



City of Sault Ste. Marie

Drinking Water State Revolving Fund (DWSRF) Project Planning Document Public Meeting May 15, 2023

Agenda

1. DWSRF Plan Overview
2. Statement of Need
3. Recommended Improvements
4. Anticipated Project and User Costs
5. Environmental Impacts, Mitigation,
and Benefits of the Projects
6. Questions
7. Vote on Resolution



City of Sault Ste. Marie

DRINKING WATER STATE REVOLVING FUND OVERVIEW

Drinking Water State Revolving Fund (DWSRF)

Jointly administered loan program:

- Michigan Department of Environment, Great Lakes, and Energy (EGLE)
- Michigan Municipal Bond Authority

Funding for drinking water infrastructure projects to resolve current needs:

- 20-year loan with low interest rates
- Project grant – EGLE has yet to determine the max. percentage



City of Sault Ste. Marie

STATEMENT OF NEED

City of Sault Ste. Marie

Need for DWSRF Project

- **Decreased System Reliability**
 - Aging water main infrastructure
 - History of water main breaks
- **Protection of Water Supply Infrastructure (St. Marys intake)**
- **Lead and Galvanized Service Line Replacement**
 - Required as per 2018 Michigan Lead and Copper Rule
- **Took advantage of Michigan Municipal League Foundation Grant (MI Water Navigator)**
- **Setting City up for potential low interest financing / loan forgiveness**

Aging Water Main Infrastructure

- The City has a relatively old water distribution system dating back to pre-1900.
- 30% of the water mains are over 90 years old.
- Useful life of ductile iron water mains is approx. 50 years.

Approx. Installation Dates	Approx. Percentage of Water Main
Unknown	28%
Prior to 1905	13%
1905-1929	17%
1930-1970	10%
After 1970	32%
Total	100%

History of Water Main Breaks

- Many aging, unreliable, problematic, and/or undersized water mains.
- The City has experienced 75 water main breaks since 2018.
- Improvements will increase reliable water transmission capacity and create more consistent and reliable water supply.

Time Period	Number of Water Main Breaks
2018	17
2019	24
2020	4
2021	11
2022	13
2023	6
Total	75

Protection of Water Supply Infrastructure

- City's water supply is drawn from St. Marys River through an intake pipe constructed in 1905.
- This nearly 120-year-old intake pipe is the only water source for the city, there is no redundancy.
- A 2021 inspection showed:
 - Evidence of degradation from river currents
 - Evidence of damage from prior anchor strikes

Lead and Galvanized Service Line Replacement

2018 State of Michigan Lead and Copper Rule requires that all water suppliers do the following:

- Replace all lead service lines.
- Replace all galvanized service lines that are or were attached to a lead service line.

This City has identified 137 galvanized service lines which likely would have previously been connected to a lead service line.



