October 2024

PREPARED BY

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Engineering infrastructure for tomorrow

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2023 City of Malvern Sanitary **Sewer Evaluation Study**

FINAL REPORT

October 8, 2024

Mr. Matt Dunn, P.E.
President
Crist Engineers, Inc.
1 Executive Center Court
Little Rock, AR 72211

Subject: City of Malvern – 2023 Sanitary Sewer Evaluation Study (SSES)

Dear Mr. Dunn:

In accordance with the February 2023 Engineering Agreement, RJN Group, Inc. is pleased to submit this final report for the above referenced project.

This final report provides a comprehensive analysis of the data and information collected during this project along with preliminary recommendations. A summary of the recommended plan is given in Table 1.

Table 1
Summary of Recommended Plan

Item	I/I Reduction		Estimated Capital Cost to I/I Removal Ratio[2/] ($Million/mgd)	Estimated Capital Cost[2/] ($Million)
	Inflow[1/] (mgd)	*Infiltration (mgd)*		
Manhole Rehabilitation				
Manhole Rehabilitation	0.02	0.12	0.90	$0.13
Sewer Line Rehabilitation				
Sewer Line Rehabilitation	0	0.18	14.95	$2.68
Service Line Rehabilitation				
Private Sector	0.12	0.00	1.69	0.20
Total	**0.15**	**0.30**	**6.83**	**$3.01**

1/ Based on projected 1-year/60-minute inflow.
2/ Includes estimated construction cost plus a 30% engineering service and contingency fee.

The field investigations include defect findings from manhole inspections, smoke testing, dyed water flooding, and television inspection. The following conclusions are based on the current field work:

- The recommended plan includes rehabilitation of 48 manholes, 215 service line sources, 14,577 linear feet of sewer line rehabilitation, and 550 linear feet of point repairs across 28 pipes.
- Implementation of the recommended plan would remove approximately 0.145 mgd of 1-year/60-minute inflow and 0.295 mgd of infiltration.
- The estimated Capital Cost to implement the recommended plan is $3.01 million.

We appreciate the opportunity to work with Crist Engineers, Inc (Crist) and the excellent cooperation from the staff throughout the project. We look forward to working with Crist in the future. Should you have any questions, please do not hesitate to call.

Respectfully Submitted,

RJN GROUP, INC.

Mac Compton, P.E.
Project Manager

MC/18-3979-00

Enclosure

SANITARY SEWER
EVALUATION-STUDY

FINAL REPORT

CITY OF MALVERN

October 2024

I hereby certify that this report was prepared under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Arkansas.

Mac Compton

Date: 10/08/2024 Registration No.: 15396

SECTION 1

INTRODUCTION

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CHAPTER 1 – INTRODUCTION

In February 2023, RJN Group, Inc. (RJN) was retained by Crist to perform an evaluation of the sanitary sewer collection system in the Malvern, AR area by means of intensive field investigations on select portions of the city. The City of Malvern has extensive information from a previous study in 2019. That study included sanitary sewer investigation activities in basins 2, 3, 3A, 4, 5, and 5A; however, smoke testing was only conducted in Basins 2, 5, and 5A. Figure 1.1 (see page 1-2) depicts the 2023 SSES study area.

This report focuses exclusively on the findings and remedial measures within the study area, which includes the following field activities:

- 27,224 linear feet of CCTV
- 131 Manhole Inspections
- 197,407 linear feet of Smoke Testing
- 21 Dye Tests

OVERVIEW

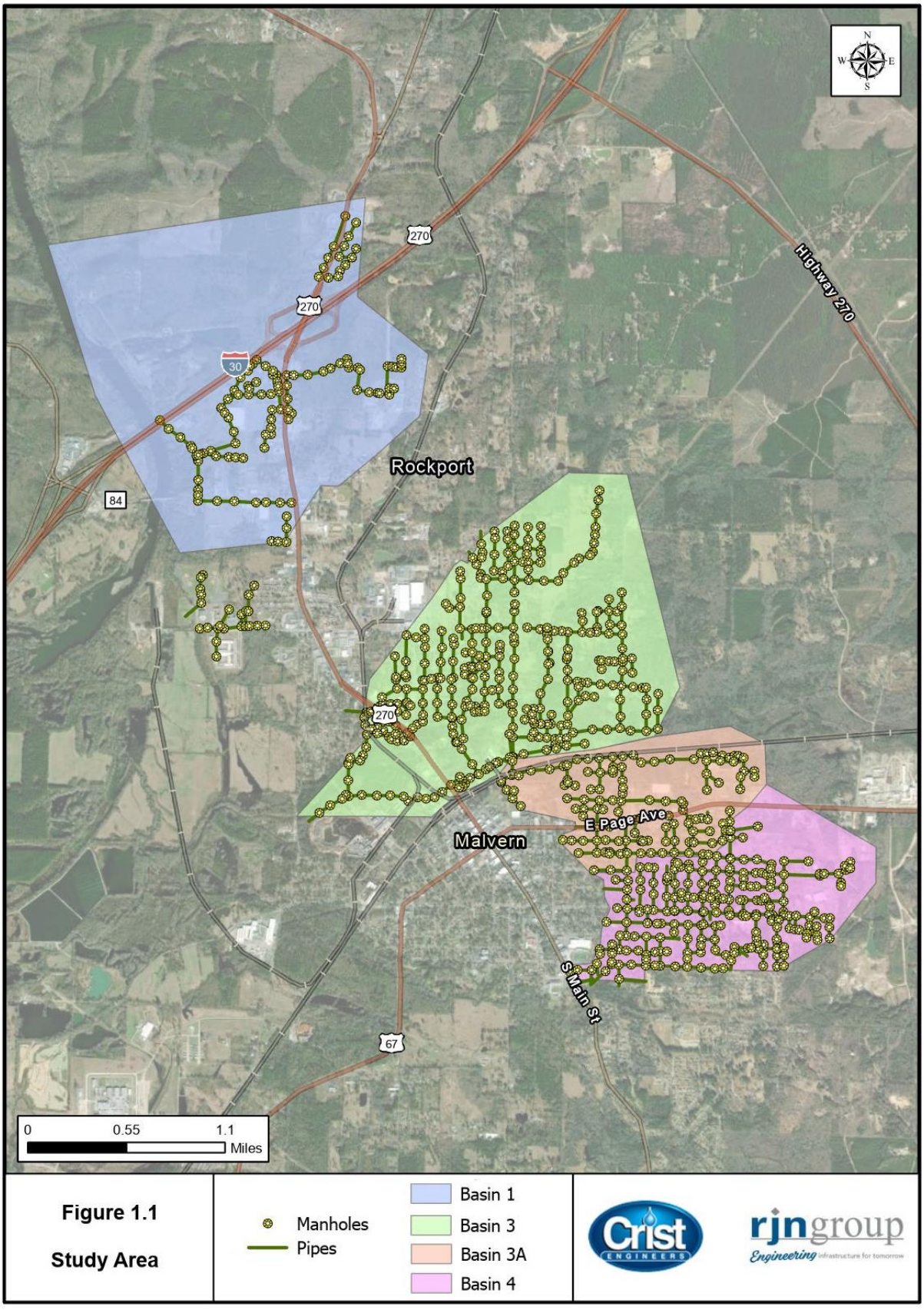
A Sanitary Sewer Evaluation Study (SSES) is a cost-effective evaluation consisting of intensive field procedures and data analysis to determine the condition of sanitary sewer lines and access structures. Sewer lines are susceptible to Infiltration and Inflow (I/I) or extraneous flow entering the system which can be excessive, expensive to treat, and a contributor to wet-weather overflows.

I/I may enter the sanitary sewer system during moderate storm events. Infiltration occurs when groundwater enters sewer lines and manholes. Inflow occurs when storm water runoff enters the sanitary sewer system through both public sector and private sector sources. Some inflow sources include cross connections with storm sewers, main line defects, vented manhole covers, defective frame seals, defective cleanouts, and direct connections to the sanitary sewer from downspouts and/or area drains.

The purpose of this report is to provide a thorough review of the field investigation procedures, findings, analysis, and ultimately deliver a recommended plan to reduce I/I and improve the structural integrity of the sanitary sewer system.

DESCRIPTION OF THE STUDY AREA

The Malvern study area is primarily comprised of residential neighborhoods with a small amount of commercial sections and contains 131 manholes and 197,407 linear feet of sewer. Figure 1.1 depicts the study area.


Rockport
Malvern
Highway 270
E Page Ave
S Main St
270
30
84
67
0
0.55
1.1
Miles
Figure 1.1
Study Area
Manholes
Pipes
Basin 1
Basin 3
Basin 3A
Basin 4

PROJECT APPROACH

The project approach for the Malvern Sewer System Evaluation included gathering data through field investigations. Based upon that data, RJN developed a recommended plan to reduce I/I and improve efficiency of the wastewater collection system.

The project team employed the following field investigations to maximize efforts and efficiently identify sources of I/I:

1. Manhole and Visual Pipe Inspections
2. Smoke Testing
3. Dye Testing
4. CCTV Inspection

All collected data is first reviewed by data analysts at RJN to ensure no pertinent information is left behind during field investigations. The quality of the data is also reviewed so quantifications from rainfall simulations are consistent. The recommended plan was formulated after carefully reviewing the results derived from the field investigations and includes of the following:

1. Manhole Rehabilitation Recommendations
2. Line Replacements and Point Repairs
3. Recommended Service Line Inflow Removal
4. Cost to Implement the Recommended Plan

DEFINITIONS AND ABBREVIATIONS

This section contains definitions and abbreviations commonly used throughout this report.

1. Infiltration (as defined by USEPA) - the water entering a sewer system and service connections from the ground through such means as, but not limited to, defective pipes, pipe joints, service connections, service laterals, or manhole walls.

2. Inflow (as defined by USEPA) - the water discharged into a sewer system, including service connections, from such sources as roof leaders; cellar, yard, and area drains; foundation drains; cooling water discharges; drains from springs and swampy areas; manhole covers; cross connections from storm sewers, combined sewers, or catch basins; storm waters; surface runoff; or drainage.

3. Excessive Infiltration and Inflow (I/I) - the extraneous clean water that enters the sanitary sewer system which can be eliminated on a cost-effective basis.

4. 1-Year/60-Minute Storm - a storm event that produces 1.63 inches of rain per hour in the Malvern, Arkansas area and is expected to occur once in any given year.

5. 5-Year/60-Minute Storm - a storm event that produces 2.19 inches of rain per hour in the Malvern, Arkansas area and has a 20 percent probability of occurring in any given year.

6. Design Storm Event - a storm event selected for purposes of analyzing its effect on the wastewater collection system.
7. gpd - gallons per day.
8. mgd - million gallons per day.
9. idm - inch-diameter-miles. The product of sewer pipe diameter in inches and length of sewer in feet per 5,280 feet.
10. gpd/idm - gallons per day per inch-diameter-mile.
11. Surcharge Condition (as defined by WEF Manual of Practice FD-6) - when the sewer flow depth equals or exceeds the diameter of the discharging sewer lines.
12. Infiltration and Inflow (I/I) - a combination of infiltration and inflow wastewater volume in sanitary sewer.

SECTION 2

FIELD INVESTIGATION

CHAPTER 2 – FIELD INVESTIGATIONS

RJN conducted sanitary sewer investigation activities within the study area of Malvern, Arkansas. The objective was to identify sewer maintenance problems, quantify sources of infiltration and inflow (I/I), and recommend a rehabilitation plan to reduce I/I and improve the overall efficiency of the collection system. Field activities included the following:

1. Manhole and Visual Pipe Inspections
2. Rainfall Simulation
   a. Smoke Testing
      i. Identification of Public Defects
      ii. Identification of Private Defects
   b. Dye Testing
      i. Potential Mainline/Storm Sewer Connections
      ii. Manhole Defects
3. Television Inspection (defects identified through smoke testing and visual pipe) conducted by NLRWU and reviewed by RJN.

MAPPING

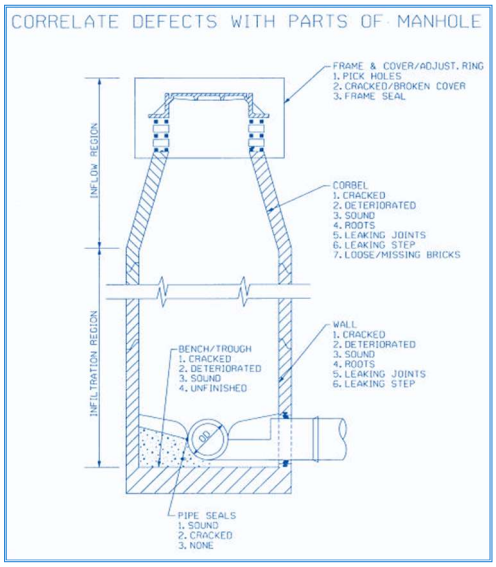
At the start of the project the City of Malvern provided map data of the wastewater collection system study area, which included known existing access structures. During manhole inspections, some manholes were discovered in the study area that were previously unmapped. These manholes and associated gravity main connections were added to the GIS. Updates to the sanitary sewer system are provided to the city with this report.

MANHOLE AND VISUAL PIPE INSPECTIONS

Manhole and visual pipe inspections assess the physical condition of the sewer system. These inspections verify manhole location, pipe size, line segment continuity, and evaluate manhole and connecting pipe condition. A sectional elevation of a typical manhole is shown on page 2-2.

MANHOLE INSPECTIONS

The manhole inspection procedure included recording the following observations:



1. Location and identification number
2. Potential for ponding or sheeting on manhole cover
3. Cover type, fit, description, distance above or below grade, evidence of inflow
4. Frame adjustment, seal, evidence of inflow
5. Corbel construction, condition, evidence of inflow
6. Wall construction, condition, evidence of infiltration
7. Bench/trough construction, condition, deposition, evidence of infiltration
8. Pipe seal condition, evidence of infiltration
9. Step condition
10. Manhole inside diameter
11. Surcharging or evidence of surcharging
12. Indication of groundwater infiltration

Inspections were performed on 107 out of 131 manholes (82 percent) in and around Basin 1. Every effort was made to locate each structure, however 24 remained uninspected. These manholes consist of 19 that were unable to locate, and 5 that were inaccessible due to various reasons such as locked gates or dogs present in backyards. A list of these structures and corresponding status has been provided to the city. All manhole inspection information can be found within the report in Appendix A. An access structure inspection summary is given in Table 2.1, and a summary of manhole defects is given in Table 2.2. Map Exhibit A depicts manhole inspection status.

Pipe Seal

Table 2.1 Access Structure Inspection Summary			
Total Structures	**Inspected Structures**	**Not Found Structures**	**Inaccessible Structures**
131	107	19	5

Table 2.2 Summary of Manhole Defects	
Type of Defect	**Number of Manholes**
Inflow	
Defective Cover[1/]	5
Defective Frame	1
Defective Frame Seal	9
Defective Chimney	2
Defective Corbel	2
Subtotal	*19*
Infiltration	
Defective Manhole Walls	20
Defective Wall-Bench Joint	6
Defective Bench/Channel	6
Defective Pipe Seals	22
Subtotal	*54*
Total	***73***
1/ Includes defective covers, bolts missing, and pick holes	

Field investigations identified 73 defective components. These includes 19 potential inflow sources and 54 potential infiltration sources. Defective frame seals (9) account for the greatest number of defective inflow sources, while defective pipe seals (22) account for the greatest number of infiltration sources.

Additionally, a total of ten manholes located throughout the study area indicated evidence of surcharging. These manholes are shown on Figure 2.1.

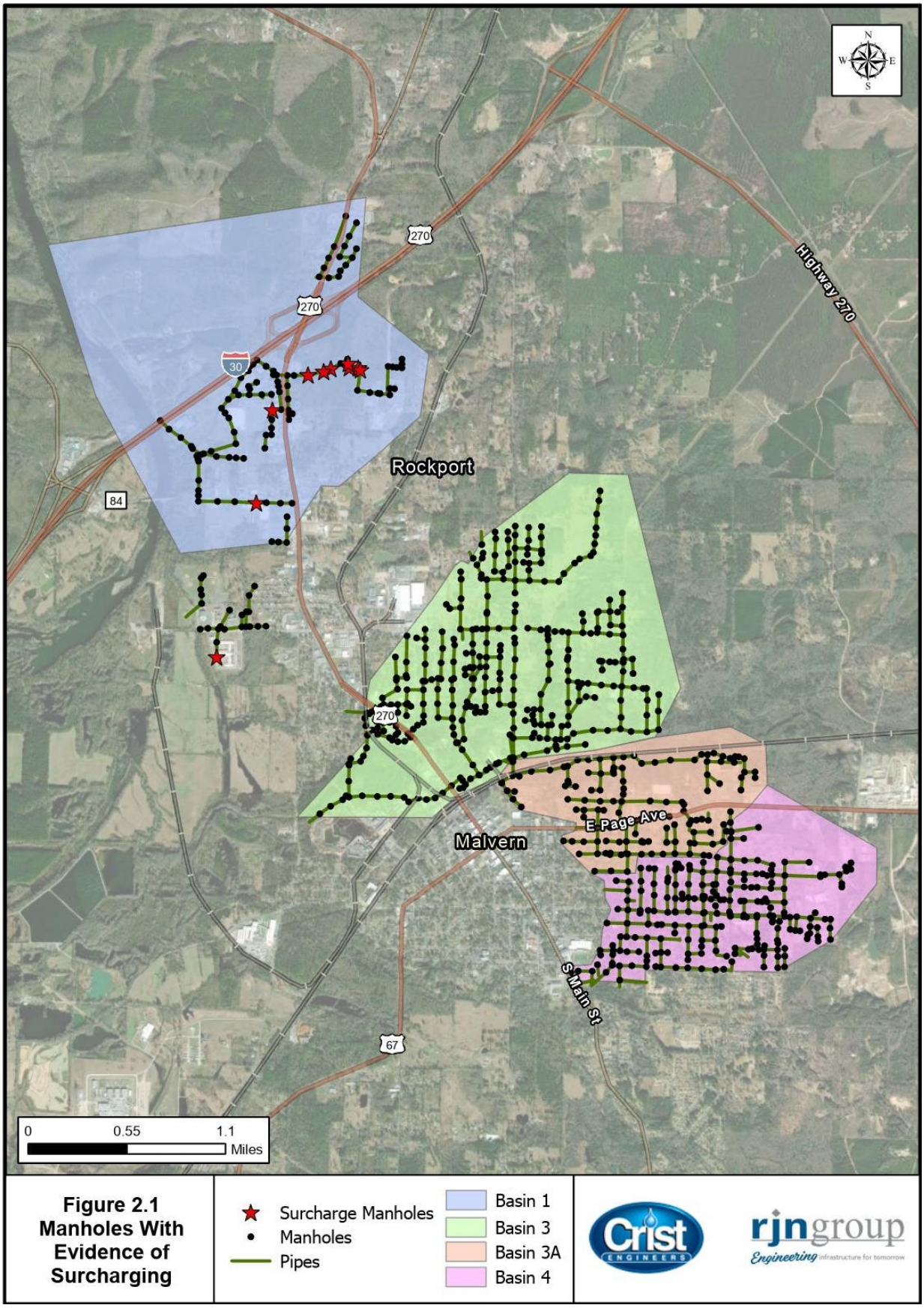


Figure 2.1 Manholes With Evidence of Surcharging

VISUAL PIPE INSPECTIONS

Visual pipe inspection is performed as part of the manhole inspection program with the following observations recorded:

1. Manhole identification numbers for connecting sewer lines
2. Flow direction in pipes
3. Pipe diameter and construction material
4. Amount of root growth
5. Amount and type of deposition
6. Structural condition and line/grade of pipe
7. Visible infiltration in pipe and/or from pipe seals
8. Depth from manhole rim to each pipe invert
9. Recommended method of cleaning
10. Depth and velocity of flow

Defective Pipe Seal

MH1541 – (2) N-In

Visual pipe inspection verifies pipe diameter, continuity, and aids in identifying pipe defects near the collection system access structure. The majority of sewer lines in the study area are constructed of PVC. The visual pipe inspections revealed ten broken, collapsed, offset, sagging, or cracked segments. A digital report listing the findings of the visual pipe inspections is given in Appendix B.

RAINFALL SIMULATION

A major field task in sewer system evaluation studies is locating inflow sources by rainfall simulation. Types of inflow sources identified by rainfall simulation include the following:

1. Roof downspouts, yard, and area drains
2. Defective building sewers, faulty connections, and defective cleanouts
3. Cross connections between sanitary sewers and storm sewers (indirect or direct)
4. Storm sewer sections, stream sections, ditch sections, and ponding areas which may cause infiltration and inflow
5. Structurally damaged sewers and manholes

Rainfall simulation can also be utilized with flow measurements to quantify inflow from identified sources. Rainfall simulation techniques include smoke testing and dyed water flooding.

SMOKE TESTING

Smoke testing is a quick method for detecting inflow sources in a sanitary sewer system. This method is very effective in detecting sources such as roof downspouts, yard and area drains, defective building sewers, faulty connections, defective cleanouts, and storm sewer cross connections. It can also be utilized during dry weather periods to detect inflow sources in the sewer main. During testing, observations are recorded by line segment as follows:

1. Location of line segment
2. Location of observed smoke leaks recorded at:
   a. Curb
   b. Sidewalk
   c. Cleanout
   d. Building lateral; front, side, or rear yard
   e. Driveway or area drain
   f. Downspout
   g. Building interior (resident must inform inspector)
3. Location of smoke observed from storm water conveyance systems
4. Location of smoke along a main sewer line

Other

MH1087:MH1086

A total of 287 potential sources of I/I were identified from the 197,407 linear feet of sewer lines that were smoke tested. 39 sources identified are from the public sector and 248 sources are from the private sector. Smoke testing investigations identified 15 potential mainline leaks, 6 potential storm cross connections, and 17 manholes as public I/I sources.

Catch Basin

MH0118:MH0119

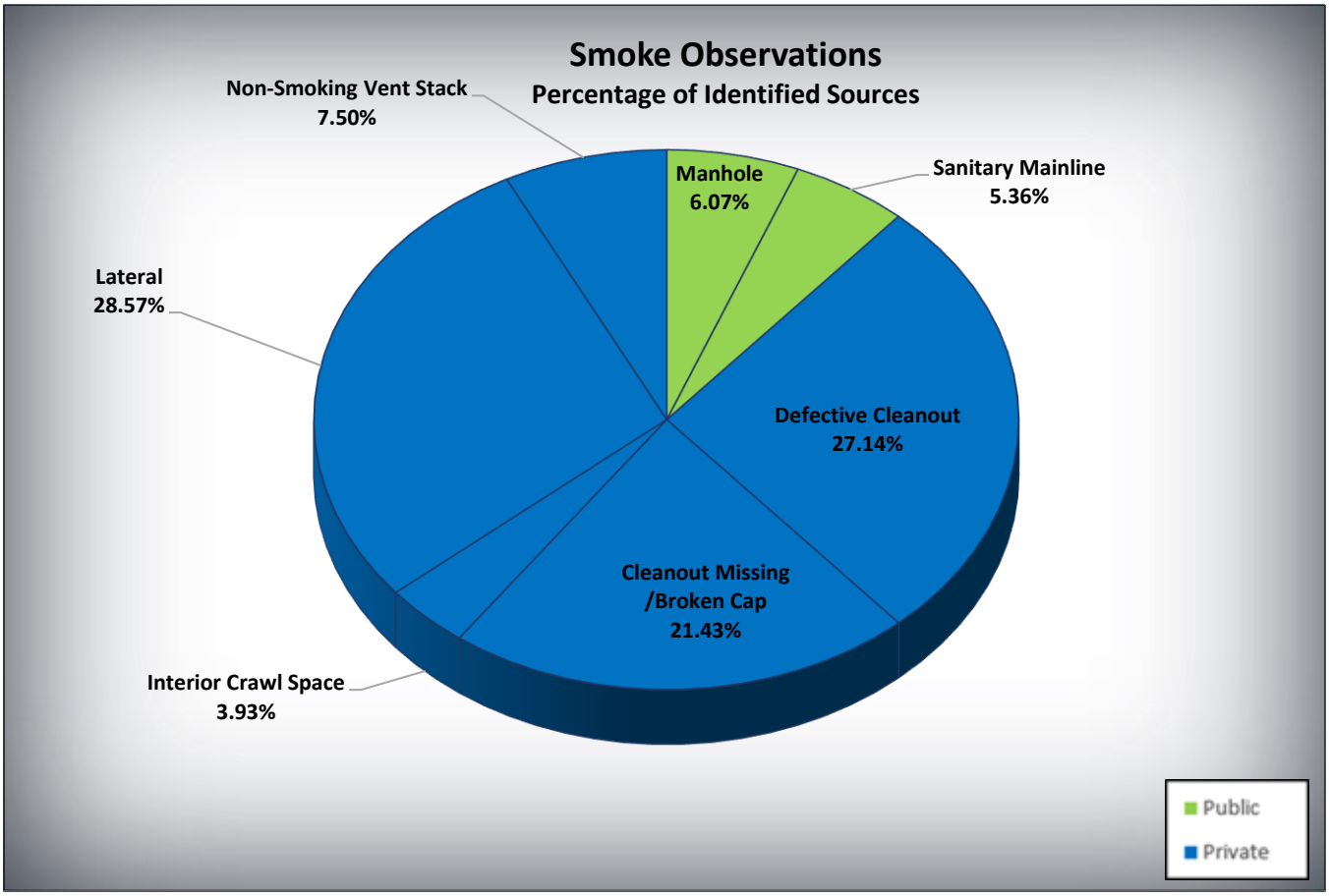
Of these seventeen identified manhole defects, two manholes were previously inspected during the 2017 SSES; MH04411 and MH0773. All other manhole smoke observations had an associated manhole defect observed during manhole inspections

Private I/I sources included 76 defective cleanouts, 80 building laterals, along with interior crawl space, and non-smoking vent stack observations. Private building laterals are defined as any potential building lateral leak off the main sewer line. Non-smoking vent stacks indicate a potential blockage between the sanitary mainline and the homeowner's property. This defect is associated with defects in the lateral or the stoppages in homeowner's plumbing.

Sources are represented in the pie chart on page 2-8 and a summary is given in Table 2.3. Map Exhibit B shows the locations of defects found during smoke testing. A report listing the findings of the smoke testing program is given in Appendix C.

Table 2.3
Smoke Test Data

Type of Source	Quantity
Public Sector	
Manhole/1	17
Sanitary Mainline	15
Storm Cross Connection	6
Other	1
Subtotal	39
Private Sector	
Defective Cleanout	76
Cleanout Missing /Broken Cap	60
Interior Crawl Space	11
Lateral	80
Non-Smoking Vent Stack	21
Subtotal	248
Total	**287**
/1 includes New Manholes and Manholes Upstream	


Smoke Observations
Percentage of Identified Sources
Non-Smoking Vent Stack
7.50%
Manhole
6.07%
Sanitary Mainline
5.36%
Lateral
28.57%
Defective Cleanout
27.14%
Cleanout Missing
/Broken Cap
21.43%
Interior Crawl Space
3.93%
Public
Private

DYE TESTING

Public sector dye water flooding is used to identify and quantify public sector inflow sources more accurately. Dye tests were determined based upon defects identified during smoke testing. For this project, 21 dye tests were conducted, resulting in 17 positive tests.

The locations of the 21 dye tests are shown in Figure 2.2 on page 2-17 and dye test data can be found in Appendix D. Dye testing identified a total of 137,952 gpd of inflow; addressing these defects should make an immediate impact to the system. Table 2.4 summarizes the dye testing efforts.

