
Village of Freeport
Drinking Water Service
Asset Management Plan

Barry County, Michigan

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I. Executive Summary

This report presents the results of a service line materials investigation and provides an evaluation of the Village's service line assets along with a capital improvements plan for continued system upgrades. The study includes a review of existing system conditions, findings from field investigations, and recommendations to guide future service line identification and replacement efforts.

The Village's water distribution system serves 188 total connections and consists of a network of watermain ranging in size from 4 inches to 12 inches. Older portions of the system are primarily composed of 4-inch and 6-inch cast iron watermain, while newer areas include ductile iron installed during past system improvements. These older cast iron mains generally correspond to areas where legacy service line materials are more likely to be present.

A total of 19 service lines were investigated using a three-point inspection method, including in-building inspection and hydro-excavation on both sides of the curb stop. The results indicate that copper is the predominant material within the system, particularly for exterior service line segments. Galvanized steel was identified primarily within in-building plumbing, with limited occurrence in exterior portions of the service lines. No lead materials were identified at any of the inspected locations. Based on the representative sample, it is estimated that a portion of the system may still contain galvanized service lines, most likely in areas served by older cast iron water mains.

Based on the investigation findings, the Village has developed a phased capital improvements plan to continue service line identification and replace older materials over a 20-year period. The short-term plan focuses on continued investigation and initial replacement efforts, including a target of replacing at least 7% of galvanized service lines annually. The long-term plan includes completion of all service line material identification by 2035 and full replacement of all galvanized and any potential lead components by 2041 in accordance with regulatory requirements. The total estimated cost of the program is approximately \$640,000, with an anticipated annual investment of \$44,000. Implementation of this plan will result in a more uniform, reliable, and safer service line system.

II. Introduction

The Village of Freeport received a Community Technical, Managerial, and Financial (TMF) Support for Lead Line Replacement Grant (funded under Section 1001 of PA 166 of 2022) to take inventory of a portion of the drinking water distribution system service lines. This report summarizes the results of that investigation and documents the materials identified within the inspected services. The information collected during this project was used to develop an asset breakdown of the Village's service line infrastructure and to establish a capital improvement plan to guide future service line investigations and subsequent replacements. The Village's service line assets consist of corporation stops, curb stops, and service laterals connecting the water main to individual properties. Based on the analysis completed as part of this study, the estimated total value of the service line assets is approximately \$640,000.

The Village of Freeport initiated this project to comply with the Michigan Safe Drinking Water Act (PA 399), specifically the 2018 Lead and Copper Rule (LCR) amendments requiring the identification of unknown water service materials. The project was supported by a \$39,500 TMF Grant.

III. Existing Distribution System

The Village of Freeport has a stand-alone water system that includes its own supply, disinfection, storage and distribution components. The source water supply is derived from two production wells installed within the glacial drift. Either production well can individually supply the system with the maximum day demands. Water is pumped from the wells directly into a single elevated storage tank located near the wellfield. The water system has one single pressure district, controlled by the level in the elevated storage tank. The village distribution system provides drinking water to a variety of users. A breakdown of the types of customers is provided below.

Table 1: Distribution System User Breakdown

Residential	162
Commercial	22
Municipal	4
Total	188

Watermain sizes range in general from 4" to 12" with some small sections of ¾", 1" and 1½" serving remote customers. Materials are mostly cast iron which are concentrated in older 4 and 6 inch mains. Due to the major replacements made in 2005, ductile iron makes up almost 1/3 of the watermain material. A breakdown of the size and materials of watermains throughout the system is provided below.

Table 2: Distribution Watermain Breakdown by Size

Type	Length (Ft)	Percentage of Total
1 1/2" and less	1,160	5%
4"	6,294	29%
6"	7,868	36%
8"	6,085	28%
12"	196	1%
Total	21,603	100%

Table 3: Distribution Watermain Breakdown by Material

Material	Length (Ft)	Percentage of Total
Cast Iron	14,162	66%
Ductile Iron	7,441	34%

IV. Methodology & Selection

The Village of Freeport conducted a targeted investigation of water service line materials using a three-point inspection approach. The Village originally identified 20 service locations using the random selection method prescribed by the Lead and Copper Rule (LCR). After project adjustments, which included removing six properties and adding five replacements, a total of 19 services were ultimately investigated. The selected services were intended to represent the range of conditions and materials present throughout the Village's water distribution system. The General Plan from the 2017 Village of Freeport Water Reliability Study was used to help

identify addresses that would provide a representative dataset reflecting the age and material of the Village's service lines.

