

Sanitary Sewer System Infiltration & Inflow Study

November 09, 2020



City of Mineral Point Wastewater Treatment Facility

WPDES Permit No. WI-0024791-09-0

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Project Number: D20-060

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CHAPTER I – INTRODUCTION

GENERAL

The City of Mineral Point is located in Iowa County in southwest Wisconsin. The City is located in Section 36, Town 5, Range 2 East; Section 1, Town 4, Range 2 East; Sections 29, 31, and 32, Town 5, Range 3 East; and Sections 5 and 6, Town 4, Range 3 East of the Fourth Principal Meridian. The City currently has a population of 2,487 persons and is situated on a rolling hills area located adjacent to United States Highway '151' with the grade sloping throughout anywhere from five (5) percent to fifteen (15) percent. Elevations in the area range from approximately 940'± at the Wastewater Treatment Facility (WWTF) to 1138'± at the water tower, which is located at the intersection of Church Street and Ridge Street.

The current sanitary sewer collection system consists of approximately 535 sanitary manholes; seven (7) sanitary lamp holes; seven (7) sanitary lift stations; 530 feet of six-inch (6") sanitary sewer; 111,670 feet of eight-inch (8") sanitary sewer; 1,050 feet of 10" sanitary sewer; 1,500 feet of 12" sanitary sewer; 2,675 feet of 15" sanitary sewer; and 8,970 feet of four-inch (4") sanitary force main. Compositions vary between cast iron pipe (CIP), vitrified clay pipe (VCP), truss pipe, concrete pipe, and polyvinyl chloride pipe (PVC). The manholes are composed entirely of precast structures. The sanitary sewer collection system is utilized to transport wastewater to the Wastewater Treatment Facility (WWTF). Please refer to Exhibit #1 – Sanitary Sewer Map in Appendix A for the locations of the sanitary sewer system components within the Study Area. Sections of the existing sanitary sewer collection system have been replaced over the years as various street construction projects were completed throughout the City to improve system reliability. The City plans to continue replacing sections of the sanitary sewer collection system as street construction projects progress based on the type and condition of sanitary sewer main.

The majority of the current sanitary sewer collection system was installed in the late 1960's. Over time, many of the sections have become deficient and serve as sources of substantial infiltration, inflow, and in some instances, even outflow. Additionally, clear water cross connections with basement sump pumps and stormwater catch basins are a significant source of inflow that can be easily prevented. The WWTF has excessive Inflow & Infiltration (I&I) as indicated on daily flow monitoring. The WWTF's average annual design flow is 0.353 million gallons per day (MGD). In 2020, the average influent flow during periods of dry weather and normal groundwater levels (February) was equal to 0.200 MGD. During periods of wet weather and high groundwater levels (March) the average influent flow jumped to 0.500 MGD! In fact, on March 20, 2020 the influent flow reached **1.500 MGD**; over four times the design capacity of the WWTF! The City knows that I&I is prevalent in its sanitary sewer collection system; the next step was determining where the I&I is coming from.

PURPOSE

The purpose of this study was to locate where the I&I sources of groundwater and/or rainwater are getting into the City of Mineral Point's sanitary sewer collection system. Inflow is any clearwater directly discharging to the sanitary sewer collection system. Sources of inflow include storm sewer cross connection, sump pump connection, roof drain connections, and faulty manhole covers. Infiltration is any groundwater entering the sanitary sewer collection system. Sources of infiltration include cracked sanitary sewer laterals, faulty sanitary sewer

lateral connections, cracked or broken sanitary sewer mains, and deteriorated manholes. Please refer to the Inflow & Infiltration Diagram in Figure 1.1.