Dye – Positive

MH1132_MH1160

Table 2.4 Dyed Water Flooding			
USMH	**DSMH**	**Defect Type**	**Result**
MH1339	MH1338	Cross Connection	Positive
MH1132	MH1160	Mainline	Positive
MH0384	MH0388	Mainline	Positive
MH1358	MH1359	Mainline	Negative
MH0118	MH0119	Cross Connection	Positive
MH1353	MH1354	Mainline	Negative
MH0835	MH0388	Mainline	Positive
MH0539	MH0253	Lateral	Positive
MH1536	MH1517A	Sanitary Manhole	Positive
MH0096	MH0093	Mainline	Positive
MH0375	MH0374	Mainline	Positive
MH0532	MH0211	Mainline	Positive
MH1340	MH1339	Mainline	Positive
MH1283	MH1284	Mainline	Positive
MH1353	MH1354	Mainline	Negative
MH0072	MH0079	Cross Connection	Positive
MH0093	MH0079	Lateral	Negative
MH0101	MH0092	Mainline	Positive
MH0973	MH0972	Mainline	Positive
MH1087	MH1075	Mainline	Positive
MH1494	MH1493	Lateral	Positive

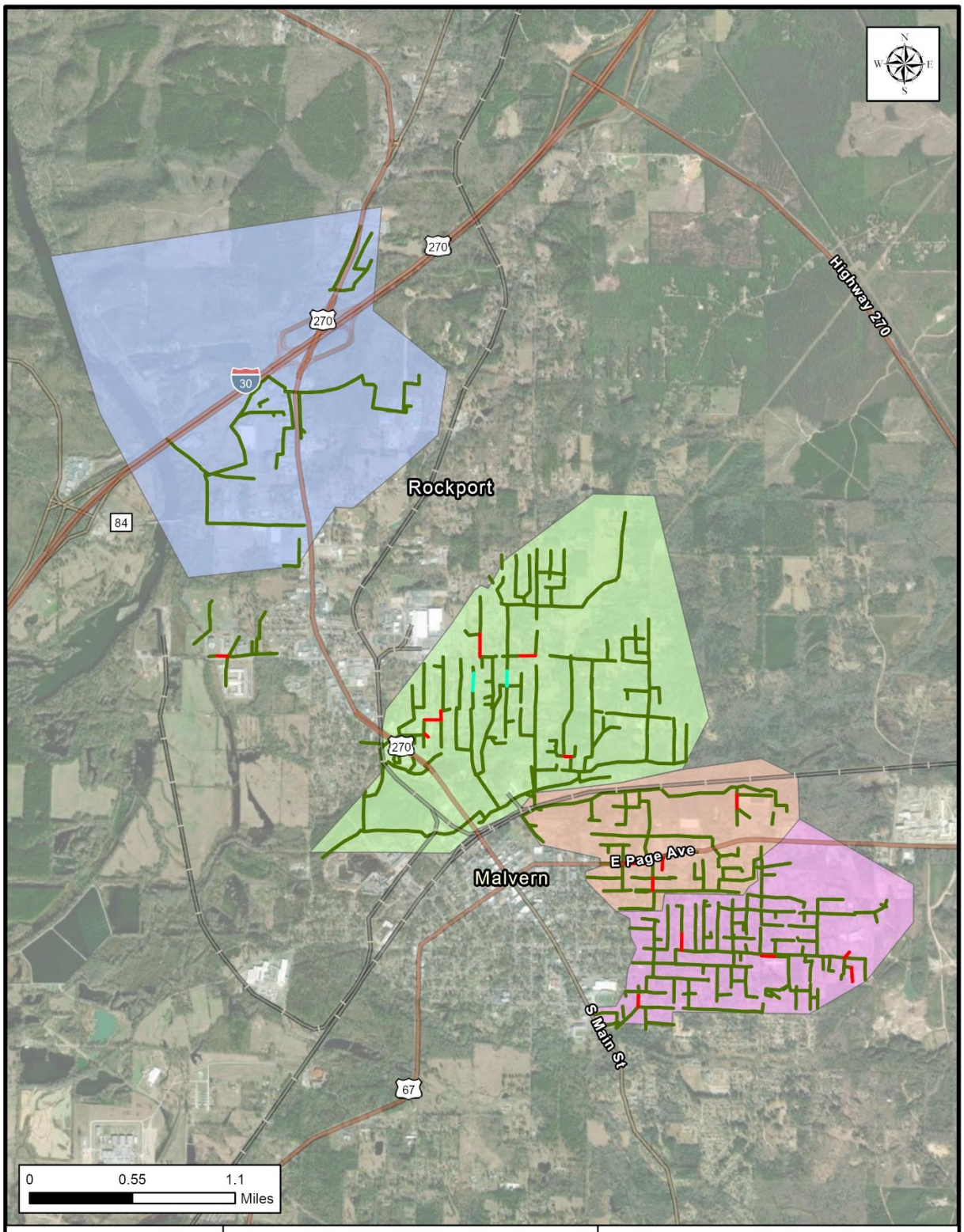


Figure 2.2

Dye Testing

Gravity Main
Negative Dye Test
Positive Dye Test

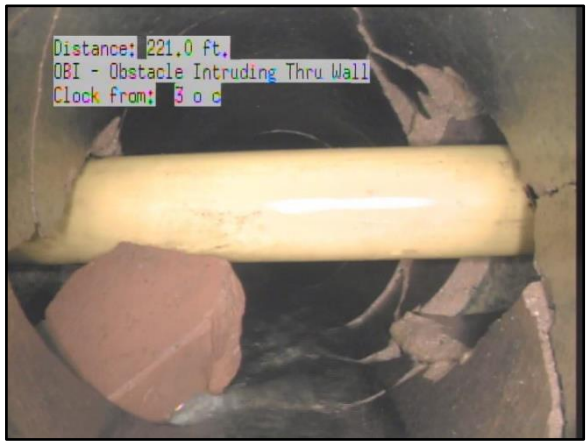
TELEVISION INSPECTION

A total of 27,224 linear feet of pipe submitted were successfully televised. Segments submitted for CCTV inspection by RJN were identified during smoke testing and visual pipe inspection as having sufficient defects that constituted further investigation. Due to defects or obstacles such as heavy roots, grease, broken, or collapsed pipe, not all segments were completely surveyed. 33 segments had incomplete or missing TV. A CCTV status list is provided in Appendix E.

Segments that were coded or reviewed, were done using the Pipeline Assessment Certification Program (PACP). A total of 120 severe defects were identified through CCTV, consisting of 61 segments. Each segment has at least one of the following defects coded on the segment: a hole, fracture, broken pipe, or collapse; making the pipe susceptible to structural issues and high I/I. A summary of these defects is given in Table 2.5 and pipes associated are shown in Figure 2.3.

Hole Void Visible

MH0101:MH0092



Pipe Intruding Through Wall

MH0093:MH0080

Table 2.5
Severe Defect Summary

Observation	Count of Defects
Pipe with Hole	48
Pipe with Fractures	46
Broken Pipe	26
Total	**120**

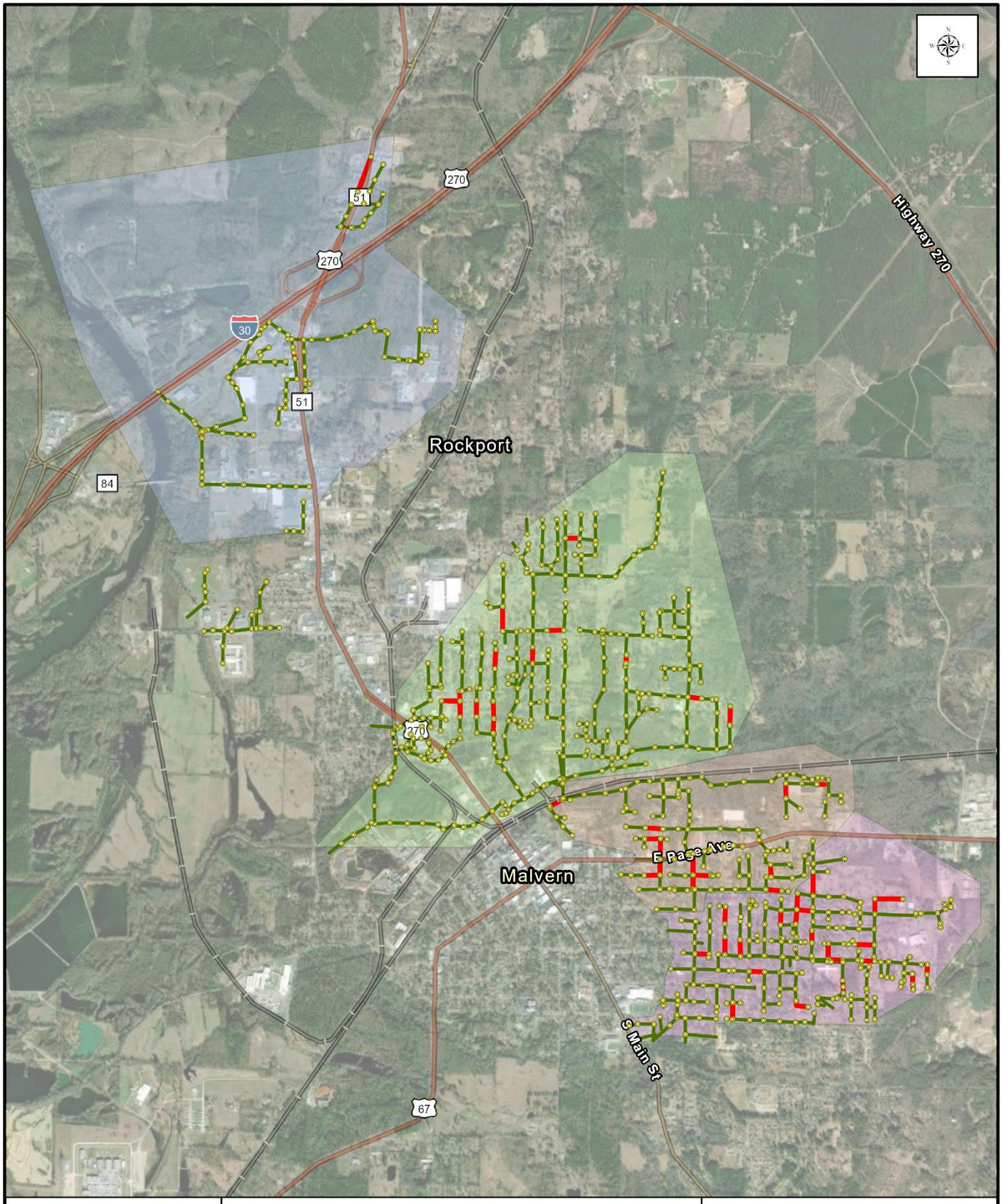


Figure 2.3
Segments With Severe Defects

CCTV Severe Defects — Gravity Main

SECTION 3

SOURCE ANALYSIS

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CHAPTER 3 – I/I SOURCE ANALYSIS

DETERMINATION OF INFLOW

Inflow in a sanitary sewer system is defined as extraneous flow that is a direct result of storm water runoff. Inflow may enter the sanitary sewer system through directly connected downspouts, area drains, cleanouts, and building sewers. Inflow may also enter the system through direct or indirect connections between the sanitary sewers and storm drains or ditches, sewer line defects, and through defective manhole covers, frame seals, and corbels.

INFLOW SOURCE QUANTIFICATION

All inflow sources identified during manhole inspections and rainfall simulation were evaluated and quantified. Quantification of individual sources was based on a 1-year/60-minute storm and calculated using the orifice equation and rational formula. Both methods account for drainage area, slope, and surcharge type to produce an inflow rate. Additionally, dye test results were used to further refine any applicable defects. A summary of inflow identified by source type is given in Table 3.1 and shown graphically on page 3-2.

The total quantified inflow from all sources identified through field investigation was estimated to be approximately 0.262 mgd during a 1-year/60-minute design storm. The largest contributor of inflow to the sanitary collection system are storm cross connections. Forty-five percent (45%) of inflow in the study area is attributed to this source type.

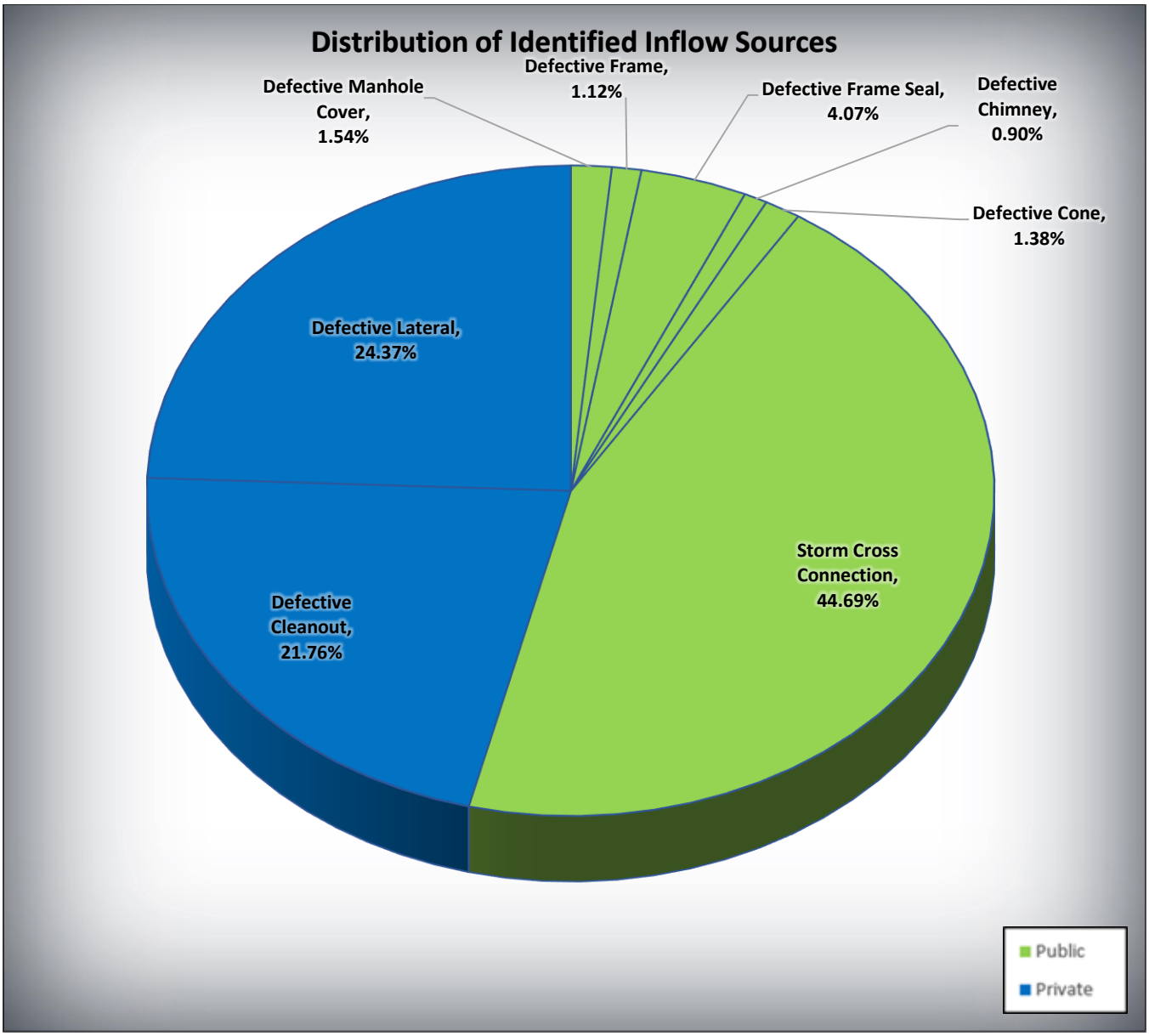
Table 3.1

Distribution of Identified Inflow Sources

Source	Quantity	1-Year/60-Minute Projected Inflow (gpd)	Percent of Total Inflow
Public Sector Inflow			
Defective Manhole Cover[1/]	5	4,041	1.54%
Defective Cover to Rim Fit	0	0	0.00%
Defective Frame	1	2,934	1.12%
Defective Frame Seal	9	10,641	4.05%
Defective Chimney	2	2,347	0.89%
Defective Cone	2	3,619	1.38%
Defective Manhole [2/]	1	979	0.37%
Storm Cross Connection	6	117,355	44.69%
Subtotal	*26*	*141,916*	*54.04%*
Private Sector Inflow			
Defective Cleanout	136	56,933	21.68%
Downspout(s)	0	0	0.00%
Defective Lateral	80	63,748	24.28%
Subtotal	*216*	*120,682*	*45.96%*
Total	**242**	**262,598**	**100.00%**

1/ Includes defective covers, bolts missing, and vented covers

2/ Defect identified through smoke testing; no manhole inspection available. Further investigation required.



DETERMINATION OF INFILTRATION

Infiltration in a sanitary sewer system is defined as extraneous flow that enters the system through pipe joints, sewer line defects (including main sewer lines and building sewer lines), and defective manhole walls, benches, and pipe seals. Two types of infiltration can be determined during a study, permanent infiltration, and peak infiltration. Permanent infiltration is defined as extraneous flow that enters the system through the ground during periods of dry weather and low groundwater. Peak infiltration is defined as the maximum extraneous flow that enters the sewer system during high groundwater conditions after inflow effects of a rain event have ended.

Analysis of wastewater infiltration was based on I/I source data from field investigations, specifically manhole and visual pipe inspection, rainfall simulation, and internal television inspection of sewer lines.

INFILTRATION SOURCE QUANTIFICATION

Each of the infiltration sources identified during field investigations was evaluated and quantified in reference to the corresponding sub-basin and line segment. The infiltration rate was estimated based on the severity of the defect. A potential infiltration rate was estimated for each manhole and pipe defect that was observed but not actively leaking. Additionally, dye test results were used to further refine any applicable defects.

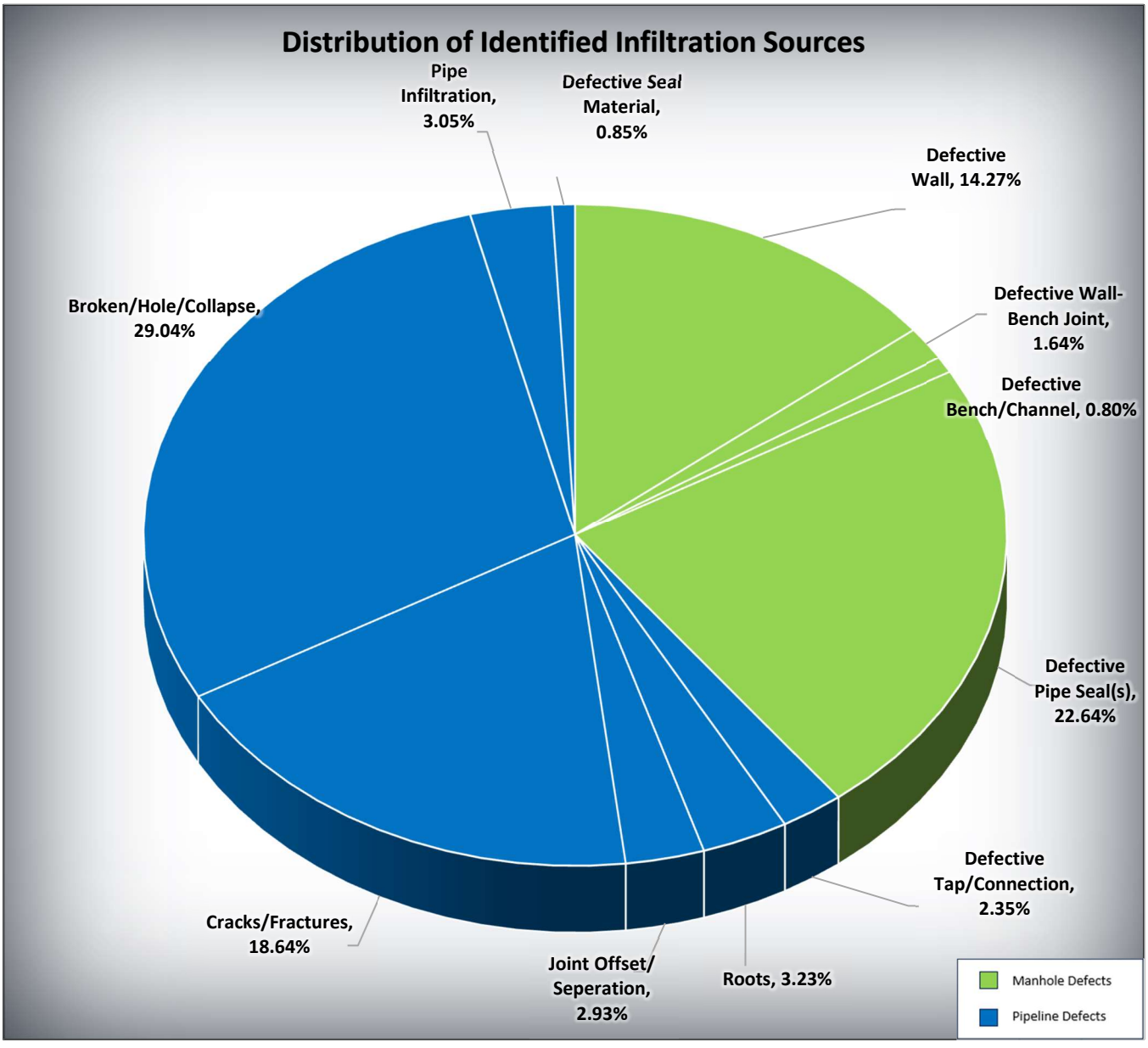
The sum of all observed infiltration sources is referred to as total identified infiltration. Total identified infiltration was calculated to be 0.295 mgd, where pipe breaks and holes contributed 29 percent of the total identified infiltration. The total identified infiltration is summarized by source type in Table 3.2 and shown graphically on page 3-5.

Table 3.2
Distribution of Identified Infiltration Sources

Source	Quantity[1/]	Estimated Infiltration Rate (gpd)	Percent of Total Infiltration
Manhole Defects			
Defective Wall	20	42,101	11.01%
Defective Wall-Bench Joint	6	4,836	1.27%
Defective Bench/Channel	6	2,347	0.61%
Defective Pipe Seal/s	22	66,802	17.48%
Subtotal	*54*	*116,086*	*30.37%*
Pipeline Defects			
Defective Tap/Connection	22	6,922	2.35%
Roots	260	9,537	3.23%
Joint Offset and Separation	15	8,660	2.93%
Cracks/Fractures	117	54,998	18.64%
Broken/Hole/Collapse	74	85,702	29.04%
Infiltration	8	8,998	3.05%
Defective Seal Material	9	2,497	0.85%
Pipe Obstructions	5	1,687	0.57%
Subtotal	*510*	*179,001*	*60.66%*
Total	**564**	**295,087**	**100.00%**

1/ Manhole defects refer to the number of manholes; while pipeline defects refer to the number of defects.

2/ Defect identified through smoke testing, no available CCTV defect to attribute to. Further investigation required.


Distribution of Identified Infiltration Sources
Pipe Infiltration, 3.05%
Defective Seal Material, 0.85%
Defective Wall, 14.27%
Defective Wall-Bench Joint, 1.64%
Defective Bench/Channel, 0.80%
Defective Pipe Seal(s), 22.64%
Defective Tap/Connection, 2.35%
Roots, 3.23%
Joint Offset/ Seperation, 2.93%
Cracks/Fractures, 18.64%
Broken/Hole/Collapse, 29.04%
Manhole Defects
Pipeline Defects

SECTION 4

RECOMMENDED REHABILITATION

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CHAPTER 4 – RECOMMENDED REHABILITATION PLAN

The recommended rehabilitation plan consists of work to be performed in the public and private sector of the collection system. The plan includes inflow repairs, infiltration repairs, sewer line replacement/rehabilitation, and maintenance repairs. The cost to perform the recommended plan is given in capital cost, which includes construction cost plus a twenty percent (20%) contingency and 10-percent (10%) engineering costs. The cost for right-of-way is not included since the line work is rehabilitation. Costs in this report are in 2024 dollars. Inflation that occurs between the submission of this report and start of construction is not accounted for. Costs have increased substantially over the course of 2024 and are likely to change from the time of this report. The recommended plan is discussed in the following sections.

RECOMMENDED MANHOLE REHABILITATION

A total of 48 manholes are recommended for rehabilitation consisting of 57 repairs. The manholes are ranked according to their "Repair Cost to I/I Removed Ratio" ($/gpd removed) in Appendix F. 32 manholes have a Repair Cost to I/I Removed Ratio less than or equal to 1.4911 and are considered "priority one" as they will remove I/I from the sewer system in a cost-effective manner. Any manholes found unfit for rehab and considered "priority-one" are recommended to replace. The 32 "priority one" manholes are shown in Map Exhibit C

Table 4.1

Summary of Recommended Manhole Rehabilitation Plan

Rehabilitation Description	Number of Repairs	Estimated I/I (gpd)	Construction Cost ($)	Capital Cost ($)
Cementitious Coating	15	18,056	$45,000	$58,500.00
Chimney Replacement (Non-Paved)	1	1,174	$750	$975.00
Complete Manhole Rehab	7	46,562	$23,500	$30,550.00
Frame Adjustment Sealing (Non-Paved)	8	9,858	$8,000	$10,400.00
Frame Adjustment Sealing (Paved)	1	782	$1,000	$1,300.00
Grout Lower 18" of Manhole	19	56,260	$16,625	$21,612.50
Replace Bolts in Cover	4	1,890	$100	$130
Replace Manhole Frame & Cover (Non-Paved)	2	5,086	$2,100	$2,730
Total	**57**	**139,667**	**$97,075**	**$129,197**

SEWER REPLACEMENT/REHABILITATION

Television inspection data was evaluated for repair of specific I/I and maintenance defects. I/I defects are identified when smoke is visible along a main line and dye water flooding confirms the defect. This typically involves broken, fractured, or cracked pipes. The targeted I/I removal for these defects is 0.179 mgd and can be found in Appendix G. Maintenance defects include sections of pipe with sags, root intrusion, or other defects. Maintenance defects justify repair or replacement based upon their potential to cause future maintenance problems in the sewer system. These defects may not be large sources of I/I and would not be recommended for repair based on I/I removal alone but are recommended for repair to improve system reliability.

Sewer segments were recommended for either complete rehabilitation or point repair(s). Generally, point repair(s) are recommended if it will affect 10 percent or less of the total pipe; if it exceeds this amount, a complete rehabilitation of the pipe is also considered. Other considerations included are known problem areas, diameter of the pipe, and recommendation of adjacent segments.

Based upon the preferred construction method of cured-in-place pipe (CIPP), RJN utilized CIPP as the primary method wherever possible. Pipe bursting and open cut were recommended when CIPP was not a viable option. CIPP for six-inch (6") lines can be problematic and could require several point repairs prior to lining in addition to potentially causing capacity issues due to liner thickness. This was considered when making the preliminary construction recommendations.

Point repairs are recommended for 28 pipes, accounting for approximately 550 linear feet, and complete rehabilitation/replacement is recommended for 51 pipes (14,577 linear feet). Preliminary sewer line remedial measures have been ranked by cost effectiveness. There are 5 segments with intruding pipes discovered during CCTV, 2 of the segments have a point repair recommendation in to remove the intruding pipe addition to a complete rehab of the line and are noted in Appendix G. Rehabilitation measures with a "Repair Cost to I/I Removed Ratio" of 11.51 ($/gpd removed) or less are ranked as Priority 1 and measures with a ratio greater than 11.51 are ranked as Priority 2.

It should be emphasized that the rehabilitation of the line segments will improve transport performance and system reliability, in addition to the assistance of reducing overflows by reducing I/I.

Table 4.2 summarizes the preliminary line recommended remedial measures, and a detailed list is given Appendix G. The Lines recommended for rehabilitation are shown in Map Exhibit D .

Table 4.2
Summary of Lines Recommended for Rehabilitation

	CIPP		Open Cut		Pipe Bursting		Point Repair		Estimated Construction Cost	Estimated Capital Cost[2/]
	Number of Lines	*Length (lf)*	*Number of Lines*	*Length (lf)*	*Number of Lines*	*Length (lf)*	*Number of Lines*	*Length (lf)*		
Total	9	2,549	1	337	41	11,885	28	165	$2,058,196	$2,675,655

SERVICE LINE RECOMMENDATIONS

The recommended plan for inflow removal includes the repair of all defective cleanouts, building laterals, and drains discovered through field procedures. A total of 215 service line sources identified during the field survey investigations are recommended for removal. The indicated sources consist of only private sector sources that will be eliminated through rehabilitation. This is estimated to remove 120,682 gpd of 1 year/60-minute inflow at an estimated capital cost of $156,500. Lateral repairs are based upon an assumption of a 10-foot point repair of the lateral.

The projected inflow reduction assumes that comprehensive rehabilitation repairs will be completed for the identified I/I sources and that the repairs will effectively eliminate I/I from those identified sources. A table of the inflow sources recommended for repair is given in Appendix H.

Table 4.3
Summary of Recommended Inflow Removal from Service Line Sources

Source	Quantity	1-Year/60 Minute Projected Peak Inflow (gpd)	Estimated Construction Cost ($)	Estimated Capital Cost[1/] ($)
Private Sector Inflow				
Cleanout Cap Replace	60	8,646	$1,500	$1,950
Cleanout Repair	76	48,287	$76,000	$98,800
Lateral Repair	79	63,748	$79,000	$102,700
Total	**215**	**120,682**	**$156,500**	**$203,450**

1/ Includes estimated construction cost plus a 30 percent engineering service and contingency fee

SUMMARY OF RECOMMENDED PLAN

The recommended plan includes repairing 215 service line inflow sources, rehabilitation of 49 manholes, 51 gravity mains, and point repairs for 550 LF. Approximately 0.30 mgd of infiltration will be eliminated by implementing the recommended plan. The peak 1-year inflow is projected to be reduced by 0.15 mgd after rehabilitation of the recommended inflow sources. Overall, a total of 0.45 mgd of I/I is projected to be removed from the system by following the recommended plan.

The total capital cost to implement the recommended plan is approximately $3.01 million. The total capital cost consists of approximately $0.20 million for inflow removal in the private sector, $0.13 million for manhole rehabilitation, and $2.68 million for gravity main sewer rehabilitation. A summary of the recommended plan is given in Table 4.4.

Table 4.4
Summary of Recommended Plan

Item	I/I Reduction		Estimated Capital Cost[2] ($Million/mgd)	Estimated Capital Cost[2/] ($Million)
	Inflow[1/] *(mgd)*	*Infiltration (mgd)*		
Manhole Rehabilitation				
Manhole Rehabilitation	0.02	0.12	0.90	$0.13
Sewer Line Rehabilitation				
Sewer Line Rehabilitation	0	0.18	14.95	$2.68
Service Line Rehabilitation				
Private Sector	0.12	0.00	1.69	0.20
Total	**0.15**	**0.30**	**6.83** [3/]	**$3.01**

1/ Based on projected 1-year/60-minute inflow.

2/ Includes estimated construction cost plus a thirty-percent (30%) engineering service and contingency fee.

