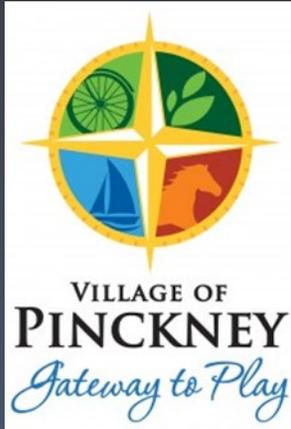


February 28, 2023



SAW Grant Executive Summary

EGLE Project No.1681-01

VILLAGE OF PINCKNEY
220 S HOWELL STREET
PINCKNEY, MI 48169

WOLVERINE ENGINEERS & SURVEYORS, INC. | 312 North Street, Mason, MI 48854

MEMORANDUM

To: Michigan Department of Environment, Great Lakes, and Energy
Revolving Loan Section, Attn. Jessica Ferris

From: Wolverine Engineers & Surveyors, Inc.

CC: Village of Pinckney

Date: February 28, 2023

Re: Village of Pinckney
Asset Management and Wastewater (SAW) Grant #1681-01

The following is a summary of the work completed under the SAW Grant work performed by the Village of Pinckney. It includes a summary of the project scope, results and findings of activities covered by the grant, grant amount spent and match amount, and contact information. It has been prepared as required under Section 603 of Public Act 84 of 2015 and follows EGLE guidance.

GRANTEE INFORMATION

Village of Pinckney

Project Grant Amount: \$300,946

Applicant Match Amount: \$33,439

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1. Executive Summary

This sanitary sewer asset management plan (AMP) is intended to provide an assessment of routine maintenance staffing requirements, and to provide an opinion of asset conditions and future needs. Operating, maintenance, and replacement costs are reviewed for all system assets, to provide a defined level of service for the utility.

The goal of an asset management plan is to use system wide information to determine the lowest life cycle cost for maintenance, repair, and replacements to maintain that level of service. By performing pre-emptive maintenance on the system, and timing repairs before they become emergencies, the Village of Pinckney can make the most of their limited funds over the long term. Maps of the Village of Pinckney's sanitary sewer system are found in Appendix A.

A. Wastewater Asset Inventory

The Village of Pinckney uses its existing Geographic Information System (GIS) geodatabase as the primary means to inventory and map the assets in the system. However, the geodatabase did not include key attributes associated with each asset, such as installation date (age), size, material, along with other information as needed for a given asset type. Undertaking this AMP allowed the Village to collect the missing data and populate its GIS system for use moving forward. Condition assessment tools and protocols were used to assess sanitary sewer assets with a NASSCO-compliant software program storing data collected during sewer televising.

As part of the grant for the Village of Pinckney sanitary sewer system, the GIS geodatabase inventory was reviewed for completeness and to ensure critical attributes were populated. Approximately 55,736 lineal feet of sewer and 223 manholes underwent condition assessment via cleaning and televising. Vertical assets, including pump stations, force mains, and treatment facilities, were inventoried using record drawings and visual observations.

B. Criticality of Assets

Probability of Failure (PoF) for gravity sewer and manholes was calculated using equations applied to the Overall Quick Rating of each asset. Consequence of Failure (CoF) factors were developed by DPW Staff and its engineering consultants considering social, environmental, and economic cost impacts, and were used to estimate the overall risk of the horizontal assets (sewers and associated structures.) For pump stations, force mains, and treatment facilities, individual assets were reviewed by staff and PoF and CoF factors manually assigned.

Both the PoF and CoF were scored on a scale of 1 to 5, with 1 being the lowest probability or consequence of failure, and 5 corresponding to the highest probability or consequence of failure. The Business Risk Evaluation (BR or Risk) score is the product of the PoF score and the CoF score (PoF times CoF equals Business Risk,) and has a scale of 1 to 25. Higher BR scores identify the assets with the greatest overall risk.

The PoF and CoF for horizontal assets are determined using scoring values developed uniquely for each asset type, such as gravity main, non-gravity main, manholes, etc. The attribute for determining the PoF of gravity mains and manholes was the PACP Overall Quick Rating. Where PACP scores were not available, the POF score was based on the age-based assumed condition.

For force mains, the PoF was based on age, normal operating pressure, and history of repairs. For other access structures other than gravity manholes, the PoF is based primarily on visual observation of the frame condition, chimney condition, cone condition, wall condition, along with age.

