

GREAT LAKES WATER AUTHORITY

**14 Mile Road Transmission Main Loop
Project Plan
April 24, 2019**



Great Lake Water Authority

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Proposed Improvements

Great Lake Water Authority (GLWA) is proposing the design and construction of a looped pipeline system that will interconnect the 8 Mile Road and 14 Mile Road TMs. The project will be completed under two construction packages, detailed below:

Contract 1: 14 Mile Reinforcing TM

Contract 1 will fund the design, engineering, administration, and construction of a roughly 1.25-mile-long pipeline that will run east-west along 14 Mile Road between Haggerty Road and Novi Road. By constructing this new pipeline parallel to the existing 14 Mile Road TM, the existing TM can be put out of service for long term repairs while the Reinforcing TM does the job. When repairs are complete, both pipelines will be operational and able to serve in lieu of the other in the event that either of the two cannot function.

Contract 2: 14 Mile Road TM Loop

Contract 2 will fund the design, engineering, administration, and construction of a roughly 6-mile-long pipeline that will run primarily north-south in the vicinity of Meadowbrook Road and Drake Road. The pipeline will create a connection between the 14 Mile Road TM and the 8 Mile Road TM, allowing water from either one to fill the other if an upstream pipeline section or pump station ceases function. The route has not been determined yet.



14 Mile Road TM Break on October 23, 2017

Summary of Project Need

A portion of GLWA's water transmission system along 14 Mile Road does not have adequate redundancy. This makes the system vulnerable to unplanned outages due to any pipeline failure. The existing 14 Mile Road Transmission Main (TM) has experienced failures in the recent past and the pipeline may need additional repairs. Currently the pipe cannot be repaired because it is the only pipe providing water to certain areas within West Bloomfield, Farmington Hills, Farmington, Commerce, Novi, Northville, Livonia, Walled Lake, and Wixom. This project will interconnect the 8 Mile Road TM to the 14 Mile Road TM creating a looped system. In addition, a new one mile pipeline will parallel a portion of the 14 Mile TM. These new pipelines will provide redundancy, prevent disruption of service due to a single point of failure, and allow the existing pipeline to be repaired.

Potential Alternatives

Four alternatives were considered.

1. Beck Road Loop TM:

A 12.3-mile-long, 54-inch pipeline that starts at the Newburgh Pump Station and goes west along 8 Mile Road and then goes north along Beck Road until it connects to the 14 Mile RD Transmission Main on West Maple Road. This option creates a loop and avoids the cluster of highways and busy intersections present near Haggerty Road and Halsted Road.

2. 14 Mile Road Parallel TM

An approximately 6-mile-long pipeline that would run parallel to the existing 14 Mile Road TM, originating near the Franklin Pump Station and terminating at the Haggerty Pump Station. This alternative would also include a roughly 1.25-mile-long reinforcement pipeline spanning from the Haggerty Pump Station to Novi Road.

3. 14 Mile Road TM Loop

This is the selected alternative. It will consist of a roughly 6-mile-long north-south pipeline in the vicinity of Meadowbrook Road and Drake Road that will connect the 14 Mile Road TM with the 8 Mile Road TM, as well as a roughly 1.25-mile-long reinforcing TM parallel to the existing.

4. Adams Branch Loop TM

11 miles of new pipeline starting at the meter on West Maple Road and running north into Commerce Township, then east until connecting to a meter in Keego Harbor. The strategically placed connection in Keego Harbor would allow the pipeline to be fed by either the Franklin Pump Station or the Adams Pumping Station (ADM). This alternative would include a reinforcement TM on 14 Mile. Please see Table 1 for the Alternatives Analysis.

TABLE 1. Alternatives Analysis				
Alternatives	1	2	3	4
Name of Alternative	Beck Rd Loop	14 Mile Rd Parallel Main	14 Mile Road TM Loop	Adams Branch Loop
Cost Estimate (Million USD)	145	47.2	54.4	121.5
Does Alternative provide redundancy?	Yes	No	Yes	Yes
Selected Alternative	No	No	Yes	No

TABLE 2. Estimated Costs for the Selected Alternative	
Item	Estimated Cost (\$)
Opinion of Probable Construction Cost	46,700,000
Construction Cost Estimate Range*	23,350,000 – 93,400,000
Engineering and Design Consultant Contract	7,000,000
GLWA Portion of Engineering and Administrative Costs	700,000
Total Project Cost	54,442,600

