City of Niles
Drinking Water State Revolving Fund
Project Plan

Fishbeck Project No. 220481
DWSRF Project No. 7675-01
July 1, 2022

REVIEW DRAFT

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Prepared For:
City of Niles

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Review Draft

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List of Abbreviations/Acronyms

ACO	Administrative Consent Order
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association

CaCO3	calcium carbonate
City	City of Niles
CSO	combined sewer overflow
DWSRF	Drinking Water State Revolving Fund
EGLE	Michigan Department of Environment, Great Lakes, and Energy
gpm	gallon per minute
GIS	Geographic Information System
MGD	million gallons per day
ROW	right-of-way
SESC	soil erosion and sedimentation controls
SSO	sanitary sewer overflow
WCP	Water Conditioning Plant

1.0 Introduction

This Project Plan was prepared on behalf of the City of Niles (City) in Niles, Michigan to obtain a Drinking Water State Revolving Fund (DWSRF) loan from the Michigan Department of Environment, Great Lakes, and Energy (EGLE). The loan is for replacement of lead and galvanized water service lines and main lines, water meter replacement to Advanced Metering Infrastructure (AMI), and replacement of aging water main. The estimated DWSRF eligible cost for these projects is:

Water Meter Replacement	$1,680,000
Lead Service Replacement	$18,291,000
Water Main Replacement	$6,300,000
Total	$26,271,000

2.0 Project Background

2.1 Delineation of Study Area

The City is located in southwest Michigan in Berrien and Cass counties, at the junctions of two highways: M-139 (Chicago Road) and M-51 (5th Street). The City is just north of South Bend, Indiana and is along the banks of the St. Joseph River. The study area includes the entire water service area within the City along with portions of Howard, Niles, Milton, and Bertrand Townships. The water system supplies water for approximately 4,489 City customers and 836 Township customers. Figure 1 illustrates the City's service area. Figure 2 presents the major water system components.

2.2 Land Use in Study Area

There are eight zoning districts located in the City. The land use is comprised of a central business district, industrial, low and medium density residential, neighborhood centers, open space, office, and regional commercial. The industrial areas are in the northeast and southwest corners of the City. The southwest corner is centered around the French Paper Company near the intersection of French Street and Parkway along the St. Joseph River. The northeast corner is centered around the Jerry Tyler Memorial Airport and the City of Niles Industrial Park. The office/ commercial area is centered around Spectrum Health Lakeland Niles Hospital on Grant Street between Parkway and Lincoln Avenue.

The highest concentration of residential development exists around the downtown commercial areas. The office/ commercial district is concentrated along the Main Street corridor. The central business district is generally bound by Riverfront Park along the River to the west, Howard Street to the north, 5th Street to the east, and Broadway to the south. Most of the open spaces and parks are concentrated along the St. Joseph River.

Figure 3 illustrates the land use within the study area.

2.3 Population Projections

The population of the City has been declining since 1980, with the greatest decreases in population from 1980 to 1990 (-5.0%) and from 2000 to 2010 (-4.9%). The 2020 Census data has recently been posted and the City has slightly increased in population. The 2020 Census data has the City population at 11,988. Population projections for beyond 2020 were obtained from the City's 2021 Community Master Plan. It is anticipated that population will continue to slowly decline over the next 20 years. Despite the population decline, Niles remains the largest city in Berrien and Cass Counties.

Table 1 – Niles Population Trends

Source	Year	Population
From Census	2010	11,600
	2020	11,988
Projections	2025	11,748
	2030	11,508
	2040	11,028
	2050	10,548

The following table shows the population and projections for the surrounding Townships. Very little information could be found on Bertrand Township. It is primarily a rural community. The Townships see some growth, but it is minimal. Some population projections were obtained from the 2013 State of the Region Report from the Southwest Michigan Planning Commission.

Table 2 – Township Population Trends

Source	Year	Population			
		Milton Township	Niles Township	Bertrand Township	Howard Township
From Census	2010	3,878	14,164	2,657	6,207
	2020	3,128	14,417	-	6,275
Projections	2025	3,363	14,567	2,732	6,310
	2030	4,818	14,717	2,757	6,345
	2040	5,288	15,017	2,807	6,415
	2050	5,758	15,317	2,857	6,485

2.4 Water Demand

The existing project areas are comprised of residential, commercial, and industrial properties. The only anticipated increase in water demand will be from the new natural gas power plant that goes online in May 2022. The power plant is located in the Industrial Park just north of the Jerry Tyler Memorial Airport. The new power plant will become a significant water user, and the pumpage is anticipated to increase approximately 18%. Due to the steady population decline within the City, there is adequate water availability for the new power plant. No new industrial major water users are anticipated.

2.5 Existing Facilities

The City water supply utilizes groundwater delivered in varying amounts from seven deep wells located around the City. Six of these wells are active, with one well on stand-by. The wells vary in age with the oldest one being from 1947 to the newest one which was added in 2014. Not all of the wells have auxiliary power. There is one emergency connection into Niles Township that is located at Fort and Jerome Streets.

The City has a wellhead protection program that was updated in 2018. It is on file and approved by EGLE.

There are six water storage tanks spread out throughout the water service area. The below table shows the storage volume in each tank.

Table 3 – Water Tower Storage

Location	Volume (gal)	Type of Tank	Material
North 5th	1 million	Elevated	Steel
Cherry	500,000	Elevated	Steel
Century	150,000	Elevated	Steel

Table 3 – Water Tower Storage

Location	Volume (gal)	Type of Tank	Material
Bertrand	300,000	Elevated	Steel
Carberry	300,000	Elevated	Steel
Iron Removal Plant	30,000	Underground	Concrete

The City has a Booster Pump Station located on Lake Street that is for the East Side High Pressure District. The pump station has two pumps with each pump having a 500 gallon per minute (gpm) capacity.

The Water Treatment Plant is an iron removal plant that is located east of N 17th Street and north of Eagle Street on the east side of the City. The plant was built in 2005 and has a capacity of 2.6 million gallons per day (MGD).

Figure 2 shows all of the major water system components discussed in this section.

The City owns and operates the water distribution system including all other appurtenances that make up the distribution system such as water valves, hydrants, curb stop and boxes, water meters, etc. The City has approximately 635 fire hydrants, 2,070 water valves, and 5,800 curb stop and boxes and water meters. In addition, the City has 5,554 service lines, and it is anticipated that 2,613 of them are lead or galvanized.

The tables below show a high-level overview of the size, material, and age of water mains within the Niles water distribution system. These are also shown in Figures 4, 5, and 6.

Table 4 – Water Main Size

Size (inches)	Length (ft)
2 and below	38,586
4	91,242
6	245,480
8	41,220
10	38,683
12	83,634
14	10,725
16	20,185

Table 5 – Water Main Material

Material	Length (ft)
Cast Iron	377,020
Copper	9,158
Ductile Iron	148,455
Polyvinyl Chloride	14,333
Unknown	20,788

Table 6 – Water Main Age

Decade Installed	Length (ft)
Unknown	129,454
1910s	18,434
1920s	68,873

Table 6 – Water Main Age

Decade Installed	Length (ft)
1930s	44,711
1940s	41,606
1950s	55,728
1960s	57,173
1970s	25,413
1980s	41,781
1990s	78,989
2000s	5,877
2010s	1,716

The condition of water mains is currently being assessed based on the following criteria:

- Pipe age
- Number of main breaks
- C factor, hydraulic deficiencies
- Available fire flow based on zoned land use
- Water quality related parameters

Pipe age can be an indicator for several criteria listed above. For example, aging unlined cast iron pipe will typically contribute to lower C factors, resulting in greater pumping energy used, increased maintenance and flushing, reduced fire flow, and faster degradation of chlorine residuals, increasing the likelihood of coliform bacteria outbreaks and nitrification. Excessive tuberculation of unlined cast iron pipe in the distribution system promotes bio-growth that in turn reduces chlorine residual. The reduction in chlorine frees up ammonia, creating food for nitrite oxidizing bacteria causing nitrification issues. Nitrification can reduce pH and alkalinity, decreasing the effectiveness of the corrosion control. As bio-growth increases, chemical dosages must also be increased to achieve the same disinfection and corrosion control results. Eventually, the deteriorating main could impair disinfection and corrosion control goals to the point that treatment technique requirements are not met, and water quality standard violations occur. By replacing older unlined cast iron pipe, Niles helps ensure that disinfection and corrosion control chemical costs are lowered, and public health protection remains intact.

Main breaks are another driver for assessing the condition of the water system. The City spatially tracks main breaks within the Geographic Information System (GIS) to better understand how pipes are performing. The main break data can be used for capital improvement planning as one of the criteria for likelihood of failure. The water main breaks can be seen in Figure 7.

The Department of Public Works coordinates with the Water Division for proposed street improvement projects to ensure lead service lines are replaced ahead of the improvements. This extra step saves costs.

Climate change has multiple potential impacts on water quality and water quantity. Therefore, it is important to consider and plan for these impacts. In the Great Lakes region, there has been an increase in storm intensity which has led to increased runoff from farms and cities, and flooding, which leads to more pollutants entering waterways and groundwater. In addition, there is more stress on the aquifer from fluctuating temperatures. Other items that can be affected are excessive frost penetration, resulting in water main breaks, pressure loss and associated coliform outbreaks. There is an increase in demands to prevent freezing services, and 1920s era water main tends to not meet current depth of bury standards that would prevent mains and services from freezing. Niles submitted a certification statement for completion of the Risk and Resilience Assessment and the Emergency Response Plan, which was an all-hazards approach to evaluating risk to the system from malevolent

acts and natural hazards. Natural hazards include items such as power outage (from things such as an ice storm or other), flood, tornado, earthquakes, and pandemics. This was submitted to the U.S. Environmental Protection Agency on June 17, 2020.

2.6 Summary of Project Need

The City is proposing to replace approximately 2,613 lead and galvanized water service lines and main lines, water meter replacement to Advanced Metering Infrastructure (AMI), and replacement of aging water main along with valves, fire hydrants, and appurtenances that fall within areas with numerous breaks. The current water main break map can be seen as Figure 7. The City has been unable to afford to replace water main due to lack of funds and the Lead and Copper Rule requirement for replacing lead service lines. As shown in Table 6, a significant portion of the City's water main is beyond its expected useful life. The City is looking to upgrade their water meter infrastructure within the City due to age of their existing system, difficulty hiring staff to read their existing meters, increased customer transparency, and the ability to monitor for immediate leakage. There are approximately 5,600 water meters to be replaced. The new meters would allow for remote reading. The lead service lines that need to be replaced comprise approximately 47% of the total services in the City system. In order to comply with the Michigan Lead and Copper Rule, the City needs to increase the number of lines that are currently being replaced. A portion of the service lines are mapped in GIS. The service line materials that are known can be seen in Figure 13.

2.6.1 Compliance with Drinking Water Standards

The City has had two compliance issues in recent years with meeting drinking water standards as defined in the administrative rules for Act 399. In November 2019, the City received a violation notice for monitoring and reporting for Disinfection Byproducts. The sample collected did not meet pH requirements and could not be accepted for compliance monitoring. In April 2020, the City received a violation notice for monitoring and reporting for Volatile Organic Chemicals. The sample collected did not meet method pH requirements. Both violations have been resolved and the City is currently in compliance. The violation notices can be seen in Appendix 2.

2.6.2 Orders or Enforcement Actions

No court or enforcement orders, or written enforcement actions have been issued to the City regarding the water system.

2.6.3 Drinking Water Quality Problems

The City is not experiencing any drinking water problems.

2.6.4 Projected Needs for the Next 20 years

Over the next 20 years, Niles is planning to stay on top of their well and tower maintenance. They need to ramp up their lead service lateral replacement and to replace their water meter infrastructure. In addition, the City would like to start replacing water main that has reached the end of its useful life.

3.0 Analysis of Alternatives

3.1 No Action

The "No Action" alternative is not acceptable. The City must proceed with work in the areas included in this Project Plan to meet the requirements of EGLE and the Lead and Copper Rule. The water main needs to be replaced, as it has reached its useful life expectancy. No action will result in water quality issues from aging infrastructure, which will eventually result in violation notices from EGLE relating to drinking water standards. In

addition, lead service lines must be removed from the system and replaced. The City needs to replace approximately 47% of their water services, which is about 2,613 water services. Niles is making the transition to Advanced Metering Infrastructure (AMI) with their water meters. The lack of existing staffing and the ability to hire new staffing are factors in that decision. In addition, customer transparency and the ability to monitor for immediate leakage play a significant role. The City is looking to replace all of the water meters within their system, which is approximately 5,600 meters.

3.2 Optimum Performance of Existing Facilities

Improving the performance of the existing facilities is not an acceptable alternative. The system that is to be addressed is the water distribution system. The system is aging and has met its useful life. If the system is not replaced, the system will experience water quality issues that could result in violations of the drinking water standards. The distribution system will continue to experience more frequent water main breaks.

3.3 Regional Alternatives

There is not a viable regional alternative. The City serves as the regional water supply as they service portions of the surrounding four Townships. The regional alternative also does not address the lead service line replacement needs to comply with the Michigan Lead and Copper Rule revisions.

4.0 Principal Alternatives

The proposed projects for water main replacement are very similar within the City. Aging water main will be replaced with 6-inch, 8-inch, and 12-inch pipe along with valves, fire hydrants, and appurtenances. The proposed locations are 1,500 feet of water main on Tomahawk Lane, 1,000 feet of water main on Plym Road, 1,900 feet of water main on Merrifield Avenue between North 14th and 17th Streets, 2,700 feet of water main on Howard Street between North 13th and 17th Streets, 1,200 feet of water main on Sheridan Street between North 15th and 17th Streets, 1,200 feet of water main on Sheffield Avenue between North 15th and 17th Streets and 1,400 feet of water main on Wayne Street between North 5th and 9th Streets. Figure 8 shows the project locations.

Two alternatives were considered for the water main replacement:

Alternative 1 – Open Cut Replacement

Alternative 2 – Replacement through Directional Drill

Lead service line replacement is spread out throughout the entire water service area. Two alternatives were considered for the water main replacement.

Alternative 1 – No Action

Alternative 2 – Replacement

Water meter replacement is planned to Advanced Metering Infrastructure (AMI). Two alternatives were considered for the water meter replacement.

Alternative 1 – No Action

Alternative 2 – Replacement

4.1 Monetary Evaluation

4.1.1 Tomahawk Lane Water Main Project

A detailed breakdown of the costs for the Tomahawk Lane water main replacement by open cut and directional drilling is presented in Appendix 1. Table 7 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 7 – Tomahawk Lane Water Main Project Monetary Evaluation

Improvements	Life	Alternative 1 Open Cut		Alternative 2 Water Main Directional Drill	
		Cost	Salvage *	Cost	Salvage *
Water Main	50 yrs	$561,000	$336,600	$871,000	$522,600
Hydrants and Valves	50 yrs	$29,000	$11,600	$29,000	$11,600
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$590,000		$900,000	
Engineering and Contingencies		$210,000		$300,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$800,000		$1,200,000	
Salvage Value at 20 Years			$348,200		$534,200
Present Worth of Salvage Value **			$384,917		$590,530
Total Annual O&M Costs		$225		$225	
Present Worth of O&M Costs***		$4,745		$4,745	
Total Present Worth of Project (Capital + O&M - Salvage)		$419,828		$614,215	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%

Years (n) = 20

** Future Salvage Value to Present Worth Multiplier = 1.105

*** Annual O&M to Present Worth Multiplier = 21.090

Present Worth to Annual Multiplier = 0.04741666

4.1.2 Plym Road Water Main Project

A detailed breakdown of the costs for the Plym Road water main replacement by open cut and directional drilling is presented in Appendix 1. Table 8 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 8 – Plym Road Water Main Project Monetary Evaluation

Improvements	Life	Alternative 1 Open Cut		Alternative 2 Water Main Directional Drill	
		Cost	Salvage *	Cost	Salvage *
Water Main	50 yrs	$428,500	$257,100	$493,500	$296,100
Hydrants and Valves	50 yrs	$21,500	$8,600	$21,500	$8,600
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$450,000		$515,000	
Engineering and Contingencies		$150,000		$185,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$600,000		$700,000	
Salvage Value at 20 Years			$265,700		$304,700
Present Worth of Salvage Value **			$293,718		$336,830
Total Annual O&M Costs		$175		$175	
Present Worth of O&M Costs***		$3,691		$3,691	

Total Present Worth of Project (Capital + O&M - Salvage)		$309,973		$366,861	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.1.3 Merrifield Avenue Water Main Project

A detailed breakdown of the costs for the Merrifield Avenue water main replacement by open cut and directional drilling is presented in Appendix 1. Table 9 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 9 – Merrifield Avenue Water Main Project Monetary Evaluation

		Alternative 1 Open Cut		Alternative 2 Water Main Directional Drill	
Improvements	Life	Cost	Salvage *	Cost	Salvage *
Water Main	50 yrs	$711,000	$426,600	$1,101,000	$660,600
Hydrants and Valves	50 yrs	$29,000	$11,600	$29,000	$11,600
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$740,000		$1,130,000	
Engineering and Contingencies		$260,000		$370,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$1,000,000		$1,500,000	
Salvage Value at 20 Years			$438,200		$672,200
Present Worth of Salvage Value **			$484,407		$743,082
Total Annual O&M Costs		$225		$225	
Present Worth of O&M Costs***		$4,745		$4,745	
Total Present Worth of Project (Capital + O&M - Salvage)		$520,338		$761,663	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.1.4 Howard Street Water Main Project Monetary Evaluation

A detailed breakdown of the costs for the Howard Street water main replacement by open cut and directional drilling is presented in Appendix 1. Table 10 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 10 — Howard Street Water Main Project Monetary Evaluation

Improvements	Life	Alternative 1 Open Cut Cost	Alternative 1 Open Cut Salvage *	Alternative 2 Water Main Directional Drill Cost	Alternative 2 Water Main Directional Drill Salvage *
Water Main	50 yrs	$1,022,500	$613,500	$1,447,500	$868,500
Hydrants and Valves	50 yrs	$27,500	$11,000	$27,500	$11,000
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$1,050,000		$1,475,000	
Engineering and Contingencies		$350,000		$525,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$1,400,000		$2,000,000	
Salvage Value at 20 Years			$624,500		$879,500
Present Worth of Salvage Value **			$690,352		$972,242
Total Annual O&M Costs		$225		$225	
Present Worth of O&M Costs***		$4,745		$4,745	
Total Present Worth of Project (Capital + O&M - Salvage)		$714,393		$1,032,504	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.1.5 Sheridan Street Water Main Project Monetary Evaluation

A detailed breakdown of the costs for the Sheridan Street water main replacement by open cut and directional drilling is presented in Appendix 1. Table 11 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 11 – Sheridan Street Water Main Project Monetary Evaluation

Improvements	Life	Alternative 1 Open Cut Cost	Alternative 1 Open Cut Salvage *	Alternative 2 Water Main Directional Drill Cost	Alternative 2 Water Main Directional Drill Salvage *
Water Main	50 yrs	$522,500	$313,500	$732,500	$439,500
Hydrants and Valves	50 yrs	$17,500	$7,000	$17,500	$7,000
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$540,000		$750,000	
Engineering and Contingencies		$160,000		$250,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$700,000		$1,000,000	
Salvage Value at 20 Years			$320,500		$446,500
Present Worth of Salvage Value **			$354,296		$493,583
Total Annual O&M Costs		$125		$125	
Present Worth of O&M Costs***		$2,636		$2,636	
Total Present Worth of Project (Capital + O&M - Salvage)		$348,340		$509,054	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.1.6 Sheffield Avenue Water Main Project Monetary Evaluation

A detailed breakdown of the costs for the Sheffield Avenue water main replacement by open cut and directional drilling is presented in Appendix 1. Table 12 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 12 – Sheffield Avenue Water Main Project Monetary Evaluation

		Alternative 1 Open Cut		Alternative 2 Water Main Directional Drill	
Improvements	Life	Cost	Salvage *	Cost	Salvage *
Water Main	50 yrs	$517,500	$310,500	$732,500	$439,500
Hydrants and Valves	50 yrs	$17,500	$7,000	$17,500	$7,000
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$535,000		$750,000	
Engineering and Contingencies		$165,000		$250,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$700,000		$1,000,000	
Salvage Value at 20 Years			$317,500		$446,500
Present Worth of Salvage Value **			$350,980		$493,583
Total Annual O&M Costs		$125		$125	
Present Worth of O&M Costs***		$2,636		$2,636	
Total Present Worth of Project (Capital + O&M - Salvage)		$351,656		$509,054	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.1.7 Wayne Street Water Main Project Monetary Evaluation

A detailed breakdown of the costs for the Wayne Street water main replacement by open cut and directional drilling is presented in Appendix 1. Table 13 provides the monetary evaluation of the two alternatives.

Based on the results of the monetary evaluation, Alternative 1 is the most cost effective.