The PoF and CoF of vertical assets were calculated using a scoring matrix. The PoF for vertical assets was calculated using a combination of age and physical condition collected from visual observation. O&M protocol and performance factors were also scored and used in the calculation. In the absence of any other data, age was used to estimate PoF. The CoF for vertical assets was scored using a matrix of factors including: safety of public and employees, financial impact, public confidence, regulatory compliance, and firm capacity.

C. Level of Service Determination

At the strategic level, the Level of Service (LOS) identifies the long-term goals and strategies of the organization. An overall LOS guiding matrix was developed to document the goals and strategies of the Village. The Village of Pinckney overall and Sanitary Sewer Mission Statements form additional elements of the LOS.

The goal of the Village of Pinckney sanitary sewer system is to accept and process sanitary sewage safely and efficiently by providing services that meet or exceed customer expectations and to comply with federal regulations. This section describes the Village's Level of Service goals and the key performance targets for each of the level of service goal for present and future performance. The level of service describes the characteristics of utility's performance such as "how much", "of what nature", and "how frequently" about the service and the performance target define how each level of service will be measured. The Village's progress toward meeting those goals will be reported annually.

The mission statement defines the goals of the Village of Pinckney and is the guide for the level of service goals.

The Village of Pinckney Mission Statement *The mission of the Village of Pinckney Council and Offices is to serve the residents of the Village with integrity and respect; practice responsible management of our common funds and resources; conduct business with transparency and accountability; maintain the quality of life through public safety and security; preserve the historic nature of the Village and welcome progress with vision; ensure that all issues are addressed with honesty and fairness.*

The Village of Pinckney Sewer System mission statement *We commit to improving and maintaining the public health protection and performance of our sanitary sewer collection, conveyance, and treatment system assets, while minimizing the long-term cost of operating those assets. We strive to make the most cost-effective renewal and replacement investments and provide the highest-quality customer service possible.*

Table 1.1: Level of Service Criteria, Performance Indicator, and Level		
Key Service Criteria	Performance Indicator	Target Level of Service
Treatment Capacity	Active Monitoring of the Treatment process	Continue to be consistently below the EGLE discharge permit limits
O&M Optimization	Regular Cleaning and maintenance of the Collection System	Clean and maintain 33% of the collection system per year
Service Delivery and Customer Communication	Continue to ArcGIS Software to Aide in Utility Management	Respond to Customer complaints and requests within one (1) business day
Staff Training	Continue to Hold Regular Training for O&M Staff	Offer five (5) or more different training sessions each year

D. Revenue Structure

The Village operates both a full-service sewer and wastewater treatment system. The Village has recently undertaken major upgrades to the system, financed by USDA loans. The additional debt service required an increase in rates to cover this cost. Additionally, the Village's was generating insufficient revenue for both operations and capital needs. This gap was too large to bridge in a single year.

Therefore, the Village Council has adopted a seven-year plan whereby rates increased each year resulting in full annual cost recovery by year end 2030. The current sewer revenue structure proportionately allocates costs across the Village's user base by a combination of usage, capacity, and debt service charges, equity buy-in fees and special services revenue to fund annual expenses and capital improvements while driving toward a solid fund balance. These rates fluctuate annually with the system's requirements and increase the cost recovery percentage each fiscal year to reach full cost recovery in 2030.

The current rate setting methodology for operations uses a combination of usage fees and flat fees allocated proportionately by meter equivalent user, taking into account operating, maintenance and wear-and-tear (depreciation) to properly account for the degradation of assets as the infrastructure ages.

Funding for capital improvement projects is a combination of fund balance reserves, connection fees as well as any recovered depreciation expenses.

The rate methodology approved by the Council includes specific and appropriate coverage for any debt service requirements needed to finance capital repairs. A separate debt service charge allocated by meter equivalent user is now a component of the bill and covers the required annual debt service for the sanitary sewer system.

The Village's efficient and equitable allocation of expenses and a solid plan for the future creates a self-sustaining funding structure for the Village's utility infrastructure and maintains a fair cost model to all users of the system.

To ensure the current funding structure will continue to meet the future needs to operate and improve the system, the Village's Council has committed to a seven-year rate plan to add additional funds to provide for needed capital improvements. **Please Note: The Village Council has committed to a rate methodology and seven-year plan to achieve full system cost recovery, including depreciation. If fully implemented, by year five of the plan the village will achieve 80% recovery of depreciation expenses. Combined with available projected fund**

balances, the village believes it meets the requirements of EGLE's five-year rate plan. The Village's Utility Committee meets regularly to discuss system capital plan requirements, annual rate changes, and implements any needed adjustments to the capital plan or rates through resolution adopted by the Village Council.

