OSCEOLA TOWNSHIP

FY2024 DRINKING WATER STATE REVOLVING FUND
WATER SYSTEM IMPROVEMENTS

PROJECT PLAN

80% DRAFT PROJECT PLAN, FOR REVIEW

Prepared By:

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Table of Contents

INTRODUCTION 1

1.0 PROJECT BACKGROUND 2

1.1.1 Service Area 2

1.1.2 Delineation of Study Area 2

1.2 Population 2

1.3 Existing Environmental Evaluation 3

1.3.1 Cultural and Historic Resources 3

1.3.2 Air Quality 3

1.3.3 Wetlands 3

1.3.4 Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas 4

1.3.5 Floodplains 4

1.3.6 Natural or Wild and Scenic Rivers 4

1.3.7 Major Surface Waters 4

1.3.8 Topography 4

1.3.9 Geology 4

1.3.10 Soil Types 4

1.3.11 Agricultural Resources 4

1.3.12 Fauna and Flora 5

1.4 Existing System 5

1.5 Need for the Project 7

1.6 Projected Future Needs 8

2.0 ANALYSIS OF ALTERNATIVES 9

2.1.1 Proposed Alternative 9

2.1.2 No-Action 9

2.1.2 Reduced Scope Alternatives 9

2.2 Optimum Performance of Existing System 10

2.3 Regionalization 10

2.4 Monetary Evaluation 10

2.5 Environmental Evaluation 13

2.6 Technical Considerations 13

2.7 New/Increased Water Withdrawals 13

3.0 SELECTED ALTERNATIVE 14

Description 14

3.1 Design Parameters 14

3.2 Useful Life 14

3.3 Water and Energy Efficiency 15
3.4 Schedule for Design and Construction 15
3.5 Cost Summary 15
3.6 Implementability 16
4.0 ENVIRONMENTAL AND PUBLIC HEALTH IMPACTS 17
4.1 Direct Impacts 17
4.2 Indirect Impacts 18
4.3 Cumulative Impacts 18
5.0 MITIGATION 19
6.0 PUBLIC PARTICIPATION 20
6.1 Public Meeting 20
6.2 Public Meeting Advertisement 20
6.3 Public Meeting Summary 20
6.4 Adoption of the Project Planning Document 20

APPENDIX I
PLANNING DOCUMENT REQUIRED COMPONENTS
APPENDIX II
INTENT TO APPLY
APPENDIX III
NOTICE OF PROJECT PLANNING PUBLIC HEARING
SELECTED ALTERNATIVE RESOLUTION
APPENDIX IV
MAPS
APPENDIX V
ENVIRONMENT MAPS
APPENDIX VI
LEAD SERVICE LINES
APPENDIX VII
PROJECT COSTS ALTERNATIVES ANALYSIS

INTRODUCTION

Osceola Township has completed a Drinking Water Asset Management Plan which provided detailed inventory of various water system components based on an Asset Management Plan (AMP).

The proposed work that is identified to be included in the Project Plan is the replacement and repair of existing system components at or near the end of their useful life as identified by Osceola Township. This work consists of 4,500 feet of water main replacement through out Dollar Bay . The proposed work also includes replacement of old and deficient water well pumps, replacement of old deficient water hydrants, replacement of old and deficient water valves, and replacement of lead service lines.

In addition to needed improvements to the Dollar Bay water system, the Township has identified needs to the Osceola Township Tamarack City water system. The main priority improvement that needs to addressed is replacement of lead service lines. There are approximately 75 lead service lines to be replaced. Tamarack City would like to change their water supply from Upper Michigan Water Company to Dollar Bay water supply, to take more control of the supply, reduce dependence on a entity whom they have no control of or input into, and in an emergency could use the proposed facilities to back feed water to Dollar Bay in event of an emergency with that supply.

Osceola Township has authorized the preparation of this *2024 Drinking Water State Revolving Fund (DWSRF) Project Plan* for water system improvements. Information from this plan will be incorporated into an application document that will be submitted to EGLE for consideration to receive a low interest construction loan and grant to make necessary water system capital improvements to the Township's water distribution systems. All forms required for submittal on June 1, 2023 can be found in Appendix I. The Township has submitted an *Intent to Apply* form to the EGLE Water Infrastructure Financing Section (WIFS) in October 2022, which is included in Appendix II for reference.

1.0 PROJECT BACKGROUND

1.1.1 Service Area

The existing service area of the system covers Dollar Bay and the unincorporated community of Mason.

The service area of the Osceola Township water system includes the areas of Dollar Bay, Mason, and Tamarack City, which totals approximately 20,000 feet of water distribution mains and associated valves and hydrants, ranging in vintage from the early 1900's to recent installations. The distribution system includes approximately 500 service lines.

