrical	HIGH (1)	0.40	-	YES (2001)		$82,000
21.21	W-GWTP-MEC-MEC - GWTP North Filter - HVAC	HIGH-WTP (1)	0.00	YES	-	CIP - 2027	$129,000
22.01	W-GWTP-FLT-VBF - GWTP South Filter 1 Airwash Blower Valve	HIGH-WTP (1)	0.15	YES	-		$15,000
22.02	W-GWTP-FLT-VBF - GWTP South Filter 1 Effluent Valve	HIGH-WTP (1)	0.15	YES	-		$63,000
22.03	W-GWTP-FLT-VBF - GWTP South Filter 1 Influent Valve	HIGH-WTP (1)	0.15	YES	-		$32,000
22.04	W-GWTP-FLT-VBF - GWTP South Filter 1 Waste Valve	HIGH-WTP (1)	0.15	YES	-		$51,000
22.05	W-GWTP-FLT-VBF - GWTP South Filter 2 Airwash Blower Vlave	HIGH-WTP (1)	0.15	YES	-		$15,000
22.06	W-GWTP-FLT-VBF - GWTP South Filter 2 Effluent Valve	HIGH-WTP (1)	0.15	YES	-		$63,000
22.07	W-GWTP-FLT-VBF - GWTP South Filter 2 Influent Valve	HIGH-WTP (1)	0.15	YES	-		$32,000
22.08	W-GWTP-FLT-VBF - GWTP South Filter 2 Waste Valve	HIGH-WTP (1)	0.15	YES	-		$51,000
22.09	W-GWTP-FLT-VBF - GWTP South Filter 3 Airwash Blower Valve	HIGH-WTP (1)	0.15	YES	-		$15,000
22.1	W-GWTP-FLT-VBF - GWTP South Filter 3 Effluent Valve	HIGH-WTP (1)	0.15	YES	-		$63,000
22.11	W-GWTP-FLT-VBF - GWTP South Filter 3 Influent Valve	HIGH-WTP (1)	0.15	YES	-		$32,000
22.12	W-GWTP-FLT-VBF - GWTP South Filter 3 Waste Valve	HIGH-WTP (1)	0.15	YES	-		$51,000
22.13	W-GWTP-FLT-VBF - GWTP South Filter 4 Airwash Blower Valve	HIGH-WTP (1)	0.15	YES	-		$15,000
22.14	W-GWTP-FLT-VBF - GWTP South Filter 4 Effluent Valve	HIGH-WTP (1)	0.15	YES	-		$63,000
22.15	W-GWTP-FLT-VBF - GWTP South Filter 4 Influent Valve	HIGH (1)	0.15	YES	-		$32,000
22.16	W-GWTP-FLT-VBF - GWTP South Filter 4 Waste Valve	HIGH (1)	0.15	YES	-		$51,000
22.21	W-GWTP-MEC-MEC - GWTP South Filter - HVAC	HIGH-WTP (1)	0.00	YES	-	CIP - 2027	$129,000
23.02	W-GWTP-MEC-PLB - Control Room - Plumbing	HIGH-WTP (1)	0.40	-	YES (2001)		$17,000
25.51	W-GWTP-ADM-BLA - Bathroom 1 - Personnel Room	LOW (1.3)	1.00	-	YES (2009)		$42,000
25.52	W-GWTP-MEC-PLB - Bathroom 1 - Plumbing	LOW (1.3)	0.40	-	YES (2009)		$6,000
25.53	W-GWTP-MEC-MEC - Bathroom 1 - HVAC	LOW (1.3)	0.00	YES	YES (1996)	CIP - 2027	$10,000
25.54	W-GWTP-ELC-ELE - Bathroom 1 - Electrical	LOW (1.3)	0.80	-	YES (2009)		$6,000
25.61	W-GWTP-ADM-BLA - Bathroom 2 - Personnel Room	LOW (1.3)	1.00	-	YES (2009)		$42,000
25.62	W-GWTP-MEC-PLB - Bathroom 2 - Plumbing	LOW (1.3)	0.40	-	YES (2009)		$6,000
25.63	W-GWTP-MEC-MEC - Bathroom 2 - HVAC	LOW (1.3)	0.00	YES	YES (1996)	CIP - 2027	$10,000
25.64	W-GWTP-ELC-ELE - Bathroom 2 - Electrical	LOW (1.3)	0.80	-	YES (2009)		$6,000

Asset Numb	Description	Criticality Rating	Condition De-Rating Factor	Drivers		Scheduled CIP or Replacement Year	Replacement Cost ($)
				Condition Drivers	Negative ERL Facility		2023
25.71	W-GWTP-MEC-MEC - Storage Room - HVAC	LOW (1.3)	0.00	YES	YES (1996)	CIP - 2027	$6,000
25.72	W-GWTP-ADM-BLA - Storage Room	LOW (1.3)	1.00	-	YES (2009)		$19,000
25.81	W-GWTP-MEC-MEC - Hallways - HVAC	MED (1.15)	0.15	YES	YES (1993)	CIP - 2027	$93,000
31.17	W-SWTP-MEC-MEC - Flocculation Room - HVAC	HIGH-WTP (1)	0.00	YES	-		$93,000
32.03	W-SWTP-MEC-MEC - Filter Gallery - HVAC	HIGH-WTP (1)	0.00	YES	-		$128,000
32.67	W-SWTP-FLT-AEL - Chlorine Analyzer Pump SWTP	HIGH-WTP (1)	1.00	-	YES (2018)		$15,000
32.68	W-SWTP-FLT-AEL - Chrlorine Analyzer- SWTP Finished	HIGH-WTP (1)	1.00	-	YES (2018)		$15,000
32.69	W-SWTP-FLT-AEL - Fluoride Analyzer SWTP	HIGH-WTP (1)	1.00	-	YES (2018)		$15,000
32.73	W-SWTP-MEC-MEC - Pipe Gallery - HVAC	HIGH-WTP (1)	0.00	YES	-		$128,000
33.02	W-SWTP-FLT-MEC - Filter Room - HVAC	HIGH-WTP (1)	0.15	YES	-		$86,000
37.01	W-SWTP-AIR-CMP - SWTP Air Compressor Skid	HIGH-WTP (1)	0.40	-	YES (2008)		$7,000
40.03	W-FWC-FWS-LET - Clearwell Tank Level Sensor - Float	HIGH-WTP (1)	1.00	-	YES (2022)		$15,000
40.04	W-FWC-FWS-VCK - Swinging Gate Overflow Valves	HIGH-WTP (1)	0.40	-	YES (2001)		$68,000
41.03	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Finished	HIGH-WTP (1)	0.80	-	YES (2018)		$15,000
41.05	W-HSPS-INS-AEL - Chlorine Analyzer - Combined Finished	HIGH-WTP (1)	0.80	-	YES (2018)		$15,000
41.06	W-HSPS-INS-AEL - Fluoride Analyzer Combined	HIGH-WTP (1)	0.80	-	YES (2018)		$15,000
41.07	W-HSPS-FWS-ARS - HSP 1 Air Relief	HIGH-WTP (1)	0.80	-	YES (2001)		$5,000
41.08	W-HSPS-FWS-VCK - HSP 1 Check Valve	HIGH-WTP (1)	0.80	-	YES (2001)		$39,000
41.09	W-HSPS-FWS-FET - HSP 1 Flow Meter	HIGH-WTP (1)	0.40	-	YES (2006)		$37,000
41.11	W-HSPS-FWS-PVT - HSP 1 Pump & Motor	HIGH-WTP (1)	0.80	-	YES (2011)	CIP - 2025	$404,000
41.12	W-HSPS-FWS-VBF - HSP 1 Valve	HIGH-WTP (1)	0.80	-	YES (2011)		$9,000
41.13	W-HSPS-FWS-ARS - HSP 2 Air Relief	HIGH-WTP (1)	0.80	-	YES (2001)		$5,000
41.14	W-HSPS-FWS-VCK - HSP 2 Check Valve	HIGH-WTP (1)	0.80	-	YES (2001)		$58,000
41.15	W-HSPS-FWS-FET - HSP 2 Flow Meter	HIGH-WTP (1)	0.40	-	YES (2006)		$52,000
41.18	W-HSPS-FWS-VBF - HSP 2 Valve	HIGH-WTP (1)	0.80	-	YES (2011)		$19,000
41.19	W-HSPS-FWS-ARS - HSP 3 Air Relief	HIGH-WTP (1)	0.80	-	YES (2001)		$5,000
41.2	W-HSPS-FWS-VCK - HSP 3 Check Valve	HIGH-WTP (1)	0.80	-	YES (2001)		$72,000
41.21	W-HSPS-FWS-FET - HSP 3 Flow Meter	HIGH-WTP (1)	0.40	-	YES (2006)		$63,000
41.24	W-HSPS-FWS-VBF - HSP 3 Valve	HIGH-WTP (1)	0.80	-	YES (2011)		$22,000
41.25	W-HSPS-FWS-ARS - HSP 4 Air Relief	HIGH-WTP (1)	0.80	-	YES (2001)		$5,000
41.26	W-HSPS-FWS-VCK - HSP 4 Check Valve	HIGH-WTP (1)	0.80	-	YES (2001)		$72,000
41.27	W-HSPS-FWS-FET - HSP 4 Flow Meter	HIGH-WTP (1)	0.40	-	YES (2006)		$63,000
41.3	W-HSPS-FWS-VBF - HSP 5 Valve	HIGH (1)	0.80	-	YES (2011)		$22,000
41.31	W-HSPS-FWS-ARS - HSP 5 Air Relief	HIGH (1)	0.80	-	YES (2001)		$5,000
41.32	W-HSPS-FWS-VCK - HSP 5 Check Valve	HIGH (1)	0.80	-	YES (2001)		$58,000
41.33	W-HSPS-FWS-FET - HSP 5 Flow Meter	HIGH (1)	0.40	-	YES (2006)		$52,000
41.36	W-HSPS-FWS-VBF - HSP 5 Valve	HIGH (1)	0.80	-	YES (2011)		$19,000
41.37	W-HSPS-FWS-ARS - HSP 6 Air Relief	HIGH (1)	0.80	-	YES (2001)		$5,000
41.38	W-HSPS-FWS-VCK - HSP 6 Check Valve	HIGH-WTP (1)	0.80	-	YES (2001)		$39,000
41.39	W-HSPS-FWS-FET - HSP 6 Flow Meter	HIGH-WTP (1)	0.40	-	YES (2006)		$37,000
41.4	W-HSPS-ELC-VFD - HSP 6 HSP Drive	HIGH-WTP (1)	0.40	-	YES (1996)	CIP - 2025	$616,000
41.42	W-HSPS-FWS-VBF - HSP 6 Valve	HIGH-WTP (1)	0.80	-	YES (2011)		$9,000
41.43	W-HSPS-MEC-MEC - Intake Louver #1	HIGH-WTP (1)	0.15	YES	-	CIP - 2027	$10,000
41.44	W-HSPS-MEC-MEC - Intake Louver #2	HIGH-WTP (1)	0.15	YES	-	CIP - 2027	$10,000
41.45	W-HSPS-MEC-MEC - Vent Fan #1	HIGH-WTP (1)	0.15	YES	-	CIP - 2027	$15,000
41.46	W-HSPS-MEC-MEC - Vent Fan #2	HIGH-WTP (1)	0.15	YES	-	CIP - 2027	$15,000
41.47	W-HSPS-SUP-CRN - HSP Room Crane	HIGH-WTP (1)	0.40	-	YES (1996)	CIP - 2029	$246,000
41.51	W-HSPS-FWS-PIP - HSP Room - Process Piping	HIGH-WTP (1)	0.15	YES	-		$136,000
41.52	W-HSPS-MEC-PLB - HSP Room - Plumbing	HIGH-WTP (1)	0.40	-	YES (2001)		$45,000
41.53	W-HSPS-ELC-ELE - HSP Room - Electrical	HIGH-WTP (1)	0.80	-	YES (2001)		$45,000
41.54	W-HSPS-MEC-MEC - HSP Room - HVAC	HIGH-WTP (1)	0.15	YES	YES (1991)	CIP - 2027	$74,000
42.01	W-HSPS-ELC-SWG - Section 1 - Switch Gear	HIGH-WTP (1)	0.15	YES	YES (2006)	CIP - 2025	$996,000
42.02	W-HSPS-ELC-TFR - Section 2 - Transformer	HIGH-WTP (1)	0.40	-	YES (2016)	CIP - 2025	$332,000
42.05	W-HSPS-ELC-MCC - Section 5 - MCC	HIGH-WTP (1)	0.80	-	YES (2001)	CIP - 2030	$789,000
42.06	W-HSPS-ELC-MCC - Section 6 - MCC	HIGH-WTP (1)	0.80	-	YES (2001)	CIP - 2030	$573,000
42.09	W-HSPS-MEC-MEC - Lower Electrical Room - HVAC	HIGH-WTP (1)	0.00	YES	-		$95,000
43.07	W-HSPS-CMS -CMP - Compressor and Reciever	HIGH-WTP (1)	0.80	-	YES (2003)		$49,000
50.05	W-CF-MEC-MEC - Ferric Room HVAC Systems	MED (1.15)	0.00	YES	-	CIP - 2027	$12,000
50.06	W-CF-MEC-PLB - Ferric Room Plumbing	MED (1.15)	0.00	YES	-		$7,000
50.09	W-CF-MEC-UHE - EH3	MED (1.15)	0.00	YES	-		$4,000
51.07	W-CF-SAF-EWS - EW Fluoride Room	MED (1.15)	0.00	YES	-		$5,000
51.1	W-CF-MEC-PLB - Fluoride Room - Plumbing	MED (1.15)	0.00	YES	YES (2005)		$6,000
51.11	W-CF-MEC-MEC - Fluoride Room - HVAC	MED (1.15)	0.00	YES	-	CIP - 2027	$10,000
52.14	W-CF-MEC-PLB - HYPO Brine Room - Plumbing	HIGH-WTP (1)	0.00	YES	-		$10,000
52.15	W-CF-MEC-MEC - HYPO Brine Room - HVAC	HIGH-WTP (1)	0.00	YES	-		$17,000
54.06	W-CF-SAF-EWS - EW Permanganate Room	MED (1.15)	0.00	YES	-		$5,000
54.09	W-CF-MEC-PLB - Permanganate Room - Plumbing	MED (1.15)	0.00	YES	-		$8,000
54.1	W-CF-MEC-MEC - Permanganate Room - HVAC	MED (1.15)	0.00	YES	-	CIP - 2027	$14,000
55.09	W-CF-SAF-EWS - EW Phosphate Room	MED (1.15)	0.00	YES	-		$5,000
55.12	W-CF-MEC-PLB - Phosphate Room - Plumbing	MED (1.15)	0.00	YES	-		$15,000

Asset Numb	Description	Criticality Rating	Condition De-Rating Factor	Drivers		Scheduled CIP or Replacement Year	Replacement Cost ($)
				Condition Drivers	Negative ERL Facility		2023
55.13	W-CF-MEC-MEC - Phosphate Room - HVAC	MED (1.15)	0.00	YES	-	CIP - 2027	$23,000
56.09	W-CF-SAF-EWS - EW Polymer Room	MED (1.15)	0.00	YES	-		$5,000
56.12	W-CF-MEC-PLB - Polymer Room - Plumbing	MED (1.15)	0.00	YES	-		$3,000
56.13	W-CF-MEC-MEC - Polymer Room - HVAC	MED (1.15)	0.00	YES	-	CIP - 2027	$5,000
56.15	W-MNT-MEC-UHE - EH4	MED (1.15)	0.00	YES	-		$4,000
60.06	W-CIB-MEC-PLB - CIB - Plumbing	MED (1.15)	0.00	YES	-		$18,000
60.07	W-CIB-MEC-MEC - CIB - HVAC	MED (1.15)	0.00	YES	-		$30,000
60.09	W-CIB-SAF-EWS - EW PAC Buillding	MED (1.15)	0.00	YES	-		$5,000
60.12	W-CIB-ELC-ELE - PAC control panel	MED (1.15)	0.15	YES	-		$97,000

Annual Total	**$**	**11,135,000**
Non-Driver Total (See Note 1)	**$**	**-**
Condition Driver Total (Non-Decommissioned Items Only)	**$**	**4,931,000**
Negative ERL Driver Total (Non-Decomissioned Items Only)	**$**	**7,922,000**

Notes

1) Indicates initial year project that doesn't have a Negative ERL or Condition Assessment Driver.

Appendix A – City CIP Tool

Due to Appendix A document length it has been included as a separate attachment.

Appendix B – WTP CIP Tool

Due to Appendix B document length it has been included as a separate attachment.

Appendix C - Asset Tagging Convention & Effective Service Life Table

Appendix C - Asset Tagging Table and Effective Service Life Table

Burnsville System Tagging Format = W-XXXX-YYY-ZZZ

System Code (W)

System Type Code	System Type
W	Water System
WW	Wastewater System

Facility Name (XXXX)

Facility Code	Facility Type	Structure Code
CF	CHEM	Chemical Feed
CIB	CHEM	Carbon Injection Building
ENG	SUP	Engine Generator
FWC	CW	Finished Water Clearwell
GWTP	WTP	Groundwater Treatment Plant
HSPS	HSPS	High Service Pump Station
MNT	SUP	Maintenance
SWI	SW	Surface Water Intake
SWTP	WTP	Surface Water Treatment Plant
WL01	WL	Well 1
WL02	WL	Well 2
WL03	WL	Well 3
WL04	WL	Well 4
WL05	WL	Well 5
WL06	WL	Well 6
WL07	WL	Well 7
WL08	WL	Well 8
WL09	WL	Well 9
WL09/10	WL	Well 9/10
WL10	WL	Well 10
WL11	WL	Well 11
WL12	WL	Well 12
WL13	WL	Well 13
WL14	WL	Well 14
WL14/15	WL	Well 14/15
WL15	WL	Well 15
WL16	WL	Well 16
WL17	WL	Well 17

Process Area (YYY)

Process Area Code	Process Area Name
ADM	Admin
AIR	Air Wash
BLO	Blower/Air Scour
BW	Backwash Water
BWW	Backwash Waste Water
CMS	Compressed Air - Service
CON	Control/SCADA
DEF	Diesel Exhaust Fluid
DET	Diesel Feul
DIS	Disinfection
DRN	Drain
ELC	Electrical
EXH	Engine Exhaust
FAC	Facilities/Buildings/Grounds
FE	Filter Effluent
FER	Ferric
FI	Filter Influent
FLC	Flocculation
FLM	Flash Mix
FLT	Filtration
FRP	Fire Protection
FUS	Fuel Storage
FWS	Finished Water
GEN	Generator
HFS	Hydrofluorosilicic Acid
INS	Instrumentation & Control
LAB	GWTP Lab Room
MEC	HVAC/Building Mechanical
NOCL	Sodium Hypochlorite
OZN	Ozone
PAC	Powdered Activated Carbon
PIP	Piping
POL	Polymer
POP	Permanganate
PPP	Phosphate
RCS	Reclaimed Sludge
RCW	Reclaimed Water
RWS	Raw Water System
SAF	Safety
SPL	Sample Line
STL	Structural
SUP	Support Equipment

CIP Tool Reference Cells

Function Code (ZZZ)		Effective Service Life	Parametric Cost	Cost Units
Asset Type Code	Name	Water Systems		
ACB	Air Compressor and Blower	25		
ACC	Area Control Cabinet			
ACT	Actuator	25		
ACU	Air Condition/Air Conditioning Unit	15	$ 20,000	$/Each
AD	Air Dryer	15		
AEL	Analyzer Element	10	$ 7,500	$/Each
AER	Aerator	30		
AFM	Air Flow Monitor			
AFT	Air Filter	15		
AHU	Air Handling Unit	15		
AIT	Analysis Indicating Transmitter	10		
ARE	Air Receiver	25		
ARS	Air Release Valve Station	25	$ 2,500	$/Each
ARV	Valve - Air Release Valve	25	$ 2,500	$/Each
ATS	Automatic Transfer Switch	25	$ 175,000	$/Each
AVR	Valve - Air-Vacuum	25	$ 2,500	$/Each
BAF	Baffle Wall	25		
BAT	Batteries			
BKD	Bulkhead			
BKP	Backflow Prevention	15		
BLA	Building - Personnel or Admin Room	25	$ 100	$/SF
BLC	Blower - Centrifugal	25		
BLD	Building	75	$ 313	$/SF
BLP	Blower - Positive Displacement	25	$ 100,000	$/each
BLR	Boiler	25	$ 10,000	$/each
BNA	Bin Activator	25		
BOC	Biological Odor Control System			
BPS	Booster Pump Station	-	320	$/SF
BSN	Basin	50		
CAT	Cathodic Protection	25		
CBA	Carbon Absorber			
CBF	Cable - Fiber Optic			
CBR	Circuit Breaker			
CCS	Chemical Cleaning Skid	15		
CDU	Condensing Unit	15		
CEN	Centrifuge			
CFR	Chemical Feeders/Feed System	20		
CHL	Chillers			
CHM	Chemical			
CHT	Cable - Heat Trace			
CIP	Cast In Place Vault	75		
CLA	Clarifier	30		
CLD	Chlorine Leak Detector			
CLF	Chlorine Gas Feeder	20		
CLR	Chlorinator	20	$ 10,000	$/each
CMP	Compressors			
COL	Chains and Scrapers			
COM	Computer	10		
CON	Conveyors	20		
CPT	Screenings Compactor			
CRN	Cranes	20		
CTL	Contactor Line Starter	25		
DCS	Distributive Control System/Unit			
DHU	Dehumidifier	15	3500	$/each
DIF	Diffusers			
DMM	Digital Multi Meter			
DMP	Damper			
DOM	DO Meter			
DOR	Door	15		
DPS	Differential Pressure Switch			
DPT	Differential Pressure Indicating Transmitter	10		
DRP	Drip Trap			
DRV	Drive Units/Gearbox and Motor Combo			
DUC	Dust Collector	20		
DUM	Dump Station			
EDR	Eductor/Ejector			
ELE	Electrical - General	25	$ 15	$/sq ft
EQP	Electrical Equipment - General	25		
ESC	Elevated Storage Reservoir - Composite (Conc/Steel)	50	1.95	$/gal stored
ESM	Electric Service Meter			
ESR	Elevated Storage Reservoir - Steel Spheroid	50	2.50	$/gal stored
ESS	Emergency Hand Switch			
EWS	Emergency Eye Wash/Shower Station	20	$ 2,500	$/each

