

APPENDIX C:

CENTRALIZED SERVICES

BUSINESS CASE EVALUATIONS



7 ONE-PAGERS

2 ACTIVE PROJECTS
1 FUTURE PLANNED
2 PENDING CLOSEOUT
1 RECLASSIFIED
1 CANCELLED



CENTRALIZED SERVICES

PROJECTS ARE FUNDED BY THE WATER OR THE WASTEWATER SPEND PLANS, OR IN THE PAST COULD BE SPLIT BETWEEN THE TWO.



FOR MORE: SECTION 7

FIND THE ONE-PAGERS FOR CENTRALIZED SERVICES PROJECTS SEE SECTION 7 IN THE CIP REPORT.

Project Title: Masonry Replacement and Rehabilitation

Project Status: Reclassified

CIP Type: Project

Class Lvl 1: Centralized Services

Class Lvl 2: General Purpose

Class Lvl 3: General Purpose

 Project New to CIP

- Innovation**
- WW Master Plan**
- Water Master Plan Right Sizing**
- Redundancy**
- NE WTP Repurposing**
- Linear Assets Outside of Facilities**
- Predecessor Project(s)**



Northeast Facility

Project Engineer/Manager: Douglas Atkinson

Director: Paula Anderson

Managing Dept.: Fleet and Facilities

Date Original Business Case Prepared:
Year Project Added to CIP: 2020

CIP Budget: Water

Project Jurisdiction: Multiple Counties

Lookup Location: Multiple Counties

Funds and Cost Center: Water - 5519-882111

Problem Statement:

Cracks and deterioration in masonry walls, exterior concrete, retaining walls, concrete decks and floors needing repair or replacement causing concern for safety due to poor conditions.

Scope of Work/Project Alternatives:

For NE WTP: Assess, solve the movement and moisture penetration problem, rebuild portions of masonry and concrete walls, floors, roof parapets and deck elements.

For SW WTP: Assess the panels and support structure, replace panels, repair/restore rusted steel members.

For Imlay City: Remove or rebuild retaining walls to withstand soils pressure.

Other Important Info:

3 sites have been identified for this project all have some failing concrete.

- 1) Northeast WTP
- 2) Southwest WTP
- 3) Imlay City Pumping Station

Primary Driver: 1 - Condition

Driver Explanation:

Poor condition.

Project Title: Masonry Replacement and Rehabilitation

Scoring
Project Manager Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Risk Committee Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Project Title: Masonry Replacement and Rehabilitation

Phase: GLWA Salaries

Phase Title: GLWA Salaries

Phase Budget: Water

Start Date: 7/1/2027

Phase Status:
End Date: 6/30/2032

Useful Life > 20 Yrs: No

Phase Comments/Description:
Cost Est. Class:
Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY28-32
GLWA Salaries	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Capital Delivery Salary - RECLASSIFIED to 383300	7/1/2027	6/30/2032
Capital Delivery Salary - RECLASSIFIED to 383300	7/1/2027	6/30/2032
Contractual Professional Services - RECLASSIFIED to 383300	7/1/2027	6/30/2032
Other Capital Improvement Costs - RECLASSIFIED to 383300	7/1/2027	6/30/2032
Capitalized Interest - RECLASSIFIED to 383300	7/1/2027	6/30/2032

Project Title: Masonry Replacement and Rehabilitation

Phase: TBD / Future Allocation / General Holding

Phase Title: TBD / Future Allocation / General Holding

Phase Budget:
Start Date: 7/1/2027

Phase Status:
End Date: 6/30/2032

Useful Life > 20 Yrs: No

Phase Comments/Description:
Cost Est. Class:
Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
TBD / Future Allocation / General Holding	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
TBD/Unallocated - RECLASSIFIED to 383300	7/1/2027	6/30/2032

Project Title: Masonry Replacement and Rehabilitation

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP	5 Year Total	FY22	FY23	FY24	FY25	FY26	FY27	Total
2022	\$0	\$0	\$0	\$0	\$0	\$0	\$1,000	\$25,000

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Total Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Description of CIP Changes:

Reclassified to 383300

RECLASSIFIED
 383300

Project Title: Security Infrastructure Improvements on Water Facilities

Project Status: Pending Closeout

CIP Type: Project

Class Lvl 1: Centralized Services

Class Lvl 2: Security

Class Lvl 3: General Purpose

Project New to CIP

- Innovation**
- WW Master Plan**
- Water Master Plan Right Sizing**
- Redundancy**
- NE WTP Repurposing**
- Linear Assets Outside of Facilities**
- Predecessor Project(s)**



Project Photo

Project Engineer/Manager: Charnele Sanders

Director: W. Barnett Jones

Managing Dept.: Security and Integrity

Date Original Business Case Prepared: 8/28/2019

Year Project Added to CIP: 2019

CIP Budget: Water

Project Jurisdiction: Multiple Counties

Lookup Location: System Wide

Funds and Cost Center: Water - 5519-882111

Problem Statement:

GLWA facilities have been designated as "Critical Infrastructure" by the United States Department of Homeland Security (OHS). Critical Infrastructure is under constant threat by malicious people intent on disruption and destruction. GLWA staff is engaged in a continual process of threat and vulnerability assessment to our facilities, operations, and staff. Using several assessment tools including, OHS Site Assessments, incorporating AWWA security recommendations, and utilizing GLWA's historical assessment data, we have the basis for initiating a strategic plan for security infrastructure improvements. The resulting data from these assessments formulate recommendations for mitigating vulnerabilities. The implementation of these recommendations requires an efficient and effective design, procurement, and construction process.

Scope of Work/Project Alternatives:

Water Works Park: Additional coverage where boats dock and by the screening house. Video assessment wherever there are alarm points. Primary Building needs to be secured. Need video coverage. Switchgear room needs to be secured. Exterior video coverage of oxygen tanks and entrance to chlorine room. Secure transformer enclosures -Raw water Booster Station. Interior intrusion detection devices need to be installed at high lift building- glass break, motion sensors, etc. Install Card readers to interior of the new plant where critical assets are located. Enhanced perimeter fencing and gates. Enhanced perimeter detection system Replacement of analog cameras

Northeast Water Plant: Chemical building needs access control intrusion devices. Video assessment wherever there are alarm points. Flocculate building needs intrusion devices. Interior intrusion devices for uncovered areas. Enhanced perimeter fencing and gates Replacement of analog cameras. Enhanced perimeter detection system.

Springwells Water Plant: Enhanced access control

Other Important Info:

GLWA has a responsibility in the layered approach to critical infrastructure security; partnering with Federal, State, and Local law enforcement entities to minimize and respond to threats. This partnership required GLWA to maintain a minimum security posture equating to the Critical Infrastructure designation. Implementation of the security protocols were none existent, and improving the GLWA security footprint can reduce our vulnerabilities and enhance our response to known threats.

Primary Driver: 5 - Public Health and Safety

Driver Explanation:

Project Title: Security Infrastructure Improvements on Water Facilities

system Chemical Building, basins and tunnel not secured. Video assessment wherever there are alarm points Enhanced perimeter detection system. Enhanced perimeter fencing and gates Replacement of analog cameras

Lake Huron Water Treatment Plant: Cameras at the Clear Well, Main Transformer Station and the Emergency Generators. Enhanced perimeter fencing and gates. Replacement of analog cameras. Enhanced perimeter detection system.

Southwest Water Plant: Video assessment wherever there are alarm points. Replace door closures to chlorine room so the doors swing shut and lock automatically. Install card readers to chlorine room and chlorine evaporation room. Enhanced perimeter fencing and gates. Replacement of analog cameras. Enhanced perimeter detection system.

Southwest Water Treatment Intake: Provide security for the intake platform. Enhanced perimeter fencing and gates. Replacement of analog cameras

Belle Isle Intake: Enhanced Access Control. Perimeter fencing and gates. Intrusion detection. Video assessment and surveillance.

Chlorine Storage Areas at all Plants: Enhanced Access Control. Intrusion detection. Video assessment and surveillance.

Project Title: Security Infrastructure Improvements on Water Facilities

Scoring

Project Manager Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	
Performance (Service Level/Reliability)	0	
Regulatory (Environmental/Legal)	0	
Operations and Maintenance	0	
Health and Safety	0	
Public Benefit	0	
Financial	0	
Efficiency and Innovation	0	

Risk Committee Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Not scored. Pending Closeout.
Performance (Service Level/Reliability)	0	Not scored. Pending Closeout.
Regulatory (Environmental/Legal)	0	Not scored. Pending Closeout.
Operations and Maintenance	0	Not scored. Pending Closeout.
Health and Safety	0	Not scored. Pending Closeout.
Public Benefit	0	Not scored. Pending Closeout.
Financial	0	Not scored. Pending Closeout.
Efficiency and Innovation	0	Not scored. Pending Closeout.

