

CIP 122013 – 14 Mile Transmission Main Loop

Design & Construction Assistance Phase

- Schedule:

Task	Start Date	End Date	Duration
Scope Development	6/2/2018	8/31/2018	90
Procurement	9/1/2018	9/1/2019	365
Project Execution	9/2/2019	2/27/2026	2370
Project Closeout	2/28/2026	5/29/2026	90

- Projected Total Expenditures: \$4,690,000

Construction Phase

- Schedule:

Task	Start Date	End Date	Duration
Scope Development	5/31/2021	8/29/2021	90
Procurement	8/30/2021	3/6/2022	188
Project Execution	3/7/2022	2/27/2026	1453
Project Closeout	2/28/2026	5/29/2026	90

- Projected Total Expenditures: \$49,310,000

Total Project

- Begin Design: 9/2/2019
- Begin Construction: 3/7/2022
- Project Complete: 5/29/2026
- Projected Total Project Expenditures: \$54,426,000

Project Status

Future Planned

Class Lvl 1

Water

Class Lvl 2

Field Services

Class Lvl 3

Transmission System

Location

Oakland County

☐ Innovation

☐ Water MP Right Sizing

☒ Reliability/Redundancy

☐ NEWTP Repurposing

Project Score

58.4

Project Engineer/Manager Timothy Kuhns
Manager Grant Gartrell

Project Significance The 14 Mile Transmission Main that currently serves West Bloomfield Township, Farmington Hills, Commerce Township, Novi, Walled Lake, and Wixom is a single feed transmission system. If a disruption to service were to occur on this transmission main, many of the users along this main would experience a complete loss of pressure and flow. This project would provide a transmission main loop to the 14 Mile system to increase redundancy on this branch of the system.

Scope of Work Install approximately 6 Miles of 48-inch transmission main from 8 Mile Road to 14 Mile Road along Haggerty Road. The work will also include connections to the yard piping and reservoir fill line at the Haggerty Booster Station as well as a control valve to regulate flows along the transmission main.

Challenges Routing and construction staging for the proposed piping in the vicinity of the Haggerty and 8 Mile Intersection appears to be a significant challenge as this intersection is one of the highest traffic volume intersections in Southeast Michigan.

Project Expenses Compared to Previous CIP Versions (All figures are in \$1,000's)

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		1,300	10,500	12,000	6,000				0	0	29,800
2019	0				751	1,315	1,507	13,420	37,433	0	54,426
2020	0	0		0	751	1,315	1,507	13,420	12,000	25,433	54,426

- ☐ Innovation
- ☐ Water MP Right Sizing
- ☒ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

Project Engineer/Manager Timothy Kuhns

Manager Grant Gartrell

Managing Dept Water Eng

Date Original Business Case Prepared 10/28/2016

Year Project Added to CIP 2017

Budget Water

Class Lvl 1 Water

Class Lvl 2 Field Services

Class Lvl 3 Transmission System

Location Oakland County

Fund and Cost Center Water - 5519-882111

Project Significance	The 14 Mile Transmission Main that currently serves West Bloomfield Township, Farmington Hills, Commerce Township, Novi, Walled Lake, and Wixom is a single feed transmission system. If a disruption to service were to occur on this transmission main, many of the users along this main would experience a complete loss of pressure and flow. This project would provide a transmission main loop to the 14 Mile system to increase redundancy on this branch of the system.
Scope of Work	Install approximately 6 Miles of 48-inch transmission main from 8 Mile Road to 14 Mile Road along Haggerty Road. The work will also include connections to the yard piping and reservoir fill line at the Haggerty Booster Station as well as a control valve to regulate flows along the transmission main.
Challenges	Routing and construction staging for the proposed piping in the vicinity of the Haggerty and 8 Mile Intersection appears to be a significant challenge as this intersection is one of the highest traffic volume intersections in Southeast Michigan.
Project History	The 2015 Water Master Plan Update included a recommendation to evaluate options along this branch of the system to increase redundancy. Since that recommendation, GLWA Water Supply Operations Engineering performed a hydraulic analysis of redundancy alternatives for the 14 Mile Transmission System. The results of the hydraulic analysis was presented at the May 15, 2017 and September 19, 2017 Analytical Work Group Meetings and based on the discussion at these meetings, the Haggerty Loop Option described in the scope of work appears to be the preferred alternative.
Related Project	CIP 1336 West Service Center Division Valve Upgrades and Newburgh Active Bypass System
Lookup Driver	2 - Performance
Other Important Info	GLWA should consider discussing additional connections with the City of Novi as they may desire an additional