3/ Calculated using the total estimated capital cost per total I/I reduction

APPENDICES

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Engineering infrastructure for tomorrow

APPENDIX A

MANHOLE INSPECTION REPORT

2023 Malvern SSES

Manhole Inspection Report

Basin	Asset	Address	Diam. (in)	Depth (ft)	Subject to Ponding	Cover Type	Construction Type	Surcharge Evidence	Inflow (gpd)	Infil. (gpd)
Basin 1	MH1166	1526 Gardiner St	48	6.33	No	Concealed	Fiberglass	No	0	587
Basin 1	MH1167	1526 Gardiner St							0	0
Basin 1	MH1168	1609 Industrial Rd	48	4.80	No	Concealed	Fiberglass	No	0	0
Basin 1	MH1169	1410 S Rivercreek Dr	48	7.25	No	Concealed	Rehabilitation	Yes	0	0
Basin 1	MH1170	1900 Martin Luther King Blvd	48	13.45	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1171	1902 Martin Luther King Blvd	40	8.03	No	Concealed	Poured Concrete	No	0	782
Basin 1	MH1172	2320 Leopard Ln	48	12.59	No	Concealed	Precast Concrete	No	20	7,982
Basin 1	MH1173	2320 Leopard Ln							0	0
Basin 1	MH1174	2320 Leopard Ln	48	15.83	No	Concealed	Precast Concrete	No	20	782
Basin 1	MH1175	2320 Leopard Ln	48	16.48	No	Concealed	Precast Concrete	No	20	0
Basin 1	MH1176	2320 Leopard Ln							0	0
Basin 1	MH1177	2600 S Rivercreek Dr	48	11.26	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1178	2600 S Rivercreek Dr	48	11.00	No	Concealed	Poured Concrete	No	0	2,880
Basin 1	MH1179	398 Riverview Dr	48	3.75	No	Concealed	Fiberglass	No	1,174	391
Basin 1	MH1180	170 Riverview Dr	48	3.55	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1181	1910 Dr Martin Luther King Blvd	48	5.04	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1181	436 Riverview Dr	48	5.09	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1182	445 Riverview Dr	48	13.68	No	Concealed	Poured Concrete	No	0	782
Basin 1	MH1183	1910 Martin Luther King Blvd	48	12.74	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1184	476 Riverview Rd	48	10.91	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1185	2789 S River Creek Rd	48	10.95	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1185A	2730 S River Creek Rd	48	11.37	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1186	2727 S River Creek Rd	48	9.90	No	Concealed	Poured Concrete	No	0	587
Basin 1	MH1187	2660 S River Creek Rd	48	9.88	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1188	1600 S River Creek Dr	48	10.40	No	Concealed	Poured Concrete,Precast Concrete	No	0	2,222
Basin 1	MH1189	2600 S Rivercreek Dr							0	0

Basin	Asset	Address	Diam. (in)	Depth (ft)	Subject to Ponding	Cover Type	Construction Type	Surcharge Evidence	Inflow (gpd)	Infil. (gpd)
Basin 1	MH1189A	2300 Leopard Ln	48	5.79	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1189B	2300 Leopard Ln	48	5.14	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1189C	2300 Leopard Ln							0	0
Basin 1	MH1190	2600 S Rivercreek Dr							0	0
Basin 1	MH1191	2600 S Rivercreek Dr	48	11.95	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1192	2290 Oliver Lancaster Blvd	48	7.15	No	Concealed	Fiberglass	No	0	0
Basin 1	MH1193	2290 Oliver Lancaster Blvd	48	3.99	No	Concealed	Fiberglass	No	0	0
Basin 1	MH1194	1626 Industrial Park Dr	48	5.05	No	Concealed	Poured Concrete	No	0	5,760
Basin 1	MH1195	1656 Industrial Park Dr	48	5.00	No	Concealed	Fiberglass	No	0	1,369
Basin 1	MH1196	1921 Martin Luther King Blvd	48	4.40	No	Concealed	Fiberglass	No	0	1,369
Basin 1	MH1197	2668 Oliver Lancaster Blvd	48	5.85	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1198	2668 Oliver Lancaster Blvd	48	10.13	No	Concealed	Poured Concrete	No	0	1,369
Basin 1	MH1199	2668 Oliver Lancaster Blvd	48	9.78	No	Concealed	Poured Concrete	Yes	20	0
Basin 1	MH1200	104 Industrial Park Rd	48	9.93	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1201	104 Industrial Park Rd	48	8.52	No	Concealed	Poured Concrete	No	0	782
Basin 1	MH1202	104 Industrial Park Rd	48	8.98	No	Concealed	Poured Concrete	Yes	0	587
Basin 1	MH1203	2668 Oliver Lancaster Blvd	48	9.65	No	Concealed	Poured Concrete	Yes	0	587
Basin 1	MH1204	1932 Industrial Park Dr	48	9.63	No	Concealed	Poured Concrete	Yes	2,934	0
Basin 1	MH1205	104 Industrial Park Rd	48	9.01	No	Concealed	Poured Concrete	Yes	0	0
Basin 1	MH1206	104 Industrial Park Rd	48	9.00	No	Concealed	Poured Concrete	Yes	0	0
Basin 1	MH1207	1854 Industrial Park Dr	48	5.04	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1208	1852 Industrial Rd	48	9.45	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1208	1852 Industrial Rd							0	0
Basin 1	MH1208A	103 Industrial Rd	48	9.45	No	Bolts Missing	Poured Concrete	No	145	587
Basin 1	MH1208B	117 Industrial Park Dr	48	7.84	No	Concealed	Precast Concrete	No	3,912	0
Basin 1	MH1208C	117 Industrial Park Rd	48	9.37	No	Concealed	Precast Concrete	No	1,956	0
Basin 1	MH1211	3402 Oliver Lancaster Blvd	48	4.33	No	Concealed	Fiberglass	No	0	2,222
Basin 1	MH1212	3402 Oliver Lancaster Blvd	48	5.43	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1213	3402 Oliver Lancaster Blvd	48	4.70	No	Concealed	Poured Concrete	No	0	0

Basin	Asset	Address	Diam. (in)	Depth (ft)	Subject to Ponding	Cover Type	Construction Type	Surcharge Evidence	Inflow (gpd)	Infil. (gpd)
Basin 1	MH1214	3424 Oliver Lancaster Blvd							0	0
Basin 1	MH1215	3164 Oliver Lancaster Blvd							0	0
Basin 1	MH1216	3068 Oliver Lancaster Blvd	48	6.32	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1217	2956 Oliver Lancaster Blvd	48	7.07	No	Concealed	Fiberglass	No	0	0
Basin 1	MH1218	3199 Oliver Lancaster Blvd							0	0
Basin 1	MH1219	3299 Oliver Lancaster Blvd	48	5.11	No	Concealed	Fiberglass	No	0	0
Basin 1	MH1220	3353 Oliver Lancaster Blvd	48	4.28	No	Concealed	Fiberglass	No	0	0
Basin 1	MH1221	1889 Tanner St	48	7.90	No	Concealed	Fiberglass,Poured Concrete	No	2,934	587
Basin 1	MH1222	1785 Tanner St							0	0
Basin 1	MH1223	1601 Hwy 270	48	4.28	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1224	1601 Highway 270	48	3.68	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1225	1537 Tanner St	48	3.79	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1226	1585 Tanner St	48	6.22	No	Concealed	Poured Concrete	Yes	685	782
Basin 1	MH1227	1729 Tanner St	48	11.10	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1482	104 Industrial Park Rd	48	18.62	No	Concealed	Poured Concrete	Yes	0	0
Basin 1	MH1483	2320 Leopard Ln	48	6.22	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1484	2174 Oliver Lancaster Blvd	48	5.65	No	Concealed	Poured Concrete,Precast Concrete	No	0	0
Basin 1	MH1485	1546 Gardiner St	48	3.03	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1486	1595 Gardiner St	48	5.50	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1487	170 Riverview Dr	48	3.96	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1488	170 Riverview Dr							0	0
Basin 1	MH1512	2804 River creek Rd							0	0
Basin 1	MH1513	2730 Rivercreek Rd	48	10.70	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1514	2730 Rivercreek Rd							0	0
Basin 1	MH1515	1750 W Moline St	48	7.42	No	Concealed	Poured Concrete	No	782	0
Basin 1	MH1515A	1750 W Moline St	48	5.50	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1516	1820 W Moline St	48	6.95	No	Bolts Missing	Precast Concrete	No	98	0
Basin 1	MH1517	1840 WMoline St	48	5.45	No	Bolts Missing	Poured Concrete,Precast Concrete	No	1,549	4,320
Basin 1	MH1517A	1840 W Moline St	48	5.78	No	Concealed	Precast Concrete	No	0	1,502

Basin	Asset	Address	Diam. (in)	Depth (ft)	Subject to Ponding	Cover Type	Construction Type	Surcharge Evidence	Inflow (gpd)	Infil. (gpd)
Basin 1	MH1517B	1820 W Moline St	48	3.70	No	Concealed	Precast Concrete	No	1,174	0
Basin 1	MH1517C	1820 W Moline St	48	6.83	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1517D	1820 W Moline St	48	7.11	No	Concealed	Precast Concrete	No	0	782
Basin 1	MH1517E	1820 W Moline St	48	9.65	No	Concealed	Precast Concrete	No	1,956	0
Basin 1	MH1517F	1820 W Moline St	48	9.78	Yes	Concealed	Precast Concrete	No	0	0
Basin 1	MH1518	2730 Rivercreek Rd	48	11.20	No	Pick Hole	Poured Concrete	No	2,152	0
Basin 1	MH1519	474 Riverview Dr	48	12.09	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1520	3374 Oliver Lancaster Blvd	48	5.22	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1520A	3456 Oliver Lancaster Blvd	48	6.36	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1521	3456 Oliver Lancaster Blvd	48	7.07	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1522	3508 Oliver Lancaster Blvd	48	6.29	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1523	2615 S Rivercreek Dr	48	7.02	Yes	Concealed	Poured Concrete	No	0	587
Basin 1	MH1523A	1600 S River Creek Dr	48	9.87	No	Concealed	Poured Concrete	No	0	1,369
Basin 1	MH1524	2300 Leopard Ln	48	6.67	Yes	Concealed	Precast Concrete	No	0	14,400
Basin 1	MH1525	2300 Leopard Ln	48	7.90	No	Concealed	Precast Concrete	No	0	1,440
Basin 1	MH1526	445 Riverview Dr	48	14.65	No	Concealed	Poured Concrete	No	0	15,182
Basin 1	MH1526A	456 Riverview Dr	48	12.14	No	Bolts Missing	Poured Concrete,Precast Concrete	No	98	0
Basin 1	MH1526B	448 Riverview Dr	48	14.85	No	Concealed	Precast Concrete	No	0	391
Basin 1	MH1527	476 Riverview Dr	48	6.13	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1528	1910 Martin Luther King Blvd	48	4.98	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1529	1910 Martin Luther King Blvd	48	5.06	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1530	0000 Riley St	48	5.46	No	Concealed	Precast Concrete	No	0	0
Basin 1	MH1531	1600 Riverpark Plaza							0	0
Basin 1	MH1532	1608 Martin Luther King Blvd							0	0
Basin 1	MH1533	1611 Martin Luther King Blvd	48	6.20	No	Concealed	Poured Concrete	No	0	1,440
Basin 1	MH1534	1601 Highway 270	48	5.34	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1535	1601 Hwy 270	48	4.85	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1536	1820 W Moline St	48	7.30	No	Concealed	Poured Concrete	No	0	1,760
Basin 1	MH1537	1747 W Moline St	48	7.12	No	Concealed	Precast Concrete	Yes	0	782

Basin	Asset	Address	Diam. (in)	Depth (ft)	Subject to Ponding	Cover Type	Construction Type	Surcharge Evidence	Inflow (gpd)	Infil. (gpd)
Basin 1	MH1539	1820 W Moline St	48	4.95	No	Concealed	Poured Concrete	No	0	0
Basin 1	MH1540	1800 W Moline St							0	0
Basin 1	MH1543	117 Industrial Dr							0	0
Basin 1	MH1544	117 Industrial Dr							0	0
Basin 1	MH1545	117 Industrial Rd							0	0
Basin 1	MH1546	117 Industrial Rd							0	0
Basin 1	MH1547	117 Industrial Rd							0	0
Basin 1	MH1548	117 Industrial Rd							0	0
Basin 1	MH1551	3445 Oliver Lancaster Blvd							0	0
UNK	MH1538	1807 W Moline St	48	9.00	No	Concealed	Precast Concrete	No	0	782
UNK	MH1541	1750 W Moline St	48	7.27	No	Concealed	Poured Concrete	No	0	33,120
UNK	MH1541A	1750 W Moline St	48	7.98	No	Concealed	Precast Concrete	No	0	0
UNK	MH1541B	1523 W Moline St	48	5.40	No	Concealed	Precast Concrete	No	0	0
UNK	MH1541C	1523 W Moline St	48	6.89	No	Concealed	Precast Concrete	No	0	0
UNK	MH1541D	1750 W Moline St	48	8.91	No	Concealed	Precast Concrete	No	0	0
UNK	MH1541E	1750 W Moline St	48	8.54	No	Concealed	Precast Concrete	No	0	0
UNK	MH1541F	1612 Miller St	48	7.23	No	Concealed	Precast Concrete	No	0	0
UNK	MH1541G	1601 Miller Ave	48	7.97	No	Concealed	Precast Concrete	No	0	0

Group Summary

Total Manholes: 131

Total Inspected Manholes: 107

APPENDIX B

VISUAL PIPE REPORT

2023 Malvern SSES

Visual Pipe Inspection

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1166 : MH1167	N	8	PVC	No	6.41	Good	No
MH1166 : MH1485	W	6	PVC	No	5.87	Good	No
MH1166 : Service	SE	4	Cast Iron/Ductile	No	6.33	Good	No
MH1168 : MH1167	S	8	PVC	No	4.8	Good	No
MH1168 : MH1169	N	8	PVC	No	4.82	Good	No
MH1170 : MH1169	E	10	Cast Iron/Ductile	No	13.4	Good	No
MH1170 : MH1171	N	8	Cast Iron/Ductile	No	13.39	Good	No
MH1171 : MH1170	SE	8	PVC	No	8.03	Good	No
MH1171 : MH1483	NW	8	PVC	No	8.05	Offset	No
MH1171 : Service	W	4	Cast Iron/Ductile	No	4.85	Good	No
MH1172 : MH1174	W	8	PVC	No	12.82	Good	No
MH1172 : MH1197	E	8	PVC	No	12.46	Good	No
MH1172 : MH173	SW	8	PVC	No	12.27	Good	No
MH1174 : MH1172	E	8	PVC	No	15.77	Good	No
MH1174 : MH1175	N	8	PVC	No	15.8	Good	No
MH1174 : Service	S	4	PVC	No	8.48	Good	No
MH1175 : MH1174	S	8	PVC	No	16.37	Good	No
MH1175 : MH1176	NW	8	PVC	No	16.58	Good	No
MH1177 : MH1176	SE	8	PVC	No	11.19	Good	No
MH1177 : MH1178	SW	8	PVC	No	11.31	Good	No
MH1178 : MH1177	NE	8	PVC	No	10.98	Good	No
MH1178 : MH1191	SW	10	PVC	No	11.13	Good	No
MH1178 : Service	E	4	PVC	No	3.13	No Visual	Yes
MH1179 : MH1180	S	8	PVC	No	3.7	Good	No
MH1179 : MH1181	NW	8	PVC	No	3.84	Good	No
MH1180 : MH1179	N	8	PVC	No	3.56	Good	No
MH1180 : MH1487	S	8	PVC	No	3.55	Good	No
MH1181 : LS	NW	8	Cast Iron/Ductile	No	5.18	Good	No
MH1181 : MH1179	SE	8	PVC	No	5.01	Good	No
MH1181 : MH1180	SE	8	PVC	No	5.08	Good	No
MH1181 : MH1181	NW	8	Cast Iron/Ductile	No	5.21	Good	No
MH1182 : MH1181	SW	10	Cast Iron/Ductile	No	13.71	Good	No
MH1182 : MH1183	NE	10	Cast Iron/Ductile	No	13.51	Good	No
MH1183 : MH1182	SW	12	Cast Iron/Ductile	No	12.83	Good	No
MH1183 : MH1184	NW	12	Cast Iron/Ductile	No	12.69	Good	No
MH1184 : MH1183	SE	10	Cast Iron/Ductile	No	11.02	Good	No
MH1184 : MH1185	NW	10	Cast Iron/Ductile	No	10.84	Good	No
MH1185 : MH1184	S	10	Cast Iron/Ductile	No	11	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1185 : MH1185A	N	10	Cast Iron/Ductile Iron	No	10.9	Good	No
MH1185A : MH1185	SE	10	Cast Iron/Ductile Iron	No	11.6	Good	No
MH1185A : MH1186	NW	10	Cast Iron/Ductile Iron	No	11.36	Good	No
MH1186 : MH1185A	SW	10	PVC	No	9.91	Good	No
MH1186 : MH1187	NE	10	PVC	No	9.87	Good	No
MH1186 : Service	NW	6	PVC	No	5.84	Good	No
MH1187 : MH1186	SW	10	PVC	No	9.95	Good	No
MH1187 : MH1188	NE	10	PVC	No	9.67	Good	No
MH1187 : Service	NW	6	PVC	No	6.43	Good	No
MH1188 : MH1187	SW	10	PVC	No	10.49	Good	No
MH1188 : MH1189	NE	10	PVC	No	10.39	Good	No
MH1188 : Plugged	SW	10	PVC	No	10.38	No Visual	No
MH1189A : MH1189B	SW	8	PVC	No	5.82	Good	No
MH1189A : Service	NE	4	Cast Iron/Ductile	No	4.47	Good	No
MH1189A : Service	NE	6	PVC	No	5.84	Good	No
MH1189B : MH1189A	NE	8	PVC	No	5.12	Good	No
MH1189B : MH1189C	SE	8	PVC	No	5.18	Good	No
MH1191 : MH1178	NE	10	PVC	No	11.67	Good	No
MH1191 : MH1190	SW	10	PVC	No	12.21	Good	No
MH1191 : Service	SE	4	PVC	No	4.22	Good	No
MH1192 : MH1194	N	6	PVC	No	7.24	No Visual	No
MH1192 : MH1484	S	6	PVC	No	7.09	No Visual	No
MH1193 : MH1194	NW	6	PVC	No	4.03	Good	No
MH1193 : Service	SE	4	PVC	No	3.91	Good	No
MH1193 : Service	S	4	PVC	No	3.9	Good	No
MH1194 : MH1192	S	6	PVC	No	5.03	Circular Cracks	No
MH1194 : MH1193	SE	6	PVC	No	5.05	Good	No
MH1194 : MH1195	N	6	PVC	No	5.29	Good	No
MH1195 : MH1194	S	6	PVC	No	4.91	Good	No
MH1195 : MH1196	N	6	PVC	No	5.2	Good	No
MH1196 : MH1195	S	6	PVC	No	4.4	Good	No
MH1196 : MH1197	N	6	PVC	No	4.74	Good	No
MH1197 : MH1172	W	8	PVC	No	6	Good	No
MH1197 : MH1196	S	6	PVC	No	5.67	Good	No
MH1197 : MH1198	E	10	PVC	No	5.81	Good	No
MH1198 : MH1197	W	10	PVC	No	10.22	Good	No
MH1198 : MH1199	E	10	PVC	No	10.04	Good	No
MH1198 : Service	SE	4	PVC	No	2.26	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1199 : MH1198	SW	10	PVC	No	9.8	Good	No
MH1199 : MH1203	NE	10	PVC	No	9.78	Good	No
MH1199 : Service	NW	4	PVC	No	9.52	Good	No
MH1200 : MH1201	SW	10	PVC	No	9.94	Good	No
MH1200 : MH1482	SE	10	Concrete	No	9.92	Circular Cracks	No
MH1200 : Plugged	NE	10	Concrete	No	9.49	Good	No
MH1201 : MH1200	NE	10	PVC	No	8.41	Good	No
MH1201 : MH1202	SW	10	PVC	No	8.64	Good	No
MH1202 : MH1201	NE	10	PVC	No	8.93	Good	No
MH1202 : MH1203	SW	10	PVC	No	9.16	Good	No
MH1203 :	SW	10	PVC	No	9.78	Good	No
MH1203 : MH1202	NE	10	PVC	No	9.6	Good	No
MH1204 : MH1205	E	8	Concrete	No	9.7	Good	No
MH1204 : MH1482	NE	8	Concrete	No	9.8	Good	No
MH1204 : Plug	SW	8	Concrete	No	9.48	No Visual	No
MH1205 : MH1204	SW	8	Cast Iron/Ductile	No	9.02	Good	No
MH1205 : MH1206	NE	8	Cast Iron/Ductile	No	8.86	Good	No
MH1205 : Service	W	4	Cast Iron/Ductile	No	8.55	Good	No
MH1206 : MH1205	NW	8	Cast Iron/Ductile	No	9.16	Good	No
MH1206 : MH1207	S	8	Cast Iron/Ductile	No	9.02	Good	No
MH1207 : MH1206	NW	8	Cast Iron/Ductile	No	5.17	Good	No
MH1207 : MH1208	SE	8	Cast Iron/Ductile	No	5.01	Good	No
MH1208 : MH1207	W	8	PVC	No	12.71	Good	No
MH1208 : MH1208A	E	8	PVC	No	9.38	Good	No
MH1208 : Service	N	4	PVC	No	2.52	Good	Yes
MH1208 : Service	SW	6	PVC	No	9.4	Good	No
MH1208A : Force Main	SE	2	PVC	No	2.52	Good	No
MH1208A : MH1208	W	8	PVC	No	9.45	Good	No
MH1208A : MH1208B	N	8	PVC	No	9.38	Good	No
MH1208A : Service	SE	6	PVC	No	9.38	Good	No
MH1208B : MH1208A	S	8	PVC	No	8.02	Good	No
MH1208B : MH1208C	E	6	PVC	No	7.07	Good	No
MH1208B : MH1543	N	8	PVC	No	7.34	Good	No
MH1208C : MH1208B	W	6	PVC	No	9.42	Good	No
MH1208C : Service	N	4	Cast Iron/Ductile	No	7.9	Good	No
MH1208C : Service	E	4	Cast Iron/Ductile	No	8.16	Good	No
MH1211 : MH1212	SW	8	PVC	No	4.59	Good	No
MH1211 : Service	NE	8	PVC	No	2.9	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1212 : MH1211	NE	8	PVC	No	5.29	Good	No
MH1212 : MH1213	SW	8	PVC	No	5.47	Good	No
MH1212 : MH1520	W	8	PVC	No	5.31	Good	No
MH1213 : MH1212	NE	8	PVC	No	4.62	Good	No
MH1213 : MH1214	SW	8	PVC	No	4.91	Good	No
MH1216 : MH1215	NE	8	PVC	No	6.32	Good	No
MH1216 : MH1217	NW	8	PVC	No	6.36	Good	No
MH1217 : MH1216	E	8	PVC	No	7.03	Good	No
MH1217 : MH1218	NE	6	PVC	No	7.05	Good	No
MH1217 : PS	W	8	PVC	No	7.18	Good	No
MH1219 : MH1218	SW	6	PVC	No	5.13	Good	No
MH1219 : MH1220	NE	6	PVC	No	5.09	Circular Cracks	No
MH1220 : Force Main	NE	2	PVC	No	2.42	Good	No
MH1220 : MH1219	SW	6	PVC	No	4.3	Good	No
MH1220 : MH1551	NE	6	PVC	No	4.15	Circular Cracks	No
MH1220 : Service	NW	4	PVC	No	4.06	Good	No
MH1221 : MH1222	E	8	Cast Iron/Ductile	No	7.83	Good	No
MH1221 : MH1488	N	8	Cast Iron/Ductile	No	7.98	Good	No
MH1221 : Service	SE	4	PVC	No	6.41	Good	No
MH1221 : Service	SW	2	PVC	No	3.55	Good	No
MH1223 : MH1224	W	8	PVC	No	4.38	Good	No
MH1223 : Service	NW	4	PVC	No	3.01	Good	No
MH1224 : MH1223	E	8	PVC	No	3.71	Good	No
MH1224 : MH1225	W	8	PVC	No	3.74	Good	No
MH1225 : MH1224	E	8	PVC	No	3.8	Good	No
MH1225 : MH1226	W	8	PVC	No	3.83	Good	No
MH1225 : Service	SW	2	PVC	No	1.74	Good	No
MH1226 : MH1225	E	8	PVC	No	6.21	Good	No
MH1226 : MH1227	W	8	PVC	No	6.22	Good	No
MH1226 : Service	SE	4	PVC	No	3.64	Good	No
MH1226 : Service	SW	2	PVC	No	2.35	Good	No
MH1227 : MH1222	W	8	PVC	No	11.15	Good	No
MH1227 : MH1226	E	8	PVC	No	11.14	Good	No
MH1227 : Service	SE	8	PVC	No	11.07	Good	No
MH1227 : Service	SW	8	PVC	No	11.08	Offset	No
MH1482 :	SE	8	Concrete	No	18.48	Good	No
MH1482 : MH1200	NW	8	Concrete	No	18.79	Good	No
MH1483 : MH1171	SE	8	PVC	No	6.16	Good	No
MH1483 : MH1173	NW	8	PVC	No	6.3	Good	No
MH1484 : MH1192	N	6	PVC	No	5.7	Good	No
MH1484 : Service	S	6	PVC	No	5.64	Good	No
MH1485 : MH1166	NE	6	PVC	No	3.12	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1485 : MH1486	SE	6	PVC	No	3	Good	No
MH1486 : MH1485	N	6	PVC	No	5.53	Good	No
MH1486 : Service	E	4	PVC	No	5.51	Good	No
MH1486 : Service	SE	4	PVC	No	4.81	Good	No
MH1486 : Service	SE	4	PVC	No	4.8	Good	No
MH1486 : Service	S	2	PVC	No	4.58	Good	No
MH1486 : Service	S	2	PVC	No	4.56	Good	No
MH1486 : Service	S	2	PVC	No	4.57	Good	No
MH1486 : Service	S	2	PVC	No	4.57	Good	No
MH1486 : Service	S	2	PVC	No	4.56	Good	No
MH1486 : Service	S	2	PVC	No	4.53	Good	No
MH1487 : MH1180	N	8	PVC	No	4.01	Good	No
MH1487 : MH1488	S	8	PVC	No	3.8	Good	No
MH1487 : Service	E	4	PVC	No	3.96	Good	No
MH1513 : MH1518	NW	12	PVC	No	10.7	Good	No
MH1513 : MH1519	SE	15	Cast Iron/Ductile	No	10.77	Good	No
MH1515 : MH1515A	N	6	PVC	No	7.48	Good	No
MH1515 : MH1516	W	8	PVC	No	7.42	Good	No
MH1515 : MH1541	E	8	PVC	No	7.45	Good	No
MH1515A : MH1515	S	6	PVC	No	5.9	Good	No
MH1515A : Service	NE	4	PVC	No	5.45	Good	No
MH1516 : MH1515	E	8	PVC	No	6.92	Good	No
MH1516 : MH1536	W	8	PVC	No	7.05	Good	No
MH1517 : MH1517	E	8	PVC	No	5.51	Good	No
MH1517 : MH1536	NW	8	PVC	No	5.43	Good	No
MH1517A : MH1517A	W	8	PVC	No	5.78	Good	No
MH1517A : PS	NE	8	PVC	No	5.78	Good	No
MH1517A : Service	N	6	PVC	No	5.65	Good	No
MH1517B : MH1517C	SW	8	PVC	No	3.81	Good	No
MH1517B : Service	NW	4	PVC	No	3.62	Good	No
MH1517C : MH1517B	NE	8	PVC	No	6.73	Good	No
MH1517C : MH1517D	SW	8	PVC	No	6.85	Good	No
MH1517D : MH1517C	N	8	PVC	No	7.04	Good	No
MH1517D : MH1517E	S	8	PVC	No	7.1	Good	No
MH1517E : MH1517D	N	8	PVC	No	9.6	Good	No
MH1517E : MH1517F	S	8	PVC	No	9.66	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1517F : MH1517E	NE	8	PVC	No	9.77	Good	No
MH1517F : MH1517G	SW	8	PVC	No	9.8	Good	No
MH1518 : MH1512	NW	12	PVC	No	11.2	Good	No
MH1518 : MH1513	SE	12	PVC	No	11.37	Good	No
MH1518 : Service	NE	4	PVC	No	4.45	Good	No
MH1519 : MH1513	NW	15	Cast Iron/Ductile	No	12.08	Good	No
MH1519 : MH1526A	SE	15	PVC	No	12.11	Good	No
MH1520 : MH1212	E	8	PVC	No	5.27	Good	No
MH1520 : MH1520A	NE	8	PVC	No	5.2	Good	No
MH1520 : Plugged	SW	4	PVC	No	4.91	Good	No
MH1520A : MH1520	SW	8	PVC	No	6.4	Good	No
MH1520A : MH1521	NE	8	PVC	No	6.26	Good	No
MH1521 : MH1520	S	8	PVC	No	7.21	Good	No
MH1521 : MH1522	N	8	PVC	No	3.25	Circular Cracks	Yes
MH1522 : MH1521	SW	8	PVC	No	6.44	Good	No
MH1522 : Service	NE	6	PVC	No	6.26	Good	No
MH1523 : MH1189C	NE	6	PVC	No	5.77	Good	No
MH1523 : MH1523A	SW	8	PVC	No	7.06	Good	No
MH1523 : MH1524	E	8	PVC	No	5.45	Good	No
MH1523 : Service	SW	8	PVC	No	7	Good	No
MH1523A : Force Main	NW	3	PVC	No	4.1	Good	No
MH1523A : MH1187	SW	8	Cast Iron/Ductile Iron	No	9.91	Good	No
MH1523A : MH1523	W	8	PVC	No	9.72	Good	No
MH1523A : Service	NW	6	PVC	No	9.42	Circular Cracks	No
MH1523A : Service	W	8	PVC	No	4.71	Good	Yes
MH1524 : EOL	S	6	PVC	No	6.59	Good	No
MH1524 : MH1523	NW	8	PVC	No	6.7	Good	No
MH1524 : MH1525	SE	8	PVC	No	4.04	Good	Yes
MH1524 : Plugged	N	8	PVC	No	0	No Visual	No
MH1525 : EOL	S	8	Cast Iron/Ductile	No	7.83	Good	No
MH1525 : MH1524	W	8	Cast Iron/Ductile	No	7.85	Good	No
MH1525 : Service	NE	8	PVC	No	6.91	Good	No
MH1526 : MH1182	NE	10	Cast Iron/Ductile	No	14.6	Good	No
MH1526 : MH1526A	SW	10	Cast Iron/Ductile Iron	No	14.69	Good	No
MH1526 : MH1527	SE	8	PVC	No	6.55	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1526A : MH1519	NW	15	PVC	No	11.92	Good	No
MH1526A : MH1526	NE	10	PVC	No	12.13	Good	No
MH1526A : MH1526B	SW	10	PVC	No	12.2	Good	No
MH1526B : LS	NW	12	Cast Iron/Ductile	No	14.89	Good	No
MH1526B : MH1181A	NE	12	PVC	No	14.8	Good	No
MH1527 : MH1526	NW	8	PVC	No	6.09	Good	No
MH1527 : MH1528	E	8	PVC	No	6.1	Good	No
MH1528 : MH1527	W	8	PVC	No	5	Good	No
MH1528 : MH1528	E	8	PVC	No	4.86	Good	No
MH1529 : MH1528	W	8	PVC	No	5.1	Good	No
MH1529 : MH1530	E	8	PVC	No	4.98	Good	No
MH1530 : MH1529	SW	8	PVC	No	5.41	Good	No
MH1530 : Plugged	N	8	No Visual	No	5.4	No Visual	No
MH1530 : Service	E	8	PVC	No	5.39	Good	No
MH1530 : Service	S	8	PVC	No	5.39	Good	No
MH1533 : MH1532	S	8	PVC	No	6.29	Good	No
MH1533 : MH1534	N	8	PVC	No	6.25	Good	No
MH1533 : Plugged	SE	6	PVC	No	6.15	Good	No
MH1533 : Service	NE	4	PVC	No	3.5	Good	No
MH1533 : Service	NE	4	PVC	No	6.1	Good	No
MH1534 : MH1533	S	8	PVC	No	5.39	Good	No
MH1534 : MH1535	N	8	PVC	No	5.38	Good	No
MH1534 : Service	E	4	PVC	No	5.31	Good	No
MH1535 : MH1534	S	6	PVC	No	4.95	Good	No
MH1535 : Serivce	N	6	PVC	No	4.8	Good	No
MH1535 : Serivce	E	4	PVC	No	4.33	Good	No
MH1536 : MH1516	W	8	PVC	No	72.8	Good	No
MH1536 : MH1517A	E	8	PVC	No	7.3	Good	No
MH1536 : MH1538	S	8	PVC	No	7.1	Good	No
MH1536 : Service	NW	6	PVC	No	6.43	Good	No
MH1538 : MH1536	N	8	PVC	No	9	Good	No
MH1538 : MH1537	S	6	PVC	No	8.95	Good	No
MH1538 : Service	E	6	PVC	No	8.98	Good	No
MH1539 : MH1536	SW	6	PVC	No	5.04	Good	No
MH1539 : Service	NE	6	PVC	No	4.72	Good	No
MH1541 : MH1515	W	8	PVC	No	7.3	Offset	No
MH1541 : MH1541A	E	8	PVC	No	7.2	Offset	No
MH1541 : MH1541D	N	8	PVC	No	6.59	Good	No