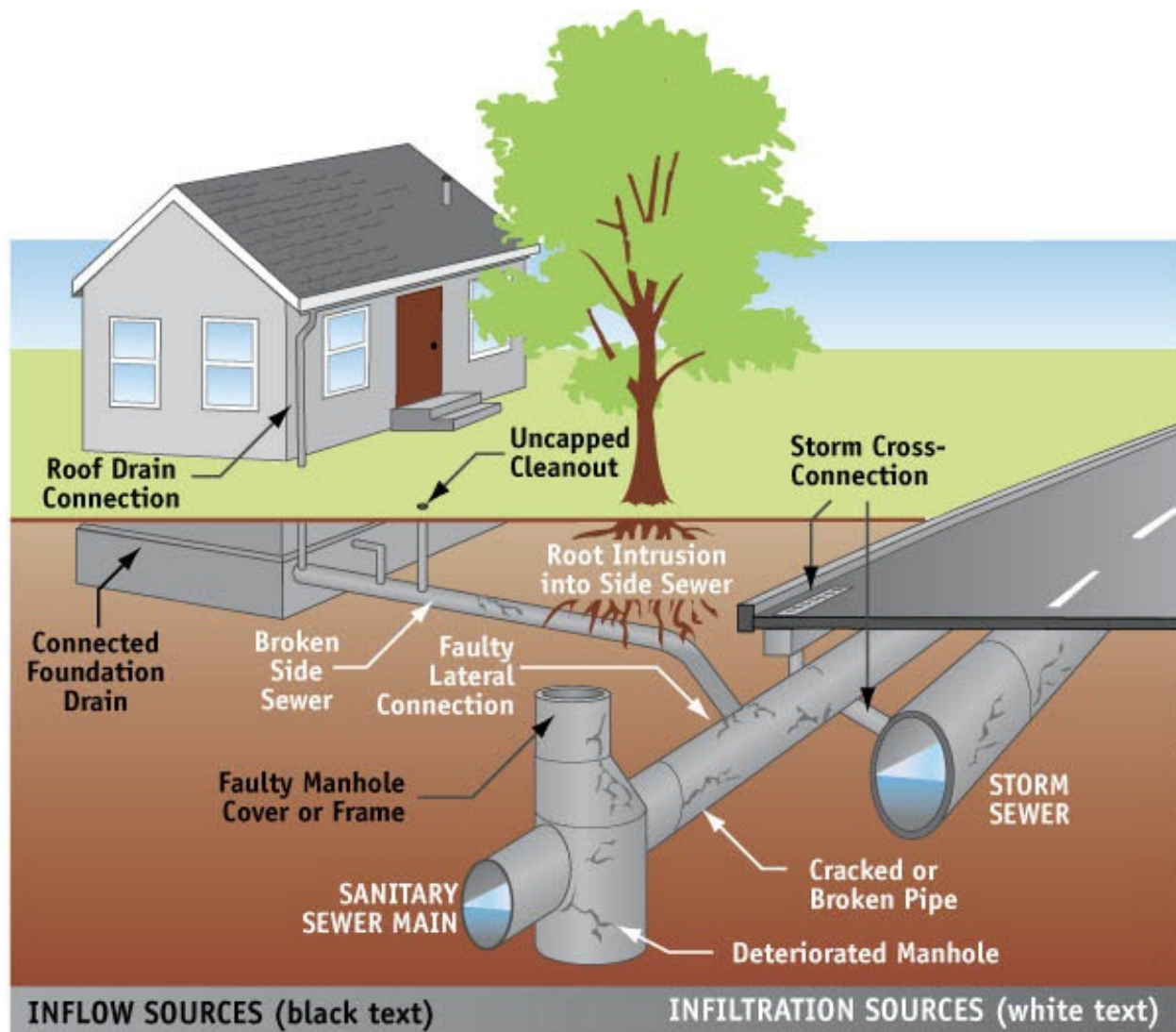


Figure 1.1 – Inflow & Infiltration Diagram

The Sanitary Sewer I&I Study was performed in August 2020 to evaluate the City's sanitary sewer collection system. This I&I Study Report will review the I&I Study methodology and results; will identify deficiencies located during the I&I Study; will address the need for improvements to the sanitary sewer collection system to provide adequate service while also limiting clear water flow into the system; and will provide recommended solutions. After establishing the recommended solutions, the results will be evaluated by economic means and prioritized accordingly.