Function Code (ZZZ)		Effective Service Life	Parametric Cost	Cost Units
Asset Type Code	Name	Water Systems		
EXC	Exterior Cladding - Brick	50	$ 20	$/sq ft
EXT	Exit Sign			
FAC	Facility, General	-		
FAL	Foul Air Line	30		
FAN	Fan - Centrifugal	20		
FAX	Fan - Axial Flow	20		
FCV	Flow Control Valve			
FDR	Feeder			
FET	Flow Meter/Flow Element	30		
FIT	Flow Indicating Transmitter			
FLA	Flame Arrester			
FLC	Flocculator - Vertical	25		
FLH	Flocculator - Horizontal	25		
FLM	Mixer - Flocculation	25		
FLQ	Filter - Quad Filter (Splitter + Central Column)	30		
FLT	Filter	10		
FLU	Flume - Parshall	20		
FLV	Flowmeter Vault	50		
FMB	Filter, Mixed Bed	30		
FRA	Fire Alarm Devices			
FRK	Forklift			
FRM	Force Main	75		
FSE	Fan - Supply or Exhaust	20		
FSW	Flow Switch	10		
FUP	Fuel Dispenser			
FXT	Fire Extinguisher			
GAG	Gauge			
GAS	Gas Meter			
GDR	Grinders			
GEN	Generators	30		
GOX	Gaseous Oxygen System	20		
GRC	Grit Classifier	20		
GRG	Garage Door			
GRP	Grit Paddle			
GRS	Grit Separator	15		
GRT	Grit Chamber			
GTE	Entrance/Access Gates			
GWH	Gas Water Heater	15		
HDR	High Pressure Drip Trap			
HEX	Heat Exchanger	25		
HGN	Hypochlorite Generator	25		
HSC	Hypo Rectifier	25		
HST	Hoist	15		
HTP	Heat Pump	20		
HTR	Heater	20		
HYD	Hydrant			
INF	Infiltration Gallery Piping	100	$ 160	$/LF
INJ	Injector			
INS	SCADA & Instrumentation	15	$ 25,000	$/PLC Panel
INT	Intake Structure	75		
ISO	Isolation valve			
LCP	Local Control Panel	20		
LCV	Level Control Valve			
LET	Level Element	10		
LIT	Level Indicating Transmitter	10		
LMS	Lime Slaker	25		
LOX	Liquid Oxygen System	20		
LPL	Lamella Plates			
LSW	Level Switch	10		
LWN	Lawn Mower			
MCC	Motor Control Center	25	$ 10,000	$/MCC Stack
MCV	Motor Control Valve Station	25		
MEC	HVAC Gear	15	$ 25	$/SF
MES	HVAC Gear - Composite Structure	15	$ 25	$/SF
MFB	Metal Fabricated Structure	50		
MSW	Moisture Switch			
MTL	Metal Lathe			
MTP	Metering Pump	10		
MTR	Motor	25		
MTS	Motor Starter	25		
MXE	Mixed Equipment	30		
MXR	Mixers	15		
NPV	Non-metalic Piping & Valves	10		
NTU	Turbidimeter			
ODC	Odor Control	30		
OHD	Overhead Door			
OSG	Sodium Hypochlorite Generation System			
PAD	Pump - Air Diaphragm	10		

Function Code (ZZZ)		Effective Service Life	Parametric Cost	Cost Units
Asset Type Code	Name	Water Systems		
PBU	Polymer Blending Unit			
PCF	Pump - Centrifuge Feed Pump			
PCH	Pump - Submersible Chopper			
PCL	Pump - Centrifugal	25		
PCV	Pressure Control Valve			
PDC	Power Distribution Center			
PDM	Pump - Diaphragm Metering	15		
PDP	Pump - Decant Pump			
PES	Pump - Self Priming End Suction	25		
PET	Pressure Meter/Element			
PFV	Power Roof Ventilator			
PGR	Pump - Grit			
PHE	Pump - Horizontal End Suction	20		
PHM	pH Meter			
PHU	Pump - Humus			
PHW	Pump - Heating Water			
PIC	Piping - Chemical Feed	25		
PIG	Pigging Station Piping & Valves			
PIP	Pipe	50		
PIT	Pressure Indicating Transmitter			
PIV	Piping & Valves - Wells	50		
PLB	Plumbing - General	25	$ 15	$/SF
PLC	Programmable Logic Controller	15		
PLF	Pump - Lift			
PLS	Plasma Cutter			
PMH	Precast Manhole	50		
PMP	Pump			
PNT	Elevated Storage Reservoir - Painting System	25		
POW	Power Washer			
PPC	Pump - Progressing Cavity			
PPD	Pump - Positive Displacement, Drum or Bell Mounted			
PPG	Pump - Plunger			
PPL	Power Panel/ Panel Boards/Load Centers	25		
PPS	Pump - Peristaltic	15		
PQA	Pump - Quarry Angled Well	4		
PQM	Power Quality Monitor			
PRB	Process (Non-Building)	50		
PRC	Protective Coating (Specialty Coating)	20		
PRV	PRV Station	-		
PSC	Pump - Horizontal Split Case	40		
PSC	Pump - Septic Cell			
PSE	Pump - Screw Enclosed			
PSL	Pump - Sludge			
PSM	Pump - Submersible (Wastewater)	15		
PSO	Pump - Screw Open			
PSP	Power Supplies			
PSP	Pump - Sump	15		
PSR	Pump - Sludge Recirculation			
PSS	Pump - Sanitary Sump	15		
PSV	Pressure Relief Valve			
PSW	Pressure Switch	10		
PUK	Pump - Type Unknown	?		
PV	Piping and Valves	20		
PVC	Piping & Valves - Chemical	20		
PVD	Pump - Vertical Diffusion Vane			
PVE	Pump - Vertical End Suction	20		
PVL	Precast Vault	75		
PVP	Piping & Valves - Process	75		
PVS	PSV Station	-		
PVT	Pump - Vertical Turbine	35		
PVW	Pump - Vertical Wet Pit			
PWA	Pump - Submersible (Water)	20		
RBC	Rotating Biological Contactor			
REG	Regulator			
RES	Reservoir			
RFM	Building Roof - Ballasted or Flat Membrane Type	30	$ 44	$/sq ft
RGR	Roof - Green Roof with Membrane	40	$ 66	$/sq ft
RIO	Remote I/O Panel	10		
RNG	Rangers			
RSB	Ground Storage Res. - Bolted Steel	50	1.8	$/gal stored
RSC	Ground Storage Res. - Concrete	100	1.3	$/gal stored
RSL	Building Roof - Sloped	20	$ 24	$/SF
RSS	Building Roof - Sloped Standing Seam	40	$ 24	$/SF
RTU	Remote Transmitting Unit			
RVS	Reduce Voltage Starter	25		
RWI	Raw Water Intake	50		
SAM	Sampler			
SCC	Sludge Collector - Solids Contact	30		

Function Code (ZZZ)		Effective Service Life	Parametric Cost	Cost Units
Asset Type Code	Name	Water Systems		
SCL	Scale	20		
SCL	Secondary Clarifier	30		
SCN	Screen or Screening Equipment	25		
SCP	Sludge Collector - Primary Clarifier	30		
SCR	Scrubber - Chlorine Gas	20		
SCS	Sludge Collector - Secondary Clarifier	30		
SEP	Septic Cell			
SFW	Surface Wash Sweep	15		
SIL	Silo	40		
SKD	Chemical Dosing Skid			
SKM	Skimmer			
SKS	Skid Steer			
SLG	Slide or Sluice Gate			
SLK	Slaker	25		
SNB	Snow Blower			
SPL	Splitter Box	50		
SPR	Sprayer/Nozzle			
SSF	Sanitary Siphon Facility	-		
STN	Strainer	30		
SWG	Switchgear	30		
TCV	Temperature Control Valve			
TET	Temperature Meter (Thermometer)			
TEX	Tank - Expansion Tank			
TFP	Transfer Pump	15		
TFR	Transformer	40		
TFT	Filter, Trickling			
TIT	Temperature Indicating Transmitter			
TNC	Tank - Concrete	100	$ 200	$/ sq ft
TNK	Tank	20		
TRA	Tractor			
TST	Thermostat			
TSW	Temperature Switch	10		
TWL	Tig Welder			
UFT	Ultrafiltration System Equipment	?		
UHE	Unit Heater - Electrical	15		
UHG	Unit Heater - Gas	15		
UPS	Uninterruptible Power Supply	10		
UVB	UV Lamp Bank			
UVE	Ultraviolet Equipment	-		
VAG	Valve - Angle			
VAL	Valve - General or Unspecified	30		
VAT	Valve - Altitude	25		
VBF	Valve - AWWA Butterfly	35		
VBM	Valve - Ball			
VBR	Vibrator	20		
VCK	Valve - Check	25		
VCN	Valve - Cone			
VDD	Valve - Double Disc Gate			
VDG	Valve - Diaphragm Operated			
VER	Valve - Explosion Relief			
VET	Vehicle			
VFD	Variable Speed or Adjustable Speed Drive Units	20		
VFW	Valve - Four Way			
VGA	Valve - Gate			
VGK	Valve - Knife Gate			
VGL	Valve - Globe			
VGR	Valve - Resilient Seated Gate			
VIT	Vacuum Indicating Transmitter			
VLT	Vaults and Pits			
VMC	Valve - Motor Control	25		
VMH	Vortex Manhole	50		
VMS	Valve - Miscellaneous	25		
VND	Valve - Needle			
VPC	Valve - Pressure Reducing Valve	25		
VPE	Valve - Eccentric Plug			
VPL	Valve - Non-Eccentric Plug			
VPN	Valve - Pinch	20		
VPS	Valve - Pressure Sustaining Valve	25		
VRG	Vacuum Regulator	15		
VSL	Valve - Solenoid			
VST	Valve Station	?		
VSV	Valve - Vacuum Relief			
VTC	Valve Train - Misc. Valves - Composite Structure	25		
VTL	Valve - Tilford	25		
VTR	Valve Train - Misc. Valves	25		
VTS	Valve - Thermal Shutoff			
VTV	Valve - Telescoping			
VTW	Valve - Three Way			

Function Code (ZZZ)		Effective Service Life	Parametric Cost	Cost Units
Asset Type Code	Name	Water Systems		
VVB	Valve - Vacuum Breaker			
VVP	Valve - V-Port Ball			
WED	Weed Eater			
WEL	Water Well - Vertical	100	$ 125	$/LF-Depth
WET	Weight Scale/Element	15		
WHR	Screenings Washer/Compactor			
WHT	Water Heater			
WIT	Weight Indicating Transmitter	15		
WLC	Well Casing	100		
WLD	Welder			
WLE	Well Engine	30		
WRG	Weir Gate - Rectangular	15		
WSF	Water Softener	15		
WST	Well Starter			
WWH	Weed Whip			
WWL	Wet Well			

Appendix D - Facility Criticality Evaluation Criteria & Scoring Strategy

Appdendix D - Burnsville MN - WTP Condition Assessment

Task 4 - Criticality Evaluation Criteria

Criticality Ranking	Effect of a planned or unplanned outage on:	Comment	Source	Low	High	Scoring Strategy (Preliminary)			Weight
	Public Safety/Volume	Determine if a facility outage would affect public safety. Assign score based on 3 criteria - Fire Storage, Water Production, Source Supply. Assign higheset score on severity on the loss of the single asset.	City Staff	1	5	Fire Production/Storage 0: No effect. 1: Little effect. 3: Moderate effect. (Requires manual manipulation for operators). 5: Major effect or fire safety issue.	Water Production 0: No effect. 1: Little effect. 3: Moderate effect. (Requires manual manipulation for operators). 5: Major effect.		25%
	Water Quality Regulations Compliance	Determine if a facility outage would have adverse affect on regulatory compliance or standard operating proceedure compliance. Assign score on severity on the outage of the single asset.	EPA Regulations/State/City standards	1	5	0: Facility outage not effect primary or secondary water regulation 1: Facility outage results in deviation from City SOP/Best Practices for Water Quality management. 3: Facility outage results in not meeting secondary water regulation 5: Facility outage results in violation of primary water regulations			25%
	Operations	Determine if a facility outage would have adverse affect on operations. Assign score on severity on the highest score in either water delivery capability or complexity.	Operations Staff	1	5	Water Delivery Capability 0: No effect on capability to delivery water 1: Little effect on capability to deliver water 3: Moderate effect on capability to deliver water 5: Major effect on capability to deliver water	Water Delivery Complexity 0: No required change to deliver water. 1: Require minor or simple modifications to deliver wate (i.e. valve operation or similar) 5: Require complex temporary modifications to deliver water.		25%
	Political or Public Relation Exposure	Determine if a facility outage would result in a negative political or public relation perception. Assign score on severity of issue. Example: Boil Notice, CCR Notifification, etc.	City Staff	1	5	0: No public or political exposure 1: Minor political or public exposure 3: Public communication and management necessary. 5: Major political and/or public attention demanded.			25%
	Total Criticality Score (not to exceed 5)								**100%**

Appendix E - Facility Condition Assessment Criteria & Scoring Criteria

Appdendix E - Burnsville MN - WTP Condition Assessment

Task 5 - Onsite Facility Condition Assessment Scoring Criteria

	Criteria	Comment	Source	Low	High	Scoring Strategy (Preliminary)			Weight
Condition Assessment Criteria	Asset Condition	Determine the condition of the asset with respect to the likelihood of failure, wear being exhibited by the asset, and requirements for maintenance. Score will be assigned as the greatest of the 3 rating criteria.	Site Conditions & Operations Staff	1	5	Failure 1: Chance of failure is minimal. 2: Chance of failure is minimal. 3: Chance of failure is low but present. 4: Chance of failure is real. 5: Failed.	Wear 1: Negligible wear. 2: All wear within design tolerance. 3: Wear approaching allowable limits. 4: Wear beyond allowable limits. 5: Substantial deterioration.	Maintenance Requirements 1: No problems beyond normal maintenance. 2: No problems beyond normal maintenance. 3: Problems that will require future attention. 4: Problems identified requiring immediate attention. 5: Dangerous or broken down.	33%
	Function	Determine the condition of the asset with respect to the ability of the asset to function within the water system. Asset will be scored against ability to perform function as designed, the obsolesce of the technology, and ability to meet regulatory functions. Score will be assigned as the greatest of the 3 rating criteria.	Site Conditions & Operations Staff	1	5	Performing Function 1: Easily performing required function 2: Adequately performing required function 3: Performing function but possibly not effectively 4: At lowest level of acceptability in performing required function 5: Not performing function.	Obsolescence 1: Facilities up-to-date 2: Acceptable related to obsolescence 3: Facilities dated but meeting need. 4: Out-of-date and obsolete facilities (facilities just tolerable) 5: Obsolete	Ability to Meet Regulatory Function 1: Meets regulatory and health/safety requirements 3: Minor regulatory or health/safety infraction. Modifications may meet short-term needs. 4: Regulatory or health/safety requirements necessitate planned renewal 5: Does not meet regulatory or health/safety requirement.	33%
	Utilization Score	Determine the asset utilization within the water system. Asset will be scored in use of (A) meeting existing and future loads/flows, (B) utilization by operations staff, and (C) Current Damage to asset. Score will be assigned as the greatest of the 3 rating criteria.	Site Conditions & Operations Staff	1	5	Existing and Future Load 1: Easily meeting existing and future planned load. 2: Adequately meeting existing and future planned loads 3: Usually meets existing load but occasional failure with financial or public relations consequence. 4: Frequently fails to meet existing and unlikely to meet future planned loads 5: Unable to meet existing or future planned loads	Utilized in Operations 1: Repeatedly utilized in operation. 2: Frequently utilized in operations. 3: Moderate utilization but reduced economic benefit. 4: Infrequent utilization resulting in poor economic benefit. 5: Not utilized in operations.	Damage 1: No damage 2: Aesthetic damage only. 3: Moderate damage but cost effective repair does not return full functionality. 4: Damage necessitates planned renewal and would not be cost effective to repair. 5: Damage to point of failure.	34%
	Total Condition Score (not to exceed 5)								**100%**