Segment	Direction	Diameter	Material	RootGrowth	Rim To Invert (ft)	Structural Condition	Drop Connection
MH1541A : MH_1541B	E	8	PVC	No	7.89	Good	No
MH1541A : MH1541	W	8	PVC	No	7.91	Good	No
MH1541B : MH1541A	W	8	PVC	No	5.55	Good	No
MH1541B : MH1541C	E	8	PVC	No	5.36	Good	No
MH1541C : MH1541B	W	8	PVC	No	7	Good	No
MH1541C : Service	NW	4	PVC	No	4.99	Good	No
MH1541C : Service	NE	4	PVC	No	5.14	Good	No
MH1541C : Sevice	NE	4	PVC	No	5.14	Good	No
MH1541D : MH1541	S	8	PVC	No	8.91	Good	No
MH1541D : MH1541E	E	8	PVC	No	8.91	Good	No
MH1541E : MH1541D	W	8	PVC	No	8.54	Good	No
MH1541E : MH1541F	N	8	PVC	No	8.53	Good	No
MH1541F : MH1541F	SE	8	PVC	No	7.3	Good	No
MH1541F : Unknown	N	8	PVC	No	7.23	Good	No
MH1541G : MH1541F	SE	8	PVC	No	8	Good	No

APPENDIX C

SMOKE TEST REPORT

2023 Malvern SSES

Smoke Test Report

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 4	EOL:MH0108	917 McNeal St	Cleanout	217.8	$1,000.00	55
Basin 3A	EOL:MH0174	Dogwood Trl	No Defect	0.0		92
Basin 3A	EOL:MH0177	Dogwood Trl	No Defect	0.0		173
-	EOL:MH0275	E Highland Ave	No Defect	0.0		463
Basin 4	EOL:MH0459	Wallace St	No Defect	0.0		264
Basin 3A	EOL:MH0515	Dogwood Trl	No Defect	0.0		160
Basin 4	EOL:MH0543	Bailey Pl	No Defect	0.0		382
Basin 4	EOL:MH0544A	Bailey Pl	No Defect	0.0		145
Basin 4	EOL:MH0666	Wilson St	No Defect	0.0		198
-	EOL:MH0677	McNeal St	No Defect	0.0		174
Basin 3A	EOL:MH1162	Hwy 270B	No Defect	0.0		157
Basin 3	EOL:MH1284	Division St	No Defect	0.0		266
-	EOL:MH1524	S Rivercreek Dr	No Defect	0.0		82
-	EOL:MH1525	S Rivercreek Dr	No Defect	0.0		72
Basin 3A	MH0001:MH0002	Gloster St	No Defect	0.0		229
Basin 3A	MH0002:MH0003	Gloster St	No Defect	0.0		38
Basin 3A	MH0003:MH0004	425 E First St	Lateral Defect(s)	725.8	$1,000.00	294
Basin 3A	MH0004:MH0005	E 1st St	No Defect	0.0		38
Basin 3A	MH0005:MH1165	E 1st St	No Defect	0.0		311
Basin 3A	MH0038:MH0039	Gloster St	No Defect	0.0		273
Basin 3A	MH0039:MH0001	Gloster St	No Defect	0.0		250
Basin 3A	MH0067:MH0068	703 Overman St	Crawl Space Drain	0.0		216
		515 McBee St	Lateral Defect(s)	145.4	$1,000.00	
Basin 3A	MH0068:MH0069	534 McBee St	Cleanout: Missing Cap	72.4	$25.00	285
		535 McBee St	Cleanout	72.4	$1,000.00	
		535 McBee St	Lateral Defect(s)	362.6	$1,000.00	
Basin 3A	MH0069:MH0070	707 Keith St	Lateral Defect(s)	1,814.2	$1,000.00	338
		707 Keith St	Cleanout: Missing Cap	19.6	$25.00	
		616 McBee St	Lateral Defect(s)	362.6	$1,000.00	
Basin 3A	MH0070:MH0072	623 E Page Ave	Lateral Defect(s)	10,884.7	$1,000.00	331
		623 E Page Ave	Lateral Defect(s)	254.0	$1,000.00	
Basin 3A	MH0071:MH0481	818 McBee St	Lateral Defect(s)	362.6	$1,000.00	322
		812 McBee St	No Defect	0.0		
		728 McBee St	Lateral Defect(s)	181.6	$1,000.00	
		818 Mcbee St	No Defect	0.0		
Basin 3A	MH0072:MH0076	728 E Page Ave	Cross-Connection: Catch Basin	19,560.0		303
Basin 3A	MH0073:MH0074	631 Pine Bluff St	Lateral Defect(s)	217.8	$1,000.00	455
Basin 3A	MH0074:MH0070	704 Pine Bluff St	Crawl Space Drain	0.0		291

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3A	MH0075:MH0074	Pine Bluff St	No Defect	0.0		202
Basin 3A	MH0076:MH0079	814 E Page Ave	Cross-Connection: Catch Basin	19,560.0		302
		814 E Page Ave	Mainline Defect(s)	108,847.9		
Basin 3A	MH0077:MH0078	522 S Banks St	Lateral Defect(s)	725.8	$1,000.00	341
Basin 3A	MH0078:MH0072	411 S Banks St	Lateral Defect(s)	725.8	$1,000.00	422
Basin 3A	MH0079:MH0479	McNeal St	No Defect	0.0		281
Basin 3A	MH0080:MH0079	E Page Ave	No Defect	0.0		114
Basin 3A	MH0081:MH0082	526 Section Line St	Cleanout: Missing Cap	362.6	$25.00	422
		526 Section Line St	Lateral Defect(s)	544.2	$1,000.00	
Basin 3A	MH0082:MH0083	622 Section Line St	Lateral Defect(s)	362.6	$1,000.00	377
		608 Section Line St	Lateral Defect(s)	725.8	$1,000.00	
		616 Section Line St	Crawl Space Drain	0.0		
Basin 3A	MH0083:MH0088	Section Line St	No Defect	0.0		321
Basin 3A	MH0084:MH0593	615 JW Harrison St	Cleanout	72.4	$1,000.00	216
		615 JW Harrison St	Cleanout	19.6	$1,000.00	
		619 JW Harrison St	Cleanout	145.4	$1,000.00	
Basin 3A	MH0085:MH0086	Overman St	No Defect	0.0		251
Basin 3A	MH0086:MH0508	Overman St	No Defect	0.0		105
Basin 3A	MH0087:MH1120	Overman St	No Defect	0.0		362
Basin 3A	MH0088:MH0089	Section Line St	No Defect	0.0		201
Basin 3A	MH0089:MH0091	Section Line St	No Defect	0.0		181
Basin 3A	MH0090:MH1116	Carpenter St	No Defect	0.0		319
Basin 3A	MH0091:MH0511	Carpenter St	No Defect	0.0		136
Basin 3A	MH0092:MH0080	903 E Page Ave	Grease Trap	978.0		449
		632 McNeal St	Cleanout	19.6	$1,000.00	
Basin 3A	MH0093:MH0080	900 E Page Ave	Cross-Connection: Catch Basin	19,560.0		251
		904 E Page Ave	Cross-Connection: Catch Basin	19,560.0		
		900 E Page Ave	Lateral Defect(s)	3,265.2	$1,000.00	
Basin 3A	MH0094:MH0093	E Page Ave	No Defect	0.0		111
Basin 3A	MH0095:MH0094	E Page Ave	No Defect	0.0		18
Basin 3A	MH0096:MH0093	626 Edwards St	Mainline Defect(s)	7,256.2		324
Basin 3A	MH0097:MH0089	Section Line St	No Defect	0.0		691
Basin 3A	MH0098:MH0092	920 McBee St	No Defect	0.0		368
Basin 3A	MH0099:MH0098	McBee St	No Defect	0.0		11
Basin 3A	MH0100:MH0099	McBee St	No Defect	0.0		166
Basin 3A	MH0101:MH0092	705 Mc Neal St	Mainline Defect(s)	2,176.8		295
Basin 3A	MH0102:MH0101	Pine Bluff St	No Defect	0.0		129
Basin 3A	MH0103:MH0101	Pine Bluff St	No Defect	0.0		28
Basin 3A	MH0104:MH0103	827 Clardy St	Lateral Defect(s)	254.0	$1,000.00	426
-	MH0105:MH0106	Clardy St	No Defect	0.0		402

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
-	MH0106:MH0104	Clardy St	No Defect	0.0		395
Basin 4	MH0107:MH0108	Clem St	No Defect	0.0		305
Basin 4	MH0108:MH0109	1003 McNeal St	Lateral Defect(s)	254.0	$1,000.00	78
Basin 4	MH0109:MH0677	1104 McNeal St	Cleanout: Missing Cap	145.4	$25.00	239
		903C Louise St	Cleanout: Missing Cap	19.6	$25.00	
		1124 McNeal St	No Defect	0.0		
Basin 4	MH0110:MH0241	McHenry St	No Defect	0.0		327
Basin 4	MH0111:MH0110	E Sullenberger Ave	No Defect	0.0		246
Basin 4	MH0112:MH0110	E Sullenberger Ave	No Defect	0.0		311
Basin 4	MH0113:MH0112	Edwards St	No Defect	0.0		473
Basin 4	MH0114:MH0113	Edwards St	No Defect	0.0		231
Basin 4	MH0115:MH0114	927 Edwards St	Crawl Space Drain	0.0		317
		928 Edwards St	Lateral Defect(s)	362.6	$1,000.00	
Basin 4	MH0116:MH0117	900 Toler St	Lateral Defect(s)	725.8	$1,000.00	370
		920 Toler St	Lateral Defect(s)	181.6	$1,000.00	
Basin 4	MH0117:MH0118	1003 Toler St	Lateral Defect(s)	906.8	$1,000.00	275
Basin 4	MH0118:MH0119	1135 Toler St	Cross-Connection: Catch Basin	19,555.2		384
		1128 Toler St	Cleanout	19.6	$1,000.00	
Basin 4	MH0119:MH0120	Sullenberger Ave	No Defect	0.0		142
Basin 4	MH0120:MH0243	Harper St	No Defect	0.0		326
Basin 4	MH0121:MH0122	Wallace St	No Defect	0.0		382
Basin 4	MH0122:MH0123	1111 Wallace St	Lateral Defect(s)	36.2	$1,000.00	363
		1111 Wallace St	Lateral Defect(s)	145.4	$1,000.00	
		1111 Wallace St	Lateral Defect(s)	145.4	$1,000.00	
Basin 4	MH0123:MH0119	Sullenberger Ave	No Defect	0.0		342
Basin 4	MH0124:MH0126	Cherry Ln	No Defect	0.0		41
Basin 4	MH0125:MH0124	1212 Clardy St	Cleanout	362.6	$1,000.00	120
Basin 4	MH0126:MH0127	Cherry Ln	No Defect	0.0		352
Basin 4	MH0127:MH0128	Cherry Ln	No Defect	0.0		326
Basin 4	MH0128:MH0490	Cherry Ln	No Defect	0.0		320
Basin 4	MH0129:MH0128	Monroe St	No Defect	0.0		179
Basin 4	MH0130:MH0123	Sullenberger Ave	No Defect	0.0		190
Basin 4	MH0131:MH0132	Jefferson St	No Defect	0.0		139
Basin 4	MH0132:MH0133	Jefferson St	No Defect	0.0		355
Basin 4	MH0133:MH0134	Jefferson St	No Defect	0.0		321
Basin 4	MH0134:MH0491	Jefferson St	No Defect	0.0		338
Basin 4	MH0135:MH0130	Sullenberger Ave	No Defect	0.0		328
Basin 4	MH0136:MH0137	Lincoln St	No Defect	0.0		238
Basin 4	MH0137:MH0132	Grant St	No Defect	0.0		330
Basin 4	MH0138:MH0137	917 Lincoln St	Lateral Defect(s)	181.6	$1,000.00	339
Basin 4	MH0139:MH0138	Lincoln St	No Defect	0.0		271

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 4	MH0140:MH0138	920 Roosevelt St	Lateral Defect(s)	145.4	$1,000.00	274
		1523 Robert E Lee St	Lateral Defect(s)	362.6	$1,000.00	
Basin 4	MH0141:MH0142	1426 Sullenberger Ave	Cleanout	181.6	$1,000.00	341
		1120 Lincoln St	Cleanout	362.6	$1,000.00	
Basin 4	MH0142:MH0135	1427 Sullenberger Ave	Cleanout: Missing Cap	19.6	$25.00	360
		1427 Sullenberger Ave	Cleanout: Missing Cap	72.4	$25.00	
		1421 Sullenberger Ave	No Defect	0.0		
Basin 4	MH0143:MH0670	1524 Monroe St	Cross-Connection: Other	0.0		225
		1519 Monroe St	Lateral Defect(s)	362.6	$1,000.00	
Basin 4	MH0144:MH0145	Roosevelt St	No Defect	0.0		201
Basin 4	MH0145:MH0445	1515 Sullenberger Ave	Cleanout: Missing Cap	72.4	$25.00	309
		1522 Sullenberger Ave	Cleanout: Missing Cap	19.6	$25.00	
Basin 4	MH0146:MH0145	Sullenberger Ave	No Defect	0.0		327
Basin 4	MH0147:MH0146	Wilson St	No Defect	0.0		71
Basin 4	MH0148:MH0147	Wilson St	No Defect	0.0		277
Basin 4	MH0149:MH0148	Wilson St	No Defect	0.0		259
Basin 4	MH0150:MH0151	1003 Roosevelt St	Cleanout	145.4	$1,000.00	248
		1003 Roosevelt St	Lateral Defect(s)	362.6	$1,000.00	
Basin 4	MH0151:MH0152	Roosevelt St	No Defect	0.0		325
Basin 4	MH0152:MH0137	829 Lincoln St	Lateral Defect(s)	217.8	$1,000.00	340
		906 Roosevelt St	Lateral Defect(s)	72.4	$1,000.00	
		1509 Grant St	Cleanout	72.4	$1,000.00	
Basin 4	MH0153:MH0152	1603 Pine Bluff St	Lateral Defect(s)	362.6	$1,000.00	355
Basin 4	MH0154:MH0152	Grant St	No Defect	0.0		311
Basin 4	MH0155:MH0154	Wilson St	No Defect	0.0		222
Basin 4	MH0156:MH0485	Wilson St	No Defect	0.0		240
Basin 4	MH0157:MH0485	Wilson St	No Defect	0.0		18
Basin 3A	MH0158:MH0160	1408 Pine Bluff St	Lateral Defect(s)	181.6	$1,000.00	341
Basin 3A	MH0159:MH0158	Pine Bluff St	No Defect	0.0		133
Basin 3A	MH0160:MH0161	Pine Bluff St	No Defect	0.0		351
Basin 3A	MH0161:MH0165	Pine Bluff St	No Defect	0.0		311
Basin 3A	MH0162:MH0161	Cherry Ln	No Defect	0.0		290
Basin 3A	MH0163:MH0162	McBee St	No Defect	0.0		213
Basin 3A	MH0164:MH0103	919 Pine Bluff St	Lateral Defect(s)	544.2	$1,000.00	336
		916 Pine Bluff St	Lateral Defect(s)	72.4	$1,000.00	
Basin 3A	MH0165:MH0693	1114 Pine Bluff St	Lateral Defect(s)	145.4	$1,000.00	247
		1114 Pine Bluff St	Lateral Defect(s)	181.6	$1,000.00	
Basin 3A	MH0166:MH0168	Circle Dr	No Defect	0.0		151
Basin 4	MH0167:MH0157	Wilson St	No Defect	0.0		499
Basin 3A	MH0168:MH0169	Circle Dr	No Defect	0.0		413
Basin 3A	MH0169:MH0170	McBee St	No Defect	0.0		257
Basin 3A	MH0170:MH0172	McBee St	No Defect	0.0		451

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3A	MH0171:MH0160	Pine Bluff St	No Defect	0.0		270
Basin 3A	MH0172:MH0171	1404 McBee St	Lateral Defect(s)	181.6	$1,000.00	102
Basin 3A	MH0173:MH0172	1326 Dogwood Trl	Lateral Defect(s)	725.8	$1,000.00	261
Basin 3A	MH0174:MH0173	1503 Dogwood Trl	Lateral Defect(s)	1,632.6	$1,000.00	407
		1503 Dogwood Trl	Lateral Defect(s)	362.6	$1,000.00	
Basin 3A	MH0175:MH0178	E Page Ave	No Defect	0.0		292
Basin 3A	MH0176:MH0664	Dogwood Trl	No Defect	0.0		134
Basin 3A	MH0177:MH0176	Dogwood Trl	No Defect	0.0		158
Basin 3A	MH0178:MH0179	E Page Ave	No Defect	0.0		167
Basin 3A	MH0179:MH0180	Section Line St	No Defect	0.0		55
Basin 3A	MH0180:MH0181	Section Line St	No Defect	0.0		383
Basin 3A	MH0181:MH0097	Section Line St	No Defect	0.0		401
Basin 4	MH0182:MH0157	Pine Bluff St	No Defect	0.0		338
Basin 4	MH0183:MH0167	Delano Dr	No Defect	0.0		307
Basin 4	MH0184:MH0154	1726 Grant St	Cleanout: Missing Cap	72.4	$25.00	339
Basin 4	MH0185:MH0184	1803 Grant St	Lateral Defect(s)	72.4	$1,000.00	143
Basin 4	MH0186:MH0184	Grant St	No Defect	0.0		312
Basin 4	MH0187:MH0186	Grant St	No Defect	0.0		160
Basin 4	MH0188:MH0189	Grant St	No Defect	0.0		112
Basin 4	MH0189:MH0191	Grant St	No Defect	0.0		313
Basin 4	MH0190:MH0189	923 Dawson St	Cleanout: Missing Cap	19.6	$25.00	201
Basin 4	MH0191:MH0193	Owens St	No Defect	0.0		320
Basin 4	MH0192:MH0191	809 Owens St	Cleanout	725.8	$1,000.00	322
		1801 Pine Bluff St	Lateral Defect(s)	217.8	$1,000.00	
Basin 4	MH0193:MH0194	Owens St	No Defect	0.0		333
Basin 4	MH0194:MH0195	1119 Owens St	Cleanout: Missing Cap	19.6	$25.00	251
-	MH0195:MH0196	Owens St	No Defect	0.0		92
Basin 4	MH0196:MH0197	E Sullenberger Ave	No Defect	0.0		282
Basin 4	MH0197:MH0198	E Sullenberger Ave	No Defect	0.0		83
Basin 4	MH0198:MH0199	E Sullenberger Ave	No Defect	0.0		331
Basin 4	MH0199:MH0200	1824 E Sullenberger Ave	Cleanout	145.4	$1,000.00	314
		1824 E Sullenberger Ave	Cleanout: Missing Cap	19.6	$25.00	
Basin 4	MH0200:MH0146	E Sullenberger Ave	No Defect	0.0		329
Basin 4	MH0201:MH0200	1726 E Sullenberger Ave	Cleanout	254.0	$1,000.00	339
Basin 4	MH0202:MH0201	Monroe St	No Defect	0.0		327
Basin 4	MH0203:MH0194	2026 Monroe St	Lateral Defect(s)	362.6	$1,000.00	323
		2026 Monroe St	Lateral Defect(s)	1,088.4	$1,000.00	
Basin 4	MH0204:MH0193	Robert E Lee St	No Defect	0.0		322
Basin 4	MH0205:MH0204	Robert E Lee St	No Defect	0.0		334
Basin 4	MH0206:MH0155	1729 Robert E Lee St	Lateral Defect(s)	181.6	$1,000.00	430
Basin 4	MH0207:MH0196	E Sullenberger Ave	No Defect	0.0		155
Basin 4	MH0208:MH0207	E Sullenberger Ave	No Defect	0.0		156

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 4	MH0209:MH0211	E Sullenberger Ave	No Defect	0.0		352
Basin 4	MH0210:MH0209	E Sullenberger Ave	No Defect	0.0		132
-	MH0211:MH0208	E Sullenberger Ave	No Defect	0.0		392
Basin 4	MH0212:MH0191	Grant St	No Defect	0.0		869
Basin 4	MH0213:MH0212	Grant St	No Defect	0.0		47
Basin 4	MH0214:MH0213	Schneider Dr	No Defect	0.0		108
Basin 4	MH0215:MH0214	Schneider Dr	No Defect	0.0		381
Basin 4	MH0216:MH0215	2605 Canine St	Cleanout: Missing Cap	19.6	$25.00	193
Basin 4	MH0217:MH0216	Canine St	No Defect	0.0		95
Basin 4	MH0218:MH0217	Canine St	No Defect	0.0		145
Basin 4	MH0241:MH0244	E Highland Ave	No Defect	0.0		330
Basin 4	MH0242:MH0241	1305 Texas St	Lateral Defect(s)	108.6	$1,000.00	494
Basin 4	MH0243:MH0241	921 McHenry St	Cleanout	145.4	$1,000.00	513
		1009 McHenry St	Cleanout	19.6	$1,000.00	
		1027 McHenry St	Cleanout: Missing Cap	19.6	$25.00	
Basin 4	MH0244:MH0245	E Highland Ave	No Defect	0.0		145
Basin 4	MH0245:MH0246	Texas St	No Defect	0.0		341
Basin 4	MH0246:MH0247	Texas St	No Defect	0.0		172
Basin 4	MH0247:MH0539	Willow St	No Defect	0.0		96
Basin 4	MH0248:MH0247	Willow St	No Defect	0.0		122
Basin 4	MH0249:MH0250	1027 Willow St	No Defect	0.0		288
		1013 Willow St	No Defect	0.0		
Basin 4	MH0250:MH0246	Willow St	No Defect	0.0		171
Basin 4	MH0251:MH0247	1427 Louisiana St	No Defect	0.0		319
Basin 4	MH0252:MH0251	Willow St	No Defect	0.0		119
Basin 4	MH0253:MH0300	E Mill St	No Defect	0.0		228
Basin 4	MH0254:MH0253	E Mill St	No Defect	0.0		180
Basin 4	MH0255:MH0254	E Mill St	No Defect	0.0		301
Basin 4	MH0256:MH0255	E Mill St	No Defect	0.0		355
Basin 4	MH0257:MH0254	1623 Texas St	Lateral Defect(s)	36.2	$1,000.00	339
Basin 4	MH0260:MH0533	1115 McHenry St	Crawl Space Drain	0.0		324
		1124 McHenry St	Cleanout	19.6	$1,000.00	
Basin 4	MH0261:MH0260	1230 McHenry St	No Defect	0.0		334
Basin 4	MH0262:MH0261	McHenry St	No Defect	0.0		330
Basin 4	MH0263:MH0262	McHenry St	No Defect	0.0		350
Basin 4	MH0264:MH0445	Lincoln St	No Defect	0.0		302
Basin 4	MH0265:MH0263	Roosevelt St	No Defect	0.0		328
Basin 4	MH0265:MH0266	E Highland Ave	No Defect	0.0		326
Basin 4	MH0266:MH0262	1315 Lincoln St	Lateral Defect(s)	362.6	$1,000.00	345
Basin 4	MH0267:MH0268	Willow St	No Defect	0.0		333
Basin 4	MH0268:MH0269	Jefferson St	No Defect	0.0		346
Basin 4	MH0269:MH0261	1315 Jefferson St	Cleanout	145.4	$1,000.00	341

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 4	MH0270:MH0271	E Mill St	No Defect	0.0		338
Basin 4	MH0271:MH0272	E Mill St	No Defect	0.0		340
Basin 4	MH0272:MH0672	E Mill St	No Defect	0.0		260
Basin 4	MH0273:MH0274	Porter St	No Defect	0.0		397
Basin 4	MH0274:MH0275	1403 Porter St	Cleanout: Missing Cap	19.6	$25.00	332
Basin 4	MH0275:MH0276	E Highland Ave	No Defect	0.0		335
Basin 4	MH0276:MH0534	1012 E Highland Ave	No Defect	0.0		292
		1006 E Highland Ave	No Defect	0.0		
		1006 E Highland Ave	Lateral Defect(s)	362.6	$1,000.00	
Basin 4	MH0277:MH0276	Harper St	No Defect	0.0		450
Basin 4	MH0278:MH0260	Cherry Ln	No Defect	0.0		192
-	MH0298:OSA	Mississppi St	No Defect	0.0		351
Basin 4	MH0299:MH0673	Mississippi St	No Defect	0.0		184
Basin 4	MH0300:OSA	E Mill St	No Defect	0.0		480
Basin 4	MH0374:MH0146	Wilson St	No Defect	0.0		65
Basin 4	MH0375:MH0374	1735 E Sullenberger Ave	Mainline Defect(s)	14,513.1		317
Basin 4	MH0376:MH0375	E Sullenberger Ave	No Defect	0.0		75
Basin 4	MH0377:MH0376	E Sullenberger Ave	No Defect	0.0		252
Basin 4	MH0378:MH0197	E Sullenberger Ave	No Defect	0.0		112
Basin 4	MH0379:MH0378	E Sullenberger Ave	No Defect	0.0		37
Basin 4	MH0380:MH0379	Mimosa St	No Defect	0.0		175
Basin 4	MH0381:MH0207	E Sullenberger Ave	No Defect	0.0		298
Basin 4	MH0382:MH0208	Linda Ln	No Defect	0.0		324
Basin 4	MH0383:MH0382	McHenry Dr	No Defect	0.0		110
Basin 4	MH0384:MH0388	2318 McHenry Dr	Mainline Defect(s)	32,654.0		218
Basin 4	MH0385:MH0384	2319 McHenry Dr	Mainline Defect(s)	145.4		112
		2346 McHenry Cir	Lateral Defect(s)	72.4	$1,000.00	
Basin 4	MH0386:MH0387	McHenry Dr	No Defect	0.0		165
Basin 4	MH0387:MH0211	E Sullenberger Ave	No Defect	0.0		202
Basin 4	MH0388:MH0387	E Sullenberger Ave	No Defect	0.0		180
Basin 4	MH0389:MH0386	McHenry Dr	No Defect	0.0		60
Basin 4	MH0390:MH0389	McHenry Dr	No Defect	0.0		96
Basin 4	MH0391:MH0392	1313 Bayer St	Cleanout	362.6	$1,000.00	273
Basin 4	MH0392:MH0210	Bayer St	No Defect	0.0		214
Basin 4	MH0431:MH0380	Mimosa St	No Defect	0.0		176
Basin 4	MH0432:MH0436	Mimosa St	No Defect	0.0		152
Basin 4	MH0433:MH0431	1238 Mimosa St	Cleanout: Missing Cap	72.4	$25.00	292
Basin 4	MH0434:MH0435	Mimosa St	No Defect	0.0		273
Basin 4	MH0435:MH0436	Mimosa St	No Defect	0.0		170
Basin 4	MH0436:MH0437	Mimosa St	No Defect	0.0		324
Basin 4	MH0437:MH0441	1330 Maple St	Cleanout	19.6	$1,000.00	147
Basin 4	MH0438:MH0439	Maple St	No Defect	0.0		290

