

# City of Onaway Drinking Water Improvements

City of Onaway

Michigan Drinking Water State Revolving Fund Project Plan

April 2021



1211 Ludington Street  
Escanaba, MI 49829

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## SUMMARY

The City of Onaway is requesting consideration by the State of Michigan for a Drinking Water State Revolving Fund Grant. This grant will make available funds for lead and lead impacted galvanized service line replacements within the City limits. A grant could make funds available for immediate use on service replacements and allow incremental readiness and commodity rate increases to make the other recommended improvements to the system.

The existing water system in the City of Onaway has been constructed in phases since the 1910's. Periodic inventory and replacement projects have taken place since then creating a network of historic cast iron and lead oakum pipe and more modern ductile iron.

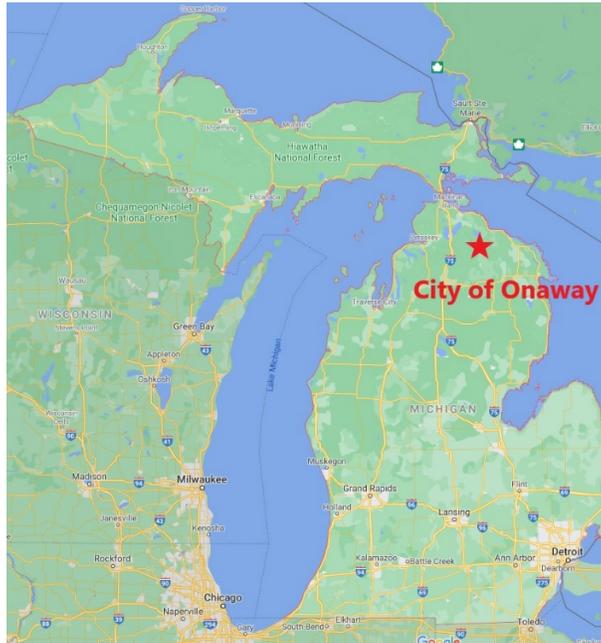
The City of Onaway is located in Presque Isle County in Northeastern Lower Michigan, just 45 miles south of the Mackinac Bridge. See Figure 1 below for a map depicting Onaway's location within Michigan. Originally a small farming community, the area grew during the lumber era and was incorporated as a city in 1903. Today, Onaway enjoys a small town atmosphere, with the local economy mostly supported by small manufacturing facilities and tourism. The most recent major city improvements include a new state-of-the art sewage system and an Industrial Park.

Onaway's water system is made of two wells, with a total capacity of 750 gallons per minute. The water is stored in a 300,000 gallon elevated tank that can deliver 720,000 gallons per day. There are many dead end and undersized mains in the delivery system, some of which are more than 100 years old. This creates problems with leaking, low pressure, and seasonal freezing. The service area for the water system includes the land within the City's corporate limits, and a few establishments on the perimeters of the town, including the Onaway Area Schools, located in Allis Township. Though 117,000 gallons of water are produced per day, metered water consumption is only 77,000 gallons per day.

The alternatives considered in the following report are essentially "no-action" and "optimization" by replacement and upgrades. Despite the relatively high cost of this work in the present worth analysis, the necessity of lead-impacted service replacement means that "no-action" is not a possibility.

Based on existing rates and median household income, Onaway qualifies as a disadvantaged community and may therefore opt for a DWSRF grant instead of a loan.

**Figure 1. Location Map**



## Project Background

The City of Onaway owns and operates a public water system serving the City and several users in Allis Township. The system includes:

- Two groundwater source wells (drilled in 1986 and 1988, replaced in 2003 and 2007).
- One elevated storage tank with a 300,000-gallon capacity (constructed in 1971).
- A system of underground transmission and distribution piping.

Watermains in Onaway date back to the early 1900s, with some major improvement and expansion projects taking place in 1989, 1999, 2006, and 2012. There have been several engineering studies and infrastructure improvements done, such as:

- Wastewater System Planning and Funding – 2000 to 2003
- Wastewater Collection and Treatment Systems Construction – 2003 to 2006
- Water Study – 2001
- Master Plan – 2009
- Water System Reliability Study – 2013 and 2020
- SAW Program Wastewater & Stormwater Asset Management Plans – 2017 – 2019

Due to the age of the system and field investigations over the years, it has been determined that approximately 475 lead services exist and will need to be replaced from the watermain to each metered residence/business.

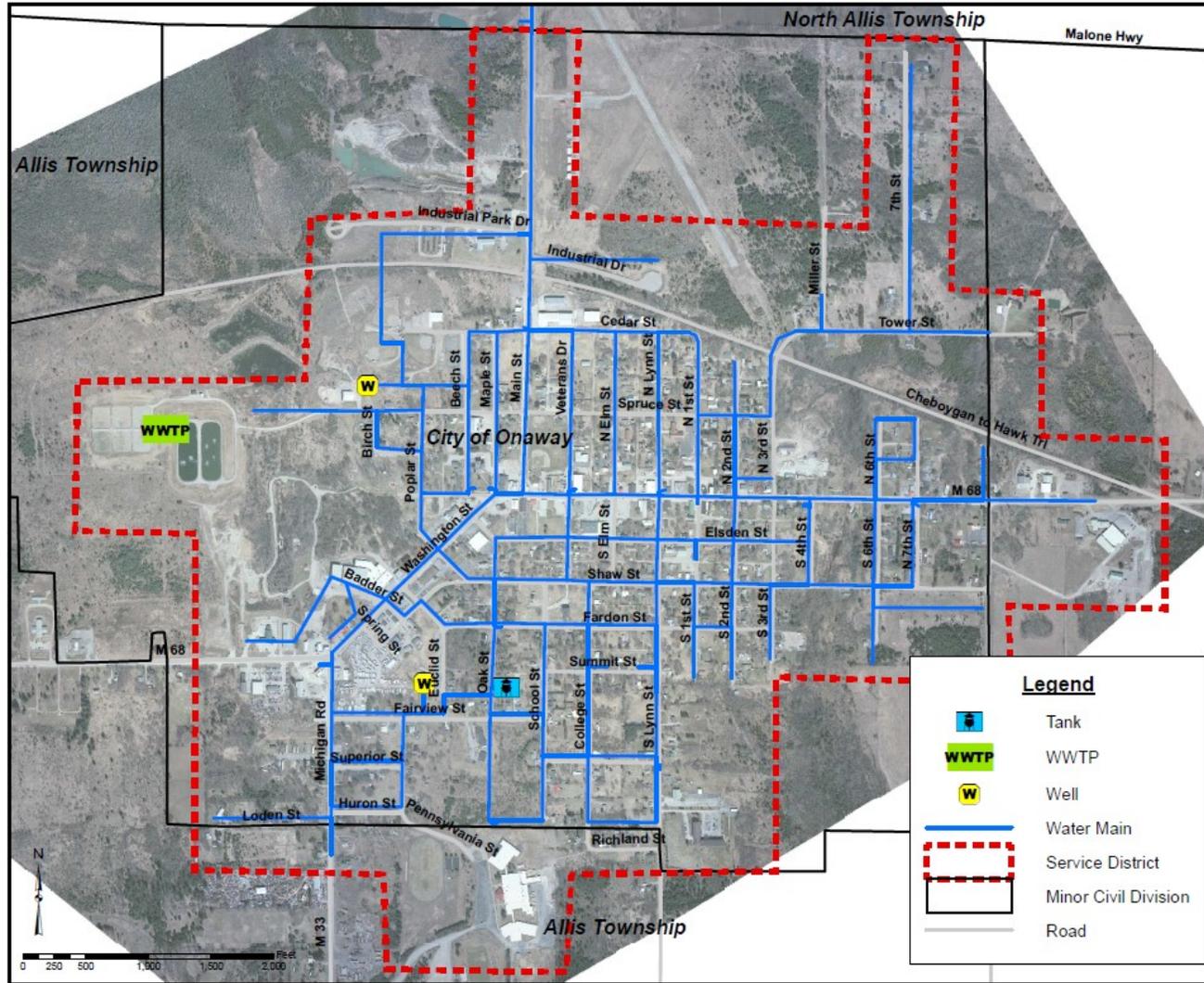
**a. Delineation of Study Area**

The City of Onaway is located in Presque Isle County along highway M-68, M-211, and M-33. Situated in the northeast corner of Michigan's lower peninsula, Onaway is just 45 miles south of the Mackinac Bridge and 250 miles north of Detroit. A map of Onaway's service district is provided on the following page in Figure 2. The historic lumber town is now primarily composed of single family residential housing with standard light commercial to small industrial sized water demands. There is a small number of moderate to larger sized industrial users within the service district, with the largest users including (with 2019 average gallons used):

- Larry's Git'er Klean Car Wash (147,000 gallons)
- Lynn Street Manor (77,000 gallons)
- Onaway Area School (61,000 gallons)
- Tom's Family Market (33,000 gallons)
- The Wash Haus (22,000 gallons)

The service area for the water system includes the land within the City's corporate limits, and a few establishments on the perimeters of the town, including the Onaway Area Schools, located in Allis Township.