Appendix F – Near-Term Water System Facility CIP Project List & Cost Summary

Appendix F - Near Term CIP Projects and Cost

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	5-year Period Cost
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027	
1.02	W-WL01-MEC-MEC - Well 1 HVAC	MED (1.15)	0.40	2031	2027					$ 22,000	$ 22,000
1.03	W-WL01-RWS-PIV - Well 1 Piping and Valves	MED (1.15)	0.80	2023 (2021)	2023	$ 39,000					$ 39,000
1.04	W-WL01-RWS-PVT - Well 1 - Motor to Pump	MED (1.15)	0.15	2054	2024		$ 185,000				$ 185,000
1.05	W-WL01-ELC-ELE - Well 1 - Electrical PP/LP/SSRV	MED (1.15)	0.40	2024 (1992)	2024		$ 155,000				$ 155,000
1.06	W-WL01-RWS-INS - Well 1 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
2.02	W-WL02-MEC-MEC - Well 2 HVAC	MED (1.15)	0.40	2023 (1983)	2023	$ 16,000					$ 16,000
2.03	W-WL02-RWS-PIV - Well 2 Piping and Valves	MED (1.15)	1.00	2024	2024		$ 39,000				$ 39,000
2.04	W-WL02-RWS-PVT - Well 2 Motor to Pump	MED (1.15)	0.80	2054	2024		$ 185,000				$ 185,000
2.05	W-WL02-ELC-ELE - Well 2 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023 (1994)	2023	$ 155,000					$ 155,000
2.06	W-WL02-RWS-INS - Well 2 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
3.03	W-WL03-MEC-MEC - Well 3 HVAC	LOW (1.3)	0.40	2023 (1987)	2023	$ 39,000					$ 39,000
3.05	W-WL03-RWS-PVT - Well 3 Rigth Angle Drive/Pump/Piping	LOW (1.3)	0.80	2061	2025			$ 185,000			$ 185,000
3.07	W-WL03-RWS-INS - Well 3 SCADA & Instrumentation	LOW (1.3)	0.40	2028	2025			$ 97,000			$ 97,000
4.03	W-WL04-MEC-MEC - Well 4 HVAC	MED (1.15)	0.00	2023 (1986)	2023	$ 32,000					$ 32,000
4.04	W-WL04-RWS-PIV - Well 4 Piping and Valves	MED (1.15)	1.00	2027	2027					$ 39,000	$ 39,000
4.06	W-WL04-ELC-ELE - Well 4 - Electrical LP	MED (1.15)	0.40	2023 (1997)	2023	$ 39,000					$ 39,000
4.07	W-WL04-RWS-INS - Well 4 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
4.1	W-WL04-FAC-RFM - Well 4 Roof	MED (1.15)	1.00	2023 (2003)	2023	$ 57,000					$ 57,000
5.03	W-WL05-MEC-MEC - Well 5 HVAC	MED (1.15)	0.15	2023 (1987)	2023	$ 32,000					$ 32,000
5.06	W-WL05-ELC-ELE - Well 5 - Electrical LP	MED (1.15)	0.40	2023 (1998)	2023	$ 39,000					$ 39,000
5.07	W-WL05-RWS-INS - Well 5 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
6.01	W-WL06-RWS-FET - Well 6 Flow Meter	LOW (1.3)	0.80	2023 (2019)	2023	$ 28,000					$ 28,000
6.03	W-WL06-MEC-MEC - Well 6 HVAC	LOW (1.3)	0.40	2023 (1989)	2023	$ 32,000					$ 32,000
6.06	W-WL06-ELC-ELE - Well 6 - Electrical LP	LOW (1.3)	1.00	2023 (2002)	2023	$ 39,000					$ 39,000
6.07	W-WL06-RWS-INS - Well 6 SCADA & Instrumentation	LOW (1.3)	0.40	2028	2025			$ 97,000			$ 97,000
6.1	W-WL06-FAC-RFM - Well 6 Roof	LOW (1.3)	0.40	2029	2026				$ 57,000		$ 57,000
7.03	W-WL07-MEC-MEC - Well 7 HVAC	MED (1.15)	0.40	2023 (1988)	2023	$ 21,000					$ 21,000
7.06	W-WL07-ELC-ELE - Well 7 - Electrical LP	MED (1.15)	0.40	2023 (1999)	2023	$ 39,000					$ 39,000
7.07	W-WL07-RWS-INS - Well 7 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
8.02	W-WL08-RWS-WLE - Well 8 Engine	MED (1.15)	0.80	2042	2024		$ 174,000				$ 174,000
8.03	W-WL08-MEC-MEC - Well 8 HVAC	MED (1.15)	0.40	2023 (1988)	2023	$ 19,000					$ 19,000
8.05	W-WL08-RWS-PVT - Well 8 Rigth Angle Drive/Pump/Piping	MED (1.15)	0.80	2057	2027					$ 185,000	$ 185,000
8.06	W-WL08-ELC-ELE - Well 8 - Electrical LP	MED (1.15)	0.40	2023 (1999)	2023	$ 39,000					$ 39,000
8.07	W-WL08-RWS-INS - Well 8 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
9.02	W-WL09/10-MEC-MEC - Well 9 HVAC	MED (1.15)	0.15	2023 (1992)	2023	$ 72,000					$ 72,000
9.04	W-WL09/10-RWS-PVT - Well 9 Pump/Motor/Piping	MED (1.15)	0.80	2059	2027					$ 185,000	$ 185,000
9.05	W-WL09/10-ELC-ELE - Well 9&10 - Electrical PP/LP/SSRV	MED (1.15)	0.15	2023 (2003)	2023	$ 214,000					$ 214,000
9.06	W-WL09/10-RWS-INS - Well 9 & 10 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
9.09	W-WL09/10-FAC-RSS - Well 9 & 10 Roof	MED (1.15)	0.80	2023 (2021)	2023	$ 46,000					$ 46,000
9.13	W-WL09/10-ELC-MCC - Well 10 Pump/Motor/Piping	LOW (1.3)	0.00	2023 (2007)	2023	$ 39,000					$ 39,000
11.02	W-WL11-MEC-MEC - Well 11 HVAC	MED (1.15)	0.40	2023 (1998)	2023	$ 13,000					$ 13,000
11.04	W-WL11-RWS-PVT - Well 11 Pump/Motor/Piping	MED (1.15)	0.40	2058	2026				$ 185,000		$ 185,000
11.05	W-WL11-ELC-ELE - Well 11 - Electrical PP/LP/SSRV	MED (1.15)	0.40	2023 (2009)	2023	$ 155,000					$ 155,000
11.06	W-WL11-RWS-INS - Well 11 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
12.02	W-WL12-MEC-MEC - Well 12 HVAC	MED (1.15)	0.40	2023 (2005)	2023	$ 16,000					$ 16,000
12.05	W-WL12-ELC-ELE - Well 12 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023 (2016)	2023	$ 155,000					$ 155,000
12.06	W-WL12-RWS-INS - Well 12 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
13.02	W-WL13-MEC-MEC - Well 13 HVAC	MED (1.15)	0.40	2023 (1995)	2023	$ 24,000					$ 24,000
13.05	W-WL13-ELC-ELE - Well 13 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023 (2006)	2023	$ 155,000					$ 155,000
13.06	W-WL13-RWS-INS - Well 13 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	5-year Period Cost
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027	
14.02	W-WL14/15-RWS-GEN - Well 14/15 Generator	MED (1.15)	0.80	2025	2026				$ 486,000		$ 486,000
14.03	W-WL14/15-MEC-MEC - Well 14/15 HVAC	MED (1.15)	0.40	2023 (2007)	2023	$ 44,000					$ 44,000
14.06	W-WL14/15-ELC-ELE - Well 14/15 - Electrical PP/LP/SSRV	MED (1.15)	0.40	2026 (2018)	2026				$ 214,000		$ 214,000
14.07	W-WL14/15-RWS-INS - Well 14/15 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 165,000				$ 165,000
14.13	W-WL14/15-RWS-PVT - Well 15 Motor to Pump	MED (1.15)	0.80	2030	2026				$ 291,000		$ 291,000
16.02	W-WL16-MEC-MEC - Well 16 HVAC	MED (1.15)	0.40	2023 (2010)	2023	$ 18,000					$ 18,000
16.04	W-WL16-RWS-PVT - Well 16 Motor to Pump	MED (1.15)	0.80	2057	2027					$ 185,000	$ 185,000
16.05	W-WL16-ELC-ELE - Well 16 - Electrical PP/LP/SSRV	MED (1.15)	0.80	2023 (2021)	2023	$ 155,000					$ 155,000
16.06	W-WL16-RWS-INS - Well 16 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
17.02	W-WL17-MEC-MEC - Well 17 HVAC	MED (1.15)	0.40	2023 (2022)	2023	$ 21,000					$ 21,000
17.06	W-WL17-RWS-INS - Well 17 SCADA & Instrumentation	MED (1.15)	0.40	2025	2024		$ 97,000				$ 97,000
20.01	W-SWI-ELC-VFD - Quarry Intake Drive 1	HIGH (1)	0.80	2028	2027					$ 195,000	$ 195,000
20.02	W-SWI-ELC-VFD - Quarry Intake Drive 2	HIGH (1)	0.80	2028	2027					$ 195,000	$ 195,000
20.03	W-SWI-RWS-PQA - Quarry Pump & Motor 1	HIGH (1)	0.80	2024 (2021)	2024		$ 155,000				$ 155,000
20.04	W-SWI-RWS-PQA - Quarry Pump & Motor 2	HIGH (1)	0.80	2027	2027					$ 155,000	$ 155,000
20.07	W-SWI-RWS-PLC - SCADA PLC	MED (1.15)	0.80	2025	2025			$ 117,000			$ 117,000
20.03	W-GWTP-FAC-EXC - Building - Exterior Retaining Walls	LOW (1.3)	0.15	2041	2027					$ 97,000	$ 97,000
20.04	W-GWTP-FAC-INS - Plant Fiber Loop	LOW (1.3)	0.80	2035	2025			$ 97,000			$ 97,000
20.15	W-GWTP-MEC-MEC - GWTP Pipe Gallery - HVAC	HIGH (1)	0.00	2027 (1991)	2027					$ 134,000	$ 134,000
20.17	W-GWTP-ELC-ELE - GWTP Pipe Gallery - Electrical	HIGH (1)	0.40	2023 (2001)	2023	$ 82,000					$ 82,000
21.21	W-GWTP-MEC-MEC - GWTP North Filter - HVAC	HIGH-WTP (1)	0.00	2030	2027					$ 129,000	$ 129,000
22.21	W-GWTP-MEC-MEC - GWTP South Filter - HVAC	HIGH-WTP (1)	0.00	2030	2027					$ 129,000	$ 129,000
23.02	W-GWTP-MEC-PLB - Control Room - Plumbing	HIGH-WTP (1)	0.40	2023 (2001)	2023	$ 17,000					$ 17,000
23.12	W-GWTP-MEC-PLB - Lab Room - Plumbing	HIGH-WTP (1)	0.40	2034	2027					$ 15,000	$ 15,000
25.51	W-GWTP-ADM-BLA - Bathroom 1 - Personnel Room	LOW (1.3)	1.00	2023 (2008)	2023	$ 42,000					$ 42,000
25.52	W-GWTP-MEC-PLB - Bathroom 1 - Plumbing	LOW (1.3)	0.40	2023 (2008)	2023	$ 6,000					$ 6,000
25.53	W-GWTP-MEC-MEC - Bathroom 1 - HVAC	LOW (1.3)	0.00	2027 (1995)	2027					$ 10,000	$ 10,000
25.54	W-GWTP-ELC-ELE - Bathroom 1 - Electrical	LOW (1.3)	0.80	2023 (2008)	2023	$ 6,000					$ 6,000
25.61	W-GWTP-ADM-BLA - Bathroom 2 - Personnel Room	LOW (1.3)	1.00	2023 (2008)	2023	$ 42,000					$ 42,000
25.62	W-GWTP-MEC-PLB - Bathroom 2 - Plumbing	LOW (1.3)	0.40	2023 (2008)	2023	$ 6,000					$ 6,000
25.63	W-GWTP-MEC-MEC - Bathroom 2 - HVAC	LOW (1.3)	0.00	2027 (1995)	2027					$ 10,000	$ 10,000
25.64	W-GWTP-ELC-ELE - Bathroom 2 - Electrical	LOW (1.3)	0.80	2023 (2008)	2023	$ 6,000					$ 6,000
25.71	W-GWTP-MEC-MEC - Storage Room - HVAC	LOW (1.3)	0.00	2027 (1995)	2027					$ 6,000	$ 6,000
25.72	W-GWTP-ADM-BLA - Storage Room	LOW (1.3)	1.00	2023 (2008)	2023	$ 19,000					$ 19,000
25.81	W-GWTP-MEC-MEC - Hallways - HVAC	MED (1.15)	0.15	2027 (1993)	2027					$ 93,000	$ 93,000
25.83	W-MNT-MEC-DHU - DH6	MED (1.15)	0.40	2031	2027					$ 6,000	$ 6,000
31.16	W-SWTP-MEC-PLB - Flocculation Room - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 56,000	$ 56,000
31.17	W-SWTP-MEC-MEC - Flocculation Room - HVAC	HIGH-WTP (1)	0.00	2023	2023	$ 93,000					$ 93,000
31.19	W-SWTP-MEC-UHE - UH6	HIGH-WTP (1)	0.40	2023	2023	$ 4,000					$ 4,000
31.2	W-SWTP-MEC-UHE - UH7	HIGH-WTP (1)	0.40	2023	2023	$ 4,000					$ 4,000
31.21	W-SWTP-MEC-UHE - UH8	HIGH-WTP (1)	0.40	2023	2023	$ 4,000					$ 4,000
32.03	W-SWTP-MEC-MEC - Filter Gallery - HVAC	HIGH-WTP (1)	0.00	2023	2023	$ 128,000					$ 128,000
32.05	W-SWTP-INS-PLC - SCADA PLC	HIGH-WTP (1)	0.80	2023	2023	$ 249,000					$ 249,000
32.06	W-SWTP-MEC-UHE - UH10	MED (1.15)	0.40	2025	2024		$ 7,000				$ 7,000
32.07	W-SWTP-MEC-UHE - UH11	MED (1.15)	0.40	2025	2024		$ 7,000				$ 7,000
32.08	W-SWTP-MEC-UHE - UH12	MED (1.15)	0.40	2025	2024		$ 7,000				$ 7,000
32.09	W-SWTP-MEC-DHU - DH3	MED (1.15)	0.40	2025	2024		$ 7,000				$ 7,000
32.33	W-SWTP-RWS-MXR - SWTP Inline Rapid Mixer - Static Mixer	HIGH-WTP (1)	1.00	2023	2023	$ 15,000					$ 15,000
32.67	W-SWTP-FLT-AEL - Chlorine Analyzer Pump SWTP	HIGH-WTP (1)	1.00	2023 (2018)	2023	$ 15,000					$ 15,000
32.68	W-SWTP-FLT-AEL - Chrlorine Analyzer- SWTP Finished	HIGH-WTP (1)	1.00	2023 (2018)	2023	$ 15,000					$ 15,000
32.69	W-SWTP-FLT-AEL - Fluoride Analyzer SWTP	HIGH-WTP (1)	1.00	2023 (2018)	2023	$ 15,000					$ 15,000

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	5-year Period Cost
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027	
32.72	W-SWTP-MEC-PLB - Pipe Gallery - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 75,000	$ 75,000
32.73	W-SWTP-MEC-MEC - Pipe Gallery - HVAC	HIGH-WTP (1)	0.00	2023	2023	$ 128,000					$ 128,000
32.75	W-SWTP-MEC-UHE - UH1	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
32.76	W-SWTP-MEC-UHE - UH2	HIGH-WTP (1)	1.00	2023	2023	$ 7,000					$ 7,000
32.77	W-SWTP-MEC-UHE - UH3	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
32.78	W-SWTP-MEC-DHU - DH1	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
32.79	W-SWTP-MEC-DHU - DH2	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
32.8	W-SWTP-MEC-DHU - DH4	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
33.01	W-SWTP-FLT-PLB - Filter Room - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 50,000	$ 50,000
33.02	W-SWTP-FLT-MEC - Filter Room - HVAC	HIGH-WTP (1)	0.15	2023	2023	$ 86,000					$ 86,000
33.04	W-MNT-MEC-UHE - UH4	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
33.05	W-MNT-MEC-UHE - UH5	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
34.04	W-SWTP-RWS-PSM - SWTP Reclaim Tank Reclaim Pump #1	MED (1.15)	0.80	2025	2025			$ 39,000			$ 39,000
34.05	W-SWTP-RWS-PSM - SWTP Reclaim Tank Reclaim Pump #2	MED (1.15)	0.80	2025	2025			$ 39,000			$ 39,000
34.07	W-SWTP-RCS-PSM - SWTP Reclaim Tank Sludge Pump #1	MED (1.15)	1.00	2025	2026				$ 39,000		$ 39,000
34.08	W-SWTP-RCS-PSM - SWTP Reclaim Tank Sludge Pump #2	MED (1.15)	1.00	2025	2026				$ 39,000		$ 39,000
36.02	W-MNT-MEC-ACU - SWTP Electrical Room AC	HIGH-WTP (1)	0.40	2023	2023	$ 49,000					$ 49,000
36.03	W-SWTP-MEC-MEC - Electrical Room - HVAC	HIGH-WTP (1)	0.40	2023	2023	$ 14,000					$ 14,000
36.03	W-SWTP-MEC-MEC - SWTP Mechanical Room HVAC	LOW (1.3)	0.40	2028	2025			$ 8,000			$ 8,000
36.05	W-MNT-MEC-UHE - UH9	LOW (1.3)	0.40	2028	2025			$ 4,000			$ 4,000
37.01	W-SWTP-AIR-CMP - SWTP Air Compressor Skid	HIGH-WTP (1)	0.40	2023 (2008)	2023	$ 7,000					$ 7,000
37.05	W-SWTP-MEC-PLB - Blower Room - Plumbing	HIGH-WTP (1)	0.40	2033	2027					$ 7,000	$ 7,000
37.06	W-SWTP-MEC-MEC - SWTP Blower Room HVAC	HIGH-WTP (1)	0.40	2023	2023	$ 13,000					$ 13,000
38.02	W-SWTP-MEC-MEC - Hallways - HVAC	LOW (1.3)	0.40	2028	2025			$ 12,000			$ 12,000
40.03	W-FWC-FWS-LET - Clearwell Tank Level Sensor - Float	HIGH-WTP (1)	1.00	2023 (2022)	2023	$ 15,000					$ 15,000
40.04	W-FWC-FWS-VCK - Swinging Gate Overflow Valves	HIGH-WTP (1)	0.40	2023 (2001)	2023	$ 68,000					$ 68,000
41.02	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Filters	HIGH (1)	0.80	2028	2027					$ 15,000	$ 15,000
41.03	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Finished	HIGH-WTP (1)	0.80	2023 (2018)	2023	$ 15,000					$ 15,000
41.04	W-GWTP-INS-AEL - Turbitidity Meter - GWTP Finished	HIGH-WTP (1)	0.80	2028	2027					$ 15,000	$ 15,000
41.05	W-HSPS-INS-AEL - Chlorine Analyzer - Combined Finished	HIGH-WTP (1)	0.80	2023 (2018)	2023	$ 15,000					$ 15,000
41.06	W-HSPS-INS-AEL - Fluoride Analyzer Combined	HIGH-WTP (1)	0.80	2023 (2018)	2023	$ 15,000					$ 15,000
41.07	W-HSPS-FWS-ARS - HSP 1 Air Relief	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 5,000					$ 5,000
41.08	W-HSPS-FWS-VCK - HSP 1 Check Valve	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 39,000					$ 39,000
41.09	W-HSPS-FWS-FET - HSP 1 Flow Meter	HIGH-WTP (1)	0.40	2023 (2006)	2023	$ 37,000					$ 37,000
41.1	W-HSPS-ELC-VFD - HSP 1 HSP Drive	HIGH-WTP (1)	0.80	2023	2025			$ 616,000			$ 616,000
41.11	W-HSPS-FWS-PVT - HSP 1 Pump & Motor	HIGH-WTP (1)	0.80	2025 (2011)	2025			$ 404,000			$ 404,000
41.12	W-HSPS-FWS-VBF - HSP 1 Valve	HIGH-WTP (1)	0.80	2023 (2011)	2023	$ 9,000					$ 9,000
41.13	W-HSPS-FWS-ARS - HSP 2 Air Relief	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 5,000					$ 5,000
41.14	W-HSPS-FWS-VCK - HSP 2 Check Valve	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 58,000					$ 58,000
41.15	W-HSPS-FWS-FET - HSP 2 Flow Meter	HIGH-WTP (1)	0.40	2023 (2006)	2023	$ 52,000					$ 52,000
41.18	W-HSPS-FWS-VBF - HSP 2 Valve	HIGH-WTP (1)	0.80	2023 (2011)	2023	$ 19,000					$ 19,000
41.19	W-HSPS-FWS-ARS - HSP 3 Air Relief	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 5,000					$ 5,000
41.2	W-HSPS-FWS-VCK - HSP 3 Check Valve	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 72,000					$ 72,000
41.21	W-HSPS-FWS-FET - HSP 3 Flow Meter	HIGH-WTP (1)	0.40	2023 (2006)	2023	$ 63,000					$ 63,000
41.24	W-HSPS-FWS-VBF - HSP 3 Valve	HIGH-WTP (1)	0.80	2023 (2011)	2023	$ 22,000					$ 22,000
41.25	W-HSPS-FWS-ARS - HSP 4 Air Relief	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 5,000					$ 5,000
41.26	W-HSPS-FWS-VCK - HSP 4 Check Valve	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 72,000					$ 72,000
41.27	W-HSPS-FWS-FET - HSP 4 Flow Meter	HIGH-WTP (1)	0.40	2023 (2006)	2023	$ 63,000					$ 63,000
41.29	W-HSPS-FWS-PVT - HSP 4 Pump & Motor	HIGH (1)	0.40	2038	2024		$ 546,000				$ 546,000
41.3	W-HSPS-FWS-VBF - HSP 5 Valve	HIGH (1)	0.80	2023 (2011)	2023	$ 22,000					$ 22,000
41.31	W-HSPS-FWS-ARS - HSP 5 Air Relief	HIGH (1)	0.80	2023 (2001)	2023	$ 5,000					$ 5,000

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	5-year Period Cost
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027	
41.32	W-HSPS-FWS-VCK - HSP 5 Check Valve	HIGH (1)	0.80	2023 (2001)	2023	$ 58,000					$ 58,000
41.33	W-HSPS-FWS-FET - HSP 5 Flow Meter	HIGH (1)	0.40	2023 (2006)	2023	$ 52,000					$ 52,000
41.36	W-HSPS-FWS-VBF - HSP 5 Valve	HIGH (1)	0.80	2023 (2011)	2023	$ 19,000					$ 19,000
41.37	W-HSPS-FWS-ARS - HSP 6 Air Relief	HIGH (1)	0.80	2023 (2001)	2023	$ 5,000					$ 5,000
41.38	W-HSPS-FWS-VCK - HSP 6 Check Valve	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 39,000					$ 39,000
41.39	W-HSPS-FWS-FET - HSP 6 Flow Meter	HIGH-WTP (1)	0.40	2023 (2006)	2023	$ 37,000					$ 37,000
41.4	W-HSPS-ELC-VFD - HSP 6 HSP Drive	HIGH-WTP (1)	0.40	2025 (1996)	2025			$ 616,000			$ 616,000
41.42	W-HSPS-FWS-VBF - HSP 6 Valve	HIGH-WTP (1)	0.80	2023 (2011)	2023	$ 9,000					$ 9,000
41.43	W-HSPS-MEC-MEC - Intake Louver #1	HIGH-WTP (1)	0.15	2033	2027					$ 10,000	$ 10,000
41.44	W-HSPS-MEC-MEC - Intake Louver #2	HIGH-WTP (1)	0.15	2033	2027					$ 10,000	$ 10,000
41.45	W-HSPS-MEC-MEC - Vent Fan #1	HIGH-WTP (1)	0.15	2033	2027					$ 15,000	$ 15,000
41.46	W-HSPS-MEC-MEC - Vent Fan #2	HIGH-WTP (1)	0.15	2033	2027					$ 15,000	$ 15,000
41.51	W-HSPS-FWS-PIP - HSP Room - Process Piping	HIGH-WTP (1)	0.15	2026	2023	$ 136,000					$ 136,000
41.52	W-HSPS-MEC-PLB - HSP Room - Plumbing	HIGH-WTP (1)	0.40	2023 (2001)	2023	$ 45,000					$ 45,000
41.53	W-HSPS-ELC-ELE - HSP Room - Electrical	HIGH-WTP (1)	0.80	2023 (2001)	2023	$ 45,000					$ 45,000
41.54	W-HSPS-MEC-MEC - HSP Room - HVAC	HIGH-WTP (1)	0.15	2027 (1991)	2027					$ 74,000	$ 74,000
41.55	W-HSPS-MEC-DHU - HSP Dehumidifier	HIGH-WTP (1)	0.40	2023	2023	$ 7,000					$ 7,000
42.01	W-HSPS-ELC-SWG - Section 1 - Switch Gear	HIGH-WTP (1)	0.15	2025 (2006)	2025			$ 996,000			$ 996,000
42.02	W-HSPS-ELC-TFR - Section 2 - Transformer	HIGH-WTP (1)	0.40	2025 (2016)	2025			$ 332,000			$ 332,000
42.09	W-HSPS-MEC-MEC - Lower Electrical Room - HVAC	HIGH-WTP (1)	0.00	2025	2023	$ 95,000					$ 95,000
43.07	W-HSPS-CMS -CMP - Compressor and Reciever	HIGH-WTP (1)	0.80	2023 (2003)	2023	$ 49,000					$ 49,000
50.02	W-CF-FER-PAD - Ferric Pump	MED (1.15)	0.40	2030	2026				$ 19,000		$ 19,000
50.05	W-CF-MEC-MEC - Ferric Room HVAC Systems	MED (1.15)	0.00	2025	2027					$ 12,000	$ 12,000
50.06	W-CF-MEC-PLB - Ferric Room Plumbing	MED (1.15)	0.00	2037	2023	$ 7,000					$ 7,000
50.09	W-CF-MEC-UHE - EH3	MED (1.15)	0.00	2025	2023	$ 4,000					$ 4,000
52.1	W-CF-NOCL-FLT - Brine Water Filters	HIGH-WTP (1)	1.00	2025	2025			$ 4,000			$ 4,000
52.14	W-CF-MEC-PLB - HYPO Brine Room - Plumbing	HIGH-WTP (1)	0.00	2040	2023	$ 10,000					$ 10,000
52.15	W-CF-MEC-MEC - HYPO Brine Room - HVAC	HIGH-WTP (1)	0.00	2030	2023	$ 17,000					$ 17,000
52.17	W-CF-MEC-UHE - UH11	HIGH (1)	0.40	2030	2026				$ 4,000		$ 4,000
52.18	W-CF-MEC-DHU - DH11	HIGH (1)	0.40	2030	2026				$ 7,000		$ 7,000
53.09	W-CF-NOCL-AEL - Hardness Analyzer HYPO Skid 1	HIGH-WTP (1)	1.00	2025	2025			$ 15,000			$ 15,000
53.1	W-CF-NOCL-AEL - Hardness Analyzer HYPO Skid 2	HIGH-WTP (1)	1.00	2025	2025			$ 15,000			$ 15,000
53.15	W-CF-NOCL-FLT - HYPO Generation Room Water Filters	HIGH-WTP (1)	1.00	2025	2025			$ 4,000			$ 4,000
53.21	W-CF-MEC-UHE - UH10	HIGH-WTP (1)	0.40	2030	2026				$ 7,000		$ 7,000
53.22	W-CF-MEC-DHU - DH10	HIGH-WTP (1)	0.40	2030	2026				$ 7,000		$ 7,000
53.56	W-CF-NOCL-PDM - HYPO Pump Room Pump #1	HIGH-WTP (1)	0.40	2030	2026				$ 23,000		$ 23,000
53.57	W-CF-NOCL-PDM - HYPO Pump Room Pump #2	HIGH-WTP (1)	0.40	2030	2026				$ 23,000		$ 23,000
53.58	W-CF-NOCL-PDM - HYPO Pump Room Pump #3	HIGH-WTP (1)	0.40	2030	2026				$ 23,000		$ 23,000
53.59	W-CF-NOCL-PDM - HYPO Pump Room Pump #4	HIGH-WTP (1)	0.40	2030	2026				$ 23,000		$ 23,000
53.6	W-CF-NOCL-PDM - HYPO Pump Room Pump #5	HIGH-WTP (1)	0.40	2030	2026				$ 23,000		$ 23,000
53.61	W-CF-NOCL-PDM - HYPO Pump Room Pump #6 (shelf Spare)	HIGH-WTP (1)	0.40	2030	2026				$ 23,000		$ 23,000
53.67	W-CF-MEC-MEC - HYPO Pump Room - HVAC	HIGH-WTP (1)	0.40	2030	2026				$ 58,000		$ 58,000
54.03	W-CF-POP-PPS - Permanganate GWTP Pump	MED (1.15)	1.00	2025	2026				$ 39,000		$ 39,000
54.04	W-CF-POP-PPS - Permanganate SWTP Pump	MED (1.15)	1.00	2025	2026				$ 39,000		$ 39,000
54.06	W-CF-SAF-EWS - EW Permanganate Room	MED (1.15)	0.00	2031	2023	$ 5,000					$ 5,000
54.09	W-CF-MEC-PLB - Permanganate Room - Plumbing	MED (1.15)	0.00	2037	2023	$ 8,000					$ 8,000
54.1	W-CF-MEC-MEC - Permanganate Room - HVAC	MED (1.15)	0.00	2025	2027					$ 14,000	$ 14,000
54.12	W-CF-MEC-UHE - EH2	MED (1.15)	0.40	2025	2024		$ 4,000				$ 4,000
55.09	W-CF-SAF-EWS - EW Phosphate Room	MED (1.15)	0.00	2035	2023	$ 5,000					$ 5,000
55.12	W-CF-MEC-PLB - Phosphate Room - Plumbing	MED (1.15)	0.00	2041	2023	$ 15,000					$ 15,000
55.13	W-CF-MEC-MEC - Phosphate Room - HVAC	MED (1.15)	0.00	2029	2027					$ 23,000	$ 23,000