Well water is pumped at the dollar bay water well field, and equipped with chlorine treatment if needed. Other major components of the water system include the Dollar Bay ground tank and transmission main to Mason, located 9000 feet east of Dollar Bay.

1.1.2 Delineation of Study Area

The proposed water system improvements areas includes distribution system replacements and lead line replacements within Dollar Bay.

The study area includes proposed water well pump replacements in Dollar Bay, near the shores of Portage Lake. Also included are water storage tank improvements in Dollar Bay consisting of fencing repairs and hatch and flashing repairs.

Improvements in the Osceola Township area of Tamarack City includes lead service line replacements as well as extension of a transmission main from Mason to Tamarack City, and a booster pump station in Mason. The proposed transmission main will be installed in old MDOT railroad right of way along the shores of Torch Lake.

Maps of the service and study areas are included in Appendix IV of this report.

There is a wellhead protection plan developed for the Dollar Bay water well supply site, see Appendix VI.

Air quality, water quality and agricultural areas will not be negatively impacted by proposed work within the study area.

1.2 Population

Population

Historical population data and projections for Houghton County came from the Western U.P. Planning and Development Region's Comprehensive Economic Development Strategy, 2022-2026.

LOCATION		POPULATION						
	1970	1980	1990	2000	2010	2020	2030	2040
Village of Dollar Bay	1,082	1,082	1,082	1,082	1,082	1,213	1,213	1,213
Mason	55	55	55	55	55	55	55	55
Tamarack City	425	425	425	425	425	425	425	425
Osceola Township	1,957	2,074	1,879	1,904	1,888	1,822	1,850	1,878
Houghton County	34,652	37,872	35,446	36,016	36,628	37,361	38,069**	40,536**

**Projection of the 10% per decade increase seen from 2000 to 2010 but use 2022-2026 Comprehensive Economic Development Strategy; Western Upper Peninsula, MI; Economic Development District; Planning & Development Region 13, rate of 1.5%/decade for population increases in this geographical area.*

***Per the 2022-2026 Comprehensive Economic Development Strategy; Western Upper Peninsula, MI; Economic Development District; Planning & Development Region 13*

1.3 Existing Environmental Evaluation

1.3.1 Cultural and Historic Resources

No anticipated cultural, historical or archaeological sites will be impacted, since the proposed project generally includes removing/replacing and repairing existing infrastructure in the same locations. Impacts of the proposed project will take place within existing Township property or rights-of-way, generally along existing paved streets or previously developed transportation right of ways. If cultural or historical resources were present and threatened to be impacted, work would immediately cease, and the State would be contacted.

1.3.2 Air Quality

Not applicable. Measures to control dust from construction operations will be implemented when necessary. Negative effects to air quality are not anticipated.

1.3.3 Wetlands

Not applicable. The proposed project is not expected to impact wetlands, as water system repairs/replacements will take place within existing road rights-of-way. If any portions of the

project were to impact wetlands, a Part 303 EGLE Permit would be acquired prior to construction activities within those areas. A wetland map is included in Appendix V. Negative effects to wetlands are not anticipated.

1.3.4 Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas

Zones, and Coastal Management Areas

Not applicable. Osceola Township is located on Portage Lake and Torch Lake, however the proposed work is not located within the coastal zone. A USACE Section 10 permit would be acquired if impacts to coastal zones were anticipated. A coastal zone map of the area is included in Appendix V.

1.3.5 Floodplains

Not applicable. The proposed work is not located within floodplains. A Part 31 EGLE Permit would be acquired if impacts to floodplains were anticipated. A FEMA floodplain map is included in Appendix V.

1.3.6 Natural or Wild and Scenic Rivers

Not applicable. According to the Michigan DNR website, there are no wild and scenic rivers located within the study area.

1.3.7 Major Surface Waters

The Keweenaw Waterway/Portage Lake is located adjacent to Dollar Bay, and Dollar Bay gets its water from potable water wells along the shore of Portage Lake. Tamarack City is located along the shore of Torch Lake.

Portage Lake is utilized as a year-round recreational waterbody for swimming, boating, and fishing. Keweenaw Waterway is a navigable waterway a partly natural, partly artificial waterway which cuts across the Keweenaw Peninsula of Michigan.

None of these major surface waters will be impacted by the proposed project.

1.3.8 Topography

See Appendix V for the topographic map of the service area.

1.3.9 Geology

See Appendix V for the geologic map of the service area.

1.3.10 Soil Types

See Appendix V for the soils map of the service area.

1.3.11 Agricultural Resources

Not Applicable. There are no agricultural resources located within or near Osceola Township water systems.