Each service underwent a 3-point inspection:

1. In-building inspection before the water meter.
2. Hydro-excavation 18 inches before the curb stop.
3. Hydro-excavation 18 inches after the curb stop.

The in-building inspection was performed by village staff while the hydro-excavation before and after the curb stop was completed by Waste Recovery Systems.

Hydro-excavation was used to expose the service line on both sides of the curb stop to visually confirm the pipe material. Waste Recovery Systems (WRS) was the low bidder for the excavation work and was authorized to proceed in a letter dated July 28, 2025. WRS began hydro-excavation activities on October 8, 2025 and completed the work on October 29, 2025. During this time, WRS was able to complete approximately 10 to 15 excavations per day. Once the water service material was identified and documented, the excavations were immediately backfilled by hand shoveling. Photographs were taken at each of the three inspection points for documentation purposes. Waste Recovery Systems submitted the completed inspection spreadsheet and associated photographs to the Village in November 2025 for inclusion in the project records and analysis.

V. Condition Assessment

The following table summarizes the materials and sizes identified for the 19 investigated properties.

A total of 19 water services were investigated as part of this study in accordance with the methodology described above. Of the 19 services inspected, 8 services (42%) were identified as copper within the building, while 11 services (58%) were identified as galvanized steel. The presence of galvanized material within buildings is generally indicative of older plumbing installations, whereas copper piping is more representative of newer construction or prior replacement efforts.

On the public side of the service line, 18 services (95%) were identified as copper. Only one service, located at 113 Division, was found to be galvanized steel, representing 5% of the total inspected services. Similarly, on the private side of the curb stop, 18 services (95%) were copper and the same single service at 113 Division (5%) was galvanized steel. The consistency between the public and private exterior findings suggests that most exterior service line segments have either been originally installed as copper or have been replaced with copper over time.

When considering the overall service configuration across all three inspection points, 8 services (42%) were copper throughout the entire length from the water main to the building interior. Another 10 services (52%) consisted of galvanized material within the building that transitioned to copper for both exterior segments. Only 1 service (6%) was found to be galvanized steel throughout the entire service line from the water main to the building. Based on the sample evaluated, it can be ascertained that copper is the predominant material within the Village's service line system. However, galvanized steel is present in older in-building piping, with very

limited occurrence in the exterior portions of the service lines. Importantly, no lead materials were identified at any of the three inspection points for any of the 19 services investigated.

Table 4: Service Line Investigation Results

#	Address	In-House Inspection	Main to Curb Stop Material	Curb Stop to House Material	Main Diameter
1	307 Beech St	Copper	Copper	Copper	4"
2	363 Beech St	Copper	Copper	Copper	4"
3	350 Cherry St	Galvanized	Copper	Copper	4"
4	229 Cressy St	Galvanized	Copper	Copper	6"
5	179 S East St	Galvanized	Copper	Copper	8"
6	113 Division St	Galvanized	Galvanized	Galvanized	4"
7	183 Division St	Galvanized	Copper	Copper	4"
8	208 Division St	Copper	Copper	Copper	4"
9	317 Division St	Copper	Copper	Copper	6"
10	225 Green St	Galvanized	Copper	Copper	4"
11	157 Maple St	Galvanized	Copper	Copper	6"
12	193 Maple St	Copper	Copper	Copper	4"
13	197 Maple St	Copper	Copper	Copper	6"
14	233 Maple St	Galvanized	Copper	Copper	4"
15	238 Maple St	Galvanized	Copper	Copper	6"
16	145 Oak St	Galvanized	Copper	Copper	6"
17	149 Race St	Galvanized	Copper	Copper	6"
18	193 Warren St	Copper	Copper	Copper	6"
19	225 Warren St	Copper	Copper	Copper	6"

The locations of the investigated services were also considered in relation to the age and material of the Village's water mains. The Village's distribution system consists of 4-inch and 6-inch cast iron pipe, which corresponds to the oldest portions of the system. Based on the inspection results and the known age of the distribution infrastructure, it is expected that the majority of any remaining galvanized service lines, and any potential lead components such as goosenecks, would be associated with properties connected to these older cast iron mains. This understanding provides context for the investigation results and helps identify areas of the distribution system where galvanized or lead services are most likely to remain. This information should also be used to guide future investigations by prioritizing inspections in areas of the system served by the older cast iron water mains.