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	meter connection along Napier Road.	
Explanation	Additional purchase volume (new customers) defrays fixed costs of operating and maintaining the system ensuring the long-term financial viability of the system.	

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	1	
Efficiency and Innovation	2	
Financial	1	
O&M	4	
Performance (Service Level/Reliability)	5	
Public Benefit	5	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	2	

Project Manager Score

60.6

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	1	
Efficiency and Innovation	2	
Financial	1	
O&M	3	
Performance (Service Level/Reliability)	5	
Public Benefit	5	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	2	

Review Committee Score

58.4



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Phase Design & Construction Assistance

Contract NA

Status Future Planned Start

Title 14 Mile Transmission Main Loop

Phase Budget Water

Cost Allocation CTA

Phase Status Future Planned Start

Funding Source Bond Proceeds

Start Date

Fund Construction Bond Fund

End Date

Useful Life >20Yrs? Yes

Tot. Federal Loan Amount

Cost Estimation Information

5 **Cost Est. Class**

Cost Est. Date

Cost Est. Source

Cost Est. Prepared By

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	\$690			
Engineering Services	FY21	\$1,254			
Engineering Services	FY22	\$1,446			
Engineering Services	FY23	\$1,000			
Engineering Services	FY24	\$300			

Task	Start Date	End Date	Duration
Scope Development	6/2/2018	8/31/2018	90
Procurement	9/1/2018	9/1/2019	365
Project Execution	9/2/2019	2/27/2026	2370
Project Closeout	2/28/2026	5/29/2026	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	690	1,254	1,446	1,000	300	0	4,690



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122013 CIP#

Phase Construction Contract NA Status Future Planned Start
Title 14 Mile Transmission Main Loop

Phase BudgetWater

Phase StatusFuture Planned Start

Start Date

End Date

Cost AllocationCTA

Funding SourceBond Proceeds

FundConstruction Bond Fund

Useful Life >20Yrs?Yes

Cost Estimation Information

5

Cost Est. Class

Cost Est. Date

Cost Est. Source

Cost Est. Prepared By

Tot. Federal Loan Amount

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	\$12,359			
Construction	FY24	\$11,518			
Construction	FY25+	\$25,433			2020CIP

Task	Start Date	End Date	Duration
Scope Development	5/31/2021	8/29/2021	90
Procurement	8/30/2021	3/6/2022	188
Project Execution	3/7/2022	2/27/2026	1453
Project Closeout	2/28/2026	5/29/2026	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	12,359	11,518	25,433	49,310



GLWA FY 2020-2024 CIP
14 Mile Transmission Main Loop

122013 CIP#

Phase GLWA Employees Project management

Contract NA

Status Future Planned Start

Title GLWA Salaries

Phase Budget Water

Cost Allocation CTA

Phase Status Future Planned Start

Funding Source Bond Proceeds

Start Date

Fund Construction Bond Fund

End Date

Useful Life >20Yrs? No

Tot. Federal Loan Amount \$0

Cost Estimation Information

5 **Cost Est. Class**

1/1/2017 **Cost Est. Date**

GLWA **Cost Est. Source**

GLWA **Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2020	FY20	\$42	17	2	
GLWA Salaries CIP2020	FY21	\$42	17	2	
GLWA Salaries CIP2020	FY22	\$42	17	2	
GLWA Salaries CIP2020	FY23	\$42	17	2	
GLWA Salaries CIP2020	FY24	\$126	50	6	