Project Title: Security Infrastructure Improvements on Water Facilities

Phase: GLWA Salaries

Phase Title: Salaries-Wtr

Phase Budget: Water

Start Date: 2/26/2018

Phase Status: Active

End Date: 10/29/2021

Useful Life > 20 Yrs: Yes

Phase Comments/Description:
Cost Est. Class:
Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
GLWA Salaries	\$774	\$714	\$714	\$60	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Capital Delivery Salary (Water)	2/26/2018	9/27/2021
Capital Delivery Salary (Sewer)	2/26/2018	9/27/2021
Capital Delivery Salary (Water)	2/26/2018	9/27/2021
Capital Delivery Salary (Sewer)	2/26/2018	9/27/2021
Professional Services (CS-272 - 71004A.01 / 71004B.01 / 71004C.01)	8/23/2019	10/29/2021
Contractual Professional Services	2/26/2018	9/27/2021
Other Capital Improvement Costs	2/26/2018	9/27/2021
Capitalized Interest	2/26/2018	9/27/2021

Project Title: Security Infrastructure Improvements on Water Facilities

Phase: Design-Build # 1 (SOQ-135A)

Phase Title: DB-Wtr

Phase Budget: Water **Start Date:** 2/26/2018

Phase Status: Active **End Date:** 4/23/2022

Useful Life > 20 Yrs: Yes

Phase Comments/Description:
Cost Est. Class: Class 1

Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
Design-Build # 1 (SOQ-135A)	\$9,545	\$9,545	\$9,545	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Design/Engineering	2/26/2018	4/12/2019
Construction (Water) (SOQ-135A)	4/15/2019	9/27/2021
Construction (Sewer) (RECLASSIFICATION)	4/15/2019	4/23/2022
Construction (Water) (CS-201)	7/1/2018	6/30/2019
Construction (Water) (RECLASSIFICATION)	7/1/2018	6/30/2021

Project Title: Security Infrastructure Improvements on Water Facilities

Phase: Miscellaneous

Phase Title: Miscellaneous

Phase Budget: Water

Start Date: 5/1/2010

Phase Status:

End Date: 6/30/2015

Useful Life > 20 Yrs: Yes

Phase Comments/Description:

Cost Est. Class:

Cost Est. Source:

Cost Est. Date:

Cost Est. Prepared By:

Phase Total Expenses By FY (All figures are in \$1,000's)

“Total Costs” include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs
Miscellaneous	(\$6,081)	(\$6,081)	(\$6,081)

Phase Dates

Activity Name	Start Date	End Date
Pre-CAFR Actuals - Water	5/1/2010	6/30/2015
Pre-CAFR Actuals - Sewer	5/1/2010	6/30/2015

Project Title: Security Infrastructure Improvements on Water Facilities

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP	5 Year Total	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
2021	\$6,621	\$4,029	\$4,018	\$2,603	\$0	\$0	\$0	\$0	\$0	\$10,650
2022	\$569	\$3,944	\$4,656	\$567	\$2	\$0	\$0	\$0	\$0	\$9,170

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Total Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
\$4,238,914	\$4,178,728	\$60,186	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Description of CIP Changes:

Project Title: Security Infrastructure Improvements for Wastewater Facilities

Project Status: Pending Closeout

CIP Type: Project

Class Lvl 1: Centralized Services

Class Lvl 2: Security

Class Lvl 3: General Purpose

Project New to CIP

- Innovation**
- WW Master Plan**
- Water Master Plan Right Sizing**
- Redundancy**
- NE WTP Repurposing**
- Linear Assets Outside of Facilities**
- Predecessor Project(s)**



Project Photo

Project Engineer/Manager: Charnele Sanders

Director: W. Barnett Jones

Managing Dept.: Security and Integrity

Date Original Business Case Prepared: 8/28/2019

Year Project Added to CIP: 2019

CIP Budget: Wastewater

Project Jurisdiction: Multiple Counties

Lookup Location: System Wide

Funds and Cost Center: Wastewater - 5421-892211

Problem Statement:

GLWA facilities have been designated as "Critical Infrastructure" by the United States Department of Homeland Security (OHS). Critical Infrastructure is under constant threat by malicious people intent on disruption and destruction. GLWA staff is engaged in a continual process of threat and vulnerability assessment to our facilities, operations, and staff. Using several assessment tools including, OHS Site Assessments, incorporating AWWA security recommendations, and utilizing GLWA's historical assessment data, we have the basis for initiating a strategic plan for security infrastructure improvements. The resulting data from these assessments formulate recommendations for mitigating vulnerabilities. The implementation of these recommendations requires an efficient and effective design, procurement, and construction process.

Scope of Work/Project Alternatives:

Water Works Park: Additional coverage where boats dock and by the screening house. Video assessment wherever there are alarm points. Primary Building needs to be secured. Need video coverage. Switchgear room needs to be secured. Exterior video coverage of oxygen tanks and entrance to chlorine room. Secure transformer enclosures -Raw water Booster Station. Interior intrusion detection devices need to be installed at high lift building- glass break, motion sensors, etc. Install Card readers to interior of the new plant where critical assets are located. Enhanced perimeter fencing and gates. Enhanced perimeter detection system Replacement of analog cameras

Northeast Water Plant: Chemical building needs access control intrusion devices. Video assessment wherever there are alarm points. Flocculate building needs intrusion devices. Interior intrusion devices for uncovered areas. Enhanced perimeter fencing and gates Replacement of analog cameras. Enhanced perimeter detection system.