VI. Asset Inventory

The findings from the service line investigation were used to estimate the quantity of water service materials present throughout the Village's water distribution system and to evaluate the overall value of the service assets. Village records were used to determine the total number of service connections within the system, and an average service lateral length was applied to estimate the total length of service piping. The percentage of galvanized material identified

during the investigation was then applied to the total length to estimate the amount of galvanized piping present throughout the system. The remaining length was assumed to consist of copper service lines.

Table 5: Systemwide Service Line Material Estimates

Investigation	Inspected	Percentage	Systemwide Estimate
Copper	8	42%	79
Galvanized	11	58%	109
Lead	0	0%	0
Total	19	100%	188

Unit costs were applied to the estimated lengths of each service material to determine the approximate value of the service piping. Separate unit values were used for galvanized pipe and copper pipe to reflect the differing values associated with each material. In addition to the piping itself, the table below includes assets such as corporation stops, curb stops, and water meters for each service connection. The combined value of the service lateral piping, corporation stops, and curb stops provides an estimate of the total asset value associated with the Village's service line system.

Table 6: Systemwide Service Line Material Estimates

Item	Unit	Quantity	Value	Total
Galvanized Service Line	Ft	3,596	\$ 20	\$ 72,000
Copper Service Line	Ft	2,604	\$ 75	\$ 195,000
Lead Service Line	Ft	0	\$ 0	\$ 0
Corporation Stop	Ea	188	\$ 800	\$ 150,000
Curb Stop	Ea	188	\$ 450	\$ 85,000
Water Meter	Ea	188	\$ 1,000	\$ 188,000
			Total Value of Service Lateral Assets	\$ 690,000

VII. Level of Service

The Village of Freeport is committed to providing safe, reliable, and high-quality drinking water to its residents. A key component of this commitment is the continued improvement of the service line system to eliminate materials that may pose a risk to water quality or long-term system performance. Based on the findings of this study, the Village has established a level of service goal focused on the removal of all lead and galvanized materials from the drinking water system.

The Village's target level of service is to achieve a distribution system in which all service lines are free of lead and galvanized components, consisting instead of materials such as copper that are durable and not associated with water quality concerns. To support this goal, the Village aims to complete identification of all service line materials within the distribution system by 2035. Following full system identification, the Village will continue with a planned replacement program to remove all remaining galvanized and any lead components, with a target completion year of 2041.

In support of this level of service, the Village will continue to implement a proactive approach to service line investigation, material identification, and replacement. This includes prioritizing the removal of any identified or suspected lead components, followed by the systematic replacement of galvanized service lines. Through these efforts, the Village aims to provide a

consistent and dependable level of service to its customers while maintaining compliance with state and federal drinking water standards.

VIII. Critical Assets

A criticality assessment of the Village's service line system was completed based on the observed condition of system components and the typical performance characteristics of service line infrastructure. Overall, the risk of failure for service lateral components, including service lines, corporation stops, and curb stops, is considered to be low. No assets observed during the investigation were identified as being in a critical condition or exhibiting signs of imminent failure.

The existing service line materials and appurtenances are generally functioning as intended and are not currently experiencing widespread issues related to leaks, breaks, or operational deficiencies. While all infrastructure assets are subject to deterioration over time, the components within the Village's service lateral system appear to be performing adequately under current conditions.

Although the present risk of failure is low, these assets should continue to be monitored and evaluated as part of ongoing system maintenance and future investigation efforts. Any components that begin to show signs of wear, damage, or increased likelihood of failure should be addressed and replaced as needed to maintain system reliability and prevent service disruptions.