CHAPTER II – DATA COLLECTION

In order to possibly locate and evaluate the sources of clear water I&I within the sanitary sewer collection system, the City of Mineral Point hired Delta 3 Engineering to perform the 2020 I&I Study. The components of the sanitary sewer collection system I&I Study generally included manhole investigations, smoke-testing, sanitary sewer main televising, data processing & analysis, computer-aided drafting, and report for evaluation of the sanitary sewer mains and other areas of the sanitary sewer collection system within the City.

MANHOLE INSPECTIONS

Of the 535 manholes within the City of Mineral Point's Sanitary Sewer Collection System, 426 were inspected during the I&I Study. The remaining manholes were not inspected because they were unable to be located or were buried and unable to be opened. Many of these inspected manholes served as access points for smoke testing and televising. For each manhole inspected, the findings were recorded and can be found in Appendix B - Manhole Inspections. In order to quickly identify the critical issues, such as leaking structures, each manhole was rated based on the condition of its casting, adjustment rings, and structure. Based on these three categories, an overall rating between 0 and 10 was then calculated for each manhole with 0 being the lowest and 10 being the highest. After scoring each manhole, 113 were rated below an 8 and were identified to be potential sources of I/I into the sanitary sewer collection system. Problematic manhole ratings are provided in Table 2.1.

Table 2.1 - Manhole Deficiency Ratings

ID #	Casting Rating	Adj. Rings Rating	Structure Rating	Overall Rating
6A	0	7	4	2.0
6D	0	10	7	2.0
13A	0	10	0	0.0
20	10	10	0	0.0
27	0	7	3	2.0
34	0	3	3	2.0
43	5	6	0	0.0
44	5	10	2	5.7
44A	0	6	5	2.0
44B	0	7	5	2.0
44E	0	7	5	2.0
44G	0	1	5	2.0
44I	0	2	5	2.0
44J	0	5	2	2.0
47A	5	7	0	0.0
50	10	8	0	0.0
59A	0	7	3	2.0
61A	0	10	5	2.0
64A	3	10	10	7.7
69	10	4	3	5.7
73	0	10	2	2.0

Table 2.1 - Manhole Deficiency Ratings (Continued)

ID #	Casting Rating	Adj. Rings Rating	Structure Rating	Overall Rating
74	0	2	5	2.0
78	0	6	3	2.0
80	0	0	3	2.0
87C	0	10	2	2.0
104	0	2	3	2.0
106	0	7	3	2.0
109	5	5	2	4.0
114	0	10	2	2.0
115B	5	7	2	4.7
117	0	10	2	2.0
120	10	8	3	7.0
123	0	2	3	2.0
126	5	4	2	3.7
131	0	7	3	2.0
133	3	7	0	0.0
136A	0	10	5	2.0
136B	5	1	3	3.0
136C	3	7	7	5.7
138	0	0	0	0.0
139	4	4	4	4.0
140	0	2	3	2.0
141	5	4	0	0.0
141F	3	7	0	0.0
143	5	0	3	3.0
144B	0	2	5	2.0
146	0	10	0	0.0
150A	3	7	5	5.0
161	5	8	3	5.3
167	0	6	1	2.0
171	0	1	4	2.0
179	5	10	2	5.7
213	10	8	0	0.0
220A	3	10	1	4.7
221A	4	4	1	3.0
223	0	10	0	0.0
225A	0	10	3	2.0
230	0	10	3	2.0
232A	0	7	3	2.0
233	0	7	3	2.0
234A	8	5	10	7.7
237A	0	10	5	2.0

Table 2.1 - Manhole Deficiency Ratings (Continued)