Springwells Water Plant: Enhanced access control

Other Important Info:

GLWA has a responsibility in the layered approach to critical infrastructure security; partnering with Federal, State, and Local law enforcement entities to minimize and respond to threats. This partnership required GLWA to maintain a minimum security posture equating to the Critical Infrastructure designation. Implementation of the security protocols were none existent, and improving the GLWA security footprint can reduce our vulnerabilities and enhance our response to known threats.

Primary Driver: 5 - Public Health and Safety

Driver Explanation:

Project Title: Security Infrastructure Improvements for Wastewater Facilities

system Chemical Building, basins and tunnel not secured. Video assessment wherever there are alarm points Enhanced perimeter detection system. Enhanced perimeter fencing and gates Replacement of analog cameras

Lake Huron Water Treatment Plant: Cameras at the Clear Well, Main Transformer Station and the Emergency Generators. Enhanced perimeter fencing and gates. Replacement of analog cameras. Enhanced perimeter detection system.

Southwest Water Plant: Video assessment wherever there are alarm points. Replace door closures to chlorine room so the doors swing shut and lock automatically. Install card readers to chlorine room and chlorine evaporation room. Enhanced perimeter fencing and gates. Replacement of analog cameras. Enhanced perimeter detection system.

Southwest Water Treatment Intake: Provide security for the intake platform. Enhanced perimeter fencing and gates. Replacement of analog cameras

Belle Isle Intake: Enhanced Access Control. Perimeter fencing and gates. Intrusion detection. Video assessment and surveillance.

Chlorine Storage Areas at all Plants: Enhanced Access Control. Intrusion detection. Video assessment and surveillance.

Project Title: Security Infrastructure Improvements for Wastewater Facilities

Scoring

Project Manager Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	
Performance (Service Level/Reliability)	0	
Regulatory (Environmental/Legal)	0	
Operations and Maintenance	0	
Health and Safety	0	
Public Benefit	0	
Financial	0	
Efficiency and Innovation	0	

Risk Committee Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Not Scored. Pending closeout.
Performance (Service Level/Reliability)	0	Not Scored. Pending closeout.
Regulatory (Environmental/Legal)	0	Not Scored. Pending closeout.
Operations and Maintenance	0	Not Scored. Pending closeout.
Health and Safety	0	Not Scored. Pending closeout.
Public Benefit	0	Not Scored. Pending closeout.
Financial	0	Not Scored. Pending closeout.
Efficiency and Innovation	0	Not Scored. Pending closeout.

Project Title: Security Infrastructure Improvements for Wastewater Facilities

Phase: GLWA Salaries

Phase Title: Salaries-WW

Phase Budget: Wastewater

Start Date: 2/26/2018

Phase Status: Active

End Date: 10/29/2021

Useful Life > 20 Yrs: Yes

Phase Comments/Description:
Cost Est. Class:
Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
GLWA Salaries	\$31	\$31	\$31	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Capital Delivery Salary	2/26/2018	9/27/2021
Capital Delivery Salary	2/26/2018	9/27/2021
Professional Services (CS-272 - 71004A.02 / 71004B.02 / 71004C.02)	2/26/2018	10/29/2021
Contractual Professional Services	2/26/2018	9/27/2021
Other Capital Improvement Costs	2/26/2018	9/27/2021
Capitalized Interest	2/26/2018	9/27/2021

Project Title: Security Infrastructure Improvements for Wastewater Facilities

Phase: Design-Build # 1 (SOQ-135A)

Phase Title: DB-WW

Phase Budget: Wastewater **Start Date:** 2/26/2018

Phase Status: Active **End Date:** 9/27/2021

Useful Life > 20 Yrs: Yes

Phase Comments/Description:
Cost Est. Class: Class 1

Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
Design-Build # 1 (SOQ-135A)	\$1,869	\$1,869	\$1,869	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Design/Engineering	2/26/2018	4/12/2019
Construction	4/15/2019	9/27/2021

Project Title: Security Infrastructure Improvements for Wastewater Facilities

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP	5 Year Total	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
2021	\$1,051	\$1,579	\$1,051	\$0	\$0	\$0	\$0	\$0	\$0	\$2,630
2022	\$722	\$1,015	\$1,797	\$722	\$0	\$0	\$0	\$0	\$0	\$3,534

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Total Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
\$1,900,797	\$1,900,797	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Description of CIP Changes:

Project Title: LED Lighting and Lighting Control Improvements

Project Status: Cancelled

CIP Type: Project

Class Lvl 1: Centralized Services

Class Lvl 2: Energy Management

Class Lvl 3: General Purpose

 Project New to CIP

- Innovation**
- WW Master Plan**
- Water Master Plan Right Sizing**
- Redundancy**
- NE WTP Repurposing**
- Linear Assets Outside of Facilities**
- Predecessor Project(s)**