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement (See Note 1)		Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	Replacement Cost ($)	5-year Period Cost
				Original Replacement Year	Cond. Assess. Factor Year	2023	2024	2025	2026	2027	
56.04	W-CF-POL-PPS - Poly Pump #2	MED (1.15)	1.00	2025	2026				$ 39,000		$ 39,000
56.09	W-CF-SAF-EWS - EW Polymer Room	MED (1.15)	0.00	2031	2023	$ 5,000					$ 5,000
56.12	W-CF-MEC-PLB - Polymer Room - Plumbing	MED (1.15)	0.00	2037	2023	$ 3,000					$ 3,000
56.13	W-CF-MEC-MEC - Polymer Room - HVAC	MED (1.15)	0.00	2025	2027					$ 5,000	$ 5,000
56.15	W-MNT-MEC-UHE - EH4	MED (1.15)	0.00	2025	2023	$ 4,000					$ 4,000
60.06	W-CIB-MEC-PLB - CIB - Plumbing	MED (1.15)	0.00	2040	2023	$ 18,000					$ 18,000
60.07	W-CIB-MEC-MEC - CIB - HVAC	MED (1.15)	0.00	2028	2023	$ 30,000					$ 30,000
60.09	W-CIB-SAF-EWS - EW PAC Buillding	MED (1.15)	0.00	2034	2023	$ 5,000					$ 5,000
60.12	W-CIB-ELC-ELE - PAC control panel	MED (1.15)	0.15	2040	2026				$ 97,000		$ 97,000
					Annual Total	$ 4,326,000	$ 2,800,000	$ 3,697,000	$ 1,765,000	$ 2,186,000	$ 14,774,000
					O&M Funding Source	$ -	$ -	$ -	$ -	$ -	$ -
					CIP Funding Source	$ 4,326,000	$ 2,800,000	$ 3,697,000	$ 1,758,000	$ 2,186,000	$ 14,767,000

Notes

1) Original Replacment Year indicate replacement year without Condition De-Rating Factor adjustment. Dates noted in parenthases are assets with negative Effective Life Remaining and pushed into 2020 replacement date.

2) Condition Assessment Replacment Year indicate the adjusted year with Condition De-Rating Factor applied.

Appendix G - Long-Term Water System Facility CIP Project List & Cost Summary

Appendix G - Long-Term CIP Projects and Cost

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replacement Period 1 (2028 to 2032)						Replacement Period 2 (2033 to 2037)						Replacement Period 3 (2038 to 2042)						Replacement Period 4 (2043 to 2047)						Replacement Period 5 (2048 to 2052)					
				Replace. Cost ($) 2028	Replace. Cost ($) 2029	Replace. Cost ($) 2030	Replace. Cost ($) 2031	Replace. Cost ($) 2032	5-year Period Cost	Replace. Cost ($) 2033	Replace. Cost ($) 2034	Replace. Cost ($) 2035	Replace. Cost ($) 2036	Replace. Cost ($) 2037	5-year Period Cost	Replace. Cost ($) 2038	Replace. Cost ($) 2039	Replace. Cost ($) 2040	Replace. Cost ($) 2041	Replace. Cost ($) 2042	5-year Period Cost	Replace. Cost ($) 2043	Replace. Cost ($) 2044	Replace. Cost ($) 2045	Replace. Cost ($) 2046	Replace. Cost ($) 2047	5-year Period Cost	Replace. Cost ($) 2048	Replace. Cost ($) 2049	Replace. Cost ($) 2050	Replace. Cost ($) 2051	Replace. Cost ($) 2052	5-year Period Cost
1.01	W-WL01-RWS-FET - Well 1 Flow Meter	MED (1.15)	1.00						$ -						$ -				$ 28,000		$ 28,000						$ -						$ -
1.02	W-WL01-MEC-MEC - Well 1 HVAC	MED (1.15)	0.40						$ -						$ -						$ -		$ 22,000				$ 22,000						$ -
1.06	W-WL01-RWS-INS - Well 1 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
1.08	W-WL01-FAC-BLD - Well 1 Building	MED (1.15)	0.80						$ -						$ -						$ -						$ -	$ 273,000					$ 273,000
1.09	W-WL01-FAC-RFM - Well 1 Roof	MED (1.15)	0.40				$ 39,000		$ 39,000						$ -						$ -						$ -						$ -
2.01	W-WL02-RWS-FET - Well 2 Flow Meter	MED (1.15)	0.80						$ -						$ -						$ -				$ 28,000		$ 28,000						$ -
2.02	W-WL02-MEC-MEC - Well 2 HVAC	MED (1.15)	0.40						$ -						$ -			$ 16,000			$ 16,000						$ -						$ -
2.05	W-WL02-ELC-ELE - Well 2 - Electrical PP/LP/SSRV	MED (1.15)	0.80						$ -						$ -						$ -						$ -				$ 155,000		$ 155,000
2.06	W-WL02-RWS-INS - Well 2 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
2.08	W-WL02-FAC-BLD - Well 2 Building	MED (1.15)	0.80						$ -						$ -						$ -						$ -		$ 200,000				$ 200,000
2.09	W-WL02-FAC-RFM - Well 2 Roof	MED (1.15)	0.80						$ -						$ -	$ 28,000					$ 28,000						$ -						$ -
3.02	W-WL03-RWS-WLE - Well 3 Engine	LOW (1.3)	0.80						$ -			$ 174,000			$ 174,000						$ -						$ -						$ -
3.03	W-WL03-MEC-MEC - Well 3 HVAC	LOW (1.3)	0.40						$ -						$ -						$ -	$ 39,000					$ 39,000						$ -
3.04	W-WL03-RWS-PIV - Well 3 Piping and Valves	LOW (1.3)	1.00						$ -				$ 39,000		$ 39,000						$ -						$ -						$ -
3.07	W-WL03-RWS-INS - Well 3 SCADA & Instrumentation	LOW (1.3)	0.40						$ -						$ -						$ -			$ 97,000			$ 97,000						$ -
4.01	W-WL04-RWS-FET - Well 4 Flow Meter	MED (1.15)	1.00						$ -						$ -				$ 28,000		$ 28,000						$ -						$ -
4.02	W-WL04-RWS-WLE - Well 4 Engine	MED (1.15)	0.15						$ -				$ 174,000		$ 174,000						$ -						$ -						$ -
4.03	W-WL04-MEC-MEC - Well 4 HVAC	MED (1.15)	0.00						$ -						$ -			$ 32,000			$ 32,000						$ -						$ -
4.05	W-WL04-RWS-PVT - Well 4 Rigth Angle Drive/Pump/Piping	MED (1.15)	0.00						$ -	$ 185,000					$ 185,000						$ -						$ -						$ -
4.06	W-WL04-ELC-ELE - Well 4 - Electrical LP	MED (1.15)	0.40						$ -						$ -						$ -						$ -					$ 39,000	$ 39,000
4.07	W-WL04-RWS-INS - Well 4 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
4.09	W-WL04-FAC-BLD - Well 4 Building	MED (1.15)	0.40						$ -						$ -	$ 401,000					$ 401,000						$ -						$ -
5.01	W-WL05-RWS-FET - Well 5 Flow Meter	MED (1.15)	0.80						$ -						$ -						$ -					$ 28,000	$ 28,000						$ -
5.02	W-WL05-RWS-WLE - Well 5 Engine	MED (1.15)	0.80						$ -						$ -	$ 174,000					$ 174,000						$ -						$ -
5.03	W-WL05-MEC-MEC - Well 5 HVAC	MED (1.15)	0.15						$ -						$ -			$ 32,000			$ 32,000						$ -						$ -
5.04	W-WL05-RWS-PIV - Well 5 Piping and Valves	MED (1.15)	1.00	$ 39,000					$ 39,000						$ -						$ -						$ -						$ -
5.05	W-WL05-RWS-PVT - Well 5 Rigth Angle Drive/Pump/Piping	MED (1.15)	0.80		$ 185,000				$ 185,000						$ -						$ -						$ -						$ -
5.06	W-WL05-ELC-ELE - Well 5 - Electrical LP	MED (1.15)	0.40						$ -						$ -						$ -						$ -					$ 39,000	$ 39,000
5.07	W-WL05-RWS-INS - Well 5 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
6.01	W-WL06-RWS-FET - Well 6 Flow Meter	LOW (1.3)	0.80						$ -						$ -						$ -						$ -						$ -
6.03	W-WL06-MEC-MEC - Well 6 HVAC	LOW (1.3)	0.40						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
6.04	W-WL06-RWS-PIV - Well 6 Piping and Valves	LOW (1.3)	0.80						$ -			$ 39,000			$ 39,000						$ -						$ -						$ -
6.05	W-WL06-RWS-PVT - Well 6 Rigth Angle Drive/Pump/Piping	LOW (1.3)	0.80						$ -	$ 185,000					$ 185,000						$ -						$ -						$ -
6.07	W-WL06-RWS-INS - Well 6 SCADA & Instrumentation	LOW (1.3)	0.40						$ -						$ -						$ -			$ 97,000			$ 97,000						$ -
7.01	W-WL07-RWS-FET - Well 7 Flow Meter	MED (1.15)	1.00						$ -						$ -						$ -					$ 28,000	$ 28,000						$ -
7.02	W-WL07-RWS-WLE - Well 7 Engine	MED (1.15)	0.80						$ -					$ 174,000	$ 174,000						$ -						$ -						$ -
7.03	W-WL07-MEC-MEC - Well 7 HVAC	MED (1.15)	0.40						$ -						$ -			$ 21,000			$ 21,000						$ -						$ -
7.04	W-WL07-RWS-PIV - Well 7 Piping and Valves	MED (1.15)	0.80	$ 39,000					$ 39,000						$ -						$ -						$ -						$ -
7.05	W-WL07-RWS-PVT - Well 7 Rigth Angle Drive/Pump/Piping	MED (1.15)	0.80			$ 185,000			$ 185,000						$ -						$ -						$ -						$ -
7.06	W-WL07-ELC-ELE - Well 7 - Electrical LP	MED (1.15)	0.40						$ -						$ -						$ -						$ -					$ 39,000	$ 39,000
7.07	W-WL07-RWS-INS - Well 7 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
7.09	W-WL07-FAC-BLD - Well 7 Building	MED (1.15)	0.15		$ 267,000				$ 267,000						$ -						$ -						$ -						$ -
7.1	W-WL07-FAC-RFM - Well 7 Roof	MED (1.15)	0.80						$ -						$ -			$ 38,000			$ 38,000						$ -						$ -
8.03	W-WL08-MEC-MEC - Well 8 HVAC	MED (1.15)	0.40						$ -						$ -			$ 19,000			$ 19,000						$ -						$ -
8.04	W-WL08-RWS-PIV - Well 8 Piping and Valves	MED (1.15)	1.00		$ 39,000				$ 39,000						$ -						$ -						$ -						$ -
8.06	W-WL08-ELC-ELE - Well 8 - Electrical LP	MED (1.15)	0.40						$ -						$ -						$ -						$ -					$ 39,000	$ 39,000
8.07	W-WL08-RWS-INS - Well 8 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
9.01	W-WL09/10-RWS-FET - Well 9 Flow Meter	MED (1.15)	0.80						$ -						$ -					$ 28,000	$ 28,000						$ -						$ -
9.02	W-WL09/10-MEC-MEC - Well 9 HVAC	MED (1.15)	0.15						$ -						$ -			$ 72,000			$ 72,000						$ -						$ -
9.03	W-WL09/10-RWS-PIV - Well 9 Piping and Valves	MED (1.15)	0.80					$ 39,000	$ 39,000						$ -						$ -						$ -						$ -
9.05	W-WL09/10-ELC-ELE - Well 9&10 - Electrical PP/LP/SSRV	MED (1.15)	0.15						$ -						$ -						$ -						$ -					$ 214,000	$ 214,000
9.06	W-WL09/10-RWS-INS - Well 9 & 10 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
9.08	W-WL09/10-FAC-BLD - Well 9 & 10 Building	MED (1.15)	0.40						$ -						$ -				$ 900,000		$ 900,000						$ -						$ -
9.11	W-WL09/10-RWS-PIV - Well 10 Piping and Valves	LOW (1.3)	0.80						$ -						$ -				$ 39,000		$ 39,000						$ -						$ -
11.01	W-WL11-RWS-FET - Well 11 Flow Meter	MED (1.15)	0.80						$ -					$ 28,000	$ 28,000						$ -						$ -						$ -
11.02	W-WL11-MEC-MEC - Well 11 HVAC	MED (1.15)	0.40						$ -						$ -			$ 13,000			$ 13,000						$ -						$ -
11.03	W-WL11-RWS-PIV - Well 11 Piping and Valves	MED (1.15)	0.80						$ -					$ 39,000	$ 39,000						$ -						$ -						$ -
11.05	W-WL11-ELC-ELE - Well 11 - Electrical PP/LP/SSRV	MED (1.15)	0.40						$ -						$ -						$ -						$ -					$ 155,000	$ 155,000
11.06	W-WL11-RWS-INS - Well 11 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
11.08	W-WL11-FAC-BLD - Well 11 Building	MED (1.15)	0.40						$ -						$ -						$ -	$ 164,000					$ 164,000						$ -
11.09	W-WL11-FAC-RFM - Well 11 Roof	MED (1.15)	0.80						$ -						$ -						$ -						$ -			$ 23,000			$ 23,000
12.01	W-WL12-RWS-FET - Well 12 Flow Meter	MED (1.15)	0.80						$ -						$ -					$ 28,000	$ 28,000						$ -						$ -
12.02	W-WL12-MEC-MEC - Well 12 HVAC	MED (1.15)	0.40						$ -						$ -			$ 16,000			$ 16,000						$ -						$ -
12.03	W-WL12-RWS-PIV - Well 12 Piping and Valves	MED (1.15)	0.40						$ -	$ 39,000					$ 39,000						$ -						$ -						$ -
12.05	W-WL12-ELC-ELE - Well 12 - Electrical PP/LP/SSRV	MED (1.15)	0.80						$ -						$ -						$ -						$ -					$ 155,000	$ 155,000
12.06	W-WL12-RWS-INS - Well 12 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
12.08	W-WL12-FAC-BLD - Well 12 Building	MED (1.15)	0.15					$ 200,000	$ 200,000						$ -						$ -						$ -						$ -
12.09	W-WL12-FAC-RFM - Well 12 Roof	MED (1.15)	0.80						$ -						$ -						$ -						$ -		$ 28,000				$ 28,000
13.01	W-WL13-RWS-FET - Well 13 Flow Meter	MED (1.15)	0.80						$ -						$ -					$ 28,000	$ 28,000						$ -						$ -
13.02	W-WL13-MEC-MEC - Well 13 HVAC	MED (1.15)	0.40						$ -						$ -			$ 24,000			$ 24,000						$ -						$ -
13.03	W-WL13-RWS-PIV - Well 13 Piping and Valves	MED (1.15)	0.80						$ -		$ 39,000				$ 39,000						$ -						$ -						$ -
13.05	W-WL13-ELC-ELE - Well 13 - Electrical PP/LP/SSRV	MED (1.15)	0.80						$ -						$ -						$ -						$ -					$ 155,000	$ 155,000
13.06	W-WL13-RWS-INS - Well 13 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
13.08	W-WL13-FAC-BLD - Well 13 Building	MED (1.15)	0.40						$ -						$ -					$ 364,000	$ 364,000						$ -						$ -
14.01	W-WL14/15-RWS-FET - Well 14 Flow Meter	MED (1.15)	0.80						$ -					$ 28,000	$ 28,000						$ -						$ -						$ -
14.03	W-WL14/15-MEC-MEC - Well 14/15 HVAC	MED (1.15)	0.40						$ -						$ -			$ 44,000			$ 44,000						$ -						$ -
14.04	W-WL14/15-RWS-PIV - Well 14 Piping and Valves	MED (1.15)	0.80						$ -						$ -						$ -				$ 39,000		$ 39,000						$ -
14.05	W-WL14/15-RWS-PVT - Well 14 Motor to Pump	MED (1.15)	0.80						$ -	$ 185,000					$ 185,000						$ -						$ -						$ -
14.06	W-WL14/15-ELC-ELE - Well 14/15 - Electrical PP/LP/SSRV	MED (1.15)	0.40						$ -						$ -						$ -						$ -						$ -
14.07	W-WL14/15-RWS-INS - Well 14/15 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 165,000		$ 165,000						$ -						$ -
14.11	W-WL14/15-RWS-FET - Well 15 Flow Meter	MED (1.15)	1.00						$ -						$ -						$ -	$ 28,000					$ 28,000						$ -
14.12	W-WL14/15-RWS-PIV - Well 15 Piping and Valves	MED (1.15)	0.80						$ -						$ -						$ -				$ 39,000		$ 39,000						$ -
14.13	W-WL14/15-RWS-PVT - Well 15 Motor to Pump	MED (1.15)	0.80						$ -						$ -						$ -						$ -						$ -
16.01	W-WL16-RWS-FET - Well 16 Flow Meter	MED (1.15)	0.80						$ -						$ -						$ -						$ -	$ 28,000					$ 28,000
16.02	W-WL16-MEC-MEC - Well 16 HVAC	MED (1.15)	0.40						$ -						$ -			$ 18,000			$ 18,000						$ -						$ -
16.03	W-WL16-RWS-PIV - Well 16 Piping and Valves	MED (1.15)	0.80						$ -						$ -						$ -						$ -	$ 39,000					$ 39,000
16.05	W-WL16-ELC-ELE - Well 16 - Electrical PP/LP/SSRV	MED (1.15)	0.80						$ -						$ -						$ -						$ -					$ 155,000	$ 155,000
16.06	W-WL16-RWS-INS - Well 16 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
16.09	W-WL16-FAC-RFM - Well 16 Roof	MED (1.15)	0.80						$ -						$ -						$ -		$ 32,000				$ 32,000						$ -
17.01	W-WL17-RWS-FET - Well 17 Flow Meter	MED (1.15)	0.80						$ -						$ -	$ 28,000					$ 28,000						$ -						$ -
17.02	W-WL17-MEC-MEC - Well 17 HVAC	MED (1.15)	0.40						$ -						$ -			$ 21,000			$ 21,000						$ -						$ -
17.04	W-WL17-RWS-PVT - Well 17 Motor to Pump	MED (1.15)	0.80						$ -	$ 185,000					$ 185,000						$ -						$ -						$ -
17.05	W-WL17-ELC-ELE - Well 17 - Electrical PP/LP/SSRV	MED (1.15)	0.80						$ -	$ 155,000					$ 155,000						$ -						$ -						$ -
17.06	W-WL17-RWS-INS - Well 17 SCADA & Instrumentation	MED (1.15)	0.40						$ -						$ -				$ 97,000		$ 97,000						$ -						$ -
17.09	W-WL17-FAC-RFM - Well 17 Roof	MED (1.15)	0.80						$ -						$ -	$ 37,000					$ 37,000						$ -						$ -
20.01	W-SWI-ELC-VFD - Quarry Intake Drive 1	HIGH (1)	0.80						$ -						$ -						$ -					$ 195,000	$ 195,000						$ -
20.02	W-SWI-ELC-VFD - Quarry Intake Drive 2	HIGH (1)	0.80						$ -						$ -						$ -					$ 195,000	$ 195,000						$ -
20.03	W-SWI-RWS-PQA - Quarry Pump & Motor 1	HIGH (1)	0.80	$ 155,000				$ 155,000	$ 310,000				$ 155,000		$ 155,000			$ 155,000			$ 155,000		$ 155,000				$ 155,000	$ 155,000				$ 155,000	$ 310,000
20.04	W-SWI-RWS-PQA - Quarry Pump & Motor 2	HIGH (1)	0.80				$ 155,000		$ 155,000			$ 155,000			$ 155,000		$ 155,000				$ 155,000	$ 155,000					$ 155,000	$ 310,000			$ 155,000		$ 155,000
20.05	W-SWI-MEC-ACU - Quarry Pump Building HVAC	MED (1.15)	1.00						$ -						$ -		$ 29,000				$ 29,000						$ -						$ -
20.07	W-SWI-RWS-PLC - SCADA PLC	MED (1.15)	0.80						$ -						$ -					$ 117,000	$ 117,000						$ -						$ -
20.08	W-SWI-ELC-ELE - Electrical service gear	MED (1.15)	1.00	$ 13,000					$ 13,000						$ -						$ -						$ -						$ -
20.01	W-GWTP-FAC-EXC - Building - Exterior	LOW (1.3)	0.80						$ -						$ -					$ 1,167,000	$ 1,167,000						$ -						$ -
20.02	W-GWTP-FAC-RFM - Building - Roof	LOW (1.3)	0.40	$ 1,060,000					$ 1,060,000						$ -						$ -						$ -						$ -
20.04	W-GWTP-FAC-INS - Plant Fiber Loop	LOW (1.3)	0.80						$ -						$ -						$ -			$ 97,000			$ 97,000						$ -
20.13	W-GWTP-FI-FET - GWTP Intake Flow Meter	HIGH (1)	0.80						$ -						$ -	$ 81,000					$ 81,000						$ -						$ -
20.14	W-GWTP-FAC-TNC - GWTP Pipe Gallery - Structural	HIGH (1)	0.80						$ -						$ -						$ -						$ -						$ -
20.15	W-GWTP-MEC-MEC - GWTP Pipe Gallery - HVAC	HIGH (1)	0.00						$ -						$ -					$ 134,000	$ 134,000						$ -						$ -
20.16	W-GWTP-MEC-PLB - GWTP Pipe Gallery - Plumbing	HIGH (1)	0.40		$ 82,000				$ 82,000						$ -						$ -						$ -						$ -
20.17	W-GWTP-ELC-ELE - GWTP Pipe Gallery - Electrical	HIGH (1)	0.40						$ -						$ -						$ -						$ -	$ 82,000					$ 82,000
20.18	W-GWTP-AIR-BLP - GWTP Airwash Blower	HIGH (1)	0.80						$ -	$ 194,000					$ 194,000						$ -						$ -						$ -
21.01	W-GWTP-FLT-VBF - GWTP North Filter 1 Airwash Blower Valve	HIGH-WTP (1)	0.40						$ -			$ 15,000			$ 15,000						$ -						$ -						$ -
21.02	W-GWTP-FLT-VBF - GWTP North Filter 1 Effluent Valve	HIGH-WTP (1)	0.40						$ -			$ 63,000			$ 63,000						$ -						$ -						$ -
21.03	W-GWTP-FLT-VBF - GWTP North Filter 1 Influent Valve	HIGH-WTP (1)	0.40						$ -			$ 32,000			$ 32,000						$ -						$ -						$ -
21.04	W-GWTP-FLT-VBF - GWTP North Filter 1 Waste Valve	HIGH-WTP (1)	0.40						$ -			$ 51,000			$ 51,000						$ -						$ -						$ -
21.05	W-GWTP-FLT-VBF - GWTP North Filter 2 Airwash Blower Vlave	HIGH-WTP (1)	0.40						$ -			$ 15,000			$ 15,000						$ -						$ -						$ -
21.06	W-GWTP-FLT-VBF - GWTP North Filter 2 Effluent Valve	HIGH-WTP (1)	0.40						$ -			$ 63,000			$ 63,000						$ -						$ -						$ -
21.07	W-GWTP-FLT-VBF - GWTP North Filter 2 Influent Valve	HIGH-WTP (1)	0.40						$ -			$ 32,000			$ 32,000						$ -						$ -						$ -
21.08	W-GWTP-FLT-VBF - GWTP North Filter 2 Waste Valve	HIGH-WTP (1)	0.40						$ -			$ 51,000			$ 51,000						$ -						$ -						$ -
21.09	W-GWTP-FLT-VBF - GWTP North Filter 3 Airwash Blower Valve	HIGH-WTP (1)	0.40						$ -			$ 15,000			$ 15,000						$ -						$ -						$ -
21.1	W-GWTP-FLT-VBF - GWTP North Filter 3 Effluent Valve	HIGH-WTP (1)	0.40						$ -			$ 63,000			$ 63,000						$ -						$ -						$ -
21.11	W-GWTP-FLT-VBF - GWTP North Filter 3 Influent Valve	HIGH-WTP (1)	0.40						$ -			$ 32,000			$ 32,000						$ -						$ -						$ -
21.12	W-GWTP-FLT-VBF - GWTP North Filter 3 Waste Valve	HIGH-WTP (1)	0.40						$ -			$ 51,000			$ 51,000						$ -						$ -						$ -
21.13	W-GWTP-FLT-VBF - GWTP North Filter 4 Airwash Blower Valve	HIGH-WTP (1)	0.40						$ -			$ 15,000			$ 15,000						$ -						$ -						$ -
21.14	W-GWTP-FLT-VBF - GWTP North Filter 4 Effluent Valve	HIGH-WTP (1)	0.40						$ -			$ 63,000			$ 63,000						$ -						$ -						$ -
21.15	W-GWTP-FLT-VBF - GWTP North Filter 4 Influent Valve	HIGH-WTP (1)	0.40						$ -			$ 32,000			$ 32,000						$ -						$ -						$ -
21.16	W-GWTP-FLT-VBF - GWTP North Filter 4 Waste Valve	HIGH-WTP (1)	0.40						$ -			$ 51,000			$ 51,000						$ -						$ -						$ -
21.18	W-GWTP-FLT-FLQ - GWTP North Filter - Quad Filter Equipment	HIGH-WTP (1)	0.80						$ -						$ -						$ -	$ 1,574,000					$ 1,574,000						$ -
21.19	W-GWTP-FLT-PIP - GWTP North Filter - Process Piping	HIGH-WTP (1)	0.40						$ -						$ -				$ 87,000		$ 87,000						$ -						$ -
21.2	W-GWTP-ELC-ELE - GWTP North Filter - Electrical	HIGH-WTP (1)	0.80						$ -		$ 77,000				$ 77,000						$ -						$ -						$ -
21.21	W-GWTP-MEC-MEC - GWTP North Filter - HVAC	HIGH-WTP (1)	0.00						$ -						$ -					$ 129,000	$ 129,000						$ -						$ -
22.01	W-GWTP-FLT-VBF - GWTP South Filter 1 Airwash Blower Valve	HIGH-WTP (1)	0.15	$ 15,000					$ 15,000						$ -						$ -						$ -						$ -
22.02	W-GWTP-FLT-VBF - GWTP South Filter 1 Effluent Valve	HIGH-WTP (1)	0.15	$ 63,000					$ 63,000						$ -						$ -						$ -						$ -