Table 13 – Wayne Street Water Main Project Monetary Evaluation

Improvements	Life	Alternative 1 Open Cut Cost	Alternative 1 Open Cut Salvage *	Alternative 2 Water Main Directional Drill Cost	Alternative 2 Water Main Directional Drill Salvage *
Water Main	50 yrs	$793,000	$475,800	$868,000	$520,800
Hydrants and Valves	50 yrs	$22,000	$8,800	$22,000	$8,800
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$815,000		$890,000	
Engineering and Contingencies		$285,000		$310,000	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$1,100,000		$1,200,000	
Salvage Value at 20 Years			$484,600		$529,600
Present Worth of Salvage Value **			$535,700		$585,445
Total Annual O&M Costs		$150		$150	
Present Worth of O&M Costs***		$3,163		$3,163	
Total Present Worth of Project (Capital + O&M - Salvage)		$567,463		$617,718	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%

Years (n) = 20

** Future Salvage Value to Present Worth Multiplier = 1.105

*** Annual O&M to Present Worth Multiplier = 21.090

Present Worth to Annual Multiplier = 0.04741666

4.1.8 Lead Service Line Replacement

A detailed breakdown of the costs for the lead service line replacement was completed for the No-Action Alternative and for replacement of the lead service lines. The breakdown of costs for the replacement is presented in Appendix 1. Table 14 provides the monetary evaluation of the two alternatives. The costs are based on replacing the 2,613 service lines that are assumed to be galvanized and lead within the City.

The No-Action alternative is not a viable option, so replacement is recommended.

Table 14 – Lead Service Line Replacement Monetary Evaluation

Improvements	Life	Alternative 1 No Action Cost	Alternative 1 No Action Salvage *	Alternative 2 Water Lead Replacement Cost	Alternative 2 Water Lead Replacement Salvage *
Water Main	50 yrs	$0	$0	$18,291,000	$10,974,600
Hydrants and Valves	50 yrs	$0	$0	$0	$0
Equipment	20 yrs	$0	$0	$0	$0
Total Construction Cost		$0		$18,291,000	
Engineering and Contingencies		$0		$0	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$0		$18,291,000	
Salvage Value at 20 Years			$0		$10,974,600
Present Worth of Salvage Value **			$0		$12,131,851
Total Annual O&M Costs		$0		$0	
Present Worth of O&M Costs***		$0		$0	

Table 14 – Lead Service Line Replacement Monetary Evaluation

Improvements	Life	Alternative 1 No Action Cost	Alternative 1 No Action Salvage *	Alternative 2 Water Lead Replacement Cost	Alternative 2 Water Lead Replacement Salvage *
Total Present Worth of Project (Capital + O&M - Salvage)		$0		$6,159,149	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.1.9 Water Meter Replacement

A detailed breakdown of the costs for the water meter replacement to Advanced Metering Infrastructure (AMI) was completed for the No-Action Alternative and for replacement of the meter. The breakdown of costs for the replacement is presented in Appendix 1. Table 15 provides the monetary evaluation of the two alternatives. The costs are based on replacing all of the water meters within the City, which is approximately 5,600 meters.

The No-Action alternative is not a viable option, so replacement is recommended.

Table 15 – Water Meter Replacement Monetary Evaluation

Improvements	Life	Alternative 1 No Action Cost	Alternative 1 No Action Salvage *	Alternative 2 Water Meter Replacement Cost	Alternative 2 Water Meter Replacement Salvage *
Water Main	50 yrs	$0	$0	$0	$0
Hydrants and Valves	50 yrs	$0	$0	$0	$0
Equipment	20 yrs	$0	$0	$1,680,000	$420,000
Total Construction Cost		$0		$1,680,000	
Engineering and Contingencies		$0		$0	
Easements and Land Acquisition		$0	$0	$0	$0
Present Worth Estimated Capital Costs		$0		$1,680,000	
Salvage Value at 20 Years			$0		$420,000
Present Worth of Salvage Value **			$0		$464,288
Total Annual O&M Costs		$0		$0	
Present Worth of O&M Costs***		$0		$0	
Total Present Worth of Project (Capital + O&M - Salvage)		$0		$1,215,712	

* Salvage value at the end of 20 years planning period is computed on the basis of straight-line depreciation over the life of the item

Discount Rate (i) = -0.500%
Years (n) = 20
** Future Salvage Value to Present Worth Multiplier = 1.105
*** Annual O&M to Present Worth Multiplier = 21.090
Present Worth to Annual Multiplier = 0.04741666

4.2 Environmental Evaluation

4.2.1 Cultural Resources

The proposed improvements for the water main replacement projects will all be in previous construction areas and within City road rights-of-way (ROWs). The lead and galvanized service pipe replacement projects will be

located from the roadway and road ROW up to a point within the private residence. This will be within a previously disturbed area as well. There should not be any historical sites or archaeological sites in the vicinity of the projects.

4.2.2 The Natural Environment

4.2.2.1 Climate

The proposed work will not be affected by climate, nor have an influence on the climate. The project will be designed to operate in the prevailing climate/ environment.

4.2.2.2 Air Quality

The proposed work will have no significant effect on the local air quality. Heavy equipment used for construction will temporarily increase fugitive dust emissions in work areas but is not expected to produce a significant or lasting effect. Fugitive dust will be temporary during construction and will be mitigated for the duration of the project with appropriate soil erosion and sedimentation controls (SESC) measures.

4.2.2.3 Wetlands

Most of the project area has been urbanized, and only small, scattered, unregulated wetlands remain. There are no regulated wetlands in the proposed project work areas. Regulated wetlands can be seen in Figure 9.

4.2.2.4 Coastal Zones

There are no coastal zones in the project area.

4.2.2.5 Floodplains

A map illustrating the 100-year floodplain is included as Figure 10. There is not any proposed work in the floodplain.

4.2.2.6 Natural or Wild and Scenic Rivers

There are no State designated wild or scenic rivers in the project area.

4.2.2.7 Major Surface Waters

Figure 11 presents the overall study area and major surface waters, including the St. Joseph River. No work is proposed near any major surface water located in the City.

4.2.2.8 Agricultural Resources

Figure 12 presents the prime farmland within and around the City. The two proposed projects that fall within prime farmland are located within a developed subdivision.

4.2.2.9 Fauna and Flora

According to the U.S. Fish and Wildlife Service (USFWS) website, there are a number of threatened and endangered species found within the project vicinity. However, it has been determined that there will be a proposed action of “No Effect” based on the type of project.

The proposed project includes water main work in established road ROWs and developed urban areas. If any tree removal is necessary during construction, it will be completed between November 15 and March 31 to comply with bat restrictions. The MNFI response letter and the USFWS consistency letter can be found in Appendix 3.

4.3 Mitigation

Mitigation of environmental impacts will include best construction practices such as soil erosion prevention techniques and maintenance of construction equipment. Air quality will be controlled to the greatest extent

possible by limiting construction to regular working hours during the week. All disturbances will be as narrow as practical to get the project completed.

4.4 Implementability and Public Participation

The water main and lead and galvanized water service lines will be replaced within the existing road, road ROW, and limited private property locations based on placement of existing water main and services. The Public will be given a chance to review the projects during the public review period prior to the public hearing. If the projects receive funding and can move forward into design, the City will contact residents within the planned replacement area to obtain permission to replace the service line on private property. The City notifies the residents through door knocking. To date, the City has been successful utilizing this method.

4.5 Technical Considerations

The alternatives evaluated in this Project Plan will comply with Act 399 and be designed to meet the standard recommended guidelines in the "Recommended Standards for Waterworks" as published by the Great Lakes and Upper Mississippi Board of State Sanitary Engineers. In addition, both alternatives will meet and maintain compliance with applicable water quality standards.

4.6 Residuals

The alternatives evaluated will not influence residuals. The existing project areas are well established neighborhoods within the City. There are not any high-volume users that will affect design flows and pressures. The proposed water distribution system improvements will help maintain necessary pressures and water quality and reduce flushing.

4.7 Contamination

The State of Michigan's Environmental Mapper was utilized to identify any underground storage tanks, baseline environmental assessment sites, and brownfield sites that could potentially be located within the City near the proposed project locations. There are not any of these types of contaminated sites shown near these locations. However, PFAS was recently detected at Toefco on South 14th Street. This site is outside of the project limits.

4.8 New/ Increased Water Withdrawals

This project plan does not include any new or increased surface or groundwater withdrawal. The proposed projects should reduce leaks, reduce breaks, reduce lost water, and replace lead service lines and water meters within the City.

5.0 Selected Alternatives

For the water main replacement projects, Alternative 1 – Open Cut Replacement was selected. The proposed water main projects are on Tomahawk Lane, Plym Road, Merrifield Avenue, Howard Street, Sheridan Street, Sheffield Avenue, and Wayne Street. For the lead service line replacement project, Alternative 2 was selected. For the water meter replacement project, Alternative 2 was selected.

5.1 Design Parameters

The proposed projects are briefly described below and are illustrated in Figure 8. GIS and metrics were utilized to find the areas with the most water main breaks to identify water main replacement.

5.1.1 Tomahawk Lane

The Tomahawk Lane project area is from Sassafras Lane to Plym Road. The project will replace 6-inch water main with 8-inch water main for approximately 1,500 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.2 Plym Road

The Plym Road project area is from Sassafras Lane to Tomahawk Lane. The project will replace 6-inch water main with 8-inch water main for approximately 1,000 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.3 Merrifield Avenue

The Merrifield Avenue project area is from North 14th to 17th Streets. The project will replace 6-inch water main with 8-inch water main for approximately 1,900 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.4 Howard Street

The Howard Street project area is from North 13th to 17th Streets. The project will replace 6-inch water main with 6-inch water main for approximately 2,700 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.5 Sheridan Street

The Sheridan Street project area is from North 15th to 17th Streets. The project will replace 6-inch water main with 6-inch water main for approximately 1,200 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.6 Sheffield Avenue

The Sheffield Avenue project area is from North 15th to 17th Streets. The project will replace 6-inch water main with 6-inch water main for approximately 1,200 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.7 Wayne Street

The Wayne Street project area is from North 5th to 9th Streets. The project will replace 10-inch water main with 12-inch water main for approximately 1,400 feet. In addition to water main replacement, valves, fire hydrants and appurtenances will be replaced.

5.1.8 Lead Service Line Replacement

The lead service line replacement project proposes to replace the assumed 2,613 lead and galvanized service lines that are present in the system. This project must proceed, as this is a requirement by EGLE as part of the Lead and Copper Rule.

5.1.9 Water Meter Replacement

The water meter replacement project is proposing to upgrade the current water meters within the City to an Advanced Metering Infrastructure (AMI) which can be read remotely. There are approximately 5,600 water meters that need to be replaced. This decision was largely made due to staffing shortages, not being able to hire new staff, and the age of the existing meters. In addition, new meters would allow for increased customer transparency and the ability to monitor for immediate leakage.

5.1.10 Sizing Factors

The City utilizes several industry guidelines for water main sizing.

- Michigan Safe Drinking Water Act 1976 PA 399
- Recommended Standards for Water Works – Latest Edition
- Suggested Practice for Water Works Design, Construction, and Operation for Type I Public Water Supplies
- AWWA Standards
- Other guidance documents as referenced in the above standards

All of the proposed water main replacement projects will be in-kind size replacement or a slightly larger water main. There has not been much residential or industrial growth within the water distribution system. The existing infrastructure is able to produce adequate fire flow to the service area.

5.2 Maps

The proposed water main and lead service line replacement will be completed by open cut construction. Figure 8 shows the proposed route and sizes of the water distribution system projects.

5.3 Schedule for Design and Construction

The proposed project schedule can be seen in Appendix 4.

5.4 Cost Estimate

The estimated costs for the proposed water main projects consist of engineering design, administrative and legal costs, and construction. The estimated costs for the water main replacement are summarized in Table 16. Table 17 summarizes the water meter and water service line replacement. The costs to complete all of these projects is approximately $27 Million. The City would like to break this down so not to significantly impact water rates. The City would like to request $3 Million for their first loan, with an additional loan in FY25 to address the infrastructure needs.

Table 16 – Water Main Replacement Cost Estimate

Location	Open Cut	Directional Drill
Wayne	$1,100,000	$1,200,000
Merrifield	$1,000,000	$1,500,000
Plym	$600,000	$700,000
Tomahawk	$800,000	$1,200,000
Sheffield	$700,000	$1,000,000
Sheridan	$700,000	$1,000,000
Howard	$1,400,000	$2,000,000

Table 17 – Water Meter and Water Service Replacement

Total Water Meter Replacement (5,600 meters)	$1,680,000
Total Water Service Replacement (2,613 services)	$19,320,000

5.5 User Costs

The City's water distribution projects recommended in this Project Plan are targeted for low interest loan assistance through the DWSRF program. The availability of loan funds is dependent on annual appropriations and the placement of the projects on the Priority List prepared annually by EGLE.

Niles rates are developed based on cost-of-service studies to recover the operations, maintenance, depreciation, and interest expenses that benefit the water utility's customers. Based on the Project Plan, the increased cost to customers is $1.50 per month for the initial $3 Million loan (see Table 18, below). This cost excludes potential principal forgiveness for the Disadvantaged Communities program, which could result in a net savings to customers compared to other financing options available. The financial projection report can be seen in Appendix 5.

Table 18 – Monthly Residential Bill Impact

Current Average Residential Bill	$17.00
Monthly Adjustment	$1.50
Adjusted Average Residential Bill	$18.50

5.6 Disadvantaged Community

The disadvantaged community qualification is determined for each loan that is applied for by the community. For some loans, the community may qualify as disadvantaged, while for other loans it may not, depending on the projects included in the specific loan and the users that the projects impact.

The City is considered disadvantaged by EGLE. The completed determination worksheet was submitted with the Intent to Apply form.

5.7 Ability to Implement the Selected Alternative

The City is the regional water supply and operator for the City and the four surrounding Townships. They own and operate their system, so there is not a need to revise any agreements. The City will be the loan applicant for the proposed projects.

6.0 Environmental Evaluation

6.1 Historical/ Archaeological/ Tribal Resources

The construction of the proposed project should have no effect on historical, archaeological, or cultural resources. All construction activities will occur within the existing road, road ROW, and limited private property locations where there has been previous ground disturbance. This Project Plan is not requiring a Tribal Historic Preservation Office or a State Historic Preservation Office review.

6.2 Water Quality

Surface water and groundwater quality should not be impacted by construction. It is anticipated that all construction activities will occur within existing roadway, road ROW, and limited private property. Ten States Standards will be followed during design, and an Act 399 Water Permit will be obtained from EGLE at the end of design to ensure the City is meeting all drinking water standards. The City maintains a current EGLE approved Wellhead Protection Program Plan. The Wellhead Protection Plan was updated in 2018.

6.3 Land/ Water Interface

Sensitive features such as floodplains, wetlands, stream crossings, coastal areas, and prime or unique agricultural lands will not be disturbed by the proposed projects. The projects will be occurring in urban areas within developed areas. Figures 9, 10, and 11 depict the locations of floodplains, wetlands, and surface waters in respect to the proposed projects.

6.4 Endangered Species

Federal and/ or State threatened, or endangered species or state special concern species of flora or fauna will not be impacted by the proposed projects. The projects will be occurring in developed areas within roadway, road ROW, and private property that has already been disturbed by past construction activity. Care will be taken to meet bat requirements if tree removal is a necessity, and to avoid nesting areas of migratory birds.

6.5 Agricultural Land

The location of prime farmland with respect to the proposed projects is depicted in Figure 12. The two proposed projects that fall within prime farmland are located within developed subdivisions.

6.6 Social/ Economic Impact

There will be no effective displacement of employment opportunities that would cause social/ economic impacts within the study area. The proposed projects will improve quality of life for the customers and will create some construction positions as the projects are a significant infrastructure investment within the community.

6.7 Construction/ Operational Impact

There will be temporary impact to the air quality during construction due to the construction equipment, fuel consumption, and exhaust. These impacts will include the discharge of carbon monoxide and other chemical byproducts of the operation of the construction equipment. There are no other air quality degradation items considered in the Project Plan.

The impact to the natural settings will be minimized during construction. The natural settings will not be impacted by operations of the water system after the project is completed.

Care will be taken to minimize tree removal during construction. During design, tree location will be analyzed and if it is unavoidable, new trees will be planted in their place following construction.

Traffic will be impacted during construction. Traffic control or detour routes will be put into place, depending on the construction location. Residents will be able to access their homes and businesses during construction.

There will be significant consumption of materials in the construction phase of the project. This includes raw materials, fuel, food, and man-hours to construct the new water main. Operational impacts will include energy consumption. Noise and odor from the new construction will be controlled through regular maintenance.

Fugitive dust will be temporary during construction and will be mitigated for the duration of the project.

6.8 Indirect Impacts

Following construction, the project sites will be restored back to original condition, consistent with all City requirements. With the exception of the new valve structures and fire hydrants required for system maintenance, the project will not be identifiable from ground level. Therefore, it is unlikely that the project will result in any inadvertent side effects.

7.0 Mitigation Measures

7.1 General

In locations where adverse impacts cannot be avoided, mitigation methods will be implemented. The anticipated adverse impacts are to be minimal, and mostly limited to the construction of the proposed projects.

7.2 Short Term Construction Related Mitigation

Short term environmental impacts are related primarily to construction of the projects outlined in the Project Plan. The designated construction will include specific mitigation efforts of any short-term environmental impacts.

7.2.1 Noise and Odor

Construction operations will be limited to hours set by the City as part of their noise ordinance. Odor and fugitive dust will be kept to minimum using SESC procedures/permit established in the drawings and specifications for each project. Standard methods for fugitive dust control such as water and/ or calcium chloride applications will be used during construction and restoration of vegetation.

7.2.2 Traffic Control

Traffic safety will be handled by proper signage and detour routes governed by permits from the City and Michigan Department of Transportation. In locations where construction interferes with the normal use of existing roads, temporary traffic facilities will be provided. Facilities for local traffic, pedestrian, and vehicular ingress and egress, approved by the Engineer, will be provided at all times for the properties adjacent to the work. For through traffic, the special provisions and/ or plans will designate whether the existing roads will be closed with detours, temporary roads, and run-arounds provided, or whether two-way traffic will be maintained through all or portions of the construction area.

7.2.3 Soil Erosion and Sedimentation Control

SESC will be guided by the City SESC Program/Procedures and standard techniques prescribed by permits. Construction operations will be conducted in a manner to reduce erosion and sedimentation to a practical minimum. Temporary and/ or permanent sedimentation controls will be constructed, to the extent possible, prior to commencing operations. Grading operations will immediately follow grubbing operations; otherwise, temporary erosion and sedimentation controls may be required between successive construction stages. Sediment traps, sandbags, and silt fences will be some of the temporary sedimentation controls used during this project. Procedures and details will be included in the drawings and specifications for each project.

7.2.4 Excavated Areas

All excavated roads will be repaved with an asphalt surface, concrete surface, or natural gravel. All ditches and lawns will be reseeded and/ or sodded. Care will be taken to remove only trees necessary for the construction, and only during periods allowed, to comply with bat restrictions. Vegetation that is removed as part of the construction will be replaced as required by the City. Any surplus or waste material resulting from construction will be properly handled, stored, and/ or disposed of in an approved disposal site. Restoration and replacement of disturbed roads, vegetation, and utilities will be included as bid items in the contract documents. The route of the water main has been chosen to avoid known environmentally sensitive areas as much as possible.

7.3 Mitigation of Long-Term Impacts

Careful restoration of street pavement would be required to ensure that it performs satisfactorily in the future. The aesthetic impacts of construction will be mitigated to some extent by site restoration.

The long-term effect of the short-term use of these resources will be to provide an improved water infrastructure and to ensure high water quality within the community.

7.4 Mitigation of Indirect Impacts

No significant secondary environmental impacts are expected to result from the implementation of this Project Plan. Only positive benefits are foreseen by the upgrade of the water system.

8.0 Public Participation

8.1 Public Hearing Advertisement

A public hearing on the Draft Project Plan was held on June 27, 2022. A public notice was published in the local paper on May 21, 2022, more than 30 days prior to the hearing. A copy of the proof of publication of the notice is included in Appendix 6.

8.2 Public Hearing Transcript

The public hearing was recorded. A copy of the recording has been shared with EGLE. A list of attendees can be seen in Appendix 6.

8.3 Public Hearing Contents

A copy of the power point presentation provided at the June 27, 2022, public hearing is included in Appendix 6.