LED Light

Project Engineer/Manager: Eric Griffin

Director: John Norton

Managing Dept.: Energy Management

Date Original Business Case Prepared:
 8/4/2016

Year Project Added to CIP: 2017

CIP Budget: Water

Project Jurisdiction: Multiple Counties

Lookup Location: System Wide

Funds and Cost Center: Water - 5519-882111

Problem Statement:

Energy savings, demand reduction improved visibility, safety, operational efficiency and worker productivity. Budget was cut to \$500,000.00 we plan on reducing scope to 4 Booster stations only under this CIP.MFG 7/25/2019

Scope of Work/Project Alternatives:

Remove identified old fixtures and replace with new LED lamps and advanced control systems.

Other Important Info:

Challenges: Some outfalls are below the river elevation; installation may be challenging.

Project History: An audit was completed in 2010/2011 but little action was taken. Advancement in lighting technology since this audit has rendered it obsolete as to recent innovations, technology and cost. Across the system, equipment is in poor condition and exceeds its end of life. Some existing fixtures are antiques and compared to today's lighting, cannot meet minimum lighting standards.

A well detailed audit is to be carried out to determine the best suitable replacement lamps based on a set performance criteria, lighting controls to be incorporated and in cases where delamping might be an option, equivalent/appropriate lighting output and level is to be maintained per task/space requirements

Primary Driver: 8 - Efficiency

Driver Explanation:

Technology of LED lamps and associated fixtures will reduce electrical operating expenses and improve worker safety.

Project Title: LED Lighting and Lighting Control Improvements

Scoring
Project Manager Weighted Score: 59.40

Criteria Name	Score	Comment
Condition	4	Scores carried over from 2021-2025 CIP
Performance (Service Level/Reliability)	3	Scores carried over from 2021-2025 CIP
Regulatory (Environmental/Legal)	3	Scores carried over from 2021-2025 CIP
Operations and Maintenance	1	Scores carried over from 2021-2025 CIP
Health and Safety	3	Scores carried over from 2021-2025 CIP
Public Benefit	3	Scores carried over from 2021-2025 CIP
Financial	3	Scores carried over from 2021-2025 CIP
Efficiency and Innovation	3	Scores carried over from 2021-2025 CIP

Risk Committee Weighted Score: 60.20

Criteria Name	Score	Comment
Condition	3	Scores carried over from 2021-2025 CIP
Performance (Service Level/Reliability)	3	Scores carried over from 2021-2025 CIP
Regulatory (Environmental/Legal)	3	Scores carried over from 2021-2025 CIP
Operations and Maintenance	4	Scores carried over from 2021-2025 CIP
Health and Safety	3	Scores carried over from 2021-2025 CIP
Public Benefit	1	Scores carried over from 2021-2025 CIP
Financial	3	Scores carried over from 2021-2025 CIP
Efficiency and Innovation	4	Scores carried over from 2021-2025 CIP

Project Title: LED Lighting and Lighting Control Improvements

Phase: GLWA Salaries

Phase Title: GLWA Salaries

Phase Budget: Water	Start Date: 12/30/2021
Phase Status: Active	End Date: 9/30/2022
Useful Life > 20 Yrs: No	

Phase Comments/Description:

Cost Est. Class: Class 5	Cost Est. Source:
Cost Est. Date:	Cost Est. Prepared By:

Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	\$7	\$7	\$7	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Capital Delivery Salary	12/30/2021	9/30/2022
Capital Delivery Salary	12/30/2021	9/30/2022
Contractual Professional Services	12/30/2021	9/30/2022
Other Capital Improvement Costs	12/30/2021	9/30/2022
Capitalized Interest	12/30/2021	9/30/2022

Project Title: LED Lighting and Lighting Control Improvements

Phase: Design/Engineering

Phase Title: Study-Wtr

Phase Budget: Water

Start Date: 7/1/2022

Phase Status: Active

End Date: 6/30/2025

Useful Life > 20 Yrs: No

Phase Comments/Description:
Cost Est. Class: Class 5

Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY23	FY24	FY25	5 Year Total
Design/Engineering	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Design/Engineering	7/1/2022	6/30/2025

Project Title: LED Lighting and Lighting Control Improvements

Phase: Design/Engineering

Phase Title: Water Facility Lighting Renovations

Phase Budget: Water **Start Date:** 9/22/2021

Phase Status: Active **End Date:** 9/30/2022

Useful Life > 20 Yrs: No

Phase Comments/Description:
Cost Est. Class: Class 2

Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	5 Year Total
Design/Engineering	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Design/Engineering	9/22/2021	6/30/2022
Construction	12/30/2021	9/30/2022