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RECOMMENDED IMPROVEMENTS

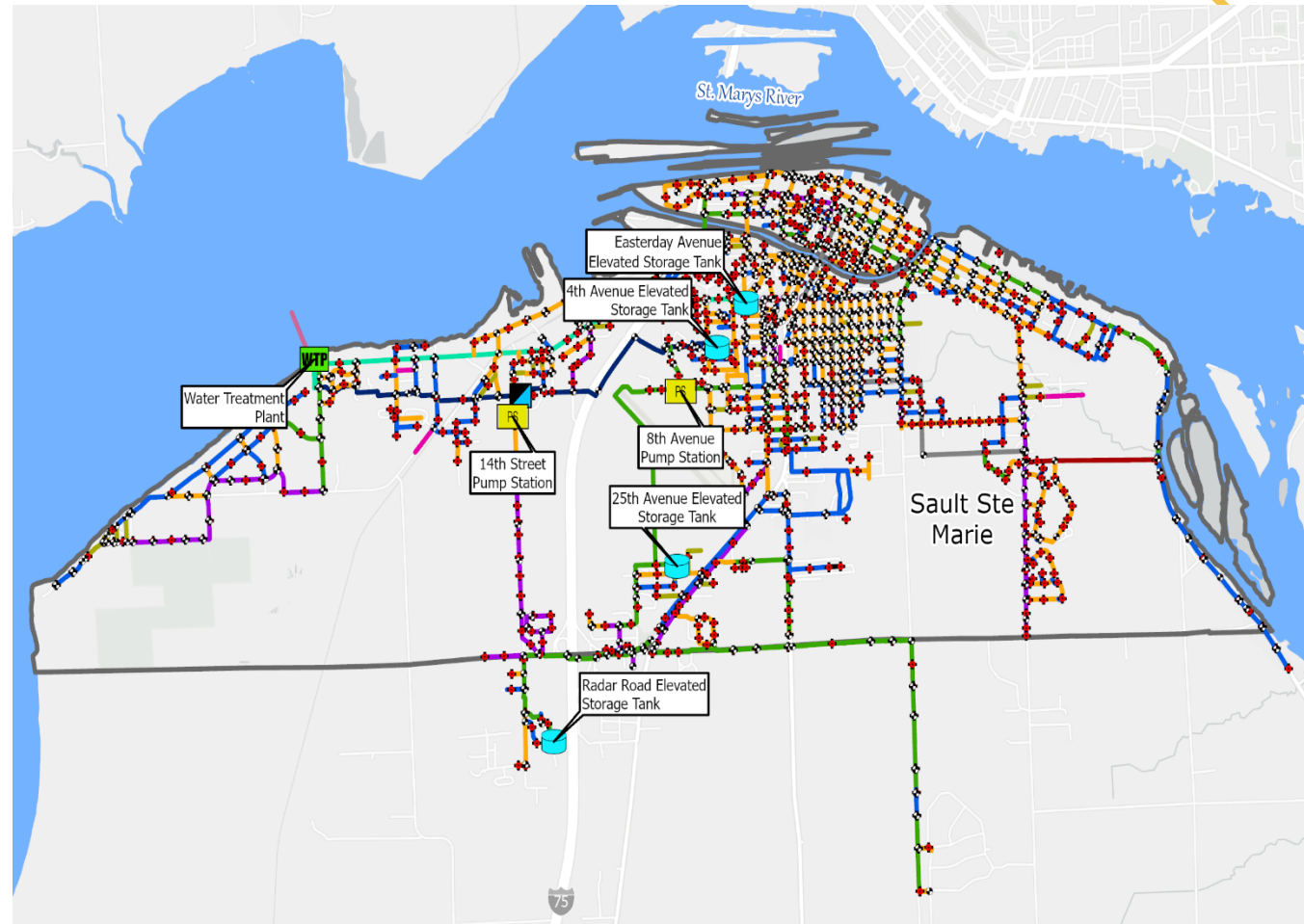
DWSRF Project Development

Factors that serve as the basis for identifying the proposed projects:

- Water main is not functioning optimally
 - Frequent Breakage
- Water main approaching or surpassed the end of useful life
- Undersized water mains
- Infrastructure critical to maintaining reliable water supply

Existing Water Distribution System

- 1 raw water intake pump station
- 1 direct filtration water treatment plant
- 4 elevated storage tanks
- 2 booster pump stations
- Over 81 miles of water transmission and distribution mains



DWSRF Project Alternatives

Some of the project alternatives considered included:

- **No Action**
 - **Water Main**
 - Could result in more breaks and O&M costs
 - Leaves system vulnerable to pressure loss and contamination
 - **Water Supply Intake**
 - Leaves City vulnerable to a water supply emergency
- **Regional Connection and Operational Optimization**
 - Would not address breaks or service line replacements

Water Main and Water Supply Alternatives

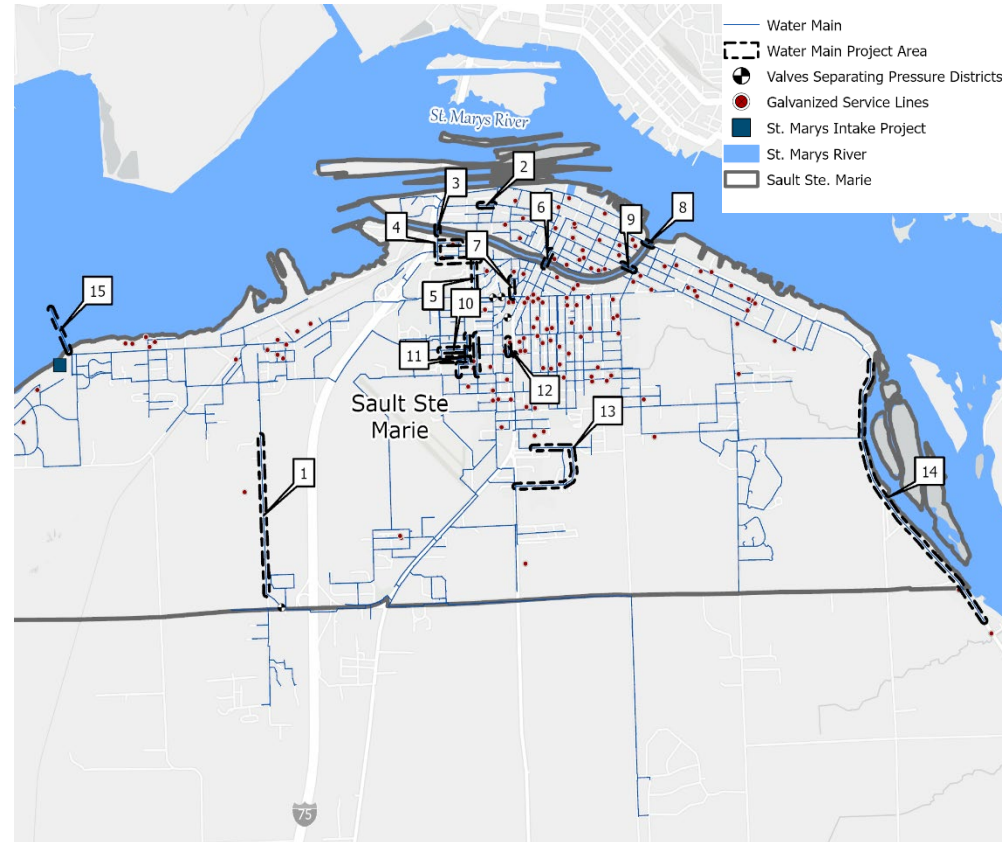
Additional project alternatives that were evaluated:

- Water Mains
 - Replace identified water mains with open cut installation
 - Replace identified water mains with directional drilling installation
 - Replace identified water mains with pipe bursting
 - Lining identified water mains at bridge crossing
- Water Supply
 - Replace water supply intake
 - Protect water supply intake with armor stone

Proposed DWSRF Water Main Improvements

Water main replacement projects:

1. Riverside Drive
2. Peck and Meridian
3. West 14th Street
4. 6th Avenue alley
5. 16th and 20th Avenue
6. Ridge Street
7. Pine Street
8. Ryan Street
9. Bridge Village
10. Ryan Avenue



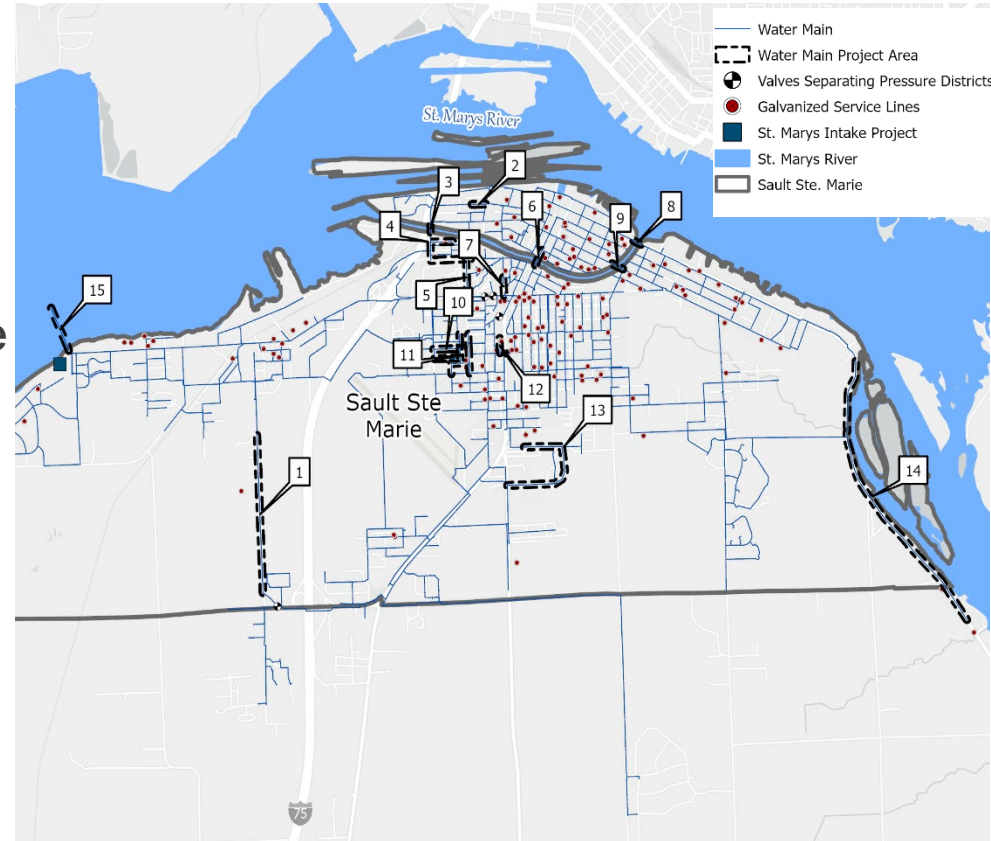
Proposed DWSRF Water Main Improvements Cont.