Based on the comprehensive asset review, rate study, adopted rate methodology, rate adjustments, and long-term plan for funding critical system needs, the Sewer Utility Fund has a solid financial outlook and will continue to serve the needs of the Village's customers.

E. Capital Improvement Plan

The Asset Management Plan forecasts and prioritizes assets that require replacement in the planning period. The individual replacements were combined into projects and scheduled with budget amounts established. A list of capital projects was developed, using recommendations from this plan, and consideration of other system needs.

The recommended projects are summarized below. Projects listed for implementation in the 0 to 10 year range include cost estimates prepared on data available at the study/feasibility level. Projects in the 10 to 20 year range are based on broad concepts only and costs are based on estimated replacement year cost. All projects are listed for financial and resource planning purposes only. Changes to project inclusion, scope, cost and/or timing are expected as resources are allocated, and changes occur in prioritization, regulations, technology, cost and other data becomes available.

Total Cost for 5 year CIP (A1-3 and B1 below): **Approximately \$545,607**

Total Cost for 6-10 year CIP (B2-3 and C1 below): **Approximately \$370,072**

Total Cost for 11-20 year CIP: See **Appendix D**

Capital Projects scheduled to be constructed in 2023:

1. N Howell Street Reconstruction

This project includes complete reconstruction (funded in part by a grant from MDOT) of one block of N Howell Street in the Central Business District of the Village. Sanitary sewer pipe and manholes in an easement within the influence of the street will also be replaced. The approximate cost for the sanitary sewer component of this project is **\$273,442**.

2. Northwest Quadrant Infrastructure Improvements

This project includes complete reconstruction (funded in part by a private developer) of approximately 2,300 feet of Pond Street and W Hamburg Street in the northwest quadrant of the Village. A 25-foot section of 8-inch clay sanitary sewer in Pond Street with a major sag will be replaced along with an extension of sanitary sewer to service two homes on W Hamburg Street that are currently on septic and drainfields. The approximate cost for the sanitary sewer component of this project is **\$72,756**.

3. WWTP Roof Replacement

This project includes replacement of the WWTP Lab Building roof which was originally installed in 2006. The approximate cost for this project is **\$15,000**.

MACP and PACP Rehabilitation Program:

As part of the SAW Grant, 223 manholes and nearly 11 miles of pipe were inspected. Based on the reported defects, rehabilitation and restoration recommendations were made. This CIP project proposes to rehabilitate all sanitary sewers within the first ten years of this CIP that have been tagged with discrete defect ratings of 4 and 5 and/or have a Business Risk 16 or greater. All manholes and sewers that fall within the Business Risk range of 8-16 should be inspected regularly as described in the O&M Strategies. The costs below represent the estimated cost of the recommended rehabilitations made for the first 10 years of this CIP.

1. Brentwood Drive PSR 107 and 108

This project includes replacement of two segments of sanitary sewer that have discrete defect ratings of 4 and 5 and are the only two pipe segments in the entire system that have a Business Risk of 16 or greater (17.08 for PSR 107 and 17.33 for PSR 108). This work is scheduled to be completed in 2028 and the approximate cost for this project is **\$184,409**.

2. No Sags PSR 62, 132, 138, 146, 147, 164, 185, 195, 202, 251, 262

This project includes spot repair (Cured-In-Place Lining or open cut) of segments of sanitary sewer that have discrete defect ratings of 4 and 5 that are not sags in the pipe. This work is scheduled to be completed in 2030 and the approximate cost for this project is **\$23,600**.

3. Sags PSR 3, 44, 82, 187, 188, 197, 201, 238

This project includes open cut repair of segments of sanitary sewer that have discrete defect ratings of 4 and 5 that are sags in the pipe. This work is scheduled to be completed in 2033 and the approximate cost for this project is **\$242,088**.

Capital Projects scheduled to be constructed within ten years

1. Unadilla Reconstruction PSR 134, 200, 201 (955 feet R&R)

This project includes removal and replacement of segments of sanitary sewer that are within the limits of Unadilla Street reconstruction. This work is scheduled to be completed in 2033 and the approximate cost for this project is **\$104,384**.