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 4	MH0439:MH0437	Maple St	No Defect	0.0		138
Basin 4	MH0440:MH0437	1330 Maple St	Lateral Defect(s)	725.8	$1,000.00	99
Basin 4	MH0441:MH0442	1406 Maple St	Manhole Inflow	978.0	$0.00	140
Basin 4	MH0442:MH0443	McHenry St	No Defect	0.0		131
Basin 4	MH0443:MH0444	McHenry St	No Defect	0.0		132
Basin 4	MH0444:MH0377	McHenry St	No Defect	0.0		390
-	MH0445:MH0142	E Sullenberger Ave	No Defect	0.0		30
Basin 4	MH0446:MH0217	Canine St	No Defect	0.0		106
Basin 4	MH0447:MH0217	Canine St	No Defect	0.0		37
Basin 3A	MH0452:MH0162	618 Cherry Ln	Cleanout: Missing Cap	181.6	$25.00	413
		623 Cherry Ln	Cleanout	108.6	$1,000.00	
		1310 McBee St	Lateral Defect(s)	181.6	$1,000.00	
Basin 3A	MH0453:MH0163	Orchard Dr	No Defect	0.0		348
Basin 3A	MH0454:MH0166	Wilson St	No Defect	0.0		261
Basin 3A	MH0455:MH0078	S Banks St	No Defect	0.0		138
Basin 4	MH0456:MH0266	Lincoln St	No Defect	0.0		151
Basin 4	MH0458:MH0116	1018 Clardy St Unit: A	Lateral Defect(s)	145.4	$1,000.00	136
Basin 4	MH0459:MH0121	Wallace St	No Defect	0.0		95
Basin 3A	MH0460:MH0101	Pine Bluff St	No Defect	0.0		391
Basin 3A	MH0479:MH0089	McNeal St	No Defect	0.0		277
Basin 3A	MH0480:MH0098	McBee St	No Defect	0.0		46
Basin 3A	MH0481:MH0092	McBee St	No Defect	0.0		170
Basin 4	MH0484:MH0124	Cherry Ln	No Defect	0.0		135
Basin 4	MH0485:MH0153	Pine Bluff St	No Defect	0.0		324
Basin 4	MH0486:MH0167	Wilson St	No Defect	0.0		155
Basin 4	MH0487:MH0486	Wilson St	No Defect	0.0		118
Basin 4	MH0488:MH0192	Pine Bluff St	No Defect	0.0		378
Basin 4	MH0489:MH0206	1803 Robert E Lee St	Cleanout	181.6	$1,000.00	168
Basin 4	MH0490:MH0130	Sullenberger Ave	No Defect	0.0		13
Basin 4	MH0491:MH0490	Sullenberger Ave	No Defect	0.0		322
Basin 4	MH0492:MH0198	E Sullenberger Ave	No Defect	0.0		193
Basin 4	MH0493:MH0435	Mimosa St	No Defect	0.0		175
Basin 4	MH0494:MH0493	Owens St	No Defect	0.0		184
Basin 4	MH0495:MH0493	Owens St	No Defect	0.0		260
Basin 4	MH0498:MH0273	1113 E Mill St	Cleanout	145.4	$1,000.00	123
		1125 E Mill St	Lateral Defect(s)	181.6	$1,000.00	
Basin 4	MH0499:MH0274	Willow St	No Defect	0.0		160
Basin 4	MH0500:MH0274	Willow St	No Defect	0.0		132
Basin 4	MH0501:MH0265	Roosevelt St	No Defect	0.0		253
Basin 4	MH0502:MH0501	Willow St	No Defect	0.0		250
Basin 3A	MH0506:MH0005	E 1st St	No Defect	0.0		155

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3A	MH0507:MH0001	19 Gloster Ct	Cleanout	362.6	$1,000.00	181
		3 Gloster Ct	Cleanout	19.6	$1,000.00	
		6 Gloster Ct	Cleanout: Missing Cap	19.6	$25.00	
		19 Gloster Ct	Cleanout: Missing Cap	19.6	$25.00	
		12 Gloster Ct	Cleanout	362.6	$1,000.00	
Basin 3A	MH0508:MH0087	Overman St	No Defect	0.0		51
Basin 3A	MH0509:MH0077	Moore St	No Defect	0.0		190
Basin 3A	MH0510:MH0077	Keith St	No Defect	0.0		169
-	MH0511:MH0090	Sheppard St	No Defect	0.0		181
Basin 3A	MH0512:MH0094	E Page Ave	No Defect	0.0		307
Basin 3A	MH0513:MH0512	E Page Ave	No Defect	0.0		195
Basin 3A	MH0514:MH0513	E Page Ave	No Defect	0.0		196
Basin 3A	MH0515:MH0175	Dogwood Trl	No Defect	0.0		95
Basin 3A	MH0516:MH1132	Hwy 270B	No Defect	0.0		392
Basin 3A	MH0517:MH1132	Hwy 270B	No Defect	0.0		369
Basin 4	MH0524:MH0129	Monroe St	No Defect	0.0		119
Basin 4	MH0525:MH0139	Lincoln St	No Defect	0.0		42
Basin 4	MH0526:MH0143	Monroe St	No Defect	0.0		85
Basin 4	MH0527:MH0201	1720 Monroe St	Cleanout	362.6	$1,000.00	83
Basin 4	MH0528:MH0202	Monroe St	No Defect	0.0		111
Basin 4	MH0529:MH0203	1920 Monroe St Unit: C1	Cleanout: Missing Cap	19.6	$25.00	81
Basin 4	MH0530:MH0667	Dawson St	No Defect	0.0		377
Basin 4	MH0531:MH0530	Dawson St	No Defect	0.0		113
Basin 4	MH0532:MH0211	2204 E Sullenberger Ave	Mainline Defect(s)	1,451.0		175
Basin 4	MH0533:MH0243	McHenry St	No Defect	0.0		324
Basin 4	MH0534:MH0244	920 E Highland Ave	Cleanout	362.6	$1,000.00	201
Basin 4	MH0535:MH0243	McHenry St	No Defect	0.0		12
Basin 4	MH0536:MH0535	McHenry St	No Defect	0.0		230
Basin 4	MH0537:MH0277	Harper St	No Defect	0.0		119
Basin 4	MH0538:MH0140	Robert E Lee St	No Defect	0.0		173
Basin 4	MH0539:MH0253	1527 Louisiana St	No Defect	0.0		262
		1512 Texas St	No Defect	0.0		
		1527 Louisiana St	Lateral Defect(s)	1,088.4	$1,000.00	
Basin 4	MH0541:MH0268	1509 Jefferson St	Cleanout: Missing Cap	19.6	$25.00	143
Basin 4	MH0542:MH0442	Bailey Pl	No Defect	0.0		177
Basin 4	MH0543:MH0542	1727 Bailey Pl	Cleanout: Missing Cap	19.6	$25.00	323
		1745 Bailey Pl	Cleanout: Missing Cap	19.6	$25.00	
		1745 Bailey Pl	Cleanout: Missing Cap	19.6	$25.00	
		1716 Bailey Pl	Cleanout: Missing Cap	326.4	$25.00	
Basin 4	MH0544A:MH0543	1702 Bailey Pl	Cleanout: Missing Cap	19.6	$25.00	135
Basin 4	MH0546:MH0442	Bailey Pl	No Defect	0.0		177
Basin 3A	MH0592:MH0102	Pine Bluff St	No Defect	0.0		269

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3A	MH0593:MH1110	619 JW Harrison St	Lateral Defect(s)	145.4	$1,000.00	410
Basin 4	MH0594:MH0141	Monroe St	No Defect	0.0		216
Basin 4	MH0595:MH0270	E Mill St	No Defect	0.0		199
Basin 3A	MH0664:MH0175	Dogwood Trl	No Defect	0.0		129
Basin 4	MH0665:MH0666	Dogwood Dr	No Defect	0.0		673
Basin 4	MH0666:MH0486	Wilson St	No Defect	0.0		16
Basin 4	MH0667:MH0182	Pine Bluff St	No Defect	0.0		317
Basin 4	MH0668:MH0215	Canine St	No Defect	0.0		233
Basin 4	MH0670:MH0141	Monroe St	No Defect	0.0		187
Basin 4	MH0671:MH0263	McHenry St	No Defect	0.0		127
Basin 4	MH0672:MH0273	1301 E Mill St	Cleanout: Missing Cap	19.6	$25.00	397
		1214 E Mill St	Cleanout: Missing Cap	72.4	$25.00	
Basin 4	MH0673:MH0298	625 E Mill St Unit: A	Cleanout	19.6	$1,000.00	343
		625 E Mill St Unit: A	Crawl Space Drain	0.0		
		1620 Mississippi St	Lateral Defect(s)	181.6	$1,000.00	
		1625 Mississippi St	Cleanout	3,628.4	$1,000.00	
-	MH0677:MH0110	McNeal St	No Defect	0.0		232
-	MH0678:MH0595	Wilson St	No Defect	0.0		388
Basin 3A	MH0693:MH0164	Pine Bluff St	No Defect	0.0		247
Basin 3	MH0758:MH0759	Barnett St	No Defect	0.0		17
Basin 3	MH0759:MH0773	Cabe Ave	No Defect	0.0		393
Basin 3	MH0761:MH0762	104 N Laurel St	Cleanout: Missing Cap	181.6	$25.00	230
Basin 3	MH0766:MH0950	N Main St	No Defect	0.0		269
Basin 3	MH0769:MH0770	W Front St	No Defect	0.0		215
Basin 3	MH0770:MH0771	W Front St	No Defect	0.0		208
Basin 3	MH0771:MH0772	Cabe Ave	No Defect	0.0		248
Basin 3	MH0772:MH0780	Cabe Ave	No Defect	0.0		154
Basin 3	MH0773:MH0774	331 Cabe Ave	Manhole Inflow	978.0	$0.00	384
Basin 3	MH0774:MH0775	Cabe Ave	No Defect	0.0		77
Basin 3	MH0775:MH0959	Cabe Ave	No Defect	0.0		127
Basin 3	MH0776:MH0777	Cabe Ave	No Defect	0.0		318
Basin 3	MH0777:OSA	Cabe Ave	No Defect	0.0		329
Basin 3	MH0780:MH0781	Cabe Ave	No Defect	0.0		325
Basin 3	MH0781:MH0782	Cabe Ave	No Defect	0.0		318
Basin 3	MH0782:MH0783	Cabe Ave	No Defect	0.0		370
Basin 3	MH0783:MH0774	Cabe Ave	No Defect	0.0		321
Basin 3	MH0950:MH0769	W Front St	No Defect	0.0		221
Basin 3	MH0959:MH0776	Cabe Ave	No Defect	0.0		334
Basin 3	MH0961:MH0966	Nottingham St	No Defect	0.0		164
Basin 3	MH0962:MH0963	Nottingham St	No Defect	0.0		191
Basin 3	MH0963:MH0964	Nottingham St	No Defect	0.0		320
Basin 3	MH0964:MH0965	Nottingham St	No Defect	0.0		320

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH0965:MH0961	Nottingham St	No Defect	0.0		192
Basin 3	MH0966:MH1276	Collie Rd	No Defect	0.0		405
Basin 3	MH0967:MH0968	Babcock St	No Defect	0.0		215
Basin 3	MH0968:MH0969	Babcock St	No Defect	0.0		317
Basin 3	MH0969:MH0970	1511 Babcock St	Cleanout	19.6	$1,000.00	333
Basin 3	MH0970:MH0971	Babcock St	No Defect	0.0		447
Basin 3	MH0971:MH0966	Collie Rd	No Defect	0.0		285
Basin 3	MH0972:MH1289	215 W Moline St	Cleanout	108.6	$1,000.00	290
		215 W Moline St	Cleanout	217.8	$1,000.00	
Basin 3	MH0973:MH0972	120 W Moline St	Cleanout	108.6	$1,000.00	361
		114 W Moline St	Mainline Defect(s)	23,583.5		
		120 W Moline St	Cleanout	19.6	$1,000.00	
Basin 3	MH0974:MH0973	Babcock St	No Defect	0.0		388
Basin 3	MH0975:MH0976	Hoover St	No Defect	0.0		156
Basin 3	MH0976:MH1359	Pacific St	No Defect	0.0		327
Basin 3	MH0977:MH0976	630 Hoover St	Lateral Defect(s)	108.6	$1,000.00	385
Basin 3	MH0978:MH0979	529 Hoover St	No Defect	0.0		259
Basin 3	MH0979:MH1062	Hoover St	No Defect	0.0		351
Basin 3	MH0980:MH0981	726 Babcock St	No Defect	0.0		388
		717 Babcock St	Cleanout: Missing Cap	72.4	$25.00	
Basin 3	MH0981:MH0982	Babcock St	No Defect	0.0		423
Basin 3	MH0982:MH0983	515 Babcock St	Cleanout: Missing Cap	19.6	$25.00	321
Basin 3	MH0983:MH1064	Babcock St	No Defect	0.0		351
Basin 3	MH0984:MH0985	Iva St	No Defect	0.0		311
Basin 3	MH0985:MH0986	307 Iva St	Lateral Defect(s)	181.6	$1,000.00	196
		305 Iva St	Cleanout	19.6	$1,000.00	
		307 Iva St	Lateral Defect(s)	181.6	$1,000.00	
Basin 3	MH0986:MH0969	1613 Babcock St	Mainline Defect(s)	14,513.1		306
Basin 3	MH0987:MH0986	Iva St	No Defect	0.0		156
Basin 3	MH0988:MH0986	Crenshaw St	No Defect	0.0		331
Basin 3	MH0989:MH0988	Broadway St	No Defect	0.0		319
Basin 3	MH0990:MH0989	321 Broadway St	Lateral Defect(s)	72.4	$1,000.00	251
Basin 3	MH0991:MH0992	Gough St	No Defect	0.0		138
Basin 3	MH0992:MH0995	114 Iva St	Cleanout: Missing Cap	19.6	$25.00	169
Basin 3	MH0993:MH0992	Gough St	No Defect	0.0		293
Basin 3	MH0994:MH0993	Broadway St	No Defect	0.0		223
Basin 3	MH0995:MH0996	110 Iva St	Cleanout: Missing Cap	72.4	$25.00	253
Basin 3	MH0996:MH0971	Reyburn Rd	No Defect	0.0		346
Basin 3	MH0997:MH0996	Reyburn Rd	No Defect	0.0		357
Basin 3	MH0998:MH0997	Reyburn Rd	No Defect	0.0		338
Basin 3	MH0999:MH1000	639 Reyburn Rd	Cleanout: Missing Cap	19.6	$25.00	184
		639 Reyburn Rd	Crawl Space Drain	0.0		

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1000:MH1001	Sand Rd	No Defect	0.0		200
Basin 3	MH1001:MH1002	Reyburn Rd	No Defect	0.0		216
Basin 3	MH1002:MH1003	Reyburn Rd	No Defect	0.0		100
Basin 3	MH1003:MH1004	Reyburn Rd	No Defect	0.0		282
Basin 3	MH1004:MH1005	Reyburn Rd	No Defect	0.0		141
Basin 3	MH1005:MH1006	Reyburn Rd	No Defect	0.0		360
Basin 3	MH1006:MH0998	Reyburn Rd	No Defect	0.0		231
Basin 3	MH1007:MH1014	N Banks St	No Defect	0.0		341
Basin 3	MH1008:MH1009	McCallister St	No Defect	0.0		287
Basin 3	MH1009:MH1012	1209 Watts St	Lateral Defect(s)	217.8	$1,000.00	330
Basin 3	MH1010:MH1009	Watt St	No Defect	0.0		277
Basin 3	MH1011:MH1009	Watt St	No Defect	0.0		187
Basin 3	MH1012:MH1013	McCallister St	No Defect	0.0		287
Basin 3	MH1013:MH1019	N Banks St	No Defect	0.0		223
Basin 3	MH1014:MH1013	N Banks St	No Defect	0.0		452
Basin 3	MH1015:MH1016	931 Magnolia St	Cleanout	145.4	$1,000.00	369
Basin 3	MH1016:MH1017	Magnolia St	No Defect	0.0		105
Basin 3	MH1017:MH1018	E Moline St	No Defect	0.0		302
Basin 3	MH1018:MH1019	720 E Moline St	Cleanout	108.6	$1,000.00	330
Basin 3	MH1019:MH1043	728 E Moline St	Lateral Defect(s)	290.2	$1,000.00	343
		728 E Moline St	Lateral Defect(s)	362.6	$1,000.00	
Basin 3	MH1020:MH1021	West St	No Defect	0.0		192
Basin 3	MH1021:MH1022	916 West St	No Defect	0.0		273
		911 West St	No Defect	0.0		
Basin 3	MH1022:MH1023	E Moline St	No Defect	0.0		349
Basin 3	MH1023:MH1025	832 Griggs St	Lateral Defect(s)	362.6	$1,000.00	151
Basin 3	MH1024:MH1023	Griggs St	No Defect	0.0		658
Basin 3	MH1025:MH1026	E Moline St	No Defect	0.0		152
Basin 3	MH1026:MH1029	E Moline St	No Defect	0.0		186
Basin 3	MH1027:MH1028	804 E Moline St	Cleanout	362.6	$1,000.00	312
Basin 3	MH1028:MH1029	E Moline St	No Defect	0.0		158
Basin 3	MH1029:MH1123	E Moline St	No Defect	0.0		49
Basin 3	MH1030:MH1031	E Moline St	No Defect	0.0		119
Basin 3	MH1031:MH1032	E Moline St	No Defect	0.0		296
Basin 3	MH1032:MH1130	E Moline St	No Defect	0.0		11
Basin 3	MH1034:MH1141	E Moline St	No Defect	0.0		363
Basin 3	MH1035:MH1022	E Moline St	No Defect	0.0		192
Basin 3	MH1036:MH1037	1105 Fall St	Lateral Defect(s)	254.0	$1,000.00	52
		1130 Fall St	Cleanout	544.2	$1,000.00	
Basin 3	MH1037:MH1039	Fall St	No Defect	0.0		194
Basin 3	MH1038:MH1037	Stewart St	No Defect	0.0		212
Basin 3	MH1039:MH1040	Fall St	No Defect	0.0		131

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1040:MH1041	1218 Fall St	Cleanout	290.2	$1,000.00	200
Basin 3	MH1041:MH1046	N Banks St	No Defect	0.0		222
Basin 3	MH1042:MH1041	N Banks St	No Defect	0.0		77
Basin 3	MH1043:MH1042	601 N Banks St	No Defect	0.0		249
Basin 3	MH1044:MH1042	Fall St	No Defect	0.0		220
Basin 3	MH1045:MH1044	McNeely St	No Defect	0.0		351
Basin 3	MH1046:MH1047	N Banks St	No Defect	0.0		367
Basin 3	MH1047:MH1052	407 N Banks St	Cleanout	580.4	$1,000.00	339
Basin 3	MH1048:MH1047	E Young St	No Defect	0.0		287
Basin 3	MH1049:MH1048	E Young St	No Defect	0.0		233
Basin 3	MH1050:MH1051	Forrest St	No Defect	0.0		272
Basin 3	MH1051:MH1108	Forrest St	No Defect	0.0		360
Basin 3	MH1052:MH1095	N Banks St	No Defect	0.0		414
Basin 3	MH1053:MH1122	E Young St	No Defect	0.0		298
Basin 3	MH1054:MH1053	E Young St	No Defect	0.0		324
Basin 3	MH1055:MH1054	E Young St	No Defect	0.0		151
Basin 3	MH1056:MH1057	E Young St	No Defect	0.0		239
Basin 3	MH1057:MH1084	423 Griggs St	Cleanout	19.6	$1,000.00	528
Basin 3	MH1058:MH1057	Griggs St	No Defect	0.0		249
Basin 3	MH1059:MH1058	643 Griggs St	Crawl Space Drain	0.0		330
Basin 3	MH1060:MH1059	803 Griggs St	Cleanout	19.6	$1,000.00	179
Basin 3	MH1061:MH0971	Babcock St	No Defect	0.0		302
Basin 3	MH1062:MH1063	407 Hoover St	Cleanout: Missing Cap	544.2	$25.00	280
		125 E Berger St	Crawl Space Drain	0.0		
Basin 3	MH1063:MH1064	104 Berger St	Cleanout	19.6	$1,000.00	77
		346 Babcock St	Cleanout	5,079.4	$1,000.00	
Basin 3	MH1064:MH1065	343 Babcock St	Cleanout	181.6	$1,000.00	218
Basin 3	MH1065:MH1066	321 Babcock St	Cleanout	181.6	$1,000.00	354
Basin 3	MH1066:MH1067	215 Mc Clure	Crawl Space Drain	0.0		240
Basin 3	MH1067:MH1068	Babcock St	No Defect	0.0		478
Basin 3	MH1068:MH1069	Babcock St	No Defect	0.0		27
-	MH1069:MH1070	Babcock St	No Defect	0.0		56
Basin 3	MH1070:MH1071	Babcock St	No Defect	0.0		303
Basin 3	MH1071:MH1126	Babcock St	No Defect	0.0		69
-	MH1072:MH1067	Veneer St	No Defect	0.0		459
Basin 3	MH1073:MH1074	Cross St	No Defect	0.0		231
Basin 3	MH1074:MH1075	217 Elizabeth Ann St	Cleanout	19.6	$1,000.00	79
Basin 3	MH1075:MH1076	Elizabeth Ann St	No Defect	0.0		331
Basin 3	MH1076:MH1078	Veneer St	No Defect	0.0		201
Basin 3	MH1077:MH1076	243 Veneer St	Cleanout	145.4	$1,000.00	192
		239 Veneer St	Cleanout	72.4	$1,000.00	
Basin 3	MH1078:MH1079	Veneer St	No Defect	0.0		144

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1079:MH1101	Babcock St	No Defect	0.0		245
Basin 3	MH1080:MH1078	Veneer St	No Defect	0.0		129
Basin 3	MH1081:MH1080	328 Veneer St	Cleanout	362.6	$1,000.00	321
		203 Griggs St	Cleanout	145.4	$1,000.00	
-	MH1082:MH1081	Griggs St	No Defect	0.0		150
Basin 3	MH1083:MH1082	Griggs St	No Defect	0.0		220
Basin 3	MH1084:MH1083	430 Griggs St	Cleanout: Missing Cap	181.6	$25.00	331
Basin 3	MH1085:MH1087	Elizabeth Ann St	No Defect	0.0		368
Basin 3	MH1086:MH1075	Elizabeth Ann St	No Defect	0.0		160
Basin 3	MH1087:MH1086	226 Elizabeth Ann St	Mainline Defect(s)	18,141.5		17
Basin 3	MH1088:MH1087	Truman St	No Defect	0.0		158
Basin 3	MH1089:MH1088	Truman St	No Defect	0.0		97
Basin 3	MH1090:MH1089	341 Babcock St	No Defect	0.0		267
-	MH1090A:Middle	Truman St	No Defect	0.0		25
Basin 3	MH1091:MH1083	Stadium Dr	No Defect	0.0		450
Basin 3	MH1092:MH1091	Stadium Dr	No Defect	0.0		331
Basin 3	MH1093:MH1091	Stadium Dr	No Defect	0.0		206
Basin 3	MH1094:MH1093	Stadium Dr	No Defect	0.0		211
Basin 3	MH1095:MH1096	N Banks St	No Defect	0.0		280
Basin 3	MH1096:MH1097	N Banks St	No Defect	0.0		313
Basin 3	MH1097:MH1098	N Banks St	No Defect	0.0		353
-	MH1098:MH1099	N Banks St	No Defect	0.0		481
Basin 3	MH1099:MH1100	Veneer St	No Defect	0.0		205
Basin 3	MH1100:MH1080	Veneer St	No Defect	0.0		162
Basin 3	MH1101:MH1102	Babcock St	No Defect	0.0		567
Basin 3	MH1102:MH1068	109 Babcock St	Cleanout	145.4	$1,000.00	266
		109 Babcock St	Cleanout: Missing Cap	19.6	$25.00	
Basin 3	MH1103:MH1104	Woodland St	No Defect	0.0		400
Basin 3	MH1104:MH1107	Woodland St	No Defect	0.0		440
Basin 3	MH1105:MH1096	N Banks St	No Defect	0.0		255
Basin 3	MH1106:MH1105	Forrest St	No Defect	0.0		379
Basin 3	MH1107:MH1106	Woodland St	No Defect	0.0		291
Basin 3	MH1108:MH1106	Forrest St	No Defect	0.0		389
Basin 3A	MH1109:MH1110	Bell St	No Defect	0.0		300
Basin 3A	MH1110:MH1112	S Banks St	No Defect	0.0		348
Basin 3A	MH1111:MH1110	Bell St	No Defect	0.0		309
Basin 3A	MH1112:MH1113	Swan St	No Defect	0.0		279
Basin 3A	MH1113:MH1121	Swan St	No Defect	0.0		269
Basin 3A	MH1114:MH1112	Swan St	No Defect	0.0		330
Basin 3A	MH1115:MH1114	117 Sheppard St	Cleanout	725.8	$1,000.00	252
Basin 3A	MH1116:MH1115	Sheppard St	No Defect	0.0		204
Basin 3A	MH1117:MH0005	E 1st St	No Defect	0.0		444

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3A	MH1118:MH1117	Gail St	No Defect	0.0		451
Basin 3A	MH1119:MH1118	Gail St	No Defect	0.0		337
Basin 3A	MH1120:MH1119	Gail St	No Defect	0.0		92
Basin 3A	MH1121:MH1120	Swan St	No Defect	0.0		285
Basin 3	MH1122:MH1047	E Young St	No Defect	0.0		200
Basin 3	MH1123:MH1030	E Moline St	No Defect	0.0		164
Basin 3	MH1124:MH1090	Babcock St	No Defect	0.0		164
Basin 3	MH1125:MH1089	Babcock St	No Defect	0.0		197
Basin 3	MH1126:MH1457	N Laurel St	No Defect	0.0		170
Basin 3	MH1127:MH0974	Babcock St	No Defect	0.0		169
Basin 3	MH1128:MH0975	806 Hoover St	Cleanout: Missing Cap	19.6	$25.00	130
Basin 3	MH1129:MH0980	Babcock St	No Defect	0.0		127
Basin 3	MH1130:MH1034	E Moline St	No Defect	0.0		302
Basin 3A	MH1131:MH1115	Sheppard St	No Defect	0.0		78
Basin 3A	MH1132:MH1160	1616 E Page Ave	Mainline Defect(s)	18,141.5		392
Basin 3A	MH1133:MH1114	Swan St	No Defect	0.0		245
Basin 3A	MH1134:MH1133	Swan St	No Defect	0.0		257
Basin 3	MH1135:MH0999	Sand Rd	No Defect	0.0		334
Basin 3	MH1136:MH1135	Sand Rd	No Defect	0.0		328
Basin 3	MH1137:MH1139	426 Gail St	No Defect	0.0		270
Basin 3	MH1138:MH1137	520 Gail St	No Defect	0.0		442
Basin 3	MH1139:MH1079	Veneer St	No Defect	0.0		97
Basin 3	MH1140:MH1136	Sand Rd	No Defect	0.0		237
Basin 3	MH1141:MH1142	E Moline St	No Defect	0.0		396
Basin 3	MH1142:MH1085	Cross St	No Defect	0.0		363
-	MH1143:MH1072	Truman St	No Defect	0.0		146
Basin 3	MH1144:MH1069	102 Babcock Terrace	Cleanout	19.6	$1,000.00	556
Basin 3A	MH1145:MH1134	Swan St	No Defect	0.0		262
Basin 3A	MH1146:MH1145	Swan St	No Defect	0.0		325
Basin 3A	MH1147:MH1146	Carpenter St	No Defect	0.0		376
Basin 3A	MH1148:MH1147	Section Line St	No Defect	0.0		590
Basin 3A	MH1149:MH1148	Section Line St	No Defect	0.0		210
Basin 3A	MH1150:MH1149	Hwy 270B	No Defect	0.0		146
Basin 3A	MH1151:MH1150	Hwy 270B	No Defect	0.0		150
Basin 3A	MH1152:MH1151	Hwy 270B	No Defect	0.0		234
Basin 3A	MH1153:MH1152	Hwy 270B	No Defect	0.0		182
Basin 3A	MH1154:MH1153	Hwy 270B	No Defect	0.0		129
Basin 3A	MH1155:MH1154	Hwy 270B	No Defect	0.0		99
Basin 3A	MH1156:MH1155	Hwy 270B	No Defect	0.0		116
Basin 3A	MH1157:MH1156	Hwy 270B	No Defect	0.0		257
Basin 3A	MH1158:MH1157	Hwy 270B	No Defect	0.0		255
Basin 3A	MH1159:MH1158	Hwy 270B	No Defect	0.0		138