1.3.12 Fauna and Flora

There are no projected impacts to plants or animals due to the removal, replacement, or installation of infrastructure within existing developed ROWs and facilities.

A Permit Application for Water Supply Systems (Act 399) will be submitted to EGLE for review and approval during the design phase of the project. This permit does not waive the requirement to obtain/conduct all other necessary permits/studies, etc.

1.4 Existing System

A. The condition of source facilities.

Osceola Township has pumped water from two (2) 12-inch diameter wells located adjacent to the Portage Lake since the 1970's**.** These pumps are activated on demand by the water level in the ground water storage tank located north of town. These well pumps are old, and replacement parts are becoming increasingly difficult to obtain.

Tamarack City receives water from the Upper Michigan Water Company, located in Calumet. The source for the Upper Michigan Water Company is ground water wells located at Calumet Waterworks 5 miles east of Calumet on the shore of Lake Superior. Water is transmitted 5 miles to Calumet, and another 5 miles from Calumet to Tamarack City. Much of this transmission main is old and raises the question of frequency of future failures and increased cost of supply to Tamarack City customers.

B. The method of water treatment.

Osceola Township Dollar Bay water supply pumps directly into the water distribution system with no treatment, but it does have a chlorine dosing system for disinfection if bacteria is detected anywhere in the system.

The source for the Upper Michigan Water Company is ground water wells located at Calumet Waterworks, where the water is treated with polyphosphate and chlorine.

C. Storage tanks and pump stations.

The ground water storage tanks consist of two (2) 100,000 gallon tanks located north of Dollar Bay and situated side by side, with one constructed in **1964**, and one constructed in 2003. These tanks supply water directly to the distribution system. There are no pump stations in the system.

The ground water storage tank is a 200,000 gallon tank located north of Tamarack City, and was constructed in 2012.

D. Water Service Lines.

Osceola Township's water system in Dollar Bay and Mason contains approximately 330 customer water service lines. The majority of service line material within Osceola Township rights-of-way is either galvanized pipe or copper tubing, with very little if any plastic pipe on public property. The type of material generally depends on the vintage, with galvanized pipe used predominantly prior to the late 1980's and copper utilized from 1990's to present. Due to its low rate of corrosion and high resistance to reacting with the environment, most of the

copper water tubes are in good condition. Galvanized service line condition is usually dependent on age, with older lines often experiencing deterioration and leaks.

The Osceola Township area of Tamarack City had a new distribution system installed in 2012, with new copper water services installed to the ROW line. The water service lines beyond the ROW line to the home are a mix of new copper service, and older plastic and galvanized service lines.

There are several known lead service lines or lead goosenecks within Osceola Township, with approximately 110 in Dollar Bay, none in Mason, and approximately **75 i**n Tamarack City. The Tamarack City lead service lines will extend from the curbstop to the home as all lines from the main to the curbstop are new in 2012.

E. Distribution system mains, valves and hydrants.

Most water mains within Dollar Bay are made of cast iron and ductile iron pipes, with little to no plastic pipe utilized within the public system. Ductile iron pipe was introduced in new installations during the early 1980's and has since been the standard material used. Since ductile iron pipes are resistant to corrosion in most soils, their life expectancy is over 100 years. Most of the ductile iron pipes in Osceola Township are in good condition. The old cast iron pipes in Dollar Bay are in poor condition and are experiencing several water main breaks per year and are seeing a water loss rate of 50% within Dollar Bay.

The transmission main from Dollar Bay to Mason, the Mason water system, and Tamarack City watermains are ductile iron, are 10 and 20 years old, and in good condition.

Dollar Bay has a significant amount of original cast iron pipes, which include pack-type joints less well suited for modern flows and pressures. These older systems are not only beyond their expected service life but often exist at shallow bury depths within the influence of frost impact, requiring Osceola Township DPW crews to frequently address water main breaks and leaks, most often during the winter months.

The age and condition of valves are likely that of the adjoining water main, very seldom being replaced unless there is a leak or break. Many of these valves have ceased to function due to old age, resulting in the inability to completely close and isolate areas for repair.

Fire hydrants are generally repaired or replaced as they age and require maintenance, as prioritized by the Dollar Bay Fire Department. There are a significant number of older hydrants remaining in the system.

F. Residuals handling and disposal.

Not applicable.

G. Condition of water meters.

Osceola Township (Dollar Bay, Mason, and Tamarack City) DPW provides and maintains customer water meters. The meters are 20 years old and are due for replacement. Some meter replacements have been required in recent years due to failures.

H. Operation and maintenance requirements.

Routine monthly and annual maintenance is performed on the water well pumps within the system, per manufacturer's recommendations. DPW crews regularly test water quality at the source and throughout the service area as directed and established with EGLE, and also flush fire hydrants on an annual basis.

