

# Village of Newberry

## Phase I – Wastewater Improvements

Michigan Clean Water State Revolving Fund Project Plan  
Volume 1 – Report Body (**DRAFT**)

21-0321

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1211 Ludington Street  
Escanaba, MI 49829

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## LIST OF ABBREVIATIONS

Abbreviation	Description	Abbreviation	Description
AC	Acre	O&M	Operation and Maintenance
AMP	Asset Management Plan	OMB	US Office Of Management And Budget
ASCE	American Society of Civil Engineers	P	Phase, Φ
AWWA	American Waterworks Association	PAC	Powdered Activated Carbon
BOD	Biological Oxygen Demand	PACL	Polyaluminum hydroxychloride
BRF	Business Risk Factor	PFAS	Per- and polyfluoroalkyl substances
CAS or CI	Cast Iron Pipe	POF	Probability of Failure
CFM	Cubic Feet per Minute	POSA	Plan of Study Area
CFS	Cubic Feet Per Second	POTW	Publically Owned Treatment Works
CI	Chlorine	PPB	Parts per Billion
CIP	Capital Improvement Plan	PPD	Pounds Per Day
CT	Contact Time	PPM	Parts Per Million
CUPPAD	Central U.P. Planning and Devel. Reg. Commission	PRV	Pressure Reducing Valve
DBP	Disinfection Byproduct	PS	Pump Station
DI or DIP	Ductile Iron Pipe	PSI	Pounds Per Square Inch
DO	Dissolved Oxygen	PVC	Polyvinyl Chloride (Pipe)
DWAM	Drinking Water Asset Management	RRI	Repair, Replacement, and Improvements (Fund)
DWSRF	Michigan Drinking Water State Revolving Fund	RUS	Rural Utility Service (USDA RD)
EDU	Equivalent Dwelling Unit	SAN	Sanitary Sewer
EGL	Mich. Dept. of Environment, Great Lakes, & Energy	SAW	Michigan Stormwater, Asset Management, And Wastewater funding
ENR	Engineering News-Record	SCADA	Supervisory Control And Data Acquisition
EPA	US Environmental Protection Agency	SCFM	Standard Cubic Feet per Minute
EPDM	Ethylene Propylene Diene Terpolymer	SF	Square Foot
EUPPDR	Eastern U.P. Planning and Devel. Reg. Commission	TSS	Total Suspended Solids
FPS	Feet per Second	STO	Storm Sewer
FSP	Fiscal Sustainability Plan	SRF	Michigan State Revolving Loan Fund
GAC	Granular Activated Carbon	SWD	Side Wall Depth
GPCD	Gallons Per Capita Per Day	TDH	Total Dynamic Head
GPD	Gallons Per Day	TRS	Trihalomethane Removal System
GPD/IN-MI	Gallons Per Day Per Inch Diameter Mile	TTHM	Total Trihalomethane
GPM	Gallons Per Minute	TWST	Treated Water Storage Tanks
HP	Horsepower	USACE	US Army Corps Of Engineers
HVAC	Heating, Ventilation, and Air Conditioning (System)	USDA RD	US Dept. Of Agriculture - Rural Development
ITA	Intent to Apply	V	Volt
MDNR	Michigan Department of Natural Resources	UV	Ultra Violet
MG	Million Gallons	VFD	Variable Frequency Drive



Abbreviation	Description	Abbreviation	Description
MGD	Million Gallons Per Day	WERF	Water Environment Research Foundation
MG/L	Milligrams Per Liter	WM	Watermain
MH	Access Manhole	WPA	Works Progress Administration (early public works construction program)
ML	Milliliter	WRC	Michigan Water Resources Commission
MPN	Most Probable Number	WS	Water Service
NEMA	National Electrical Manufacturers Association	WTP	Water Treatment Plant
NEPA	National Environmental Policy Act	WUPPDR	Western U.P. Planning and Devel. Reg. Commission
NH <sub>3</sub> -N	Ammonia Nitrogen	WV	Water Valve
NPDES	National Pollutant Discharge Elimination System	WWTF	Wastewater Treatment Facility
NPV	Net Present Value	WWTP	Wastewater Treatment Plant
NRWA	National Rural Water Association		

## SUMMARY

### Project Background

This study was authorized by the Village of Newberry's Village Council on July 20, 2021. This Michigan Clean Water State Revolving Loan Fund (CWSRF) Project Plan is being completed to evaluate needs and recommend alternatives for improvements to the Newberry Wastewater Treatment Plant (WWTP) and sanitary collection system for a 20 year planning period.

The Village of Newberry (Village) is the responsible governing entity for a municipal WWTP serving the Village and portions of McMillan and Pentland Townships. The Village owns, operates, and maintains the WWTP which is located on the east side of the State Highway M-123 adjacent to the Tahquamenon River, approximately one-mile north of the Village limits. Sanitary collection systems exist for the Village and each Township. The Village owns and maintains the collection system within the limits of the Village and MicMillan Township. Pentland owns and maintains their collection system.

Construction of the original WWTP was completed in 1964 and a major upgrade was completed in 1979 and 2014 with minor improvements in 2019. The current treatment process includes raw sewage grinding, raw sewage pumping, grit removal, primary clarification, activated sludge secondary treatment, secondary clarification, and chlorine disinfection. The treated effluent is discharged to the Tahquamenon River. Residual solids are treated through anaerobic digestion and gravity thickening. Biosolids disposal is by land application. The design average flow is 0.9 MGD and design peak flow is 2.5 MGD.

### Summary of Project Need

Reliable operation of the wastewater collection system within the Village of Newberry's utility systems are imperative to protect the health and safety of the Village's citizens and visitors. The Village has been operating and maintaining the wastewater treatment plant and collection system effectively, but there are areas of escalating deterioration and obsolescence that require a larger, preventative replacement, and rehabilitation effort. Operators, consultants, and regulators have collaborated on the proposed solutions for these areas of work.

## **Analysis of Alternatives**

The principal and recommended alternatives are the rehabilitation of the existing collection system with improvements to the wastewater treatment plant and land acquisition for sludge disposal. Other alternatives considered are No Action, Replacement of the Collection System, and Hauling Sludge to Alternative Sites.

## **Selected Alternative**

Upgrade of Existing Facilities, Rehabilitation of the Collection System, and Land Acquisition for Sludge Disposal is considered the preferred alternative.

## **Environmental Evaluation**

The anticipated environmental impacts resulting from implementation of the selected alternative are relatively minor. There is no increase in the extent of the wastewater system, and no major changes in terms of residuals or other material effects. Full detail may be found under the section labeled “Environmental Evaluation”.

## **Mitigation Measures**

Where adverse impacts due to installation of the recommended improvements cannot be avoided, mitigation measures will be implemented. Costs for mitigation measures were considered and included where applicable in project opinions of probable cost and included in construction contract documents. A full discussion of mitigation measures can be found in detail in section “Mitigation Measures”.

## **Public Participation**

A public hearing for this CWSRF Project Plan took place on **April 19**, 2022. Copies of public hearing advertising and minutes are included in Appendix E of the adopted final version of this Project Plan.

## PROJECT BACKGROUND

This study (Project Plan) was authorized by the Village of Newberry's, Village Council in July 20, 2021. The purpose of the Project Plan is to evaluate needs and recommend alternatives for improvements to the Newberry WWTP and sanitary collection system.

The Village of Newberry (Village) is the responsible governing entity for a municipal WWTP serving the Village and portions of McMillan and Pentland Townships. The Village owns, operates, and maintains the WWTP which is located on the east side of the State Highway M-123 adjacent to the Tahquamenon River, approximately one-mile north of the Village limits. Sanitary collection systems exist for the Village and each Township. The Village owns and maintains the collection system within the limits of the Village and MicMillan Township. Pentland owns and maintains their collection system.

Construction of the original WWTP was completed in 1964 and a major upgrade was completed in 1979 and 2012, with minor improvements in 2019. The current treatment process includes raw sewage grinding, raw sewage pumping, grit removal, primary clarification, activated sludge secondary treatment, secondary clarification, chlorine disinfection, and dechlorination system. The treated effluent is discharged to the Tahquamenon River. Residual solids are treated through anaerobic digestion and gravity thickening. Biosolids disposal is by land application. The design average flow is 0.9 million gallons per day (MGD) and design peak flow is 2.5 MGD.

Background information on the WWTP summarized within the Project Plan comes from existing documentation, including the following:

- *1976 Construction Drawings* by Prein and Newhof
- *1975 Infiltration and Inflow Analysis* by Prein and Newhofis study (Project Plan)
- *1980 O&M Manual* by Prein and Newhof
- *1998 SSES Study* by Wade Trim Associates
- *2012 SRF Project Plan* by C2AE
- *2018 Village of Newberry Master Plan* by Beckett and Raeder
- *2020 Stormwater, Asset Management, and Wastewater (SAW) Program* by C2AE

## Delineation of Study Area

The study area includes the entire sanitary sewer service district served by the WWTP. A location map is provided as Figure 1. The study and service area can be found in Figure 2.

The sanitary sewer service district is located in the southern portion of Luce County at the eastern end of Michigan's Upper Peninsula. The WWTP is located in the SW  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 24, T46N, and R10W. The WWTP effluent discharge is to the Tahquamenon River.