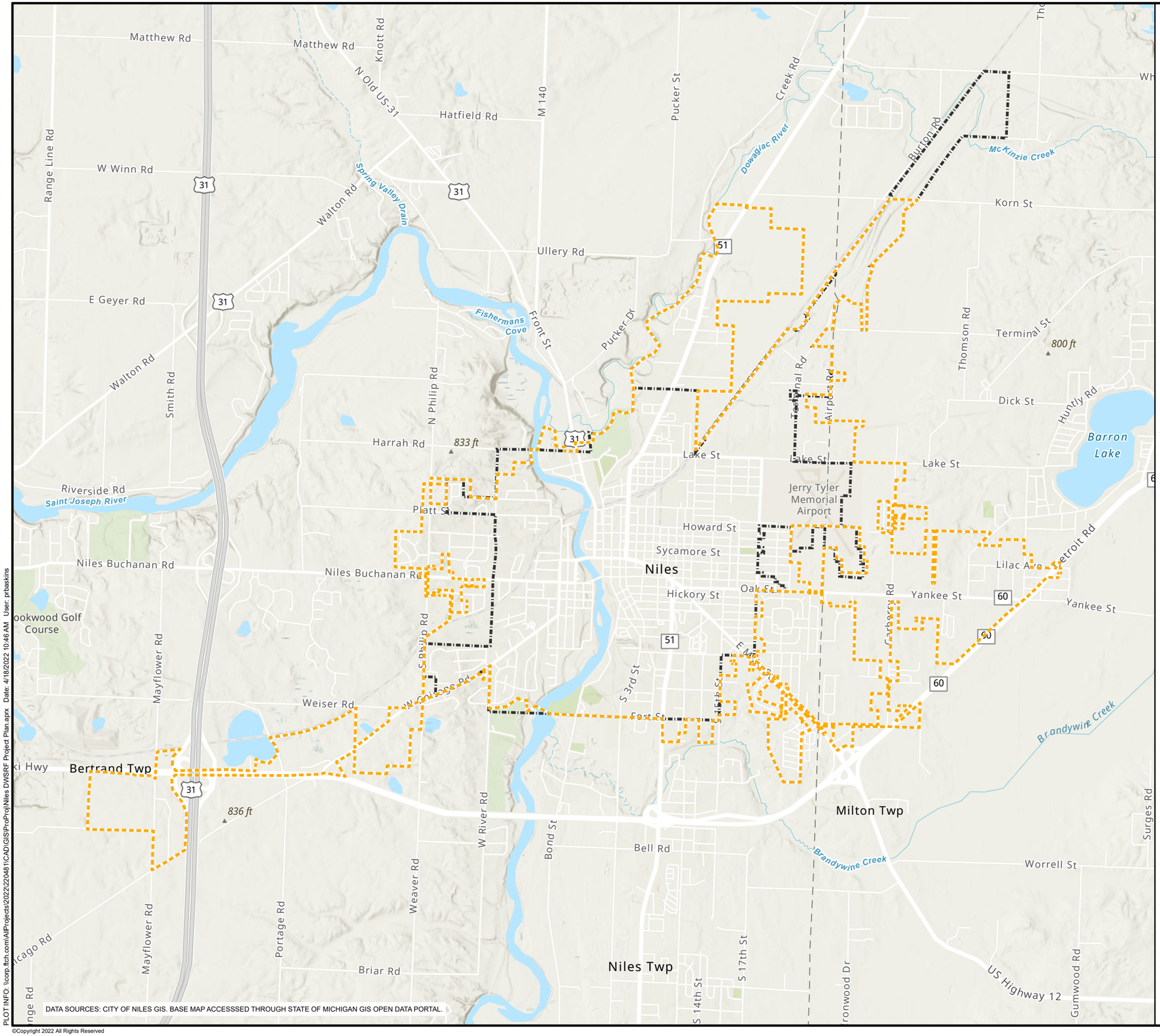
8.4 Comments and Responses

xx comments were made at the public hearing.

8.5 Adoption of the Project Plan

The City Council met on June 27, 2022. At that meeting, the Council passed a resolution adopting the selected alternative. A copy of the signed resolution is included in Appendix 6.

Figures



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LEGEND

- Water Service Area
- City Limits

NORTH

STUDY AREA

0 2,000 4,000 FEET

fishbeck

Engineers | Architects | Scientists | Constructors

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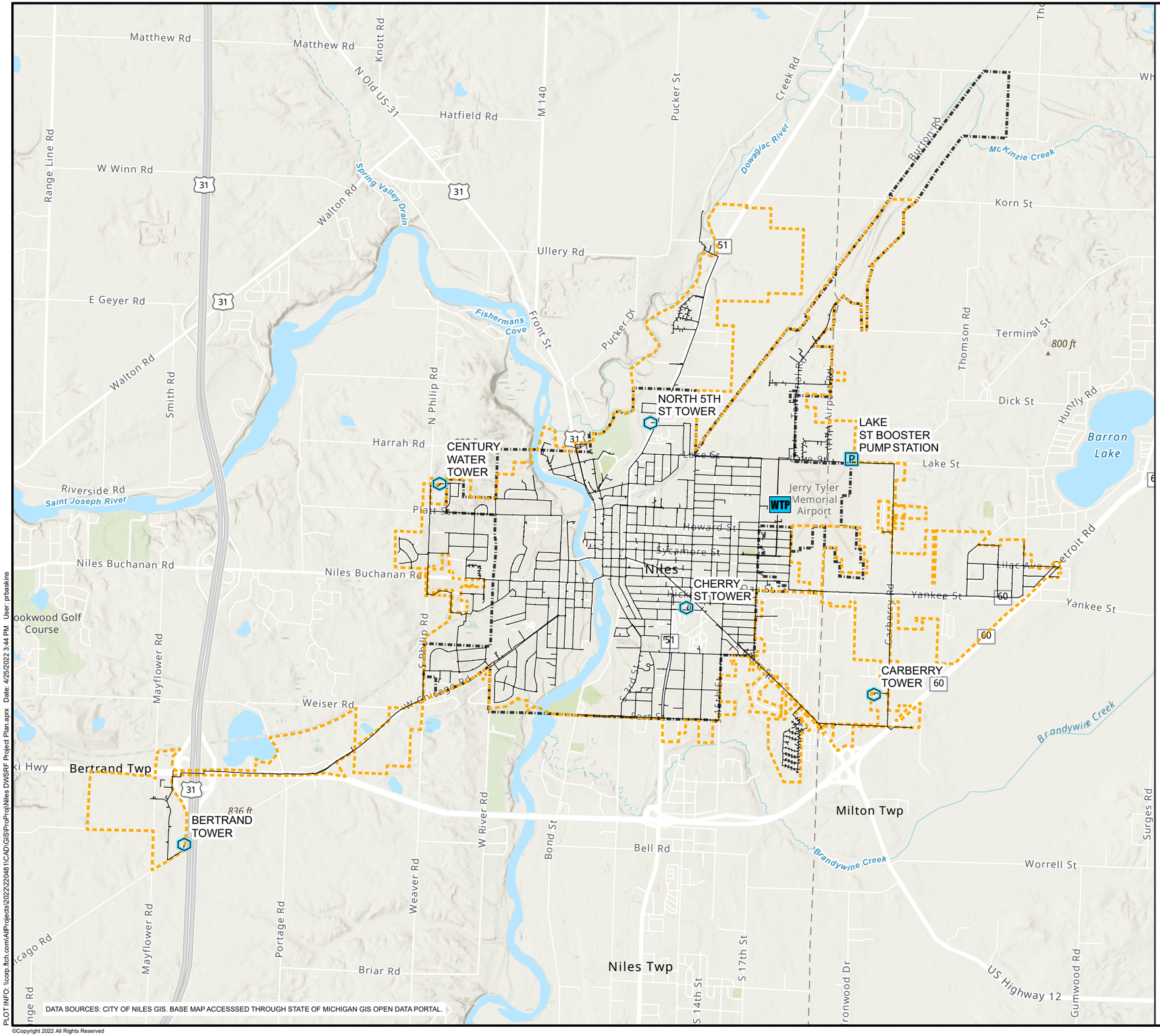
City of Niles

Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
1



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LEGEND

- Enclosed Storage Facility
- Pump Station
- Treatment Plant
- Water Mains
- Water Service Area
- City Limits

MAJOR WATER SYSTEM COMPONENTS

NORTH

0 2,000 4,000 FEET

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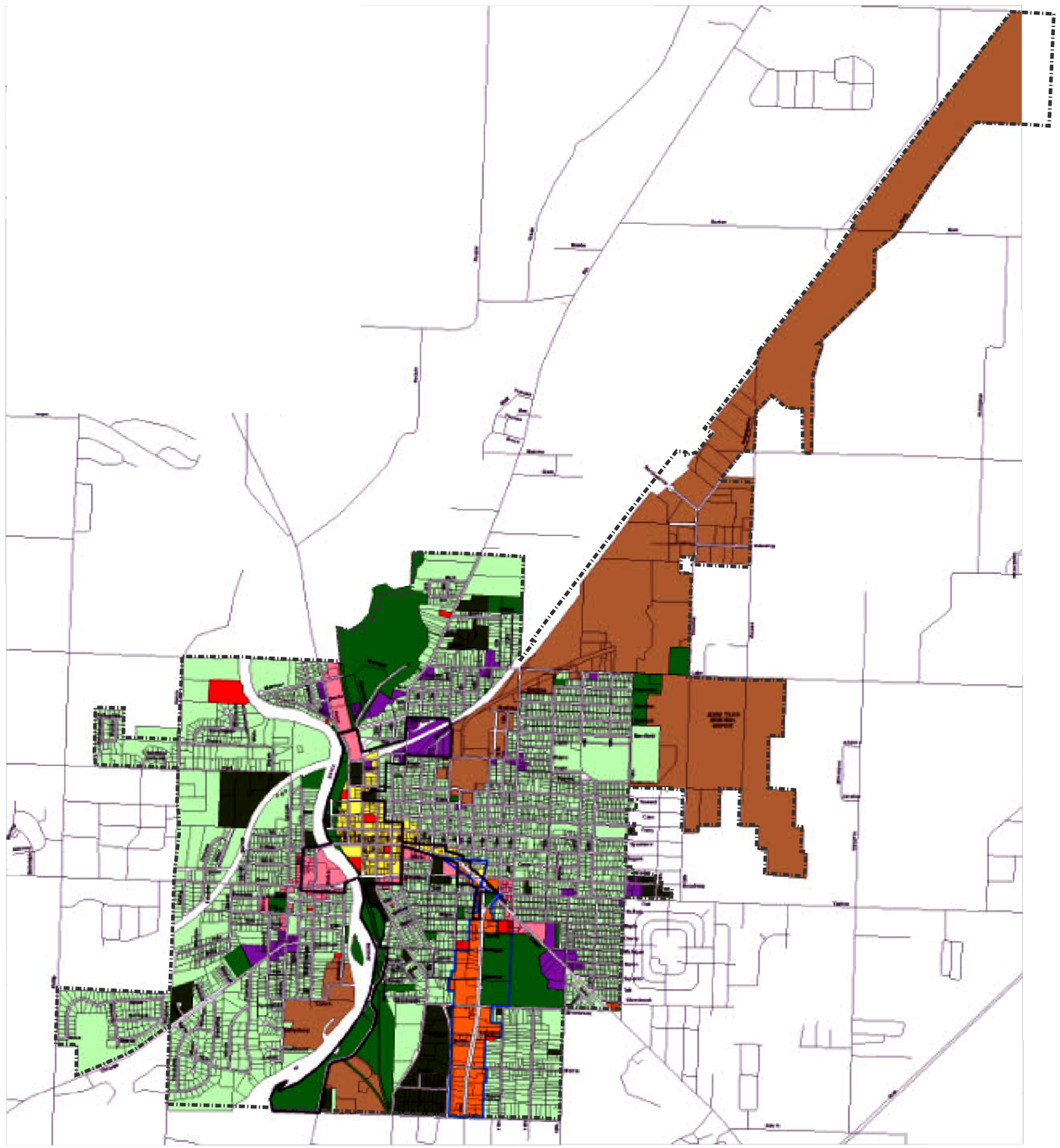
City of Niles

Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
2



Legend

- 11th Street Overlay District
- City Center Overlay District (CB)
- Variance Granted

Zoning

Code

- CB Central Business District
- IND Industrial
- LDR Low Density Residential
- MDR Moderate Density Residential
- NC Neighborhood Center
- OC Office/Commercial
- OS Open Space
- RC Regional Commerical

NORTH

EXISTING LAND USE

0 1,500 3,000 FEET

DATA SOURCES: BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.
CITY OF NILES ZONING MAP 2022.

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City of Niles
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
3

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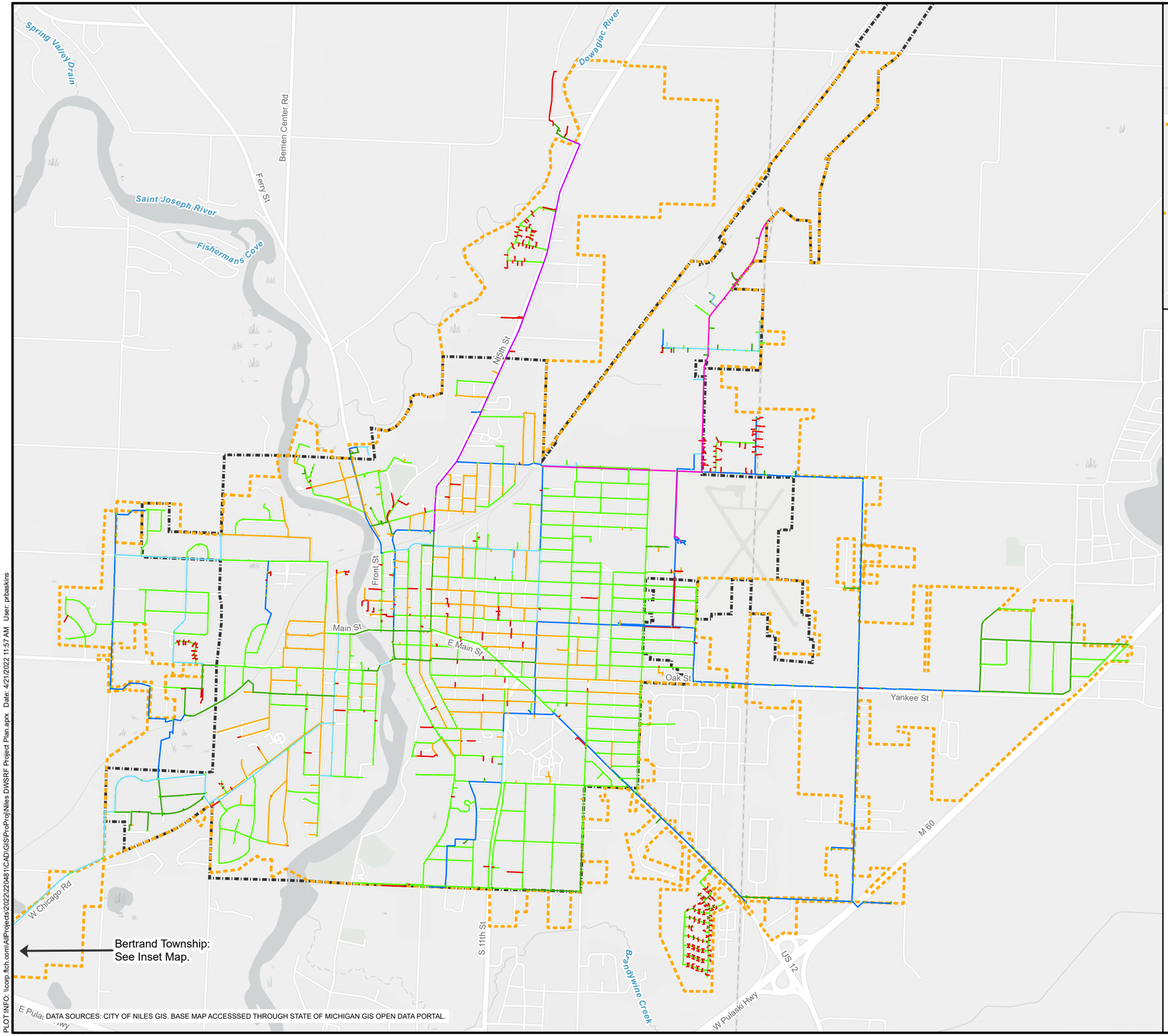

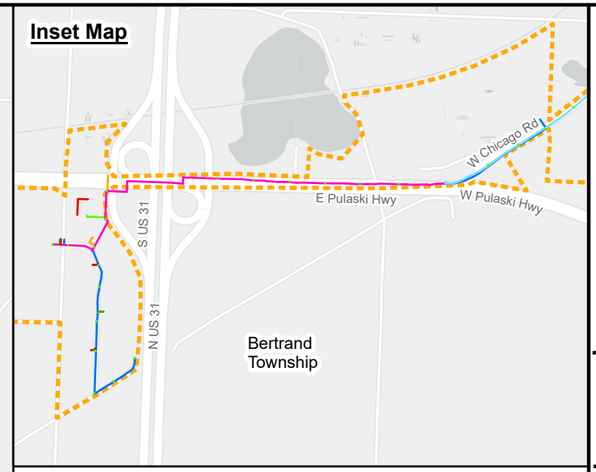

LEGEND

Water Main: Diameter

- 2" & Below
- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- Water Service Area

NORTH

WATER MAIN SIZE

0 1,250 2,500 FEET

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City of Niles

Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
4

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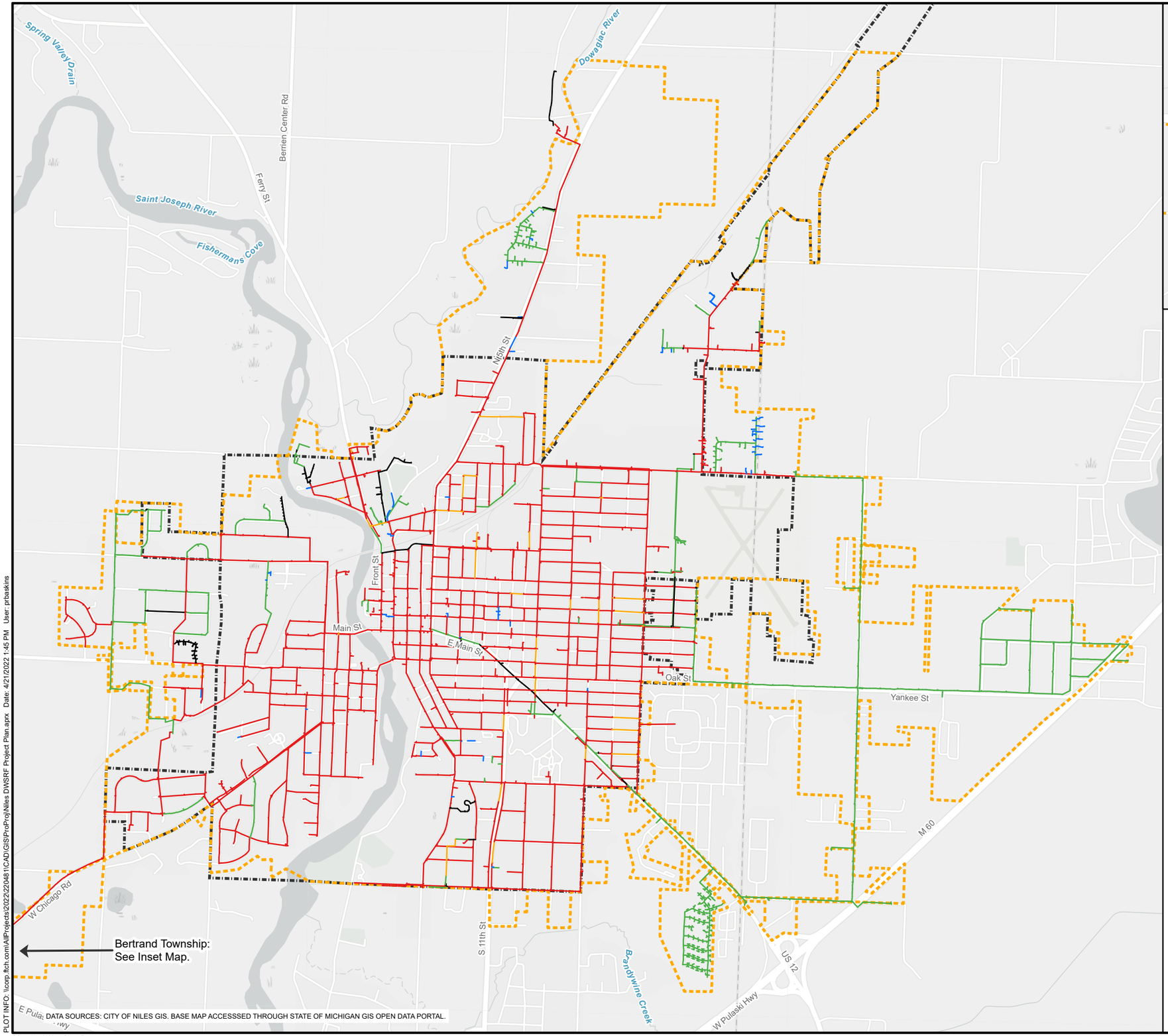