ID #	Casting Rating	Adj. Rings Rating	Structure Rating	Overall Rating
242B	4	0	3	3.0
248	0	2	5	2.0
252	2	8	5	5.0
253	4	4	1	3.0
262	5	10	0	0.0
270	5	7	0	0.0
272	10	0	3	3.0
273C	0	10	4	2.0
279	0	6	3	2.0
281	0	4	5	2.0
282	3	10	5	6.0
286	4	5	1	3.3
287A	0	10	5	2.0
287B	0	10	5	2.0
287C	0	7	5	2.0
287D	0	10	5	2.0
287E	0	10	4	2.0
295B	8	5	2	5.0
310	0	10	10	2.0
310B	0	10	8	2.0
311	0	5	5	2.0
312	3	10	0	0.0
319	0	10	0	0.0
320	0	7	2	2.0
322	0	5	4	2.0
324	0	10	1	2.0
325	0	7	3	2.0
325A	0	7	4	2.0
326	0	10	5	2.0
341	0	1	0	0.0
346	10	10	2	7.3
347	10	7	2	6.3
348	10	10	0	0.0
349	0	10	6	2.0
350	10	7	4	7.0
352A	8	7	6	7.0
352B	8	4	3	5.0
363	8	10	1	6.3
364	0	7	4	2.0
365	0	10	4	2.0
371	10	7	5	7.3

Table 2.1 - Manhole Deficiency Ratings (Continued)

ID #	Casting Rating	Adj. Rings Rating	Structure Rating	Overall Rating
372	0	10	4	2.0
373	0	7	5	2.0
377	3	10	6	6.3
379	0	10	4	2.0
380	0	7	3	2.0
396	0	7	4	2.0
506	2	4	0	0.0
507	2	4	5	3.7
700	10	4	3	5.7
707	2	8	5	5.0

Some of the common issues with the deficient manholes listed in Table 2.1 include infiltration at the casting, infiltration in the adjustment rings, infiltration in the structure, open pick manhole lids, broken manhole castings, adjustment rings not sealed, broken or missing adjustment rings, cracks or fractures in the manhole structure, roots in the manhole structure, no structure bottom, and waterline/mineral deposits along the sides of the structure. After rating each deficient manhole, the structures were then mapped to show the locations and severity of the deficiencies on Exhibit #2 – Deficient Manholes in Appendix A. This exhibit also indicates an additional 163 open pick manholes above and beyond what is listed in Table 2.1. Following are some examples of the deficiencies of the manholes.



Figure 2.1 – MH44J received an overall rating of 2.0 due to a slid open pick casting, no seal, cracked adjustment rings, roots in structure, and no structure bottom.



Figure 2.2 – MH13A received an overall rating of 0.0 due to a slid open pick casting that is in a low spot, no seal, mineral deposits, and no structure bottom.



Figure 2.3 – A leaking structure was observed at MH50 resulting in an overall rating of 0.0.

SANITARY SEWER SMOKE TESTING

Smoke testing was conducted for 100% of the sanitary sewer system as a means of locating defects in sanitary sewer mains, manholes, and service laterals which allow rainfall runoff and/or groundwater to enter the sanitary sewer collection system. Locating and correcting these defects helps conserve the available capacity of the sanitary sewer collection system, lift stations, and wastewater treatment facility. Smoke testing is done by introducing non-toxic smoke along with large volumes of air through an open sanitary sewer manhole. The smoke testing equipment includes a gas operated engine and high-velocity fan to generate smoke and air to push the smoke through the system. Smoke will appear around nearby manhole lids and from the ground above defects in sanitary sewer mains and laterals. Smoke will also appear at cross connections to the storm sewer system. Defects identified through smoke testing are then identified and recorded.

During the smoke testing operations, smoke was discovered escaping the sanitary sewer collection system throughout the city. Examination of extruding smoke yielded different discrepancies in the collection system. Located problems discovered are listed below and mapped out in Exhibit #3 – Smoke Testing Deficiencies in Appendix A.

- **Uncapped Cleanout**
 - 673 Oak Street
 - 734A Madison Street
 - 114 Shakerag Street
 - 3000 Business Park Road (x4-6")
 - 2500 Business Park Road
 - 521 Decatur Street
 - 222 Fountain Street
 - 1045 Branger Drive (6")
 - 930 Fountain Street
- **Broken Cleanout Cap**
 - 811 Ridge Street
 - 323 Doty Street
 - 319 High Street
 - 512 Decatur Street
 - 215 Iowa Street
 - 318 Maiden Street
- **Broken Cleanout**
 - 502 Alice Street
 - 311 High Street
 - 120 Antoine Street
 - 1100 Silver Street
 - 325 Maiden Street
 - 9th and Union Street Int.
 - 130 7th Street
- **Broken Lateral**
 - 639 Center Street
 - 717 Washington Street
 - 310 Vine Street
 - 99 Chestnut Street
 - 250 Shakerag Street
 - 643 Commerce Street
 - 204 High Street
 - 128 7th Street
- **Uncapped Abandoned Lateral**
 - 922 Ridge Street
- **Leak around Manholes**
 - MH 239B
 - MH 247B
- **Broken Sewer Main**
 - From MH 115 to MH 115A

Following are some examples of the deficiencies that were observed during smoke testing.