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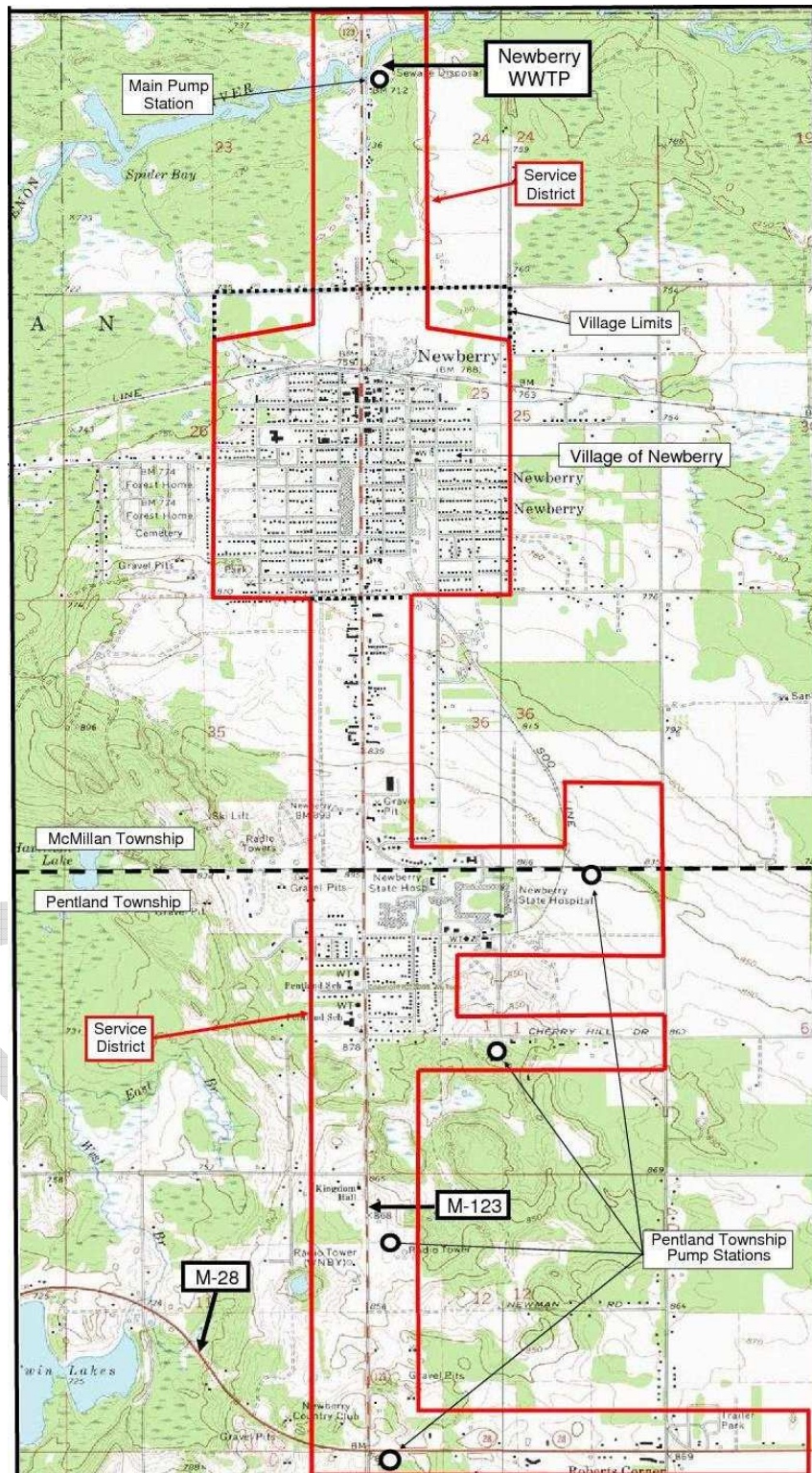


**Figure 1. Project Location**





**Figure 2. Study and Service Area**



## Environmental Setting

Cultural and environmental letter requests and responses are contained in Appendix C.

### Cultural Resources

Correspondence with the State Historic Preservation Office relative to this Project Plan can be found in Appendix C. A listing of area registered historic sites is also included. None are near the treatment facility. No long term impact is expected.

### The Natural Environment

#### Air Quality

Project area air quality can only be described as good to excellent. The area is virtually free of large industrial or power producing facilities which can adversely affect air quality. Limited population also means limited transportation system initiated air quality impacts.

#### Wetlands

The Newberry WWTP is located on an upland site on south bank of the Tahquamenon River about one-mile north of the Village. Wetlands do not exist on site. Isolated wetlands do exist throughout this region of the State and evaluation must be conducted to identify them when working in undisturbed areas.

#### Coastal Zones

There are no coastal zones within the planning area. Lake Superior lies approximately 40 miles northwest of Newberry.

#### Floodplains

Localized floodplains exist along the shore of the Tahquamenon River. They are generally not developed. The existing WWTP site is above the 100 year flood plain.

#### Natural or Wild and Scenic Rivers

The East Branch of the Tahquamenon River is designated as a Wild and Scenic River from its origins to the boundary of Hiawatha National Forest. 13.2 miles of Wild and 3.2 miles of Scenic exist along this stretch. The Newberry WWTP is located on West Branch of the Tahquamenon River. The confluence of East and West Branches



is approximately 12 miles downstream from the WWTP site. The West Branch of the Tahquamenon River in an un-navigable river predominantly used for recreational purposes such as canoeing and fishing.

#### Major Surface Waters

Several streams and creeks exist in the planning area generally flowing northeast to north to Lake Superior via the Tahquamenon River System. The WWTP is located on south bank of the West Branch of the Tahquamenon River on the east side of M-123. This location is approximately 12 miles upstream of the confluence of the East and West Branches of the river. The joining of the Branches is approximately 20 miles south of the Tahquamenon State Park's Upper Falls and 24 miles south of the Lower Falls.

#### Recreational Facilities

Newberry's economy has become more tourist oriented utilizing the area's natural resources. Tahquamenon Falls State Park is the largest tourist attraction and recreation area in the northern portion of Luce County. Newberry also has several parks throughout its Village Limits outlined in their 2018 Master Plan.

#### Topography

A topographic map of the service areas has been included as Figure 2. Ground elevations in the Newberry service district range from 730 to 870 feet above sea level. The area around the WWTP treatment facility is relatively flat and is approximately at elevation 715.

#### Geology

The geology of Luce County and Newberry service district is glacial deposits over sedimentary bedrock. Terrain is flat lowland to steeply rolling glacial moraines.

#### Soils

USDA Natural Resource Conservation Service (NRCS) published their Soil Survey of Luce County in 2010. General soil classifications and estimated percentage of the service over which they survey show their dominance are:

- Kakaska McMillian-Kaks Association (50%) Deep, level to steep, excessively drained sandy and loamy soils
- Dawson Rousseau – Association (30%) Deep, level to steep, organic soils and excessively drained sandy soil.
- Kalkaska Wallace – Paquin Association (20%) Deep, level to steep, well drained to excessively well drained sandy soils.

In general, the more organic Dawson Rousseau soil existing from Newberry north. The sandier soils exist in Pentland and McMillian Townships from the Village of Newberry south.

#### Agricultural Resources

There is no designated prime agricultural land in the service/planning area which includes the Village of Newberry and developed land along major transportation arteries. Agricultural land does exist in the Township areas adjacent to the service district on the east and west sides of M-123. As part of this project, agricultural land is proposed for sludge disposal; however, this land will remain as an agricultural resource and will not be converted otherwise.

#### Fauna and Flora

There are no sensitive habitats within the WWTP facility grounds where this project is located. The surrounding areas have several streams, ravines, hills, bluffs, and heavily wooded areas with the potential for sensitive habitats. Federal and State Coordinators have been given the opportunity to comment on this project.

There are two endangered species and one threatened known species listed within Luce County. The Kirtland's warbler and the Piping plover are the endangered species with the Canada Lynx being the threatened species. None of the habitats listed for the threatened or endangered species identified are present at the project location. The project location is developed WWTP site and is not wildlife habitat for the species identified. Correspondence with State and Federal Endangered species coordinators can be found in Appendix C.

#### Land Use in the Study Area

Luce County includes approximately 1,912 square miles of area, of which approximately 903 square miles is land and 1,008 square miles is water. The vast majority of the land areas in Luce County are forested. Land use in the study area is a mixture of residential, light industrial, recreational, forest, and cropland. The Michigan Agricultural Statistics Service reports that approximately 80% of the study area is forested, 1% is cropland, 2.6% is water, and 16.7% has been developed for other uses.

Land use planning and zoning for the Village is conducted by the Village Planning Commission with support from the Luce County Planning Board. Planning and zoning for the McMillian and Pentland Townships is administered by Luce County.

Luce County estimates that 65% of the land is urban and 25% is forested or wetlands. A map of the existing Land Use from the *2018 Village of Newberry Master Plan* by Beckett and Raeder and future land use can be found in Appendix D. The existing land use patterns are expected to remain stable, with little new development over the 20 year planning period.

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## Population

Population in the study area is expected to stabilize. Population projections are noted in Table 1 below. Little influx of new growth is expected in the study area other than redistribution of commercial and residential patterns. The area depends heavily on tourism. The Village and Eastern Upper Peninsula Planning were consulted for this report.

**Table 1. Population Projections**

Entity	1970	1980	1990	2000	2010	2020	2030 (a)
Village of Newberry, MI	2,350	NA	NA	2,686	1,578	1,578	1,578
State Hospital/Prison	3,000	NA	NA	NA	NA	NA	NA
McMillian Township, MI	1,241	NA	NA	3010	2692	2692	2692
Pentland Township, MI	2,306	NA	NA	2725	2674	2674	2674
Luce County, MI	6,789	6,659	5,786	7,006	6,631	6,631	6,631

(a) 1970 to 2010 based on published US Census figures and 2018 Village of Newberry Master Plan  
2020 to 2040 assumes no change and stabilization in population

## Economic Characteristics

Communities within Luce County experienced their primary economic expansion during the last half of the 19th and first half of the 20th centuries based primarily on the logging and lumber industries. Since the last large cutover of timber in the mid-1900s, the economy has become more tourist oriented utilizing the area's natural resources. Tahquamenon Falls State Park is the largest tourist attraction and recreation area in the northern portion of Luce County.

The Village is considered the social and economic center of Luce County. However, in the last 20 years, a large percentage of the growth in the study area has occurred in McMillian and Pentland Townships along the M-123 and M-28 transportation corridors. Recent growth has been concentrated at the intersection of M-123 and M-28.

Unemployment stats are only tracked at the County level; however, Newberry is the most populated place in the county so it is safe to assume what happens in Newberry drives the County's statistics. Statistics indicate that the economic environment in Newberry has been declining for many years.

Further economic characteristics are provided in the Village Master Plan (Appendix D).

## Existing Facilities

### General

As previously mentioned the WWTP currently serves customers in the Village and in portions of McMillian Township and Pentland Township. Wastewater is collected via a system of gravity collector and interceptor sewers along with pump stations where dictated by terrain. These gravity and interceptor sewers ultimately discharge to the raw sewage pump station at the WWTP. The WWTP is located approximately one-mile north of the Village limits along the M-123 on the south bank of the Tahquamenon River.

Treated effluent from the WWTP is discharged to the Tahquamenon River under a general NPDES permit (NPDES Permit Number, MIG 570218).

### History

The Village owned and operated a combined sewer system beginning in the later part of the 1800s. As was common for municipalities of that time, the untreated wastewater was discharged to the nearest significant river or lake. In the case of Newberry this was the Tahquamenon River about one-mile north of the Village.

In 1958, the Village completed a storm sewer master plan, which served as guidance for the construction of storm sewers and the separation of combined storm and sanitary sewers. Construction of new storm sewers progressed as Village financing allowed.

In 1964, the first wastewater treatment plant was constructed. This original primary treatment facility provided raw sewage pumping, grit removal, primary settling, and disinfection of the wastewater before it was discharged to the West Branch of the Tahquamenon River.

In 1970, under the authority of Act 245 of the Public Acts of 1929, the Michigan Water Resources Commission issued a legal directive requiring the Village to implement improvements to the WWTP. This was followed in 1975 by a Facilities Plan Report outlining improvements recommended to comply with the Federal Clean Water Act. Construction of major improvements followed and was funded primarily by the Environmental Protection Agency. This upgrade added secondary treatment of the wastewater and improved digestion of biosolids. These improvements were completed in 1979 and represent the last major project completed at WWTP.

In 1975, an Infiltration and Inflow Study (I&I) was completed by Prein and Newhof. This was the first assessment of clean water volumes entering the sanitary collection system.

In the period of the late 1970s the collection system was extended approximately 3.5 miles south of the Village along M-123 and M-28 into Pentland and McMillian Townships.

In 1979 secondary biological treatment was added to the wastewater treatment plant and a major upgrade was completed to bring the facility to state that it mainly in today.