Project Title: LED Lighting and Lighting Control Improvements

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP	5 Year Total	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	\$2,799	\$933	\$933	\$933	\$0	\$0	\$0	\$0	\$0	\$2,799
2019	\$2,772	\$2	\$1,172	\$1,600	\$0	\$0	\$0	\$0	\$0	\$2,774
2020	\$250	\$0	\$250	\$250	\$0	\$0	\$0	\$0	\$0	\$500
2021	\$550	\$0	\$6	\$0	\$50	\$248	\$252	\$0	\$0	\$556
2022	\$693	\$0	\$6	\$0	\$0	\$38	\$222	\$222	\$214	\$700


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Total Costs	Prior FYs	FY22	FY23	FY24	FY25	5 Year Total
\$6,667	\$6,667	\$0	\$0	\$0	\$0	\$0

Description of CIP Changes:

Budget was cut down to \$500,000.00 We plan on doing 4 Booster Stations only with this CIP. MFG 7/25/2019
 Budget increased due to Sewer Pumping station add-on EG 08/25/2020

Project Title: As-Needed Geotechnical and Related Engineering Services

<p>Project Status: Project Execution - Design</p> <p>CIP Type: Allowance</p> <p>Class Lvl 1: Centralized Services</p> <p>Class Lvl 2: Programs</p> <p>Class Lvl 3: Programs</p> <p><input type="checkbox"/> Project New to CIP</p>	<p><input type="checkbox"/> Innovation</p> <p><input type="checkbox"/> WW Master Plan</p> <p><input type="checkbox"/> Water Master Plan Right Sizing</p> <p><input type="checkbox"/> Redundancy</p> <p><input type="checkbox"/> NE WTP Repurposing</p> <p><input type="checkbox"/> Linear Assets Outside of Facilities</p> <p><input type="checkbox"/> Predecessor Project(s)</p>	
<p>Project Engineer/Manager: Peter Fromm</p> <p>Director: Grant Gartrell</p> <p>Managing Dept.: Water Eng</p>	<p>Date Original Business Case Prepared:</p> <p>Year Project Added to CIP: 2006</p> <p>CIP Budget: Water</p>	<p>Project Jurisdiction: Multiple Counties</p> <p>Lookup Location: System-wide</p> <p>Funds and Cost Center: Water - 5519-882411</p>

Problem Statement:

GLWA engineering and operations need a contract mechanism to obtain professional engineering services in a timely manner to investigate environmental, geotechnical and specialized engineering problems that occur on a regular basis throughout the system.

Scope of Work/Project Alternatives:

This engineering/technical services contract involves as-needed engineering and technical services related to geotechnical investigations and related geotechnical engineering, construction materials sampling and testing, environmental media sampling and testing, soils sampling and testing, land surveying, corrosion testing and inspection, computer-aided design, and construction inspection. This contract includes design, construction services, and resident project representation for the follow transmission main projects:

1. 1802775 Park-Merriman 24-inch Water Main
2. 1803621 Wick Road 48-inch Transmission Main
3. 1804129 Schoolcraft Road 48-inch Transmission Main

Other Important Info:

N/A

Primary Driver: Varies

Driver Explanation:

Due to the nature, size and complexity of the GLWA water system, this CIP provides timely access to specialized engineering Services.

Project Title: As-Needed Geotechnical and Related Engineering Services

Scoring

Project Manager Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Risk Committee Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Project Title: As-Needed Geotechnical and Related Engineering Services

Phase: GLWA Salaries

Phase Title: GLWA Salaries

Phase Budget: Water

Start Date: 10/1/2018

Phase Status:

End Date: 12/31/2021

Useful Life > 20 Yrs: No

Phase Comments/Description:

Cost Est. Class:

Cost Est. Source:

Cost Est. Date:

Cost Est. Prepared By:

Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

***Design & Construction costs are inclusive of salaries where salaries are not defined**

	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Capital Delivery Salary	10/1/2018	12/31/2021
Capital Delivery Salary	10/1/2018	12/31/2021
Contractual Professional Services	10/1/2018	12/31/2021
Other Capital Improvement Costs	10/1/2018	12/31/2021
Capitalized Interest	10/1/2018	12/31/2021

Project Title: As-Needed Geotechnical and Related Engineering Services

Phase: Construction (Build) # 1 (CS-259)

Phase Title: Design/Construction Administration

Phase Budget: Water	Start Date: 10/1/2018
Phase Status: Active	End Date: 12/31/2021
Useful Life > 20 Yrs: No	

Phase Comments/Description:

Engineering Services Contract CS-259, Somat Engineering (active)

Cost Est. Class: Class 2

Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
Construction (Build) # 1 (CS-259)	\$602	\$0	\$0	\$602	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phase Dates