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replace. Cost ($) 2028	Replace. Cost ($) 2029	Replace. Cost ($) 2030	Replace. Cost ($) 2031	Replace. Cost ($) 2032	5-year Period Cost	Replace. Cost ($) 2033	Replace. Cost ($) 2034	Replace. Cost ($) 2035	Replace. Cost ($) 2036	Replace. Cost ($) 2037	5-year Period Cost	Replace. Cost ($) 2038	Replace. Cost ($) 2039	Replace. Cost ($) 2040	Replace. Cost ($) 2041	Replace. Cost ($) 2042	5-year Period Cost	Replace. Cost ($) 2043	Replace. Cost ($) 2044	Replace. Cost ($) 2045	Replace. Cost ($) 2046	Replace. Cost ($) 2047	5-year Period Cost	Replace. Cost ($) 2048	Replace. Cost ($) 2049	Replace. Cost ($) 2050	Replace. Cost ($) 2051	Replace. Cost ($) 2052	5-year Period Cost
22.03	W-GWTP-FLT-VBF - GWTP South Filter 1 Influent Valve	HIGH-WTP (1)	0.15	$ 32,000					$ 32,000						$ -						$ -						$ -						$ -
22.04	W-GWTP-FLT-VBF - GWTP South Filter 1 Waste Valve	HIGH-WTP (1)	0.15	$ 51,000					$ 51,000						$ -						$ -						$ -						$ -
22.05	W-GWTP-FLT-VBF - GWTP South Filter 2 Airwash Blower Vlave	HIGH-WTP (1)	0.15	$ 15,000					$ 15,000						$ -						$ -						$ -						$ -
22.06	W-GWTP-FLT-VBF - GWTP South Filter 2 Effluent Valve	HIGH-WTP (1)	0.15	$ 63,000					$ 63,000						$ -						$ -						$ -						$ -
22.07	W-GWTP-FLT-VBF - GWTP South Filter 2 Influent Valve	HIGH-WTP (1)	0.15	$ 32,000					$ 32,000						$ -						$ -						$ -						$ -
22.08	W-GWTP-FLT-VBF - GWTP South Filter 2 Waste Valve	HIGH-WTP (1)	0.15	$ 51,000					$ 51,000						$ -						$ -						$ -						$ -
22.09	W-GWTP-FLT-VBF - GWTP South Filter 3 Airwash Blower Valve	HIGH-WTP (1)	0.15	$ 15,000					$ 15,000						$ -						$ -						$ -						$ -
22.1	W-GWTP-FLT-VBF - GWTP South Filter 3 Effluent Valve	HIGH-WTP (1)	0.15	$ 63,000					$ 63,000						$ -						$ -						$ -						$ -
22.11	W-GWTP-FLT-VBF - GWTP South Filter 3 Influent Valve	HIGH-WTP (1)	0.15	$ 32,000					$ 32,000						$ -						$ -						$ -						$ -
22.12	W-GWTP-FLT-VBF - GWTP South Filter 3 Waste Valve	HIGH-WTP (1)	0.15	$ 51,000					$ 51,000						$ -						$ -						$ -						$ -
22.13	W-GWTP-FLT-VBF - GWTP South Filter 4 Airwash Blower Valve	HIGH-WTP (1)	0.15	$ 15,000					$ 15,000						$ -						$ -						$ -						$ -
22.14	W-GWTP-FLT-VBF - GWTP South Filter 4 Effluent Valve	HIGH-WTP (1)	0.15	$ 63,000					$ 63,000						$ -						$ -						$ -						$ -
22.15	W-GWTP-FLT-VBF - GWTP South Filter 4 Influent Valve	HIGH (1)	0.15	$ 32,000					$ 32,000						$ -						$ -						$ -						$ -
22.16	W-GWTP-FLT-VBF - GWTP South Filter 4 Waste Valve	HIGH (1)	0.15	$ 51,000					$ 51,000						$ -						$ -						$ -						$ -
22.18	W-GWTP-FLT-FLQ - GWTP South Filter - Quad Filter Equipment	HIGH-WTP (1)	0.80						$ -						$ -						$ -	$ 1,574,000					$ 1,574,000						$ -
22.19	W-GWTP-FLT-PIP - GWTP South Filter - Process Piping	HIGH-WTP (1)	0.40						$ -						$ -				$ 87,000		$ 87,000						$ -						$ -
22.2	W-GWTP-ELC-ELE - GWTP South Filter - Electrical	HIGH-WTP (1)	0.80						$ -						$ -		$ 77,000				$ 77,000						$ -						$ -
22.21	W-GWTP-MEC-MEC - GWTP South Filter - HVAC	HIGH-WTP (1)	0.00						$ -						$ -					$ 129,000	$ 129,000						$ -						$ -
23.01	W-GWTP-ADM-BLA - Control Room - Personnel Room	HIGH-WTP (1)	0.80					$ 107,000	$ 107,000						$ -						$ -						$ -						$ -
23.02	W-GWTP-MEC-PLB - Control Room - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -	$ 17,000					$ 17,000
23.03	W-GWTP-MEC-MEC - Control & Lab Room - HVAC	HIGH-WTP (1)	0.80		$ 53,000				$ 53,000						$ -						$ -		$ 53,000				$ 53,000						$ -
23.04	W-GWTP-ELC-ELE - Control Room - Electrical	HIGH-WTP (1)	0.80						$ -					$ 17,000	$ 17,000						$ -						$ -						$ -
23.11	W-GWTP-ADM-BLA - Lab Room - Personnel Room	HIGH-WTP (1)	0.80					$ 70,000	$ 70,000						$ -						$ -						$ -						$ -
23.12	W-GWTP-MEC-PLB - Lab Room - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -				$ 15,000		$ 15,000
23.13	W-GWTP-ELC-ELE - Lab Room - Electrical	HIGH-WTP (1)	0.80						$ -					$ 15,000	$ 15,000						$ -						$ -						$ -
24.02	W-GWTP-RCW-PVT - GWTP Reclaim Tank Pump	HIGH-WTP (1)	0.80						$ -						$ -						$ -					$ 121,000	$ 121,000						$ -
24.03	W-GWTP-ELC-VFD - GWTP Reclaim Tank Pump VFD	HIGH-WTP (1)	0.80						$ -			$ 29,000			$ 29,000						$ -						$ -						$ -
24.04	W-GWTP-RCS-PES - GWTP Reclaim Tank Sludge Pump	HIGH-WTP (1)	0.80						$ -	$ 49,000					$ 49,000						$ -						$ -						$ -
25.02	W-GWTP-MEC-MEC - Front Office - HVAC	LOW (1.3)	0.80						$ -		$ 8,000				$ 8,000						$ -						$ -						$ -
25.03	W-GWTP-ELC-ELE - Front Office - Electrical	LOW (1.3)	0.80						$ -						$ -						$ -					$ 5,000	$ 5,000						$ -
25.12	W-GWTP-MEC-MEC - Conference Room - HVAC	LOW (1.3)	0.80						$ -		$ 17,000				$ 17,000						$ -						$ -						$ -
25.13	W-GWTP-ELC-ELE - Conference Room - Electrical	LOW (1.3)	0.80						$ -						$ -						$ -					$ 12,000	$ 12,000						$ -
25.22	W-GWTP-MEC-PLB - Lunch Room - Plumbing	LOW (1.3)	0.40						$ -			$ 13,000			$ 13,000						$ -						$ -						$ -
25.23	W-GWTP-MEC-MEC - Lunch Room - HVAC	LOW (1.3)	0.80						$ -		$ 21,000				$ 21,000						$ -						$ -						$ -
25.24	W-GWTP-ELC-ELE - Lunch Room - Electrical	LOW (1.3)	0.80						$ -						$ -						$ -					$ 13,000	$ 13,000						$ -
25.32	W-GWTP-MEC-PLB - Admin Mechanical Room - Plumbing	LOW (1.3)	0.40						$ -			$ 4,000			$ 4,000						$ -						$ -						$ -
25.33	W-GWTP-MEC-MEC - Admin Mechanical Room - HVAC	LOW (1.3)	0.80						$ -		$ 4,000				$ 4,000						$ -						$ -						$ -
25.34	W-GWTP-ELC-ELE - Admin Mechanical Room - Electrical	HIGH (1)	0.80						$ -				$ 4,000		$ 4,000						$ -						$ -						$ -
25.41	W-GWTP-ADM-BLA - Server/Security Room - Personnel Room	HIGH-WTP (1)	1.00						$ -						$ -		$ 17,000				$ 17,000						$ -						$ -
25.42	W-GWTP-MEC-MEC - Server/Security Room - HVAC	HIGH-WTP (1)	0.80	$ 4,000					$ 4,000						$ -						$ -	$ 4,000					$ 4,000						$ -
25.43	W-GWTP-ELC-ELE - Server/Security Room - Electrical	HIGH-WTP (1)	0.80						$ -				$ 4,000		$ 4,000						$ -						$ -						$ -
25.53	W-GWTP-MEC-MEC - Bathroom 1 - HVAC	LOW (1.3)	0.00						$ -						$ -						$ -					$ 10,000	$ 10,000						$ -
25.63	W-GWTP-MEC-MEC - Bathroom 2 - HVAC	LOW (1.3)	0.00						$ -						$ -						$ -					$ 10,000	$ 10,000						$ -
25.71	W-GWTP-MEC-MEC - Storage Room - HVAC	LOW (1.3)	0.00						$ -						$ -						$ -					$ 6,000	$ 6,000						$ -
25.81	W-GWTP-MEC-MEC - Hallways - HVAC	MED (1.15)	0.15						$ -						$ -						$ -		$ 93,000				$ 93,000						$ -
25.82	W-MNT-MEC-DHU - DH5	MED (1.15)	1.00					$ 6,000	$ 6,000						$ -						$ -						$ -		$ 6,000					$ 6,000
25.83	W-MNT-MEC-DHU - DH6	MED (1.15)	0.40						$ -						$ -						$ -		$ 6,000				$ 6,000						$ -
25.91	W-GWTP-MEC-MEC - Front Hallway and Atrium - HVAC	MED (1.15)	0.80				$ 10,000		$ 10,000						$ -						$ -						$ -	$ 10,000					$ 10,000
25.92	W-GWTP-ADM-BLA - Front Hallway and Atrium - Personnel Room	MED (1.15)	1.00						$ -						$ -						$ -				$ 75,000		$ 75,000						$ -
30.01	W-SWTP-FAC-RGR - SWTP Building - Roof	HIGH-WTP (1)	0.80						$ -						$ -						$ -	$ 1,101,000					$ 1,101,000						$ -
31.03	W-SWTP-FLC-FLC - SWTP Flocculator 1	HIGH-WTP (1)	0.80				$ 80,000		$ 80,000						$ -						$ -						$ -						$ -
31.04	W-SWTP-ELC-VFD - SWTP Flocculator 1 VFD	HIGH-WTP (1)	1.00						$ -						$ -				$ 17,000		$ 17,000						$ -						$ -
31.05	W-SWTP-FLC-FLC - SWTP Flocculator 2	HIGH-WTP (1)	0.80				$ 80,000		$ 80,000						$ -						$ -						$ -						$ -
31.06	W-SWTP-ELC-VFD - SWTP Flocculator 2 VFD	HIGH-WTP (1)	1.00						$ -						$ -				$ 17,000		$ 17,000						$ -						$ -
31.07	W-SWTP-FLC-FLC - SWTP Flocculator 3	HIGH-WTP (1)	0.80				$ 80,000		$ 80,000						$ -						$ -						$ -						$ -
31.08	W-SWTP-ELC-VFD - SWTP Flocculator 3 VFD	HIGH-WTP (1)	1.00						$ -						$ -				$ 17,000		$ 17,000						$ -						$ -
31.09	W-SWTP-FLC-FLC - SWTP Flocculator 4	HIGH-WTP (1)	0.80				$ 80,000		$ 80,000						$ -						$ -						$ -						$ -
31.1	W-SWTP-ELC-VFD - SWTP Flocculator 4 VFD	HIGH-WTP (1)	1.00						$ -						$ -				$ 17,000		$ 17,000						$ -						$ -
31.11	W-SWTP-FLC-FLC - SWTP Flocculator 5	HIGH-WTP (1)	0.80				$ 80,000		$ 80,000						$ -						$ -						$ -						$ -
31.12	W-SWTP-ELC-VFD - SWTP Flocculator 5 VFD	HIGH-WTP (1)	1.00						$ -						$ -				$ 17,000		$ 17,000						$ -						$ -
31.13	W-SWTP-FLC-FLC - SWTP Flocculator 6	HIGH-WTP (1)	0.80				$ 80,000		$ 80,000						$ -						$ -						$ -						$ -
31.14	W-SWTP-ELC-VFD - SWTP Flocculator 6 VFD	HIGH-WTP (1)	1.00						$ -						$ -				$ 17,000		$ 17,000						$ -						$ -
31.16	W-SWTP-MEC-PLB - Flocculation Room - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -					$ 56,000	$ 56,000
31.17	W-SWTP-MEC-MEC - Flocculation Room - HVAC	HIGH-WTP (1)	0.00						$ -						$ -	$ 93,000					$ 93,000						$ -						$ -
31.18	W-SWTP-ELC-ELE - Flocculation Room - Electrical	HIGH-WTP (1)	0.80				$ 56,000		$ 56,000						$ -						$ -						$ -						$ -
31.19	W-SWTP-MEC-UHE - UH6	HIGH-WTP (1)	0.40						$ -						$ -	$ 4,000					$ 4,000						$ -						$ -
31.2	W-SWTP-MEC-UHE - UH7	HIGH-WTP (1)	0.40						$ -						$ -	$ 4,000					$ 4,000						$ -						$ -
31.21	W-SWTP-MEC-UHE - UH8	HIGH-WTP (1)	0.40						$ -						$ -	$ 4,000					$ 4,000						$ -						$ -
32.03	W-SWTP-MEC-MEC - Filter Gallery - HVAC	HIGH-WTP (1)	0.00						$ -						$ -	$ 128,000					$ 128,000						$ -						$ -
32.04	W-SWTP-ELC-ELE - Filter Gallery - Electrical	HIGH-WTP (1)	0.80				$ 75,000		$ 75,000						$ -						$ -						$ -						$ -
32.05	W-SWTP-INS-PLC - SCADA PLC	HIGH-WTP (1)	0.80						$ -						$ -	$ 249,000					$ 249,000						$ -						$ -
32.06	W-SWTP-MEC-UHE - UH10	MED (1.15)	0.40						$ -						$ -				$ 7,000		$ 7,000						$ -						$ -
32.07	W-SWTP-MEC-UHE - UH11	MED (1.15)	0.40						$ -						$ -				$ 7,000		$ 7,000						$ -						$ -
32.08	W-SWTP-MEC-UHE - UH12	MED (1.15)	0.40						$ -						$ -				$ 7,000		$ 7,000						$ -						$ -
32.09	W-SWTP-MEC-DHU - DH3	MED (1.15)	0.40						$ -						$ -				$ 7,000		$ 7,000						$ -						$ -
32.31	W-SWTP-RWS-FET - SWTP GW Flowmeter	HIGH-WTP (1)	1.00						$ -	$ 52,000					$ 52,000						$ -						$ -						$ -
32.32	W-SWTP-RWS-FET - SWTP Surface Water Flowmeter	HIGH-WTP (1)	0.80						$ -			$ 52,000			$ 52,000						$ -						$ -						$ -
32.33	W-SWTP-RWS-MXR - SWTP Inline Rapid Mixer - Static Mixer	HIGH-WTP (1)	1.00						$ -						$ -	$ 15,000					$ 15,000						$ -						$ -
32.35	W-SWTP-FLT-VBF - SWTP Filter 1 Airwash Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 10,000					$ 10,000						$ -
32.36	W-SWTP-FLT-VBF - SWTP Filter 1 Backwash Supply Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.37	W-SWTP-FLT-VBF - SWTP Filter 1 Effluent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 24,000					$ 24,000						$ -
32.38	W-SWTP-FLT-INS - SWTP Filter 1 Effluent Valve Controller	HIGH-WTP (1)	1.00						$ -	$ 17,000					$ 17,000						$ -						$ -	$ 17,000					$ 17,000
32.39	W-SWTP-FLT-VBF - SWTP Filter 1 Influent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.4	W-SWTP-FLT-VBF - SWTP Filter 1 Waste Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 51,000					$ 51,000						$ -
32.41	W-SWTP-FLT-AEL - Turbitity Meter SWTP Filter 1	HIGH-WTP (1)	0.80				$ 15,000		$ 15,000						$ -				$ 15,000		$ 15,000						$ -			$ 15,000			$ 15,000
32.43	W-SWTP-FLT-VBF - SWTP Filter 2 Airwash Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 10,000					$ 10,000						$ -
32.44	W-SWTP-FLT-VBF - SWTP Filter 2 Backwash Supply Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.45	W-SWTP-FLT-VBF - SWTP Filter 2 Effluent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 24,000					$ 24,000						$ -
32.46	W-SWTP-FLT-INS - SWTP Filter 2 Effluent Valve Controller	HIGH-WTP (1)	1.00						$ -	$ 17,000					$ 17,000						$ -						$ -	$ 17,000					$ 17,000
32.47	W-SWTP-FLT-VBF - SWTP Filter 2 Influent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.48	W-SWTP-FLT-VBF - SWTP Filter 2 Waste Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 51,000					$ 51,000						$ -
32.49	W-SWTP-FLT-AEL - Turbitity Meter SWTP Filter 2	HIGH-WTP (1)	1.00					$ 15,000	$ 15,000						$ -					$ 15,000	$ 15,000						$ -					$ 15,000	$ 15,000
32.51	W-SWTP-FLT-VBF - SWTP Filter 3 Airwash Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 10,000					$ 10,000						$ -
32.52	W-SWTP-FLT-VBF - SWTP Filter 3 Backwash Supply Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.53	W-SWTP-FLT-VBF - SWTP Filter 3 Effluent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 24,000					$ 24,000						$ -
32.54	W-SWTP-FLT-INS - SWTP Filter 2 Effluent Valve Controller	HIGH-WTP (1)	1.00						$ -	$ 17,000					$ 17,000						$ -						$ -	$ 17,000					$ 17,000
32.55	W-SWTP-FLT-VBF - SWTP Filter 3 Influent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.56	W-SWTP-FLT-VBF - SWTP Filter 3 Waste Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 51,000					$ 51,000						$ -
32.57	W-SWTP-FLT-AEL - Turbitity Meter SWTP Filter 3	HIGH-WTP (1)	1.00						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
32.59	W-SWTP-FLT-VBF - SWTp Filter 4 Airwash Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 10,000					$ 10,000						$ -
32.6	W-SWTP-FLT-VBF - SWTP Filter 4 Backwash Supply Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.61	W-SWTP-FLT-VBF - SWTP Filter 4 Effluent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 24,000					$ 24,000						$ -
32.62	W-SWTP-FLT-INS - SWTP Filter 2 Effluent Valve Controller	HIGH-WTP (1)	1.00						$ -	$ 17,000					$ 17,000						$ -						$ -	$ 17,000					$ 17,000
32.63	W-SWTP-FLT-VBF - SWTP Filter 4 Influent Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.64	W-SWTP-FLT-VBF - SWTP Filter 4 Waste Valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 51,000					$ 51,000						$ -
32.65	W-SWTP-FLT-AEL - Turbitity Meter SWTP Filter 4	HIGH-WTP (1)	1.00					$ 15,000	$ 15,000						$ -					$ 15,000	$ 15,000						$ -					$ 15,000	$ 15,000
32.66	W-SWTP-FLT-VBF - SWTP Backwash valve	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 32,000					$ 32,000						$ -
32.67	W-SWTP-FLT-AEL - Chlorine Analyzer Pump SWTP	HIGH-WTP (1)	1.00						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
32.68	W-SWTP-FLT-AEL - Chrlorine Analyzer- SWTP Finished	HIGH-WTP (1)	1.00						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
32.69	W-SWTP-FLT-AEL - Fluoride Analyzer SWTP	HIGH-WTP (1)	1.00						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
32.7	W-SWTP-FLT-AEL - Turbitity Meter SWTP Finish	HIGH-WTP (1)	1.00		$ 15,000				$ 15,000						$ -				$ 15,000		$ 15,000					$ 15,000	$ 15,000						$ 15,000
32.72	W-SWTP-MEC-PLB - Pipe Gallery - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -					$ 75,000	$ 75,000
32.73	W-SWTP-MEC-MEC - Pipe Gallery - HVAC	HIGH-WTP (1)	0.00						$ -						$ -	$ 128,000					$ 128,000						$ -						$ -
32.74	W-SWTP-ELC-ELE - Pipe Gallery - Electrical	HIGH-WTP (1)	0.80				$ 75,000		$ 75,000						$ -						$ -						$ -						$ -
32.75	W-SWTP-MEC-UHE - UH1	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
32.76	W-SWTP-MEC-UHE - UH2	HIGH-WTP (1)	1.00						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
32.77	W-SWTP-MEC-UHE - UH3	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
32.78	W-SWTP-MEC-DHU - DH1	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
32.79	W-SWTP-MEC-DHU - DH2	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
32.8	W-SWTP-MEC-DHU - DH4	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
33.01	W-SWTP-FLT-PLB - Filter Room - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -					$ 50,000	$ 50,000
33.02	W-SWTP-FLT-MEC - Filter Room - HVAC	HIGH-WTP (1)	0.15						$ -						$ -	$ 86,000					$ 86,000						$ -						$ -
33.03	W-SWTP-ELC-ELE - Filter Room - Electrical	HIGH-WTP (1)	0.80				$ 50,000		$ 50,000						$ -						$ -						$ -						$ -
33.04	W-MNT-MEC-UHE - UH4	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
33.05	W-MNT-MEC-UHE - UH5	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
34.01	W-SWTP-RWS-VBF - SWTP Reclaim Tank Influent Valve #1	MED (1.15)	0.80						$ -						$ -						$ -				$ 10,000		$ 10,000						$ -
34.02	W-SWTP-RWS-VBF - SWTP Reclaim Tank Influent Valve #2	MED (1.15)	0.80						$ -						$ -						$ -				$ 10,000		$ 10,000						$ -
34.03	W-SWTP-POL-PPS - SWTP Reclaim Tank Polymer Pump	MED (1.15)	0.80						$ -						$ -	$ 39,000					$ 39,000						$ -						$ -
34.04	W-SWTP-RWS-PSM - SWTP Reclaim Tank Reclaim Pump #1	MED (1.15)	0.80						$ -						$ -					$ 39,000	$ 39,000						$ -						$ -
34.05	W-SWTP-RWS-PSM - SWTP Reclaim Tank Reclaim Pump #2	MED (1.15)	0.80						$ -						$ -					$ 39,000	$ 39,000						$ -						$ -
34.06	W-SWTP-RWS-FET - SWTP Reclaim Tank Reclaim Pump Flow Meter	MED (1.15)	0.80						$ -						$ -				$ 27,000		$ 27,000						$ -						$ -
34.07	W-SWTP-RCS-PSM - SWTP Reclaim Tank Sludge Pump #1	MED (1.15)	1.00						$ -						$ -						$ -	$ 39,000					$ 39,000						$ -
34.08	W-SWTP-RCS-PSM - SWTP Reclaim Tank Sludge Pump #2	MED (1.15)	1.00						$ -						$ -						$ -	$ 39,000					$ 39,000						$ -
34.09	W-SWTP-RCS-FET - SWTP Reclaim Tank Sludge Pump 2 Flow Meter	MED (1.15)	0.80						$ -						$ -				$ 27,000		$ 27,000						$ -						$ -
34.11	W-SWTP-RWS-VMS - SWTP Reclaim Tank Spray Down Valve #1	MED (1.15)	0.80						$ -					$ 10,000	$ 10,000						$ -						$ -						$ -