A Sewer System Evaluation Study (SSES) report was conducted by Wade Trim in 1998 to identify the quantity and sources of infiltration and inflow entering the collection system. This was followed by a major collection system improvement project to separate remaining sewers and reduce infiltration and inflow to allow elimination of combined sewer overflows (CSOs). Today, overflows from the collection do not exist, and original overflow to the Tahquamenon River has been bulk headed. However, rates of sewer infiltration and roof drain inflow exceed normal MDEQ guidelines and the Village has identified these sources for future removal. No known combined sewers exist today except those receiving flow from roof drains.

Also in 1998 the WWTP raw sewage pump station was replaced to provide firm capacity to convey peak flows through the treatment process. The firm capacity is 1500 gpm or 2.15 MGD.

The WWTP and collection system have been operated and maintained by the Village of Newberry continuously from the time of initial construction. A revised sewer use ordinance was enacted in 1996.

In 2012, a SRF Funded project included the following WWTP Improvements:

- Laboratory and Control Building Improvements
- Primary Settling Tank Upgrade and Equipment Replacement
- Final Clarifier Tank Equipment Rehabilitation and Partial Replacement
- New Final Bubble Aeration System
- New Final Effluent Water (FEW) System
- Chemical Feed Improvements
- Anaerobic Digester Improvements
- New SCADA System

The WWTP chlorine disinfection system was retrofitted in 2019 to include capabilities for 150 lb cylinders, opposed to the ton cylinders.

In 2020, the Village of Newberry completed a Stormwater, Asset Management, and Wastewater (SAW) Program. Under this program the Village, sewers and manholes were assessed per NASSCO dictated methodology. The WWTP was also reviewed via visual inspection. Results were summarized in an Asset Management Plan (AMP) and Capital Improvements Plan (CIP).

#### Existing Collection System

The existing sanitary collection system primarily serves the Village of Newberry but also receives flow from Pentland and McMillian Townships. The Village collection system is between 50 and 120 years old while the Township components are approximately 10 and 35 years old.

No collection system retention basins exist and no raw sewage overflow point exist today.

A map of Newberry collection system is provided in Figure 3. A general summary of the existing wastewater collection system is provided in Table 2 and Table 3 below for each jurisdiction of the collection system. The existing wastewater collection system pipe material, installation year, and size are illustrated in Figure 4, Figure 5, and Figure 6.

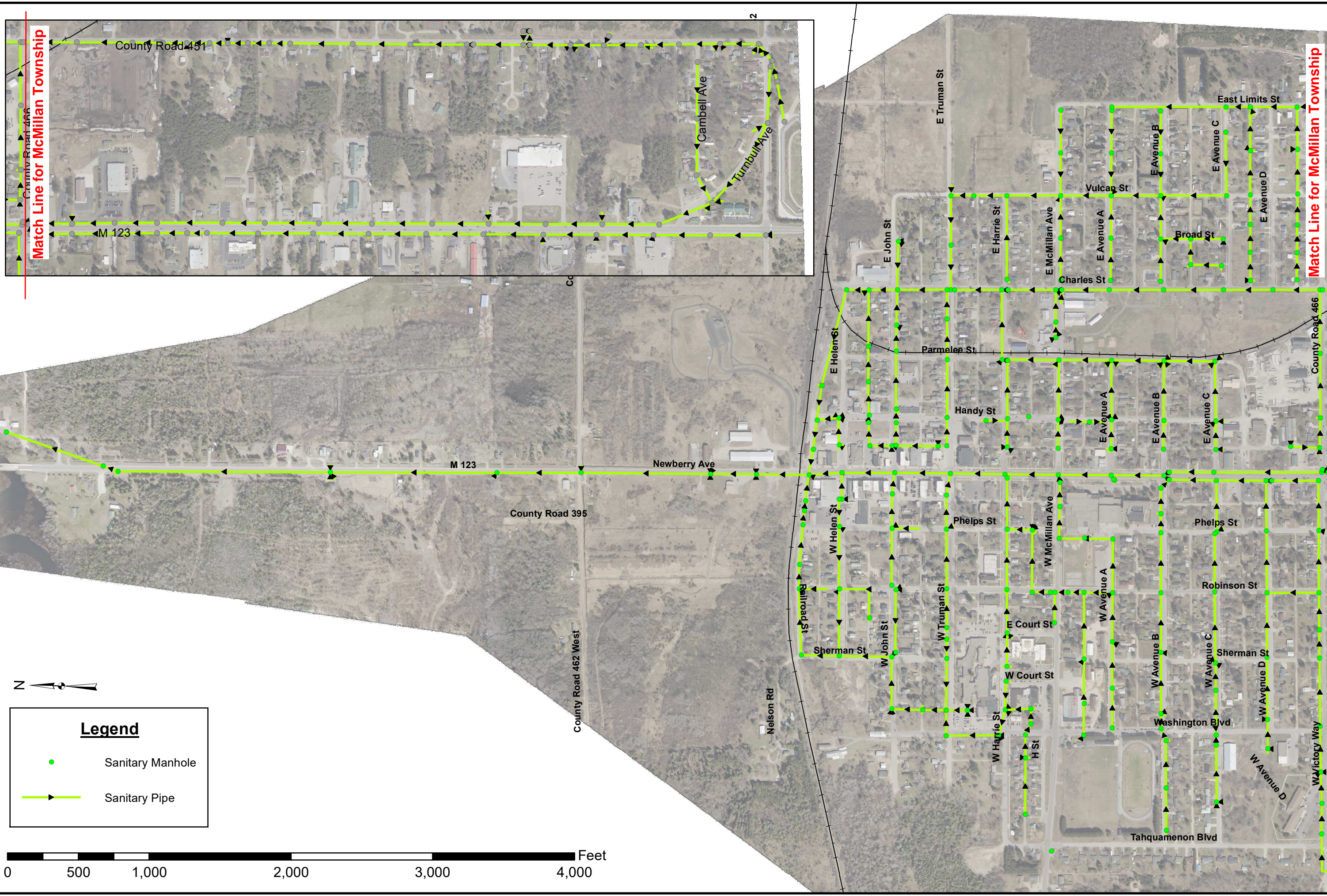
**Table 2. Existing Collection Facilities**

Service Area	Sizes (in.)	Length (mi)	Age (years)
Village of Newberry	6 to 30	17	1 to 120
McMillian Township	6 to 8	2	10 to 45
Pentland Township	6 to 8	4	10 to 45

**Table 3. Sanitary Sewer Lengths in Village of Newberry**

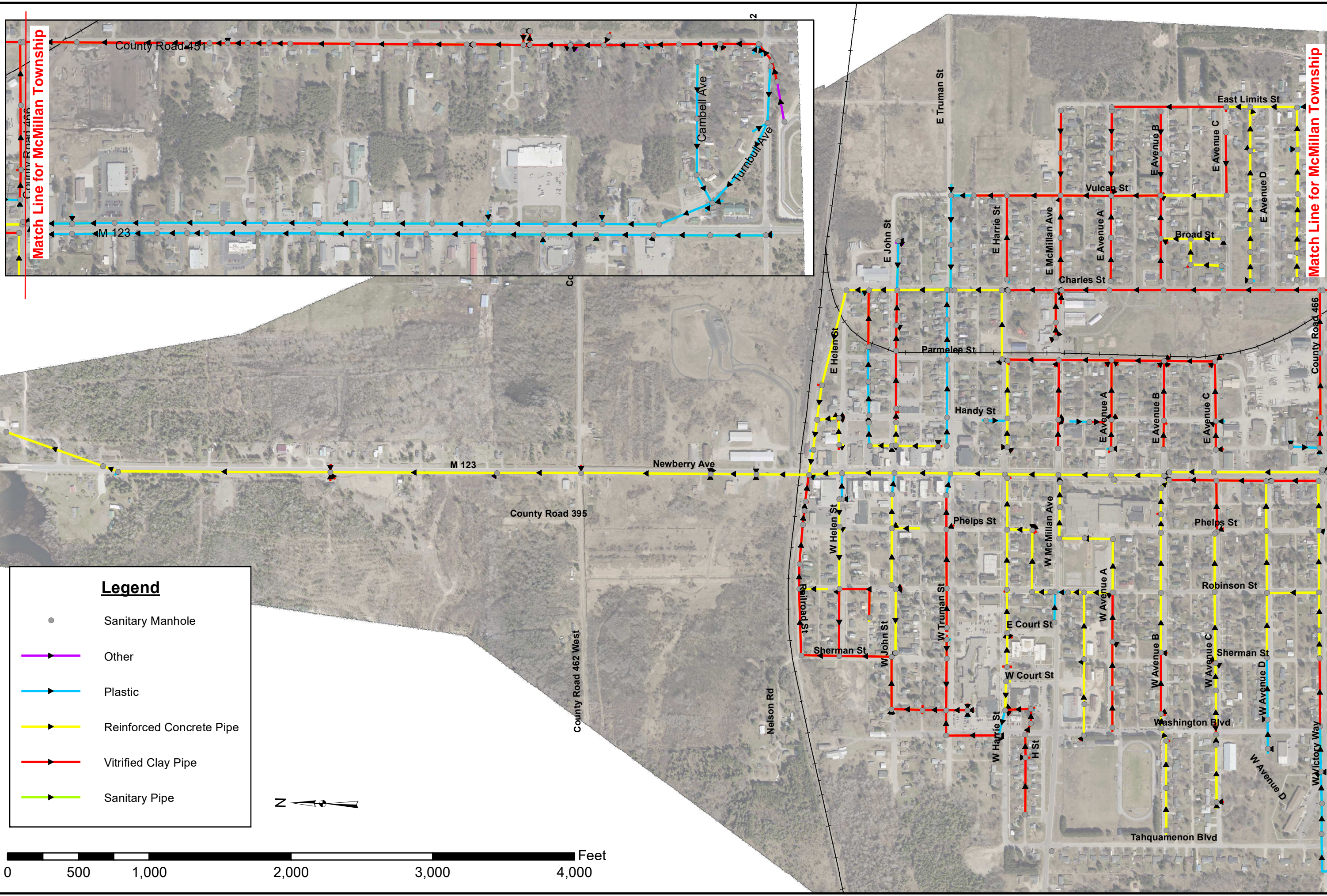
Sewer Diameter (Inches)	Total Length (Feet)
≤ 6	8,594
8	19,673
10	30,742
12	18,464
15	1,905
18	547
21	745
24	2,543
27	1,691
30	5,713
<b>Total</b>	<b>90,617</b>