Task	Start Date	End Date	Duration
Project Execution			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	61	61	61	61	182	0	426

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		1,300	10,500	12,000	6,000				0	0	29,800



GLWA FY 2020-2024 CIP

122013 CIP#

14 Mile Transmission Main Loop

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total		
2019	0				751	1,315	1,507	13,420	37,433	0	54,426		
2020	0	0		0	751	1,315	1,507	13,420	12,000	25,433	54,426		

CIP 1220016 – Downriver Transmission Main Loop

Design & Construction Assistance Phase

- Schedule:

Task	Start Date	End Date	Duration
Scope Development	10/1/2018	12/30/2018	90
Procurement	12/31/2018	12/31/2019	365
Project Execution	1/1/2020	11/18/2025	2148
Project Closeout	11/19/2025	2/17/2026	90

- Projected Total Expenditures: \$4,000,000

Construction Phase

- Schedule:

Task	Start Date	End Date	Duration
Scope Development	2/17/2021	5/18/2021	90
Procurement	5/19/2021	11/23/2021	188
Project Execution	11/24/2021	11/18/2025	1455
Project Closeout	11/19/2025	2/17/2026	90

- Projected Total Expenditures: \$33,001,000

Total Project

- Begin Design: 1/1/2020
- Begin Construction: 11/24/2021
- Project Complete: 2/17/2026
- Projected Total Project Expenditures: \$37,197,000

CIP Number: 122016

Project Title Downriver Transmission Main Loop

One Page Summary

Project Status Future Planned

Class Lvl 1 Water

Class Lvl 2 Field Services

Class Lvl 3 Transmission System

Location Wayne County - Outside Detroit

- ☐ Innovation
- ☐ Water MP Right Sizing
- ☒ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Score 58.4



Example transmission main

Project Engineer/Manager Timothy Kuhns

Manager Grant Gartrell

Project Significance The Downriver Transmission Main that currently serves Brownstown, Riverview, Woodhaven, Trenton, Flat Rock, Gibraltar, Rockwood, South Rockwood, and Berlin Township is a single feed transmission system. If a disruption to service were to occur on this transmission main, many of the users along this main would experience a complete loss of pressure and flow. This project would provide a transmission main loop to the Downriver system to increase redundancy on this branch of the system.

Scope of Work Install approximately 6 Miles of 16-inch transmission main and 3 Miles of 24-inch transmission main from along the Electric Avenue corridor to parallel the existing transmission system in this branch of the system.

Challenges Assuming ownership of the 24-inch transmission main through the City of Trenton may require condition assessment of this portion of pipeline.

Project Expenses Compared to Previous CIP Versions (All figures are in \$1,000's)

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0				297	964	3,051	10,763	22,122	0	37,197
2020	0	0		0	297	964	3,051	10,763	22,122	0	37,197

- ☐ Innovation
- ☐ Water MP Right Sizing
- ☒ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

Example transmission
main



Project Engineer/Manager Timothy Kuhns

Manager Grant Gartrell

Managing Dept Water Eng

Date Original Business Case Prepared 10/12/2017

Year Project Added to CIP 2017

Budget Water

Class Lvl 1 Water

Class Lvl 2 Field Services

Class Lvl 3 Transmission System

Location Wayne County - Outside Detroit

Fund and Cost Center Water - 5519-882411

Project Significance The Downriver Transmission Main that currently serves Brownstown, Riverview, Woodhaven, Trenton, Flat Rock, Gibraltar, Rockwood, South Rockwood, and Berlin Township is a single feed transmission system. If a disruption to service were to occur on this transmission main, many of the users along this main would experience a complete loss of pressure and flow. This project would provide a transmission main loop to the Downriver system to increase redundancy on this branch of the system.

Scope of Work Install approximately 6 Miles of 16-inch transmission main and 3 Miles of 24-inch transmission main from along the Electric Avenue corridor to parallel the existing transmission system in this branch of the system.

Challenges Assuming ownership of the 24-inch transmission main through the City of Trenton may require condition assessment of this portion of pipeline.