Figure 2.4 – Broken sewer lateral at 250 Shakerag Street.

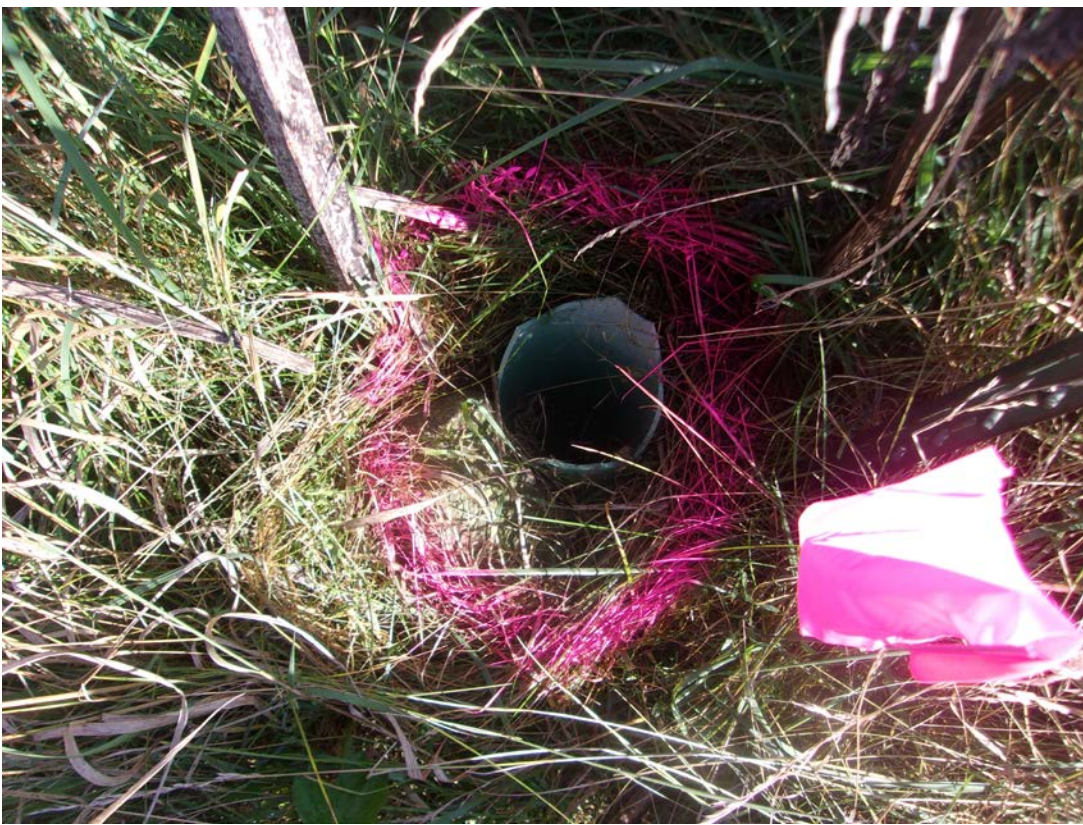


Figure 2.5 – Uncapped 6" cleanout at 3000 Business Park Road.

SANITARY SEWER CLEANING AND TELEVISION

Approximately 20,500 lineal feet of sanitary sewer was planned to be televised (17.5% of the system). In all, approximately 15,400 lineal feet was able to be cleaning and televised (13% of the system). The remaining 5,000 lineal feet was unable to be televised due to several manholes being inaccessible, protruding sanitary sewer laterals restricting access, and six-inch (6") sewer main that was too small for the televising equipment.

