

SHERIDAN CHARTER TWP – FREMONT LAKE SEWER EXTENSION



CWSRF Project Plan
Public Hearing

April 20, 2023

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AGENDA



- Purpose of the Presentation
- Project Background
- Need for Project
- Analysis of Alternatives
- Environmental Review Process
- Projected Impact on User Charges
- Anticipated Project Schedule
- Discussion, Q/A

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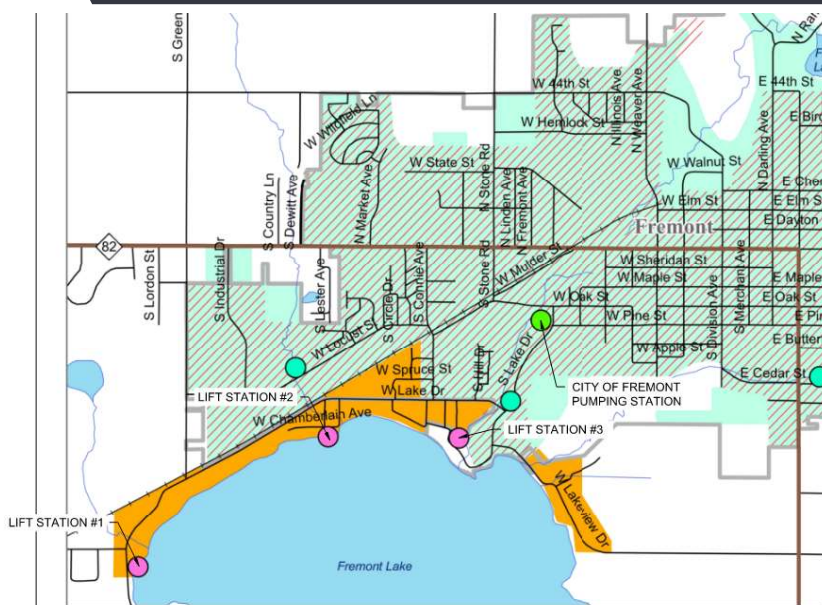
PROJECT BACKGROUND



- Township provides public sewer service to the northern side of Fremont Lake
- Southern side of the lake relies on onsite septic/drainfields for disposal
 - » Soils not conducive for drainfields
 - » Very high groundwater
 - » Some septic/drainfields have failed, permits denied, some on pump and haul
 - » Lake water quality studies

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PROJECT BACKGROUND



Extending sewer service to west / south side of Fremont Lake is part of the region's master plan

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NEED FOR THE PROJECT



- Soils not good for drainfields near the lake
- Very high groundwater
- Some septic/drainfields have failed
- Health Dept has denied some septic / drainfield permits or required special systems
- Some homes on pump and haul system
- Lake water quality studies

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POPULATION PROJECTIONS / SERVICE AREA



- Current system serves approx. 143 homes
- Proposed Service Area includes 113 homes
- Estimated new service population is 296 people
- Wastewater flow from new service area is estimated at 20,700 gpd
- 9 vacant parcels in proposed service area
- Ultimate wastewater flow 22,400 gpd for new service area
- Total wastewater flow from existing and proposed service area is 66,800 gpd

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OBJECTIVES FOR SRF PROJECT



- Protect surface water and environmental resources in the area
- Develop a solution that is modest in scope and cost, and supported by the community
- Provide facilities capable of consistent and reliable wastewater service

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DEVELOPMENT OF ALTERNATIVES



- Alternative No. 1 – No Action
- Alternative No. 2 – Optimize Performance of Existing Systems
- Alternative No. 3 – Gravity System
 - » Alternative 3A – Gravity Sewer in Easements
 - » Alternative 3B – Gravity Hybrid System – with Gravity in Road
- Alternative No. 4 – Low Pressure Grinder Pump System
- Alternative No. 5 – Low Pressure STEP System

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ALTERNATIVE NO. 1 – NO ACTION