Activity Name	Start Date	End Date
Construction	10/1/2018	12/31/2021

Project Title: As-Needed Geotechnical and Related Engineering Services

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP	5 Year Total	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
2018	\$1,906	\$650	\$907	\$333	\$333	\$333	\$0	\$0	\$0	\$0	\$0	\$0	\$2,556
2019	\$1,669	\$230	\$238	\$477	\$477	\$477	\$238	\$0	\$0	\$0	\$0	\$0	\$2,137
2020	\$0	\$0	\$0	\$620	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$620
2021	\$715	\$0	\$0	\$0	\$1,415	\$715	\$0	\$0	\$0	\$0	\$0	\$0	\$2,130
2022	\$456	\$0	\$0	\$0	\$771	\$904	\$456	\$0	\$0	\$0	\$0	\$0	\$2,131

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Total Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
\$601,603	\$0	\$601,603	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Description of CIP Changes:

Updated this CIP to reflect the work being conducted under its associated engineering contract, CS-259 (formerly CS-1488) PF 8/9/2019

Project Title: Power Quality: Electric Metering Improvement Program

Project Status: Active - Pre-Procurement - Design

CIP Type: Program

Class Lvl 1: Centralized Services

Class Lvl 2: Programs

Class Lvl 3: Programs

Project New to CIP

- Innovation**
- WW Master Plan**
- Water Master Plan Right Sizing**
- Redundancy**
- NE WTP Repurposing**
- Linear Assets Outside of Facilities**
- Predecessor Project(s)**



Power Quality Meters

Project Engineer/Manager: Eric Griffin

Director: John Norton

Managing Dept.: Energy Management

Date Original Business Case Prepared: 8/18/2016

Year Project Added to CIP: 2016

CIP Budget: Water

Project Jurisdiction: Multiple Counties

Lookup Location: System-wide

Funds and Cost Center: Water - 5519-882111

Problem Statement:

Advanced meters for measuring power usage in real-time to reduce the electrical demands and further optimize load management practices, GLWA is experiencing a lot of power outages at our facilities. The installation of the New Power Monitors will give us real wave form data to determine why we are having outages and the time period of sagging or swelling voltage which effects the integrity of our equipment. MFG 7/25/2019

Scope of Work/Project Alternatives:

This program will increase the number of electric meters at pumping stations and treatment facilities to allow for active demand management to reduce electricity rates. The meters can be tied to the existing data management system for data archiving and use. The installation of the New Power Monitors will give us real wave form data to determine why we are having outages and the time period of sagging or swelling voltage which effects the integrity of our equipment. MFG 07/25/2019

Other Important Info:

Project History: Project is in the works targeting high demand (kW) sites - all the water treatment plants (Phase 1)
We would like to change the project to design build and move up on the CIP. The outages we are having are affecting our preassurers that are causing water main breaks and boil water advisories, We need this to better communicate DTE problems that we are faced with and come up with solutions to improve the process or equipment. MFG 7/25/2019

Primary Driver: 2 - Performance

Driver Explanation:

The outages we are having are affecting our preassurers that are causing water main breaks and boil water advisories, We need this to better communicate DTE problems that we are faced with and come up with solutions to improve the process or equipment.

Project Title: Power Quality: Electric Metering Improvement Program

Scoring

Project Manager Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Risk Committee Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Project Title: Power Quality: Electric Metering Improvement Program

Phase: GLWA Salaries

Phase Title: GLWA Salaries

Phase Budget: Water

Start Date: 7/2/2022

Phase Status:
End Date: 6/30/2025

Useful Life > 20 Yrs: No

Phase Comments/Description:
Cost Est. Class:
Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
GLWA Salaries	\$125	\$0	\$0	\$0	\$42	\$42	\$42	\$0	\$0	\$125	\$0

Phase Dates

Activity Name	Start Date	End Date
Capital Delivery Salary	7/2/2022	6/30/2025
Capital Delivery Salary	7/2/2022	6/30/2025

Project Title: Power Quality: Electric Metering Improvement Program

Phase: Design/Engineering

Phase Title: Energy Management: Wtr - Electric Metering Improvement Program

Phase Budget: Water **Start Date:** 7/2/2022

Phase Status: Future Planned Start **End Date:** 6/30/2025

Useful Life > 20 Yrs: No

Phase Comments/Description:
Cost Est. Class: Class 1

Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
Design/Engineering	\$2,498	\$0	\$0	\$525	\$1,256	\$717	\$0	\$0	\$2,498	\$0

Phase Dates

Activity Name	Start Date	End Date
Design/Engineering	7/2/2022	1/30/2023
Construction (DB)	1/31/2023	6/30/2025