F. List of Major Assets

A summary of sanitary sewer system assets is listed in Table 1.2 below:

Total Gravity Sewer	58,487	Feet
Total Force-Main Sewer	5,892	Feet
Total Manholes	245	Each
Pump/Lift Stations	4	Each

Table 1.2 - System Asset Summary		
WWTP	1	Each

The breakdown of sizing for the piping for the system is shown in Table 1.3:

Table 1.3 - Sanitary Sewer Pipe Sizing Breakdown		
Pipe Diameter	Gravity Sewer Length (feet)	Force-Main Sewer Length (feet)
4 inch		1,175
6 inch	438	
8 inch	52,170	
10 inch	1,874	
12 inch	3,799	4,717
15 inch	65	
18 inch	141	
Totals	58,487	5,892

The Village of Pinckney has two runs of undersized gravity sewer main (Lee Street and Knollwood Drive), equating to approximately 0.75% of their system measuring 6-inch. Typically, new mains are not placed with smaller than 8-inch pipe due to the propensity for plugging issues and regulatory rules and regulations require sewer mains to be at least 8-inch in diameter. The makeup of the gravity sanitary sewer sizing is reflected in Figure 1.1 below:

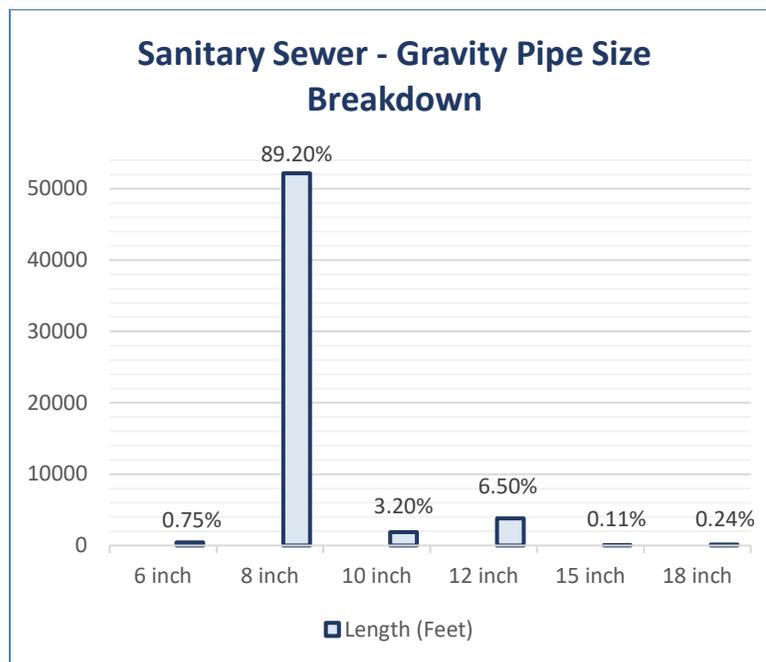


Figure 1.1: Sanitary Sewer Pipe Size

Table 1.4 indicates the quantity of each material making up the Village of Pinckney’s sanitary sewer system:

Table 1.4 - Sanitary Sewer Pipe Material Breakdown		
Pipe Material	Gravity Sewer Length (feet)	Force Main Length (feet)
Polyvinyl Chloride Pipe (PVC)	24,443	
Vitrified Clay Pipe (VCP)	31,806	
Asbestos Cement (AC)	192	
Truss Pipe (TRUSS)	2,046	
Fusible PVC (FPVC)		4,717
High Density Polyethylene Pipe (HDPE)		915
Ductile Iron		260
Totals	58,487	5,892

Nearly half of the Village of Pinckney’s system (42%) has been constructed using plastic products. The newer plastic piping has a lower possibility of catastrophic failure from collapse or breakage, which also typically means a newer pipe and longer service life remaining. The remaining portion of the Village of Pinckney’s gravity sanitary system consists of vitrified clay installed primarily in 1970, a small amount of reinforced plastic material (truss pipe), and a very small amount of asbestos cement pipe of unknown age. Figure 1.2 provides a visual breakdown of the gravity materials within the system.