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3A	MH1160:MH1150	Hwy 270B	No Defect	0.0		169
Basin 3A	MH1161:MH1160	1616 E Page Ave	Cleanout: Missing Cap	19.6	$25.00	258
Basin 3A	MH1162:MH1161	1616 E Page Ave	Lateral Defect(s)	725.8	$1,000.00	269
		1616 E Page Ave	Cleanout: Missing Cap	19.6	$25.00	
-	MH1165:MH1070	Babcock St	No Defect	0.0		108
Basin 1	MH1166:MH1167	Gardiner St	No Defect	0.0		156
Basin 1	MH1167:MH1168	Long Dr	No Defect	0.0		207
Basin 1	MH1168:MH1169	Long Dr	No Defect	0.0		228
Basin 1	MH1169:MH1170	Martin Luther King Blvd	No Defect	0.0		211
Basin 1	MH1170:MH1171	1902 Martin Luther King Blvd	Cleanout	3,265.2	$1,000.00	432
		1900 Martin Luther King Blvd	Manhole Inflow	978.0	$0.00	
		1900 Martin Luther King Blvd	Grease Trap	978.0		
Basin 1	MH1171:MH1483	Martin Luther King Blvd	No Defect	0.0		133
Basin 1	MH1172:MH1174	2320 Leopard Ln	Manhole Inflow	978.0		35
Basin 1	MH1173:MH1172	Leopard Ln	No Defect	0.0		170
Basin 1	MH1174:MH1175	2320 Leopard Ln	Manhole Inflow	978.0	$0.00	89
Basin 1	MH1175:MH1176	2320 Leopard Ln	Manhole Inflow	978.0	$0.00	213
Basin 1	MH1176:MH1177	S River Creek Rd	No Defect	0.0		267
Basin 1	MH1177:MH1178	S River Creek Rd	No Defect	0.0		306
Basin 1	MH1178:MH1191	S River Creek Rd	No Defect	0.0		232
Basin 1	MH1179:MH1181	Riverview Dr	No Defect	0.0		32
Basin 1	MH1180:MH1179	Riverview Dr	No Defect	0.0		39
-	MH1181:PS	Riverview Dr	No Defect	0.0		40
Basin 1	MH1182:MH1526	Riley St	No Defect	0.0		201
Basin 1	MH1183:MH1182	Riley St	No Defect	0.0		357
Basin 1	MH1184:MH1183	Riley St	No Defect	0.0		399
Basin 1	MH1185:MH1184	Riley St	No Defect	0.0		145
Basin 1	MH1185A:MH1185	S River Creek Rd	No Defect	0.0		184
Basin 1	MH1186:MH1185A	1910 Martin Luther King Blvd	Manhole Inflow	978.0	$0.00	371
Basin 1	MH1187:MH1186	S River Creek Rd	No Defect	0.0		246
Basin 1	MH1188:MH1187	2660 S River Creek Rd	Cleanout	2,176.8	$1,000.00	258
		1600 S River Creek Rd	Manhole Inflow	978.0	$0.00	
Basin 1	MH1189:MH1188	S River Creek Rd	No Defect	0.0		347
Basin 1	MH1189A:MH1189B	2300 Leopard Ln	Lateral Defect(s)	10,884.7	$1,000.00	226
Basin 1	MH1189B:MH1189C	S River Creek Rd	No Defect	0.0		74
Basin 1	MH1190:MH1189	S River Creek Rd	No Defect	0.0		246
Basin 1	MH1191:MH1190	2600 S River Creek Rd	Manhole Inflow	978.0	$0.00	125
		2600 S River Creek Rd	Cleanout: Missing Cap	181.6	$25.00	
Basin 1	MH1192:MH1194	Martin Luther King Blvd	No Defect	0.0		84

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 1	MH1193:MH1194	Martin Luther King Blvd	No Defect	0.0		126
Basin 1	MH1194:MH1195	Martin Luther King Blvd	No Defect	0.0		283
Basin 1	MH1195:MH1196	Martin Luther King Blvd	No Defect	0.0		328
Basin 1	MH1196:MH1197	Martin Luther King Blvd	No Defect	0.0		261
Basin 1	MH1197:MH1172	Oliver Lancaster Blvd	No Defect	0.0		264
Basin 1	MH1198:MH1197	2668 Oliver Lancaster Blvd	Manhole Inflow	978.0	$0.00	138
Basin 1	MH1199:MH1198	2668 Oliver Lancaster Blvd	Manhole Inflow	978.0	$0.00	138
Basin 1	MH1200:MH1201	2668 Oliver Lancaster Blvd	Manhole Inflow	978.0	$0.00	186
Basin 1	MH1201:MH1202	Oliver Lancaster Blvd	No Defect	0.0		271
Basin 1	MH1202:MH1203	Oliver Lancaster Blvd	No Defect	0.0		179
Basin 1	MH1203:MH1199	2668 Oliver Lancaster Blvd	Grease Trap	978.0		391
		2668 Oliver Lancaster Blvd	Cleanout: Missing Cap	19.6	$25.00	
Basin 1	MH1204:MH1482	Industrial Rd	No Defect	0.0		102
Basin 1	MH1205:MH1204	Industrial Rd	No Defect	0.0		205
Basin 1	MH1206:MH1205	Industrial Rd	No Defect	0.0		28
Basin 1	MH1207:MH1206	Industrial Rd	No Defect	0.0		297
Basin 1	MH1208:MH1207	Industrial Rd	No Defect	0.0		593
Basin 1	MH1208A:MH1208	104 Industrial Rd	Cover Defective (Poor Fit)	978.0		289
Basin 1	MH1208B:MH1208A	Industrial Rd	No Defect	0.0		161
Basin 1	MH1208C:MH1208B	Industrial Rd	No Defect	0.0		127
Basin 1	MH1211:MH1212	3402 Oliver Lancaster Blvd	Manhole Inflow	978.0	$0.00	91
Basin 1	MH1212:MH1213	Oliver Lancaster Blvd	No Defect	0.0		69
Basin 1	MH1213:MH1214	Oliver Lancaster Blvd	No Defect	0.0		420
Basin 1	MH1214:MH1215	Oliver Lancaster Blvd	No Defect	0.0		228
Basin 1	MH1215:MH1216	Oliver Lancaster Blvd	No Defect	0.0		210
Basin 1	MH1216:MH1217	Oliver Lancaster Blvd	No Defect	0.0		232
Basin 1	MH1217:Pump Station	Oliver Lancaster Blvd	No Defect	0.0		102
-	MH1218:MH1217	Oliver Lancaster Blvd	No Defect	0.0		244
Basin 1	MH1219:MH1218	Oliver Lancaster Blvd	No Defect	0.0		266
Basin 1	MH1220:MH1219	Oliver Lancaster Blvd	No Defect	0.0		307
Basin 1	MH1221:MH1488	Riverview Dr	No Defect	0.0		263
Basin 1	MH1222:MH1221	Tanner St	No Defect	0.0		465
Basin 1	MH1223:MH1224	Tanner St	No Defect	0.0		283
Basin 1	MH1224:MH1225	Tanner St	No Defect	0.0		340
Basin 1	MH1225:MH1226	Tanner St	No Defect	0.0		243
Basin 1	MH1226:MH1227	1590 Tanner St	Cleanout: Missing Cap	3,628.4	$25.00	526
Basin 1	MH1227:MH1222	1671 Tanner St	Cleanout	19.6	$1,000.00	421
Basin 3	MH1271:MH1272	Grayson Cir	No Defect	0.0		121
Basin 3	MH1272:MH1273	Grayson Cir	No Defect	0.0		211
Basin 3	MH1273:MH1274	Grayson Cir	No Defect	0.0		258
Basin 3	MH1274:MH1275	Grayson Cir	No Defect	0.0		91

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1275:MH1276	Collie Rd	No Defect	0.0		136
Basin 3	MH1276:MH1287	Lowden St	No Defect	0.0		400
Basin 3	MH1277:MH1278	Sherwood St	No Defect	0.0		162
Basin 3	MH1278:MH1279	Sherwood St	No Defect	0.0		397
Basin 3	MH1279:MH1280	Sherwood St	No Defect	0.0		392
Basin 3	MH1280:MH0961	Nottingham St	No Defect	0.0		204
Basin 3	MH1281:MH1282	Division St	No Defect	0.0		473
Basin 3	MH1282:MH1283	Division St	No Defect	0.0		215
Basin 3	MH1283:MH1284	906 Division St	Cleanout: Missing Cap	19.6	$25.00	522
		935 Division St	Mainline Defect(s)	6,167.8		
Basin 3	MH1284:MH1285	W Moline St	No Defect	0.0		290
Basin 3	MH1285:MH1286	802 Floyd St	Cleanout: Missing Cap	362.6	$25.00	355
Basin 3	MH1286:MH1550	730 Floyd St	Cleanout	254.0	$1,000.00	207
Basin 3	MH1287:MH1502	Lowden St	No Defect	0.0		375
Basin 3	MH1288:MH1289	Lowden St	No Defect	0.0		369
Basin 3	MH1289:MH1358	Lowden St	No Defect	0.0		348
Basin 3	MH1290:MH1289	W Moline St	No Defect	0.0		117
Basin 3	MH1291:MH1294	Floyd St	No Defect	0.0		17
Basin 3	MH1292:MH1291	Floyd St	No Defect	0.0		62
Basin 3	MH1293:MH1292	Floyd St	No Defect	0.0		130
Basin 3	MH1294:MH1296	611 Floyd St	No Defect	0.0		263
Basin 3	MH1296:MH1297	W Young St	No Defect	0.0		35
Basin 3	MH1297:MH1362	W Young St	No Defect	0.0		269
Basin 3	MH1335:MH1336	N Main St	No Defect	0.0		640
Basin 3	MH1336:MH1336A	611 Rockport St	Cleanout	145.4	$1,000.00	336
Basin 3	MH1336A:MH1337	N Main St	No Defect	0.0		29
Basin 3	MH1337:MH1542	W Young St	No Defect	0.0		239
Basin 3	MH1338:MH1420	400 N Main St	Lateral Defect(s)	181.6	$1,000.00	351
		400 N Main St	Cleanout	181.6	$1,000.00	
Basin 3	MH1339:MH1338	817 W Young St	Cross-Connection: Catch Basin	19,560.0		400
Basin 3	MH1340:MH1339	511 N Main St	Cleanout	19.6	$1,000.00	211
		506 Baker St	Mainline Defect(s)	725.8		
Basin 3	MH1341:MH1340	W Young St	No Defect	0.0		44
Basin 3	MH1342:MH1341	N Main St	No Defect	0.0		411
Basin 3	MH1343:MH1342	730 Baker St	Cleanout: Missing Cap	19.6	$25.00	390
Basin 3	MH1344:MH1343	812 Baker St	Cleanout	362.6	$1,000.00	209
Basin 3	MH1345:MH1344	N Main St	No Defect	0.0		240
Basin 3	MH1346:MH1504	Fairview St	No Defect	0.0		404
Basin 3	MH1347:MH1349	Fairview St	No Defect	0.0		401
Basin 3	MH1348:MH1506	625 W Young St	Lateral Defect(s)	108.6	$1,000.00	259
Basin 3	MH1349:MH1348	603 Baker St	Cleanout: Missing Cap	145.4	$25.00	70

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1350:MH1351	Rockport St	No Defect	0.0		222
Basin 3	MH1351:MH1418	1002 Elmo St	Cleanout	21,769.3	$1,000.00	441
Basin 3	MH1352:MH1542	Rockport St	No Defect	0.0		535
Basin 3	MH1353:MH1354	729 Fairview St	Cleanout: Missing Cap	19.6	$25.00	418
		729 Fairview St	Mainline Defect(s)	2,176.8		
		729 Fairview St	Mainline Defect(s)	2,902.6		
Basin 3	MH1354:MH1355	Division St	No Defect	0.0		407
Basin 3	MH1355:MH1356	W Young St	No Defect	0.0		56
Basin 3	MH1356:MH1357	517 Fairview St	Cleanout	108.6	$1,000.00	239
Basin 3	MH1357:MH1433	511 Elmo St	Lateral Defect(s)	254.0	$1,000.00	368
Basin 3	MH1358:MH1359	811 Lowden St	Cleanout	19.6	$1,000.00	339
		811 Lowden St	Cleanout: Missing Cap	19.6	$25.00	
		727 Lowden St	Mainline Defect(s)	217.8		
Basin 3	MH1359:MH1360	Lowden St	No Defect	0.0		169
Basin 3	MH1360:MH1361	Lowden St	No Defect	0.0		256
Basin 3	MH1361:MH1297	Floyd St	No Defect	0.0		325
Basin 3	MH1362:MH1434	Floyd St	No Defect	0.0		302
-	MH1363:MH1359	Lowden St	No Defect	0.0		230
-	MH1364:MH1363	Lowden St	No Defect	0.0		235
Basin 3	MH1365:MH1364	229 W Young St	Lateral Defect(s)	145.4	$1,000.00	362
Basin 3	MH1366:MH1365	Elmo St	No Defect	0.0		172
Basin 3	MH1405:MH1406	Park Dr	No Defect	0.0		187
Basin 3	MH1406:MH1407	Park Dr	No Defect	0.0		233
Basin 3	MH1407:MH1408	Barnett St	No Defect	0.0		309
Basin 3	MH1408:MH1409	Barnett St	No Defect	0.0		207
Basin 3	MH1409:MH1410	Barnett St	No Defect	0.0		143
Basin 3	MH1410:MH0758	Barnett St	No Defect	0.0		290
Basin 3	MH1411:MH0758	Barnett St	No Defect	0.0		133
Basin 3	MH1412:MH1405	Henry St	No Defect	0.0		142
Basin 3	MH1413:MH1412	Henry St	No Defect	0.0		71
Basin 3	MH1414:MH1413	Henry St	No Defect	0.0		266
Basin 3	MH1416:MH1415	W Berger St	No Defect	0.0		181
Basin 3	MH1416A:MH1416	W Berger St	No Defect	0.0		170
Basin 3	MH1417:MH1416	W Berger St	No Defect	0.0		161
Basin 3	MH1418:MH1415	Elmo St	No Defect	0.0		164
Basin 3	MH1419:MH1339	429 N Main St	Grease Trap	978.0		346
Basin 3	MH1420:MH1417	W Berger St	No Defect	0.0		211
Basin 3	MH1421:MH1422	Baker St	No Defect	0.0		344
Basin 3	MH1422:MH1423	319 Fairview St	Cleanout: Missing Cap	72.4	$25.00	353
Basin 3	MH1423:MH1426	217 N Laurel St	Cleanout	19.6	$1,000.00	209
Basin 3	MH1424:MH1423	N Laurel St	No Defect	0.0		18
Basin 3	MH1425:MH1424	N Laurel St	No Defect	0.0		27

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1426:MH1427	N Laurel St	No Defect	0.0		201
Basin 3	MH1427:MH1428	N Laurel St	No Defect	0.0		206
Basin 3	MH1429:MH1430	N Laurel St	No Defect	0.0		211
Basin 3	MH1430:MH1431	N Laurel St	No Defect	0.0		445
Basin 3	MH1431:MH0760	N Laurel St	No Defect	0.0		280
Basin 3	MH1433:MH1425	N Laurel St	No Defect	0.0		311
Basin 3	MH1434:MH1435	E Berger St	No Defect	0.0		129
Basin 3	MH1435:MH1438	E Berger St	No Defect	0.0		324
Basin 3	MH1436:MH1495	E Berger St	No Defect	0.0		119
Basin 3	MH1437:MH1365	228 Berger St	Crawl Space Drain	0.0		341
		428 Lowden St	Lateral Defect(s)	254.0	$1,000.00	
Basin 3	MH1438:MH1439	N Laurel St	No Defect	0.0		448
Basin 3	MH1439:MH1429	N Laurel St	No Defect	0.0		171
Basin 3	MH1440:MH1441	Harris St	No Defect	0.0		209
Basin 3	MH1441:Unknown	Harris St	No Defect	0.0		108
Basin 3	MH1442:Unknown	224 Harris St	Cleanout: Missing Cap	362.6	$25.00	87
Basin 3	MH1447:MH1510	Hot Spring St	No Defect	0.0		71
Basin 3	MH1448:MH1447	Hot Spring St	No Defect	0.0		122
Basin 3	MH1456:MH0761	N Laurel St	No Defect	0.0		275
Basin 3	MH1457:MH1456	N Laurel St	No Defect	0.0		55
Basin 3	MH1458:MH1353	809 Fairview St	Cleanout: Missing Cap	19.6	$25.00	151
Basin 1	MH1482:MH1200	Oliver Lancaster Blvd	No Defect	0.0		111
Basin 1	MH1483:MH1173	Leopard Ln	No Defect	0.0		114
Basin 1	MH1484:MH1192	Martin Luther King Blvd	No Defect	0.0		145
Basin 1	MH1485:MH1166	Gardiner St	No Defect	0.0		131
Basin 1	MH1486:MH1485	Gardiner St	No Defect	0.0		320
Basin 1	MH1487:MH1180	Riverview Dr	No Defect	0.0		462
Basin 1	MH1488:MH1487	Riverview Dr	No Defect	0.0		241
Basin 3	MH1490:MH1344	N Main St	No Defect	0.0		210
Basin 3	MH1491:MH1341	W Young St	No Defect	0.0		168
Basin 3	MH1492:MH1417	Hot Spring St	No Defect	0.0		191
Basin 3	MH1493:MH1420	Rockport St	No Defect	0.0		29
Basin 3	MH1494:MH1493	330 N Main St	Lateral Defect(s)	10,884.7	$1,000.00	107
Basin 3	MH1495:MH1435	E Berger St	No Defect	0.0		125
Basin 3	MH1496:MH1495	E Berger St	No Defect	0.0		186
Basin 3	MH1497:MH1496	E Berger St	No Defect	0.0		123
Basin 3	MH1498:MH1497	E Berger St	No Defect	0.0		116
Basin 3	MH1499:MH1281	Division St	No Defect	0.0		179
Basin 3	MH1500:MH1283	Division St	No Defect	0.0		259
Basin 3	MH1501:MH1500	Division St	No Defect	0.0		127
Basin 3	MH1502:MH1288	Lowden St	No Defect	0.0		30
Basin 3	MH1503:MH1285	324 W Moline St	Cleanout	145.4	$1,000.00	96

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 3	MH1504:MH1347	Fairview St	No Defect	0.0		352
Basin 3	MH1505:MH1550	716 Floyd St	Cleanout: Missing Cap	290.2	$25.00	170
Basin 3	MH1506:MH1421	Baker St	No Defect	0.0		351
Basin 3	MH1507:MH1419	W Berger St	No Defect	0.0		290
Basin 3	MH1508:MH1420	W Berger St	No Defect	0.0		271
Basin 3	MH1509:MH1442	Harris St	No Defect	0.0		225
Basin 1	MH1512:MH1518	Riverview Dr	No Defect	0.0		329
Basin 1	MH1513:MH1519	Riverview Dr	No Defect	0.0		54
Basin 1	MH1514:MH1512	Riverview Dr	No Defect	0.0		268
Unknown	MH1515:MH1516	W Moline St	No Defect	0.0		396
Unknown	MH1515A:MH1515	W Moline St	No Defect	0.0		330
Unknown	MH1516:MH1536	W Moline St	No Defect	0.0		497
Unknown	MH1517A:MH1517	1820 W Moline St	Manhole Inflow	978.0	$0.00	166
Unknown	MH1517B:MH1517C	W Moline St	No Defect	0.0		79
Unknown	MH1517C:MH1517D	W Moline St	No Defect	0.0		254
Unknown	MH1517D:MH1517E	W Moline St	No Defect	0.0		170
Unknown	MH1517E:MH1517F	W Moline St	No Defect	0.0		162
Unknown	MH1517F:PS	1840 W Moline St	Cleanout	181.6	$1,000.00	598
Basin 1	MH1518:MH1513	Riverview Dr	No Defect	0.0		314
Basin 1	MH1519:MH1526A	Riverview Dr	No Defect	0.0		217
Basin 1	MH1520:MH1212	3374 Oliver Lancaster Blvd	No Defect	0.0		311
Basin 1	MH1520A:MH1520	Oliver Lancaster Blvd	No Defect	0.0		117
Basin 1	MH1521:MH1520A	Oliver Lancaster Blvd	No Defect	0.0		46
Basin 1	MH1522:MH1521	3456 Oliver Lancaster Blvd	Lateral Defect(s)	362.6	$1,000.00	374
		3456 Oliver Lancaster Blvd	Cleanout	19.6	$1,000.00	
		3508 Oliver Lancaster Blvd	Cleanout	544.2	$1,000.00	
		3456 Oliver Lancaster Blvd	Lateral Defect(s)	1,451.0	$1,000.00	
Basin 1	MH1523:MH1523A	S River Creek Rd	No Defect	0.0		323
Basin 1	MH1523A:MH1187	S River Creek Rd	No Defect	0.0		233
Basin 1	MH1524:MH1523	S River Creek Rd	No Defect	0.0		369
Basin 1	MH1525:MH1524	1920 Martin Luther King Blvd	Cleanout: Missing Cap	72.4	$25.00	253
Basin 1	MH1526:MH1526A	Riley St	No Defect	0.0		24
Basin 1	MH1526A:MH1526B	170 Riverview Dr	Manhole Inflow	978.0	$0.00	9
Basin 1	MH1526B:PS	Riley St	No Defect	0.0		38
Basin 1	MH1527:MH1526	Riley St	No Defect	0.0		103
Basin 1	MH1528:MH1527	Riley St	No Defect	0.0		330
Basin 1	MH1529:MH1528	Riley St	No Defect	0.0		158
Basin 1	MH1530:MH1529	Riley St	No Defect	0.0		196
Basin 1	MH1531:MH1532	Riverpark Plz	No Defect	0.0		162
Basin 1	MH1532:MH1533	Riverpark Plz	No Defect	0.0		200
Basin 1	MH1533:MH1534	Riverpark Plz	No Defect	0.0		339

Basin	Segment	Address	Defect Name	Inflow (GPD)	Repair Cost	Segment Length (LF)
Basin 1	MH1534:MH1535	Riverpark Plz	No Defect	0.0		288
Unknown	MH1536:MH1517A	W Moline St	No Defect	0.0		239
Unknown	MH1537:MH1538	W Moline St	No Defect	0.0		431
-	MH1538:MH1536	W Moline St	No Defect	0.0		325
Unknown	MH1539:MH1536	W Moline St	No Defect	0.0		75
-	MH1540:MH1539	W Moline St	No Defect	0.0		454
-	MH1541:MH1515	W Moline St	No Defect	0.0		390
Unknown	MH1541A:MH1541	W Moline St	No Defect	0.0		58
Unknown	MH1541B:MH1541A	W Moline St	No Defect	0.0		197
Unknown	MH1541C:MH1541B	1525 W Moline St	Cleanout	181.6	$1,000.00	170
		1525 W Moline St	Cleanout: Missing Cap	181.6	$25.00	
		1525 W Moline St	Cleanout	19.6	$1,000.00	
-	MH1541D:MH1541	W Moline St	No Defect	0.0		360
-	MH1541F:MH1541E	E Edgewood St	No Defect	0.0		398
-	MH1541G:MH1541F	E Edgewood St	No Defect	0.0		398
-	MH1542:MH1350	Rockport St	No Defect	0.0		56
Basin 3	MH1550:MH1291	629 Floyd St	Cleanout: Missing Cap	0.0	$25.00	350
Basin 1	MH1551:MH1220	Oliver Lancaster Blvd	No Defect	0.0		789
-	MN1541E:MH1541D	W Moline St	No Defect	0.0		60
Basin 3A	OSA:MH0072	608 E Page Ave	Cleanout: Missing Cap	181.6	$25.00	522
Basin 4	OSA:MH0109	Hall St	No Defect	0.0		319
Basin 4	OSA_1:MH0257	Pleasant St	No Defect	0.0		658
Basin 4	OSA_2:MH0257	1713 Texas St	Lateral Defect(s)	181.6	$1,000.00	171
Basin 3	Unknown:MH1444	Harris St	No Defect	0.0		88

Report Summary

Total I/I (GPD): 511,064 GPD

Total Segment Length (LF): 197,407

APPENDIX D

DYED WATER FLOODING REPORT

2023 Malvern SSES

Dye Water Flooding

USMH	DSMH	Defect Type	Test Result	Flow Rate (gpm)
MH1339	MH1338	Cross Connection	Positive	15.30
MH1132	MH1160	Mainline	Positive	1.20
MH0384	MH0388	Mainline	Positive	0.30
MH1358	MH1359	Mainline	Negative	-
MH0118	MH0119	Cross Connection	Positive	17.00
MH1353	MH1354	Mainline	Negative	-
MH0835	MH0388	Mainline	Positive	2.40
MH0539	MH0253	Lateral	Positive	0.00
MH1536	MH1517A	Sanitary Manhole	Positive	5.70
MH0096	MH0093	Mainline	Positive	2.00
MH0375	MH0374	Mainline	Positive	2.50
MH0532	MH0211	Mainline	Positive	2.00
MH1340	MH1339	Mainline	Positive	3.60
MH1283	MH1284	Mainline	Positive	16.10
MH1353	MH1354	Mainline	Negative	-
MH0072	MH0079	Cross Connection	Positive	7.70
MH0093	MH0079	Mainline	Negative	-
MH0101	MH0092	Mainline	Positive	15.30
MH0973	MH0972	Mainline	Positive	1.90
MH1087	MH1075	Mainline	Positive	2.60
MH1494	MH1493	Lateral	Positive	0.20

Report Summary		
	Total Test:	21
	Total Positive Tests:	17
	Total Flow (gpm):	95.80

APPENDIX E

CCTV INSPECTION SUMMARY

2023 Malvern SSES

CCTV Summary

Segment	Diameter	CCTV Status	GIS Length (LF)	TV Length (LF)
MH0003:MH0004	6	Completed	294.0	298.0
MH0069:MH0070	8	Completed	338.0	336.4
MH0070:MH0072	8	Completed	331.0	329.6
MH0072:MH0076	10	Completed	303.0	209.3
MH0076:MH0079	10	[Incomplete] - Offset on USMH and grease buildup on DSMH	302.0	198.5
MH0077:MH0078	6	[Incomplete] - Intruding tap blocking USMH and turn in blocking reversal	341.0	4.2
MH0078:MH0072	6	Completed	422.0	45.0
MH0080:MH0079	8	Completed	114.0	115.9
MH0082:MH0083	6	Completed	377.0	375.7
MH0092:MH0080	8	Completed	456.0	452.0
MH0093:MH0080	8	Completed	245.0	221.0
MH0094:MH0093/1	8	Completed - Labled as MH0392:MH0394 on CCTV	110.0	125.1
MH0095:MH0094/1	6	[Incomplete] - Invert to small, labeled MH0393:MH0392 on CCTV	20.0	1.0
MH0096:MH0093	6	[Incomplete] - Intruding tap blocking USMH and turn in pipe DSMH	324.0	2.0
MH0098.001:MH0092	6	[Incomplete] - Pipe shape deformed	N/A	161.0
MH0098:MH0098.001	6	Completed	N/A	104.0
MH0101:MH0092	8	Completed	292.0	279.9
MH0112:MH0110	8	Completed	305.0	317.5
MH0113:MH0112	6	[Incomplete] - Intruding tap, no reversal avaliable	473.0	111.0
MH0116:MH0117	6	[Incomplete] - Pipe intruding thu wall and broken pipe on reversal	370.0	123.5
MH0117:MH0118	6	[Incomplete] - Intruding tap, unable to perform reversal	276.3	13.9
MH0118:MH0119	6	[incomplete] - Intruding tap on inspection and reversal	379.2	156.9
MH0122:MH0123	6	[Incomplete] - Getting stuck, reversal blocked by intruding tap	356.5	82.1
MH0132:MH0133	8	Completed	358.4	341.2
MH0133:MH0134	8	Completed	321.7	316.8
MH0134:MH0491	8	Completed	388.0	308.9
MH0135:MH0130	8	Completed	323.7	328.4
MH0138:MH0137	6	Completed	312.0	286.1
MH0140:MH0138	6	Completed	272.7	266.0
MH0145:MH0445	8	[Incomplete] - Camera underwater	306.4	105.0
MH0146:MH0145	8	Completed	327.3	320.6
MH0149:MH0148	6	Completed	262.0	184.0
MH0151:MH0152	6	Completed	309.4	332.4
MH0153:MH0152	6	Completed	344.0	342.2
MH0154:MH0152	6	Completed	331.7	325.3
MH0156:MH0485	6	Completed	236.8	155.8
MH0158:MH0160	6	Completed	340.0	419.5
MH0167:MH0157	6	Completed	499.4	266.0