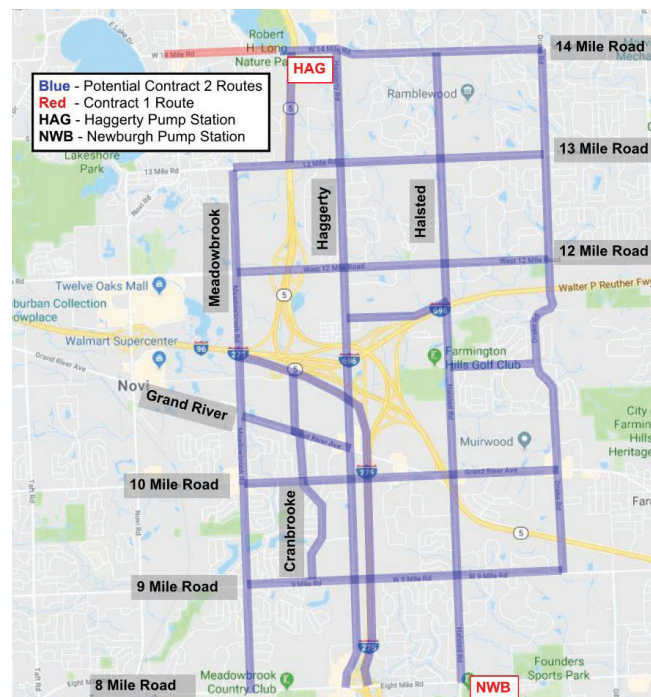
TABLE 3. User Cost Impact	
Item	Estimated Cost (\$)
Annualized Cost of Project (Assuming DWRP Interest Rate of 2% over 20 Years)	3,330,000
Service Area Households** (Customers Served by GLWA as of the 2010 Census without including Genesee county)*	1,400,000
Estimated Household User Cost Per Year	2.38

*Estimated with an accuracy range of -50% to +100%

**Customer population of GLWA has increased since the 2010 Census, likely resulting in an estimated household user cost lower than what is represented.

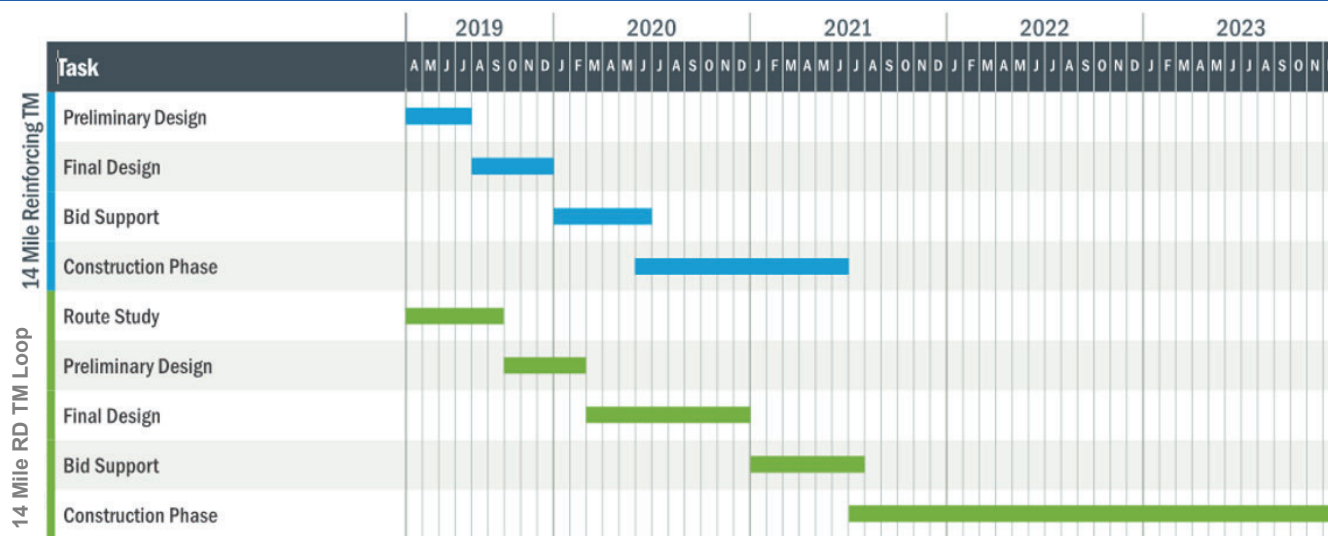
Environmental Evaluation

Construction is highly unlikely to have any adverse impact on any neighboring properties surrounding the pipeline path. All possible precautions will be taken to address safety, traffic, dust, and noise concerns. The project will not detrimentally affect the water and air quality of the area. Compliance and cooperation with environmental agencies, local governments, and other stakeholders has already begun and will continue to be a high priority in order to ensure this project does not disturb the public or natural environment.



Contract 1 & 2 Potential Routes Map

Implementation Schedule





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