Project History The 2015 Water Master Plan Update included a recommendation to evaluate options along this branch of the system to increase redundancy. Since that recommendation, GLWA Water Supply Operations Engineering performed a hydraulic analysis of redundancy alternatives for the Downriver Transmission System. The results of the hydraulic analysis were presented at the May 15, 2017 and September 19, 2017 Analytical Work Group Meetings and based on the discussion at these meetings, the Electric Avenue Transmission loop option described in the scope of work appears to be the preferred alternative.

Related Project None

Lookup Driver 2 - Performance

Other Important Info

Explanation

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	1	
Efficiency and Innovation	2	
Financial	1	
O&M	4	
Performance (Service Level/Reliability)	5	
Public Benefit	3	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	2	

Project Manager Score

57.4

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	1	
Efficiency and Innovation	2	
Financial	1	
O&M	3	
Performance (Service Level/Reliability)	5	
Public Benefit	5	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	2	

Review Committee Score

58.4



GLWA FY 2020-2024 CIP
Downriver Transmission Main Loop

122016 CIP#

Phase Design & Construction Assistance

Contract NA

Status Future Planned Start

Title Downriver Transmission Main Loop

Phase Budget

Cost Allocation

Phase Status

Funding Source

Start Date

Fund

End Date

Useful Life >20Yrs?

Tot. Federal Loan Amount

Cost Estimation Information

Cost Est. Class

Cost Est. Date

Cost Est. Source

Cost Est. Prepared By

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	\$276			
Engineering Services	FY21	\$934			
Engineering Services	FY22	\$801			
Engineering Services	FY23	\$931			
Engineering Services	FY24	\$1,058			

Task	Start Date	End Date	Duration
Scope Development	10/1/2018	12/30/2018	90
Procurement	12/31/2018	12/31/2019	365
Project Execution	1/1/2020	11/18/2025	2148
Project Closeout	11/19/2025	2/17/2026	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	276	934	801	931	1,058	0	4,000



GLWA FY 2020-2024 CIP
Downriver Transmission Main Loop

122016 CIP#

Phase Construction Contract NA Status Future Planned Start
Title Downriver Transmission Main Loop

Phase BudgetWater

Phase StatusFuture Planned Start

Start Date

End Date

Cost AllocationCTA

Funding SourceBond Proceeds

FundConstruction Bond Fund

Useful Life >20Yrs?Yes

Cost Estimation Information

5

Cost Est. Class

Cost Est. Date

Cost Est. Source

Cost Est. Prepared By

Tot. Federal Loan Amount

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	\$2,220			
Construction	FY23	\$9,802			
Construction	FY24	\$20,979			

Task	Start Date	End Date	Duration
Scope Development	2/17/2021	5/18/2021	90
Procurement	5/19/2021	11/23/2021	188
Project Execution	11/24/2021	11/18/2025	1455
Project Closeout	11/19/2025	2/17/2026	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	2,220	9,802	20,979	0	33,001



GLWA FY 2020-2024 CIP
Downriver Transmission Main Loop

122016 CIP#

Phase GLWA Employees Project management

Contract NA

Status Future Planned Start

Title GLWA Salaries

Phase Budget Water

Cost Allocation CTA

Phase Status Future Planned Start

Funding Source Bond Proceeds

Start Date

Fund Construction Bond Fund

End Date

Useful Life >20Yrs? No

Tot. Federal Loan Amount \$0

Cost Estimation Information

5 Cost Est. Class

1/1/2015 Cost Est. Date

CDM Smith Cost Est. Source

CDM Smith Cost Est. Prepared By

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2020	FY20	\$14	6	1	
GLWA Salaries CIP2020	FY21	\$21	8	1	
GLWA Salaries CIP2020	FY22	\$21	8	1	
GLWA Salaries CIP2020	FY23	\$21	8	1	
GLWA Salaries CIP2020	FY24	\$59	23	3	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	21	30	30	30	85	0	196

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0				297	964	3,051	10,763	22,122	0	37,197
2020	0	0		0	297	964	3,051	10,763	22,122	0	37,197