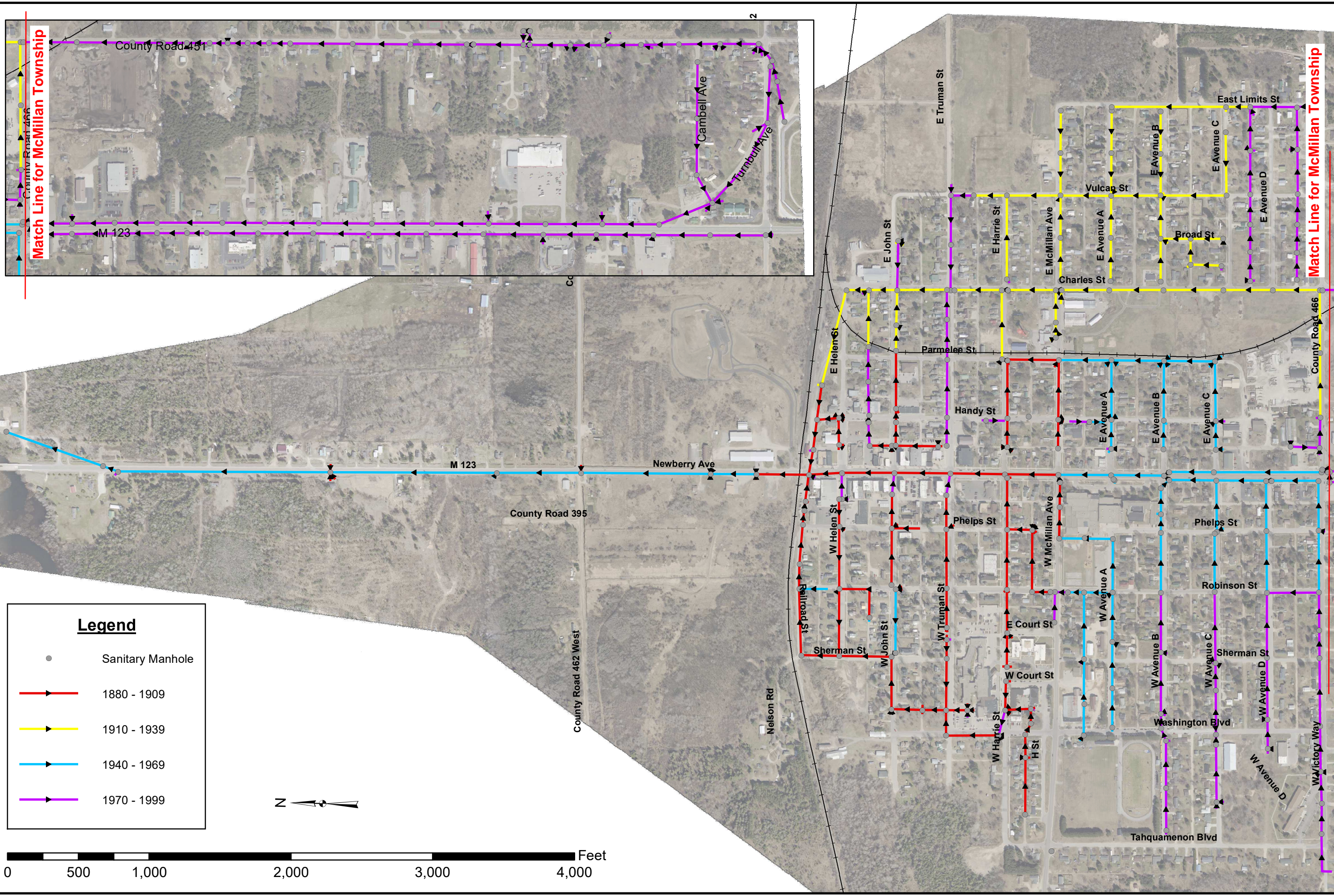


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Sanitary Manhole

1880 - 1909

1910 - 1939

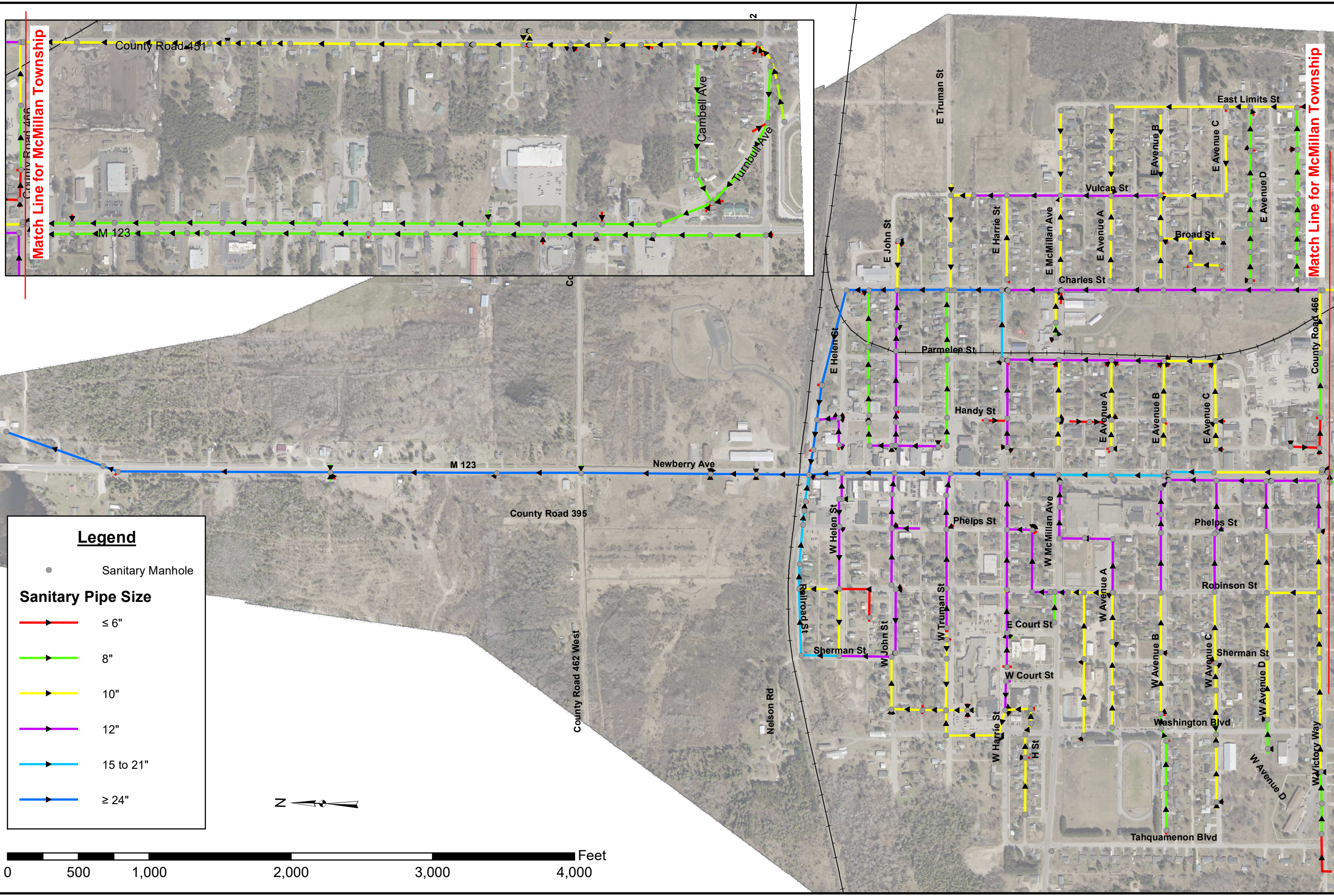
1940 - 1969

1970 - 1999

Legend



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**Legend**

● Sanitary Manhole

**Sanitary Pipe Size**

	≤ 6"
	8"
	10"
	12"
	15 to 21"
	≥ 24"



Table 4 is a summary of pump stations utilized within the collection system. One pump station is owned by Village and is located at the WWTP. Three additional pumps stations are owned and operated by Pentland Township.

**Table 4. System Pump Stations**

	Village of Newberry	Pentland Township	Pentland Township	Pentland Township	Pentland Township
Pump Station Name	WWTP Pump Station	LP Pump Station	Cheery Hill	M-28	M-123
Pump Station Type	Submersible	Self-Priming Wet Well	Dry Pit	Self-Priming Wet Well	Self-Priming Wet Well
Type of Pumps	Submersible	Centrifugal, Self-Priming	Centrifugal Non-Clog	Centrifugal, Self-Priming	Centrifugal, Self-Priming
Number of Pumps	2	2	2	2	2
Capacity (gpm/TDH ft)	1500 @ 26'	180 @ 39'	224 @ 106	300 @ 76'	300 @ 78'
Horsepower	20	7.5	20	30	30
Construction Date	1998	2001	1976	1998	1998
Power Supply	480 V, 3 P	480 V, 3 P	480 V, 3 P	240 V, 3 P	240 V, 3 P
Flow Meter	No	No	No	No	Yes
Central Signal Reporting	Yes	Yes	Yes	Yes	Yes

In 1998, the Village completed a Sewer System Evaluation Study to investigate the sources and rate of infiltration and inflow into the collection system. Between 1998 and 2001 collection system improvements were implemented in the Village system to eliminate combined sewers and reduce I&I.

All four pump stations are relatively new and in good condition. Some maintenance problems are experienced at the WWTP raw sewage pump station due to fats, oils, and grease (FOG) in the collection system. The Village is planning for more rigid enforcement of the sewer use ordinance to aid in this matter. No other known operation problems exist with pump stations. Remote monitoring may be beneficial in the future.

#### Industrial Discharges

The Village NPDES does not include an Industrial Pretreatment Program. No “categorical” or “significant” dischargers exist in the collection system. No industrial pretreatment systems exist.

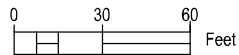
#### Existing WWTP

The existing WWTP discharges treated effluent to the Tahquamenon River under a general NPDES permit. A process schematic is provided in Appendix F. Primary treatment was constructed in 1960s and secondary treatment was added in

the 1970s with an upgrade of the raw sewage pumping added in 1998. In 2014, major upgrades were done throughout the plant. The current treatment facility includes:

- Raw sewage grinding
- Raw sewage pumping's
- Influent metering
- Primary influent grinding
- Eductor type grit removal
- Primary settling
- Activated sludge secondary treatment
- Final settling
- Chlorine gas disinfection and dechlorination
- Cascade reaeration
- Anaerobic sludge digestion
- Biosolids disposal by land application

The existing WWTP site plan can be found in Figure 7 below.



The existing WWTP has generally been in compliance with the NPDES limits and the Village has worked hard to provide the best possible effluent with resources available. The newer portions of the plant are 32 years old and components of the original primary process are nearly 50 years old. Significant upgrades are needed soon to preserve the integrity of the existing facility and protect the investment made by system rate payers over the last 50 years. Improvements are also needed to incorporate newer technologies and to reduce the use of energy throughout the WWTP.

The following supplemental information pertaining to the WWTP is included in this report:

- Summary of Monthly Operating Reports Appendix D1
- WWTP Process Evaluation Report Appendix D2
- Wastewater Asset Management Plan (WAMP) Appendix D3

A general characterization of the existing WWTP and additional information related to each unit process is provided in the unit process evaluations of Appendix D.

### **Fiscal Sustainability Plan**

Through historic established practices and programming developed via the State SAW funded asset management planning, the Village has addressed asset inventory, asset evaluation, water/energy conservation, and asset maintenance/funding.

### **Need for the Project**

#### Orders or Enforcement Actions

The Village does not currently have any court or enforcement order against it.