- No Action
 - » No construction project
 - » Continued use of onsite septic / drainfields
 - » Likely to result in replacement septic systems for failed systems, denied permits and pump and hauls
 - » May result in continued degradation to the lake
 - » Does not meet Project Objectives

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ALTERNATIVE NO. 2 – OPTIMIZE EXISTING



- Required to review as part of SRF program
- Look at upgrading to more advanced onsite disposal systems
- Not really feasible given the soils and high groundwater
- Would likely result in more pump and haul systems, which are costly
- Does not meet project objectives

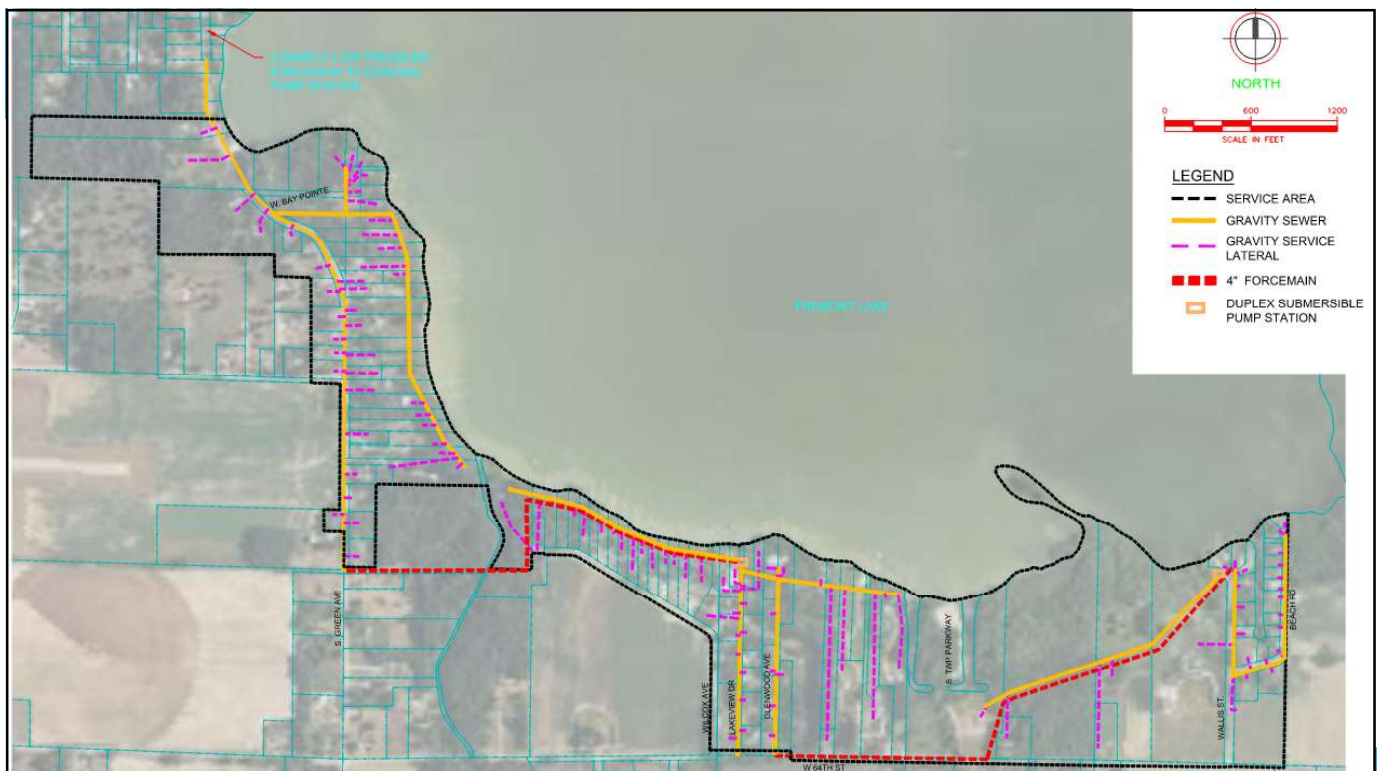
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ALTERNATIVE NO. 3A – GRAVITY