IX. Revenue Structure

The revenue for the drinking water system fund comes from rates charged to residents in the Village who are distribution system users. The Village board reviews these rates on a yearly basis. In reviewing the rates, the boards considers the annual costs of operation and maintenance required to provide the desired level of service, any debt service, and any necessary capital improvements for upgrades to the system and any projected expansions. Table 7 below shows the current rates and fees for the Village of Freeport Drinking Water System.

Table 7: Village of Freeport Drinking Water System Rates 2026

Billing Rate	\$2.30	Per 1000 Gallons
Ready to Serve Rate	\$102	Per Quarter

X. Capital Improvement Plan

Based on the findings of the service line investigation, a recommended capital improvements plan has been developed. This plan outlines the recommended service line investigation and replacement activities over time. The Village should continue efforts to identify and replace older service line materials within the distribution system. The following plan provides a general framework to guide future investigation and replacement activities over both the short-term and long-term.

Table 8: Recommended Improvement Plan Costs

Timeline	Improvement	Details	Unit	Amount	Price	Cost	Total
0-5 Years	Water Service ID	Exploratory Hydro-Excavation	Ea	65	\$1,000	\$65,000	\$220,000
	1" Water Service Replacement	Main to Curb Stop	Ft	165	\$80	\$13,200	
	1" Water Service Replacement	Curb Stop to Meter	Ft	1100	\$65	\$71,500	
	Curb-stop & Box	Service Valve Box	Ea	40	\$500	\$20,000	
	1" Water Meters	In-House Meters	Ea	40	\$1,000	\$40,000	
	Corp-Stop	Tap for Water Service	Ea	5	\$600	\$3,000	
5-20 Years	Water Service ID	Exploratory Hydro-Excavation	Ea	123	\$1,000	\$123,000	\$420,000
	1" Water Service Replacement	Main to Curb Stop	Ft	330	\$80	\$26,400	
	1" Water Service Replacement	Curb Stop to Meter	Ft	2190	\$65	\$142,350	
	Curb-stop & Box	Service Valve Box	Ea	80	\$500	\$40,000	
	1" Water Meters	In-House Meters	Ea	80	\$1,000	\$80,000	
	Corp-Stop	Tap for Water Service	Ea	10	\$600	\$6,000	
* All Values in 2026 Dollars						Total	\$640,000

The overall cost of the 0-5 year plan is estimated to be \$220,000. This phase includes continued service line investigations through exploratory hydro-excavation to further identify materials throughout the distribution system. In addition, it includes the replacement of any discovered galvanized or lead service lines with new 1-inch copper services, along with associated components such as corporation stops, curb stops, and 1-inch in-house water meters. During this phase, the Village should target replacing at least 7% of the existing galvanized service lines per year to maintain steady progress toward system improvements.

The 5-20 year plan is estimated to cost \$440,000 and represents the continuation and completion of the Village's service line improvement efforts. This phase includes completing all remaining service line investigations and the full replacement of any remaining galvanized or lead service line components. All identified galvanized or lead piping will be replaced with copper, regardless of observed physical condition, to ensure consistency across the system and eliminate the presence of outdated materials. All replacements are to be completed by 2041 to align with EGLE requirements under the Lead and Copper Rule. By the end of this phase, all service lines within the Village are expected to consist of copper materials, resulting in a safer and more reliable distribution system.

The Village should plan to budget approximately \$44,000 per year over the 20 year period in order to make capital improvements to its service line system. This equates to \$640,000 and will allow the recommended improvements to be completed in the time frames suggested. The current funding source for the Village should be adequate to complete this capital improvement plan.

Appendix A: Maps

1. 2017 General Plan Existing Water Distribution System
2. Lead Service Line Replacement Investigations
3. Expected Service Materials