#### Water Quality Problems

The ultimate goal of wastewater treatment is to protect the quality of the waters of State and protect the health of the public. In the end, the driving force for this study and improvements that may result is protection and enhancement of the quality of effluent discharged to the Tahquamenon River. This is the case also with prior investments made in the collection system and WWTP. Keeping that treatment process functioning efficiently, reliably, and at the highest possible level of treatment is the prime responsibility of the Village of Newberry. The need for this project is ultimately to protect quality of water in the Tahquamenon River and Lake Superior drainage basin.



### Projected Needs for the Next 20 Years

The Capital Improvement Plan for the Village of Newberry (developed as part of 2020 SAW Project) currently includes wastewater projects allocated over ten year periods starting in 2020. Service area population has been stable for some time. Increased treatment capacity is not a goal of this Project Plan and any subsequent project. Projected needs concentrates more on the systems reliability and replacement/enhancement of existing treatment systems to protect what is there now. Further information can be found in Appendix D.

### Future Environment without the Proposed Project

With population and growth within the service area stabilizing, existing WWTP capacity to treat future generated wastewater is adequate. Factors that adversely affect existing capacity or contribute to wet weather capacity problems are the areas that must be controlled.

## ANALYSIS OF ALTERNATIVES

The Village of Newberry has invested in regular maintenance, asset management, and capital improvements planning for their wastewater treatment plant and collection system. This Project Plan examines several alternatives for development in the next five to twenty years.

### Identification of Potential Alternatives

#### No Action

The No Action alternative, although saving a large initial capital investment, would result in several and continuing adverse impacts on the Newberry wastewater system and its customers. Those impacts include, but may not necessarily be limited to, the following:

- Continued risk of system failure
- Continued decrease in the reliability of waste treatment and increased risk to water quality in the Tahquamenon River water shed
- Continued and accelerated degradation of facilities along with increased maintenance costs.
- Continued use of excess energy

#### Optimum Performance of Existing Facilities

Optimizing of the existing facilities alone, without capital improvements, will fail to incorporate improved technologies; will fail to restore the service life to facilities and system; will fail to take advantage of improvements to reduce energy use; and will fail to improve the sustainability of the facility. The principal alternative described below can be considered an extension of this concept, but one that requires significant capital improvements.

#### Water and Energy Efficiency

Selected equipment shall have greater energy efficiency versus original components. Equipment items are to be optimized and controlled via variable frequency drives (VFD) which will improve efficiency. Electric motors will be high efficiency types. Screening Improvements will increase the service life and treatment effectiveness throughout various unit processes.

#### Regional Alternatives

The Newberry WWTP is currently a regional facility serving the Village of Newberry, McMillian Township, and Pentland Township. The nearest potential new regional contributor would be a greater distance than could be feasible for small

number of system users. The Village believes the existing regional service district cannot be expanded, and no neighboring facility can accept the large flow from Newberry.

## **Principal Alternatives**

### Alternative 1: No Action

Not implementing a corrective measures project at this time while attempting to correct deficiencies in the system over time as maintenance budgets will allow.

### Alternative 2A: Rehabilitation of Sewers

This alternative includes rehabilitation of the wastewater collection system through trenchless methods, lining of the pipes and manholes, while reducing restoration costs and disturbances and extending asset life. This alternative includes 13,500 ft of pipe with the worst quick ratings outlined in SAW (refer to Appendix D).

### Alternative 2B: Land Acquisition for Sludge Disposal

The WWTP is in need of 40 acres of land in close proximity (less than three miles for current proposed sites) for sludge disposal to decrease operation costs. Currently, the Village produces about 600,000 gallons annually (300,000 gallons in the spring and 300,000 gallons in fall) and land applies it to 30 acres.

### Alternative 2C: Improvements to Existing WWTP and Collection System (Future Years)

Improvements to the existing WWTP were outlined under the 2012 SRF Project Plan, 2020 Process Evaluation Report, and 2020 SAW Program (see Appendix D). The following is a summary of improvements to be include:

- Sludge Storage Expansion
- Headworks Improvements (Fine Screening and Septage Receiving Station)
- Final Tank Dome Replacements
- Primary Settling Tank Expansion
- Raw Sewage Pump Station Rehabilitation
- Return Activated Sludge (RAS) No. 3 Pump Replacement
- Miscellaneous Building and Site Improvements (i.e. painting, SCADA, driveway replacement, service building improvements, new generator)
- Collection System Improvements

### Alternative 3A: Replacement of Sewers

This alternative includes open trench methods for full replacement of sewer pipe (13,500 feet) and manholes with restoration including road repairs, slope, and sidewalk. This alternative includes 13,500 ft of pipe with the worst quick ratings outlined in SAW (refer to Appendix D).

### Alternative 3B: Alternative Methods for Sludge Disposal

An alternative biosolids disposal method to land application is to landfill the biosolids. This method would still include trucking the solids. However, the closest landfill is over 50 miles away from the WWTP, there would be additive costs for landfill tipping fees, and a sludge press would need to be installed at minimum (with increased energy costs).

## ANALYSIS OF PRINCIPAL ALTERNATIVES

### The Monetary Evaluation

The construction costs for the collection and WWTP are shown in Table 5 and Table 6 below. Costs used in this analysis are based on previous work done in the Village of Newberry and neighboring communities. Costs have been adjusted based on ENR index and typical engineering and administrative fee rates. Detailed costs, sewer lengths/sizes, and number of manholes corresponding with Table 5 can be found in Appendix A.

Land acquisition Costs for Year One (Alternative 2B) are estimated to be about \$65,000. The Village plans to purchase 40 acres of land estimated at \$1,500 per acre for a total of \$60,000. It is estimated that an additional \$5,000 will be needed for additional services associated with land acquisition such as appraisals, survey work, title work, agreements, etc. Alternative 3B includes capital costs for installing a sludge thickening facility and increased O&M costs for electricity, hauling sludge to a landfill, and landfill tipping fees (estimated from WWTPs in Michigan of similar size).

**Table 5. Construction Cost Estimate – Year One Collection System Improvements**

Priority	Label	Description	Sewer (LF)	Alternative 2: Rehabilitation	Alternative 3: Replacement
1	A1	W Helen St from Sherman St to Newberry Ave and stretch of sewer going south on Robinson St	1,540	\$144,000	\$526,000
1	A2	W Ave A from Washington Blvd to Phelps St	1,330	\$127,000	\$458,000
1	A3	E Ave A from Newberry Ave to Parmelee St	630	\$62,000	\$222,000
<b>Priority 1 Total</b>			<b>3,500</b>	<b>\$333,000</b>	<b>\$1,206,000</b>

Priority	Label	Description	Sewer (LF)	Alternative 2: Rehabilitation	Alternative 3: Replacement
2	A4	W Ave B from Tahquamenon Blvd to Phelps St	2,120	\$202,000	\$729,000
2	A5	W Ave C from Tahquamenon Blvd to Phelps St	2,290	\$219,000	\$792,000
<b>Priority 2 Total</b>			<b>4,410</b>	<b>\$421,000</b>	<b>\$1,521,000</b>

Priority	Label	Description	Sewer (LF)	Alternative 2: Rehabilitation	Alternative 3: Replacement
3	B1	W Victory Way from west of Washington Blvd to Robinson St, Robinson St going north to W Ave D	1,630	\$155,000	\$155,000
3	B2	Alley north of E Ave D from Charles St to E Limits St, E limits St from E Ave C going south to County Rd 466	1,740	\$169,000	\$394,000
<b>Priority 3 Total</b>			<b>3,370</b>	<b>\$324,000</b>	<b>\$549,000</b>

Priority	Label	Description	Sewer (LF)	Alternative 2: Rehabilitation	Alternative 3: Replacement
4	C1	E McMillan Ave from Charles St to E Limits Rd	1,210	\$116,000	\$420,000
4	C2	Broad St from E Ave B to C including to alley west of Broad St	850	\$86,000	\$227,000
<b>Priority 4 Total</b>			<b>2,060</b>	<b>\$202,000</b>	<b>\$647,000</b>
<b>Priority 1, 2, 3, &amp; 4 Total</b>			<b>13,340</b>	<b>\$1,280,000</b>	<b>\$3,930,000</b>

**Table 6. Construction Cost Estimate – Future Years (Alternative 2C) WWTP and Collection System Improvements**

Description	Estimated Cost
Sludge Storage, Increased Capacity	\$1,530,000
Headworks Improvements	\$2,240,000
Final Tank Domes Replacement	\$700,000
Primary Settling Tank Expansion	\$930,000
Raw Sewage Pump Station Coating	\$60,000
Driveway Replacement	\$130,000
Service Building/ADA Bathroom	\$30,000
SCADA	\$160,000
RAS Pump Replacement (No. 3 Pump)	\$40,000
WWTP Painting	\$25,000
Generator	\$250,000
Collection System Improvements	\$3,350,000
<b>Total Construction</b>	<b>\$9,445,000</b>

A 30-year present worth analysis is also included in Table 7 below. Because the Village of Newberry is a disadvantaged community, they are eligible for a 30-year loan/bond term. The bond schedule, operating expense, and salvage values can be found in Appendix A. O&M impacts were assumed to effect plant operations only for this analysis. The anticipated savings in operating expenses is represented in Appendix A as negative “O&M impacts.” Likewise, the “no action” alternative indicates escalating expenses as utility rates increase and energy efficiency decreases.

**Table 7. Present Worth Analysis**

Item	Description	Alt. 1: No Action	Alt. 2A: Rehab. of Sewers	Alt. 2B: Land Aquis. For Sludge Disposal	Alt. 2C: Improvements to Ex. WWTP	Alt. 3A: Replacement of Sewers	Alt. 3B: Alt. Method for Sludge Disposal (a)
1	Construction Costs	\$0	\$1,280,000	\$60,000	\$9,445,000	\$3,930,000	\$600,000
2	Engineering, Legal, Administration, Planning, and Contingencies	\$0	\$337,000	\$5,000	\$2,755,000	\$1,170,000	\$180,000
3	Total Capital Cost	\$0	\$1,617,000	\$65,000	\$12,200,000	\$5,100,000	\$780,000
4	Annual O&M Cost Change	\$0	-\$5,000	\$0	-\$30,000	-\$5,000	\$30,000
5	Present Worth of O&M Costs	\$0	-\$103,000	\$0	-\$617,000	-\$103,000	\$617,000
6	Salvage Value	\$0	\$539,000	\$60,000	\$5,160,000	\$3,060,000	\$234,000
7	Present Worth of Salvage Value	\$0	\$567,000	\$64,000	\$5,425,000	\$3,218,000	\$247,000
8	<b>Total Present Worth</b>	<b>\$0</b>	<b>\$1,012,000</b>	<b>\$1,000</b>	<b>\$6,158,000</b>	<b>\$1,779,000</b>	<b>\$1,150,00</b>

(a) Construction costs include for a sludge thickening facility, O&M costs include: \$5,000 added electrical costs, \$5,000 for hauling to landfill and \$20,000 tipping fee (based on WWTPs in Michigan of similar size)

Table row description for Table 7:

1. Construction costs developed by AMP and detailed in Appendix A and D.
2. Project support fees based on a percentage of construction costs; typical rate 30%. Table 10 further breaks this total cost down for Alternative 2.
3. Capital costs are sum of 1 and 2.
4. O&M cost change due to the project.
5. Present value of O&M costs for 30 years at -0.25% (per 2022 USDA/SRF guidance).
6. Land considered permanent, 50-year life for piping, valves, and structures, 30-year life for lining, and 20-year life for equipment.
7. Present worth of line 6 at -0.25% interest for 30 years.
8. Total of items 3 and 5 minus 7.