- Gravity sewer system similar to the existing Sheridan Township System serving the north side of the Lake
- Gravity sewer location would require acquisition of many easements
- Dewatering to install deeper, larger diameter sewers will make construction difficult/costly
- Larger intermediate pump station is needed
- Need to upgrade existing Township Lift Stations to handle more flow
- Estimated Project Cost: \$16 million

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ALTERNATIVE NO. 3B – GRAVITY HYBRID



- Option to eliminate easements through residents' yards
- Gravity sewer located in road right-of-way would serve a portion of the system
- Many homes cannot be served by gravity sewer and would require STEP or grinder pumps
- Larger intermediate pump station is needed
- Need to upgrade existing Township Lift Stations to handle more flow
- Cost \$10.7 million

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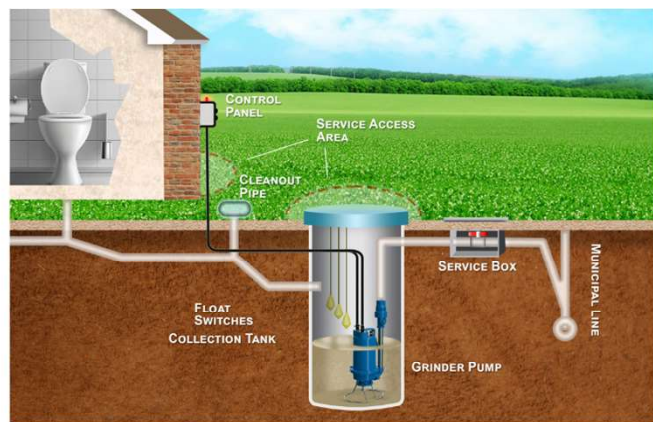
ALT. NO. 4 – LOW PRESSURE GRINDER



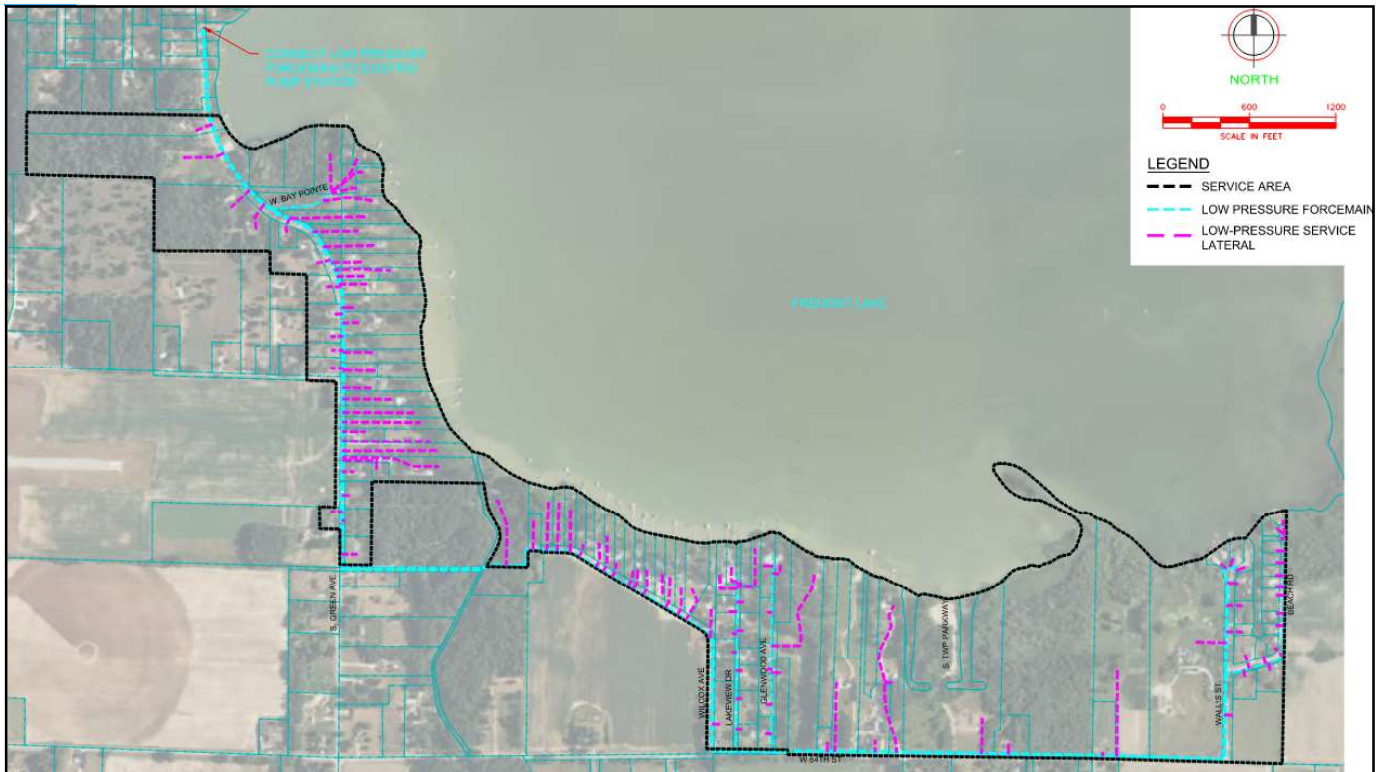
- Low pressure sewer – small diameter pipe
- Individual grinder pump stations for every home
- Homeowner would be responsible for pipe to the grinder pump station
- Township would maintain grinder pump as part of system O&M costs
- Need to upgrade existing Township Lift Stations to handle more flow
- Estimate Project Cost: \$6.3 million