I. Design capacity of the waterworks system/existing uses of available capacity.
Osceola Township uses approximately 200.0 million gallons of water per year. The average daily water usage is 550,000 gpd.

See following Firm Capacity Flow Summary for an analysis of system flows:

Potable Water
Firm Capacity Flow Summary

Fire Flow + Maximum Day	≤ Storage + Firm Capacity
2hrs x 1000gpm + 300,000 gpd	≤ 200,000 + 432,000 gpd
120,000 + 300,000 gpd = 420,000 gpd	≤ 632,000 gpd

J. Climate resiliency.
As a result of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) – Water Supply Systems Permits, minimum water main installation depths are required to be 7 feet. This not only prevents freezing, but also protects pipes from exposure or impact due to erosion issues caused by intense storm events or flooding.

All water source and supply infrastructure are located outside of floodplains.

The water source well system has a backup generator for system reliability against a power outage.

1.5 Need for the Project

A. Compliance with the drinking water standards defined in Act 399.

i. There have been no acute violations of MCL or surface water treatment technique.
ii. There have been no non-acute violations of MCL or surface water treatment technique.
iii. An Osceola Township Water Supply Evaluation is performed by EGLE every 2-3 years. The purpose of the survey is to evaluate the water supply system with respect to the requirements of the Michigan Safe Drinking Water Act, 1976 PA 399.
The most recent staff visit on indicated that there were no deficiencies or recommendations for the treatment facility, based on an EGLE Water Supply Evaluation dated .
iv. There have been no waterborne disease outbreaks.
v. Osceola Township's reliability study needs to be updated as an item to be completed to maintain compliance with Act 399.

There are currently no water supply violations or consent orders requiring immediate correction.

B. Orders or Enforcement Actions.
Based on EGLE's Water Supply Evaluation, to avoid Act 399 violations:

C. Drinking Water Quality Problems.
There are no drinking water quality issues within Osceola Township water system.
There are no proposals to provide new water service to locations served by individual wells.
There are currently no concerns of surface water or groundwater contamination within Osceola Township's water system.

1.6 Projected Future Needs

Projected needs for the next 20 years include water distribution system upgrades (watermain replacements, valve replacements, hydrant replacements) totals $3,650,000. Included in the five-year plan are upgraded water well pumps, valves, and controls; and watermain replacements, lead service line replacements, valve and hydrant replacements throughout the system.

Well rehabilitation includes pumps and electrical upgrades to support new pumps.

Other system improvements include ground tank rehabilitations and valve replacements.

2.0 ANALYSIS OF ALTERNATIVES

2.1.1 Proposed Alternative

The proposed alternative includes replacing water system components that are at or near the end of safe and reliable performance including 4,500' of watermain, replacing well pumps, water meters, well house improvements, storage tank improvements, replacing lead service lines, extending watermain from Mason to Tamarack Township, adding a booster pump station from Mason to Tamarack City, miscellaneous hydrant replacements, miscellaneous watermain valve replacements, and watermain extension across the Dollar Bay marina channel to Sandy Bottoms Marina/ Beach area for water service and a hydrant for critical fire fighting water supply support . The total for the proposed alternative capital cost is $10,200,000.

In general, new 8" water main replaces existing mains of smaller size. Ductile Iron is the standard material used in Osceola Township's water system, installed by the open cut method. Directionally bored installation is not generally used in Osceola Township due to the frequency of water service connections and main connections.

Water main valves are generally installed at the same location as existing valves, and typically require additional numbers at pipe intersections to allow for better system operability. Hydrants are typically removed and replaced at the same locations throughout the Township.

Water storage improvements under the Proposed Project involve repairs to the existing Dollar Bay ground storage tank.

2.1.2 No-Action

With a 'No-Action' alternative, the replacement of existing deficient water distribution and water supply systems and within Osceola Township will not take place. The aging infrastructure will continue to waste water into the ground and poses a higher risk of water system contamination. No-action simply means that necessary improvements would be delayed, and the upgrades would made in a piece-meal fashion. This alternative will greatly increase the costs incurred by the water fund due to repairs taking place on an emergency basis.

2.1.2 Reduced Scope Alternatives

This alternative includes scaled down scope of work to lessen burden on the water system customers monthly water rate. The service area is home to several low income and fixed income elderly customers who are adversely impacted by increased utility rates. The project scope reductions considered include reducing proposed watermain replacement from 4,500 feet to 500 feet, removing water storage tank repairs, and removing the Tamarack City transmission main and booster station. These alternatives provide a range of project costs from $4,000,000 to $6,000,000.