The purpose of televising is to identify potential sources of groundwater infiltrating into the sanitary sewer mains by means of cracks or holes in the pipe and to identify potential maintenance concerns. Through means of the televising investigation, some of the common problems throughout the system that were identified included: offset section joints of mainline pipe, cracked/fractured pipe, roots, pipe sags, sediment buildup, frequent changes in pipe material, visible voids, and visible infiltration. Please refer to Appendix C - Sanitary Sewer Cleaning and Televising Report for visual reference on what parts of the sanitary sewer collection system are contributing to infiltration and maintenance issues. Using the televising reports, each section of sanitary sewer main that was televised was scored similarly to that of the manhole inspections in order to determine priority problem areas within the sanitary sewer collection system. A summary of the televised areas with associated scores are provided in Table 2.2.

Table 2.2 – Televising Report Summary

Street Name	Downstream MH	Upstream MH	Score
Antoine Street	382	381	8.76
	381	380	9.00
	375	374	9.05
	376	375	10.00
	377	376	9.00
	378	377	8.46
	379	378	6.26
	380	379	8.34
	378	378A	8.00
	378A	378C	2.57
Center Street	138	139	9.87
	139	140	5.76
	140	141A	6.36
	141A	141B	1.88
	141A	141	5.95
	141	142	8.03

Table 2.2 – Televising Report Summary (Continued)

Street Name	Downstream MH	Upstream MH	Score
Commerce St	104	105	1.74
	7	104	3.04
	46	38	8.09
	48	49	3.32
	47	48	8.14
	47	46	7.16
	44F	47	4.36
	44H	44I	0.61
	44G	44H	3.45
Church Street	214	216	10.00
Fifth Street	125	126	10.00
	124	125	9.33
	134	135	4.16
	135	135A	6.95
	135A	136	6.41
	136	136D	3.81
	136D	136B	5.35
	136B	138	8.50
	138	143	6.43
	143	144	7.35
	144A	144B	7.45
	144	144A	8.50
Fountain Street	245	245B	2.29
Pleasant Street	270	271	8.74
	270	270A	6.79
	270A	270B	7.38
	270A	270C	7.70
	245C	270	3.06
Ridge Street	144B	145	3.28
	145	146	7.98
	141F	Lamp Hole	7.22
	141E	141F	1.44
Shakerag Street	21	188	7.48
	20	21	8.20
	52	53	8.33
	54	55	8.50
	53	54	7.37
	55	56	7.96
	56	57	8.39
	57	58	8.12

Table 2.2 – Televising Report Summary (Continued)

Street Name	Downstream MH	Upstream MH	Score
Shakerag Street	58	59	8.50
	59	59A	4.13
	373	372	0.00
	59A	373	8.29
	372	371	10.00
South Street	11	73	8.18
	73	74	10.00
	74	75	5.89
	75	76	6.69
Spruce Street	42	43	5.22
	43	44	4.30
	44	44A	6.17
	44	45	9.74
	44A	44B	8.29
	45	398	6.82
	398	397	8.50

After rating each sanitary sewer section, the deficient areas were then mapped to show the location and severity of the televised areas on Exhibit #4 – Televising Ratings in Appendix A. Following are some examples of the deficiencies that were found in the televising.



Figure 2.6 – Protruding sewer lateral located between MH135A and MH136.



Figure 2.7 – Offset joint with visible void located between MH59 and MH59A.



Figure 2.8 – Sag in sewer main between MH144B and MH145.



Figure 2.9 – Fractured pipe with visible voids between MH141A and MH141B.



Figure 2.10 – Severely cracked sewer main located between MH43 and MH44.



Figure 2.11 – Fractured sewer main located between MH48 and MH49.



Figure 2.12 – Significant roots in sewer main located between MH44 and MH43.



Figure 2.13 – Infiltration at joint in sewer main located between MH104 and MH105.