### **Partitioning of the Project**

The long-term needs of the Village treatment facility and collection system are discussed in this report and in SAW. The Village intends to partition the total collection system needs into numerous construction phases over the next several decades to enable improvements to within the limited financing capability of the service district. The 20-year improvement plan is outlined in Appendix D.

### **The Environmental Evaluation**

Correspondence related to environmental impact aspects of this project can be found in Appendix C. Table 8 below summarizes potential environmental and public health impacts of the evaluated alternatives with brief descriptions following.

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**Table 8. Environmental Evaluation**

Category	Alt. 1: No Action	Alt. 2A: Rehab. of Sewers	Alt. 2B: Land Aquis. For Sludge Disposal	Alt. 2C: Improvements to Ex. WWTP	Alt. 3A: Replacement of Sewers	Alt. 3B: Alt. Method for Sludge Disposal
Cultural Resources:						
- Historical/Archaeological	0	1	1	1	1	1
Natural Environmental:						
- Climate	0	0	0	0	0	0
- Air Quality	0	0	0	2	2	1
- Wetlands	0	0	0	0	0	0
- Coastal Zones	0	0	0	0	0	0
- Floodplains	0	0	0	0	0	0
- Natural Wild and Scenic Rivers	0	0	0	0	0	0
- Surface Waters	2	0	0	1	0	0
- Topography	0	0	0	1	1	1
- Geology	0	0	0	0	0	0
- Soils	0	0	1	1	1	1
- Agricultural Resources	1	0	2	1	1	1
- Sensitive Habitats	0	0	0	0	0	0
- Threatened/Endangered Species	0	0	0	0	0	0
- Unique Features	0	0	0	0	0	0
<b>Total (lower is less impact)</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>7</b>	<b>6</b>	<b>5</b>

(0 signifies no impact, 1 represents some impact, and 2 signifies the greatest impact)

The following descriptions are related to evaluations in Table 8.

1. Air Quality: Impacts are related to any potential temporary dust from construction activities.
2. Surface Waters: Alternative 2C has greater potential for short term impacts to the Tahquamenon River. The net long term effect is positive.
3. Topography, Soils, and Geology: Alternative 3A and 2C are the greatest impact because some site development and excavation is needed.

## **Implementability and Public Participation**

The Village of Newberry has undertaken construction projects over the past several decades. All are openly discussed at public meetings along with user cost impacts. The Project Plan will be advertised and displayed for citizen review for one month prior to the Public Hearing. The Authority has contracted with an engineering design consultant for assistance in the planning process and with a bond counsel for assistance in arranging project funding.

## **Technical and Other Considerations**

### Infiltration and Inflow (I/I) Removal

There will be no I/I removal issues resolved in this project.

### Structural Integrity

After reviewing sanitary sewer televising done as part of the Village's SAW project, it has been concluded that there are sections of sewer that require rehabilitation with sewer lining. Appendix D and E provides overall information and maps of data collected under the 2020 SAW Program.

### Sludge and Residuals

The proposed improvements will not affect quality of sludge or residuals. Current biosolids handling is discussed in-depth in Appendix D.

### Industrial Pretreatment

It is not expected that the improvements recommended under the alternatives will have a positive or negative impact on industrial pretreatment issues.

### Growth Capacity

It is not anticipated that there will be a need for growth capacity in the 20-year future planning period.

### Areas Currently Without Sewers

Developed areas within the community service districts are all currently served.

### Alternative Sites and Routings

All improvements under the principal alternatives are contained on the existing site. Considerations for alternate WWTP siting and routing are minimal due to the extensive infrastructure already in place. Potential close sites for sludge disposal are presented under selected alternative; monetary evaluation is provided in the Analysis of Alternatives section.

### Combined Sewer Overflows (CSO)

There are no combined sewer overflows associated with the Village of Newberry WWTP.

### Contamination at the Project Site

There are no known contamination sites at the area of the proposed project.

### Green Project Reserve

The proposed project does not include green infrastructure, water, nor energy improvements.

## SELECTED ALTERNATIVE

The Alternative 2A to rehabilitate sewers is the selected alternative among Alternative 1 and 3A because it provides the most cost effective option to provide improvements to structural deficiencies within the system. Alternative 2B is selected over Alternative 3B because it is the most cost effective option in the long term. Alternative 2C is chosen as a project for future years for both WWTP and collection system improvements.

### Relevant Design Parameters

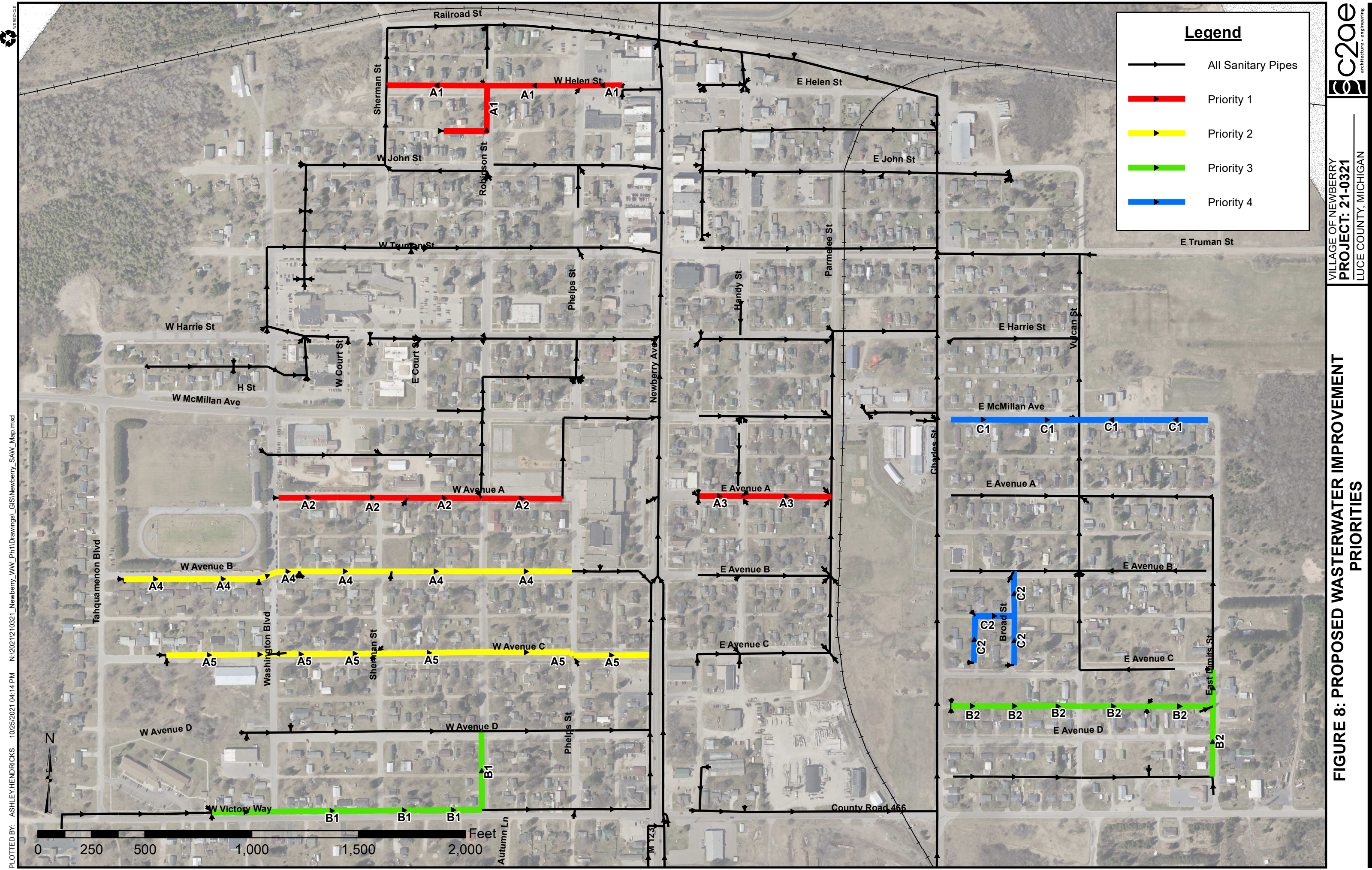
#### Alternative 2A: Rehabilitation of Sewers

This alternative includes rehabilitation of the wastewater collection system through trenchless methods, lining of the pipes and manholes, while reducing restoration costs and disturbances and extending asset life. This alternative includes 13,500 ft of pipe with the most severe quick ratings outlined in SAW (refer to Appendix D). Figure 8 on the following page shows priority areas.

#### Alternative 2B: Land Acquisition for Sludge Disposal

The WWTP is in need of new land in close proximity for sludge disposal to decrease operation costs. Figure 9 shows the potential sites proposed for sludge disposal, all located within three miles of the WWTP.