Figure 2. Study and Service Area



**b. Land Use**

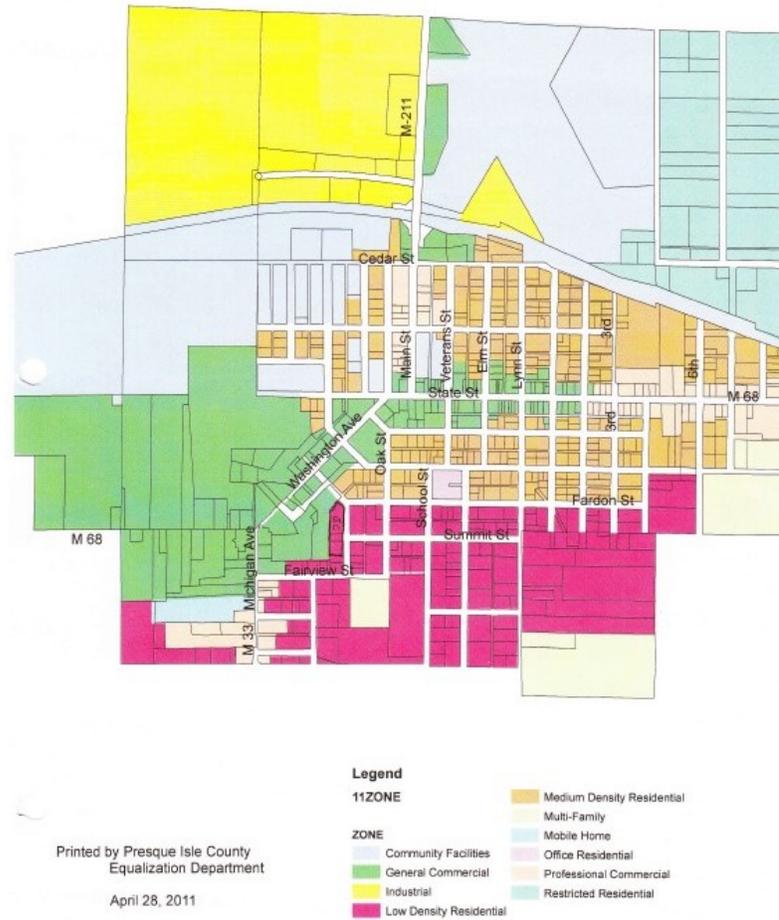
Prior economic growth and development in the region was dependent upon the timber industry; while the current economy depends on recreation, tourism, and several small businesses. Local small businesses include retail stores, service stations, grocery stores, restaurants, and professional/financial offices. Land within the City of Onaway is primarily residential and commercial, with small areas of light industrial use and many nearby recreational areas. The breakdown of residential and commercial/industrial usage by meter is depicted below in Table 1.

**Table 1: Water Usage**

| Type of Meter    | Number of Meters |
|------------------|------------------|
| Residential      | 372              |
| Commercial/Other | 108              |
| <b>Total</b>     | <b>480</b>       |

The City’s 2009 Comprehensive Plan describes the land use as primarily residential. The areas south of State Street and Washington Avenue, north of State to Cedar and the railroad tracks are almost entirely residential. With only a few exceptions, commercial activities are located along Michigan Avenue, Washington Avenue, State Street, and Main Street. Though there are no true industrial activities taking place at this time, there are a pair of industrial parks located on either side of Main Street, one of them surrounding the Presque Isle Electric and Gas Complex on the east side of the road, the other across Main on the west side of the road. An overview of the City Zoning Map is available on the next page in Figure 3. A full zoning map of the City is available in Appendix D.

**Figure 3. City Zoning Map**



**c. Population Projections**

The City of Onaway and surrounding areas have experienced significant population loss in recent years. The 2010 tabulations show an 11 percent population loss over the last decade. The loss of population continues a trend that began in 1920, when Onaway’s population peaked at 2,789 during the height of their timber industry. At that time, the city housed a factory that manufactured most of the wooden steering wheels used in automobiles. After the timber industry slowed and the factory burned down and was relocated, residents began moving elsewhere in search of employment. The following table reports census numbers in the prior four decades and forecasts a slow population decline in the future.

**Table 2: Population Statistics**

| Entity (a)              | 1980   | 1990   | 2000   | 2010   | 2020   | 2030   | 2040   |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
|                         |        |        |        |        |        |        |        |
| City of Onaway          | 1,084  | 1,039  | 993    | 880    | 832    | 805    | 751    |
| Presque Isle County (b) | 14,267 | 13,743 | 14,441 | 13,376 | 12,637 | 12,229 | 11,409 |

*(a) 1980 – 2018 based on published US Census figures*

*(b) County Data 2020-2040 based on 2019 report, “Michigan Population Projections by County through 2045”*

**d. Water Demand**

Onaway’s water system can be measured by the amount of water pumped from the city’s two wells or the water metered at the point of use and billed. For this project plan, we will focus on the water pumped from the groundwater wells. Water demand figures have been recorded by the city between 2009 and 2019 in their monthly operating reports (MORs). The recordings were compiled and analyzed by C2AE in their *2020 Water System Reliability Study*. The results of that study are summarized in the following paragraphs and Tables 3 and 4.

Though demand can be reported as the amount of water consumed by system users over a given period of time based on billing meter records, this project plan will determine demand based on water pumped from the wells. Reporting water demand this way will include other water uses and losses that are not billable, such as let-runs, flushing, and losses through leakage and ineffective metering. Typically, lost water can range from more than half of pumped water in older systems in cold regions, to less than 10% in newer, well maintained systems. EGLE often recommends a goal of limiting lost water to 15% in Northern Michigan small and rural communities. The report findings are expressed in tables below, and are defined as follows:

- Average Daily Demand: reported in million gallons per day (MGD) and calculated by dividing the total water pumped over a period of time (typically a month or year) by the number of days in that time period.
- Maximum Month Demand (MGD): the average daily demand during the maximum 30-day period as obtained from monthly operating reports. Our table represents maximum monthly flows for summer and winter conditions separately.
- Maximum Daily Demand (MGD): determined by reviewing monthly operating reports for the highest single day’s production for the period of concern. Typical ratios of maximum day to average day demand range from 1.5:1 to 3:1.
- Maximum Hourly Demand (MGD): estimated by multiplying the average daily demand by a factor ranging from three to six generally based on population served (4.5 was used for Onaway due to its smaller population).

**Table 3: Average Pumpage from Wells**

CITY OF ONAWAY WATER RELIABILITY STUDY AND GENERAL PLAN  
MONTHLY OPERATING REPORT SUMMARY: AVERAGE MONTHLY PUMPAGE FROM WELLS (2009 - 2019)

| Month      | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| January    | 3.21  | 3.86  | 3.38  | 2.24  | 2.62  | 3.24  | 3.35  | 1.91  | 3.03  | 3.03  | 3.16  |
| February   | 3.35  | 4.09  | 3.88  | 2.09  | 3.05  | 4.79  | 3.79  | 2.25  | 2.84  | 3.52  | 0.88  |
| March      | 3.83  | 4.20  | 3.46  | 2.26  | 3.07  | 6.02  | 5.69  | 2.25  | 3.36  | 4.38  | 1.81  |
| April      | 2.55  | 3.49  | 2.67  | 15.31 | 2.10  | 5.07  | 4.29  | 2.63  | 3.14  | 3.34  | 1.73  |
| May        | 2.18  | 4.35  | 3.13  | 7.57  | 3.17  | 4.49  | 2.34  | 2.31  | 4.07  | 4.01  | 2.83  |
| June       | 2.98  | 3.96  | 4.21  | 2.75  | 2.80  | 3.61  | 1.55  | 2.94  | 4.88  | 2.11  | 3.10  |
| July       | 2.28  | 4.83  | 4.34  | 2.97  | 3.50  | 3.32  | 1.85  | 3.40  | 3.59  | 0.63  | 3.81  |
| August     | 2.60  | 4.57  | 3.86  | 2.91  | 3.06  | 2.93  | 1.59  | 3.34  | 3.22  | 2.56  | 3.53  |
| September  | 3.59  | 4.82  | 3.57  | 2.79  | 2.60  | 2.42  | 1.00  | 2.50  | 2.88  | 1.27  | 3.31  |
| October    | 3.18  | 5.19  | 2.88  | 2.26  | 2.80  | 2.27  | 2.17  | 2.42  | 2.31  | 3.66  | 2.98  |
| November   | 2.98  | 2.71  | 2.59  | 2.13  | 2.12  | 2.53  | 2.03  | 2.15  | 3.16  | 4.43  | 2.75  |
| December   | 2.96  | 3.02  | 2.26  | 2.22  | 2.30  | 2.02  | 1.39  | 2.68  | 3.71  | 2.70  | 2.79  |
| Total Year | 35.7  | 49.1  | 40.2  | 47.5  | 33.2  | 42.7  | 31.0  | 30.8  | 40.2  | 35.6  | 32.7  |
| Summer Avg | 2.8   | 4.7   | 3.9   | 2.9   | 3.1   | 2.9   | 1.5   | 3.1   | 3.2   | 1.5   | 3.5   |
| Winter Avg | 3.5   | 4.0   | 3.6   | 2.2   | 2.9   | 4.7   | 4.3   | 2.1   | 3.1   | 3.6   | 1.9   |
| Avg Day    | 0.098 | 0.135 | 0.110 | 0.130 | 0.091 | 0.117 | 0.085 | 0.084 | 0.110 | 0.098 | 0.090 |
| Max Day    |       |       |       |       |       |       |       |       | 0.187 | 0.198 | 0.185 |