All of these deficiencies in the sanitary sewer collection system are entry points for clear water infiltration/inflow, and extensively contribute to decreased capacity of the collection system and the increased flow at the WWTF. The excess clear water infiltration/inflow that needs to be treated at the WWTF results in limited capacity for its treatment components; adversely affects treatment operations and efficiency and mechanical equipment life by causing deterioration of pumps, blowers, valves, and controls from additional unnecessary use; and results in much higher electrical, chemical addition, operation, and maintenance costs. The broken pipe, open pick manholes, and sags in the sanitary sewer lines create sediment buildup that needs to be cleaned more frequently, resulting in higher operation and maintenance costs.

CHAPTER III – RESULTS/RECOMMENDATIONS

RESULTS AND RECOMMENDATIONS

After collecting and analyzing the data and the deficiencies pinpointed on Exhibits #2 - #4, the areas that contribute the most to the City's I&I issues became very apparent. The manhole inspections revealed 87 manholes that had severe infiltration; 26 manholes that had moderate infiltration; and 163 manholes that had open-pick hole lids. Additionally, the smoke testing revealed 38 areas which were contributing sources of infiltration and inflow into the system. Lastly, based on the televising reports, 7,870 lineal feet of sanitary sewer should be replaced; 7,840 lineal feet of sanitary sewer should have cured-in-place-pipe (C.I.P.P.) liner installed; and the remaining 4,790 lineal feet of sanitary sewer that was televised is in good shape.

In analyzing both the underground and above ground condition, one of two (2) rehabilitation/replacement options were assigned to each deficient area. These rehabilitation/replacement options are as follows:

- Replace
 - Replace segment of sanitary sewer.
 - Replace sanitary sewer manhole.
 - Spot repair specific locations throughout the segment.
- Rehabilitate
 - C.I.P.P. liner.
 - Manhole chimney rehabilitation.
 - Above ground rehabilitation.

Each deficient area was then organized by priority to establish the order of importance of each rehabilitation/replacement option. Table 2.3 below priorities rehabilitation/replacement options so that the biggest sources of I&I can be addressed first.

Table 3.1 - Proposed Sanitary Sewer System Repairs

ID #	Deficiency	Location	Proposed Improvement
1	Infiltration, roots, visible voids, and cracks/fractures	Antoine Street, Spruce Street/Easement Area, and Shakerag Street	C.I.P.P. Liner, spot repairs, rehab manholes, and grout laterals
2	Infiltration, cracks/fractures, broken pipe, visible voids, roots, sags, and protruding laterals	Center Street, Ridge Street, and Commerce Street	Replace sanitary sewer main and associated appurtenances. Full street replacement due to the sanitary sewer replacement.
3	MH Structures with Severe Leaks (87 Total)	Throughout system	Replace/rehab severe leaking MH (87 each)
4	Broken Sewer Main	MH 115 to MH 115A	Replace/rehab Sewer Main
5	MH Structures with Moderate Leaks (31 Total)	Throughout system	Replace/rehab moderate leaking MH (31 each)
6	Broken Sewer Lateral	Throughout system	Replace/rehab Sewer Lateral

Table 3.1 - Proposed Sanitary Sewer System Repairs (Continued)

ID #	Deficiency	Location	Proposed Improvement
7	Open Abandoned Lateral	922 Ridge Street	Remove/cap lateral
8	Missing Cleanout Cap	Throughout system	Install cleanout cap
9	Open-pick MH Castings (216 Total)	Throughout system	Replace open pick lids and castings with sealed pick lids/castings (216 each)
10	Cracks/fractures, broken pipe, visible voids, roots, sags, offset joints, and protruding laterals	Pleasant Street and South Street	Replace sanitary sewer main and associated appurtenances. Full street replacement due to the sanitary sewer replacement.
11	Cracks/fractures, visible voids, roots, sags, offset joints, pipe material change, and protruding laterals	Fifth Street	Replace sanitary sewer main and associated appurtenances. Full street replacement due to the sanitary sewer replacement.
12	Unable to be televised. 6" main, which is against WisDNR code.	Aebersold Lane and Easement Area South of Spruce Street	Replace sanitary sewer main and associated appurtenances. Full street replacement due to the sanitary sewer replacement.