As a maximum project reduction, an alternative with only lead service line replacements is included, as these are mandated for complete replacement by the municipality by 2041, so is a system cost that must be faced with no recourse or recompense.

2.2 Optimum Performance of Existing System

The existing Dollar Bay system is designed and constructed for maximum performance, effectiveness, and efficiency. There are no identified operational changes, new equipment, or additional training or operating personnel that would provide for enhanced functionality or efficiency of the distribution and supply systems.

The performance reliability of the water system does require upgrades outlined in this Project Plan, and by performing these upgrades, the reliability and performance will be increased. To continue to strive towards optimum performance, Osceola Township will continue to pursue funding options for the items identified for improvement in the system.

2.3 Regionalization

Osceola Township has started a regionalization plan with supplying water to Mason and looks to add to this plan by adding a line to feed Tamarack City as well.

2.4 Monetary Evaluation

A. Sunk Costs
   Current sunk costs are $25,000 for preparing the project planning document.

   Osceola Township currently has a total loan balance of $1,310,000 for previous water system projects including a Dollar Bay Water refi bond (2016 refi of 2003 USDA RD Bond) of $504,000, and Tamarack City RD bond 2021A of $806,000.

B. Present Worth
   There are no viable alternatives to the proposed water system replacements/upgrades.

C. Salvage Value
   The watermain and valves have a projected useful life of 75 years. There is no salvage value for buried water distribution system components. For the 20 Year Present Worth Analysis, the strait line depreciation method is used to evaluate the proposed future value at 20 years, and this value is used as salvage value for buried facilities.

   The water well supply pumps and booster pumps have a projected useful life of 20 years, so salvage value is $0. However, the life of the proposed loan is 30 years, so in order to ensure that the proposed equipment is viable for the life of the loan term, a short term reserve, or RRI (Repair, Replacement, and Improvement) Reserve is required to ensure funds are available to replace the equipment installed by the project after 20 years, within the period of the loan term.

D. Escalation
   Additional operation costs are incurred due to increased water volumes from old, leaking water mains and inefficiencies because of aging distribution pumps and controls.

E. Interest During Construction

Not applicable.

F. User Costs

The current Osceola Township Dollar Bay water rates are **$36.50**/month and includes 4,000 gallons. Rates apply to all water users.

The current Osceola Township Tamarack City water rates are a base rate of $37.00/month plus a water cost of $8.30 per 1000 gallons. For a customer who uses 3000 gallons, their monthly rate would be **$61.90**. Rates apply to all water users.

With the full proposed project, **Dollar Bay's** portion of project cost would be $5,870,000, and assuming a 75% grant/ **25% loan at 1.875% for a 30 year term**, the water rates for Dollar Bay customers would be increased from $36.50 to **$52.75/mo**. With a reduced project size ranging from $3,460,000 to $1,650,000, the corresponding rate increases would be $46.09 and $41.06. See Appendix VII – Project Costs Alternatives Analysis.

With the full proposed project, **Dollar Bay's** portion of project cost would be $5,870,000, and assuming a 75% grant/ **25% loan at 1.875% for a 40 year term**, the water rates for Dollar Bay customers would be increased from $36.50 to **$49.74/mo**. With a reduced project size ranging from $3,460,000 to $1,650,000, the corresponding rate increases would be $44.31 and $40.21. See Appendix VII – Project Costs Alternatives Analysis.

With the full proposed project, **Tamarack City's** portion of the project cost would be $4,280,000 and assuming a 75% grant/ 25% **loan at 1.875% for a 30 year term**, the water rates for Tamarack City customers would be increased from $61.90 to **$64.50/mo**. With reduced s project sizes ranging from $4,160,000 to $860,000, the various corresponding rate increases would range from $67.26 and $63.86. See Appendix VII – Project Costs Alternatives Analysis. Alternatives consider several aspects that may or may not be priority for Tamarack City customers and Osceola Township, including extending source supply from Dollar Bay (dropping Upper Michigan Water Company source).

With the full proposed project, **Tamarack City's** portion of the project cost would be $4,280,000 and assuming a 75% grant/ 25% **loan at 1.875% for a 40 year term**, the water rates for Tamarack City customers would be decreased from $61.90 to **$60.24/mo**. With reduced project sizes ranging from $4,160,000 to $860,000, the various corresponding rates would range from $66.27 and $59.72. See Appendix VII – Project Costs Alternatives Analysis.

Per EGLE methodology, Osceola Township community may be classified as 'overburdened'. If classified so and if selected for funding in the FY24 funding cycle, the project may qualify for up to 75% grant funding. For purposes of alternate funding offers, this Project Plan provides information on a range of funding offers including 0% grant, 25% grant, 50% grant, and 75% grant/ 25% loan, as seen in the Table below. The bonding for the SRF loan will require a user rate increase to cover the debt service on the loan.