**Table 4: Summary of Existing Water Demands (MGD)**

| Year | Total Year (MG/yr) | Average Day (GPD) | Max Day (GPD) |
|------|--------------------|-------------------|---------------|
| 2009 | 35.7               | 97,800            | 260,000       |
| 2010 | 49.1               | 135,000           | 225,000       |
| 2011 | 40.2               | 110,000           | 209,000       |
| 2012 | 47.5               | 130,000           | 137,000       |
| 2013 | 33.2               | 90,900            | 258,000       |
| 2014 | 42.7               | 117,000           | 286,000       |
| 2015 | 31.0               | 85,000            | 230,000       |
| 2016 | 30.8               | 84,300            | 303,000       |
| 2017 | 40.2               | 110,000           | 187,000       |
| 2018 | 35.6               | 97,600            | 198,000       |
| 2019 | 32.7               | 89,500            | 308,000       |

### e. Existing Facilities

The City of Onaway's water source consists of two Type 1 Public Water Supply Wells that draw from the Black Lake Watershed. The water is untreated with the exception of using sodium hypochlorite for disinfection.

Well #3 is located NW of Euclid/Fairview and was originally installed in 1986. It is a 10-inch well drilled to a depth of 495 feet. The pump was replaced in 2003 and rehabbed in 2017. The most recent inspections and tests were performed in 2017, 2019, and 2020. The 2020 well inspection concludes the following: "The pump is currently producing 316 gallons per minute (gpm) when tested at 56Hz at system pressure. The well is rated for 450 gpm. More water is available from the pump by simply increasing the pump speed (Hz). The water production from the well is good with a specific capacity of 15.8 and compares favorably with historic values. The pump was last overhauled in 2017, and it appears things are operating satisfactorily. No well or pump work is currently recommended."

Well #4 is located N of Birch/Spruce and was originally installed in 1988. It is a 10-inch well drilled to a depth of 456 feet. The pump was replaced in 2007 and rehabbed in 2018. The most recent inspections and tests performed on this well were in 2017, 2019, and 2020. The 2020 well inspection concludes the following: "The pump is currently producing 348 gpm at system pressure with a designed capacity of 400 gpm. The water production from the well has remained steady and looks good. At the time the pump was last overhauled, in 2018, the pump bowl was not replaced. Its performance seems to be holding steady over the last few years and I see no real problem at this point. No well or pump work is currently recommended." Full detailed reports from the 2019 and 2020 well inspections are available in Appendix F.

In 2003, the State performed an assessment of the source water to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a seven-tiered scale from "very-low" to "very-high" based on geologic sensitivity, well construction, water chemistry and contamination sources. The susceptibility of the source water for these wells was determined to be moderately low at Well #3 and very low at Well #4.

The City owns a 300,000 gallon, steel elevated storage tank located on Summit and Oak Street. The tank was constructed in 1971, was last inspected in August 2019, and was last painted in 2012. The overflow level of the tank is 75 feet and the operating levels are between 60 and 65 feet.

The existing water system is summarized on the following pages. Table 5 summarizes the City's existing water system. Figure 4 summarizes structure sizes and layout, while Figures 5 and 6 summarize the age and materials of the existing system, respectively. As evidenced in Figure 5, a significant portion of the existing watermain within the city is over 100 years old. Full size versions of these maps are available in Appendix D.

**Table 5: Existing Water System Summary**

| <b>Existing Water System Summary</b>                        |  |                                |                                     |   |                      |        |
|---|--|--------------------------------|-------------------------------------|---|----------------------|--------|
| (updated to include April 1, 2021 - March 21, 2022 pricing) |  |                                |                                     |   |                      |        |
| <b>Community Name:</b>                                      |  | City of Onaway                 |                                     |   |                      |        |
| <b>MDEQ Water Supply Number (WSSN):</b>                     |  | MI 05010                       |                                     |   |                      |        |
| <b>Well</b>   | <b>Rated Capacity (gpm)</b>  | <b>Date of Completion</b>      | <b>Date of Last Maint.</b>          | <b>Depth (ft)</b>   | <b>Water Quality</b> |        |
| #3  | 345  | 1986                           | 2019                                | 495   | Very Good            |        |
| #4  | 323  | 1988                           | 2019                                | 456   | Very Good            |        |
| <b>Water Demand (MGD)</b>                                   |  |                                | <b>Distribution System:</b>         |   |                      |        |
| Avg. Day Demand:  | 0.09   | MGD                            | < 4" watermain                      | Galv/DIP  | 3,371                | 7-120  |
| Max Day Demand:   | 0.185  | MGD                            | 4" watermain                        | PVC/CIP   | 24,322               | 9-120  |
| Avg Monthly Pumpage   | 2.725  | MG                             | 6" watermain                        | PVC/DIP   | 31,916               | 4-32   |
|   |  |                                | 8" watermain                        | DIP/CIP   | 2,093                | 15-107 |
|   |  |                                | 10" watermain                       | DIP/CIP   | 5,520                | 15-120 |
|   |  |                                | 12" watermain                       | DIP/CIP   | 6,271                | 9      |
| <b>Storage</b>  |  |                                | <b>Number of Hydrants</b>           |   |                      |        |
| Elevated Tank   |  |                                |                                     |   |                      |        |
| Volume:   | 300,000 gal  |                                |                                     |   | 78                   |        |
| Construction:   | Steel  |                                |                                     |   |                      |        |
| Const Date:   | 1971   |                                |                                     |   |                      |        |
| Last paint:   | 2012   |                                |                                     |   |                      |        |
| <b>Water Customer Information:</b>                          |  |                                |                                     |   |                      |        |
|   | <b>No. of Existing Customers</b>   | <b>Monthly Usage (gallons)</b> | <b>No. of Users after Project</b>   | <b>Projected Total Usage</b>                                    |                      |        |
| Residential Dwellings                                       | 372  | 2,111,875                      | 372                                 | 2,111,875   |                      |        |
| Other Users   | 108  | 613,125                        | 108                                 | 613,125   |                      |        |
| Totals  | 480  | 2,725,000                      | 480                                 | 2,725,000   |                      |        |
| <b>Existing Rate Structure:</b>                             |  |                                |                                     | <b>Average Monthly Billing at Current Rates (all customers)</b> |                      |        |
| Residential Customers                                       | \$25.76 for first 5,000 gal; 5001-50,000 gal @ \$.004476 per gal; 50,000+ gal @ \$.00322 per gal |                                |                                     | <b>\$25.76</b>  |                      |        |
| Other - Commercial  | \$25.76 for first 5,000 gal; 5001-50,000 gal @ \$.004476 per gal; 50,000+ gal @ \$.00322 per gal |                                |                                     |   |                      |        |
| <b>Yearly O &amp; M Cost Before Improvements:</b>           | \$170,664  |                                | <b>Yearly O &amp; M Cost After:</b> | \$170,664   |                      |        |