Segment	Diameter	CCTV Status	GIS Length (LF)	TV Length (LF)
MH0173:MH0172	6	Completed	261.0	261.6
MH0174:MH0173	6	[incomplete] - Root medium joint	407.0	3.0
MH0182:MH0157	6	Completed	338.1	324.1
MH0187:MH0186	6	Completed	150.9	117.9
MH0188:MH0189	6	Completed	118.3	115.4
MH0192:MH0191	6	Completed	324.6	326.1
MH0196:MH0197	6	Completed	281.9	249.9
MH0198:MH0199	6	Completed	316.0	280.5
MH0199:MH0200	6	Completed	314.0	327.6
MH0201:MH0200	6	Completed	339.2	341.4
MH0202:MH0201	8	[Incomplete] - Root defect on USMH and reversal invert too small	328.2	215.0
MH0203:MH0194	6	Completed	323.0	423.1
MH0216:MH0215	8	Completed	193.0	185.7
MH0241:MH0244	8	[Incomplete] - Camera underwater both US and DS	329.6	17.0
MH0243:MH0241	8	[Incomplete] - Camera underwater and joint offset blocking reversal	515.4	14.6
MH0261:MH0260	8	[Incomplete] - Crawler stuck during reversal	329.8	127.2
MH0268:MH0269	6	Completed	345.4	342.2
MH0272:MH0273	6	[Incomplete] - Active tap break-ins	416.0	172.9
MH0272:MH0672	6	Completed	240.3	146.5
MH0273:MH0274	6	Completed	353.0	338.0
MH0277:MH0276	6	[Incomplete] - No reversal avaliable	442.9	3.0
MH0375:MH0374	6	[Incomplete] - Loss of traction	317.2	9.0
MH0385:MH0388	6	Completed	329.0	327.0
MH0391:MH0392	8	Completed	275.7	195.7
MH0440:MH0437	8	Completed	99.0	104.1
MH0441:MH0442	6	Completed	138.1	115.7
MH0442:MH0444	6	Completed	265.7	259.1
MH0456:MH0266	6	[Incomplete] - Large offset	151.1	2.1
MH0459:MH0121	6	Completed	94.9	38.9
MH0488:MH0192	6	Completed	593.4	601.5
MH0492:MH0198	6	Completed	192.8	36.4
MH0499:MH0274	6	[Incomplete] - Unable to fit into pipe opening	160.4	1.0
MH0502:MH0502.001	6	[Incomplete] - Fracture and root ball joint	249.9	4.0
MH0512:MH0095/1	6	[Incomplete] - Labeled as MH2030:MH0393 on CCTV, roots on USMH and deformation on DSMH	314.0	113.9
MH0524:MH0129	6	[Incomplete] - Sharp turn in pipe	119.1	2.0
MH0526:MH0143	6	[Incomplete] - DSMH inaccessable	84.6	160.4
MH0532:MH0211	10	Completed	175.0	186.0
MH0539:MH0253	8	[Incomplete] - Camera underwater	262.3	14.1
MH0543:MH0442	6	Completed	323.2	279.0
MH0594:MH0141	6	[Incomplete] - Bend in pipe and invert to small for reversal	215.6	2.0
MH0965:MH0961	6	Completed	199.2	2.3
MH0968:MH0969	6	Completed	317.0	265.6

Segment	Diameter	CCTV Status	GIS Length (LF)	TV Length (LF)
MH0973:MH0972	6	[Incomplete] - Intruding Taps blocking USMH and DSMH	361.0	233.1
MH0980:MH0981	6	Completed	390.9	396.4
MH0986:MH0969	6	Completed	308.0	340.9
MH1020:MH1021	6	Completed	192.2	180.6
MH1023:MH1025	6	Completed	151.0	147.2
MH1048:MH1047	6	Completed	293.0	297.8
MH1060:MH1059	6	Completed	178.7	180.0
MH1062:MH1063	6	Completed	279.5	238.4
MH1082:MH1081	6	Completed	150.3	143.0
MH1084:MH1083	6	Completed	331.2	320.8
MH1103:MH1104	6	Completed	401.2	404.6
MH1132:MH1160	6	Completed	318.0	324.0
MH1162:MH1161/1	6	Completed - Labled as MH1162:MH1160 on CCTV	323.9	222.3
MH1163:MH1162/1	6	Completed - Labled as MH1162.001:MH1162 on CCTV	157.2	235.9
MH1171:MH1483	8	Completed	133.0	309.9
MH1189A:MH1189B	8	Completed	226.0	298.0
MH1208:MH1208B	8	Completed	593.0	342.8
MH1208A:MH1208	8	Completed	289.0	253.9
MH1208B:MH1207	8	Completed	593.0	249.2
MH1220:MH1219	6	[Incomplete] - Deformation on USMH and offset on DSMH	307.0	227.0
MH1283.001:MH1284	6	[Incomplete] - Intruding taps blocking USMH and DSMH	N/A	85.1
MH1283:MH1283.001	6	Completed	N/A	106.4
MH1339:MH1338	6	[Incomplete] - Intruding Taps blocking USMH and DSMH	397.0	174.0
MH1340:MH1339	6	Completed	212.0	79.4
MH1353:MH1354	6	[Incomplete] - Large offset on USMH and DSMH	411.0	333.0
MH1357:MH1433	6	Completed	371.0	362.0
MH1358:MH1359	8	Completed	347.0	307.4
MH1365:MH1364	6	Completed	362.0	340.6
MH1416A:MH1416	6	[Incomplete] Blocked by root defect	173.2	53.0
MH1419:MH1339	6	Completed	339.2	344.0
MH1433:MH1425	6	Completed	305.3	28.3
MH1494:MH1493	6	Completed	107.0	194.7
MH1502:MH1288	8	Completed	32.1	66.6
MH1506:MH1421	6	Completed	349.4	94.4
MH1515:MH1516A/1	8	Completed - Labeled as MH1541.003:MH1515 on CCTV	N/A	40.2
MH1522:MH1521	8	Completed	374.0	188.0
MH1541:MH1515/1	8	Completed - Labeled as MH1541.002:MH1541.003 on CCTV	98.0	93.5
MH1541A:MH1541/1	8	Completed - Labeled as MH1541.001:MH1541.002 on CCTV	197.0	62.0
MH1541B:MH1541A/1	8	Completed - Labeled as MH1541:MH1541.001 on CCTV	96.0	197.2
MH1551:MH1220	6	Completed	789.0	194.4

APPENDIX F

MANHOLE REHABILITATION RECOMMENDATIONS

2023 City of Malvern SSES

Manhole Rehabilitation Recommendations

Basin	Asset	Address	Repairs	Total Cost	Manhole Inflow (GPD)	Manhole Infiltration (GPD)	Total I/I Rate (GPD)	Repair Cost Per GPD ($/GPD)
Basin 1	MH1524	2300 Leopard Ln	Grout Lower 18" of Manhole	$875.00	0	14,400	14,400	0.061
UNK	MH1541	1750 W Moline St	Complete Manhole Rehab	$3,500.00	0	33,120	33,120	0.106
Basin 1	MH1194	1626 Industrial Park Dr	Grout Lower 18" of Manhole	$875.00	0	5,760	5,760	0.152
Basin 1	MH1208	117 Industrial Park Dr	Frame Adjustment Sealing (Non-Paved)	$1,000.00	3,912	0	3,912	0.256
Basin 1	MH1516	1820 W Moline St	Replace Bolts in Cover	$25.00	98	0	98	0.256
Basin 1	MH1526	456 Riverview Dr	Replace Bolts in Cover	$25.00	98	0	98	0.256
Basin 1	MH1517	1840 WMoline St	Replace Bolts in Cover, Cementitious Coating	$1,525.00	1,549	4,320	5,869	0.260
Basin 1	MH1526	445 Riverview Dr	Cementitious Coating, Grout Lower 18" of Manhole	$5,375.00	0	15,182	15,182	0.354
Basin 1	MH1204	1932 Industrial Park Dr	Replace Manhole Frame & Cover (Non-Paved)	$1,050.00	2,934	0	2,934	0.358
Basin 1	MH1211	3402 Oliver Lancaster Blvd	Grout Lower 18" of Manhole	$875.00	0	2,222	2,222	0.394
Basin 1	MH1518	2730 Rivercreek Rd	Replace Manhole Frame & Cover (Non-Paved)	$1,050.00	2,152	0	2,152	0.488
Basin 1	MH1208	117 Industrial Park Rd	Frame Adjustment Sealing (Non-Paved)	$1,000.00	1,956	0	1,956	0.511
Basin 1	MH1517	1820 W Moline St	Frame Adjustment Sealing (Non-Paved)	$1,000.00	1,956	0	1,956	0.511
UNK	MH1541	1523 W Moline St	Frame Adjustment Sealing (Non-Paved)	$1,000.00	1,956	0	1,956	0.511
Basin 1	MH1517	1840 W Moline St	Grout Lower 18" of Manhole	$875.00	0	1,502	1,502	0.582
Basin 1	MH1525	2300 Leopard Ln	Grout Lower 18" of Manhole	$875.00	0	1,440	1,440	0.608
Basin 1	MH1533	1611 Martin Luther King Blvd	Grout Lower 18" of Manhole	$875.00	0	1,440	1,440	0.608
Basin 1	MH1196	1921 Martin Luther King Blvd	Grout Lower 18" of Manhole	$875.00	0	1,369	1,369	0.639
Basin 1	MH1517	1820 W Moline St	Chimney Replacement (Non-Paved)	$750.00	1,174	0	1,174	0.639
Basin 1	MH1172	2320 Leopard Ln	Frame Adjustment Sealing (Non-Paved), Cementitious Coating, Grout Lower 18" of Manhole	$5,775.00	20	7,982	8,002	0.722
UNK	MH1541	1601 Miller Ave	Complete Manhole Rehab	$4,000.00	0	3,662	3,662	1.092
Basin 1	MH1221	1889 Tanner St	Complete Manhole Rehab	$4,000.00	2,934	587	3,521	1.136
Basin 1	MH1178	2600 S Rivercreek Dr	Cementitious Coating	$3,300.00	0	2,880	2,880	1.146
Basin 1	MH1226	1585 Tanner St	Cementitious Coating	$1,800.00	685	782	1,467	1.227
Basin 1	MH1208	103 Industrial Rd	Replace Bolts in Cover, Grout Lower 18" of Manhole	$900.00	145	587	732	1.229
Basin 1	MH1179	398 Riverview Dr	Complete Manhole Rehab	$2,000.00	1,174	391	1,565	1.278

Basin	Asset	Address	Repairs	Total Cost	Manhole Inflow (GPD)	Manhole Infiltration (GPD)	Total I/I Rate (GPD)	Repair Cost Per GPD ($/GPD)
Basin 1	MH1515	1750 W Moline St	Frame Adjustment Sealing (Paved)	$1,000.00	782	0	782	1.278
Basin 1	MH1166	1526 Gardiner St	Grout Lower 18" of Manhole	$875.00	0	587	587	1.491
Basin 1	MH1186	2727 S River Creek Rd	Grout Lower 18" of Manhole	$875.00	0	587	587	1.491
Basin 1	MH1202	104 Industrial Park Rd	Grout Lower 18" of Manhole	$875.00	0	587	587	1.491
Basin 1	MH1203	2668 Oliver Lancaster Blvd	Grout Lower 18" of Manhole	$875.00	0	587	587	1.491
Basin 1	MH1523	2615 S Rivercreek Dr	Grout Lower 18" of Manhole	$875.00	0	587	587	1.491
Basin 1	MH1188	1600 S River Creek Dr	Cementitious Coating, Grout Lower 18" of Manhole	$3,875.00	0	2,222	2,222	1.744
Basin 1	MH1195	1656 Industrial Park Dr	Complete Manhole Rehab	$2,500.00	0	1,369	1,369	1.826
Basin 1	MH1536	1820 W Moline St	Complete Manhole Rehab	$3,500.00	0	1,760	1,760	1.988
Basin 1	MH1526	448 Riverview Dr	Grout Lower 18" of Manhole	$875.00	0	391	391	2.237
UNK	MH1541	1750 W Moline St	Complete Manhole Rehab	$4,000.00	0	1,565	1,565	2.556
Basin 1	MH1517	1820 W Moline St	Cementitious Coating	$2,100.00	0	782	782	2.684
Basin 1	MH1537	1747 W Moline St	Cementitious Coating	$2,100.00	0	782	782	2.684
Basin 1	MH1198	2668 Oliver Lancaster Blvd	Cementitious Coating, Grout Lower 18" of Manhole	$3,875.00	0	1,369	1,369	2.830
Basin 1	MH1523	1600 S River Creek Dr	Cementitious Coating, Grout Lower 18" of Manhole	$3,875.00	0	1,369	1,369	2.830
Basin 1	MH1171	1902 Martin Luther King Blvd	Cementitious Coating	$2,400.00	0	782	782	3.068
Basin 1	MH1201	104 Industrial Park Rd	Cementitious Coating	$2,700.00	0	782	782	3.451
UNK	MH1538	1807 W Moline St	Cementitious Coating	$2,700.00	0	782	782	3.451
Basin 1	MH1182	445 Riverview Dr	Cementitious Coating	$4,200.00	0	782	782	5.368
Basin 1	MH1174	2320 Leopard Ln	Frame Adjustment Sealing (Non-Paved), Cementitious Coating	$5,800.00	20	782	802	7.232
Basin 1	MH1175	2320 Leopard Ln	Frame Adjustment Sealing (Non-Paved)	$1,000.00	20	0	20	51.126
Basin 1	MH1199	2668 Oliver Lancaster Blvd	Frame Adjustment Sealing (Non-Paved)	$1,000.00	20	0	20	51.126

Group Summary

Total Cost: $97,075.00

Total Manhole Inflow (GPD): 23,582

Total Manhole Infiltration (GPD): 116,086

APPENDIX G

GRAVITY MAIN REMEDIAL MEASURES

2023 Malvern SSES

Gravity Main Remedial Measures

Segment	Diameter (in.)	Length (ft)	I/I Rate (GPD)	Priority	Remedial Measures	Stationing	From USMH/DSMH	Cost	Capital Cost	Cost/I&I
MH0093:MH0080	8	221	3,936.45	1	Point Repair	2+16 to 2+26 2+18 to 2+28	USMH	$ 3,300	$ 4,290	0.84
MH1433:MH1425	6	307.1	3,936.45	1	Pipe Burst			$ 3,821	$ 4,967	0.97
MH0069:MH0070	8	336.4	4,723.74	1	Point Repair	2+59 to 2+69 2+63 to 2+73	DSMH	$ 9,900	$ 12,870	2.10
MH0196:MH0197	6	249.9	3,711.51	1	Point Repair	0+ 45 to 0+50 0+52 to 0+62	USMH	$ 8,250	$ 10,725	2.22
MH1506:MH1421	6	276.3	5,376.07	1	Pipe Burst			$ 12,744	$ 16,567	2.37
MH1163:MH1162	6	235.9	2,699.28	1	Point Repair	0+00 to 0+10 1+61 to 1+71	USMH	$ 6,600	$ 8,580	2.45
MH0112:MH0110	8	317.5	1,237.17	1	Point Repair	1+54 to 1+64	USMH	$ 3,300	$ 4,290	2.67
MH0003:MH0004	6	298	2,249.40	1	Point Repair	1+46 to 1+56 1+79 to 1+89	USMH	$ 6,600	$ 8,580	2.93
MH1357:MH1433	6	362	13,946.28	1	Pipe Burst			$ 48,870	$ 63,531	3.50
MH0078:MH0072	6	433	2,721.77	1	Point Repair	2+02 to 2+12 3+13 to 3+23 3+17 to 3+27	DSMH	$ 9,900	$ 12,870	3.64
MH0076:MH0079	10	302	6,523.26	1	CIPP[/1]			$ 24,915	$ 32,390	3.82
MH0092:MH0080	8	452	7,782.92	1	CIPP			$ 37,290	$ 48,477	4.79
MH0199:MH0200	6	327.6	674.82	1	Point Repair	3+19 to 3+29	USMH	$ 3,300	$ 4,290	4.89
MH0094:MH0093	8	125.1	1,237.17	1	Point Repair	0+20 to 0+30 0+47 to 0+57	DSMH	$ 6,600	$ 8,580	5.33
MH0532:MH0211	10	186	1,192.18	1	Point Repair	0+10 to 0+20 0+58 to 0+68	DSMH	$ 6,600	$ 8,580	5.54
MH1171:MH1483	8	309.9	562.35	1	Point Repair	2+28 to 2+38	USMH	$ 3,300	$ 4,290	5.87
MH0116:MH0117	6	367	8,097.84	1	Pipe Burst + Point Repair[/1]	1+18 to 1+28	USMH	$ 53,250	$ 69,225	6.58
MH0098:MH0098.001	6	104	4,611.27	1	Pipe Burst + Point Repair[/1]	0+99 to 1+09	USMH	$ 31,785	$ 41,321	6.89
MH1340:MH1339	6	167.8	1,529.59	1	Pipe Burst			$ 10,719	$ 13,935	7.01
MH1060:MH1059	6	180	3,351.61	1	Pipe Burst			$ 24,300	$ 31,590	7.25
MH0492:MH0198	6	192.8	674.82	1	Pipe Burst			$ 4,914	$ 6,388	7.28
MH1551:MH1220	6	194.4	1,124.70	1	Point Repair	1+31 to 1+41 1+43 to 1+53	DSMH	$ 8,250	$ 10,725	7.34
MH0140:MH0138	6	266	449.88	1	Point Repair	2+59 to 2+69	USMH	$ 3,300	$ 4,290	7.34

1/ If CCTV is complete , Length is based upon televised length. If incomplete, Length is based upon GIS length.

2/ Furthur CCTV investigation is required.

Segment	Diameter (in.)	Length (ft)	I/I Rate (GPD)	Priority	Remedial Measures	Stationing	From USMH/DSMH	Cost	Capital Cost	Cost/I&I
MH1358:MH1359	8	307.4	3,351.61	1	CIPP			$ 25,361	$ 32,969	7.57
MH0138:MH0137	6	286.1	1,259.66	1	Point Repair	0+44 to 0+54 2+86 to 2+96 2+99 to 2+09	DSMH	$ 9,900	$ 12,870	7.86
MH0072:MH0076	10	209.3	2,181.92	1	CIPP			$ 17,267	$ 22,447	7.91
MH1132:MH1160	6	324	5,106.14	1	Pipe Burst			$ 43,740	$ 56,862	8.57
MH0070:MH0072	8	329.6	3,149.16	1	CIPP			$ 27,192	$ 35,350	8.63
MH0442:MH0444	6	259.1	3,958.94	1	Pipe Burst			$ 34,979	$ 45,472	8.84
MH0153:MH0152	6	342.2	1,079.71	1	Point Repair	0+05 to 0+15 0+13 to 0+23 1+66 to 1+76	USMH	$ 9,900	$ 12,870	9.17
MH0080:MH0079	8	115.9	1,012.23	1	CIPP			$ 9,562	$ 12,430	9.45
MH1283:MH1283.001	6	106.4	337.41	1	Point Repair	0+53 to 0+63	USMH	$ 3,300	$ 4,290	9.78
MH0187:MH0186	6	117.9	337.41	1	Point Repair	0+72 to 0+82	USMH	$ 3,520	$ 4,576	10.43
MH1353:MH1354	6	411	5,151.13	1	Pipe Burst[/1]			$ 55,485	$ 72,131	10.77
MH0261:MH0260	8	127.2	4,026.43	1	Pipe Burst			$ 44,525	$ 57,882	11.06
MH0968:MH0969	6	265.6	3,239.14	1	Pipe Burst			$ 35,856	$ 46,613	11.07
MH0192:MH0191	6	326.1	3,823.98	1	Pipe Burst			$ 44,024	$ 57,231	11.51
MH1419:MH1339	6	344	3,644.03	2	Pipe Burst			$ 46,440	$ 60,372	12.74
MH1103:MH1104	6	404.6	3,868.97	2	Pipe Burst			$ 54,621	$ 71,007	14.12
MH0101:MH0092	8	279.9	1,822.01	2	Point Repair	1+12 to 1+22 1+23 to 1+33 2+45 to 2+55	USMH	$ 26,392	$ 34,309	14.48
MH0154:MH0152	6	325.3	3,014.20	2	Pipe Burst			$ 43,916	$ 57,090	14.57
MH0151:MH0152	6	332.4	3,059.18	2	Pipe Burst			$ 44,874	$ 58,336	14.67
MH0268:MH0269	6	342.2	224.94	2	Point Repair	0+00 to 0+10	USMH	$ 3,300	$ 4,290	14.67
MH0201:MH0200	6	341.4	3,126.67	2	Pipe Burst			$ 46,089	$ 59,916	14.74
MH0543:MH0442	6	104.2	517.36	2	Point Repair	0+99 to 1+09 1+70 to 1+80	USMH	$ 8,250	$ 10,725	15.95
MH0134:MH0491	8	308.9	472.37	2	Point Repair	2+27 to 2+37 2+29 to 2+39 2+36 to 2+46	USMH	$ 8,470	$ 11,011	17.93
MH0980:MH0981	6	396.4	359.90	2	Pipe Burst			$ 6,820	$ 8,866	18.95
MH0973:MH0972	6	361	2,406.86	2	Pipe Burst[/1]			$ 48,735	$ 63,356	20.25
MH1541A:MH1541/1	8	62	157.46	2	Point Repair	0+54 to 0+64	USMH	$ 3,300	$ 4,290	20.96

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Segment	Diameter (in.)	Length (ft)	I/I Rate (GPD)	Priority	Remedial Measures	Stationing	From USMH/DSMH	Cost	Capital Cost	Cost/I&I
MH0441:MH0442	6	115.7	157.46	2	Point Repair	0+70 to 0+80	DSMH	$ 3,300	$ 4,290	20.96
MH1208A:MH1208	8	253.9	157.46	2	Point repair	2+40 to 2+50	USMH	$ 3,300	$ 4,290	20.96
MH1084:MH1083	6	320.8	472.37	2	Point Repair	0+00 to 0+10 1+55 to 1+65 2+04 to 2+14	USMH	$ 10,120	$ 13,156	21.42
MH0146:MH0145	8	320.6	1,124.70	2	CIPP			$ 26,450	$ 34,384	23.52
MH1162:MH1161/1	6	222.3	1,259.66	2	Pipe Burst			$ 30,011	$ 39,014	23.82
MH0986:MH0969	6	340.9	1,799.52	2	Pipe Burst			$ 46,022	$ 59,828	25.57
MH0149:MH0148	6	184	1,282.16	2	Pipe Burst			$ 35,375	$ 45,988	27.59
MH0526:MH0143	6	160.4	1,529.59	2	Pipe Burst			$ 42,444	$ 55,177	27.75
MH0273:MH0274	6	338	1,619.57	2	Pipe Burst			$ 45,630	$ 59,319	28.17
MH0391:MH0392	8	195.7	764.80	2	CIPP			$ 21,772	$ 28,303	28.47
MH1020:MH1021	6	180.6	854.77	2	Pipe Burst			$ 24,381	$ 31,695	28.52
MH0272:MH0672	6	146.5	1,124.70	2	Pipe Burst			$ 32,445	$ 42,178	28.85
MH0182:MH0157	6	324.1	224.94	2	Point Repair	0+83 to 0+93 2+15 to 2+25	DSMH	$ 6,600	$ 8,580	29.34
MH1283.001:MH1284	6	417.5	1,889.50	2	Pipe Burst[/1]			$ 56,363	$ 73,271	29.83
MH0202:MH0201	8	215	314.92	2	Point Repair	1+32 to 1+42 1+99 to 2+09 2+10 to 2+20	USMH	$ 10,120	$ 13,156	32.14
MH1365:MH1364	6	340.6	1,372.13	2	Pipe Burst			$ 45,981	$ 59,775	33.51
MH0173:MH0172	6	261.6	1,034.72	2	Pipe Burst			$ 35,316	$ 45,911	34.13
MH0158:MH0160	6	419.5	1,642.06	2	Pipe Burst			$ 56,633	$ 73,622	34.49
MH0082:MH0083	6	375.7	1,439.62	2	Pipe Burst			$ 50,720	$ 65,935	35.23
MH0132:MH0133	8	341.2	269.93	2	Point Repair	0+10 to 0+20 3+00 to 3+10 3+06 to 3+16	DSMH	$ 9,900	$ 12,870	36.68
MH0385:MH0388	6	327	989.74	2	Pipe Burst			$ 44,145	$ 57,389	44.60
MH1048:MH1047	6	297.8	899.76	2	Pipe Burst			$ 40,203	$ 52,264	44.68
MH0167:MH0157	6	266	1,417.12	2	Pipe Burst			$ 67,635	$ 87,926	47.73
MH0488:MH0192	6	601.5	2,046.95	2	Pipe Burst/1			$ 81,135	$ 105,476	51.53
MH1082:MH1081	6	143	337.41	2	Open Cut			$ 23,595	$ 30,674	69.93
MH0965:MH0961	6	196.4	314.92	2	Pipe Burst			$ 26,474	$ 34,416	84.07
MH0203:MH0194	6	423.1	674.82	2	Pipe Burst			$ 57,119	$ 74,254	84.64

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Segment	Diameter (in.)	Length (ft)	I/I Rate (GPD)	Priority	Remedial Measures	Stationing	From USMH/DSMH	Cost	Capital Cost	Cost/I&I
MH1416A:MH1416	6	173.2	269.93	2	Pipe Burst[1]			$ 23,385	$ 30,401	86.64
MH0198:MH0199	6	280.5	67.48	2	Pipe Burst			$ 37,868	$ 49,228	561.15
MH0133:MH0134	8	316.8	44.99	2	CIPP			$ 26,136	$ 33,977	580.95
MH1220:MH1219	6	301	449.88		N/A[2]			$ -	$ -	N/A
MH0512:MH0095	6	314	179.95		N/A[2]			$ -	$ -	N/A
MH0096:MH0093	6	324	-		N/A[2]			$ -	$ -	N/A
MH0241:MH0244	8	329.6	-		N/A[2]			$ -	$ -	N/A
MH0077:MH0078	6	341	1,462.11		N/A[2]			$ -	$ -	N/A
MH1339:MH1338	6	397	899.76		N/A[2]			$ -	$ -	N/A
MH0174:MH0173	6	407	67.48		N/A[2]			$ -	$ -	N/A
MH0243:MH0241	8	515.4	157.46		N/A[2]			$ -	$ -	N/A
MH0145:MH0445	8	105	-		N/A[2]			$ -	$ -	N/A
MH0118:MH0119	6	156.9	2,474.34		N/A[2]			$ -	$ -	N/A
MH0499:MH0274	6	160.4	-		N/A[2]			$ -	$ -	N/A
MH0524:MH0129	6	119.1	-		N/A[2]			$ -	$ -	N/A
MH0594:MH0141	6	215.6	-		N/A[2]			$ -	$ -	N/A
MH0456:MH0266	6	151.1	224.94		N/A[2]			$ -	$ -	N/A
MH0277:MH0276	6	442.9	-		N/A[2]			$ -	$ -	N/A
MH0502:MH0502.001	6	249.9	674.82		N/A[2]			$ -	$ -	N/A
MH0375:MH0374	6	317.2	-		N/A[2]			$ -	$ -	N/A
MH0117:MH0118	6	276.3	-		N/A[2]			$ -	$ -	N/A
MH0539:MH0253	8	262.3	-		N/A[2]			$ -	$ -	N/A
MH0095:MH0094	6	20	-		N/A[2]			$ -	$ -	N/A
MH0459:MH0121	6	94.9	-		N/A[2]			$ -	$ -	N/A
MH0122:MH0123	6	356.5	2,474.34		N/A[2]			$ -	$ -	N/A
MH0113:MH0112	6	111	-		N/A[2]			$ -	$ -	N/A