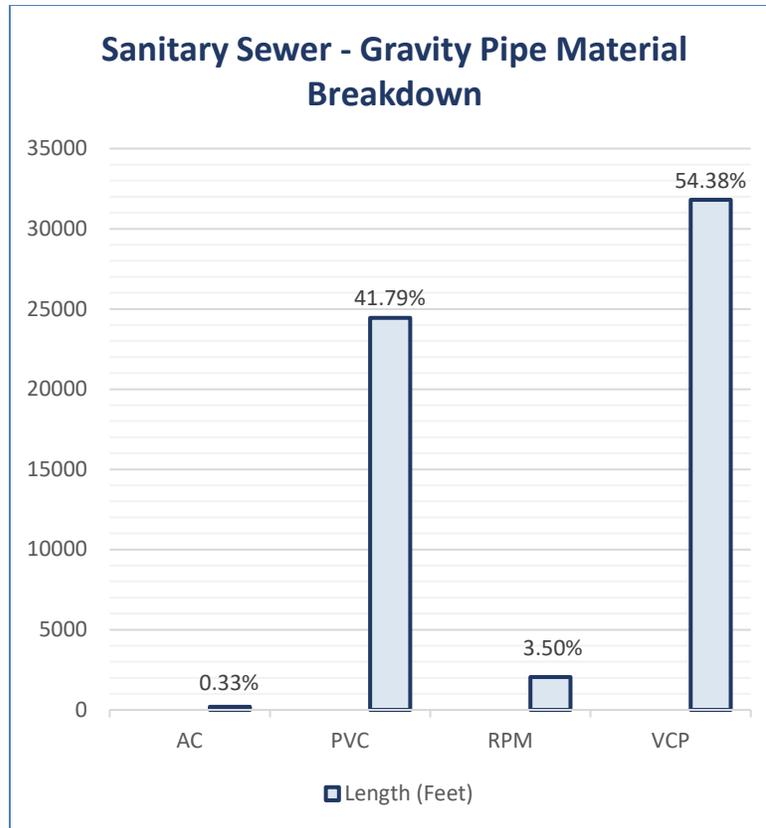


Figure 1.2: Sanitary Sewer Material

As part of the sanitary sewer system study, a risk assessment was performed for each of the system assets. This risk assessment was completed using a combination of the asset's condition, probability of failure, and consequence of failure. The probability of failure multiplied by the consequence of failure or criticality results in the business risk. This number will vary between 0 and 25 with 0-8 being not critical, 8-16 being important but not critical, and 16-25 being critical. The resulting business risk rating allows the Village to prioritize those items where condition, probability, and consequence make it expedient to perform proactive maintenance of the asset. Condition assessments were performed by cleaning and televising inspections on nearly all assets and ratings were assigned by NASSCO certified inspectors. For those assets which were not televised or not reachable from the surface, assessments of probable condition were made based on material, age, and history of the asset, or assigned the same ratings as adjacent assets that could be assessed. Table 1.4 summarizes the business risk range of system assets.

Table 1.4 - Risk Assessment				
Asset Type	Business Risk			Totals
	0-8	8-16	16-25	
Sanitary Sewer (Feet)	52,753	5,119	615	58,487
Manholes (Each)	234	11	0	245



**Department of Environment, Great Lakes, and Energy (EGLE)
Stormwater, Asset Management, and Wastewater (SAW) Grant
Wastewater Asset Management Plan
Certification of Project Completeness**

Completion Date February 28, 2023
(no later than 3 years from executed grant date)

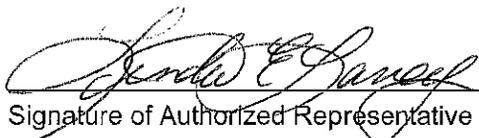
The Village of Pinckney (legal name of grantee) certifies that all wastewater asset management plan (AMP) activities specified in SAW Grant No. 1681-01 have been completed and the implementation requirements, per Part 52 of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended, are being met. Section 5204e(3) requires implementation of the AMP and that significant progress toward achieving the funding structure necessary to implement the AMP be made within 3 years of the executed grant.

Please answer the following questions. If the answer to Question 1 is No, fill in the date of the rate methodology approval letter and skip Questions 2-4:

- 1) Funding Gap Identified: Yes or No
If No - Date of the rate methodology approval letter: TBD.
- 2) Significant Progress Made: Yes or No
(EGLE defines significant progress to mean the adoption of an initial rate increase to meet a minimum of 10 percent of any gain in revenue needed to meet expenses, as identified in a 5-year plan to eliminate the gap. A copy of the 5-year plan to eliminate the gap must be submitted with this certification.)
- 3) Date of rate methodology review letter identifying the gap: February 28, 2023.
- 4) An initial rate increase to meet a minimum of 10 percent of the funding gap identified was adopted on December 12, 2022.

Attached to this certification is a brief summary of the AMP that includes a list of major assets. Copies of the AMP and/or other materials prepared through SAW Grant funding will be made available to EGLE or the public upon request by contacting:

<u>Linda Lavey</u>	at	<u>734.878.6206</u>	<u>llavey@villageofpinckney.org</u>
Name		Phone Number	Email

	<u>February 28, 2023</u>
Signature of Authorized Representative (Original Signature Required)	Date

Linda Lavey, Village President
Print Name and Title of Authorized Representative