Figure 4. Size of Existing Water System

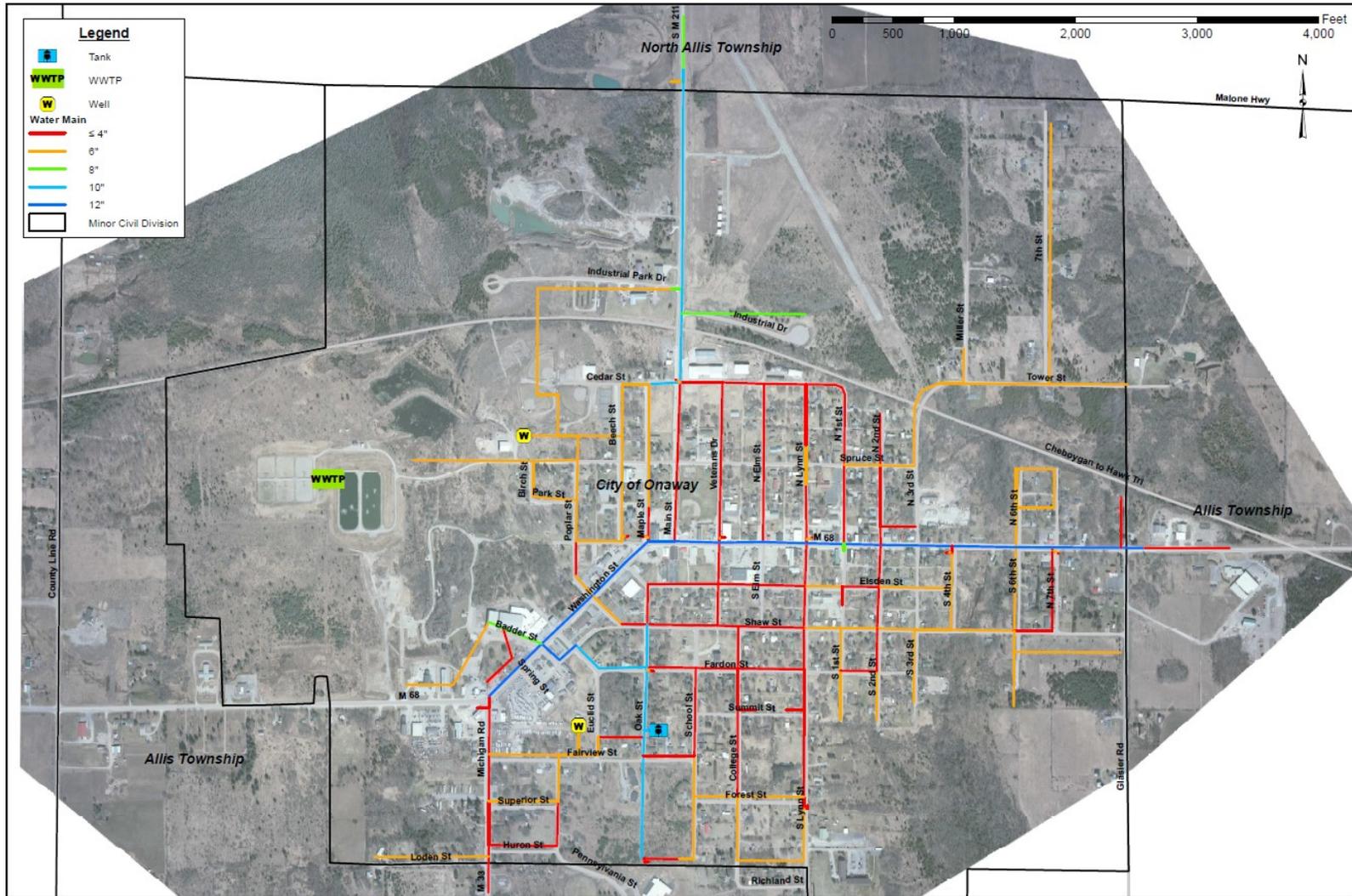
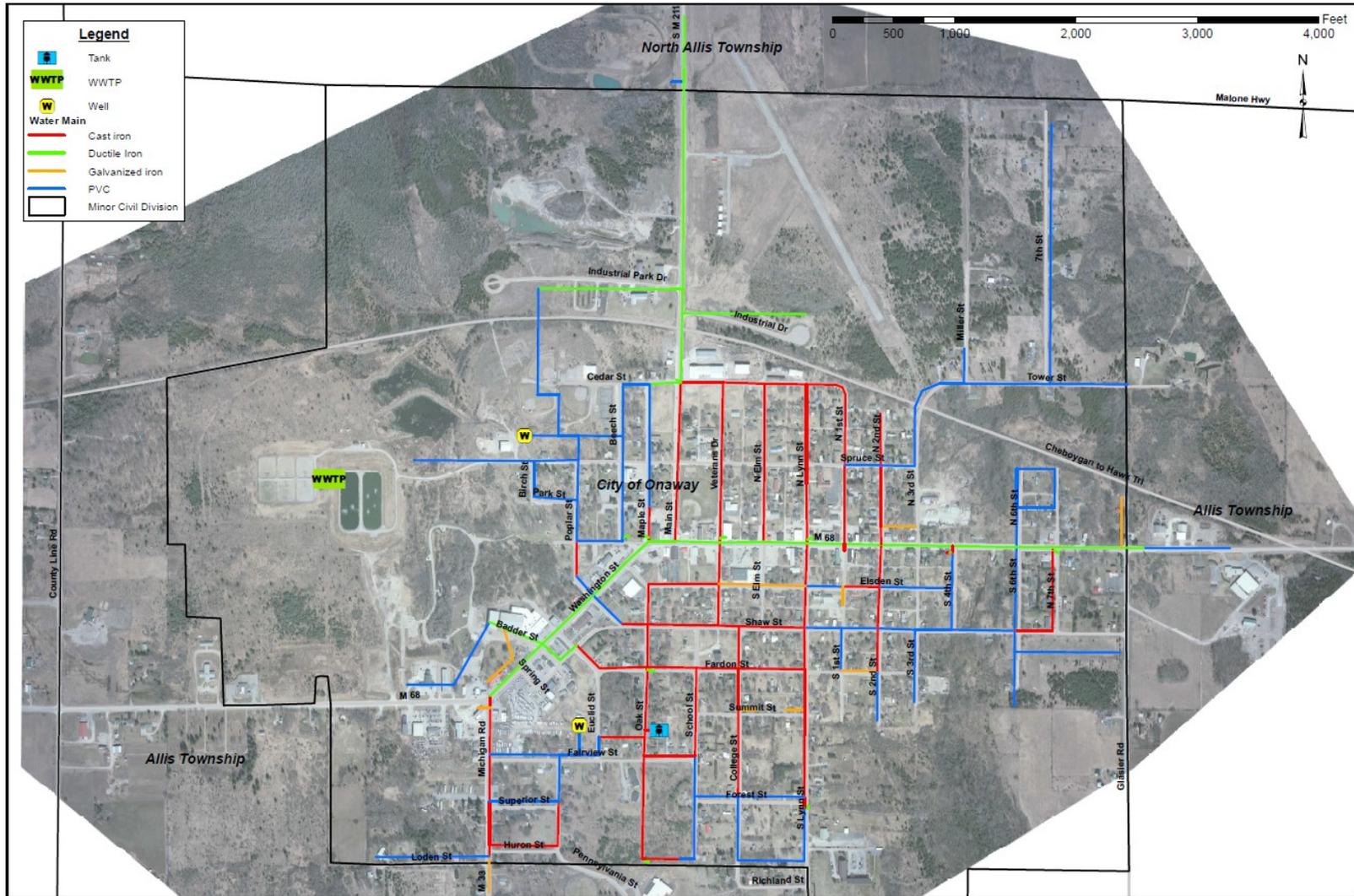




Figure 6. Material of Existing Water System



The table on the following pages contains the results of the contaminants that were detected during the 2019 calendar year and analyzed in the *2019 Water Quality Report for City of Onaway*.

Terms and abbreviations used in Table 6:

- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
- N/A: Not applicable.
- N/D: Not detectable at testing limit.
- ppb: parts per billion or micrograms per liter.
- ppm: parts per million or milligrams per liter.
- pCi/l: picocuries per liter (a measure of radioactivity).
- Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- Level 1 Assessment: A study of the water supply to identify potential problems and determine (if possible) why total coliform bacteria have been found in the water system.
- Level 2 Assessment: A very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in the water system on multiple occasions.

**Table 6. 2019 Water Quality Report for City of Onaway**

| Regulated Contaminant                               | TMCL                | MCLG          | Level Detected          | Range       | Year Sampled        | Violation Yes / No                | Typical Source of Contaminant  |
|---|---------------------|---------------|-------------------------|-------------|---------------------|-----------------------------------|--|
| <b>Inorganic Contaminants</b>                       |                     |               |                         |             |                     |                                   |  |
| Arsenic (ppb)                                       | 10                  | 0             | N/D                     | N/D         | 8/24/15             | NO                                | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes |
| Barium (ppm)  | 2                   | 2             | 0.045                   | 0.02-0.07   | 8/24/15             | NO                                | Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits               |
| Nitrate (ppm)                                       | 10                  | 10            | N/D                     | N/D         | 6/24/19             | NO                                | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits            |
| Fluoride (ppm)                                      | 4                   | 4             | 1.7                     | 1.6-1.8     | 6/24/19             | NO                                | Erosion of natural deposits. Discharge from fertilizer and aluminum factories.                         |
| Sodium <sup>1</sup> (ppm)                           | N/A                 | N/A           | 23                      | 15-31       | 6/24/19             | NO                                | Erosion of natural deposits.   |
| Sulfate (ppm)                                       | N/A                 | N/A           | 18                      | 10-26       | 6/25/19             | NO                                | Erosion of natural deposits  |
| <b>Disinfectants &amp; Disinfection By-Products</b> |                     |               |                         |             |                     |                                   |  |
| TTHM - Total Trihalomethanes (ppb)                  | 80                  | N/A           | 0.0005                  | .0002-.0008 | 6/24/19             | NO                                | Byproduct of drinking water disinfection   |
| HAA5 Haloacetic Acids                               | 80                  | N/A           | N/D                     | N/D         | 8/30/19             | NO                                | Byproduct of drinking water disinfection   |
| Chlorine <sup>2</sup> (ppm)                         | <b>MRDL</b>         | <b>MRDL G</b> | RAA=0.36                | 0.23-0.56   | Monthly             | NO                                | Water additive used to control microbes  |
|   | 4                   | 4             |                         |             |                     |                                   |  |
| <b>Radioactive Contaminant</b>                      |                     |               |                         |             |                     |                                   |  |
| Alpha emitters (pCi/L)                              | MCL                 | MCLG          | Level Detected          | Range       | Year Sampled        | Violation Yes / No                | Typical Source of Contaminant  |
| Alpha emitters (pCi/L)                              | 15                  | 0             | 14.4                    | 6.86-14.8   | 2016                | NO                                | Erosion of natural deposits  |
| Combined radium (pCi/L)                             | 5                   | 0             | 1.88                    | 1.88-3.48   | 2016                | NO                                | Erosion of natural deposits  |
| <b>Inorganic Contaminant Subject to AL</b>          | <b>Action Level</b> | <b>MCLG</b>   | <b>Range of Results</b> |             | <b>Year Sampled</b> | <b>Number of Samples Above AL</b> | <b>Typical Source of Contaminant</b>   |
| Lead (ppb)  | 15 ppb              | 0             | 0.002-0.453             |             | 9/2018              | 1                                 | Lead service lines, corrosion, of household plumbing including fittings                                |

|              |         |     |           |        |   |  |
|--------------|---------|-----|-----------|--------|---|--|
|              |         |     |           |        |   | and fixtures; Erosion of natural deposits                            |
| Copper (ppb) | 1.3 ppm | 1.3 | 0.07-0.09 | 9/2018 | 0 | Corrosion of household plumbing systems; Erosion of natural deposits |

<sup>1</sup> Sodium is not a regulated contaminant.