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APPENDIX H

RECOMMENDED SERVICE LINE INFLOW REMOVAL

2023 Malvern SSES

Recommended Line Inflow Removal

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 3	MH1550:MH1291	629 Floyd St	Cleanout: Missing Cap	Replace Cleanout Cap	0	$25	0.000
Basin 1	MH1226:MH1227	1590 Tanner St	Cleanout: Missing Cap	Replace Cleanout Cap	3,628	$25	0.007
Basin 3	MH1351:MH1418	1002 Elmo St	Cleanout	Repair Cleanout	21,769	$1,000	0.046
Basin 3	MH1062:MH1063	407 Hoover St	Cleanout: Missing Cap	Replace Cleanout Cap	544	$25	0.046
Basin 3A	MH0081:MH0082	526 Section Line St	Cleanout: Missing Cap	Replace Cleanout Cap	363	$25	0.069
Basin 3	MH1285:MH1286	802 Floyd St	Cleanout: Missing Cap	Replace Cleanout Cap	363	$25	0.069
Basin 3	MH1442:Unknown	224 Harris St	Cleanout: Missing Cap	Replace Cleanout Cap	363	$25	0.069
Basin 4	MH0543:MH0542	1716 Bailey Pl	Cleanout: Missing Cap	Replace Cleanout Cap	326	$25	0.077
Basin 3	MH1505:MH1550	716 Floyd St	Cleanout: Missing Cap	Replace Cleanout Cap	290	$25	0.086
Basin 3A	MH0070:MH0072	623 E Page Ave	Lateral Defect(s)	Repair Lateral	10,885	$1,000	0.092
Basin 1	MH1189A:MH1189B	2300 Leopard Ln	Lateral Defect(s)	Repair Lateral	10,885	$1,000	0.092
Basin 3	MH1494:MH1493	330 N Main St	Lateral Defect(s)	Repair Lateral	10,885	$1,000	0.092
Basin 3A	MH0452:MH0162	618 Cherry Ln	Cleanout: Missing Cap	Replace Cleanout Cap	182	$25	0.138
Basin 3	MH0761:MH0762	104 N Laurel St	Cleanout: Missing Cap	Replace Cleanout Cap	182	$25	0.138
Basin 3	MH1084:MH1083	430 Griggs St	Cleanout: Missing Cap	Replace Cleanout Cap	182	$25	0.138
Basin 1	MH1191:MH1190	2600 S River Creek Rd	Cleanout: Missing Cap	Replace Cleanout Cap	182	$25	0.138
Unknown	MH1541C:MH1541B	1525 W Moline St	Cleanout: Missing Cap	Replace Cleanout Cap	182	$25	0.138
Basin 3A	OSA:MH0072	608 E Page Ave	Cleanout: Missing Cap	Replace Cleanout Cap	182	$25	0.138
Basin 4	MH0109:MH0677	1104 McNeal St	Cleanout: Missing Cap	Replace Cleanout Cap	145	$25	0.172
Basin 3	MH1349:MH1348	603 Baker St	Cleanout: Missing Cap	Replace Cleanout Cap	145	$25	0.172
Basin 3	MH1063:MH1064	346 Babcock St	Cleanout	Repair Cleanout	5,079	$1,000	0.197
Basin 4	MH0673:MH0298	1625 Mississippi St	Cleanout	Repair Cleanout	3,628	$1,000	0.276
Basin 3A	MH0093:MH0080	900 E Page Ave	Lateral Defect(s)	Repair Lateral	3,265	$1,000	0.306
Basin 1	MH1170:MH1171	1902 Martin Luther King Blvd	Cleanout	Repair Cleanout	3,265	$1,000	0.306
Basin 3A	MH0068:MH0069	534 McBee St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 4	MH0142:MH0135	1427 Sullenberger Ave	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 4	MH0145:MH0445	1515 Sullenberger Ave	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 4	MH0184:MH0154	1726 Grant St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 4	MH0433:MH0431	1238 Mimosa St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 4	MH0672:MH0273	1214 E Mill St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 3	MH0980:MH0981	717 Babcock St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 3	MH0995:MH0996	110 Iva St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 3	MH1422:MH1423	319 Fairview St	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 1	MH1525:MH1524	1920 Martin Luther King Blvd	Cleanout: Missing Cap	Replace Cleanout Cap	72	$25	0.345
Basin 1	MH1188:MH1187	2660 S River Creek Rd	Cleanout	Repair Cleanout	2,177	$1,000	0.459
Basin 3A	MH0069:MH0070	707 Keith St	Lateral Defect(s)	Repair Lateral	1,814	$1,000	0.551
Basin 3A	MH0174:MH0173	1503 Dogwood Trl	Lateral Defect(s)	Repair Lateral	1,633	$1,000	0.613
Basin 1	MH1522:MH1521	3456 Oliver Lancaster Blvd	Lateral Defect(s)	Repair Lateral	1,451	$1,000	0.689
Basin 4	MH0539:MH0253	1527 Louisiana St	Lateral Defect(s)	Repair Lateral	1,088	$1,000	0.919
Basin 4	MH0203:MH0194	2026 Monroe St	Lateral Defect(s)	Repair Lateral	1,088	$1,000	0.919
Basin 4	MH0117:MH0118	1003 Toler St	Lateral Defect(s)	Repair Lateral	907	$1,000	1.103
Basin 3A	MH0069:MH0070	707 Keith St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0109:MH0677	903C Louise St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0142:MH0135	1427 Sullenberger Ave	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0145:MH0445	1522 Sullenberger Ave	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0148:MH0147	1626 E Sullenberger Ave	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0190:MH0189	923 Dawson St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0194:MH0195	1119 Owens St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0199:MH0200	1824 E Sullenberger Ave	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0216:MH0215	2605 Canine St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0243:MH0241	1027 McHenry St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0274:MH0275	1403 Porter St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3A	MH0507:MH0001	6 Gloster Ct	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3A	MH0507:MH0001	19 Gloster Ct	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0529:MH0203	1920 Monroe St Unit: C1	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0541:MH0268	1509 Jefferson St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0543:MH0542	1727 Bailey Pl	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0543:MH0542	1745 Bailey Pl	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0543:MH0542	1745 Bailey Pl	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0544A:MH0543	1702 Bailey Pl	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 4	MH0672:MH0273	1301 E Mill St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 3	MH0982:MH0983	515 Babcock St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH0982:MH0983	515 Babcock St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH0992:MH0995	114 Iva St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH0999:MH1000	639 Reyburn Rd	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1102:MH1068	109 Babcock St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1128:MH0975	806 Hoover St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3A	MH1161:MH1160	1616 E Page Ave	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3A	MH1162:MH1161	1616 E Page Ave	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 1	MH1203:MH1199	2668 Oliver Lancaster Blvd	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1283:MH1284	906 Division St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1343:MH1342	730 Baker St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1353:MH1354	729 Fairview St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1358:MH1359	811 Lowden St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3	MH1458:MH1353	809 Fairview St	Cleanout: Missing Cap	Replace Cleanout Cap	20	$25	1.278
Basin 3A	MH0173:MH0172	1326 Dogwood Trl	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 3A	MH1162:MH1161	1616 E Page Ave	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 3A	MH0078:MH0072	411 S Banks St	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 3A	MH0077:MH0078	522 S Banks St	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 3A	MH0082:MH0083	608 Section Line St	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 3A	MH0003:MH0004	425 E First St	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 4	MH0440:MH0437	1330 Maple St	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 4	MH0192:MH0191	809 Owens St	Cleanout	Repair Cleanout	726	$1,000	1.378
Basin 3A	MH1115:MH1114	117 Sheppard St	Cleanout	Repair Cleanout	726	$1,000	1.378
Basin 4	MH0116:MH0117	900 Toler St	Lateral Defect(s)	Repair Lateral	726	$1,000	1.378
Basin 3	MH1047:MH1052	407 N Banks St	Cleanout	Repair Cleanout	580	$1,000	1.723
Basin 3A	MH0164:MH0103	919 Pine Bluff St	Lateral Defect(s)	Repair Lateral	544	$1,000	1.838
Basin 3A	MH0081:MH0082	526 Section Line St	Lateral Defect(s)	Repair Lateral	544	$1,000	1.838
Basin 3	MH1036:MH1037	1130 Fall St	Cleanout	Repair Cleanout	544	$1,000	1.838
Basin 1	MH1522:MH1521	3508 Oliver Lancaster Blvd	Cleanout	Repair Cleanout	544	$1,000	1.838
Basin 4	MH0203:MH0194	2026 Monroe St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3	MH1019:MH1043	728 E Moline St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3	MH1023:MH1025	832 Griggs St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 4	MH0153:MH0152	1603 Pine Bluff St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0266:MH0262	1315 Lincoln St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0143:MH0670	1519 Monroe St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3A	MH0069:MH0070	616 McBee St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0276:MH0534	1006 E Highland Ave	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0150:MH0151	1003 Roosevelt St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0115:MH0114	928 Edwards St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3A	MH0068:MH0069	535 McBee St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0140:MH0138	1523 Robert E Lee St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 4	MH0125:MH0124	1212 Clardy St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 4	MH0141:MH0142	1120 Lincoln St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 4	MH0391:MH0392	1313 Bayer St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 3A	MH0507:MH0001	19 Gloster Ct	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 3A	MH0507:MH0001	12 Gloster Ct	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 4	MH0527:MH0201	1720 Monroe St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 4	MH0534:MH0244	920 E Highland Ave	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 3	MH1027:MH1028	804 E Moline St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 3	MH1081:MH1080	328 Veneer St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 3	MH1344:MH1343	812 Baker St	Cleanout	Repair Cleanout	363	$1,000	2.758
Basin 1	MH1522:MH1521	3456 Oliver Lancaster Blvd	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3A	MH0082:MH0083	622 Section Line St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3A	MH0174:MH0173	1503 Dogwood Trl	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3A	MH0071:MH0481	818 McBee St	Lateral Defect(s)	Repair Lateral	363	$1,000	2.758
Basin 3	MH1019:MH1043	728 E Moline St	Lateral Defect(s)	Repair Lateral	290	$1,000	3.446
Basin 3	MH1040:MH1041	1218 Fall St	Cleanout	Repair Cleanout	290	$1,000	3.446
Basin 4	MH0108:MH0109	1003 McNeal St	Lateral Defect(s)	Repair Lateral	254	$1,000	3.937
Basin 3	MH1036:MH1037	1105 Fall St	Lateral Defect(s)	Repair Lateral	254	$1,000	3.937
Basin 3A	MH0070:MH0072	623 E Page Ave	Lateral Defect(s)	Repair Lateral	254	$1,000	3.937
Basin 3	MH1357:MH1433	511 Elmo St	Lateral Defect(s)	Repair Lateral	254	$1,000	3.937
Basin 3	MH1437:MH1365	428 Lowden St	Lateral Defect(s)	Repair Lateral	254	$1,000	3.937
Basin 4	MH0201:MH0200	1726 E Sullenberger Ave	Cleanout	Repair Cleanout	254	$1,000	3.937
Basin 3	MH1286:MH1550	730 Floyd St	Cleanout	Repair Cleanout	254	$1,000	3.937

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 3A	MH0104:MH0103	827 Clardy St	Lateral Defect(s)	Repair Lateral	254	$1,000	3.937
Basin 4	MH0192:MH0191	1801 Pine Bluff St	Lateral Defect(s)	Repair Lateral	218	$1,000	4.591
Basin 3	MH1009:MH1012	1209 Watts St	Lateral Defect(s)	Repair Lateral	218	$1,000	4.591
Basin 4	MH0152:MH0137	829 Lincoln St	Lateral Defect(s)	Repair Lateral	218	$1,000	4.591
Basin 3A	MH0073:MH0074	631 Pine Bluff St	Lateral Defect(s)	Repair Lateral	218	$1,000	4.591
Basin 4	EOL:MH0108	917 McNeal St	Cleanout	Repair Cleanout	218	$1,000	4.591
Basin 3	MH0972:MH1289	215 W Moline St	Cleanout	Repair Cleanout	218	$1,000	4.591
Basin 4	MH0138:MH0137	917 Lincoln St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3A	MH0158:MH0160	1408 Pine Bluff St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3	MH0985:MH0986	307 Iva St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 4	MH0498:MH0273	1125 E Mill St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 4	MH0673:MH0298	1620 Mississippi St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3A	MH0165:MH0693	1114 Pine Bluff St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3A	MH0172:MH0171	1404 McBee St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3A	MH0452:MH0162	1310 McBee St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3A	MH0071:MH0481	728 McBee St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3	MH0985:MH0986	307 Iva St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 4	OSA:MH0257	1713 Texas St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 4	MH0141:MH0142	1426 Sullenberger Ave	Cleanout	Repair Cleanout	182	$1,000	5.506
Basin 4	MH0489:MH0206	1803 Robert E Lee St	Cleanout	Repair Cleanout	182	$1,000	5.506
Basin 3	MH1064:MH1065	343 Babcock St	Cleanout	Repair Cleanout	182	$1,000	5.506
Basin 3	MH1065:MH1066	321 Babcock St	Cleanout	Repair Cleanout	182	$1,000	5.506
Basin 3	MH1338:MH1420	400 N Main St	Cleanout	Repair Cleanout	182	$1,000	5.506
Unknown	MH1517F:PS	1840 W Moline St	Cleanout	Repair Cleanout	182	$1,000	5.506
Unknown	MH1541C:MH1541B	1525 W Moline St	Cleanout	Repair Cleanout	182	$1,000	5.506
Basin 4	MH0206:MH0155	1729 Robert E Lee St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 4	MH0116:MH0117	920 Toler St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3	MH1338:MH1420	400 N Main St	Lateral Defect(s)	Repair Lateral	182	$1,000	5.506
Basin 3	MH1365:MH1364	229 W Young St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 4	MH0122:MH0123	1111 Wallace St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 4	MH0140:MH0138	920 Roosevelt St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 3A	MH0593:MH1110	619 JW Harrison St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 4	MH0458:MH0116	1018 Clardy St Unit: A	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 3A	MH0067:MH0068	515 McBee St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 3A	MH0084:MH0593	619 JW Harrison St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 4	MH0150:MH0151	1003 Roosevelt St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 4	MH0199:MH0200	1824 E Sullenberger Ave	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 4	MH0243:MH0241	921 McHenry St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 4	MH0269:MH0261	1315 Jefferson St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 4	MH0498:MH0273	1113 E Mill St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3	MH1015:MH1016	931 Magnolia St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3	MH1077:MH1076	243 Veneer St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3	MH1081:MH1080	203 Griggs St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3	MH1102:MH1068	109 Babcock St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3	MH1336:MH1336A	611 Rockport St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3	MH1503:MH1285	324 W Moline St	Cleanout	Repair Cleanout	145	$1,000	6.877
Basin 3A	MH0165:MH0693	1114 Pine Bluff St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 4	MH0122:MH0123	1111 Wallace St	Lateral Defect(s)	Repair Lateral	145	$1,000	6.877
Basin 3	MH1348:MH1506	625 W Young St	Lateral Defect(s)	Repair Lateral	109	$1,000	9.210
Basin 4	MH0242:MH0241	1305 Texas St	Lateral Defect(s)	Repair Lateral	109	$1,000	9.210
Basin 3	MH0977:MH0976	630 Hoover St	Lateral Defect(s)	Repair Lateral	109	$1,000	9.210
Basin 3A	MH0452:MH0162	623 Cherry Ln	Cleanout	Repair Cleanout	109	$1,000	9.210
Basin 3	MH0966:MH1276	1206 Sherwood St	Cleanout	Repair Cleanout	109	$1,000	9.210
Basin 3	MH0972:MH1289	215 W Moline St	Cleanout	Repair Cleanout	109	$1,000	9.210
Basin 3	MH0973:MH0972	120 W Moline St	Cleanout	Repair Cleanout	109	$1,000	9.210
Basin 3	MH1018:MH1019	720 E Moline St	Cleanout	Repair Cleanout	109	$1,000	9.210
Basin 3	MH1356:MH1357	517 Fairview St	Cleanout	Repair Cleanout	109	$1,000	9.210
Basin 4	MH0385:MH0384	2346 McHenry Cir	Lateral Defect(s)	Repair Lateral	72	$1,000	13.815
Basin 3A	MH0164:MH0103	916 Pine Bluff St	Lateral Defect(s)	Repair Lateral	72	$1,000	13.815
Basin 4	MH0152:MH0137	906 Roosevelt St	Lateral Defect(s)	Repair Lateral	72	$1,000	13.815
Basin 3A	MH0068:MH0069	535 McBee St	Cleanout	Repair Cleanout	72	$1,000	13.815
Basin 3A	MH0084:MH0593	615 JW Harrison St	Cleanout	Repair Cleanout	72	$1,000	13.815
Basin 4	MH0152:MH0137	1509 Grant St	Cleanout	Repair Cleanout	72	$1,000	13.815
Basin 3	MH1077:MH1076	239 Veneer St	Cleanout	Repair Cleanout	72	$1,000	13.815

Basin	Segment	Address	Defect Name	Repair	Inflow (GPD)	Construction Cost	Repair Cost Per GPD ($/GPD)
Basin 3	MH0990:MH0989	321 Broadway St	Lateral Defect(s)	Repair Lateral	72	$1,000	13.815
Basin 4	MH0185:MH0184	1803 Grant St	Lateral Defect(s)	Repair Lateral	72	$1,000	13.815
Basin 4	MH0257:MH0254	1623 Texas St	Lateral Defect(s)	Repair Lateral	36	$1,000	27.629
Basin 4	MH0122:MH0123	1111 Wallace St	Lateral Defect(s)	Repair Lateral	36	$1,000	27.629
Basin 3A	MH0084:MH0593	615 JW Harrison St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3A	MH0092:MH0080	632 McNeal St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 4	MH0118:MH0119	1128 Toler St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 4	MH0243:MH0241	1009 McHenry St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 4	MH0260:MH0533	1124 McHenry St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 4	MH0437:MH0441	1330 Maple St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3A	MH0507:MH0001	3 Gloster Ct	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 4	MH0673:MH0298	625 E Mill St Unit: A	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH0969:MH0970	1511 Babcock St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH0973:MH0972	120 W Moline St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH0985:MH0986	305 Iva St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1057:MH1084	423 Griggs St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1060:MH1059	803 Griggs St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1063:MH1064	104 Berger St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1074:MH1075	217 Elizabeth Ann St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1144:MH1069	102 Babcock Terrace	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 1	MH1227:MH1222	1671 Tanner St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1340:MH1339	511 N Main St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1358:MH1359	811 Lowden St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 3	MH1423:MH1426	217 N Laurel St	Cleanout	Repair Cleanout	20	$1,000	51.126
Basin 1	MH1522:MH1521	3456 Oliver Lancaster Blvd	Cleanout	Repair Cleanout	20	$1,000	51.126
Unknown	MH1541C:MH1541B	1525 W Moline St	Cleanout	Repair Cleanout	20	$1,000	51.126

Report Summary		
	Total Construction Cost:	$156,500
	Total Inflow Rate (GPD):	120,682

EXHIBITS

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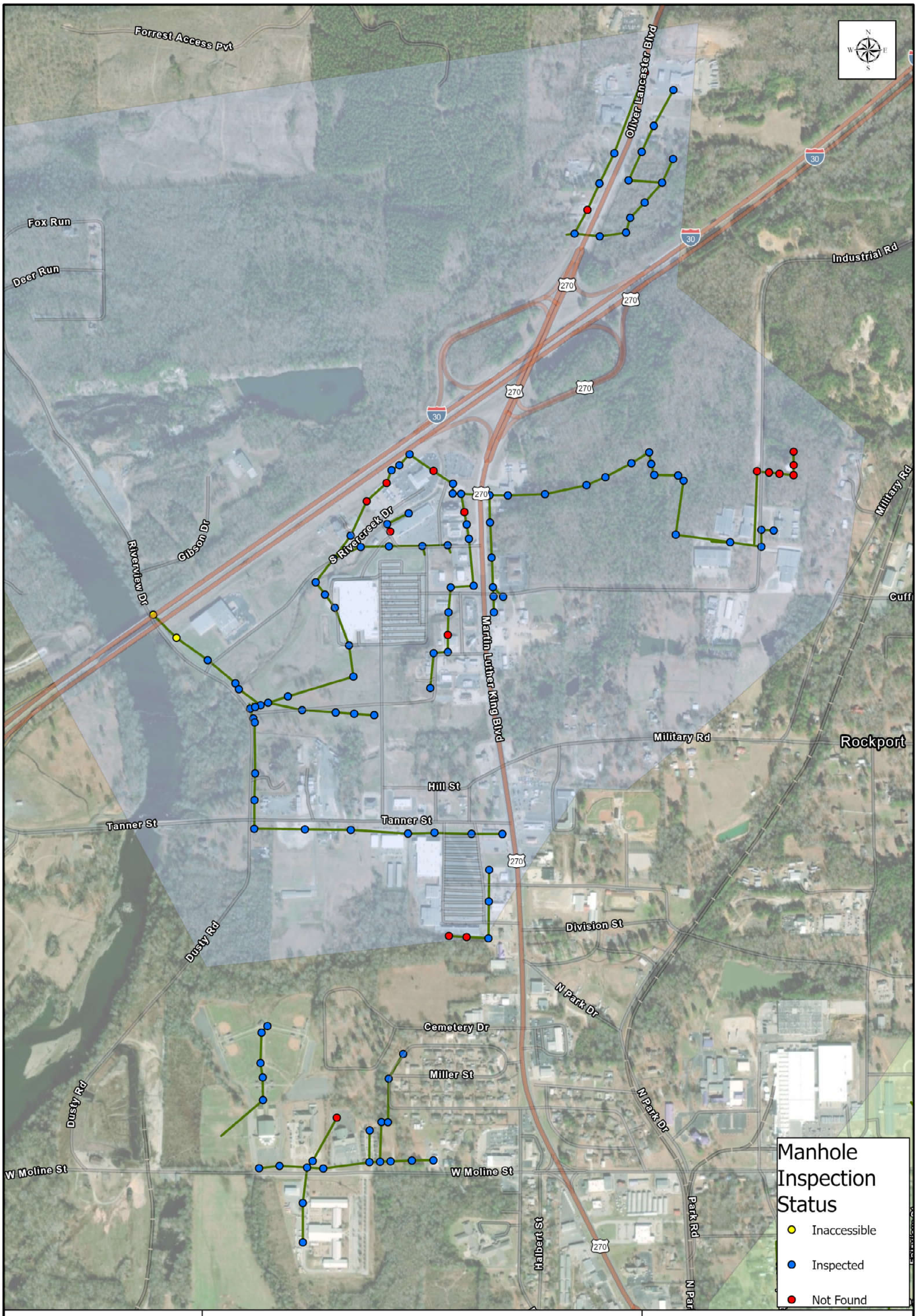

Exhibit A
Manhole Inspection Status

0 1,000 2,000 3,000 4,000

Feet

Crist ENGINEERS

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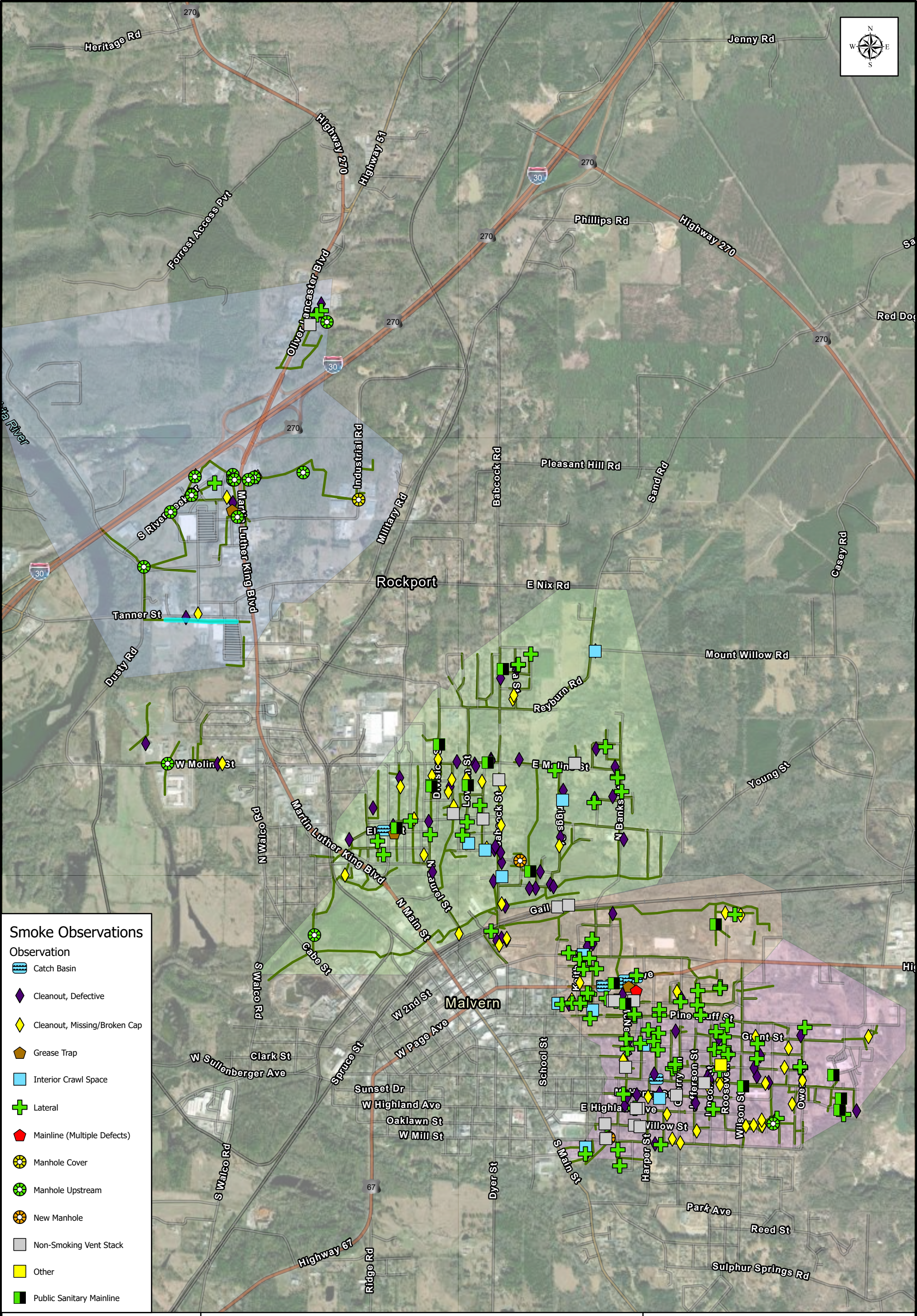

Exhibit B
Smoke Observations

0 2,500 5,000 7,500 10,000

Feet

Forrest Access Pvt
Riverview Dr
Fox Run
Deer Run
Oliver Lancaster Blvd
Kaatz Ln
Dust Trl
Industrial
Highway 171
Farm Rd
Forest Rd
Gibson Dr
S Rivercreek Dr
Martin Luther King Blvd
Military Rd
Tanner St
Hill St
Haltom Rd
Dusty Rd
Division St
N Park Dr
Cemetery Dr
Miller St
W Moline St
Halbert St
Park Rd
Baker St
51
30
270
171

Smoke Observations

ManholeRepair

- No Repairs Needed
- Repair Manhole
- Replace Manhole

Exhibit C
Priority Manhole Recommendations

0 1,000 2,000 3,000 4,000

Feet

Crist

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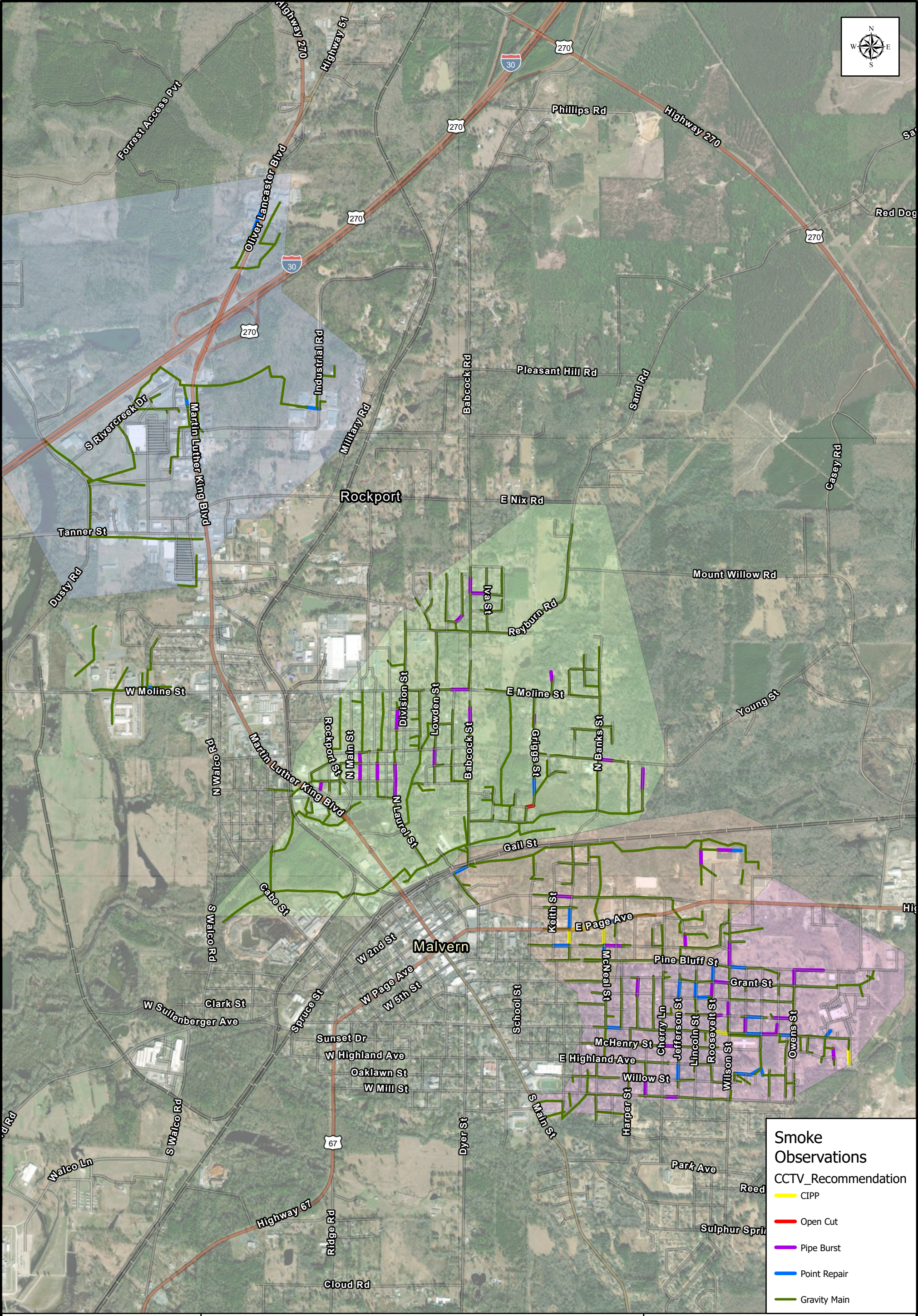

Exhibit D
Gravity Main Recommendations

0 2,500 5,000 7,500 10,000
Feet

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