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replace. Cost ($) 2028	Replace. Cost ($) 2029	Replace. Cost ($) 2030	Replace. Cost ($) 2031	Replace. Cost ($) 2032	5-year Period Cost	Replace. Cost ($) 2033	Replace. Cost ($) 2034	Replace. Cost ($) 2035	Replace. Cost ($) 2036	Replace. Cost ($) 2037	5-year Period Cost	Replace. Cost ($) 2038	Replace. Cost ($) 2039	Replace. Cost ($) 2040	Replace. Cost ($) 2041	Replace. Cost ($) 2042	5-year Period Cost	Replace. Cost ($) 2043	Replace. Cost ($) 2044	Replace. Cost ($) 2045	Replace. Cost ($) 2046	Replace. Cost ($) 2047	5-year Period Cost	Replace. Cost ($) 2048	Replace. Cost ($) 2049	Replace. Cost ($) 2050	Replace. Cost ($) 2051	Replace. Cost ($) 2052	5-year Period Cost
36.02	W-MNT-MEC-ACU - SWTP Electrical Room AC	HIGH-WTP (1)	0.40						$ -						$ -	$ 49,000					$ 49,000						$ -						$ -
36.03	W-SWTP-MEC-MEC - Electrical Room - HVAC	HIGH-WTP (1)	0.40						$ -						$ -	$ 14,000					$ 14,000						$ -						$ -
36.04	W-SWTP-ELC-ELE - Electrical Room - Electrical	HIGH-WTP (1)	0.80				$ 7,000		$ 7,000						$ -						$ -						$ -						$ -
36.05	W-SWTP-ELC-MCC - Section 11 - MCC	HIGH-WTP (1)	0.80				$ 117,000		$ 117,000						$ -						$ -						$ -						$ -
36.02	W-SWTP-MEC-PLB - Mechanical Room - Plumbing	LOW (1.3)	0.40					$ 5,000	$ 5,000						$ -						$ -						$ -						$ -
36.03	W-SWTP-MEC-MEC - SWTP Mechanical Room HVAC	LOW (1.3)	0.40						$ -						$ -						$ -		$ 8,000				$ 8,000						$ -
36.04	W-SWTP-ELC-ELE - Mechanical Room - Electrical	LOW (1.3)	0.80						$ -						$ -				$ 5,000		$ 5,000						$ -						$ -
36.05	W-MNT-MEC-UHE - UH9	LOW (1.3)	0.40						$ -						$ -						$ -		$ 4,000				$ 4,000						$ -
37.02	W-SWTP-AIR-BLP - SWTP Airwash Blower	HIGH-WTP (1)	1.00						$ -	$ 136,000					$ 136,000						$ -						$ -						$ -
37.05	W-SWTP-MEC-PLB - Blower Room - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -					$ 7,000	$ 7,000
37.06	W-SWTP-MEC-MEC - SWTP Blower Room HVAC	HIGH-WTP (1)	0.40						$ -						$ -	$ 13,000					$ 13,000						$ -						$ -
37.07	W-SWTP-ELC-ELE - Blower Room - Electrical	HIGH-WTP (1)	0.80				$ 7,000		$ 7,000						$ -						$ -						$ -						$ -
38.01	W-SWTP-MEC-PLB - Hallways - Plumbing	LOW (1.3)	0.40					$ 7,000	$ 7,000						$ -						$ -						$ -						$ -
38.02	W-SWTP-MEC-MEC - Hallways - HVAC	LOW (1.3)	0.40						$ -						$ -						$ -		$ 12,000				$ 12,000						$ -
38.03	W-SWTP-ELC-ELE - Hallway - Electrical	LOW (1.3)	0.80						$ -						$ -				$ 7,000		$ 7,000						$ -						$ -
40.02	W-FWC-FWS-LET - Clearwell Tank Level Sensor	HIGH-WTP (1)	1.00	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000
40.03	W-FWC-FWS-LET - Clearwell Tank Level Sensor - Float	HIGH-WTP (1)	1.00						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
40.04	W-FWC-FWS-VCK - Swinging Gate Overflow Valves	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -	$ 68,000					$ 68,000
41.01	W-GWTP-FWS-PCL - Chlorine Analyzer Pump GWTP & Sample Manifold	HIGH (1)	0.80						$ -						$ -		$ 10,000				$ 10,000						$ -						$ -
41.02	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Filters	HIGH (1)	0.80						$ -					$ 15,000	$ 15,000						$ -					$ 15,000	$ 15,000					$ -
41.03	W-GWTP-FWS-AEL - Chlorine Analyzer- GWTP Finished	HIGH-WTP (1)	0.80						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
41.04	W-GWTP-INS-AEL - Turbitidity Meter - GWTP Finished	HIGH-WTP (1)	0.80						$ -					$ 15,000	$ 15,000						$ -					$ 15,000	$ 15,000					$ -
41.05	W-HSPS-INS-AEL - Chlorine Analyzer - Combined Finished	HIGH-WTP (1)	0.80						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
41.06	W-HSPS-INS-AEL - Fluoride Analyzer Combined	HIGH-WTP (1)	0.80						$ -	$ 15,000					$ 15,000						$ -	$ 15,000					$ 15,000						$ -
41.07	W-HSPS-FWS-ARS - HSP 1 Air Relief	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 5,000					$ 5,000
41.08	W-HSPS-FWS-VCK - HSP 1 Check Valve	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 39,000					$ 39,000
41.1	W-HSPS-ELC-VFD - HSP 1 HSP Drive	HIGH-WTP (1)	0.80						$ -						$ -						$ -		$ 616,000				$ 616,000						$ -
41.13	W-HSPS-FWS-ARS - HSP 2 Air Relief	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 5,000					$ 5,000
41.14	W-HSPS-FWS-VCK - HSP 2 Check Valve	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 58,000					$ 58,000
41.16	W-HSPS-ELC-VFD - HSP 2 HSP Drive	HIGH-WTP (1)	0.80	$ 658,000					$ 658,000						$ -						$ -						$ -	$ 658,000					$ 658,000
41.17	W-HSPS-FWS-PVT - HSP 2 Pump & Motor	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 614,000					$ 614,000
41.19	W-HSPS-FWS-ARS - HSP 3 Air Relief	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 5,000					$ 5,000
41.2	W-HSPS-FWS-VCK - HSP 3 Check Valve	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 72,000					$ 72,000
41.22	W-HSPS-ELC-VFD - HSP 3 HSP Drive	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 658,000					$ 658,000						$ -
41.23	W-HSPS-FWS-PVT - HSP 3 Pump & Motor	HIGH-WTP (1)	0.80						$ -						$ -				$ 614,000		$ 614,000						$ -						$ -
41.25	W-HSPS-FWS-ARS - HSP 4 Air Relief	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 5,000					$ 5,000
41.26	W-HSPS-FWS-VCK - HSP 4 Check Valve	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 72,000					$ 72,000
41.28	W-HSPS-ELC-VFD - HSP 4 Drive	HIGH-WTP (1)	0.80				$ 578,000		$ 578,000						$ -						$ -						$ -				$ 578,000		$ 578,000
41.31	W-HSPS-FWS-ARS - HSP 5 Air Relief	HIGH (1)	0.80						$ -						$ -						$ -						$ -	$ 5,000					$ 5,000
41.32	W-HSPS-FWS-VCK - HSP 5 Check Valve	HIGH (1)	0.80						$ -						$ -						$ -						$ -	$ 58,000					$ 58,000
41.34	W-HSPS-ELC-VFD - HSP 5 HSP Drive	HIGH (1)	0.80						$ -					$ 658,000	$ 658,000						$ -						$ -						$ -
41.37	W-HSPS-FWS-ARS - HSP 6 Air Relief	HIGH (1)	0.80						$ -						$ -						$ -						$ -	$ 5,000					$ 5,000
41.38	W-HSPS-FWS-VCK - HSP 6 Check Valve	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 39,000					$ 39,000
41.4	W-HSPS-ELC-VFD - HSP 6 HSP Drive	HIGH-WTP (1)	0.40						$ -						$ -						$ -		$ 616,000				$ 616,000						$ -
41.41	W-HSPS-FWS-PVT - HSP 6 Pump & Motor	HIGH-WTP (1)	0.80						$ -						$ -						$ -	$ 357,000					$ 357,000						$ -
41.43	W-HSPS-MEC-MEC - Intake Louver #1	HIGH-WTP (1)	0.15						$ -						$ -					$ 10,000	$ 10,000						$ -						$ -
41.44	W-HSPS-MEC-MEC - Intake Louver #2	HIGH-WTP (1)	0.15						$ -						$ -					$ 10,000	$ 10,000						$ -						$ -
41.45	W-HSPS-MEC-MEC - Vent Fan #1	HIGH-WTP (1)	0.15						$ -						$ -					$ 15,000	$ 15,000						$ -						$ -
41.46	W-HSPS-MEC-MEC - Vent Fan #2	HIGH-WTP (1)	0.15						$ -						$ -					$ 15,000	$ 15,000						$ -						$ -
41.47	W-HSPS-SUP-CRN - HSP Room Crane	HIGH-WTP (1)	0.40		$ 246,000				$ 246,000						$ -						$ -						$ -		$ 246,000					$ 246,000
41.48	W-HSPS-SUP-DOR - Garage Door - HSP Room	HIGH-WTP (1)	1.00						$ -	$ 17,000					$ 17,000						$ -						$ -	$ 17,000					$ 17,000
41.49	W-HSPS-MEC-UHE - EUH-103 and 104	HIGH-WTP (1)	1.00						$ -	$ 4,000					$ 4,000						$ -						$ -	$ 4,000					$ 4,000
41.5	W-HSPS-FAC-BLD - HSP Room - Structural	HIGH-WTP (1)	0.80						$ -						$ -						$ -		$ 908,000				$ 908,000						$ -
41.52	W-HSPS-MEC-PLB - HSP Room - Plumbing	HIGH-WTP (1)	0.40						$ -						$ -						$ -						$ -	$ 45,000					$ 45,000
41.53	W-HSPS-ELC-ELE - HSP Room - Electrical	HIGH-WTP (1)	0.80						$ -						$ -						$ -						$ -	$ 45,000					$ 45,000
41.54	W-HSPS-MEC-MEC - HSP Room - HVAC	HIGH-WTP (1)	0.15						$ -						$ -					$ 74,000	$ 74,000						$ -						$ -
41.55	W-HSPS-MEC-DHU - HSP Dehumidifier	HIGH-WTP (1)	0.40						$ -						$ -	$ 7,000					$ 7,000						$ -						$ -
41.56	W-HSPS-BW-VBF - GWTP Filter Backwash Valve	HIGH (1)	0.80						$ -						$ -						$ -					$ 37,000	$ 37,000					$ -
41.57	W-HSPS-BW-VBF - GWTP Filter Backwash Valve	HIGH (1)	0.80						$ -						$ -						$ -					$ 37,000	$ 37,000					$ -
41.58	W-HSPS-BW-PVT - GWTP Backwash Pump	HIGH (1)	0.80						$ -						$ -						$ -					$ 93,000	$ 93,000					$ -
41.59	W-HSPS-ELC-VFD - GWTP Backwash Suppy Pump VFD	HIGH (1)	0.80						$ -			$ 42,000			$ 42,000						$ -						$ -						$ -
42.05	W-HSPS-ELC-MCC - Section 5 - MCC	HIGH-WTP (1)	0.80			$ 789,000			$ 789,000						$ -						$ -						$ -						$ -
42.06	W-HSPS-ELC-MCC - Section 6 - MCC	HIGH-WTP (1)	0.80			$ 573,000			$ 573,000						$ -						$ -						$ -						$ -
42.07	W-HSPS-INS-PLC - SCADA PLC	HIGH-WTP (1)	0.80			$ 249,000			$ 249,000						$ -						$ -		$ 249,000				$ 249,000						$ -
42.08	W-HSPS-FAC-BLD - Lower Electrical Room - Structural & Architectural	HIGH-WTP (1)	0.80						$ -						$ -						$ -		$ 1,194,000				$ 1,194,000						$ -
42.09	W-HSPS-MEC-MEC - Lower Electrical Room - HVAC	HIGH-WTP (1)	0.00						$ -						$ -	$ 95,000					$ 95,000						$ -						$ -
43.01	W-HSPS-ELC-ATS - GWTP ATS	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 291,000					$ 291,000						$ -
43.02	W-HSPS-ELC-MCC - Section 9 - Switchboard	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 166,000					$ 166,000						$ -
43.03	W-HSPS-ELC-MCC - Section 10 - MCC	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 216,000					$ 216,000						$ -
43.04	W-HSPS-FAC-BLD - Upper Electrical Room - Structural	HIGH (1)	0.80						$ -						$ -						$ -		$ 1,194,000				$ 1,194,000						$ -
43.05	W-HSPS-MEC-MEC - Upper Electrical Room - HVAC	HIGH (1)	1.00						$ -	$ 95,000					$ 95,000						$ -						$ -	$ 95,000					$ 95,000
43.06	W-HSPS-MEC-ACU - Switch Gear Room AC	HIGH-WTP (1)	1.00						$ -	$ 66,000					$ 66,000						$ -						$ -	$ 66,000					$ 66,000
50.01	W-CF-FER-TNK - Ferric Bulk Tank	MED (1.15)	1.00					$ 23,000	$ 23,000						$ -						$ -						$ -						$ -
50.02	W-CF-FER-PAD - Ferric Pump	MED (1.15)	0.40						$ -						$ -	$ 19,000					$ 19,000						$ -				$ 19,000		$ 19,000
50.03	W-CF-FER-TNK - Ferric Day Tank	MED (1.15)	1.00					$ 3,000	$ 3,000						$ -						$ -						$ -						$ -
50.04	W-CF-FER-PDM - Ferric Feed Pump	MED (1.15)	0.40		$ 29,000				$ 29,000						$ -						$ -				$ 29,000		$ 29,000						$ -
50.05	W-CF-MEC-MEC - Ferric Room HVAC Systems	MED (1.15)	0.00						$ -						$ -						$ -		$ 12,000				$ 12,000						$ -
50.06	W-CF-MEC-PLB - Ferric Room Plumbing	MED (1.15)	0.00						$ -						$ -						$ -						$ -					$ 7,000	$ 7,000
50.08	W-CF-ELC-ELE - Ferric Room - Electrical	MED (1.15)	0.80						$ -				$ 7,000		$ 7,000						$ -						$ -						$ -
50.09	W-CF-MEC-UHE - EH3	MED (1.15)	0.00						$ -						$ -				$ 4,000		$ 4,000						$ -						$ -
50.1	W-CF-FER-PVC - Ferric Room - Process Piping & Valves	MED (1.15)	0.80			$ 19,000			$ 19,000						$ -						$ -						$ -						$ -
51.01	W-CF-HFS-SCL - Fluoride Day Tank Scale	MED (1.15)	0.80						$ -						$ -				$ 19,000		$ 19,000						$ -						$ -
52.01	W-CF-NOCL-PDM - Brine Pump #1	HIGH-WTP (1)	1.00						$ -					$ 23,000	$ 23,000						$ -						$ -					$ 23,000	$ 23,000
52.02	W-CF-NOCL-PDM - Brine Pump #2	HIGH-WTP (1)	1.00						$ -					$ 23,000	$ 23,000						$ -						$ -					$ 23,000	$ 23,000
52.03	W-CF-NOCL-TNK - Brine Tank	HIGH-WTP (1)	1.00						$ -			$ 35,000			$ 35,000						$ -						$ -						$ -
52.04	W-CF-NOCL-PVC - Brine Fill Station	HIGH-WTP (1)	1.00						$ -			$ 19,000			$ 19,000						$ -						$ -						$ -
52.05	W-CF-NOCL-TNK - Brine Plumb Bob	HIGH-WTP (1)	1.00						$ -						$ -						$ -	$ 4,000					$ 4,000						$ -
52.06	W-CF-NOCL-WSF - Brine Softerner #1	HIGH-WTP (1)	1.00						$ -					$ 19,000	$ 19,000						$ -						$ -					$ 19,000	$ 19,000
52.07	W-CF-NOCL-WSF - Brine Softerner #2	HIGH-WTP (1)	1.00						$ -					$ 19,000	$ 19,000						$ -						$ -					$ 19,000	$ 19,000
52.08	W-CF-NOCL-WSF - Brine Softerner #3	HIGH-WTP (1)	1.00						$ -					$ 19,000	$ 19,000						$ -						$ -					$ 19,000	$ 19,000
52.09	W-CF-NOCL-VMS - Brine Valves / Solenoids	HIGH-WTP (1)	1.00						$ -						$ -				$ 10,000		$ 10,000						$ -						$ -
52.1	W-CF-NOCL-FLT - Brine Water Filters	HIGH-WTP (1)	1.00						$ -			$ 4,000			$ 4,000						$ -			$ 4,000			$ 4,000						$ -
52.11	W-CF-NOCL-EWS - EW Brine Room Exterioir	HIGH-WTP (1)	0.40	$ 4,000					$ 4,000						$ -						$ -						$ -	$ 4,000					$ 4,000
52.13	W-CF-NOCL-PVC - HYPO Brine Room - Piping	HIGH-WTP (1)	1.00						$ -			$ 17,000			$ 17,000						$ -						$ -						$ -
52.14	W-CF-MEC-PLB - HYPO Brine Room - Plumbing	HIGH-WTP (1)	0.00						$ -						$ -						$ -						$ -	$ 10,000					$ 10,000
52.15	W-CF-MEC-MEC - HYPO Brine Room - HVAC	HIGH-WTP (1)	0.00						$ -						$ -	$ 17,000					$ 17,000						$ -						$ -
52.16	W-CF-ELC-ELE - HYPO Brine Room - Electrical	HIGH-WTP (1)	0.80						$ -					$ 10,000	$ 10,000						$ -						$ -						$ -
52.17	W-CF-MEC-UHE - UH11	HIGH (1)	0.40						$ -						$ -					$ 4,000	$ 4,000						$ -						$ -
53.01	W-CF-NOCL-FAN - HYPO Generation Room Air Blower #1	HIGH-WTP (1)	1.00						$ -			$ 8,000			$ 8,000						$ -						$ -						$ -
53.02	W-CF-NOCL-FAN - HYPO Generation Room Air Blower #2	HIGH-WTP (1)	1.00						$ -			$ 8,000			$ 8,000						$ -						$ -						$ -
53.03	W-CF-NOCL-FAN - HYPO Generation Room Air Blower #3	HIGH-WTP (1)	1.00						$ -			$ 8,000			$ 8,000						$ -						$ -						$ -
53.04	W-CF-NOCL-HEX - HYPO Generation Room Heat Echangers	HIGH-WTP (1)	1.00						$ -						$ -				$ 5,000		$ 5,000						$ -						$ -
53.05	W-CF-ELC-ELE - HYPO Generation Room Heat Tape	HIGH-WTP (1)	1.00						$ -						$ -				$ 5,000		$ 5,000						$ -						$ -
53.06	W-CF-ELC-PPL - HYPO Generation Room Hypo Panel	HIGH-WTP (1)	0.80						$ -					$ 39,000	$ 39,000						$ -						$ -						$ -
53.07	W-CF-NOCL-HGN - HYPO Generation Room Skid #1	HIGH-WTP (1)	1.00						$ -						$ -				$ 166,000		$ 166,000						$ -						$ -
53.08	W-CF-NOCL-HGN - HYPO Generation Room Skid #2	HIGH-WTP (1)	1.00						$ -						$ -				$ 166,000		$ 166,000						$ -						$ -
53.09	W-CF-NOCL-AEL - Hardness Analyzer HYPO Skid 1	HIGH-WTP (1)	1.00						$ -			$ 15,000			$ 15,000						$ -			$ 15,000			$ 15,000						$ -
53.1	W-CF-NOCL-AEL - Hardness Analyzer HYPO Skid 2	HIGH-WTP (1)	1.00						$ -			$ 15,000			$ 15,000						$ -			$ 15,000			$ 15,000						$ -
53.11	W-CF-NOCL-HSC - HYPO Generator Rectifier 1	HIGH-WTP (1)	1.00						$ -						$ -				$ 68,000		$ 68,000						$ -						$ -
53.12	W-CF-NOCL-HSC - HYPO Generator Rectifier 2	HIGH-WTP (1)	1.00						$ -						$ -				$ 68,000		$ 68,000						$ -						$ -
53.13	W-CF-SUP-DOR - Garage Door - HYPO Skid Room	HIGH-WTP (1)	0.80		$ 17,000				$ 17,000						$ -						$ -		$ 17,000						$ -						$ -
53.14	W-CF-SAF-EWS - EW HYPO Skid Room	HIGH-WTP (1)	0.40	$ 5,000					$ 5,000						$ -						$ -						$ -	$ 5,000					$ 5,000
53.15	W-CF-NOCL-FLT - HYPO Generation Room Water Filters	HIGH-WTP (1)	1.00						$ -			$ 4,000			$ 4,000						$ -			$ 4,000			$ 4,000						$ -
53.16	W-CF-NOCL-BLD - HYPO Generation Room - Structural	HIGH-WTP (1)	1.00						$ -						$ -						$ -						$ -				$ 291,000		$ 291,000
53.17	W-CF-NOCL-PVC - HYPO Generation Room - Process Piping	HIGH-WTP (1)	0.80						$ -	$ 33,000					$ 33,000						$ -						$ -						$ -
53.18	W-CF-NOCL-PLB - HYPO Generation Room - Plumbing	HIGH-WTP (1)	1.00						$ -						$ -				$ 14,000		$ 14,000						$ -						$ -
53.19	W-CF-MEC-MEC - HYPO Generation Room - HVAC	HIGH-WTP (1)	1.00			$ 23,000			$ 23,000						$ -						$ -		$ 23,000				$ 23,000						$ -
53.2	W-CF-ELC-ELE - HYPO Generation Room - Electrical	HIGH-WTP (1)	0.80						$ -					$ 14,000	$ 14,000						$ -						$ -						$ -
53.21	W-CF-MEC-UHE - UH10	HIGH-WTP (1)	0.40						$ -						$ -					$ 7,000	$ 7,000						$ -						$ -
53.22	W-CF-MEC-DHU - DH10	HIGH-WTP (1)	0.40						$ -						$ -					$ 7,000	$ 7,000						$ -						$ -
53.51	W-CF-NOCL-PVC - HYPO Pump Room Dilution Panel	HIGH-WTP (1)	1.00						$ -			$ 33,000			$ 33,000						$ -						$ -						$ -
53.52	W-CF-NOCL-FET - HYPO Pump Room GWTP Post-Flow Meter	HIGH-WTP (1)	1.00						$ -						$ -						$ -		$ 7,000				$ 7,000						$ -
53.53	W-CF-NOCL-FET - HYPO Pump Room GWTP Pre-Flow Meter	HIGH-WTP (1)	1.00						$ -						$ -						$ -		$ 7,000				$ 7,000						$ -
53.54	W-CF-NOCL-TNK - HYPO Pump Room HYPO Tank #1	HIGH-WTP (1)	1.00						$ -			$ 35,000			$ 35,000						$ -						$ -						$ -
53.55	W-CF-NOCL-TNK - HYPO Pump Room HYPO Tank #2	HIGH-WTP (1)	1.00						$ -			$ 35,000			$ 35,000						$ -						$ -						$ -
53.56	W-CF-NOCL-PDM - HYPO Pump Room Pump #1	HIGH-WTP (1)	0.40						$ -						$ -					$ 23,000	$ 23,000						$ -						$ -
53.57	W-CF-NOCL-PDM - HYPO Pump Room Pump #2	HIGH-WTP (1)	0.40						$ -						$ -					$ 23,000	$ 23,000						$ -						$ -
53.58	W-CF-NOCL-PDM - HYPO Pump Room Pump #3	HIGH-WTP (1)	0.40						$ -						$ -					$ 23,000	$ 23,000						$ -						$ -
53.59	W-CF-NOCL-PDM - HYPO Pump Room Pump #4	HIGH-WTP (1)	0.40						$ -						$ -					$ 23,000	$ 23,000						$ -						$ -
53.6	W-CF-NOCL-PDM - HYPO Pump Room Pump #5	HIGH-WTP (1)	0.40						$ -						$ -					$ 23,000	$ 23,000						$ -						$ -
53.61	W-CF-NOCL-PDM - HYPO Pump Room Pump #6 (shelf Spare)	HIGH-WTP (1)	0.40						$ -						$ -					$ 23,000	$ 23,000						$ -						$ -
53.62	W-CF-NOCL-FET - HYPO Pump Room SWTP Post-Flow Meter	HIGH-WTP (1)	1.00						$ -						$ -						$ -		$ 7,000				$ 7,000						$ -
53.63	W-CF-NOCL-FET - HYPO Pump Room SWTP Pre-Flow Meter	HIGH-WTP (1)	1.00						$ -						$ -						$ -		$ 7,000				$ 7,000						$ -
53.64	W-CF-FAC-BLD - HYPO Pump Room - Building	HIGH-WTP (1)	0.80						$ -						$ -						$ -		$ 882,000				$ 882,000						$ -
53.65	W-CF-NOCL-PVC - HYPO Pump Room - Process Piping	HIGH-WTP (1)	1.00						$ -			$ 33,000			$ 33,000						$ -						$ -						$ -