<sup>2</sup> The chlorine “Level Detected” was calculated using a running annual average.

<sup>3</sup> *E. coli* MCL violation occurs if: (1) routine and repeat samples total coliform-positive and either is *E. coli*-positive, or (2) supply fails to take all required repeat samples following *E. coli*-positive routine sample, or (3) supply fails to analyze total coliform-positive repeat sample for *E. coli*.

<sup>4</sup> 90 percent of the samples collected were at or below the level reported for our water.

The full Water Quality Report can be found on Onaway’s website at <https://onawaymi.com> and has been included in Appendix F.

## Summary of Project Need

The State of Michigan recently changed its lead and copper drinking water rules to require water service material identification and complete replacement of lead-impacted service lines. The City must take responsibility for service lines on privately owned land to the meter within each house. According to the *2019 Water Quality Report* and *2020 Water Reliability Study*, the water supply has 461 lead service lines and 14 service lines of unknown material for a total of 475 service lines needing to be replaced.

Service identification and replacement should be completed as soon as possible. A large portion of Onaway’s original water pipes and structures are at least 100 years old (as shown in Figure 5) with pipe and joint materials not up to modern standards. Reliable operation of water distribution lines within the City of Onaway’s utility system is imperative to protect the health and safety of the City’s citizens and visitors. Traditional lead and cast iron components may expose users to unsafe levels of lead. Deficient water mains can waste treated water and permit contamination of treated drinking water. Unplanned failures and downtime during repairs affects the ability of the distribution system to safely and adequately serve the system users. Leaking joints, structural problems, and capacity issues require increasing operation, maintenance, and repair expenditures.

In 2019, EGLE met with the City to review the water system, including the wells, elevated storage tank, and the distribution network. The results and recommendations were contained in the 2019 Sanitary Survey Letter which is included in Appendix F.

A hydraulic network analysis of Onaway’s water system was completed as part of the General Plan. A computer model of the water supply, storage, and distribution system was developed and calibrated by Gourdie-Fraser in 2013. The model was calibrated using Insurance Services Office, Inc. fire hydrant flow test results. The Insurance Services Office, Inc. flow tests do not indicate what the conditions are at the existing tank/pump, making it difficult to know if the pumps were running or the elevation of the tank at the time of the tests. However, the model is within a tolerance of 10% of the static and residual pressures measured. This model was updated and analyzed again in the *2019 Water Reliability Study* conducted by C2AE.

### a. Projected Needs for the Next 20 Years

Capital improvements were identified in the *2013 Water Reliability Study*, and many of them still remained at the time of the *2019 Water Reliability Study*. A large portion of Onaway’s original water pipes and structures are at least 100 years old and are undersized, with pipe and joint materials not up to modern standards. Leaking

joints structural problems, and capacity issues require increasing operation, maintenance, and repair expenditures. Many older hydrants are 2 inches in diameter, raising questions about their effective fire capacity. The identified flow and distribution issues identified in those reports will need to be implemented into capital improvement plans in the near future.

#### **b. Exploratory Well Investigations/Well Site Selection/Test Well Drilling Procedures**

This City will not require exploratory well investigation or site selection because existing water sources are providing high quality water within a regional network.

## **Analysis of Alternatives**

The driving force behind this DWSRF plan is the necessary replacement of lead-impacted water service lines. The following discussion of alternatives reflects the best estimation of needs based on current information.

### **No-Action**

Without replacement or rehabilitation, water main aged beyond its design life will continue to fail at the current rate or an increased pace. Corroded pipes may continue to break and leak, causing water waste and interrupting service. In unbroken pipes, scale and debris will reduce fire flow and drinking water capacity, potentially discontinuing service.

If the City of Onaway fails to replace water service lines between water main and residences, it will be out of compliance with current Michigan lead and copper rules. Non-compliance would likely result in additional fines and negative human health impacts.

### **Optimum Performance of Existing Facilities**

Optimizing of the existing facilities alone will fail to correct the deficiencies previously noted.

### **Regional Alternatives**

The City of Onaway water collection and distribution system is maintained and operating well, and therefore regionalization will not be analyzed as a proposed alternative.

### **Distribution of Bottled Water**

Bottled water delivery is not considered a feasible regional alternative for residential or commercial water provision at this time. There is no local provider of bottled water or network for distribution of a minimum daily volume, therefore there is no alternative for water service lines.

### **Principal Alternatives**

The principal alternatives of this project plan are as follows:

- **Alternative 1: *No Action*** – Not implementing a corrective measure project at this time while attempting to correct deficiencies in the system over time as maintenance budgets will allow.
- **Alternative 2: *Action*** – An action alternative for replacement of galvanized water services on private property. To date, water system improvements have been limited to public assets. With the recent implementation of lead and copper rules, the City must now take responsibility for service lines on private property. There is no alternative to direct replacement of these direct-to-home services.

In the City, there are 461 known services that will need to be replaced under the lead and copper rules. There

are 14 services of unknown material that will also need to be replaced, bringing the total to 475 services that will need replacement.

## Principal Alternatives

Replacement of lead impacted services is the only viable alternative to meet the mandated requirement to remove those services from use. Due to its Disadvantaged Community status, the City of Onaway intends to apply for Booker funding to cover the costs of construction and contingency. The remaining costs for legal, administration, financing, and engineering would have to be paid for from City funds or through a DWSRF loan.

### a. Monetary Evaluation

Evaluation of alternatives must include consideration of costs. Disadvantaged status communities must use a 30 year planning period if applying for a loan. Grant money would not be applicable to this calculation.

- A. A basic Present Worth Analysis is included in this analysis (see Table 8). The project proposed for DWSRF funding is primarily service replacement from water main to inside dwelling. Although this infrastructure is essential in maintaining property values, copper service lines have a negligible salvage value. It is assumed that water service life is comparable to other conveyance utilities (estimated 50-year life). Although there is no publicly available information from the State regarding the cost of non-compliance penalties from the State of Michigan, it was assumed that fines will occur.
- B. Discount rate in 2022 as reported by the Federal Reserve is -0.3%. See Appendix A for a copy of the OMB Circular No. A-94, Ap. C update detailing these numbers.
- C. Salvage Value resulting from straight line depreciation is as follows: Conveyance utilities for 50 years, water distribution structures for 30-50 years, pumping and treatment equipment for 15-20 years.
- D. This project will not have any effect on energy use or land ownership, therefore no escalating values are necessary.
- E. Interest charged during construction is considered insignificant compared to the overall capital cost of alternatives. Basic estimates of project costs are included in Table 7 below.
- F. The City typically operates using a conventional design-bid-build method. The primary alternatives would be to have City employees do the work directly, or to have residents replace their own services as necessary. The primary barriers to these two alternatives include the small size of the City workforce and the technical demands of service replacement, which are best completed with uniform quality and record keeping.