EXISTING WATER DISTRIBUTION SYSTEM

VILLAGE OF FREEPORT
BARRY COUNTY, MICHIGAN
JUNE, 2017



LEGEND

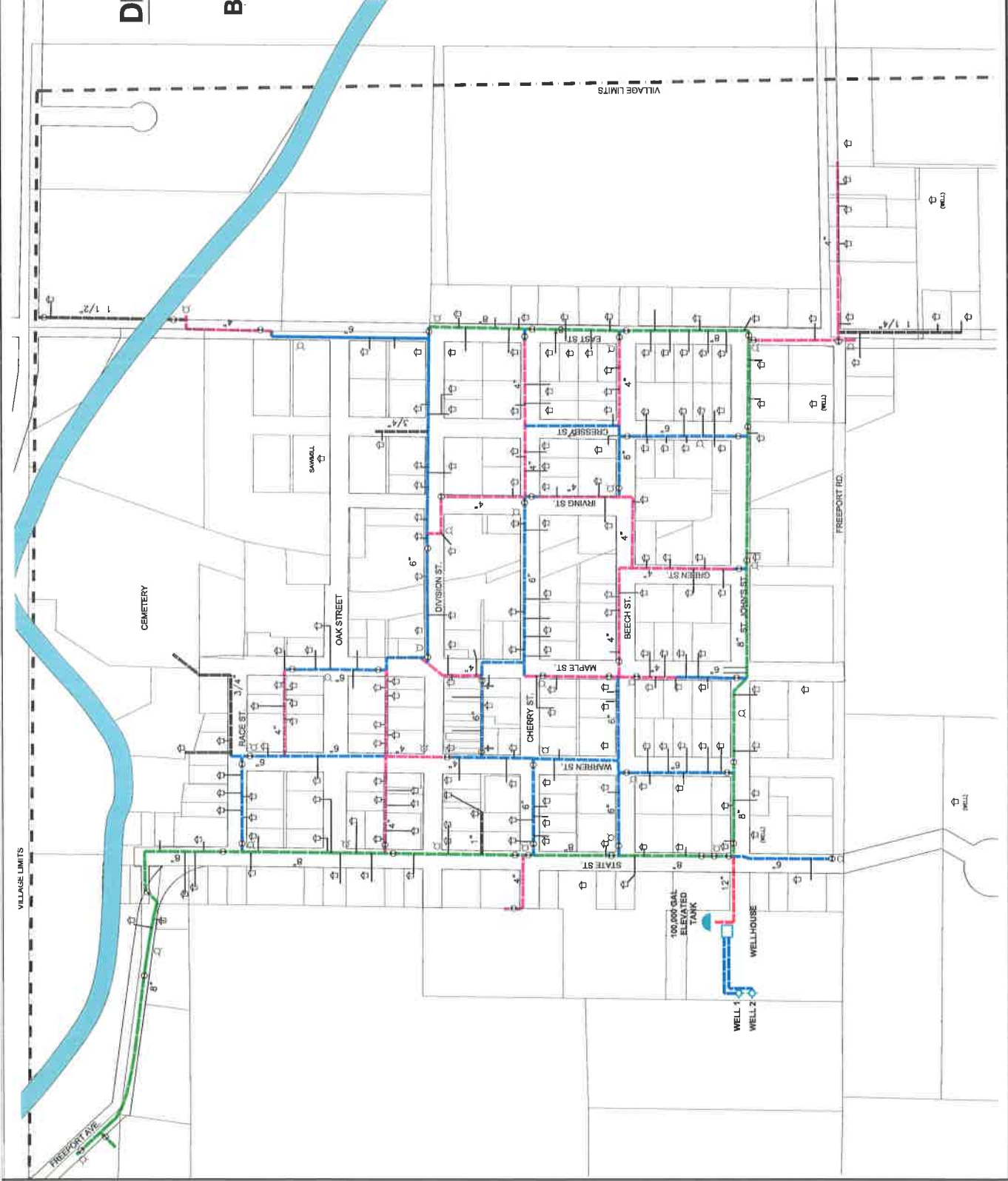
- 3/4" & 1 1/2" WATER LINE
- 4" WATER LINE
- 6" WATER LINE
- 8" WATER LINE
- 12" WATER LINE
- HYDRANT
- WATER VALVE
- WELL
- ELEVATED STORAGE TANK
- RESIDENCE
- CHURCH



SITE LOCATION

williams&works

engineers surveyors planners
816.224.1500 phone <http://williams-works.com>
548 Ottawa Ave NW Grand Rapids, MI 49503



WATER DISTRIBUTION SYSTEM

LEAD SERVICE LINE REPLACEMENT

VILLAGE OF FREEPORT BARRY COUNTY, MICHIGAN



LEGEND

- 3/4" & 1 1/2" WATER LINE
- 4" WATER LINE
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