Water main lining projects:

- 11. Court Street Crossing
- 12. Meridian (West Portage) Crossing
- 13. East Spruce Crossing
- 14. East Portage Crossing – combined with replacement water main in East Portage Avenue

Other projects:

- 15. Protection of St. Marys water intake structure
- 16. Replacement of 137 galvanized previously connected to lead service lines





City of Sault Ste. Marie

ANTICIPATED PROJECT AND USER COSTS

DWSRF Project Cost Comparison

	Alternative 1: Open Cut Installation Capital Cost	Alternative 2: Directional Drilling Installation Capital Cost
Riverside Drive	\$8,590,000	\$7,890,000
Peck and Meridian	\$2,550,000	\$2,440,000
West 14th Avenue	\$6,330,000	\$6,390,000
6th Avenue Alley *Pipe bursting was Alternative 1	\$480,000	\$400,000
16th and 20th Avenue *Pipe bursting was Alternative 1	\$4,980,000	\$3,950,000

DWSRF Project Cost Comparison Cont.

	Alternative 1: Open Cut Installation Capital Cost	Alternative 2: Directional Drilling Installation Capital Cost
Ridge Street	\$580,000	\$530,000
Pine Street	\$710,000	\$680,000
Ryan Street	\$1,310,000	\$1,370,000
Bridge Village	\$2,270,000	\$2,400,000
Ryan Avenue	\$2,190,000	\$2,390,000

DWSRF Project Cost Comparison Cont.

	Alternative 1: Epoxy Liner Rehabilitation Capital Cost	Alternative 2: Directional Drilling Installation Capital Cost
Court Street Crossing	\$500,000	\$560,000
Meridian (West Portage) Crossing	\$530,000	\$870,000
East Spruce Crossing	\$470,000	\$700,000
East Portage Crossing	\$1,940,000	\$1,951,000
Raw Water Intake *Alternative 1 is Armor Stone Protection	\$2,110,000	\$5,205,475
Service Line Replacement	\$1,260,400	

DWSRF Project Cost Opinion and User Cost

	DWSRF Loan (Chosen Alternative)	Est. Annual Cost per REU*	Est. Monthly Cost per REU*
Riverside Drive	\$7,890,000	\$71.00	\$5.92
Peck and Meridian	\$2,440,000	\$22.00	\$1.83
West 14th Avenue	\$6,330,000	\$57.00	\$4.75
6th Avenue Alley	\$400,000	\$4.00	\$0.33
16th and 20th Avenue	\$3,950,000	\$36.00	\$3.00
Ridge Street	\$530,000	\$5.00	\$0.42

* REU – Residential Equivalency Unit (7,335 total)

DWSRF Project Cost Opinion and User Cost (cont).

	DWSRF Loan (Chosen Alternative)	Est. Annual Cost per REU*	Est. Monthly Cost per REU*
Pine Street	\$680,000	\$7.00	\$0.58
Ryan Street	\$1,310,000	\$12.00	\$1.00
Bridge Village	\$2,270,000	\$21.00	\$1.75
Ryan Avenue	\$2,190,000	\$20.00	\$1.67
Court Street Crossing	\$500,000	\$5.00	\$0.42
Meridian (West Portage) Crossing	\$530,000	\$5.00	\$0.42

* REU – Residential Equivalency Unit (7,335 total)

DWSRF Project Cost Opinion and User Cost (cont.)

	DWSRF Loan (Chosen Alternative)	Est. Annual Cost per REU*	Est. Monthly Cost per REU*
East Spruce Crossing	\$470,000	\$5.00	\$0.42
East Portage Crossing	\$1,940,000	\$18.00	\$1.50
Raw Water Intake	\$2,110,000	\$19.00	\$1.58
Service Line Replacement	\$1,260,400	\$12.00	\$1.00
Total	\$34,800,400	\$ 319.00	\$ 27.00

* REU – Residential Equivalency Unit (7,335 total)



City of Sault Ste. Marie

ENVIRONMENTAL IMPACTS, MITIGATION, AND BENEFITS OF THE PROJECTS

Environmental Impacts and Mitigation

Environmental impacts:

- No impact to sensitive species is anticipated
- Means of installation were selected to avoid impacts to wetlands, waterways, floodplains, and contaminants

Impacts during construction:

- Moderate traffic disruption throughout select neighborhoods
- Moderate and temporary noise, dust, and traffic disruption
- Short periods of time where residents may be avoid using any water

Mitigation during construction:

- Traffic control and typical work hours
- Soil erosion and sedimentation control
- Associated surface restoration

Benefits of DWSRF Project

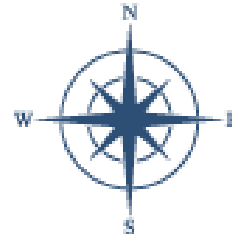
- Increase the reliability and functionality of the drinking water system.
- Increase the useful life of drinking water infrastructure.
- Comply with the 2018 Lead and Copper Rule.
- Address needs before they become issues = cost savings



Questions and Answers

Please state name and home address for the record.

Vote on Resolution



MI WATER NAVIGATOR
WATER INFRASTRUCTURE HELPDESK