OSCEOLA TOWNSHIP
WATER SYSTEM IMPROVEMENTS
LOAN/GRANT PROJECTIONS

GRANT %:	0%	25%	50%	75%

G. Project Delivery Method
The traditional project delivery method of design-bid-build is the most cost-effective delivery method for this type of project due to its defined layout and scope of work, to portray clear expectations of the completed project and transparency of costs.

2.5 Environmental Evaluation

The majority of the environmental impact is projected to occur during the installation of the watermain and booster pump station to Tamarack City. The construction will be done along existing old railroad grade where there has not been water related construction in the past.

The no-action alternative will not address existing structural deficiencies in the water system, which will continue to worsen to the point of failure or inoperability, at which time entire portions would require replacement under emergency conditions. The performance of the project by replacing the currently deficient components will decrease the risks of catastrophic failures which can lead to unscheduled system operation and contamination of the supply and distribution.

The contractor is required to obtain and follow all state and local permits and their requirements for construction operations. There are no anticipated direct or indirect impacts resulting from the project which could affect wetlands, floodplains, land/water resources, historic/tribal resources, or endangered flora/fauna, as the proposed improvements will simply replace or upgrade existing utilities in-kind, within Township-owned property and rights-of-way. There are no anticipated mitigation requirements or costs associated with the proposed project.

2.6 Technical Considerations

All water system related projects within Osceola Township, including the proposed project, comply with Act 399 and meet all guidelines of the "Recommended Standards for Waterworks".

All pumps and controls are replaced with those of equal or greater capacity and efficiency. All storage tanks and their capacities were initially designed to work in conjunction with one another and contain adequate storage capacity. Any work performed on the storage tanks is for maintenance and rehabilitation purposes.

2.7 New/Increased Water Withdrawals

Not applicable. The proposed increase of the water service area to Tamarack City will fall within the current rated withdrawal capacity of the water supply system.

3.0 SELECTED ALTERNATIVE

Description

The recommended alternative, as outlined in the Project Plan, includes the:

-removal and replacement of approximately 4,500 feet of water main and associated valves, hydrants, and services within Dollar Bay water system,

-replacing the old well pumps and well house improvements

-water meter replacement (Dollar Bay),

-storage tank improvements (Dollar Bay),

-replacing lead service lines (Dollar Bay),

-miscellaneous hydrant replacements (Dollar Bay)

-miscellaneous watermain valve replacements (Dollar Bay)

-extending watermain from Mason to Tamarack City, including booster pump station,

-replacing lead service lines (Tamarack City),

-watermain extension across the Dollar Bay marina channel to Sandy Bottoms Marina/ Beach area for water service and a hydrant for critical fire fighting water supply support .

All water mains will be installed within existing rights-of-way. All disturbed areas, including pavement and turf, will be restored.

3.1 Design Parameters

Existing and proposed water main locations are shown on the attached Proposed Project Map. The proposed water main replacement will be with 8-inch ductile iron pipe, which is the minimum size recommended by EGLE, and is the Osceola Township standard minimum size. The proposed in-line gate valves will match the size of the proposed water main.

The water well pump replacements are top priority of this project and will be replaced with equivalent sized pumps. The pump design is 300 gpm at 225 feet total developed head.

There are no new treatment processes or procedures proposed for the water system per this Project Plan.

All proposed Project Plan improvements will meet EGLE and 10-States Standards requirements.

3.2 Useful Life

The water main replacement pipe, valves and hydrants have a useful life expectancy of 75 years. The proposedoo booster station pumps have a useful life expectancy of 20 years.

3.3 Water and Energy Efficiency

Upgrading the distribution system increases the water and energy efficiency by reducing the amount of leaking, structurally deficient water mains, fittings, and valves. This reduced water loss results in less water supply pumping, therefore saving energy and equipment wear. Replacing old, less efficient pumps and controls also results in energy savings.

3.4 Schedule for Design and Construction

- June 1, 2023: Submitted Project Plan
- October 2023: Receive notice of selection for FY24 funding
- October 2023: Begin Design Engineering process
- January 2024: Part 1 of Application Submitted
- February 2024: Part 2 of Application Submitted
- March 2024: Bid Advertisement
- April 2024: Bid Opening
- June 2024: Loan Closing
- November 2025: Construction complete, project close out

3.5 Cost Summary

The Engineer's Opinion of Probable Cost for the Project Plan is:

OSCEOLA TOWNSHIP
WATER SYSTEM IMPROVEMENTS
ENGINEERS OPINION OF PROBABLE COST

1	Replace Watermain	4500	LF	450	$2,025,000
2	Replace Lead Service Lines - Dollar Bay	110	LF	12000	$1,320,000
3	Replace Lead Service Lines - TC (on private)	75	EA	8000	$600,000
4	Miscellaneous Hydrant Replacements	5	EA	12000	$60,000
5	Misc. Watermain Valve Replacements	5	EA	10000	$50,000
6	Extend Watermain Mason to Tamarack City	8000	LF	300	$2,400,000
7	Booster Pump Station, Mason to Tamarack City	1	LS	200000	$200,000
8	WM to Sandy Bottom - Open Cut	1500	FT	450	$675,000
9	WM to Sandy Bottom - DB Channel	500	FT	500	$250,000
10	WM to Sandy Bottom - Hydrant	1	EA	12000	$12,000
11	Replace Water Meters - Dollar Bay	330	EA	500	$165,000
11	Replace Water Meters - TC	170	EA	500	$85,000
12	Replace Well Pumps	2	EA	75000	$150,000
13	Well House Improvements	1	LS	50000	$50,000
14	Storage Tank Improvements	1	LS	30000	$30,000
15	UMWC Contract Clause	1	LS	71500	$71,500
				Construction Total	8,143,500

Contingency, Bonding, Legal, Constr. Obs/Admin,. Design	$1,999,636
Total	**$10,143,136**

The recommended project would complete rehabilitation of critical water distribution system components by replacing deteriorated water distribution mains, valves, hydrants and services by the open cut method, replacement of old water well pumps, replacing lead service lines, .replacement of water meters, and installation of a booster station and transmission main to serve the Osceola Township community of Tamarack City.

The median household income for Osceola Township is **$50,000**. With rates raised to **$41.67** per month for the average residential user, the rate will be 1.0**%** of blended MHI, as detailed in the Overburdened Calculations spreadsheet of this report, and calculated as follows: ($41.67 x 12 months) / $50,000 = 1.0%.

As detailed in the following water System Financial Status Table, a rate increase to at least **$41.67 per month** for the average residential user is used to project a sufficient income to implement the proposed project, with a requested 75% grant and low interest loan from the State DWSRF program.

Osceola Township Dollar Bay water system has a total of 330 water users, and a total of **_____ Residential Equivalency Units (REUs).** The average monthly water use per residential user is _____ gallons. The estimated population for the distribution system is 1213.

Osceola Township Tamarack City water system has a total of 170 water users, and a total of **_____ Resid0ntial Equivalency Units (REUs).** The average monthly water use per residential user is 2,239 gallons. The estimated population for the distribution system is 340.

The proposed total Osceola Township system will have 500 water users, _____ REUs, and 1553 population.

As detailed in this Water System Financial Status table, this scheduled rate increase will be sufficient to implement the proposed project with a requested 75% grant and low interest loan from the State DWSRF program.

3.6 Implementability

Osceola Township, as a governmental unit with authority over its water system, has the legal, financial, and managerial capability to implement the proposed project for water system improvements. The service area falls within the Township limits. Osceola Township maintains a capital improvement budget and rate structure that will be utilized and managed to finance the project with the help of the low interest loan and grant from the State. Osceola Township has the management and operational staff to operate the system, and with the services of U.P. Engineers & Architects, Inc.; has an experienced and capable team to implement the project and has the legal authority, capability, and expertise to plan, finance, build, operate, and maintain the proposed project.

4.0 ENVIRONMENTAL AND PUBLIC HEALTH IMPACTS

4.1 Direct Impacts

A. Construction Impacts.

The contractor will be responsible for accommodating residential and business access and needs within the project area during construction, since traffic impacts will be present. There are no anticipated environmental impacts due to construction, except for noise and dust, which is common with projects of this type. Contractors are required to provide mitigation measures to control dust. All proposed replacement and repair work will take place within Osceola Township property and rights-of-way.

There are no anticipated impacts or disturbances on sensitive features such as floodplains, wetlands, stream crossings, shorelands, and prime or unique agricultural lands.

Installation by the open cut method for underground utilities will involve trenches of sufficient width to either utilize a trench box or have side slopes that are OSHA compliant. Most disturbance due to trenching is typically contained within the rights-of-way.

There are no known rare, threatened, endangered, or special concern species located within the study area.

There are no anticipated impacts upon archaeological, historical, or cultural resources within the study area.

Temporary detours are expected because of construction within the distribution system replacement locations of the study area. Residences within the study area will use alternate, nearby Township streets for travel and parking. Construction will only impact local traffic as it is not located on state or county roads.

There are no anticipated impacts to surface water or groundwater due to the project. Minimal, localized dewatering operations are expected for water main replacement to provide dry trench conditions for compaction of pipe bedding and backfill materials, as required per project specifications.