Legend

All Sanitary Pipes

Priority 1

Priority 2

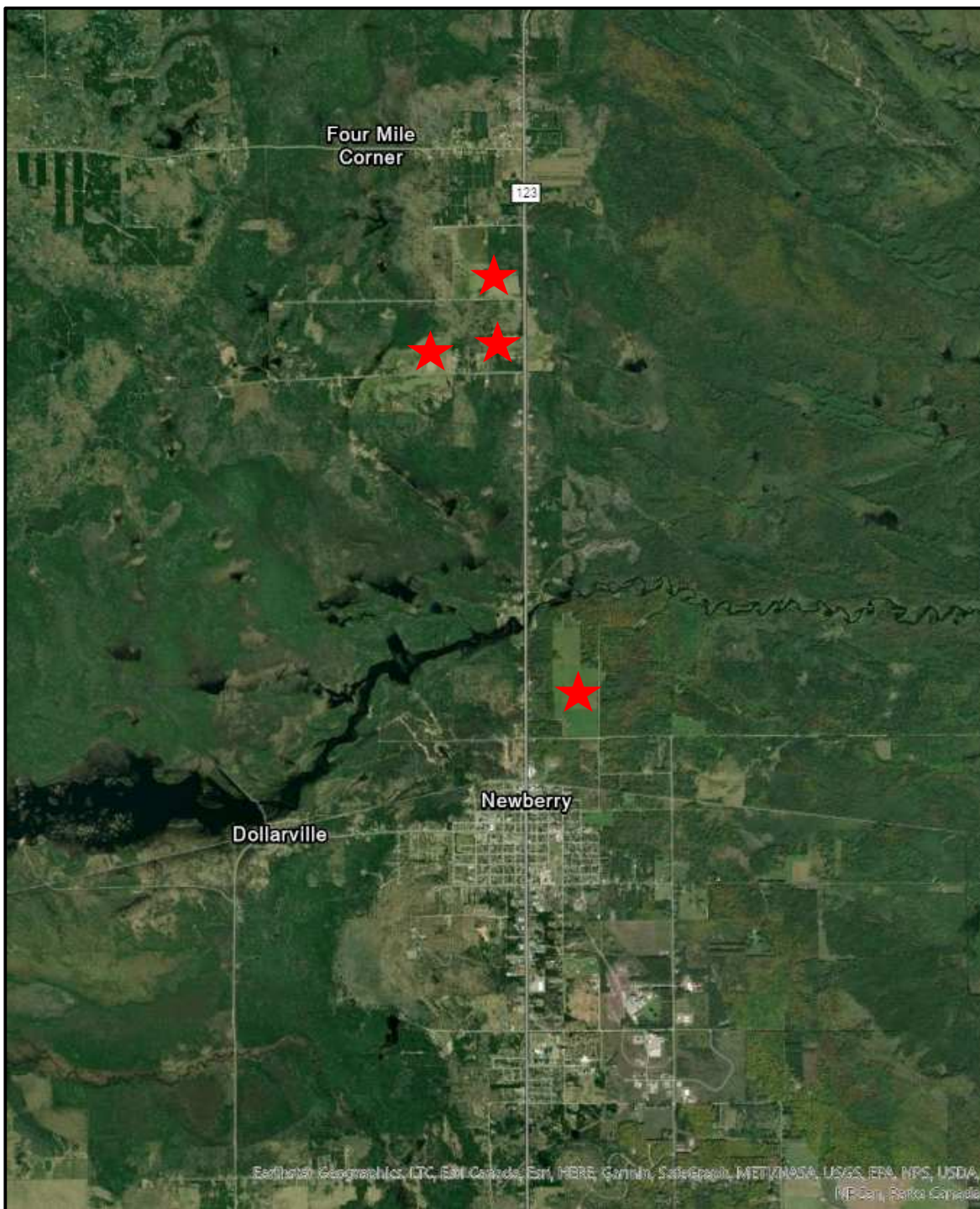
Priority 3

Priority 4

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### Figure 9. Potential Land Acquisition Sites for Sludge Disposal



### Alternative 2C: Improvements to Existing WWTP and Collection System (Future Years)

Improvements to the existing WWTP were outlined under the 2012 SRF Project Plan, 2020 Process Evaluation Report, and 2020 SAW Program (see Appendix D). Figure 10 illustrates the following is a summary of improvements to be include:

#### Sludge Storage Expansion

Current sludge storage is limited. Solids storage is limited; operations report that before digesters are emptied they are forced to return solids back to the WWTP. To provide the plant with more flexibility an additional sludge storage tank is suggested. Preliminary design concepts suggest a 300,000-gallon storage tank; project design phase will further investigate the functionality and size of the tank.

#### Final Tank Dome Replacements

It is recommended to replace existing (two) FRP domes with aluminum geodesic domes and a diameter of 40 ft. The domes will be designed for a live load of 15 psf, ground snow load of 70 psf, and wind load of 112 mph. Existing covers were coated under the last SRF project, but are nearing the end of their useful service life.

#### Primary Settling Tank Expansion

Existing primary tanks are undersized and recommended to increase capacity with a third primary tank to the east of the existing tanks. Tank would be similar in nature to existing tanks, complete with flights, drive mechanism, cross collector, and a dog house for motor. Preliminary calculations suggest an additional rectangular tank would reduce surface overflow rate at existing average flows to 860 GPD/sf and 1865 GPD/sf for future flows. Note with expansion of similar size clarifier, performance still falls short of recommended Ten State Standards.

#### Raw Sewage Pump Station Rehabilitation

Raw Sewage Pump station currently has infiltration issues. Rehabilitation will include dewatering the structure, repairing concrete, and coating with a water barrier coating to reduce the I/I coming to the plant.

#### Miscellaneous Building and Site Improvements

Miscellaneous building and site improvements include upgrades to the SCADA system, painting throughout the facility where needed, replacement of the driveway, new generator, and improvements to the service building including an ADA bathroom.

### Collection System Improvements

Continued improvements to the collection system through rehabilitation and replacement are to be included in the next five-year scope. Priorities will be established using SAW findings (i.e. televising reports, manhole inspections, etc.). This information is detailed in Appendix D.

### Return Activated Sludge (RAS) No. 3 Pump Replacement

The No. 3 RAS pump is to be replaced with a similar pump as No. 1 and 2 with a capacity of 450 gpm at 16 ft TDH, VFD controlled, and a semi-open impeller. The No. 1 and No. 2 RAS pumps were replaced in 2018.

### Headworks Improvements: Fine Screening and Septage Equalization

Preliminary treatment improvements include a new Headworks Building. The new headworks facility will combine automatic fine screening and septage handling in one building located along the interceptor sewer entering the WWTP. The new screening process would use one new automatic screen with the existing grinder used in the bypass channel. Automatic screening equipment would discharge solids to a washer compactor system to flush out organics and eliminate excess moisture. Figure 11 outlines proposed improvements.

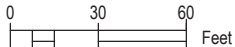
The Newberry WWTP is one of the few WWTPs in the Eastern Upper Peninsula that accepts septage; it is critical to the customers that they continue offering this service and maintain the reliability of the septage handling. Septage receiving system will be contained in the same structure and will include tanker discharge connecting piping with metering and sampling provisions, storage and equalization tankage, septage return pumps, and tanker control/security/operations software. An isolated electrical and septage control room will be accessible to drivers for use with authorization and data recording identification cards. Following are preliminary design criteria:

Screen Type:	Vertical bar or perforated plate
Screenings Handling:	Washer-compactor system continuous bag containment
Screen Opening:	1/4 inch
Peak Flow:	3.0 MGD
Width:	2.0 ft minimum
Septage Receiving System:	Gravity/pressure discharge, metering, equalization, controls return pumping.
Septage Design Capacity:	7000 GPD
Max Month Received:	49,000 gallons
Storage/Equalization Volume:	8,000-gallons

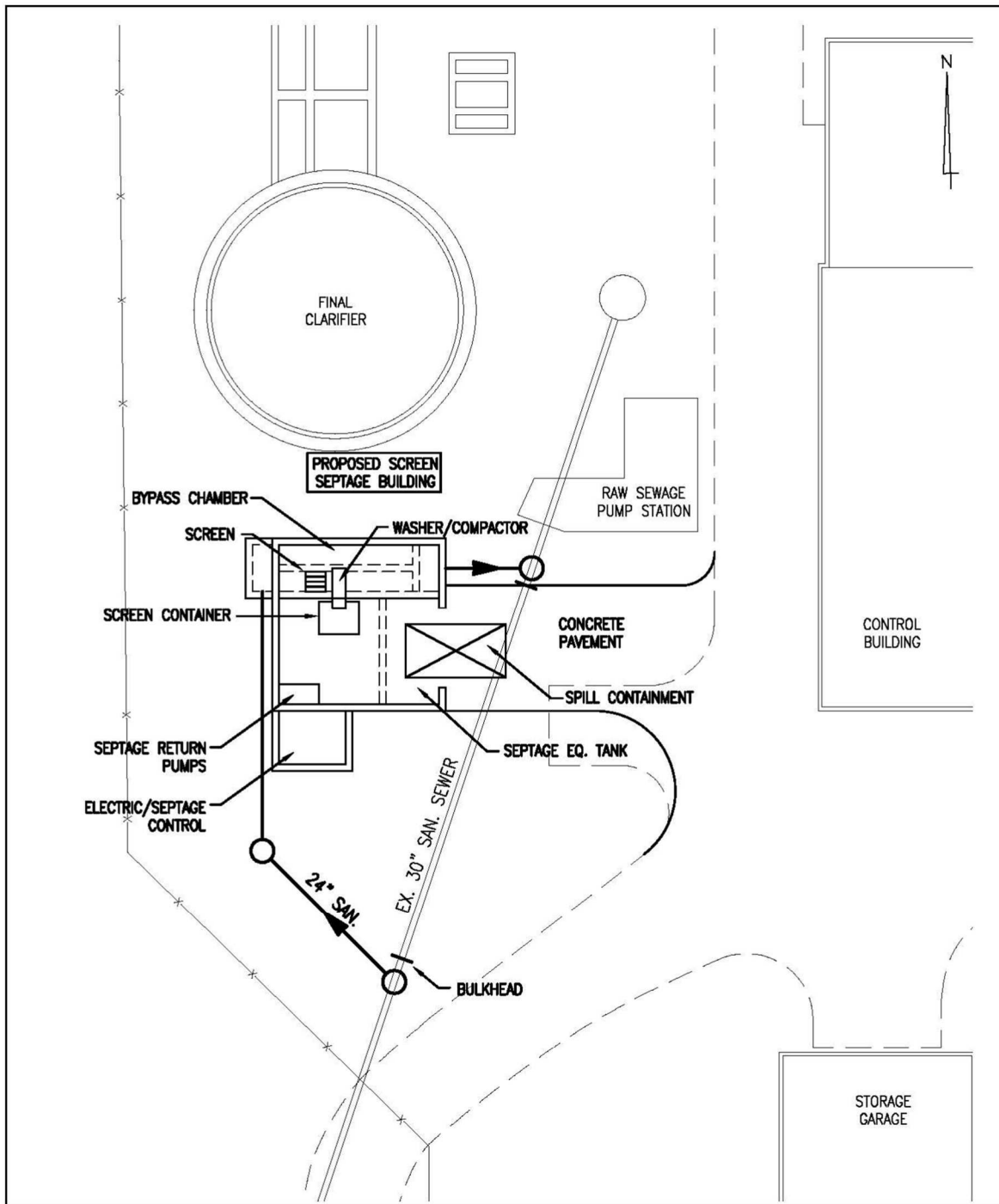
Return Pumping Rate:	10 to 25 gpm
Return Pump Description:	Submersible, grinder
Screen Septage Building:	Masonry, corrosion resistant construction
Screen and Septage Area:	26 ft x 26 ft, explosion proof, Nema 7
Electrical Area:	12 ft x 10 ft, Nema 12
Disposal Container:	Continuous bag or dumpster
Site Improvements:	To allow movement for screenings removal and septage delivery

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**Figure 11. Proposed Headworks Facility**



## Project Maps

The existing system maps of the collection system and wastewater treatment plant can be found in Figure 3 and Figure 7, respectively. Full size maps can be found in Appendix F.

## Controlling Factors

Planning and design will be in accordance with applicable industry standards including:

- EGLE and USACE Permitting Requirements
- OSHA and MiOSHA Requirements
- SHPO and THPO Requirements
- EGLE and Ten State Standards
- Regional Utility Standards

## Special Assessment District Projects

A special assessment district is not planned nor applicable to this project.

## Sensitive Features

Work will take place on previously disturbed areas with in right-of-ways and on existing treatment facility grounds. Both areas will be isolated from any potential sensitive environmental locations. It will be necessary to protect the waters of the Tahquamenon River during construction.

## Schedule for Design and Construction

The schedule for design and construction is present in Table 9 below.