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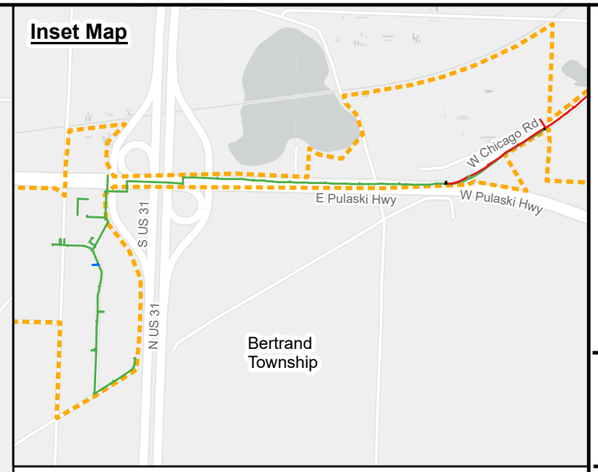

LEGEND

Water Main: Material

- Cast Iron
- Copper
- Ductile Iron
- Polyvinyl Chloride
- Unknown
- Water Service Area

NORTH

0 1,250 2,500 FEET

WATER MAIN MATERIAL

DATA SOURCES: CITY OF NILES GIS. BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

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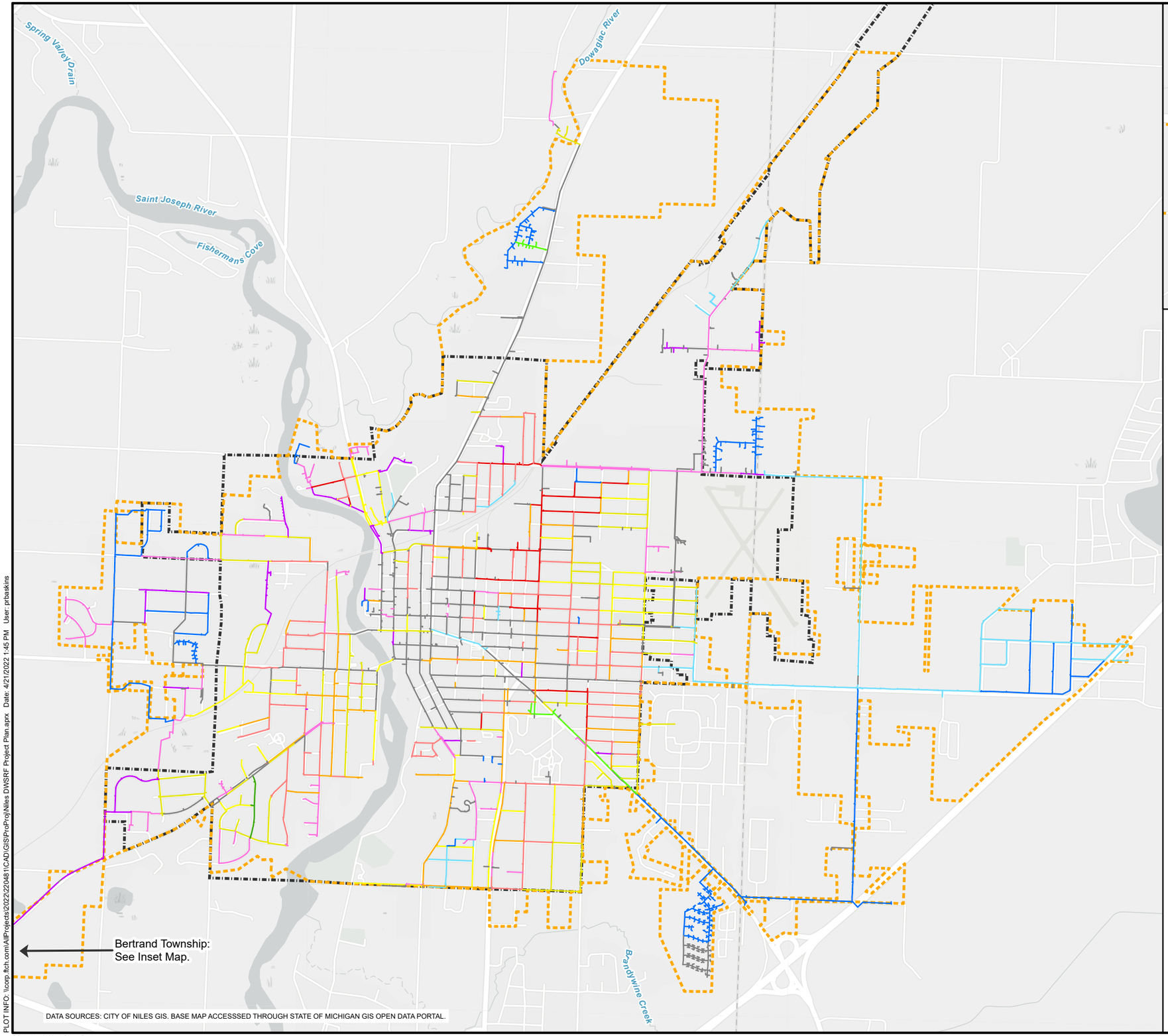
City of Niles
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
5



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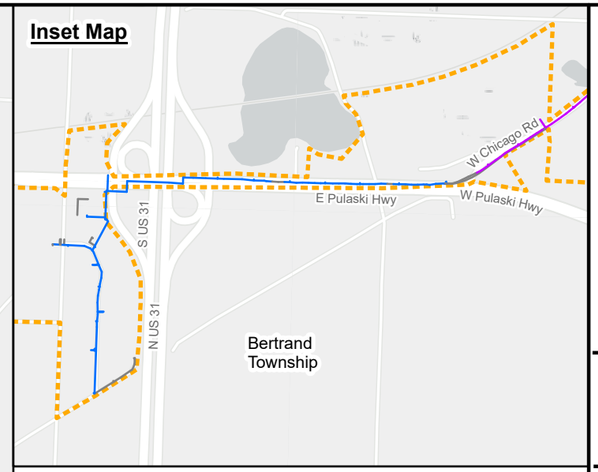

LEGEND

Water Main: Install Year

- 1910s
- 1920s
- 1930s
- 1940s
- 1950s
- 1960s
- 1970s
- 1980s
- 1990s
- 2000s
- 2010s
- Unknown
- Water Service Area

NORTH

WATER MAIN AGE

0 1,250 2,500 FEET

DATA SOURCES: CITY OF NILES GIS. BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

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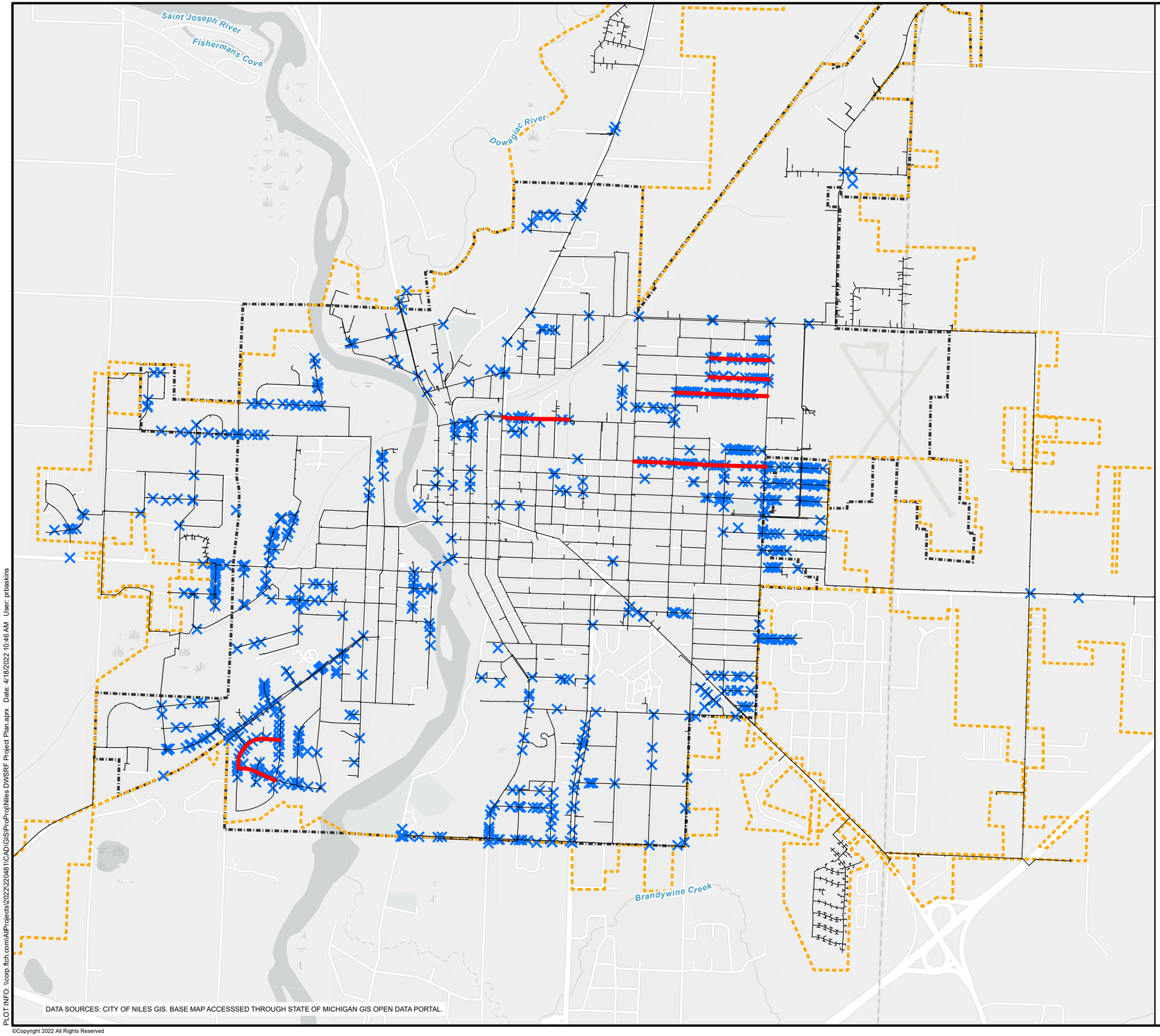
City of Niles
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
6

PLOT INFO: \\corp.fbfs.com\AllProjects\2022\220481\CAD\GIS\ProProj\Niles DWSRF Project Plan.aprx Date: 4/21/2022 1:45 PM User: prbaskins



DATA SOURCES: CITY OF NILES GIS. BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

LEGEND

- Water Main Breaks
- Water Main
- Proposed Project Locations
- Water Service Area
- City Limits

NORTH

WATER MAIN BREAKS

0 1,000 2,000 FEET

fishbeck
Engineers | Architects | Scientists | Constructors

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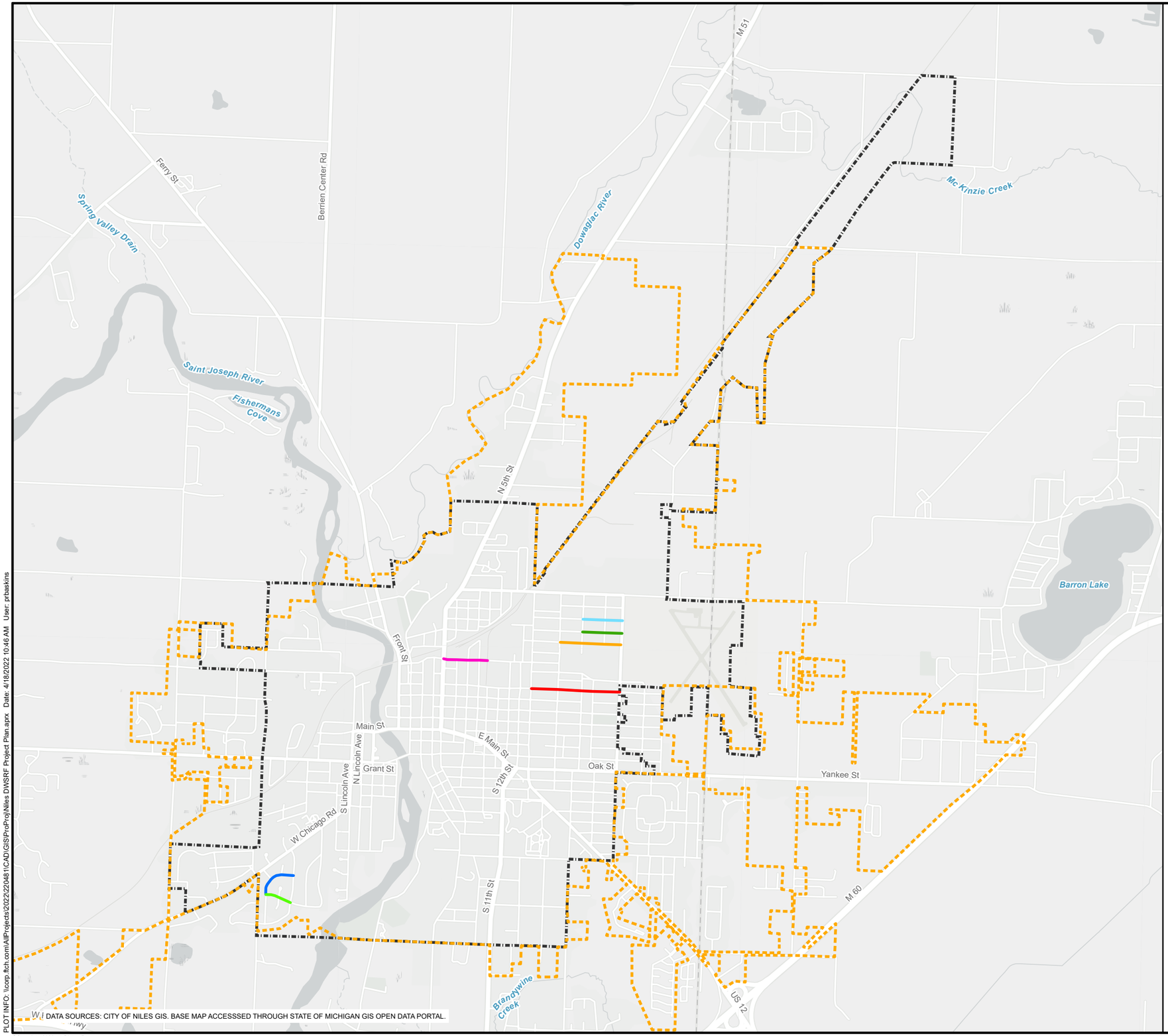
City of Niles
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
7

PLOT INFO: \\corp.fch.com\AllProjects\2022\220481\CAD\GIS\ProjMxds\Niles DWSRF Project Plan.aprx Date: 4/18/2022 10:46 AM User: prbaskins



DATA SOURCES: CITY OF NILES GIS. BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

PLOT INFO: \\corp.fbfs.com\AllProjects\2022\220481\CAD\GIS\ProProj\Niles DWSRF Project Plan.aprx Date: 4/18/2022 10:46 AM User: prbaskins

LEGEND

Proposed Project Locations

- Howard St: N. 13th St to N. 17th St
- Merrifield Ave: N. 14th St to N. 17th St
- Plym Rd: Tomahawk Ln to Sassafras Ln
- Sheffield Ave: N. 15th St to N. 17th St
- Sheridan St: N. 15th St to N. 17th St
- Tomahawk Ln: Sassafras Ln to Plym Rd
- Wayne St: 5th St to 9th St
- Water Service Area
- City Limits

NORTH

0 1,500 3,000 FEET

PROPOSED PROJECT LOCATIONS

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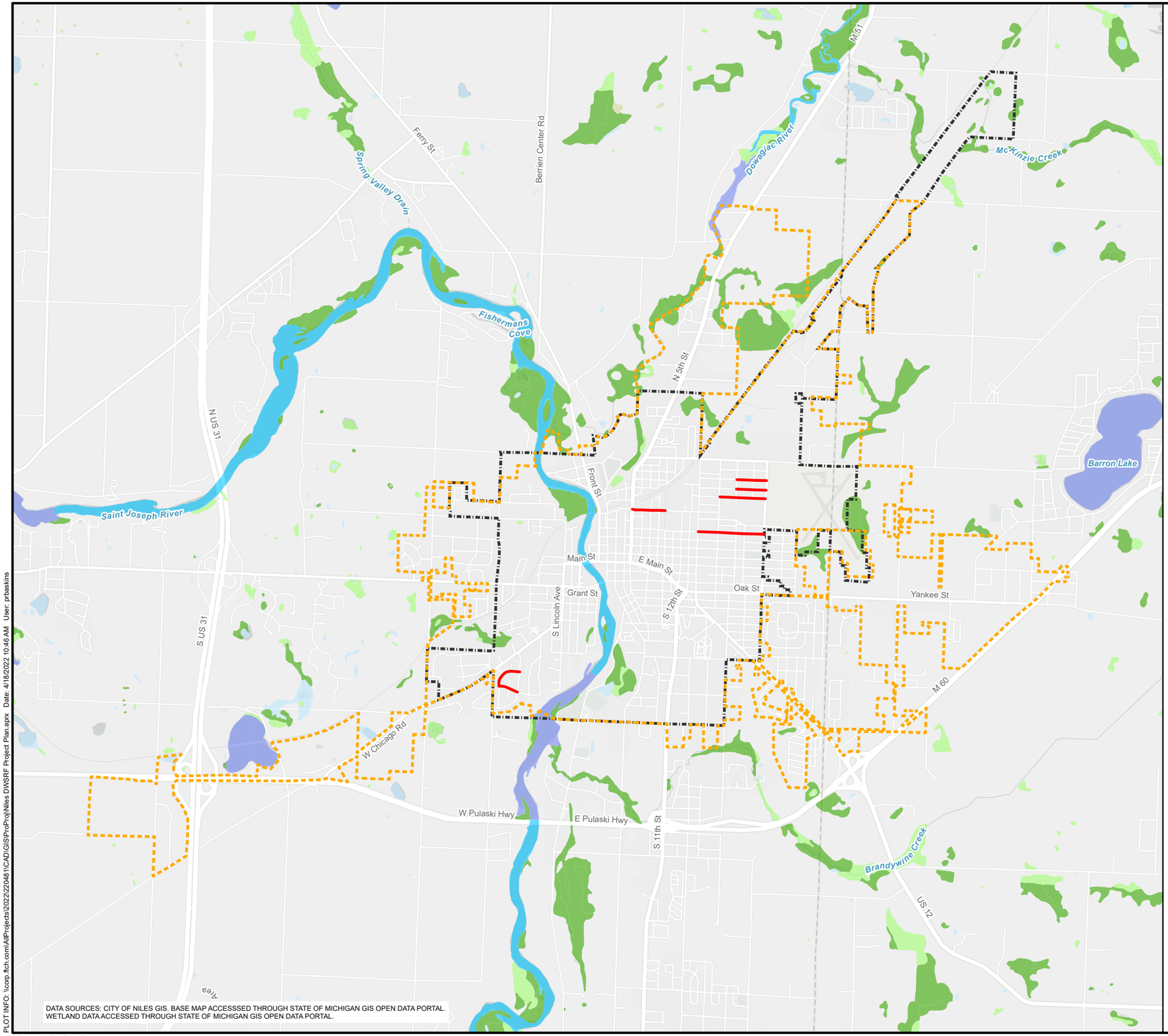
City of Niles

Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
8



DATA SOURCES: CITY OF NILES GIS. BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.
WETLAND DATA ACCESSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

PLOT INFO: \\corp.ftch.com\AllProjects\2022\220481\CAD\GIS\ProjNiles DWSRF Project Plan.aprx Date: 4/18/2022 10:46 AM User: prbaskins

LEGEND

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Other
- Water Service Area
- Proposed Project Locations

REGULATED WETLANDS

NORTH

0 2,000 4,000 FEET

fishbeck

Engineers | Architects | Scientists | Constructors

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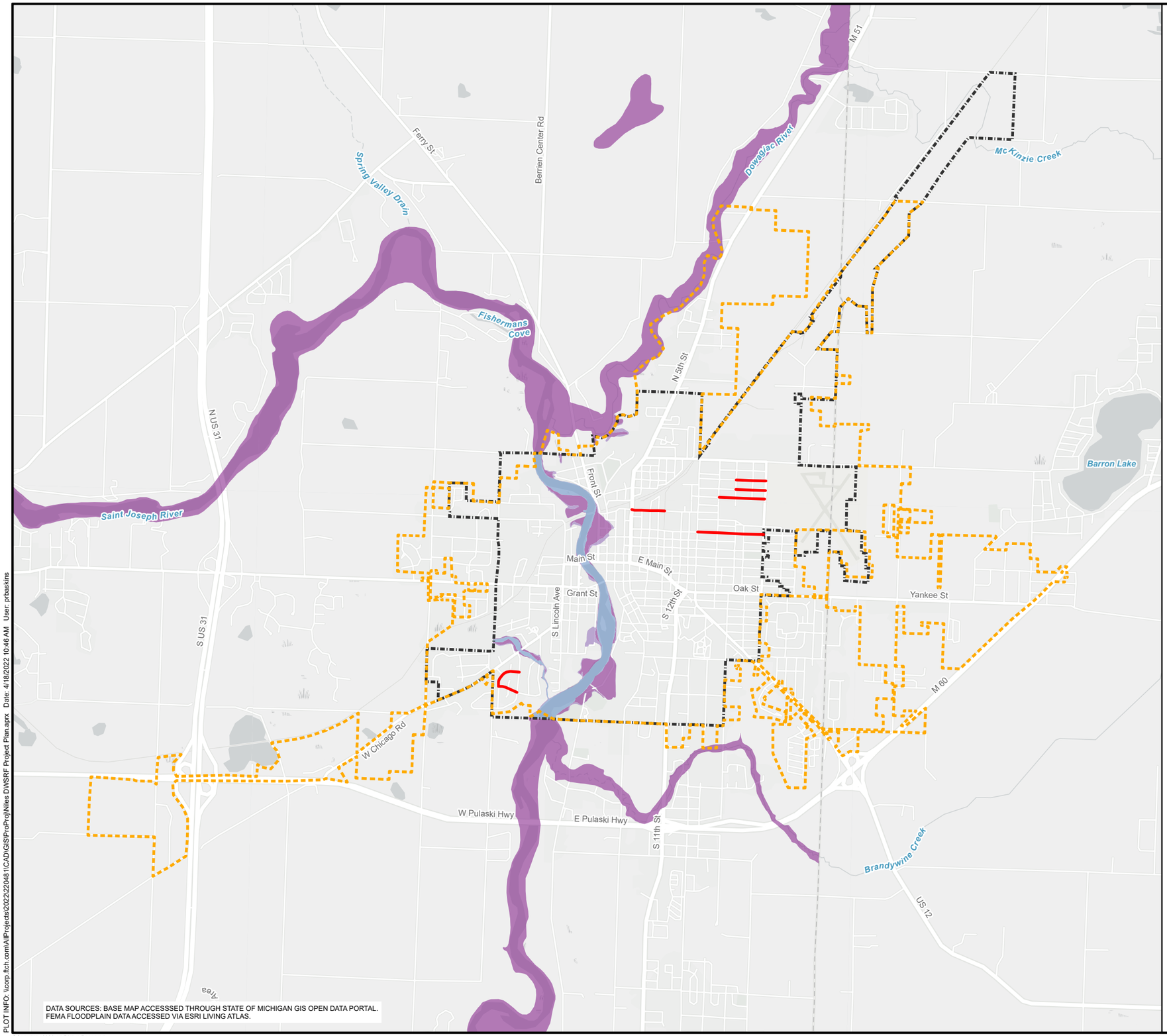
City of Niles

Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
9



DATA SOURCES: BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.
FEMA FLOODPLAIN DATA ACCESSED VIA ESRI LIVING ATLAS.