Project Title: Power Quality: Electric Metering Improvement Program

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP	5 Year Total	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
2018	\$5,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$0	\$0	\$0	\$0	\$0	\$6,000
2019	\$1,628	\$0	\$0	\$0	\$120	\$120	\$510	\$878	\$4,372	\$0	\$0	\$0	\$6,000
2020	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$0	\$0	\$5,000
2021	\$3,880	\$0	\$0	\$0	\$86	\$446	\$1,540	\$1,337	\$112	\$445	\$2,904	\$0	\$6,870
2022	\$1,379	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27	\$223	\$1,129	\$1,153	\$2,624

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Total Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	FY27	5 Year Total	FY28-32
\$2,623,926	\$0	\$0	\$566,991	\$1,297,997	\$758,938	\$0	\$0	\$2,623,926	\$0

Description of CIP Changes:

Other initiatives are presenting themselves. Wastewater and water deferred this project to 2025. Standard installation of electric meters in WW CIP programs. Better understanding of Snyder electrical monitoring system and Aquasight projects. The need for this project has changed due to DTE power outages. The outages we are having are affecting our preassuers that are causing water main breaks and boil water advisories, We need this to better communicate DTE problems that we are faced with and come up with solutions to improve the process or equipment. MFG 7/25/2019

The program will be utilized for water powering electric metering only. The change will remove Wastewater from scope of program unless determined in the future the need. EG 8/25/2020.

Project Title: Masonry Replacement and Rehabilitation Program

Project Status: Future Planned - Ten-Year CIP

CIP Type: Program

Class Lvl 1: Centralized Services

Class Lvl 2: General Purpose

Class Lvl 3: General Purpose

 Project New to CIP

- Innovation**
- WW Master Plan**
- Water Master Plan Right Sizing**
- Redundancy**
- NE WTP Repurposing**
- Linear Assets Outside of Facilities**
- Predecessor Project(s)**


Project Engineer/Manager: Douglas Atkinson

Director: Paula Anderson

Managing Dept.: Fleet and Facilities

Date Original Business Case Prepared:
Year Project Added to CIP: 2020

CIP Budget: Water

Project Jurisdiction: Multiple Counties

Lookup Location: Multiple Counties

Funds and Cost Center: Water - 5519-882111

Problem Statement:

Cracks and deterioration in masonry walls, exterior concrete, retaining walls, concrete decks and floors needing repair or replacement causing concern for safety due to poor conditions.

Scope of Work/Project Alternatives:

For NE WTP: Assess, solve the movement and moisture penetration problem, rebuild portions of masonry and concrete walls, floors, roof parapets and deck elements.

For SW WTP: Assess the panels and support structure, replace panels, repair/restore rusted steel members.

For Imlay City: Remove or rebuild retaining walls to withstand soils pressure.

Other Important Info:

3 sites have been identified for this project all have some failing concrete.

- 1) Northeast WTP
- 2) Southwest WTP
- 3) Imlay City Pumping Station

Primary Driver: 1 - Condition

Driver Explanation:

Poor condition.

Project Title: Masonry Replacement and Rehabilitation Program

Scoring

Project Manager Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Risk Committee Weighted Score: 0.00

Criteria Name	Score	Comment
Condition	0	Scoring not applicable to Programs
Performance (Service Level/Reliability)	0	Scoring not applicable to Programs
Regulatory (Environmental/Legal)	0	Scoring not applicable to Programs
Operations and Maintenance	0	Scoring not applicable to Programs
Health and Safety	0	Scoring not applicable to Programs
Public Benefit	0	Scoring not applicable to Programs
Financial	0	Scoring not applicable to Programs
Efficiency and Innovation	0	Scoring not applicable to Programs

Project Title: Masonry Replacement and Rehabilitation Program

Phase: TBD/Unallocated

Phase Title: TBD/Unallocated

Phase Budget:
Start Date: 7/1/2027

Phase Status:
End Date: 6/30/2032

Useful Life > 20 Yrs: Yes

Phase Comments/Description:
Cost Est. Class:
Cost Est. Source:
Cost Est. Date:
Cost Est. Prepared By:
Phase Total Expenses By FY (All figures are in \$1,000's)

"Total Costs" include costs outside of the 10 year planning window

*Design & Construction costs are inclusive of salaries where salaries are not defined

	Total Costs	Actual Costs	Prior FYs	FY28-32
TBD/Unallocated	\$24,770	\$0	\$0	\$24,770

Phase Dates

Activity Name	Start Date	End Date
TBD/Unallocated	7/1/2027	6/30/2032

Project Title: Masonry Replacement and Rehabilitation Program

Project Total Expenses by FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP

Reporting Period 38: Ending FY22 M05 Nov

Total Costs	Prior FYs	FY28-32
\$25,000,001	\$0	\$25,000,001

Description of CIP Changes:

This program is new to the CIP. DA 9/1/20.