CIP Number	Description	Criticality Rating	Condition De-Rating Factor	Replace. Cost ($) 2028	Replace. Cost ($) 2029	Replace. Cost ($) 2030	Replace. Cost ($) 2031	Replace. Cost ($) 2032	5-year Period Cost
53.66	W-CF-MEC-PLB - HYPO Pump Room - Plumbing	HIGH-WTP (1)	1.00						$ -
53.67	W-CF-MEC-MEC - HYPO Pump Room - HVAC	HIGH-WTP (1)	0.40						$ -
53.68	W-CF-ELC-ELE - HYPO Pump Room - Electrical	HIGH-WTP (1)	0.80						$ -
53.69	W-CF-NOCL-CCS - Cleaning Skid	HIGH-WTP (1)	1.00			$ 10,000			$ 10,000
54.01	W-CF-POP-TNK - Permanganate Bulk Tank	MED (1.15)	1.00					$ 23,000	$ 23,000
54.02	W-CF-POP-TNK - Permanganate Day Tank	MED (1.15)	1.00					$ 3,000	$ 3,000
54.03	W-CF-POP-PPS - Permanganate GWTP Pump	MED (1.15)	1.00						$ -
54.04	W-CF-POP-PPS - Permanganate SWTP Pump	MED (1.15)	1.00						$ -
54.05	W-CF-POP-PCL - Permanganate Transfer Pump	MED (1.15)	1.00						$ -
54.06	W-CF-SAF-EWS - EW Permanganate Room	MED (1.15)	0.00						$ -
54.08	W-CF-POP-PVC - Permanganate Room - Process Piping	MED (1.15)	1.00					$ 17,000	$ 17,000
54.09	W-CF-MEC-PLB - Permanganate Room - Plumbing	MED (1.15)	0.00						$ -
54.1	W-CF-MEC-MEC - Permanganate Room - HVAC	MED (1.15)	0.00						$ -
54.11	W-CF-ELC-ELE - Permanganate Room - Electrical	MED (1.15)	0.80						$ -
54.12	W-CF-MEC-UHE - EH2	MED (1.15)	0.40						$ -
54.13	W-CF-POP-PVC - Water Carrier Panel	MED (1.15)	1.00						$ -
55.01	W-CF-PPP-TNK - Phosphate Bulk Tank	MED (1.15)	1.00						$ -
55.02	W-CF-PPP-PAD - Phosphate Transfer Pump	MED (1.15)	1.00						$ -
55.03	W-CF-PPP-TNK - Phosphate Day Tank	MED (1.15)	1.00						$ -
55.04	W-CF-PPP-PPS - Phosphate GWTP/SWTP Pump #1	MED (1.15)	1.00			$ 39,000			$ 39,000
55.05	W-CF-PPP-FET - Phosphate GWTP Flow Meter	MED (1.15)	1.00						$ -
55.06	W-CF-PPP-PPS - Phosphate GWTP Pump (#3)	MED (1.15)	1.00			$ 39,000			$ 39,000
55.07	W-CF-PPP-FET - Phosphate SWTP Flow Meter	MED (1.15)	1.00						$ -
55.08	W-CF-PPP-PPS - Phosphate SWTP Pump (#1)	MED (1.15)	1.00			$ 39,000			$ 39,000
55.09	W-CF-SAF-EWS - EW Phosphate Room	MED (1.15)	0.00						$ -
55.11	W-CF-PPP-PVC - Phosphate Room - Process Piping	MED (1.15)	1.00						$ -
55.12	W-CF-MEC-PLB - Phosphate Room - Plumbing	MED (1.15)	0.00						$ -
55.13	W-CF-MEC-MEC - Phosphate Room - HVAC	MED (1.15)	0.00						$ -
55.14	W-CF-ELC-ELE - Phosphate Room - Electrical	MED (1.15)	0.80						$ -
56.01	W-CF-POL-MXR - Poly Mixer #1	MED (1.15)	1.00						$ -
56.02	W-CF-POL-MXR - Poly Mixer #2	MED (1.15)	1.00						$ -
56.03	W-CF-POL-PPS - Poly Pump #1	MED (1.15)	1.00						$ -
56.04	W-CF-POL-PPS - Poly Pump #2	MED (1.15)	1.00						$ -
56.05	W-CF-POL-SCL - Poly Scale #1	MED (1.15)	1.00						$ -
56.06	W-CF-POL-SCL - Poly Scale #2	MED (1.15)	1.00						$ -
56.07	W-CF-POL-TNK - Poly Tank #1	MED (1.15)	1.00						$ -
56.08	W-CF-POL-TNK - Poly Tank #2	MED (1.15)	1.00						$ -
56.09	W-CF-SAF-EWS - EW Polymer Room	MED (1.15)	0.00						$ -
56.11	W-CF-POL-PVC - Polymer Room - Process Piping	MED (1.15)	1.00					$ 17,000	$ 17,000
56.12	W-CF-MEC-PLB - Polymer Room - Plumbing	MED (1.15)	0.00						$ -
56.13	W-CF-MEC-MEC - Polymer Room - HVAC	MED (1.15)	0.00						$ -
56.14	W-CF-ELC-ELE - Polymer Room - Electrical	MED (1.15)	0.80						$ -
56.15	W-MNT-MEC-UHE - EH4	MED (1.15)	0.00						$ -
60.01	W-CIB-PAC-TNK - CIB Mixing Tank	MED (1.15)	1.00						$ -
60.02	W-CIB-PAC-TNK - CIB Hopper	MED (1.15)	0.80						$ -
60.03	W-CIB-PAC-PPS - CIB Pump 1	MED (1.15)	1.00						$ -
60.04	W-CIB-PAC-PPS - CIB Pump 2	MED (1.15)	1.00						$ -
60.06	W-CIB-MEC-PLB - CIB - Plumbing	MED (1.15)	0.00						$ -
60.07	W-CIB-MEC-MEC - CIB - HVAC	MED (1.15)	0.00						$ -
60.08	W-CIB-SUP-CRN - CIB Crane	MED (1.15)	0.80						$ -
60.09	W-CIB-SAF-EWS - EW PAC Buillding	MED (1.15)	0.00						$ -
60.1	W-MNT-SUP-DOR - Garage Door - PAC Building	MED (1.15)	0.80	$ 17,000					$ 17,000
60.13	W-CIB-ELC-ELE - Electrical Distribution panel and equipment	MED (1.15)	0.40				$ 78,000		$ 78,000
70.01	W-ENG-ELC-GEN - Generator	HIGH-WTP (1)	1.00						$ -
70.02	W-ENG-ELC-TNK - DEF Tank	HIGH-WTP (1)	1.00						$ -
70.03	W-ENG-ELC-TNK - Fuel Tank	HIGH-WTP (1)	1.00						$ -
70.04	W-ENG-ELC-GEN - Generator Motor	HIGH-WTP (1)	1.00						$ -
70.05	W-ENG-ELC-SWG - Switch Gear	HIGH-WTP (1)	1.00						$ -
71.01	W-MNT-FAC-DOR - Garage Door - Trash Building	LOW (1.3)	0.80	$ 8,000					$ 8,000
	Annual Total			**$ 2,846,000**	**$ 2,246,000**	**$ 1,980,000**	**$ 1,927,000**	**$ 744,000**	**$ 9,743,000**
	O&M Funding Source			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	CIP Funding Source			**$ 2,846,000**	**$ 2,246,000**	**$ 1,980,000**	**$ 1,927,000**	**$ 744,000**	**$ 9,743,000**

CIP Number	Replace. Cost ($) 2033	Replace. Cost ($) 2034	Replace. Cost ($) 2035	Replace. Cost ($) 2036	Replace. Cost ($) 2037	5-year Period Cost
53.66						$ -
53.67						$ -
53.68					$ 40,000	$ 40,000
53.69						$ -
54.01						$ -
54.02						$ -
54.03						$ -
54.04						$ -
54.05						$ -
54.06						$ -
54.08						$ -
54.09						$ -
54.1						$ -
54.11				$ 8,000		$ 8,000
54.12						$ -
54.13						$ -
55.01					$ 23,000	$ 23,000
55.02				$ 19,000		$ 19,000
55.03					$ 3,000	$ 3,000
55.04						$ -
55.05						$ -
55.06						$ -
55.07						$ -
55.08						$ -
55.09						$ -
55.11						$ -
55.12						$ -
55.13						$ -
55.14						$ -
56.01					$ 2,000	$ 2,000
56.02					$ 2,000	$ 2,000
56.03					$ 39,000	$ 39,000
56.04						$ -
56.05						$ -
56.06						$ -
56.07						$ -
56.08						$ -
56.09						$ -
56.11						$ -
56.12						$ -
56.13						$ -
56.14				$ 3,000		$ 3,000
56.15						$ -
60.01						$ -
60.02	$ 78,000					$ 78,000
60.03						$ -
60.04						$ -
60.06						$ -
60.07						$ -
60.08	$ 97,000					$ 97,000
60.09						$ -
60.1						$ -
60.13						$ -
70.01						$ -
70.02						$ -
70.03						$ -
70.04						$ -
70.05						$ -
71.01						$ -
Annual Total	**$ 2,065,000**	**$ 50,000**	**$ 1,460,000**	**$ 423,000**	**$ 1,264,000**	**$ 5,262,000**
O&M Funding Source	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CIP Funding Source	**$ 2,065,000**	**$ 50,000**	**$ 1,460,000**	**$ 423,000**	**$ 1,264,000**	**$ 5,262,000**