LEGEND

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Regulatory Floodway
- Water Service Area
- Proposed Project Locations

NORTH

FEMA FLOODPLAIN

0 2,000 4,000 FEET

fishbeck
Engineers | Architects | Scientists | Constructors

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City of Niles
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
10

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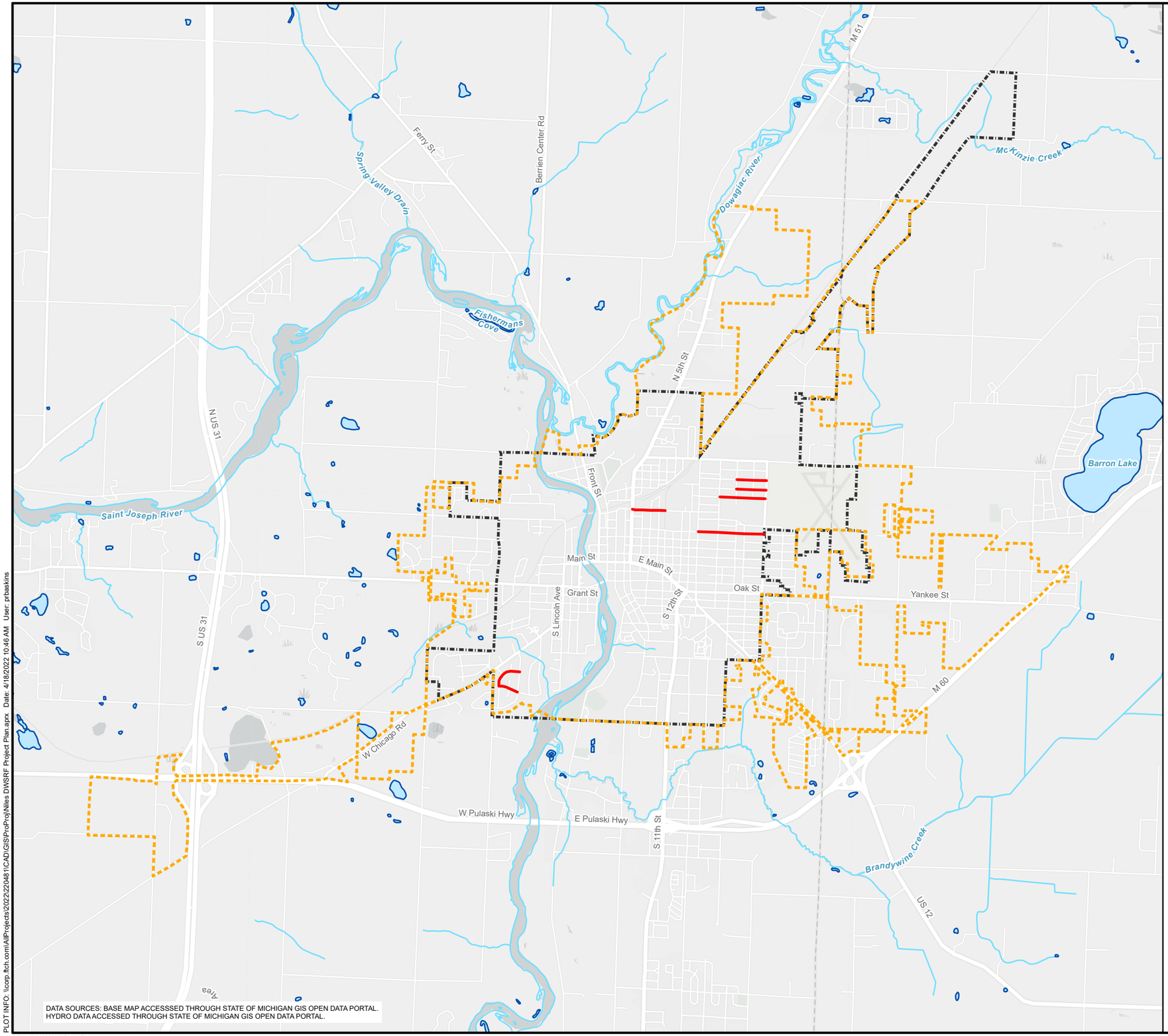

DATA SOURCES: BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.
HYDRO DATA ACCESSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

LEGEND

- Proposed Project Locations
- Rivers/Streams
- Lakes/Ponds
- Water Service Area

MAJOR SURFACE WATERS

NORTH

0 2,000 4,000 FEET

fishbeck
Engineers | Architects | Scientists | Constructors

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City of Niles
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
11

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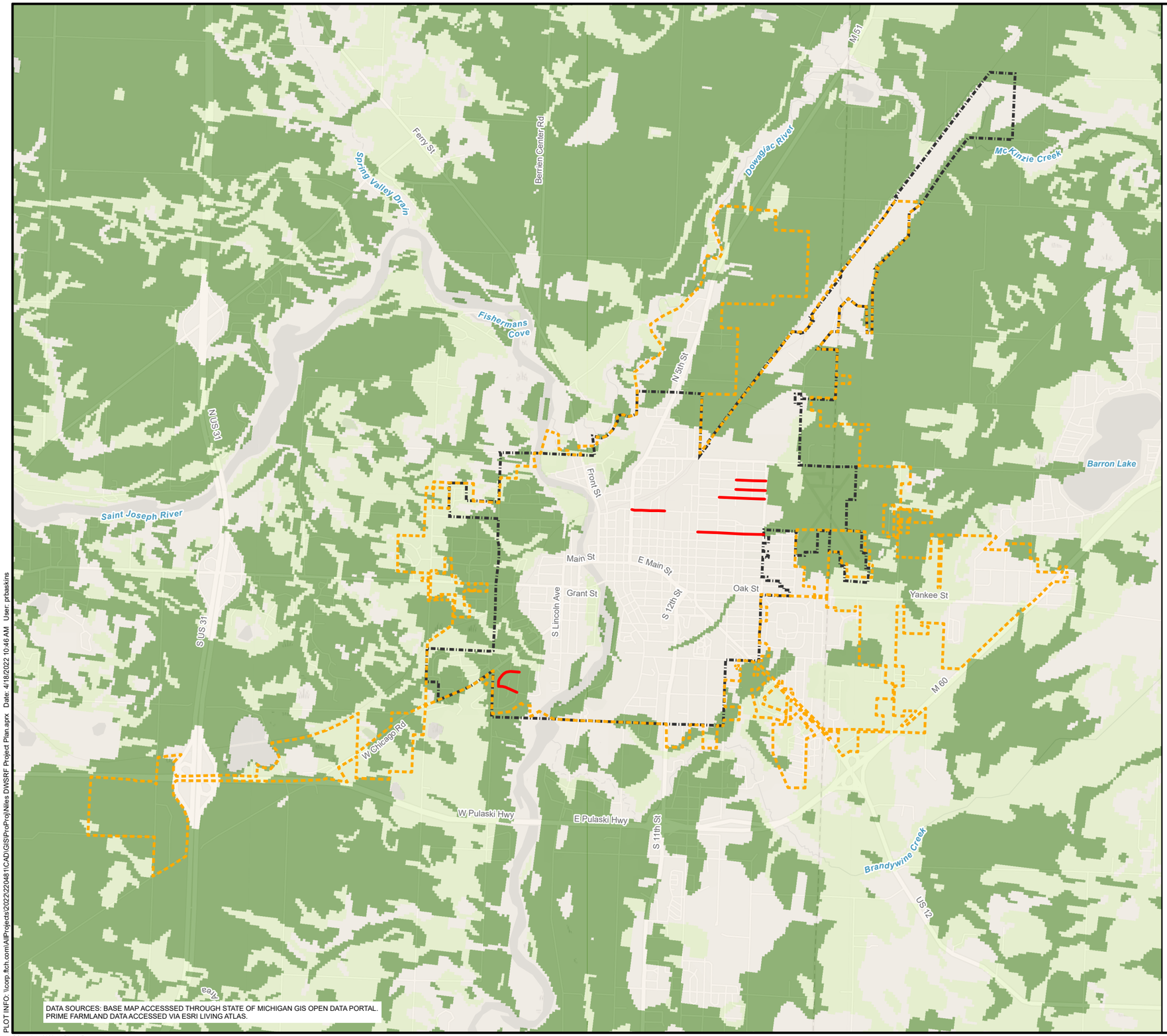

LEGEND

- Prime Farmland
- Farmland of Local Importance
- Not Prime Farmland
- Water Service Area
- Proposed Project Locations

NORTH

PRIME FARMLAND

0 2,000 4,000 FEET

fishbeck

Engineers | Architects | Scientists | Constructors

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City of Niles

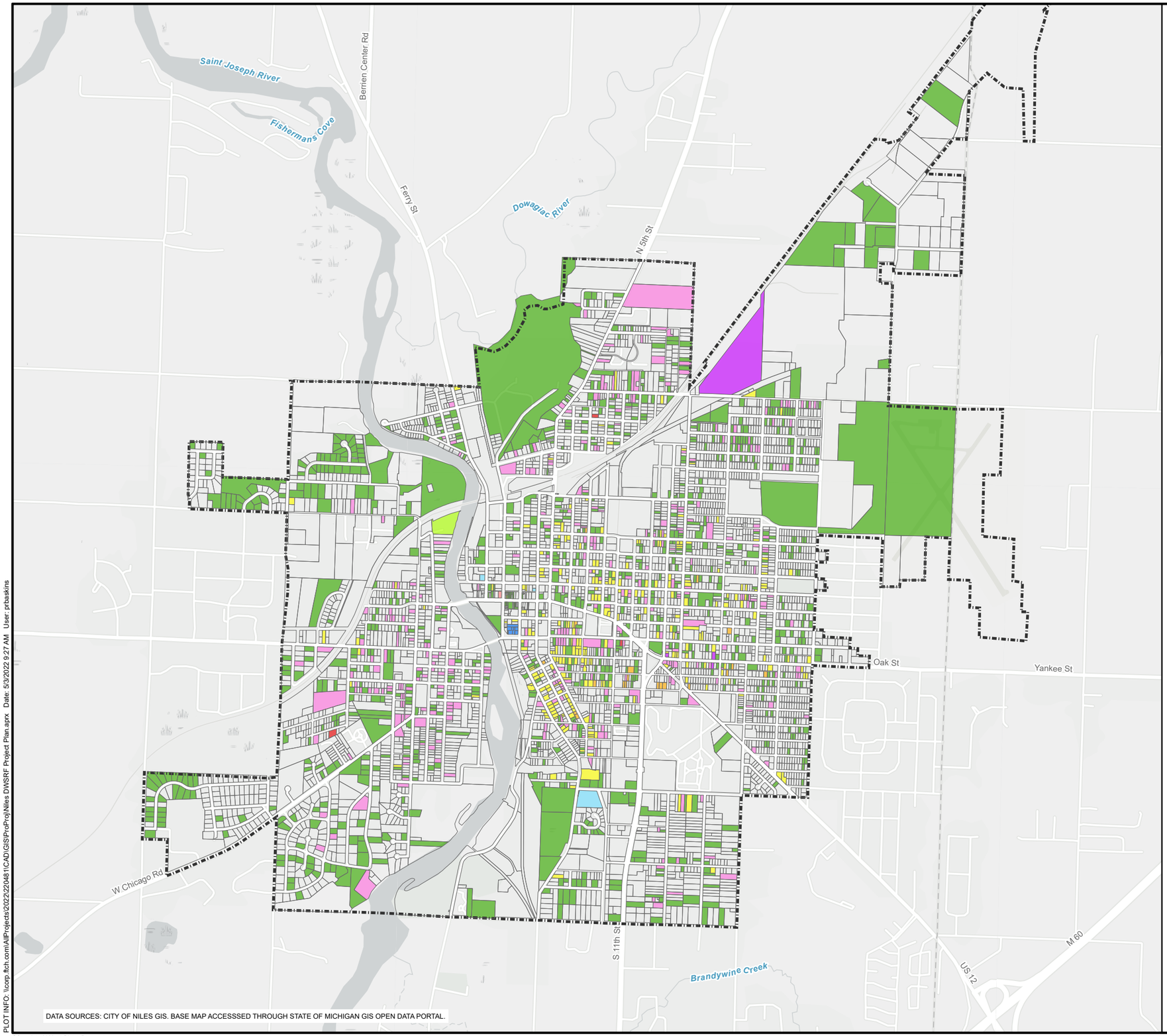
Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
12

PLOT INFO: \\corp.fich.com\AllProjects\2022\220481\CAD\GIS\ProjNiles DWSRF Project Plan.aprx Date: 4/18/2022 10:46 AM User: pbaskins



DATA SOURCES: CITY OF NILES GIS. BASE MAP ACCESSSED THROUGH STATE OF MICHIGAN GIS OPEN DATA PORTAL.

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LEGEND

Water Service Pipe Material

- CIP (3)
- Copper (823)
- Copper/CIP (2)
- Copper/Galvanized (238)
- Copper/Lead (1)
- Copper/Unknown (19)
- DIP (7)
- Galvanized (324)
- Lead (3)
- PEX (5)
- City Limits

NORTH

KNOWN WATER SERVICE MATERIALS

0 1,000 2,000 FEET

fishbeck

Engineers | Architects | Scientists | Constructors

Hard copy is intended to be 11"x17" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

City of Niles

Berrien and Cass Counties, Michigan

Drinking Water State Revolving Fund (DWSRF) Project Plan

PROJECT NO.
220481

FIGURE NO.
13

Appendix 1

Engineer's Opinion of Probable Cost

Howard St - N 13th St to N 17th St
City of Niles
DWSRF Cost Estimate - Directional Drill Option

Date: 4/18/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 5,000.00	$ 5,000.00
2	Mobilization, 5%	LS	1	$ 70,000.00	$ 70,000.00
3	Traffic Control	LS	1	$ 21,000.00	$ 21,000.00
4	Erosion Control	LS	1	$ 5,000.00	$ 5,000.00
5	Abandon Water Main	Ft	2,700	$ 5.00	$ 13,500.00
6	Curb and Gutter, Rem	Ft	200	$ 10.00	$ 2,000.00
7	Pavt, Rem	Syd	460	$ 10.00	$ 4,600.00
8	Subbase, CIP	Cyd	155	$ 20.00	$ 3,100.00
9	Aggregate Base, 8 inch	Syd	460	$ 15.00	$ 6,900.00
10	HMA	Ton	125	$ 250.00	$ 31,250.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	200	$ 25.00	$ 5,000.00
12	Lawn Restoration	LS	1	$ 3,000.00	$ 3,000.00
13	Water Main, Connect to Existing	Ea	8	$ 5,000.00	$ 40,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	2,700	$ 400.00	$ 1,080,000.00
15	Gate Valve and Box, 6 inch, Modified	Ea	7	$ 2,500.00	$ 17,500.00
16	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
17	Water Service	Ea	60	$ 2,500.00	$ 150,000.00
	Estimated Construction Cost				**$ 1,467,850.00**
	35% ELAC				**$ 513,747.50**
				Total Construction Cost	**$ 2,000,000.00**

Engineer's Opinion of Probable Cost

Howard St - N 13th St to N 17th St
City of Niles
DWSRF Cost Estimate - Open Cut Option

Date: 4/18/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 3,000.00	$ 3,000.00
2	Mobilization, 5%	LS	1	$ 50,000.00	$ 50,000.00
3	Traffic Control	LS	1	$ 14,000.00	$ 14,000.00
4	Erosion Control	LS	1	$ 3,000.00	$ 3,000.00
5	Curb and Gutter, Rem	Ft	2,600	$ 10.00	$ 26,000.00
6	Pavt, Rem	Syd	3,600	$ 10.00	$ 36,000.00
7	Remove Drive Approaches	Syd	360	$ 10.00	$ 3,600.00
8	Cold Milling HMA Surface	Syd	4,950	$ 4.00	$ 19,800.00
9	HMA	Ton	1,390	$ 125.00	$ 173,750.00
10	Subbase, CIP	Cyd	1,200	$ 20.00	$ 24,000.00
11	Aggregate Base, 8 inch	Syd	3,600	$ 15.00	$ 54,000.00
12	Drive Approach, 6-inch, Concrete	Sft	3,240	$ 6.00	$ 19,440.00
13	Curb and Gutter, Conc, Det F4, Modified	Ft	2,600	$ 25.00	$ 65,000.00
14	Lawn Restoration	Syd	1,500	$ 5.00	$ 7,500.00
15	Water Main, Connect to Existing	Ea	8	$ 5,000.00	$ 40,000.00
16	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	2,700	$ 100.00	$ 270,000.00
17	Gate Valve and Box, 6 inch, Modified	Ea	7	$ 2,500.00	$ 17,500.00
18	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
19	Water Service	Ea	60	$ 2,500.00	$ 150,000.00
	Estimated Construction Cost				**$ 986,590.00**
	35% ELAC				**$ 345,306.50**
				Total Construction Cost	**$ 1,400,000.00**

Engineer's Opinion of Probable Cost

Merrifield Ave - N 14th to 17th
City of Niles
DWSRF Cost Estimate - Directional Drill Option

Date: 4/11/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 3,000.00	$ 3,000.00
2	Mobilization, 5%	LS	1	$ 50,000.00	$ 50,000.00
3	Traffic Control	LS	1	$ 15,000.00	$ 15,000.00
4	Erosion Control	LS	1	$ 3,000.00	$ 3,000.00
5	Abandon Water Main	Ft	1,900	$ 5.00	$ 9,500.00
6	Curb and Gutter, Rem	Ft	200	$ 10.00	$ 2,000.00
7	Pavt, Rem	Syd	350	$ 10.00	$ 3,500.00
8	Subbase, CIP	Cyd	115	$ 20.00	$ 2,300.00
9	Aggregate Base, 8 inch	Syd	350	$ 15.00	$ 5,250.00
10	HMA	Ton	90	$ 250.00	$ 22,500.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	200	$ 25.00	$ 5,000.00
12	Lawn Restoration	LS	1	$ 1,500.00	$ 1,500.00
13	Water Main, Connect to Existing	Ea	4	$ 5,000.00	$ 20,000.00
14	Water Main, DI, 4 inch, Tr Det G, Modified	Ft	100	$ 75.00	$ 7,500.00
15	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	1,900	$ 400.00	$ 760,000.00
16	Gate Valve and Box, 4 inch, Modified	Ea	2	$ 2,000.00	$ 4,000.00
17	Gate Valve and Box, 6 inch, Modified	Ea	4	$ 2,500.00	$ 10,000.00
18	Hydrant Assembly	Ea	3	$ 5,000.00	$ 15,000.00
19	Water Service	Ea	40	$ 2,500.00	$ 100,000.00
	Estimated Construction Cost				**$ 1,039,050.00**
	35% ELAC				**$ 363,667.50**
				Total Construction Cost	**$ 1,500,000.00**