**Table 7: Estimated Cost of Alternatives**

| Item                               | Alternate 01<br>No Action | Alternate 02<br>Replacement |
|------------------------------------|---------------------------|-----------------------------|
| Construction                       | \$0                       | \$2,404,488                 |
| Contingency                        | \$0                       | \$240,449                   |
| Legal, Administrative, & Financing | \$0                       | \$49,546                    |
| Engineering                        | \$0                       | \$410,000                   |
| Project Total                      | \$0                       | \$3,104,483                 |

**Table 8: Present Worth Analysis**

|   |  |  |  |
|---|--|--|--|
| <b>Community Name:</b> City of Onaway                             |  | <b>Federal Discount Rate for Water Resources Planning (Interest Rate) i =</b> -0.30% |  |
|   |  | <b>Number of Years, n =</b> 30   |  |
| <b>Alt No. 1 - No Improvement</b>                                 |  | <b>Alt No. 2 - Optimization</b>  | <b>Alt. No 3 - Regionalization</b><br>NOT APPLICABLE |
| Initial Capital Costs = \$0                                       |  | Initial Capital Costs = \$3,104,483  | Initial Capital Costs =                              |
| Annual Operations & Maintenance Costs = \$170,664                 |  | Annual Operations & Maintenance Costs = \$170,664                                    | Annual Operations & Maintenance Costs =              |
| Future Salvage Value = \$0  |  | Future Salvage Value = \$1,241,793   | Future Salvage Value =                               |
| Present Worth of 20 years of O & M = \$5,365,807                  |  | Present Worth of 20 years of O & M = \$5,365,807                                     | Present Worth of 20 years of O & M =                 |
| PW = $\frac{\text{Annual OM} \cdot (1+i)^n - 1}{i \cdot (1+i)^n}$ |  | PW = $\frac{\text{Annual OM} \cdot (1+i)^n - 1}{i \cdot (1+i)^n}$                    |  |
| Present Worth of 20 yr Salvage Value = \$0                        |  | Present Worth of 20 yr Salvage Value = \$1,358,922                                   | Present Worth of 20 yr Salvage Value =               |
| PW = $\text{FSV} \cdot \frac{1}{(1+i)^n}$                         |  | PW = $\text{FSV} \cdot \frac{1}{(1+i)^n}$  |  |
| <b>Alternate 1</b>  |  | <b>Alternate 1</b>   | <b>Alternative 3</b>                                 |
| <b>Total Present Worth = \$5,365,807</b>                          |  | <b>Total Present Worth = \$7,111,368</b>   | <b>Total Present NA</b>                              |

**b. Environmental Evaluation**

The City of Onaway has considered the impact of these recommended improvements. The areas most affected have already been impacted by the original construction of water main and service lines. The necessary disruption of replacement must be performed with conservation in mind. Per DWSRF recommendations,

numerous agencies have been invited to review and comment. Correspondence with State Historic Preservation Office and other collaborators are included in Appendix C.

### **Cultural resources**

The City of Onaway has identified two buildings of significant historical and cultural value in their 2009 Comprehensive Plan. First, the Onaway Courthouse, which has undergone extensive restoration for parts of the last 20 years. The building is more than 100 years old and can be found on the state and national historic registers. It presently houses City Hall, the Onaway Historic Museum, the Onaway Area Chamber of Commerce, and the Onaway branch of the Presque Isle District Library. Second, the Masonic Temple, located on Washington Avenue. This served as the general offices for the Lobdell and Bailey Company, a major supplier of wood products from 1901 into the 1920's. It is now owned by the Onaway Historical Museum and is in the process of being restored. These facilities will require lead and galvanized pipe replacement to remain in operation.

### **The Natural Environment**

The area surrounding Onaway is filled with rivers, streams, and small lakes that offer residents and visitors options for outdoor recreation, including Onaway State Park and several campgrounds in the Black Lake State Forest. These areas provide facilities for fishing, boating, camping, swimming, and hiking. The City's 2009 Community Recreation Plan also highlights several developed parks and recreation areas within the city limits. No significant impact is expected on any of the above-mentioned resources, nor any floodplain, wetlands, shorelands, or streams. No crossings of creeks or rivers are planned under the recommended project.

#### **c. Mitigation**

Planned improvements are most likely to affect soil structure and plants adjacent to roads' right-of-way. Mitigation will require typical soil erosion and sediment control measures. Construction should also be limited to daytime, work-week hours as much as possible to avoid disruption to residents and wildlife. Service line replacements will likely require restoration of some lawn areas, sidewalks, etc. which is typical and addressed within construction specifications/contracts.

#### **d. Implementability and Public Participation**

The required replacement of water service lines on private property is a concern for Onaway residents. The Michigan Safe Drinking Water Act requires an average of 5 percent of lead service lines be replaced every year over the next 20 years. With 475 services to be replaced at an average cost of \$5,028 per service, the costs to the City and its residents would be nearly \$120,000 per year. Concerns for this exhaustive use of public finances and efforts from citizens has motivated the City Council and City employees to pursue this application for DWSRF funding.

#### **e. Technical Considerations**

The selected alternative will comply with Act 399 and be designed to meet guidelines included in "Recommended Standards for Waterworks" and Michigan EGLE rules and regulations.

#### **f. Residuals**

No proposed alternative will generate residuals.

#### **g. Contamination**

The proposed water improvements must consider site contamination and material contamination. The City of Onaway does have several properties included in the website for contaminated sites and leaking tanks (see Appendix C, Part 9). Construction contract specifications will cover dealing with contaminated material encountered whether it involves leaving it in place or off-site regulated disposal.

#### **h. New/Increased Water Withdrawals**

No proposed alternative includes new or increased water withdrawals. Utility construction trench dewatering will be minimal and localized with methods governed by construction contract documents.

### **Selected Alternative**

The option to Optimize Existing Facilities via upgrades and replacement is the selected alternative since it is the only viable alternative to accomplish the mandated removal of lead impacted water services.

#### **a. Design Parameters**

Water services must be free of lead components or galvanized materials likely to have been affected by lead in compliance with the 2011 Reduction of Lead in Drinking Water Act and State of Michigan Lead and Copper Rule. Each water service should be individually metered.

#### **b. Hydrogeological Analysis**

Because the proposed improvements do not include any changes to water source wells, no hydrogeological analysis is included in this report.

#### **c. Finalization of Well Design**

No well design is necessary for the proposed water system improvements.

#### **d. Maps**

Figures 4-6 illustrate the existing water systems components. All proposed lead service line replacements will take place within the same project area. Full size versions of these maps are included in Appendix D.

**e. Schedule for Design and Construction**

The schedule for water service replacements must be coordinated with current planned projects within the City, holidays, festivals, etc.

**Table 9: DWSRF Project Schedule**

| <u>Item</u>                           | <u>Target</u>      |
|---------------------------------------|--------------------|
| DWSRF Application Submittal           | April 2021         |
| DWSRF Acceptance                      | Fall 2021          |
| Funding Commitment                    | Fall 2021          |
| Start Design                          | Fall/Winter 2021   |
| Land & Easements Acquisition          | Not Applicable     |
| Permits                               | Spring 2022        |
| Advertise for Bids                    | Spring 2022        |
| Funding Closing                       | Winter/Spring 2022 |
| Contract Award                        | Spring 2022        |
| Construction                          | 2022-2024          |
| Substantial Completion                | Fall 2024          |
| Final Completion & Initiate Operation | Fall/Winter 2024   |

**f. Cost Estimate**

A brief summary of planning, design, and construction costs is included on the next page in Table 10. The complete breakdown of service replacement costs is available in Appendix A.

**Table 10: Project Costs**

| Item   | Est. Cost | Est. Total         |
|--|-----------|--------------------|
| Construction                                     |           | \$2,404,488        |
| Contingencies                                    |           | \$240,449          |
| Administration, Legal, Bonding, Permits, & Misc. |           | \$49,546           |
| Engineering                                      |           |                    |
| Planning & Design                                | \$93,343  |                    |
| Bidding  | \$12,300  |                    |
| General Engineering During Construction          | \$69,700  |                    |
| Post Construction Services                       | \$8,200   |                    |
| Resident Project Representative                  | \$176,300 |                    |
| Additional Services – Design Related             | \$12,300  |                    |
| Additional Services – Construction Related       | \$37,857  |                    |
| Engineering Total                                |           | \$410,000          |
|  |           |                    |
| <b>Total Capital Cost</b>                        |           | <b>\$3,104,483</b> |

**g. User Costs**

The proposed construction and contingencies costs shown above in Table 10 will be covered under an EGLE DWSRF Grant due to Onaway’s disadvantaged community status. The user costs associated with the remaining administration, legal, bonding, permit, and engineering fees that are not eligible for the DWSRF grant will either have to be incorporated into the City operating budget or a separate DWSRF loan. Rate increases must be sufficient to cover expenses. Below, Table 11 depicts the estimated change in user rates to cover the cost of proposed project loan amounts. The table covers two scenarios: a) the City receiving a loan for the entirety of the project and b) a loan that covers the cost of administration and engineering costs (assuming the construction and contingency costs are covered under the grant). Monthly charges are based on normal monthly usage (below 5,000 gallons/month). Tables 12, 13, and 14 depict the City’s Water Operating Budget and the estimated bond schedules used to determine the changes to user rates in Table 11. A full breakdown of the City’s operating budget and maintenance costs, which was used to estimate the increased payment schedules, has been included in Appendix A.