CIP Number	Replace. Cost ($) 2038	Replace. Cost ($) 2039	Replace. Cost ($) 2040	Replace. Cost ($) 2041	Replace. Cost ($) 2042	5-year Period Cost
53.66			$ 40,000			$ 40,000
53.67				$ 58,000		$ 58,000
53.68						$ -
53.69						$ -
54.01						$ -
54.02						$ -
54.03						$ -
54.04						$ -
54.05		$ 29,000				$ 29,000
54.06						$ -
54.08						$ -
54.09						$ -
54.1						$ -
54.11						$ -
54.12				$ 4,000		$ 4,000
54.13						$ -
55.01						$ -
55.02						$ -
55.03						$ -
55.04						$ -
55.05						$ -
55.06						$ -
55.07						$ -
55.08						$ -
55.09						$ -
55.11						$ -
55.12						$ -
55.13						$ -
55.14		$ 15,000				$ 15,000
56.01						$ -
56.02						$ -
56.03						$ -
56.04						$ -
56.05						$ -
56.06						$ -
56.07						$ -
56.08						$ -
56.09						$ -
56.11						$ -
56.12						$ -
56.13						$ -
56.14						$ -
56.15			$ 4,000			$ 4,000
60.01						$ -
60.02						$ -
60.03						$ -
60.04						$ -
60.06						$ -
60.07			$ 30,000			$ 30,000
60.08						$ -
60.09						$ -
60.1						$ -
60.13						$ -
70.01						$ -
70.02	$ 4,000					$ 4,000
70.03	$ 136,000					$ 136,000
70.04						$ -
70.05						$ -
71.01						$ -
Annual Total	**$ 1,976,000**	**$ 409,000**	**$ 1,907,000**	**$ 2,832,000**	**$ 2,356,000**	**$ 9,480,000**
O&M Funding Source	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CIP Funding Source	**$ 1,976,000**	**$ 409,000**	**$ 1,907,000**	**$ 2,825,000**	**$ 2,356,000**	**$ 9,473,000**

CIP Number	Replace. Cost ($) 2043	Replace. Cost ($) 2044	Replace. Cost ($) 2045	Replace. Cost ($) 2046	Replace. Cost ($) 2047	5-year Period Cost
53.66						$ -
53.67						$ -
53.68						$ -
53.69			$ 10,000			$ 10,000
54.01						$ -
54.02						$ -
54.03	$ 39,000					$ 39,000
54.04	$ 39,000					$ 39,000
54.05						$ -
54.06				$ 5,000		$ 5,000
54.08						$ -
54.09						$ -
54.1		$ 14,000				$ 14,000
54.11						$ -
54.12						$ -
54.13						$ -
55.01						$ -
55.02						$ -
55.03						$ -
55.04					$ 39,000	$ 39,000
55.05						$ -
55.06					$ 39,000	$ 39,000
55.07						$ -
55.08					$ 39,000	$ 39,000
55.09				$ 5,000		$ 5,000
55.11				$ 17,000		$ 17,000
55.12						$ -
55.13		$ 23,000				$ 23,000
55.14						$ -
56.01						$ -
56.02						$ -
56.03						$ -
56.04	$ 39,000					$ 39,000
56.05		$ 19,000				$ 19,000
56.06		$ 19,000				$ 19,000
56.07		$ 14,000				$ 14,000
56.08		$ 14,000				$ 14,000
56.09				$ 5,000		$ 5,000
56.11						$ -
56.12						$ -
56.13		$ 5,000				$ 5,000
56.14						$ -
56.15						$ -
60.01				$ 4,000		$ 4,000
60.02						$ -
60.03	$ 39,000					$ 39,000
60.04	$ 39,000					$ 39,000
60.06						$ -
60.07						$ -
60.08						$ -
60.09				$ 5,000		$ 5,000
60.1			$ 17,000			$ 17,000
60.13						$ -
70.01						$ -
70.02						$ -
70.03						$ -
70.04						$ -
70.05						$ -
71.01						$ -
Annual Total	**$ 7,384,000**	**$ 498,000**	**$ 6,090,000**	**$ 296,000**	**$ 1,092,000**	**$ 15,360,000**
O&M Funding Source	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CIP Funding Source	**$ 7,384,000**	**$ 498,000**	**$ 6,090,000**	**$ 296,000**	**$ 1,092,000**	**$ 15,360,000**

CIP Number	Replace. Cost ($) 2048	Replace. Cost ($) 2049	Replace. Cost ($) 2050	Replace. Cost ($) 2051	Replace. Cost ($) 2052	5-year Period Cost
53.66						$ -
53.67						$ -
53.68						$ -
53.69						$ -
54.01						$ -
54.02						$ -
54.03						$ -
54.04						$ -
54.05						$ -
54.06						$ -
54.08						$ -
54.09					$ 8,000	$ 8,000
54.1						$ -
54.11						$ -
54.12						$ -
54.13		$ 10,000				$ 10,000
55.01						$ -
55.02	$ 19,000					$ 19,000
55.03						$ -
55.04						$ -
55.05			$ 7,000			$ 7,000
55.06						$ -
55.07			$ 7,000			$ 7,000
55.08						$ -
55.09						$ -
55.11						$ -
55.12					$ 15,000	$ 15,000
55.13						$ -
55.14						$ -
56.01						$ -
56.02						$ -
56.03						$ -
56.04						$ -
56.05						$ -
56.06						$ -
56.07						$ -
56.08						$ -
56.09						$ -
56.11						$ -
56.12					$ 3,000	$ 3,000
56.13						$ -
56.14						$ -
56.15						$ -
60.01						$ -
60.02						$ -
60.03						$ -
60.04						$ -
60.06					$ 18,000	$ 18,000
60.07						$ -
60.08						$ -
60.09						$ -
60.1						$ -
60.13						$ -
70.01	$ 328,000					$ 328,000
70.02						$ -
70.03						$ -
70.04	$ 149,000					$ 149,000
70.05	$ 415,000					$ 415,000
71.01	$ 8,000					$ 8,000
Annual Total	**$ 3,605,000**	**$ 262,000**	**$ 299,000**	**$ 1,039,000**	**$ 1,687,000**	**$ 6,892,000**
O&M Funding Source	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CIP Funding Source	**$ 3,605,000**	**$ 262,000**	**$ 299,000**	**$ 1,039,000**	**$ 1,687,000**	**$ 6,892,000**

Notes

Appendix H - City Condition Assessment Export for Kraus Anderson

Due to Appendix H document length it has been included as a separate attachment.

Appendix I - CIP Tool Update Procedure

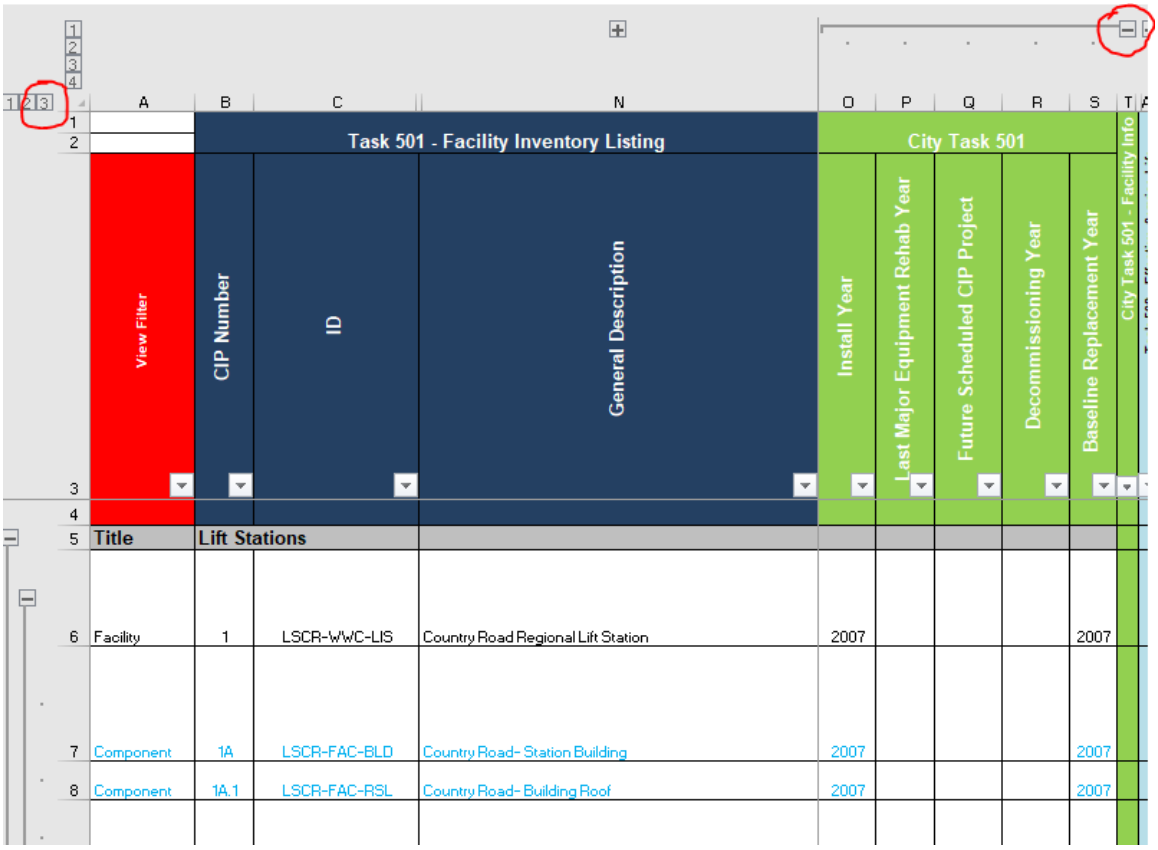
The following procedures should be completed when new CIP Budgets are desired to be run. This should be completed on an annual basis to update the Near-Term Tables.

USEFUL INFORMATION

Prior to doing any update work, it will be useful to have the **CIP Planning Tool** Tab printed off for reference. This tab gives the user a look ahead at projected needs based on Effective Remaining Life through the current (0 to 5 years out) and future (5 to 10 years) out planning period.

UPDATE PROJECT HISTORY

1) In Water Facility Assessment Tool – CIP, open **"App 5A – 201 Asset List"** tab for all edits. It will be helpful to expand the entire lists by clicking on the Grouping buttons for Rows (left column) and the Facility Info (Column T).



	A	B	C	N	O	P	Q	R	S	T
1				Task 501 - Facility Inventory Listing						
2					City Task 501					
3	View Filter	CIP Number	ID	General Description	Install Year	Last Major Equipment Rehab Year	Future Scheduled CIP Project	Decommissioning Year	Baseline Replacement Year	City Task 501 - Facility Info
4										
5	Title	Lift Stations								
6	Facility	1	LSCR-WWC-LIS	Country Road Regional Lift Station	2007				2007	
7	Component	1A	LSCR-FAC-BLD	Country Road- Station Building	2007				2007	
8	Component	1A.1	LSCR-FAC-RSL	Country Road- Building Roof	2007				2007	

2) Update the "Last Major Equipment Rehabilitation Year" for the assets in Column P to the most recent date. The year of update should be put into the corresponding cell for the component noted in the row. The "Components" are noted in Blue Text.
   a. Note if the project was scheduled as a CIP project, the adjacent cell for "Future Scheduled CIP Project" in Column Q may be copied over into this cell. If so, delete the value in the "Future Scheduled CIP Project" in Column Q.
   b. When the Asset is updated in Step 1, the Condition Score noted in Columns AQ through AY should be reset to "1" as these are new assets.
   c. (Optional) When the Asset is updated in Step 1, the Cost information in Columns BK through CC can be reviewed and updated, if necessary. Group should be expanded by clicking on the Grouping Button in Column BJ. Provide Notes in Column BD and update date information in Column BE.

SCHEDULE FUTURE CIP PROJECTS

In the same tab (**App 5A – 201 Asset List**), projects should be reviewed in 5-year blocks and adjustments may be made to shift projects forward or backwards through the "Future Scheduled CIP Project" column (Column Q).

1) Update the "Future Scheduled CIP Project" with future project information.
2) Update the "Decommissioning Year" (Column R) with new known information. Note that this will take an asset out of the CIPs for future years after the decommissioning dates.

UPDATE FIRST YEAR OF CIP & TABLE UPDATE

1) Go to "Constants" Tab (Orange Color). Update Cell B6 for "First Year & Evaluation Start Date to desired year start.
2) The following tabs will automatically update with revised text. There is a Macro running in background called "Filter100" that will automatically filter all rows off that do not have a CIP cost associated with it in the planning period. Notes on the tables may need to be updated.
   a. **CIP Planning Tool –** This sheet allows a look ahead through current (next 5 years) and first future (years 6-10) based on Effective Remaining Life
   b. **CIP Summary –** This tab updates quick reference graphs for 5 year, 20 year, and 100 year CIPs.
   c. **Table 5-9 – Near Term** – This tab has the Near Term (Years 0-5). It is auto filtered by Macro to only show projects with a cost in the next 5 years. Tab is pre-formatted to print. Date change on "Constants" Tab will adjust this table.

d. **Table 5-10 – Near Term Replacement Driver -** This tab has the Near Term Driver for projects in next 5 years and replaces Table 5-10 in the report. It is auto filtered by Macro to only show projects in the next 5 years and those with Negative Effective Life Remaining (i.e. Service Life expired in the past and should have been replaced in previous CIP). Tab is pre-formatted to print. Date change on "Constants" Tab will adjust this table.

e. **Appendix 5-F –** This tab replaces Appendix 5-F and shows all the Near Term CIP Projects and Costs. This is a more detailed version of Table 5-9 and 5-10 combined. Tab is pre-formatted to print on 11x17 sheet. Date change on "Constants" Tab will adjust this table.

f. **Appendix 5-G –** This tab replaces Appendix 5-G and shows all the Mid Term CIP Projects and Costs in grouping of 5 years. This includes Period 1 (6-10 years), Period 2 (11-15 years), Period 3 (16-20 years) and Period 4 (21-25 years) years from CIP start date noted on Constants Tab. Tab is pre-formatted to print on 11x17 sheet. Date change on "Constants" Tab will adjust this table.

g. **Appendix 5-H – 100 year CIP –** Tab replaces Appendix 5-H in the report and is an encompassing view of all assets in system and replacement years from year 0 through 100. This is meant to be plotted on large paper or PDF. Date change on "Constants" Tab will adjust this table.

3) The following graphs/tabs will automatically update with revised graphs and content based on the **Constants** Tab. All graphs reference a tab named "ChartData" which is tied to the **Constants** Tab First Year & Evaluations Start date.

a. **Figure 5-5 – Condition Assessment Breakdown** - Graph showing the percentage of assets with respective condition derating scores.

b. **Figure 5-6 – Immediate & 5 year CIP –** Graph showing total annual 5 year CIP spend.

c. **Figure 5-**7 **– Mid-Term 5 year CIP –** Graph showing the CIP totals in 5 year increments for Near Term (0-5 years) and Mid-Term (6-25 years).

d. **Figure 5-8 – Long Term CIP in 5-year Periods** - Graph showing the CIP totals in 5 year increments for future periods (years 30 to 100 from Year Zero Evaluation).

e. **Figure 5-9 – 100 year CIP in 5-year Periods** - Graph showing the CIP totals in 5 year increments for near, mid-term, and long-term periods (years 0 to 100 from Year Zero Evaluation).

f. **Figure 5-10 – 100-year CIP in Annual Costs plus Cumulative CIP Costs** – Graph showing the CIP totals in annual dollar amounts and cumulative values over 100 year CIP.

PERIODIC UPDATES TO REFERENCE DATA (ANNUAL RECOMMENDED)

1) Asset Tagging List and Effective Service Life Review

a. On **Table 5.1 – ESL & Component List** Tab, review the tagging list and the process area codes in respective columns. These values are referenced by the calculation.
   i. System List
   ii. Facility Type List (AA)
   iii. Facility Name List (XX)
   iv. Process Area List (YYY)
   v. Asset Type List (ZZZ)

b. For the asset type (ZZZ), review the corresponding Effective Service Life listed for both Water and Wastewater systems. This value is the expected Service Life in years.

c. A user-friendly print of this information can be found in the **Appendix 5C – Asset Tag Table** Tab and can be printed, if updated.

2) **Condition Assessment Update –** As the facilities are inspected for condition, update the Condition Assessment Columns Tab **App 5A – Asset List**.

a. Expand grouping button in column BJ in Tab **Appendix 5A – Asset List**.

b. **Brand New Replacement –** If an asset is replaced in a project, the existing condition assessment scores (Column AQ through AY) should be reset and "1s" should replace all the previous conditions. Columns AY through BB will auto populate for calculation The Condition Assessment Notes in Column BD and Inspection Date in Column BE should also be provided to note the date of replacement.

c. The modification of new assets is recommended to be done on an annual basis.

PERIODIC UPDATES TO REFERENCE DATA (5 YEAR REVIEW RECOMMENDED)

1) **Criticality Update** – Review Criticality Rankings for each facility against criterial listed in Appendix 5-D. ***Criticality scores are assigned by Facility***.

a. Expand grouping button in column AP in Tab **Appendix 5A – Asset List**.

b. Review values noted in columns AB (Public Safety), AC (Regulations Compliance), AD (Effect on Operations), and AE (Political or Public Relations Exposure). Make modifications as necessary and provide notes and comments in Columns AF and AG, respectively.

c. Changes to columns AD through AE will adjust the Criticality score in column AO and will be carried forward to future replacement costs.

2) **Condition Assessment Update –** As the facilities are inspected for condition, update the Condition Assessment. ***Condition assessment should be scored by "Component" or "Asset" and individual scores for every area within a given facility***.

a. Expand grouping button in column BJ in Tab **Appendix 5A – Asset List**.

b. **Brand New Replacement –** See Section 1.4, Item 2 for new replacement protocol.

c. **Other Condition Assessments** – On a 5 year basis, it is recommended that the City look at respective conditions of all assets in the system. Scores should be adjusted as necessary to reflect current condition of equipment.

i. **Use Appendix 5-E Scoring Criteria**

ii. **Adjust Scores –** Adjust scores in columns AQ through AY and provide notes in Columns BD and BE, as necessary. Scores will auto adjust the condition factor and first year replacement in CIP (moving assets forward in CIP scheduling).

3) **Review Facility Information –** Review the Facility

a. Expand grouping button in column EB in Tab **Appendix 5A – Asset List**.

b. Review information by facility and update, as necessary.

ADDING NEW FACILITIES

1) **Backup Current Copy First** – Save a Copy of the Master Version of the spreadsheet.

2) **Facility Name –** In **Table 5.1-ESL & Component List**, add a two letter name for the facility to columns H and I, by inserting new cells at the correct location alphabetically for the new facility code.

3) **Background –** Adding new facilities will require additional rows to be added in respective Facility Sections (noted in Column A as Rows indicating Title) in **App 5A – 201-Asset List**. All new facilities should be added above the Red Row. This ensures that calculations will be kept in subsequent tabs.

4) **Copy Rows of a Similar Facility –** Copy entire rows of similar facilities and past in the respective section (i.e. Lift Stations go in Lift Station section).

a. **Rename CIP Number, Facility Inventory Listing –** In columns B through N, fill out the appropriate information. The sheet is set up so only Codes need to be filled and the appropriate reference values will populate.

b. **Provide Installation Information -**

i. Ungroup Facility Info from grouping button above Column T.

ii. In column O, provide applicable installation year.

iii. Check formula in Column S.

c. **Check Life Calculation Information**

i. Ungroup Effective Service Life from grouping button above Column AA.

ii. Check Current Age, Effective Service Life reference, Criticality Adjustment, ERL, and Replacement Year formulas. Drag formulas from cells above if not there.

d. **Provide Criticality Ranking Info**

i. Ungroup Criticality Rating from grouping button above Column AP.

ii. Provide scoring for new facility in Columns AB though AE. Criticality is done by facility so scores can be copied from the Facility Line down through Components.

iii. Provide comment on scoring.

iv. Check calculations in Columns AH, AJ, AN, and AO. Drag formulas from above if not there.

e. Provide Condition Assessment Info

i. Ungroup Condition Assessment Rating from grouping button above Column BJ.

ii. Provide scoring for new facility in Columns AQ though AY. Facility is new so all of these scores should be "1".

iii. Provide comment on scoring in column BD and date in column BE.

iv. Check calculations in Columns BA, BB, and BC. Drag formulas from above if not there.

f. Provide Cost Information

i. Ungroup Facility Replacement Cost Calcs from grouping button above Column CD and above column CA.

ii. Provide costs for item from schedule of values in breakdown in Column BX and BY. Make sure there is an "X" in Column BZ and there is no "X" in column BT or BW. This provides the source of the cost estimate for column BM.

iii. Check Formula in Column BM.

iv. Check Formula in Column BN

v. Assign a Cost Type in Column BL. Project Cost adders are listed in the **Cost Est. – Project Cost Adders** Tab. Assignments should be provided with the following letters:

1. "E" – Equipment without Installation Factor
2. "I" – Equipment with Installation Factor Included
3. "PC" – Project Cost without Contingency
4. "P" – Project Cost with Contingency.

COST ALLOWANCE TYPE	COST ESTIMATE TYPE			
	Equipment without Installation (E)	Equipment with Installation (I)	Project Cost without Contingency (PC)	Project Cost with Contingency (P)
Equipment Installation	40%	-	-	-
Taxes for non-exempt	0%	0%	0%	0%
Contractor Markup for Overhead & Profit, O&Ms, Startup, Training, etc.	17%	17%	-	-
Total Project Contingency	35%	35%	35%	-
Engineering Allowance (Study, Design, Construction Phase Services, Resident, etc.)	23%	23%	23%	23%
City Legal & Administrative Allowances	0%	0%	0%	0%
Notes:				

vi. Check costs in Column BK that formula is present, and costs are being brought to Project Costs. If you are using a Bid Tab number, the future replacement should be the Project Costs + Engineering Allowance.

g. Check Facility Cost Replacement CIP Calcs

i. Ungroup Facility Replacement CIP from grouping button above Column CP.

ii. Check Formulas in Columns CE through CO. The correct ERL should be in Column CF, the correct Criticality Score should be referenced into Column CI, the correct Condition De-Rating Factor in Column CK and Adjusted Replacement Year in Column CN.

h. Check Future Replacement Years & Calcs

i. Ungroup Future Replacement Years & Cost Calcs from grouping button above Column DP.

ii. Check Formulas in Columns CQ through DO. Drag formula from above if not present.

i. Provide Facility Information

i. Ungroup Facility Information from grouping button above Column EB.

ii. Fill out information in columns DQ through EA. This will be from City's Insurance Information sheet.

City Of
Burnsville