Engineer's Opinion of Probable Cost

Merrifield Ave - N 14th to 17th
City of Niles
DWSRF Cost Estimate - Open Cut Option

Date: 4/11/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 40,000.00	$ 40,000.00
3	Traffic Control	LS	1	$ 10,000.00	$ 10,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Curb and Gutter, Rem	Ft	1,900	$ 10.00	$ 19,000.00
6	Pavt, Rem	Syd	2,745	$ 10.00	$ 27,450.00
7	Remove Drive Approaches	Syd	220	$ 10.00	$ 2,200.00
8	Cold Milling HMA Surface	Syd	3,780	$ 4.00	$ 15,120.00
9	HMA	Ton	1,055	$ 125.00	$ 131,875.00
10	Subbase, CIP	Cyd	915	$ 20.00	$ 18,300.00
11	Aggregate Base, 8 inch	Syd	2,745	$ 15.00	$ 41,175.00
12	Drive Approach, 6-inch, Concrete	Sft	1,900	$ 6.00	$ 11,400.00
13	Curb and Gutter, Conc, Det F4, Modified	Ft	1,900	$ 25.00	$ 47,500.00
14	Lawn Restoration	Syd	1,060	$ 5.00	$ 5,300.00
15	Water Main, Connect to Existing	Ea	4	$ 5,000.00	$ 20,000.00
16	Water Main, DI, 4 inch, Tr Det G, Modified	Ft	100	$ 75.00	$ 7,500.00
17	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	1,900	$ 100.00	$ 190,000.00
18	Gate Valve and Box, 4 inch, Modified	Ea	2	$ 2,000.00	$ 4,000.00
19	Gate Valve and Box, 6 inch, Modified	Ea	4	$ 2,500.00	$ 10,000.00
20	Hydrant Assembly	Ea	3	$ 5,000.00	$ 15,000.00
21	Water Service	Ea	40	$ 2,500.00	$ 100,000.00
	Estimated Construction Cost				**$ 719,820.00**
	35% ELAC				**$ 251,937.00**
				Total Construction Cost	**$ 1,000,000.00**

Engineer's Opinion of Probable Cost

Plym Road - Tomahawk Ln to Sassafras Ln — **Date:** 4/15/2022
City of Niles — **Project No.** 220481
DWSRF Cost Estimate - Directional Drill Option — **Prepared by:** DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 30,000.00	$ 30,000.00
3	Traffic Control	LS	1	$ 8,000.00	$ 8,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Abandon Water Main	Ft	800	$ 5.00	$ 4,000.00
6	Curb and Gutter, Rem	Ft	50	$ 10.00	$ 500.00
7	Pavt, Rem	Syd	120	$ 10.00	$ 1,200.00
8	Subbase, CIP	Cyd	45	$ 20.00	$ 900.00
9	Aggregate Base, 8 inch	Syd	120	$ 15.00	$ 1,800.00
10	HMA	Ton	40	$ 250.00	$ 10,000.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	50	$ 25.00	$ 1,250.00
12	Lawn Restoration	LS	1	$ 1,500.00	$ 1,500.00
13	Water Main, Connect to Existing	Ea	4	$ 5,000.00	$ 20,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	50	$ 400.00	$ 20,000.00
15	Water Main, DI, 8 inch, Tr Det G, Modified	Ft	800	$ 450.00	$ 360,000.00
16	Gate Valve and Box, 6 inch, Modified	Ea	1	$ 2,500.00	$ 2,500.00
17	Gate Valve and Box, 8 inch, Modified	Ea	5	$ 2,800.00	$ 14,000.00
18	Hydrant Assembly	Ea	1	$ 5,000.00	$ 5,000.00
19	Water Service	Ea	12	$ 2,500.00	$ 30,000.00
	Estimated Construction Cost				**$ 514,650.00**
	35% ELAC				**$ 180,127.50**
				Total Construction Cost	**$ 700,000.00**

Engineer's Opinion of Probable Cost

Plym Road - Tomahawk Ln to Sassafras Ln — **Date:** 4/15/2022
City of Niles — **Project No.** 220481
DWSRF Cost Estimate - Open Cut Option — **Prepared by:** DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 20,000.00	$ 20,000.00
3	Traffic Control	LS	1	$ 6,000.00	$ 6,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Curb and Gutter, Rem	Ft	500	$ 10.00	$ 5,000.00
6	Pavt, Rem	Syd	1,360	$ 10.00	$ 13,600.00
7	Cold Milling HMA Surface	Syd	1,700	$ 4.00	$ 6,800.00
8	HMA	Ton	780	$ 125.00	$ 97,500.00
9	Subbase, CIP	Cyd	455	$ 20.00	$ 9,100.00
10	Aggregate Base, 8 inch	Syd	1,360	$ 15.00	$ 20,400.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	500	$ 25.00	$ 12,500.00
12	Lawn Restoration	Syd	300	$ 5.00	$ 1,500.00
13	Water Main, Connect to Existing	Ea	4	$ 5,000.00	$ 20,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	50	$ 100.00	$ 5,000.00
15	Water Main, DI, 8 inch, Tr Det G, Modified	Ft	800	$ 150.00	$ 120,000.00
16	Gate Valve and Box, 6 inch, Modified	Ea	1	$ 2,500.00	$ 2,500.00
17	Gate Valve and Box, 8 inch, Modified	Ea	5	$ 2,800.00	$ 14,000.00
18	Hydrant Assembly	Ea	1	$ 5,000.00	$ 5,000.00
19	Water Service	Ea	12	$ 2,500.00	$ 30,000.00
	Estimated Construction Cost				**$ 392,900.00**
	35% ELAC				**$ 137,515.00**
				Total Construction Cost	**$ 600,000.00**

Summary of Projects

	Open Cut	Directional Drill
Wayne	$1,100,000	$1,200,000
Merrifield	$1,000,000	$1,500,000
Plym	$600,000	$700,000
Tomahawk	$800,000	$1,200,000
Sheffield	$700,000	$1,000,000
Sheridan	$700,000	$1,000,000
Howard	$1,400,000	$2,000,000
Total	**$6,300,000**	**$8,600,000**

Water Meter Replacement (5,600 Meters)	$1,680,000
Lead Service Replacement (2,613 Leads)	$18,291,000
Water Main Replacement	$6,300,000
Total	**$26,271,000**

Engineer's Opinion of Probable Cost

Sheffield Ave - N 15th St to N 17th St
City of Niles
DWSRF Cost Estimate - Directional Drill Option

Date: 4/15/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 40,000.00	$ 40,000.00
3	Traffic Control	LS	1	$ 10,000.00	$ 10,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Abandon Water Main	Ft	1,200	$ 5.00	$ 6,000.00
6	Curb and Gutter, Rem	Ft	50	$ 10.00	$ 500.00
7	Pavt, Rem	Syd	290	$ 10.00	$ 2,900.00
8	Subbase, CIP	Cyd	100	$ 20.00	$ 2,000.00
9	Aggregate Base, 8 inch	Syd	290	$ 15.00	$ 4,350.00
10	HMA	Ton	75	$ 250.00	$ 18,750.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	50	$ 25.00	$ 1,250.00
12	Lawn Restoration	LS	1	$ 1,500.00	$ 1,500.00
13	Water Main, Connect to Existing	Ea	2	$ 5,000.00	$ 10,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	1,200	$ 400.00	$ 480,000.00
15	Gate Valve and Box, 6 inch, Modified	Ea	3	$ 2,500.00	$ 7,500.00
16	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
17	Water Service	Ea	38	$ 2,500.00	$ 95,000.00
	Estimated Construction Cost				**$ 693,750.00**
	35% ELAC				**$ 242,812.50**
				Total Construction Cost	**$ 1,000,000.00**

Engineer's Opinion of Probable Cost

Sheffield Ave - N 15th St to N 17th St
City of Niles
DWSRF Cost Estimate - Open Cut Option

Date: 4/15/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 30,000.00	$ 30,000.00
3	Traffic Control	LS	1	$ 7,000.00	$ 7,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Curb and Gutter, Rem	Ft	1,200	$ 10.00	$ 12,000.00
6	Pavt, Rem	Syd	1,335	$ 10.00	$ 13,350.00
7	Remove Drive Approaches	Syd	190	$ 10.00	$ 1,900.00
8	Cold Milling HMA Surface	Syd	2,500	$ 4.00	$ 10,000.00
9	HMA	Ton	585	$ 125.00	$ 73,125.00
10	Subbase, CIP	Cyd	445	$ 20.00	$ 8,900.00
11	Aggregate Base, 8 inch	Syd	1,335	$ 15.00	$ 20,025.00
12	Drive Approach, 6-inch, Concrete	Sft	1,680	$ 6.00	$ 10,080.00
13	Curb and Gutter, Conc, Det F4, Modified	Ft	1,200	$ 25.00	$ 30,000.00
14	Lawn Restoration	Syd	600	$ 5.00	$ 3,000.00
15	Water Main, Connect to Existing	Ea	2	$ 5,000.00	$ 10,000.00
16	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	1,200	$ 100.00	$ 120,000.00
17	Gate Valve and Box, 6 inch, Modified	Ea	3	$ 2,500.00	$ 7,500.00
18	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
19	Water Service	Ea	38	$ 2,500.00	$ 95,000.00
	Estimated Construction Cost				**$ 465,880.00**
	35% ELAC				**$ 163,058.00**
				Total Construction Cost	**$ 700,000.00**

Engineer's Opinion of Probable Cost

Sheridan Ave - N 15th St to N 17th St
City of Niles
DWSRF Cost Estimate - Directional Drill Option

Date: 4/18/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 40,000.00	$ 40,000.00
3	Traffic Control	LS	1	$ 10,000.00	$ 10,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Abandon Water Main	Ft	1,200	$ 5.00	$ 6,000.00
6	Curb and Gutter, Rem	Ft	50	$ 10.00	$ 500.00
7	Pavt, Rem	Syd	275	$ 10.00	$ 2,750.00
8	Subbase, CIP	Cyd	95	$ 20.00	$ 1,900.00
9	Aggregate Base, 8 inch	Syd	275	$ 15.00	$ 4,125.00
10	HMA	Ton	75	$ 250.00	$ 18,750.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	50	$ 25.00	$ 1,250.00
12	Lawn Restoration	LS	1	$ 1,500.00	$ 1,500.00
13	Water Main, Connect to Existing	Ea	2	$ 5,000.00	$ 10,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	1,200	$ 400.00	$ 480,000.00
15	Gate Valve and Box, 6 inch, Modified	Ea	3	$ 2,500.00	$ 7,500.00
16	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
17	Water Service	Ea	36	$ 2,500.00	$ 90,000.00
	Estimated Construction Cost				**$ 688,275.00**
	35% ELAC				**$ 240,896.25**
				Total Construction Cost	**$ 1,000,000.00**

Engineer's Opinion of Probable Cost

Sheridan Ave - N 15th St to N 17th St
City of Niles
DWSRF Cost Estimate - Open Cut Option

Date: 4/18/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 30,000.00	$ 30,000.00
3	Traffic Control	LS	1	$ 7,000.00	$ 7,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Curb and Gutter, Rem	Ft	1,200	$ 10.00	$ 12,000.00
6	Pavt, Rem	Syd	1,335	$ 10.00	$ 13,350.00
7	Remove Drive Approaches	Syd	175	$ 10.00	$ 1,750.00
8	Cold Milling HMA Surface	Syd	2,275	$ 4.00	$ 9,100.00
9	HMA	Ton	560	$ 125.00	$ 70,000.00
10	Subbase, CIP	Cyd	445	$ 20.00	$ 8,900.00
11	Aggregate Base, 8 inch	Syd	1,335	$ 15.00	$ 20,025.00
12	Drive Approach, 6-inch, Concrete	Sft	1,560	$ 6.00	$ 9,360.00
13	Curb and Gutter, Conc, Det F4, Modified	Ft	1,200	$ 25.00	$ 30,000.00
14	Lawn Restoration	Syd	600	$ 5.00	$ 3,000.00
15	Water Main, Connect to Existing	Ea	2	$ 5,000.00	$ 10,000.00
16	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	1,200	$ 100.00	$ 120,000.00
17	Gate Valve and Box, 6 inch, Modified	Ea	3	$ 2,500.00	$ 7,500.00
18	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
19	Water Service	Ea	36	$ 2,500.00	$ 90,000.00
	Estimated Construction Cost				**$ 455,985.00**
	35% ELAC				**$ 159,594.75**
				Total Construction Cost	**$ 700,000.00**

Engineer's Opinion of Probable Cost

Tomahawk Ln - Plym Rd to Sassafras Ln
City of Niles
DWSRF Cost Estimate - Directional Drill Option

Date: 4/15/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 3,000.00	$ 3,000.00
2	Mobilization, 5%	LS	1	$ 40,000.00	$ 40,000.00
3	Traffic Control	LS	1	$ 12,000.00	$ 12,000.00
4	Erosion Control	LS	1	$ 3,000.00	$ 3,000.00
5	Abandon Water Main	Ft	1,425	$ 5.00	$ 7,125.00
6	Curb and Gutter, Rem	Ft	50	$ 10.00	$ 500.00
7	Pavt, Rem	Syd	155	$ 10.00	$ 1,550.00
8	Subbase, CIP	Cyd	55	$ 20.00	$ 1,100.00
9	Aggregate Base, 8 inch	Syd	155	$ 15.00	$ 2,325.00
10	HMA	Ton	45	$ 250.00	$ 11,250.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	50	$ 25.00	$ 1,250.00
12	Lawn Restoration	LS	1	$ 1,500.00	$ 1,500.00
13	Water Main, Connect to Existing	Ea	4	$ 5,000.00	$ 20,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	54	$ 400.00	$ 21,600.00
15	Water Main, DI, 8 inch, Tr Det G, Modified	Ft	1,425	$ 450.00	$ 641,250.00
16	Gate Valve and Box, 6 inch, Modified	Ea	2	$ 2,500.00	$ 5,000.00
17	Gate Valve and Box, 8 inch, Modified	Ea	5	$ 2,800.00	$ 14,000.00
18	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
19	Water Service	Ea	17	$ 2,500.00	$ 42,500.00
	Estimated Construction Cost				**$ 838,950.00**
	35% ELAC				**$ 293,632.50**
				Total Construction Cost	**$ 1,200,000.00**

Engineer's Opinion of Probable Cost

Tomahawk Ln - Plym Rd to Sassafras Ln
City of Niles
DWSRF Cost Estimate - Open Cut Option

Date: 4/15/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 2,000.00	$ 2,000.00
2	Mobilization, 5%	LS	1	$ 30,000.00	$ 30,000.00
3	Traffic Control	LS	1	$ 8,000.00	$ 8,000.00
4	Erosion Control	LS	1	$ 2,000.00	$ 2,000.00
5	Curb and Gutter, Rem	Ft	300	$ 10.00	$ 3,000.00
6	Pavt, Rem	Syd	1,900	$ 10.00	$ 19,000.00
7	Cold Milling HMA Surface	Syd	2,375	$ 4.00	$ 9,500.00
8	HMA	Ton	1,100	$ 125.00	$ 137,500.00
9	Subbase, CIP	Cyd	635	$ 20.00	$ 12,700.00
10	Aggregate Base, 8 inch	Syd	1,900	$ 15.00	$ 28,500.00
11	Curb and Gutter, Conc, Det F4, Modified	Ft	300	$ 25.00	$ 7,500.00
12	Lawn Restoration	Syd	800	$ 5.00	$ 4,000.00
13	Water Main, Connect to Existing	Ea	4	$ 5,000.00	$ 20,000.00
14	Water Main, DI, 6 inch, Tr Det G, Modified	Ft	54	$ 100.00	$ 5,400.00
15	Water Main, DI, 8 inch, Tr Det G, Modified	Ft	1,425	$ 150.00	$ 213,750.00
16	Gate Valve and Box, 6 inch, Modified	Ea	2	$ 2,500.00	$ 5,000.00
17	Gate Valve and Box, 8 inch, Modified	Ea	5	$ 2,800.00	$ 14,000.00
18	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
19	Water Service	Ea	17	$ 2,500.00	$ 42,500.00
	Estimated Construction Cost				**$ 574,350.00**
	35% ELAC				**$ 201,022.50**
				Total Construction Cost	**$ 800,000.00**

Engineer's Opinion of Probable Cost

Wayne St - N 5th to 9th
City of Niles
DWSRF Cost Estimate - Directional Drill Option

Date: 4/11/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 3,000.00	$ 3,000.00
2	Mobilization, 5%	LS	1	$ 50,000.00	$ 50,000.00
3	Traffic Control	LS	1	$ 13,000.00	$ 13,000.00
4	Erosion Control	LS	1	$ 3,000.00	$ 3,000.00
5	Abandon Water Main	Ft	1,405	$ 5.00	$ 7,025.00
6	Curb and Gutter, Rem	Ft	200	$ 10.00	$ 2,000.00
7	Pavt, Rem (hma overlay w/ concrete base)	Syd	105	$ 15.00	$ 1,575.00
8	Subbase, CIP	Cyd	40	$ 20.00	$ 800.00
9	Aggregate Base, 8 inch	Syd	105	$ 15.00	$ 1,575.00
10	Conc Pavt, 8 inch	Syd	105	$ 55.00	$ 5,775.00
11	HMA	Ton	30	$ 250.00	$ 7,500.00
12	Curb and Gutter, Conc, Det F4, Modified	Ft	200	$ 25.00	$ 5,000.00
13	Pavement Markings	LS	1	$ 1,200.00	$ 1,200.00
14	Lawn Restoration	LS	1	$ 1,500.00	$ 1,500.00
15	RR Work	LS	1	$ 25,000.00	$ 25,000.00
16	Water Main, Connect to Existing	Ea	2	$ 5,000.00	$ 10,000.00
17	Water Main, DI, 4 inch, Tr Det G, Modified	Ft	25	$ 75.00	$ 1,875.00
18	Water Main, DI, 12 inch, Tr Det G, Modified	Ft	1,405	$ 500.00	$ 702,500.00
19	Gate Valve and Box, 12 inch, Modified	Ea	4	$ 3,000.00	$ 12,000.00
20	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
21	Water Service	Ea	8	$ 2,500.00	$ 20,000.00
	Estimated Construction Cost				**$ 884,325.00**
	35% ELAC				**$ 309,513.75**
				Total Construction Cost	**$ 1,200,000.00**

Engineer's Opinion of Probable Cost

Wayne St - N 5th to 9th
City of Niles
DWSRF Cost Estimate - Open Cut Option

Date: 4/11/2022
Project No. 220481
Prepared by: DEF

Estimate

Item No.	Item Description	Unit	Est. Quantity	Unit Price ($)	Total Cost ($)
1	Audiovisual Coverage	LS	1	$ 3,000.00	$ 3,000.00
2	Mobilization, 5%	LS	1	$ 40,000.00	$ 40,000.00
3	Traffic Control	LS	1	$ 12,000.00	$ 12,000.00
4	Erosion Control	LS	1	$ 3,000.00	$ 3,000.00
5	Curb and Gutter, Rem	Ft	1,305	$ 10.00	$ 13,050.00
6	Pavt, Rem (hma overlay w/ concrete base)	Syd	2,500	$ 15.00	$ 37,500.00
7	Remove Drive Approaches	Syd	75	$ 10.00	$ 750.00
8	Cold Milling HMA Surface	Syd	2,750	$ 4.00	$ 11,000.00
9	HMA	Ton	800	$ 125.00	$ 100,000.00
10	Subbase, CIP	Cyd	835	$ 20.00	$ 16,700.00
11	Aggregate Base, 8 inch	Syd	2,500	$ 15.00	$ 37,500.00
12	Conc Pavt, 8 inch	Syd	2,500	$ 55.00	$ 137,500.00
13	Drive Appraches, HMA	Ton	20	$ 125.00	$ 2,500.00
14	Curb and Gutter, Conc, Det F4, Modified	Ft	1,305	$ 25.00	$ 32,625.00
15	Pavement Markings	LS	1	$ 1,200.00	$ 1,200.00
16	Lawn Restoration	Syd	780	$ 5.00	$ 3,900.00
17	RR Work	LS	1	$ 25,000.00	$ 25,000.00
18	Water Main, Connect to Existing	Ea	2	$ 5,000.00	$ 10,000.00
19	Water Main, DI, 4 inch, Tr Det G, Modified	Ft	25	$ 75.00	$ 1,875.00
20	Water Main, DI, 12 inch, Tr Det G, Modified	Ft	1,405	$ 200.00	$ 281,000.00
21	Gate Valve and Box, 12 inch, Modified	Ea	4	$ 3,000.00	$ 12,000.00
22	Hydrant Assembly	Ea	2	$ 5,000.00	$ 10,000.00
23	Water Service	Ea	8	$ 2,500.00	$ 20,000.00
	Estimated Construction Cost				**$ 812,100.00**
	35% ELAC				**$ 284,235.00**
				Total Construction Cost	**$ 1,100,000.00**

Appendix 2

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
KALAMAZOO DISTRICT OFFICE

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

April 27, 2020

Mr. Jeffrey Dunlap
City of Niles
PO Box 217
Niles, Michigan 49120-0217

VIOLATION NOTICE
WSSN: 04740
City of Niles

Dear Mr. Dunlap:

SUBJECT: Violation Notice - Monitoring and Reporting for Volatile Organic Chemicals (VOCs)

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division (DWEHD), records show that the City of Niles (Niles) is in violation of the Safe Drinking Water Act 1976 PA 399, as amended (Act 399), R 325.10716, *Collection and analysis of samples for VOCs*; and R 325.10734, *Required reporting to the department* of the 1979 Administrative Code.