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GRINDER PUMP LOW PRESSURE SEWER



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ALT. NO. 5 – LOW PRESSURE STEP SYSTEM



- Low pressure sewer – small diameter pipe
- Individual Septic Tank Effluent Pump (STEP) at every home
- Homeowner would be responsible for the pipe from the house to the septic tank
- Township would maintain STEP pump and include periodic pump outs as part of system O&M cost
- Need to upgrade existing Township Lift Stations to handle more flow
- Estimated Project Cost: \$6.1 million

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ALTERNATIVES ANALYSIS



Alt. No. 3 - Gravity or Hybrid Gravity

- Pros
 - » Familiar System
 - » Minimal maintenance
- Cons
 - » Highest capital cost
 - » Larger diameter pipes
 - » Open trenching is disruptive & requires more restoration
 - » For 100% gravity – many easements are required
 - » Higher risk of odors and Infiltration

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ALTERNATIVES ANALYSIS



Alt. No. 4 – Grinder Pump Low Pressure Sewer

- Pros
 - » Pumps convey both solids and liquid waste
 - » Lower capital cost than Alt. No. 3
 - » Small diameter pipe – can be directionally drilled
- Cons
 - » Larger less efficient pumps than STEP
 - » Higher electrical load requirements (240 V)
 - » Shorter pump life than STEP
 - » Pumps more susceptible to clogging
 - » Higher annual operations & maintenance than STEP

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ALTERNATIVES ANALYSIS



Alt. No. 5 – STEP Pump Low Pressure Sewer

- Pros
 - » Lowest Capital Cost
 - » Small diameter pipe, can be directionally drilled
 - » High efficiency, low horsepower pumps
 - » Longer life than grinder pumps
 - » Greater storage volume during power outages
- Cons
 - » Less familiar system to residents
 - » Septic tanks need to be pumped out a regular basis

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LOW PRESSURE CONSTRUCTION



Minimize this



Maximize this



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RECOMMENDED ALTERNATIVE



- Alternative No. 5
 - » Lowest Capital Cost
 - » Lowest Net Present Worth
 - » Not anticipating any negative long-term environmental impacts due to the project
 - » Short term, temporary construction impacts