The 12 priority areas listed in Table 3.1 above were then visually expressed in Exhibit #5 – Rehabilitation/Replacement Map. The map provides both the location and type of rehabilitation/replacement recommended.

Some of these rehabilitation efforts are relatively simple and inexpensive corrective measures, but would be highly beneficial in reducing the City's I&I. Others are more costly but would be highly beneficial in reducing the City's I&I, while also limiting soils and grit from entering the system. These repairs would ultimately increase the sanitary sewer system reliability, reduce operation and maintenance costs, and reduce chances of a sanitary sewer backup.

CHAPTER IV – PROPOSED SANITARY SEWER REPAIRS EVALUATION

ECONOMIC EVALUATION

The criteria for prioritizing the recommended solutions includes monetary considerations, impacts of current deficiencies, ease of implementation, and any legal obligations associated with the repairs such as compliance with the City of Mineral Point WPDES Permit/City Ordinances.

One of the major elements of identifying and selecting the most feasible alternative for wastewater treatment is to evaluate the initial cost of the project for each of the priorities as provided in Table 4.1.

Table 4.1 - Economic Evaluation Summary - Sanitary Sewer System Priorities

Priority Description	Initial Cost
1 – Antoine Street, Spruce Street/Easement Area, and Shakerag Street	\$925,000
2 – Center Street, Ridge Street, and Commerce Street	\$1,250,000
3 – Replace/rehab severe leaking MH - 87 each	\$350,000
4 – Replace/rehab broken sewer main - 330 l.f.	\$60,000
5 – Replace/rehab moderately leaking MH - 31 each	\$65,000
6 – Replace/rehab broken sewer lateral – 17 each	\$35,000
7 – Remove/cap lateral	Property Owner Expense
8 – Install cleanout cap	Property Owner Expense
9 – Replace open pick lids and castings - 163 each	\$200,000
10 – Pleasant Street and South Street	\$675,000
11 – Fifth Street	\$765,000
12 – Aebersold Lane and Easement Area South of Spruce Street	\$190,000

CHAPTER V – RECOMMENDED PLAN

RECOMMENDED PLAN

From the 2020 I&I Study results, primary needs within the sanitary sewer system were identified as follows:

- 1 – C.I.P.P. Liner – 7,840 l.f.
- 2 – Replace sanitary sewer collection system – 7,870 l.f.
- 3 - Replace/rehab severe leaking MH - 87 each
- 4 - Replace/rehab broken sewer main
- 5 - Replace/rehab moderately leaking MH - 31 each
- 6 - Replace/rehab broken sewer lateral
- 7 - Remove/cap lateral
- 8 - Install cleanout cap
- 9 - Replace open pick lids and castings – 163 each

After collecting and analyzing the data, along with prior knowledge of the system, each need was prioritized. The City should plan to address the needs as identified in Table 5.1 within the next (5) years.

Table 5.1 – Five (5) Year Priority Plan

Priority Description	Initial Cost
<u>Year 1</u>	<u>\$925,000 (Total)</u>
1 – Antoine Street, Spruce Street/Easement Area, and Shakerag Street	\$925,000
2 – Remove/cap lateral	Property Owner Expense
3 – Install cleanout cap	Property Owner Expense
<u>Year 2</u>	<u>\$1,250,000 (Total)</u>
1 – Center Street, Ridge Street, and Commerce Street	\$1,250,000
<u>Year 3</u>	<u>\$710,000 (Total)</u>
1 – Replace/rehab severe leaking MH - 87 each	\$350,000
2 – Replace/rehab broken sewer main - 330 l.f.	\$60,000
3 – Replace/rehab moderately leaking MH - 31 each	\$65,000
4 – Replace/rehab broken sewer lateral – 17 each	\$35,000
5 – Replace open pick lids and castings - 163 each	\$200,000
<u>Year 4</u>	<u>\$675,000 (Total)</u>
1 – Pleasant Street and South Street	\$675,000
<u>Year 5</u>	<u>\$955,000 (Total)</u>
1 – Fifth Street	\$765,000
2 – Aebersold Lane and Easement Area South of Spruce Street	\$190,000