In accordance with these rules, a supplier of water shall collect samples every quarter, have them analyzed for VOCs, and report the results to this office, unless the EGLE laboratory performs the analysis and reports the results. Your specific monitoring requirements were outlined in your 2020 Monitoring Schedule, sent to you in February 2020.

EGLE records show that Niles conducted VOC sampling March 17, 2020, at the plant taps (site code: WL010 and site code: WL012) during the monitoring period January 1, 2020, to March 31, 2020, but the March 17, 2020 samples did not meet method pH requirements, therefore cannot be accepted for compliance monitoring.

Our investigation consisted of a review of the DWEHD files for laboratory reports received for compliance monitoring and phone correspondence with Ms. Leanne Caddy. If you have conducted the required monitoring, please submit your results immediately.

The EGLE investigation is considered complete. Niles was out of compliance on April 1, 2020 and returned to compliance on April 9, 2020, the date VOC samples were collected at WL010 and WL012.

Administrative rule R 325.10404 *Tier 3 public notice; form, manner, and frequency of notice*, of Act 399, requires that suppliers provide public notice not later than one year after learning of the violation by mail or direct delivery and by any other means reasonably calculated to reach other persons regularly served by the system. Enclosed is a sample public notice. Please notify your consumers by **April 27, 2021** and send us a signed and dated copy of the notice that was issued within 10 days of distributing the public notice. This violation must be included in your 2020 Consumer Confidence Report (CCR), due by July 1, 2021. You may want to use your CCR as the vehicle for issuing the public notice, if the CCR will be delivered to your customers within 12 months of learning of this violation. It must be in the correct format and delivered to all the customers if you use this method.

EGLE is authorized under Section 7 of Act 399, MCL 325.1007, to issue fines for public water supply monitoring and reporting violations. There is no fine for this violation. However, failure

to conduct monitoring, as required during 2020, will result in a $200 fine. Additionally, failure to issue a public notice for this violation may result in a fine of at least $200 per event. If you would like more information on the DWEHD's administrative fines policy, please contact me.

If you have any factual information you would like us to consider regarding the violations identified in this notice, please provide it in a written response by **May 27, 2020.**

We anticipate and appreciate your cooperation in resolving this matter. If you have any questions regarding this Violation Notice, please contact me at wilsons56@michigan.gov; or 269-491-3107; or EGLE, DWEHD, Kalamazoo District Office, 7953 Adobe Road, Kalamazoo, Michigan, 49009.

Sincerely,

Stacy Wilson, REHS
Environmental Quality Analyst
Community Water Supply Section
Kalamazoo District Office
Drinking Water and Environmental Health Division

SW:ne

Enclosure

cc/enc: Ms. Leanne Caddy, City of Niles

RECEIVED DEC 0 2 2019

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
KALAMAZOO DISTRICT OFFICE

EGLE

LIESL EICHLER CLARK
DIRECTOR

November 25, 2019

Mr. Jeffrey Dunlap
City of Niles
PO Box 217
Niles, Michigan 49120-0217

VIOLATION NOTICE
WSSN: 04740
City of Niles

Dear Mr. Dunlap:

SUBJECT: Violation Notice –Monitoring and Reporting for Disinfection Byproducts (DBPs)

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division (DWEHD), records show that the City of Niles (Niles) is in violation of the Safe Drinking Water Act 1976 PA 399, as amended (Act 399), R 325.10719e, *Disinfectant residuals, disinfection byproducts, and disinfection byproduct precursors; monitoring requirements*; and R 325.10734, *Required reporting to the department* of the 1979 Administrative Code.

In accordance with the rules cited above, a supplier of water shall collect samples every year, have them analyzed for DBPs, specifically total trihalomethanes (TTHM) and haloacetic acids (HAA5), and report the results to this office, unless the EGLE laboratory performs the analysis and reports the results. Your specific monitoring requirements were outlined in your 2019 Monitoring Schedule, sent to you March 29, 2019.

EGLE records show that Niles conducted DBP sampling during the monitoring period from August 1, 2019, through August 31, 2019, at DBP1 and DBP2, but the TTHM sample collected at Hydro Plant (site code: DBP1) did not meet method pH requirements and could not be accepted for compliance monitoring.

Our investigation consisted of a review of the DWEHD files for laboratory reports received for compliance monitoring. If you have conducted the required monitoring, please submit your results immediately. Our investigation is considered complete. Niles was out of compliance on September 1, 2019. To return to compliance, Niles must collect compliance samples from DBP1 during the monitoring period of **August 1, 2020, to August 31, 2020**, and have them analyzed for TTHM and HAA5.

Administrative Rule R 325.10404, *Tier 3 public notice; form, manner, and frequency of notice,* of Act 399, requires that supplies provide public notice not later than one year after learning of the violation by mail or direct delivery and by any other means reasonably calculated to reach other persons regularly served by the water supply. Enclosed is a sample public notice. Please notify your consumers by **November 25, 2020,** and send us a signed and dated copy of the notice that was issued within 10 days of distributing the public notice. This violation must be included in your 2019 Consumer Confidence Report (CCR,) due by July 1, 2020. You may want to use your CCR as the vehicle for issuing the public notice, if the CCR will be delivered to your customers within 12 months of learning of this violation. It must be in the correct format and delivered to all the customers if you use this method.

EGLE is authorized under Section 7 of Act 399, MCL 325.1007, to issue fines for public water supply monitoring and reporting violations. There is no fine for this violation. However, failure to conduct monitoring, as required during 2020, will result in a $200 fine. Additionally, failure to issue a public notice for this violation may result in a fine of at least $200 per event. Additional violations are subject to fines of increasing amounts. If you would like more information on the DWEHD's administrative fines policy, please contact me.

If you have any factual information you would like us to consider regarding the violations identified in this notice, please provide it in a written response by **December 25, 2019.**

We anticipate and appreciate your cooperation in resolving this matter. If you have any questions regarding this Violation Notice, please contact me at wilsons56@michigan.gov; or 269-491-3107; or EGLE, DWEHD, Kalamazoo District Office, 7953 Adobe Road, Kalamazoo, Michigan, 49009.

Sincerely,

Stacy Wilson, REHS

Stacy Wilson, REHS
Environmental Quality Analyst
Community Water Supply Section
Kalamazoo District Office
Drinking Water and Environmental Health Division

SW:ne

Enclosure

cc/enc: Ms. Leanne Hoese, City of Niles

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Monitoring Requirements Not Met for

City of Niles

City of Niles is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During August 1, 2019, to August 31, 2019, we did not complete all monitoring for total trihalomethanes (TTHM) and therefore, cannot be sure of the quality of your drinking water during that time. The violation **does not** pose a threat to the quality of the supply's water.

What should I do? There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers, you have a right to know what happened and what we are doing to correct the situation.

The table below lists the contaminants we did not properly test for, how often we are supposed to sample for these contaminants, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date we will collect follow-up samples.

Contaminants	Required sampling frequency	Number of samples taken	Date samples should have been collected	Date samples will be collected
TTHM	1 sample every year	0	08/01/2019 – 08/31/2019	08/01/2020– 08/31/2020

What happened? What is being done? We collected the TTHM and HAA5 samples August 20, 2019, but the TTHM sample did not meet method pH requirements and could not be accepted for compliance purposes. The HAA5 was acceptable for compliance purposes. We will collect the required follow-up samples during August 2020. Our staff is making every effort to assure this does not happen again.

For more information, please contact _____at _____.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

More information about your drinking water is available from the U.S. Environmental Protection Agency Office of Water home page at: http://www.epa.gov/safewater/dwinfo.htm.

This notice is being sent to you by City of Niles.

CERTIFICATION: WSSN: 04740

I certify that this water supply has fully complied with the public notification regulations in the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and the administrative rules.

Signature:_____ Title:_____ Date Distributed:_____

Appendix 3

MICHIGAN STATE UNIVERSITY | Extension

Cheryl Pitchford
Senior Engineering Specialist
Fishbeck

May 6, 2022

Re: Rare Species Review #3136 – City of Niles, Water main replacements, Berrien County, MI.

Hello Cheryl:

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan's endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, …fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.

Although several at-risk species have been documented within 1 mile of the proposed activity **it is unlikely that negative impacts will occur.** This response reflects a desktop review of the database and MNFI cannot fully evaluate this project without visiting the area. MNFI offers several levels of Rare Species Reviews, including field surveys which I would be happy to discuss with you.

Sincerely,

Michael A. Sanders

Michael A. Sanders
Environmental Review Specialist/Zoologist
Michigan Natural Features Inventory

MSU EXTENSION

Michigan Natural Features Inventory

PO Box 13036
Lansing MI 48901

(517) 284-6200
Fax (517) 373-9566

mnfi.anr.msu.edu

Comments for Rare Species Review #3136:

It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: Casey Reitz, DNR-Wildlife Division, 517-284-6210, or ReitzC@michigan.gov. If a federally listed species is involved and, you think a permit is needed, please contact Jessica Pruden, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8316, or Jessica_Pruden@fws.gov.

NOTE: special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Please consult MNFI's Rare Species Explorer for additional information on Michigan's rare plants and animals.

NOTE: Michigan rivers and streams have been grouped according to existing information of mussel distribution and individual species conservation status. This stretch of the ***St. Joseph River*** is a Group 2 Mussel Stream which means that state threatened and endangered mussel species occur or are expected to occur and that certain surveys and possibly relocation procedures apply. I encourage you to review the ***Michigan Freshwater Mussel Survey Protocols and Relocation Procedures*** publication if in-stream work and/or land clearing activities occur that result in streambed disturbance and erosion and sedimentation into the river. A copy of the publication can be found at: https://mnfi.anr.msu.edu/resources/michigan-mussels.

Table 1: Occurrences of threatened and endangered species within 1 mile of RSR#3136

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Mesodon elevatus*	Proud globe		T	G5	SH	1941	1941-05-14
Animal	*Toxolasma parvum*	Lilliput		E	G5	S1	2009-07-15	2018-06-04
Plant	*Pycnanthemum pilosum*	Hairy mountain mint		T	G5T5	S2	1917	1917-08-25
Plant	*Linum virginianum*	Virginia flax		T	G4G5	S2	1867-07-26	1867-07-26
Plant	*Phlox maculata*	Wild sweet William		T	G5	S1	1958	1958-06-22
Plant	*Polemonium reptans*	Jacob's ladder		T	G5	S2	1970-??	1970-??
Plant	*Panax quinquefolius*	Ginseng		T	G3G4	S2S3	1980-?	1980-?
Plant	*Trillium recurvatum*	Prairie trillium		T	G5	S2S3	1931	2010-04-16
Plant	*Silphium integrifolium*	Rosinweed		T	G5	S2	1969	1981-07-22
Plant	*Galearis spectabilis*	Showy orchis		T	G5	S2	1930	1930-05-11
Plant	*Platanthera ciliaris*	Orange- or yellow-fringed orchid		E	G5	S1S2	1930	1930-08-30
Plant	*Euphorbia commutata*	Tinted spurge		T	G5	S1	1920	1920-06-10
Plant	*Silphium integrifolium*	Rosinweed		T	G5	S2	1980	1980-08-08
Plant	*Androsace occidentalis*	Rock-jasmine		E	G5	SX	1931	1931-04-26
Plant	*Silene stellata*	Starry campion		T	G5	S2	1867	1867-08-28
Plant	*Smallanthus uvedalia*	Yellow-flowered leafcup		T	G4G5	S1		1941
Plant	*Corydalis flavula*	Yellow fumewort		T	G5	S2	1929	1929-05
Plant	*Carex oligocarpa*	Eastern few-fruited sedge		T	G4G5	S2	1933	1933-06-01
Plant	*Polemonium reptans*	Jacob's ladder		T	G5	S2	1954	1954-05-26
Plant	*Coreopsis palmata*	Prairie coreopsis		T	G5	S2	1917-08-26	1980
Plant	*Trillium sessile*	Toadshade		T	G5	S2S3	1930	2018-05-09
Plant	*Silphium integrifolium*	Rosinweed		T	G5	S2	1917	1917-08-26
Plant	*Gentianella quinquefolia*	Stiff gentian		T	G5	S2	1867	1867-10
Plant	*Panax quinquefolius*	Ginseng		T	G3G4	S2S3	1916	1916-05-15
Plant	*Carex seorsa*	Sedge		T	G5	S2	1930	1930-05-30

Plant	*Trillium recurvatum*	Prairie trillium		T	G5	S2S3	2008-05-09	2008-05-09
Plant	*Ipomoea pandurata*	Wild potato vine or man-of-the-earth		T	G5	S2	2019-07-24	2019-07-24
Plant	*Silphium laciniatum*	Compass plant		T	G5	S1S2	2011-08-24	2011-08-24

Comments for Table 1 :

No concerns. The occurrences are Historic and/or far removed from the project area.

Table 2: Occurrences of special concern species/natural features within 1 mile of RSR#3136

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Pomatiopsis cincinnatiensis*	Brown walker		SC	G4	SH	1955-PRE	1955-PRE
Animal	*Fontigens nickliniana*	Watercress snail		SC	G5	S2S3		
Animal	*Alasmidonta marginata*	Elktoe		SC	G4	S3?	2009-07-15	2009-07-22
Animal	*Utterbackia imbecillis*	Paper pondshell		SC	G5	S2S3	2009-07-15	2018-06-04
Animal	*Venustaconcha ellipsiformis*	Ellipse		SC	G4	S3	1930	1930
Animal	*Pleurobema sintoxia*	Round pigtoe		SC	G4G5	S3		
Animal	*Lasmigona compressa*	Creek heelsplitter		SC	G5	S3	1930	1930
Animal	*Emydoidea blandingii*	Blanding's turtle		SC	G4	S2S3	2021-06-08	2021-06-08
Animal	*Terrapene carolina carolina*	Eastern box turtle		SC	G5T5	S2S3	2021-04-09	2021-04-09
Plant	*Fimbristylis puberula*	Chestnut sedge		X	G5	SX	1828	1838-08-20
Plant	*Baptisia lactea*	White or prairie false indigo		SC	G4Q	S3	1978	1981-07-01
Plant	*Cirsium hillii*	Hill's thistle		SC	G3	S3	1932	1932-06-18
Plant	*Lycopodiella subappressa*	Northern appressed clubmoss		SC	G2	S2		1867-08
Plant	*Brickellia eupatorioides*	False boneset		SC	G5	S2	1838	1917-08-25
Plant	*Baptisia lactea*	White or prairie false indigo		SC	G4Q	S3	1935	1935-08-09
Plant	*Hybanthus concolor*	Green violet		SC	G5	S3	1930	1939-05-10
Plant	*Carex gravida*	Sedge		X	G5	SX	1931	1931-06-14
Plant	*Gentiana saponaria*	Soapwort gentian		X	G5	SX	1867	1867-10-12
Plant	*Lithospermum molle*	Marbleweed		X	G4G5	SX	1838-08-21	1838-08-21
Plant	*Collinsia verna*	Blue-eyed Mary		SC	G5	SNR	1931-05-05	1931-05-05

Comments for Table 2 :

No concerns. The occurrences are Historic and/or far removed from the project area.

Codes to Accompany Occurrence Tables:

State Protection Status Code Definitions (SPROT)
E: Endangered
T: Threatened
SC: Special concern

Federal Protection Status Code Definitions (USESA)
LE = listed endangered
LT = listed threatened
LELT = partly listed endangered and partly listed threatened
PDL = proposed delist
E(S/A) = endangered based on similarities/appearance
PS = partial status (federally listed in only part of its range)
C = species being considered for federal status

Global Heritage Status Rank Definitions (GRANK)
The priority assigned by NatureServe's national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
Q: Taxonomy uncertain

State Heritage Status Rank Definitions (SRANK)
The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
S1: Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2: Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3: Rare or uncommon in state (on the order of 21 to 100 occurrences).
S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions.
SX = apparently extirpated from state.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443
http://www.fws.gov/midwest/EastLansing/

In Reply Refer To: April 18, 2022
Project code: 2022-0032953
Project Name: City of Niles - Watermain Replacement

Subject: Consistency letter for 'City of Niles - Watermain Replacement' for threatened and endangered species that may occur in your proposed project location consistent with the Michigan Endangered Species Determination Key (Michigan DKey)

Dear Cheryl Pitchford:

The U.S. Fish and Wildlife Service (Service) received on **April 18, 2022** your effect determination(s) for the 'City of Niles - Watermain Replacement' (the Action) using the Michigan DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance of the Service's Michigan DKey, you determined the proposed Action will have "No Effect" on the following species.

Species	Listing Status	Determination
Copperbelly Water Snake (*Nerodia erythrogaster neglecta*)	Threatened	No effect
Eastern Massasauga (=rattlesnake) (*Sistrurus catenatus*)	Threatened	No effect
Indiana Bat (*Myotis sodalis*)	Endangered	No effect
Mitchell's Satyr Butterfly (*Neonympha mitchellii mitchellii*)	Endangered	No effect
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened	No effect
Piping Plover (*Charadrius melodus*)	Endangered	No effect
Pitcher's Thistle (*Cirsium pitcheri*)	Threatened	No effect
Red Knot (*Calidris canutus rufa*)	Threatened	No effect
Whooping Crane (*Grus americana*)	Experimental Population, Non-Essential	No effect

Coordination with the Michigan Ecological Services Office is complete. Please email a copy of this letter to MIFO_Dkey@fws.gov for our record keeping (include “No Effect for Project Name” in the subject line). Thank you for considering Federally listed species during your project planning.

Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

The Service recommends that you contact the Service or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

Bald and Golden Eagles:
Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “…to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

If the Action may impact bald or golden eagles, additional coordination with the Service under the Eagle Act may be required. For more information on eagles and conducting activities in the vicinity of an eagle nest, please visit https://www.fws.gov/midwest/eagle/. In addition, the Service developed the National Bald Eagle Management Guidelines (May 2007) in order to assist landowners in avoiding the disturbance of bald eagles. The full Guidelines are available at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

If you have further questions regarding potential impacts to eagles, please contact Chris Mensing, Chris_Mensing@fws.gov or 517-351-2555.

Wetland impacts:
Section 404 of the Clean Water Act of 1977 (CWA) regulates the discharge of dredged or fill material into waters (including wetlands) of the United States. Regulations require that activities permitted under the CWA (including wetland permits issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE)) not jeopardize the continued existence of species listed as endangered or threatened. Permits issued by the U.S. Army Corps of Engineers must also consider effects to listed species pursuant to section 7 of the Endangered Species Act.

The Service provides comments to the agencies that may include permit conditions to help avoid or minimize impacts to wildlife resources including listed species. For this project, we consider the conservation measures you agreed to in the determination key and/or as part of your proposed action to be non-discretionary. If you apply for a wetland permit, these conservation measures should be explicitly incorporated as permit conditions. Include a copy of this letter in your wetland permit application to streamline the threatened and endangered species review process.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

City of Niles - Watermain Replacement

2. Description

The following description was provided for the project 'City of Niles - Watermain Replacement':

> Project location: T7S, R17W Section 26s and 25; T7S, R17W Sec 34
>
> Project proposes to replace approximately 13,696 LF of existing water main pipe, ranging from 6" to 8" diameter, within the City of Niles. Pipe has reached end of lifecycle and replacement is critical to ensure to interruption to service or catastrophic failure. Work is proposed at 7 different site specific locations as shown on the site location map. Work is anticipated to begin fall 2023 and be complete December 2023. Work will occur entirely within existing watermain footprint within road. No work outside of road footprint.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.8333775,-86.23951161394292,14z

Qualification Interview

1. This determination key is intended to assist the user in the evaluating the effects of their actions on Federally listed species in Michigan. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, purposeful take for scientific purposes or to enhance the survival of a species, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Click yes to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

   Yes
2. Is the action the approval of a long-term (i.e., in effect greater than 10 years) permit, plan, or other action?

   No
3. Is the action being funded, authorized, or carried out by a Federal agency?

   No
4. Does the action involve the installation or operation of wind turbines?

   No
5. Does the action involve purposeful take of a listed animal?

   No
6. Does the action involve a new communication tower?

   No
7. Does the activity involve aerial or other large-scale application of any chemical (including insecticide, herbicide, etc.)?

   No
8. Will your action permanently affect local hydrology by impacting 1/2 acre or more of wetland; or by increasing or decreasing groundwater or surfacewater elevations?

   No
9. Will your action temporarily affect local hydrology by impacting 1/2 acre or more of wetland; or by increasing or decreasing groundwater or surfacewater elevations?