**Table 11: Estimated User Rate Increases**

|   | 2020         | 2021         | 2022         | 2023         | 2024         |
|---|--------------|--------------|--------------|--------------|--------------|
| <b>Current User Rate</b>                                  |              |              |              |              |              |
| Monthly Billing (for 5,000 gal or less)                   | 25.38        | 25.76        | 25.76        | 25.76        | 25.76        |
| No Loan Payment   |              |              |              |              |              |
| <b>Total Monthly Charge</b>                               | <b>25.38</b> | <b>25.76</b> | <b>25.76</b> | <b>25.76</b> | <b>25.76</b> |
| <b>User Rate (with 100% project loan)</b>                 |              |              |              |              |              |
| Monthly Billing (for 5,000 gal or less)                   | 25.38        | 25.76        | 25.76        | 25.76        | 25.76        |
| Loan Payment  |              |              | 24.15        | 24.15        | 24.15        |
| <b>Total Monthly Charge</b>                               |              |              | <b>49.91</b> | <b>49.91</b> | <b>49.91</b> |
| <b>User Rate (with Admin &amp; Engineering Loan Only)</b> |              |              |              |              |              |
| Monthly Billing (for 5,000 gal or less)                   | 25.38        | 25.76        | 25.76        | 25.76        | 25.76        |
| Loan Payment  |              |              | 3.65         | 3.65         | 3.65         |
| <b>Total Monthly Charge</b>                               |              |              | <b>29.41</b> | <b>29.41</b> | <b>29.41</b> |

- (a) Rate adjustments are drafted but not yet implemented.
- (b) Final commodity charge increase will depend on loan disbursement schedule.
- (c) Rates based on estimated 480 system users.

**Table 12: Water Operating Budget**

**Water Budget: First Full Year After Construction  
(Engineering and Administration Loan Only)**

**Community**

**Name:** City of Onaway                      **County:** Presque Isle

**Address:** Onaway City Hall  
20774 State Street  
Onaway, MI 49765

**A. Applicant Fiscal Year:**                      **From:** 4/1/2022    **To:** 3/31/2023

|                             |  |           |
|-----------------------------|--|-----------|
| <b>B. Operating Income:</b> | <b>Current Water Sales - Residential &amp; Commercial:</b> | \$171,000 |
|                             | <b>Other - Additional Charges after Rate Increase</b>      | \$21,024  |
|                             | <b>Total Operating Income:</b>                             | \$192,024 |

|   |  |          |
|---|--|----------|
| <b>C. Operating Expenses:</b>                                     |  |          |
| General Administration  |  | \$4,000  |
| Wages   |  | \$34,000 |
| MERS Retirement and Employer FICA                                 |  | \$3,982  |
| Employer Medicare, Medical Premiums, and Lieu of Medical Coverage |  | \$3,382  |
| Supplies  |  | \$12,000 |
| Professional Service  |  | \$11,000 |
| RRI   |  | \$10,400 |
| Communications, Training & Conferences, and Travel Expenses       |  | \$1,600  |

**Total Operating Expenses:**                      \$80,364

**D. Net Operating Income:**                      \$111,660

|                                 |                                   |         |
|---------------------------------|-----------------------------------|---------|
| <b>E. Non Operating Income:</b> | <b>Interest and Miscellaneous</b> | \$1,100 |
|---------------------------------|-----------------------------------|---------|

**Total Non Operating Income:**                      \$1,100

**F. Net Income**                      \$112,760

|  |  |          |
|--|--|----------|
| <b>G. Expenditures/Transfers</b>   |  |          |
| Current Bonds (Interest and Payable)   |  | \$12,800 |
| New DWSRF Bond (Interest and Principal, assuming grant for construction costs and loan for eng/admin costs only) |  | \$20,191 |
| Membership & Dues  |  | \$2,000  |
| Capital Outlay   |  | \$40,000 |
| Equipment Rental   |  | \$10,000 |
| Electricity  |  | \$24,000 |
| Insurance  |  | \$1,500  |

**Total Expenditures/Transfers:**                      \$110,491

**Excess/Deficit over net income:**

**\$2,269**

**Table 13: Loan Repayment Schedule (Full Loan)**

| <b>Bond Schedule - Water</b>  |                     |                     | <b>Date: 03/12/21</b> |                           |                     |
|-------------------------------|---------------------|---------------------|-----------------------|---------------------------|---------------------|
| <b>Borrower Name:</b>         | City of Onaway      |                     | <b>Type of Bond:</b>  | Revenue                   |                     |
| <b>Interest Rate:</b>         | 2.00%               |                     |                       |                           |                     |
| <b>Yrs Deferred Principle</b> | 0                   |                     |                       |                           |                     |
| <b>Principal:</b>             | <b>\$3,104,483</b>  |                     |                       |                           |                     |
| <b>Ammort. Factor</b>         | 0.0446              |                     |                       |                           |                     |
| <b>Amortized Payment:</b>     | \$138,615           |                     |                       |                           |                     |
| <b>Year</b>                   | <b>1st Interest</b> | <b>2nd Interest</b> | <b>Principal Paid</b> | <b>Total Year Payment</b> | <b>Loan Balance</b> |
|                               |                     |                     |                       |                           | 3,104,483           |
| 1                             | 31,045              | 31,045              | 77,000                | 139,090                   | 3,027,483           |
| 2                             | 30,275              | 30,275              | 78,000                | 138,550                   | 2,949,483           |
| 3                             | 29,495              | 29,495              | 80,000                | 138,990                   | 2,869,483           |
| 4                             | 28,695              | 28,695              | 81,000                | 138,390                   | 2,788,483           |
| 5                             | 27,885              | 27,885              | 83,000                | 138,770                   | 2,705,483           |
| 6                             | 27,055              | 27,055              | 85,000                | 139,110                   | 2,620,483           |
| 7                             | 26,205              | 26,205              | 86,000                | 138,410                   | 2,534,483           |
| 8                             | 25,345              | 25,345              | 88,000                | 138,690                   | 2,446,483           |
| 9                             | 24,465              | 24,465              | 90,000                | 138,930                   | 2,356,483           |
| 10                            | 23,565              | 23,565              | 91,000                | 138,130                   | 2,265,483           |
| 11                            | 22,655              | 22,655              | 93,000                | 138,310                   | 2,172,483           |
| 12                            | 21,725              | 21,725              | 95,000                | 138,450                   | 2,077,483           |
| 13                            | 20,775              | 20,775              | 97,000                | 138,550                   | 1,980,483           |
| 14                            | 19,805              | 19,805              | 99,000                | 138,610                   | 1,881,483           |
| 15                            | 18,815              | 18,815              | 101,000               | 138,630                   | 1,780,483           |
| 16                            | 17,805              | 17,805              | 103,000               | 138,610                   | 1,677,483           |
| 17                            | 16,775              | 16,775              | 105,000               | 138,550                   | 1,572,483           |
| 18                            | 15,725              | 15,725              | 107,000               | 138,450                   | 1,465,483           |
| 19                            | 14,655              | 14,655              | 109,000               | 138,310                   | 1,356,483           |
| 20                            | 13,565              | 13,565              | 111,000               | 138,130                   | 1,245,483           |
| 21                            | 12,455              | 12,455              | 114,000               | 138,910                   | 1,131,483           |
| 22                            | 11,315              | 11,315              | 116,000               | 138,630                   | 1,015,483           |
| 23                            | 10,155              | 10,155              | 118,000               | 138,310                   | 897,483             |
| 24                            | 8,975               | 8,975               | 121,000               | 138,950                   | 776,483             |
| 25                            | 7,765               | 7,765               | 123,000               | 138,530                   | 653,483             |
| 26                            | 6,535               | 6,535               | 126,000               | 139,070                   | 527,483             |
| 27                            | 5,275               | 5,275               | 128,000               | 138,550                   | 399,483             |
| 28                            | 3,995               | 3,995               | 131,000               | 138,990                   | 268,483             |
| 29                            | 2,685               | 2,685               | 133,000               | 138,370                   | 135,483             |
| 30                            | 1,355               | 1,355               | 136,000               | 138,710                   | -517                |