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ALTERNATIVES ANALYSIS



Environmental Feature	Alternative No. 3	Alternative No. 4	Alternative No. 5
Agricultural and Open Space Lands	NSI	NSI	NSI
Air Quality	T	T	T
Archeological Historic Sites	NSI	NSI	NSI
Drinking Water Supply Source	NA	NA	NA
Endangered or Threatened Species	NSI	NSI	NSI
Fauna and Flora Communities/ habitat	NSI	NSI	NSI
Floodplains	NSI	NSI	NSI
Great Lakes Shoreline	NA	NA	NA
Lakes and Streams	B	B	B
Parks and Recreational Facilities	NSI	NSI	NSI
Unique Features	NA	NA	NA
Wetlands	NSI	NSI	NSI
Wild & Scenic Rivers	NSI	NSI	NSI

Explanation of Abbreviations:

NSI: No Significant Impact
 L: Low, But Measurable Impact
 S: Significant Impact

T: Temporary Impact
 B: Beneficial
 NA: Not Applicable

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ALTERNATIVES ANALYSIS



Summary of Present Worth Cost Analysis

Alternative	Capital Cost of Project	Annual OM&R Cost	Net Present Worth of OM&R Cost	Total Present Worth	Salvage Value	Net Present Worth
3b	\$10,658,000	\$75,000	\$1,230,000	\$11,888,000	\$1,360,300	\$10,527,700
4	\$6,303,000	\$84,000	\$1,370,000	\$7,673,000	\$1,023,900	\$6,649,100
5	\$6,046,000	\$29,000	\$470,000	\$6,516,000	\$1,023,900	\$5,492,100

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USER CHARGE SUMMARY



- O&M charge is \$196 / quarter
- Capital Project would be financed through a Special Assessment District charge
- Financing through CWSRF
 - » 20-30 year loan term
 - » Subsidized interest rate (1.875 – 2.125% typical)
 - » \$6.1 million at 30-yrs, 2.125% is \$202.52 / month
- Total monthly fee is estimated at \$268 / month
- Could be reduced if CWSRF funding includes grant or principal forgiveness

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USER CHARGE SUMMARY



Looking at other funding options to reduce cost burden of Special Assessment

- USDA Rural Development funding program
 - » 40-yr loan term, but higher interest rates (3-4%)
 - » USDA RD sometimes has grant amounts available
- EGLE Substantial Public Health Risk Grant
 - » Up to \$2.0 million in grant
 - » Specifically for addressing failing septic systems
 - » Financing remaining \$4.1 million over 30 years at 2.125% is \$135.53 assessment + \$196 / quarter = \$200.86/month

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USER CHARGE EXAMPLES



Example User Charges at Various Financing Options

User Charge Portion	CWSRF Loan Only, 30-yr, 2.125%	CWSRF 20% Grant, 30-yr loan	\$2 M SHRP Grant + SRF Loan	RD Loan Only, 40-yr, 3.0%	RD Loan with 20% Grant, 40-yr loan
Special Assessment Monthly	\$202.52	\$162.01	\$135.53	\$192.89	\$154.32
Quarterly O&M	\$196	\$196	\$196	\$196	\$196
Estimated Monthly Total	\$267.85	\$227.35	\$200.86	\$258.23	\$219.65

*Final user charge will be determined by a Municipal Financial Advisor, once financing package is finalized

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ANTICIPATED SCHEDULE



Task Description	Milestone Deadline (no later than)
Submit Final SRF Project Plan to EGLE	May 2023
Proceed with Survey / Preliminary Design	August/September 2023
Begin Detailed Design	September/October 2024
Finalize Design & Submit Permit Applications	May 2024
Bidding	July 2024
SRF Closing	August 2024
Begin Construction	October 2024
Complete Construction	December 2025

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QUESTIONS?

Please state your name
and address for the public
record.

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