   No
10. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new storm-water outfall discharge, dams, other in-stream work, etc.)?

    No
11. Does your project have the potential to indirectly impact the stream/river or the riparian zone (e.g., cut and fill, horizontal directional drilling, hydrostatic testing, construction, vegetation removal, discharge, etc.)?

    No

12. Will your action disturb the ground or existing vegetation? This includes any off road vehicle access, soil compaction, digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application, vegetation management (including removal or maintenance using equipment or chemicals), cultivation, development, etc.

    Yes

13. Does your action area occur entirely within an already developed area with no natural habitat or trees present? For the purposes of this question, "already developed areas" are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are NOT considered "already developed areas" for the purposes of this question).

    Yes

14. Does the action have potential indirect effects to listed species or the habitats they depend on (e.g., water discharge into adjacent habitat or waterbody, changes in groundwater elevation, introduction of an exotic plant species)?

    No

15. [Hidden Semantic] Does the action area intersect the Indiana bat AOI?

    Automatically answered
    Yes

16. Federally listed bats infrequently use anthropogenic structures for roosting, such as buildings, barns, sheds, and bat boxes. Are bats known to be roosting in a structure that occurs within your action area?

    No

17. [Hidden Semantic] Does the action intersect the Eastern massasauga rattlesnake area of influence?

    Automatically answered
    Yes

18. [Hidden Semantic] Does the action area intersect the Mitchell's satyr area of influence?

    Automatically answered
    Yes

19. [Hidden Semantic] Does the action area intersect the piping plover area of influence?

    Automatically answered
    Yes

20. [Hidden Semantic] Does the action area intersect the rufa red knot area of influence?

    Automatically answered
    Yes

21. [Hidden Semantic] Does the action area intersect the whooping crane (ex. Pop) area of influence?

    Automatically answered
    Yes

22. [Hidden Semantic] Does the action area intersect copperbelly water snake area of influence?

    Automatically answered
    Yes

23. [Hidden Semantic] Does the action area intersect the area of influence for Pitcher's thistle?

    Automatically answered
    Yes

24. [Hidden Semantic] Does the action area intersect the Indiana bat area of influence?

    Automatically answered
    Yes

25. [Hidden Semantic] Does this project intersect the northern long-eared bat area of influence?

    Automatically answered
    Yes

IPaC User Contact Information

Agency: Niles city (Berrien County, MI; Cass County, MI)
Name: Cheryl Pitchford
Address: 5913 Executive Drive, Suite 100
City: Lansing
State: MI
Zip: 48917
Email cpitchford@fishbeck.com
Phone: 5173883111

Appendix 4

Drinking Water Revolving Fund Proposed Schedule

		2022												2023												2024												2025												2026											
		01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
1 Submit Draft Project Plan to EGLE	May 2022																																																												
2 Hold Public Hearing	June 2022																																																											
3 Pass Resolution Adopting Project	June 2022																																																										
4 Submit Final Project Plan Amendment to EGLE	July 1, 2022																																																										
5 Water Main Design																																																												
6 Water Main Replacement	**2nd Quarter 2025**																																																											
Submit Plans and Specifications to EGLE	November 2024																																																										
Bid Opening	January 2025																																																										
Receive DWSRF Loan	April 2025																																																										
Begin Construction	May 2025																																																										
Complete Construction	November 2029																																																										
7 Water Meter Replacement	**2nd Quarter 2023**																																																										
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8 Lead Water Service Replacement	**2nd Quarter 2023**																																																										
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Begin Construction	May 2023																																																									
Complete Construction	November 2032																																																									

Drinking Water Revolving Fund Proposed Schedule

			2027												2028												2029												2030												2031											
			01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
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Appendix 5

UFS UTILITY FINANCIAL SOLUTIONS, LLC

UTILITY FINANCIAL SOLUTIONS, LLC

May 13, 2022

Mr. Jeff Dunlap
Utilities Manager
City of Niles
333 N. 2nd Street
P.O. Box 217
Niles, MI 49120

Dear Mr. Dunlap:

We are pleased to present this executive summary report for a financial projection updated for the City of Niles Water Department (Niles) and the possible SRF funding.

The specific purposes of this long-term financial projection study are:

1) Determine Water utility's revenue requirements for fiscal year 2023 incorporating $3.0 million in SRF funding
2) Recommend rate adjustments needed to meet or work toward targeted revenue requirements

This report includes results of the long-term financial projection.

1) Recommended rate tracks are based on the utilities ability to meet or work toward three factors listed below:
    a. Debt Coverage Ratio
    b. Minimum Cash Reserves
    c. Optimal Net Income

This report is intended for information and use by management and the Board of Directors for purposes stated above.

Sincerely,

Dawn Lund

Utility Financial Solutions, LLC
Dawn Lund
Vice-President

Section	Executive Summary	Page
1	**Introduction**	1
2	**Utility Revenue Requirements**	2
	Development of Financial Targets	3
	Recommended Rate Track	7
4	**Summary of Significant Assumptions**	8
5	**Summary of Recommendations**	10

Introduction

This report was prepared to provide Niles water with a long-term financial projection and rate track. The specific purposes of the financial plan are identified below:

1) ***Determine Water utility's revenue requirements for fiscal year 2023***. The Water Utility's revenue requirements were projected for the period from 2023 – 2027 and included adjustments for the following:
    a. Anticipated operating cost changes
    b. Capital improvements currently underway and scheduled over next five years. Niles provided capital improvement information.

2) ***Recommend rate adjustments needed to meet targeted revenue requirements.*** The primary purpose of this study is to identify appropriate revenue requirements and the rate adjustments needed to meet targeted revenue requirements adding $3.0 million in SRF funding. The report includes a long-term rate track for Niles Water to help ensure the financial stability of the utility in future years.

The City of Niles retained Utility Financial Solutions, LLC to review the above items and make recommendations on the appropriate course of action. This report includes results of the long-term financial projection.

Utility Revenue Requirements

Revenue requirements for Niles Water were projected for 2023 based on 2021 actual expenses, and budget 2022. Revenues and expenses were analyzed with adjustments made to actual expenses to reflect projected operating characteristics. Detailed descriptions of the methodology are included in the section "Summary of Significant Assumptions". The table below is a summary of the financial projection based on the following assumptions:

	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Growth	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Inflation	**3.50%**	**2.90%**	**2.90%**	**2.90%**	**2.90%**
Interest Income	**0.5%**	**0.5%**	**0.5%**	**0.5%**	**0.5%**

Niles projected operating income for 2023 is $144,730 and under the target of $481,884. Cash balances are projected to decline significantly. Debt coverage ratio requirements are not being met. The key financial targets are not being met in the water department without rate increases.

Table Two – Projected Financial Statements – Without Rate Adjustments

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2023	0.00%	2,716,519	2,198,666	517,853	1,243,284	3,700,000	3,000,000	2.30
2024	0.00%	2,716,519	2,315,234	401,284	1,303,801	775,000	-	5.61
2025	0.00%	2,716,519	2,180,187	536,332	7,681,941	3,500,000	9,000,000	3.59
2026	0.00%	2,716,519	2,330,632	385,887	4,571,837	3,500,000		1.48
2027	0.00%	2,716,519	2,482,365	234,154	1,400,511	3,500,000	-	1.40
Targeted Target 2023				**$ 494,562**	**$ 1,466,272**			**1.45**
Targeted Target 2027				**$ 784,307**	**$ 1,571,519**			**1.45**

1. The capital improvement plan provided by the City of Niles.
2. Financial projections should be updated during the budgeting process each year.
3. Additional assumptions were used in developing the financial projections. Please see summary of significant assumptions on page 8.

DEVELOPMENT OF RECOMMENDED RATE TRACK:

When evaluating rates to charge customers, three key factors must be considered:

1. Debt Coverage Ratio
2. Minimum Cash Reserves
3. Optimal Net Income

Each of these factors is discussed below:

1) Debt Coverage Ratio - Debt coverage ratios are mandated by covenants established in the bond ordinance and must be maintained to ensure the utility maintains its bond rating and has the capacity to issue revenue bonds. If the utility is not meeting its debt coverage ratio obligation, even if the payment is being made, the system is technically in default. Typical revenue bond coverage ratios require that cash generated from operations exceed 1.2 times the debt payments. Due to fluctuations in sales, mainly the result of weather or the economy, a safety factor is recommended to help ensure coverage ratios requirements are met or exceeded during low sales years. We have established a target of 1.45 for financial projection purposes. This becomes the minimum target and rates must be established to meet the debt coverage target.

Table Three below contains projected debt coverage ratios from 2023-2027.

Table Three - Current Debt Coverage Ratio – Without Rate Adjustment

Debt Coverage Ratio	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Add Net Income	$ 516,119	$ 375,629	$ 355,823	$ 82,156	$ (71,555)
Add Depreciation Expense	517,100	584,903	649,675	755,736	861,797
Add Interest Expense	32,812	56,250	211,406	366,518	352,947
Cash Available for Debt Service	$ 1,066,031	$ 1,016,782	$ 1,216,905	$ 1,204,410	$ 1,143,188
Debt Principal and Interest	$ 462,812	$ 181,264	$ 338,764	$ 814,514	$ 814,514
Projected Debt Coverage Ratio (Covenants	2.30	5.61	3.59	1.48	1.40
Minimum Debt Coverage Ratio	**1.45**	**1.45**	**1.45**	**1.45**	**1.45**

Debt Ratios meet the recommended minimum throughout the projection period. Current debt drops off in 2023; raising the coverage ratio until the new debt comes online

2) **Minimum Cash Reserve Target** - To help ensure timely completion of capital improvements and enable the utility to meet requirements for large unexpected expenditures, a minimum cash reserve policy should be established. Minimum cash reserves attempts to quantify the minimum amount of cash the utility should keep in reserve, actual cash reserves may vary substantially above the minimum and is dependent on the life cycle of assets that are currently in service. The methodology used in this report is based on certain assumptions related to percent of operation and maintenance, rate base, capital improvements, and debt service. The establishment of minimum cash reserves should consider a number factors including:

- **Working Capital Lag** - Timing differences between when expenses are incurred and revenues received from customers. Establishing a minimum cash reserve helps to ensure cash exists to pay expenses in a timely manner.
- **Investment in assets** – Catastrophic events may occur that require substantial amounts of cash reserves to replace damaged assets. Some examples of catastrophic events include earthquakes, main-breaks, floods, or tornadoes. Many of these catastrophic events may allow the utility to recover the cost of damages from FEMA; however FEMA reimbursements can take between 6 months to 2 years to recover. The utility should ensure adequate cash reserves exist to replace the assets in a timely fashion. The minimum reserve levels are often combined with emergency funding from banks or bonding agencies.
- **Annual debt service** – Debt service payments do not occur evenly throughout the year and often occurs at periodic times typically every six months. The utility has to ensure adequate cash reserves exist to fund the debt service payment when the payment is due.
- **Capital improvement program** – Some capital improvements are funded through bond issuances and some through cash reserves. The establishment of a minimum cash reserve level helps to ensure timely replacement or construction of assets.

The minimum recommended cash reserve for Niles Water $1.5 million. For 2021, the projected cash reserve without a bond issue would be negative ($7,646). Cash is at critical levels and a bond issues will need to be issued or cash will be negative. A total of $1.2 million would need to be issued in 2023 to fund the capital improvement projects through 2023 (See table 8). Table four on the next page provides the minimum cash reserve calculation.

Table Four – Minimum Cash Reserves – Fiscal Year Ending 2023 – 2027 without rate adjustment

	Risk Allocated	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Operation & Maintenance Less Depreciation Expense	**12.3%**	$ 206,833	$ 212,831	$ 188,253	$ 193,712	$ 199,330
Historical Rate Base	**1.0%**	201,627	209,377	244,377	279,377	314,377
Current Portion of Debt Service Reserve	**100.0%**	462,812	462,812	462,812	462,812	462,812
Five Year Capital Improvements - Net of bond proceeds	**20.0%**	595,000	595,000	595,000	595,000	595,000
Recommended Minimum Cash Reserve		**$ 1,466,272**	**$ 1,480,020**	**$ 1,490,442**	**$ 1,530,901**	**$ 1,571,519**
Projected Cash Reserves		**$ 1,243,284**	**$ 1,303,801**	**$ 7,681,941**	**$ 4,571,837**	**$ 1,400,511**

Cash reserves would fall below the recommended minimum targets throughout the projection without the $3.0 million SRF 2023 and the bonding in 2025

Notes:

1. Operation and maintenance expenses exclude depreciation expense.
2. Rate base is historical investment in plant and equipment
3. Next five years capital is budgeted capital improvements for next five years and excludes capital improvements funded through debt issuances

3) **Optimal operating income targets** - The optimal target for setting rates is the establishment of a target operating income to help ensure the following:

1. Funding of Interest Expense on the outstanding principal on debt. Interest expense is below the operating income line and needs to be recouped through the operating income balance.
2. Funding of the inflationary increase on the assets invested in the system. The inflation on the replacement of assets invested in the utility should be recouped through the Operating Income
3. Adequate rate of return on investment to help ensure current customers are paying their fair share of the use of the infrastructure and not deferring the charge to future generations.

As improvements are made to the system, the optimal operating income target will increase unless annual depreciation expense is greater than yearly capital improvements. The operating income is below the minimum target throughout the projection period.

Table Five - Optimal Operating Income Targets Compared to Projected

	Percent Allocated	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Interest Expense	3.9%	$ 32,812	$ 56,250	$ 211,406	$ 366,518	$ 352,947
Inflationary Increase on Assets	6.5%	461,750	490,668	431,361	431,361	431,361
Target Operating Income		**$ 494,562**	**$ 546,918**	**$ 642,766**	**$ 797,879**	**$ 784,307**
Projected Operating Income		**$ 517,853**	**$ 401,284**	**$ 536,332**	**$ 385,887**	**$ 234,154**
Rate of Return in %		**4.7%**	**5.1%**	**4.7%**	**4.9%**	**4.1%**

Niles Water is projected to fall below optimal targeted operating income levels throughout the projection period.

PROPOSED RATE TRACK

The study identifies rate increases of 4.9% in 2023 by 2.9% in 2024-2027 are needed to work toward getting the utility financially healthy. In addition, a total of $3.0 million bond issues/SRF will be required in 2023 and $9.0 million in 2025 to fund the capital program. The rate track was designed to work toward financial targets, while minimizing the impact to customers. Cash needs to be monitored throughout this process and the projection updated to ensure the increases are adequate.

Table Eight – Minimum Proposed Rate Adjustments

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2023	4.90%	2,824,062	2,198,666	625,396	1,350,827	3,700,000	3,000,000	2.54
2024	2.90%	2,890,829	2,315,234	575,595	1,586,192	775,000	-	6.57
2025	2.90%	2,959,532	2,180,187	779,345	8,208,758	3,500,000	9,000,000	4.31
2026	2.90%	3,030,228	2,330,632	699,596	5,414,997	3,500,000		1.87
2027	2.90%	3,102,973	2,482,365	620,609	2,634,341	3,500,000	-	1.88
Targeted Target 2023				**$ 494,562**	**$ 1,466,272**			**1.45**
Targeted Target 2027				**$ 784,307**	**$ 1,571,519**			**1.45**

Significant Assumptions

This section outlines the significant assumptions for Niles Water study.

Forecasted Operating Expenses

Forecasted expenses were based on actual 2021 and Budget 2022 adjusted for known cost changes and inflation.

Sales Forecast

0% growth rate was provided by the City of Niles and used throughout the projection period.

Revenue Forecast

The revenue forecast was based on 2019 usages with rates as published on the website. This includes the assumption Niles has follow previous recommended rate increases in fiscal year 2021 and 2022 of 9.9%.

Capital Improvement Program

The capital improvement program was provided by the City of Niles and Fishbeck is listed below. Fishbeck's capital consisted of $3.0 per year, all other capital numbers were provided by the City. Any changes from the numbers provided can greatly affect the cash balance.

Fiscal Year	Projected Capital Improvement
2023	$ 3,700,000
2024	775,000
2025	3,500,000
2026	3,500,000
2027	3,500,000

Recommendations

1. The projection indicates current revenues are not adequate to maintain the long-term financial health of the Utility. Rate adjustments of 4.9% in 2023 followed by 2.9% in 2024-2027 are needed to work toward getting the utility financially healthy. Cash is at critical levels; and a bond issues/SRF funding of $3.0 million in 2023 will be needed to fund capital improvements; as well as $9.0 million in 2025. The rate track was designed to work toward financial targets, while minimizing the impact to customers. Cash needs to be monitored throughout this process and the projection updated to ensure the increases are adequate.

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2023	4.90%	2,824,062	2,198,666	625,396	1,350,827	3,700,000	3,000,000	2.54
2024	2.90%	2,890,829	2,315,234	575,595	1,586,192	775,000	-	6.57
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2027	2.90%	3,102,973	2,482,365	620,609	2,634,341	3,500,000	-	1.88
Targeted Target 2023				**$ 494,562**	**$ 1,466,272**			**1.45**
Targeted Target 2027				**$ 784,307**	**$ 1,571,519**			**1.45**

2. Cash reserves are at critical levels and should be monitored. A formally adopted cash reserve policy can help keep cash balances monitored and trigger action from the Board or Council when balances fall below the minimum. A cash reserve policy should be formally adopted based on the following formula:

	Risk Allocated	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Operation & Maintenance Less Depreciation Expense	**12.3%**	$ 206,833	$ 212,831	$ 188,253	$ 193,712	$ 199,330
Historical Rate Base	**1.0%**	201,627	209,377	244,377	279,377	314,377
Current Portion of Debt Service Reserve	**100.0%**	462,812	462,812	462,812	462,812	462,812
Five Year Capital Improvements - Net of bond proceeds	**20.0%**	595,000	595,000	595,000	595,000	595,000
Recommended Minimum Cash Reserve		**$ 1,466,272**	**$ 1,480,020**	**$ 1,490,442**	**$ 1,530,901**	**$ 1,571,519**

Rate Design

The rate design current year is from rates published on the website. It is assuming both 9.9% as previously recommended were implemented. Current rates should be verified before approved of new rates.

Year One 4.9%

Customer Charge		Current						Proposed					
		In City - Rate 30	Out City - Rate 35		In City - Rate 30	Out City - Rate 35		In City - Rate 30	Out City - Rate 35		In City - Rate 30	Out City - Rate 35
		Customer Charges			Commodity Charges			Customer Charges			Commodity Charges	
Meter Size 5/8"		$ 17.00	$ 28.25				Meter Size 5/8"	18.50	27.75			
Meter Size 1"		35.50	65.00	First Block	2.22	3.55	Meter Size 1"	39.00	58.50	First Block	2.22	3.55
Meter Size 2"		98.00	154.50	Second Block	2.22	3.00	Meter Size 2"	107.00	160.50	Second Block	2.22	3.00
Meter Size 3"		191.75	273.00				Meter Size 3"	209.00	313.50			
Meter Size 4"		273.25	393.50	Bulk Water	5.14		Meter Size 4"	298.00	447.00	Bulk Water	5.14	
Meter Size 6"		421.25	558.50				Meter Size 6"	460.00	690.00			

Appendix 6

NOTICE OF PROJECT PLAN PUBLIC HEARING

The Niles City Council will hold a public hearing for the purpose of receiving public comments and input regarding the proposed Drinking Water State Revolving Fund (DWSRF) Project Plan. The public hearing will be held at 6 P.M., June 27, 2022, via Zoom.

Meeting URL	https://nilesmi.zoom.us/j/99669867810
Webinar ID	996 6986 7810
Audio Conferenced:	US: +1 301 715 8592 or +1 312 626 6799 or +1 929 205 6099 or +1 253 215 8782 or +1 346 248 7799 or +1 669 900 6833 or 877 853 5247 (Toll Free) or 888 788 0099 (Toll Free) or 833 548 0276 (Toll Free) or 833 548 0282 (Toll Free)

The purpose of the Project Plan is to secure approval of DWSRF funding for the replacement of aging water infrastructure, specifically lead water service lines, water meters, and water main located within the City of Niles. The proposed projects would provide public health protection and improve water quality and reliability.

The City is requesting $3 Million in funding from EGLE for the proposed projects in this fiscal year. The estimated cost to complete all of the proposed projects is $26.3 Million. The estimated cost to a typical residential user for the associated $3 Million DWSRF loan is $1.50 per month. Any grants awarded to the City from the DWSRF program would reduce the estimated cost.

On or before May 23, 2022, copies of the draft Project Plan will be available for public review on the City of Niles' website at: http://www.nilesmi.org/departments_and_divisions/utilities_department/water.php. A printed hard copy will be available at the City Clerk Office, 3rd Floor, 333 N. 2nd St. All interested parties are invited to present comments on the proposed Project Plan. Written comments may be submitted to the City of Niles, Attn. Jeff Dunlap, 333 N. 2nd St, Niles, MI 49120, or via e-mail to: 2022waterproject@nilesmi.net. Comments must be received no later than June 22, 2022, in order for them to be considered as part of the public record.