**Table 14: Loan Repayment Schedule (Engineering and Administration Loan Only)**

| <b>Bond Schedule - Water</b>  |                     |                     |                       |                           |                     | <b>Date:</b>         | <b>03/12/21</b> |         |
|-------------------------------|---------------------|---------------------|-----------------------|---------------------------|---------------------|----------------------|-----------------|---------|
| <b>Borrower Name:</b>         |                     | City of Oway        |                       |                           |                     | <b>Type of Bond:</b> |                 | Revenue |
| <b>Interest Rate:</b>         |                     | 2.00%               |                       |                           |                     |                      |                 |         |
| <b>Yrs Deferred Principle</b> |                     | 0                   |                       |                           |                     |                      |                 |         |
| <b>Principal:</b>             |                     | <b>\$459,546</b>    |                       |                           |                     |                      |                 |         |
| <b>Ammort. Factor</b>         |                     | 0.0446              |                       |                           |                     |                      |                 |         |
| <b>Amortized Payment:</b>     |                     | \$20,519            |                       |                           |                     |                      |                 |         |
| <b>Year</b>                   | <b>1st Interest</b> | <b>2nd Interest</b> | <b>Principal Paid</b> | <b>Total Year Payment</b> | <b>Loan Balance</b> |                      |                 |         |
|                               |                     |                     |                       |                           | 459,546             |                      |                 |         |
| 1                             | 4,595               | 4,595               | 11,000                | 20,191                    | 448,546             |                      |                 |         |
| 2                             | 4,485               | 4,485               | 12,000                | 20,971                    | 436,546             |                      |                 |         |
| 3                             | 4,365               | 4,365               | 12,000                | 20,731                    | 424,546             |                      |                 |         |
| 4                             | 4,245               | 4,245               | 12,000                | 20,491                    | 412,546             |                      |                 |         |
| 5                             | 4,125               | 4,125               | 12,000                | 20,251                    | 400,546             |                      |                 |         |
| 6                             | 4,005               | 4,005               | 13,000                | 21,011                    | 387,546             |                      |                 |         |
| 7                             | 3,875               | 3,875               | 13,000                | 20,751                    | 374,546             |                      |                 |         |
| 8                             | 3,745               | 3,745               | 13,000                | 20,491                    | 361,546             |                      |                 |         |
| 9                             | 3,615               | 3,615               | 13,000                | 20,231                    | 348,546             |                      |                 |         |
| 10                            | 3,485               | 3,485               | 14,000                | 20,971                    | 334,546             |                      |                 |         |
| 11                            | 3,345               | 3,345               | 14,000                | 20,691                    | 320,546             |                      |                 |         |
| 12                            | 3,205               | 3,205               | 14,000                | 20,411                    | 306,546             |                      |                 |         |
| 13                            | 3,065               | 3,065               | 14,000                | 20,131                    | 292,546             |                      |                 |         |
| 14                            | 2,925               | 2,925               | 15,000                | 20,851                    | 277,546             |                      |                 |         |
| 15                            | 2,775               | 2,775               | 15,000                | 20,551                    | 262,546             |                      |                 |         |
| 16                            | 2,625               | 2,625               | 15,000                | 20,251                    | 247,546             |                      |                 |         |
| 17                            | 2,475               | 2,475               | 16,000                | 20,951                    | 231,546             |                      |                 |         |
| 18                            | 2,315               | 2,315               | 16,000                | 20,631                    | 215,546             |                      |                 |         |
| 19                            | 2,155               | 2,155               | 16,000                | 20,311                    | 199,546             |                      |                 |         |
| 20                            | 1,995               | 1,995               | 17,000                | 20,991                    | 182,546             |                      |                 |         |
| 21                            | 1,825               | 1,825               | 17,000                | 20,651                    | 165,546             |                      |                 |         |
| 22                            | 1,655               | 1,655               | 17,000                | 20,311                    | 148,546             |                      |                 |         |
| 23                            | 1,485               | 1,485               | 18,000                | 20,971                    | 130,546             |                      |                 |         |
| 24                            | 1,305               | 1,305               | 18,000                | 20,611                    | 112,546             |                      |                 |         |
| 25                            | 1,125               | 1,125               | 18,000                | 20,251                    | 94,546              |                      |                 |         |
| 26                            | 945                 | 945                 | 19,000                | 20,891                    | 75,546              |                      |                 |         |
| 27                            | 755                 | 755                 | 19,000                | 20,511                    | 56,546              |                      |                 |         |
| 28                            | 565                 | 565                 | 19,000                | 20,131                    | 37,546              |                      |                 |         |
| 29                            | 375                 | 375                 | 20,000                | 20,751                    | 17,546              |                      |                 |         |
| 30                            | 175                 | 175                 | 20,000                | 20,351                    | -2,454              |                      |                 |         |

#### **h. Disadvantaged Community**

A “Disadvantaged Community Status Determination Worksheet” is included with the final project plan submittal as well as the City’s 2020 Statement of Revenues and Expenditures (see Appendix B). Preliminary review has confirmed the City of Onaway qualifies as a disadvantaged community based on their current and projected debt service, median household income, and user rates.

#### **i. Ability to Implement the Selected Alternative**

The proposed improvements are within the City of Onaway’s legal authority, managerial capability, and financial means. The City of Onaway has experience regarding replacement and rehabilitation within existing Right-of-Way or easements generated for previous projects. The City will need to follow EGLE guidance regarding service replacements on private property.

### **Environmental Evaluation**

A basic environmental review of the area was conducted by utilizing available agency information, online mapping tools, past environmental reviews, and various City and County reports. The findings are summarized below and included in full in Appendix C.

#### **a. Historical/Archaeological/Tribal Resources**

A review of the State Historical Preservation Office (SHPO) records indicated two sites of historical significance in the project area, including the Onaway Courthouse and the Masonic Temple. Location maps and general descriptions of the properties are included in Part 2 of Appendix C. Any work adjacent to these structures should avoid direct or indirect impacts on listed structures. The proposed project will have no adverse effect on historic properties within the area of potential effects.

There are three federally recognized Tribes in the project area: the Grand Traverse Band of Ottawa and Chippewa Indians, the Little River Band of Ottawa Indians, and the Little Traverse Bay Band of Odawa. No tribal lands are expected to be impacted or disturbed by the proposed drinking water improvements. See the Michigan Economic Development Corporation map of Michigan’s Federally Recognized Indian Tribes in Part 3 of Appendix C for full details.

#### **b. Water Quality**

The project area will be approximately 4.6 acres of disturbance. Any earth disturbance over 1 acre or within 500 feet of a lake or stream will require a Part 91 Soil Erosion and Sedimentation Control (SESC) plan and permit application.

No letter was required for facility discharge permits because no changes were being made to the NPDES; nor is any water withdrawal or dewatering necessary.

#### **c. Land/Water Interface**

The construction erosion will not impact land and water interfaces such as: inland lakes and streams, floodplains, wetlands, Great Lakes shorelands, or navigable waters of the US. The proposed water system improvements will not include or affect on-site septic systems, treatment lagoons, berms, or natural national landmarks.

The U.S. Fish and Wildlife Service identified wetland and hydric soils present on the east side of the city. No water services are expected to cross wetland areas. Wetland maps are available in Part 16c of Appendix C.

#### **d. Endangered Species**

The U.S. Fish and Wildlife Service provided Information for planning and consultation on their website portal. Native endangered or threatened species include the Northern Long-Eared Bat, Piping Plover Bird, Red Knot Bird, Eastern Massasauga Rattlesnake, Hine's Emerald Dragonfly, and the Hungerford's Crawling Water Beetle. There are three listed flowering plants: Dwarf Lake Iris, Houghton's Goldenrod, and Pitcher's Thistle. Additional migratory birds protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act include the Bald Eagle. The Michigan Natural Features Inventory (MNFI) makes available County Element Data regarding natural features currently or historically recorded in the county which is included in Appendix C.

As the scope of work in this Project Plan only covers water service replacements, no adverse effects are expected for the endangered animals or insects listed above. If applicable, general bat protection standards should limit tree-cutting activities to October 1-March 31 when possible. Tree removal during June or July and any activity which could increase spread of white-nose syndrome should be avoided.

The endangered plant species listed above are also not expected to be effected by the scope of work proposed. Pitcher's Thistle is native to the sand dune shorelines along the Great Lakes and will not be present in our project area. Houghton's Goldenrod is also found in sandy lakeshore habitat types and not expected to be within the project area.

#### **e. Agricultural Land**

No farmland conversion is planned as a part of this project.

#### **f. Social/Economic Impact**

There is no safe amount of lead in drinking water, and the negative health impacts of exposure, especially to children, are well known. There are emotional and community benefits to water security, for example: reducing anxiety, improving gastrointestinal health and brain development, improving hygiene and quality of life.

#### **g. Construction/Operational Impact**

In terms of air quality, EGLE advisement is to control fugitive dust emissions by use of water or other dust suppressants on the work site. Dust suppressants should be used as necessary to prevent injurious effects or unreasonable interference of life and property.

There are several areas of recorded contamination which are within or nearby the project area. Ten leaking underground storage tanks and fifteen other sites of environmental contamination were identified on the Michigan EGLE Environmental Mapper inventory. EGLE provided Baseline Environmental Assessments and additional details regarding soil and water sampling results, maps, and "Due Care Plan" for these properties.

#### **h. Indirect Impacts**

The indirect impact of non-replacement of lead and galvanized service lines could be the loss of reputation and erosion of trust between the government, citizens, and neighboring communities.

### **Mitigation Measures**

Based on the information summarized above, the primary detrimental impacts and mitigation measures will be short term construction related. Mitigation measures to prevent soil erosion, dust, and habitat disruption will be developed during the design and permitting process and implemented via requirements included in project construction contract documents.

### **Public Participation**

#### **a. Public Meeting**

Advertisement for the public hearing will begin in April of 2021 with notices posted on the City website and in

the local newspaper.

**b. Formal Public Hearing**

A Public Hearing will be held during the regular City Council meeting on Monday, May 17<sup>th</sup>, 2021 at 5:30pm at the Onaway City Hall. The City has been in contact with EGLE regarding appropriate measures during “Stay home, Stay safe” guidelines for public gatherings.

**c. Public Hearing Advertisement**

The Public Hearing will be advertised on the City’s website (<https://onawaymi.com>) and in the Presque Isle Advance newspaper on or before April 16<sup>th</sup>, 2021 with Proof of Publication to be included in Appendix E. A draft is included in Appendix E.

**d. Public Hearing Transcript**

A transcript will be included in Appendix E.

**e. Public Hearing Contents**

A summary of information presented at the public hearing will be included in Appendix E.

**f. Comments Received and Answered**

Any comments received on the project plan and responses to them are included in Appendix E.

**g. Adoption of the Project Plan**

A resolution adopting the Project Plan can be found in Appendix E.