**Table 9. Project Schedule**

Item	Target (Year 1 Project)
CWSRF Application Submittal	June 2022
CWSRF Acceptance	Summer 2022
Funding Commitment	Summer 2022
Start Design	January 2023
Land and Easements Acquisition	N/A
Permits	March 2023
Advertise for Bids	May 2023



Item	Target (Year 1 Project)
Funding Closing	July 2023
Contract Award	July 2023
Construction	August 2023
Substantial Completion	October 2023
Final Completion and Initiate Operation	November 2023

### Cost Summary

A brief summary of planning, design, and construction costs is included below in Table 10.

**Table 10. Project Cost Summary**

Item	Year 1 – Estimated Costs	Future Year – Estimated Costs
<b>Construction</b>	<b>\$1,340,000</b>	<b>\$9,445,000</b>
<b>Administration, Legal, Bonding, Permits, &amp; Miscellaneous</b>	<b>\$20,000</b>	<b>\$141,000</b>
Planning	\$20,000	\$20,000
Design	\$98,000	\$827,000
Bidding	\$4,000	\$43,000
General Engineering During Construction	\$37,000	\$331,000
Post Construction Services	\$3,000	\$34,000
Resident Project Representative	\$48,000	\$336,000
Additional Services – Design Related	\$3,000	\$128,000
Additional Services – Construction Related	\$13,000	\$204,000
<b>Engineering Total</b>	<b>\$226,000</b>	<b>\$1,923,000</b>
<b>Contingencies</b>	<b>\$96,000</b>	<b>\$691,000</b>
<b>Total Project Cost</b>	<b>\$1,682,000</b>	<b>\$12,200,000</b>

### Authority to Implement the Selected Alternative

The Village of Newberry was incorporated in 1885 as a General Law Village in the State of Michigan. The Village of Newberry has successfully implemented facility improvements projects over the past 50 years including most recently, construction of municipal water system improvements through the United States Department of Agriculture, Rural Development. The Village has shown it has the legal, institutional, technical, financial and managerial resources to accomplish implementation of the recommended alternatives.

## User Costs

This report has recommended improvements and suggested a phasing of improvements to reduce the short term effects on user rates on Village residents. Potential rate increases for the Village of Newberry customers, assuming a no grant scenario, are outlined in Table 11 for Year 1 and Future Year(s) Projects. Because the Village of Newberry is a disadvantaged community, they are eligible for a 30-year loan/bond term. Detailed costs are shown in Appendix A.

**Table 11. User Costs for Year 1 (Assuming No Grant)**

Description	Year 1
CWSRF Loan Amount	\$1,682,000
Anticipated Interest Rate	2.125%
Term	30
Annual Debt Service	\$76,398
Monthly Debt Service	\$6,367
Estimated System EDUs	2,337
User Rate Impact / EDU	\$2.72

**Table 12. User Cost for Future Year(s) Projects (Assuming No Grant)**

Description	Future Years
CWSRF Loan Amount	\$12,200,00
Anticipated Interest Rate	2.125%
Term	30
Annual Debt Service	\$554,136
Monthly Debt Service	\$46,178
Estimated System EDUs	2,337
User Rate Impact / EDU	\$19.76

## Disadvantaged Community

A “Disadvantaged Community Status Determination Worksheet” is included with the final project plan submittal (see Appendix B). According to guidelines, the Village of Newberry does qualify as a disadvantaged community considering their current and projected debt service, median household income, and user rates.

## Useful Life

Remaining Useful Life of all wastewater assets is available in the 2020 SAW Asset Management Plan and Process Evaluation (see Appendix D).

For new capital improvements including those under the proposed SRF project the total useful lives are as listed below based on methodology for salvage value computation.

- Building: 40 years
- Underground facilities including piping and foundations: 50 years (100 years expected based on performance of existing systems).
- Short-lived equipment: 20 years (30 to 40 years expected based on performance of existing equipment).

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## ENVIRONMENTAL EVALUATION

### Summary

A cursory environmental review has been performed and the findings are included within Appendix C. Based on the ITA Meeting for this project, the Project has been classified as a non-equivalency project, therefore no further review is needed as part of the project plan.

### Analysis of Impacts

#### Direct Impacts

##### Construction Impacts

Construction activity impacts will be short term as previously noted and are not expected to be unusual for underground utility or building construction. Implementing the improvements will reduce overall system operation and maintenance efforts due to replacement of outdated equipment and installation of newer, more reliable equipment.

##### Operational Impacts

No changes in facility odors, noise, traffic, or accident/spill potential are expected from any of the alternatives under consideration. Updating systems to more reliable and efficient operation helps to minimize adverse operational impacts. Implementing the improvements will reduce overall system operation and maintenance efforts due to replacement of outdated assets and installation of newer, more reliable system.

##### Social Impacts

The project segments will create short term economic benefits in areas of construction employment and materials supply. No relocation of residents or businesses is expected to result from the project. Long term human, social, and economic impacts will be positive through increased efficiency, reliability and capacity in area infrastructure. Construction of the Newberry WWTP and collection system improvements is not anticipated to have any adverse effect on historical, archaeological, geological, or recreational areas. All construction will take place on Village of Newberry property or right-of-way. Excavation in previously unexcavated areas is very limited.

## Indirect Impacts

### Land Development

The project segments will take place on Newberry property or right-of-way and should not induce changes in rate, density or type of land development nor associated transportation routes.

### Land Use

The project is not expected to change current land use patterns.

### Air and Water Quality

Air and water quality changes stemming from primary and secondary development are expected to be temporary and minor to non-existent.

### Secondary Growth

Secondary growth is also not expected to be spurred by the other than that affected by any well run and maintained utility system.

### Cultural Impacts

Impacts generated by the recommended improvements on cultural, human, social and economic resources can only be considered beneficial in the long term. Continued efficient and reliable operation of the area's utility system(s) contributes to a stable infrastructure promoting public health and safety.

### Aesthetics

The projects will produce no overall permanent damage to existing area aesthetics. Minor construction destruction will be more than offset by improved roads resulting from project restoration efforts.

### Resource Consumption

No additional or increased resource consumption will occur due to these projects other than the construction related issues previously noted.

### Cumulative Impacts

No additional development incentive is expected to be created other than what occurs by default with improvements to a utility system.

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## MITIGATION MEASURES

### General

Where adverse impacts due to installation of the recommended improvements cannot be avoided, mitigation measures will be implemented. Costs for mitigation measures were considered and included where applicable in project opinions of probable cost. Mitigation measures needed during construction will be included in construction contract documents.

### Short-Term Construction Related Mitigation

#### Traffic

Any traffic disruptions that occur (such as equipment deliveries or construction-related traffic) will be organized and controlled to minimize disruption of local, transient and emergency traffic. All needed barriers and signing or flagging will be in conformance with applicable Village, County, and MDOT standards.

#### Safety

All work shall comply with Federal, State and local laws governing activities, safeguards, devices and protective equipment. Minimum requirements are defined by the U.S. Department of Labor and the Michigan Occupational Safety and Health Act.

#### Dust and Noise

Construction dust and noise will be required to be kept to a minimum. No on-site burning will be allowed. Use of water or other suppressants will be used to control fugitive dust and prevent violation of Rule 901 and contractors will be required to use gas engine muffled exhausts.

#### Erosion

Soil Erosion and Sedimentation Control permits will be required for the project. Site specific mitigation measures will be addressed during design and included in the construction contract documents. For this project we anticipate very little site disturbance. At a minimum, mitigation measures will include a silt fence along the entire site perimeter adjacent to the Tahquamenon River. Restoration of disturbed site areas on slopes exceeding 15% with gradients directed toward the Tahquamenon River will be temporarily and permanently seeded with biodegradable seed/mulch blankets to control erosion and sediment reaching the River.



### Restoration

Damaged curbing, driveway and sidewalk surfaces will be restored to equal or better condition in accordance with best modern practices, however disturbances are not expected. Undeveloped areas will be restored with topsoil, fertilizer, mulch and seed or sod as needed in a timely manner. For areas on slopes adjacent to the Tahquamenon River see descriptions under Erosion above. All disturbed site soil will be restored with topsoil, seed, fertilizer, and mulch. Additional protection will be employed on erodible slopes to the Tahquamenon River. When final restoration will not occur within 14 days of disturbance, temporary seed and mulch will be required.

### Utilities:

Disruption of utilities during construction will be kept to the minimum necessary to allow new installations. Repairs will be made in a timely manner. Careful sequencing with Owner is required in bidding documents to avoid interruptions to the treatment process. No untreated or partially treated discharge of effluent to the Tahquamenon River will be allowed.

### Valuable Features:

Implementation of the selected alternatives is not expected to significantly impact more extensive or valuable existing features such as mature vegetation. Areas of expected underground construction are open plant grounds.

## **Mitigation of Long-Term Impacts**

### General Construction

It is not anticipated that there will be expect any long term impacts from the general construction activities.

### Siting

Work will be confined to the WWTP grounds and in existing right-of-ways. The use of buffer zones is not really an option nor needed.

### Operational Impacts

Long term operational issues will not be adversely changed by the projects; rather, operations should be enhanced through new more reliable equipment installations and treatment processes.

## **Mitigation of Indirect Impacts**

### Master Plan and Zoning

Long range planning by the Village of Newberry identified the project segments evaluated in this report and all take place within the WWTP property or Village right-of-ways and would have no effect on planning and zoning in the community.

### Ordinances

Local ordinances are in place regarding minimum building construction and operation standards and site erosion control. Wetlands, floodplains, and other sensitive habitats are protected by State laws and permitting procedures.

### Staging of Construction

Staging will not be necessary other than that needed to minimize operational impact on the treatment facility.

### Construction Problems

Construction problems anticipated include groundwater control and areas of inferior structural/pipe bedding and backfill soil material. These are normal occurrences with construction in the Luce County area and prior planning/design will create a situation where these problems will pose no significant difficulties for qualified contractors.

## PUBLIC PARTICIPATION

### Public Meetings on Project Alternatives

The Village of Newberry's wastewater system needs and potential fixes have been openly noted at several Village council meetings over the past decade. The Council has held several open council meetings over the past years where there were discussions and approved studies both at the WWTP and regarding the collection system.

### The Formal Public Hearing

A public hearing (**web based due to COVID 19 and in-person at the**) on the information presented in this report was held during a regular Village Council meeting on **April 19, 2022**. A written transcript is included in Appendix E.

### Public Hearing Advertisement

An advertisement was placed in the **\_\_\_\_\_** 30 days prior to the Public Hearing on **March 16, 2022** and again the following week, advertising the formal public hearing. Simultaneously to the advertisement publication, copies of the project plan were made available to the **public at Village Hall and on the Village's website**. Appendix E has the advertisement copies.

### Public Hearing Transcript

A full transcript of the public hearing is available in Appendix E.

### Public Hearing Comments

Comments are summarized in Appendix E with a full transcript.

### Comments Received and Answered

**No written comments were received prior to the Public Hearing.**

### Adoption of the Project Plan

Agency and/or Owner preliminary review comments were incorporated into the final version of this Project Plan. The plan was adopted by the Village of Newberry Council on **April 19, 2022**.