B. Operational Impacts.

There are few operational impacts as there aren't dangerous chemicals being transported through the water main. Since the watermain is buried underground, there will not be noise that can be heard from operation, expect potentially at the booster pump station.
Residential areas will be impacted by removal and replacement of the water distribution system, as trenching along Township streets will occur and temporarily prohibit parking access to residences. Accommodations will be made to provide alternate parking and safe access to individual properties.

C. Social Impacts.

As with all public utility improvements, a minimal user rate increase is expected as a result of the project.

4.2 Indirect Impacts

Improvements to the water supply and distribution systems will benefit existing development in the service area. No known improvements or developments are currently scheduled for the project area.

Restoration to the impacted Township streets in the service area will occur as a result of the project, increasing the quality of transportation.

Minor impacts to air quality are anticipated during construction, and measures will be implemented to control fugitive dust.

There will be no changes in development rate, density, type of development or land use resulting from the project. Changes in air or water quality, natural resources, sensitive species or ecosystems, aesthetic aspects of the community, or resource consumption over the useful life of the project are not anticipated.

4.3 Cumulative Impacts

Replacement of distribution lines and upgrading water supply components within the system will not induce new development or infrastructure. Osceola Township Dollar Bay is in serious need to replace portions of their water distribution systems which are old and in poor condition. Sections of the old water systems are often repaired under emergency circumstances by Osceola Township DPW crews, which result in unscheduled shutdowns and interruptions involving water boil notifications and water system flushing. There are no negative cumulative impacts as a result of the proposed project.

5.0 MITIGATION

During the installation of the water main, detours will be put in place for through traffic and the streets within the work area will be closed, with limited access available for residents located adjacent to the construction area. As work progresses, contractors are required to reestablish access to residents and businesses as soon as possible by backfilling trenches and restoring streets to gravel surface. All streets within the project area will be repaved once water system replacement and testing are complete.

All required EGLE permits shall be obtained with necessary mitigation measures included. Specific areas may also require Soil Erosion and Sedimentation Control Measures, as directed by Houghton County, to be put into place. These include the use of silt fence at locations susceptible to erosion, and the use of filter fabric drops to be placed at storm sewer inlets to prohibit the transport of sediments into existing drainage systems.

Alternatives to water main locations are not evaluated, since the systems are removed and replaced in-kind, enabling reconnections to end points of the existing system and customer service lines. The contractor is required to minimize the duration of water service interruptions through efficient construction scheduling, which is presented to Osceola Township and Engineer for approval.

Construction noise is inevitable, however workday hours are restricted from 7:00 a.m. to 7:00 p.m., unless otherwise approved by the Township. Construction dust is controlled, as needed, using water or calcium chloride.

6.0 PUBLIC PARTICIPATION

6.1 Public Meeting

Osceola Township has discussed the proposed project at several Township Board meetings over the last several months, as well as held special meeting to inform interested public on the proposed project, relay system needs to the public, and field any questions or concerns the public may have. There has been strong interest among the public, especially among Tamarack City residents who are interested in the feasibility of extending Dollar Bay supply to Tamarack City to complete the regionalization of Osceola Township water, and relieve themselves from the high water rates and liabilities of old water transmission main from Upper Michigan Water Company.

The formal public hearings will take place on May 11, 2023 at 5:30 pm in Dollar Bay, and May 17, 2023 in Tamarack City.

These meeting are open to all, and all were invited to each meeting. The meetings were posted on the Township website as well as posted on the door at the Township Office and at the Tamarack City Fire Hall.

6.2 Public Meeting Advertisement

See attached screen shot of the Notice of Public Hearing from Township website in Appendix III.

6.3 Public Meeting Summary

The following items are discussed during the public meeting: Proposed Project Scope of Work, impact to customer user rates, alternative analysis and selection of the proposed alternative, and project schedule.

The following elements from the public meeting included in the final plan:

A. Summary of the meeting held and what was covered during the meeting.
B. List of all attendees.
C. Specific concerns that were raised during the meeting and the responses.
D. Written comments that were received during the public notice period and the responses.
E. Changes that were made to the project because of public comment.

6.4 Adoption of the Project Planning Document

See Appendix III, which includes an adopted resolution approving the proposed Alternative.

APPENDIX I

PLANNING DOCUMENT REQUIRED COMPONENTS

APPENDIX II

INTENT TO APPLY

APPENDIX III

NOTICE OF PROJECT PLANNING PUBLIC HEARING

SELECTED ALTERNATIVE RESOLUTION

APPENDIX IV

MAPS

APPENDIX V

ENVIRONMENT MAPS

APPENDIX VI

LEAD SERVICE LINES

Appendix VII

Project Costs Alternatives Analysis