

CONDITION REMEDIATION ALTERNATIVES ANALYSIS

Project Scoping Report

Central Sewershed Package 9 (Airport)

PREPARED FOR: San Antonio Water System

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DATE: January 10, 2019

TASK ORDER # AND NAME:

Revision	Date	Revision Description	Approved By
0	12/12/2018	Draft Submittal	Jose Maldonado
1	01/10/2019	Draft Submittal	Camille Constantine
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Exhibits

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Executive Summary

San Antonio Water System (SAWS) entered into a Consent Decree (CD) with the United States Environmental Protection Agency (EPA) on July 23, 2013. As part of the CD, SAWS is required to assess the condition of approximately 2,100 miles of gravity sewer mains and identify condition remedial measures on pipes with a “Very Poor” condition rating. This report presents the results of condition remedial measures alternatives analysis for approximately 3,154 linear feet of selected gravity sewer lines in the Central Sewershed service area.

This report provides recommendations for project packaging based on the rehabilitation and replacement technologies selected to remediate these pipe segments. For this area, cured in place pipe and replacement were recommended. **Table ES-1** summarizes the proposed construction projects. The recommendations in this report may be further modified during subsequent design and construction phases, as appropriate, based on additional data and findings.

Table ES-1: Summary of Recommendations

Type of Work	Length (ft)	Line Size Range (in)	Estimated Construction Cost
Cured in Place Pipe	2,090	8-16	\$370,000.00
Replacement	1,064	8	\$264,000.00
Total	3,154		\$ 634,000.00

1.0 Evaluation Scope and Project Area

This report presents CCTV inspection findings and recommendations for continued maintenance or corrective actions of selected small diameter gravity sewer lines in the Central Sewershed.

The number of segments, length, and range of pipe sizes for lines addressed in this report are as follows:

- Pipeline segments evaluated = 9
- Approximate pipe length = 3,154 feet
- Range of sewer line sizes: 8 inches to 16 inches

Tables 1-1, 1-2, and 1-3 present the sewer line lengths based on pipe size, pipe material and year constructed, respectively. **Table 5-1** provides additional information for each pipe.

Table 1-1: Sewer Lengths by Pipe Size

Diameter (in)	Length (ft)	Percentage of Total
8	1,667	53%
10	362	11%
12	643	20%
16	482	15%
Total	3,154	100%

Note: Pipe sizes and lengths based on GIS data.

Table 1-2: Sewer Lengths by Pipe Material

Material	Length (ft)	Percentage of Total
Unreinforced Concrete Pipe (CP)	2,069	66%
Vitrified Clay Pipe (VCP)	1,085	34%
Total	3,154	100%

Note: Pipe material and lengths based on GIS data.

Table 1-3: Sewer Lengths by Construction Year

Year Constructed	Length (ft)	Percentage of Total
1938 – 1968	2,672	85%
1968 – 1981	482	15%
Total	3,154	100%

Note: Year constructed and lengths based on GIS data.

2.0 Methodology

2.1 Capacity Remediation Capital Improvement Projects

Based on current available information, the pipe segments included in this package are not part of any capacity improvement projects.

2.2 Sanitary Sewer Overflow (SSO) Locations

Based on current available information, the pipe segments included in this package have not had any SSOs.

2.3 I/I Reduction

Based on current available information, the pipe segments included in this package are not part of any inflow/infiltration (I/I) reduction projects.

2.4 Condition Improvement

The mains on this package, due to their poor condition and risk of failure, have been selected for renewal using the methods of Cured in Place Pipe (CIPP) and Replacement.

3.0 Utility Coordination

3.1 Street Projects

CoSA provides an ArcGIS layer of street projects throughout the City. **Table 3-1** below lists the pipes that are located near or within identified street projects. This information has also been overlaid into the detailed location maps provided in the Exhibits section. It is our understanding that the actual dates of the projects are subject to change. It is recommended that SAWS coordinate with CoSA to determine the timing of the street projects. Please note that pipes may be required to be moved into current IDIQ contracts to expedite the construction where street projects are forthcoming.

Table 3-1: Pipes Located on CoSA Improvement Project

Index Page	Compkey	Street Location	Type of Project
7	967707	Wolfe Rd	5 Year Improvement Street Maintenance
10	968293, 970343 & 969575	Intersection of Halm Blvd and Airport Blvd	5 Year Improvement Street Maintenance
11	3454651 & 3454653	Mission Rd	2017 – 2022 Bond Projects

3.2 Airport

All pipe segments in this project will be located in either the San Antonio International Airport or the Stinson Municipal Airport. This project will require sufficient coordination for permits and access to be completed.

4.0 Planning Budget

The planning budget provided below is based on historical data from similar bids between 2016 and 2019. The data provides cost estimating metrics for the different methods of sewer pipeline rehabilitation and replacement (CIPP, pipe bursting, pipe replacement) for the typical sewer pipe sizes. The unit pricing includes costs for possible work related items such as: mobilization, CCTV, site restoration, service line replacement, testing, manhole rehabilitation, etc. The planning budget will be revised by the Project Design Consultant during the design based on design recommendations and updated unit pricing.

The budgets are separated by construction methodology but are recommended as one construction project due to the small amount of replacement work.

4.1 Cured in Place Pipe (CIPP)

Description	Quantity	Unit	Unit Price	Total
8 – inch CIPP	603	LF	\$124.00	\$75,000.00
10 – inch CIPP	362	LF	\$155.00	\$56,000.00
12 – inch CIPP	643	LF	\$186.00	\$120,000.00
16 – inch CIPP	482	LF	\$248.00	\$120,000.00
			Total	\$371,000.00

4.2 Replacement

Description	Quantity	Unit	Unit Price	Total
8-inch Replacement	1,064	LF	\$248.00	\$264,000.00
			Total	\$264,000.00

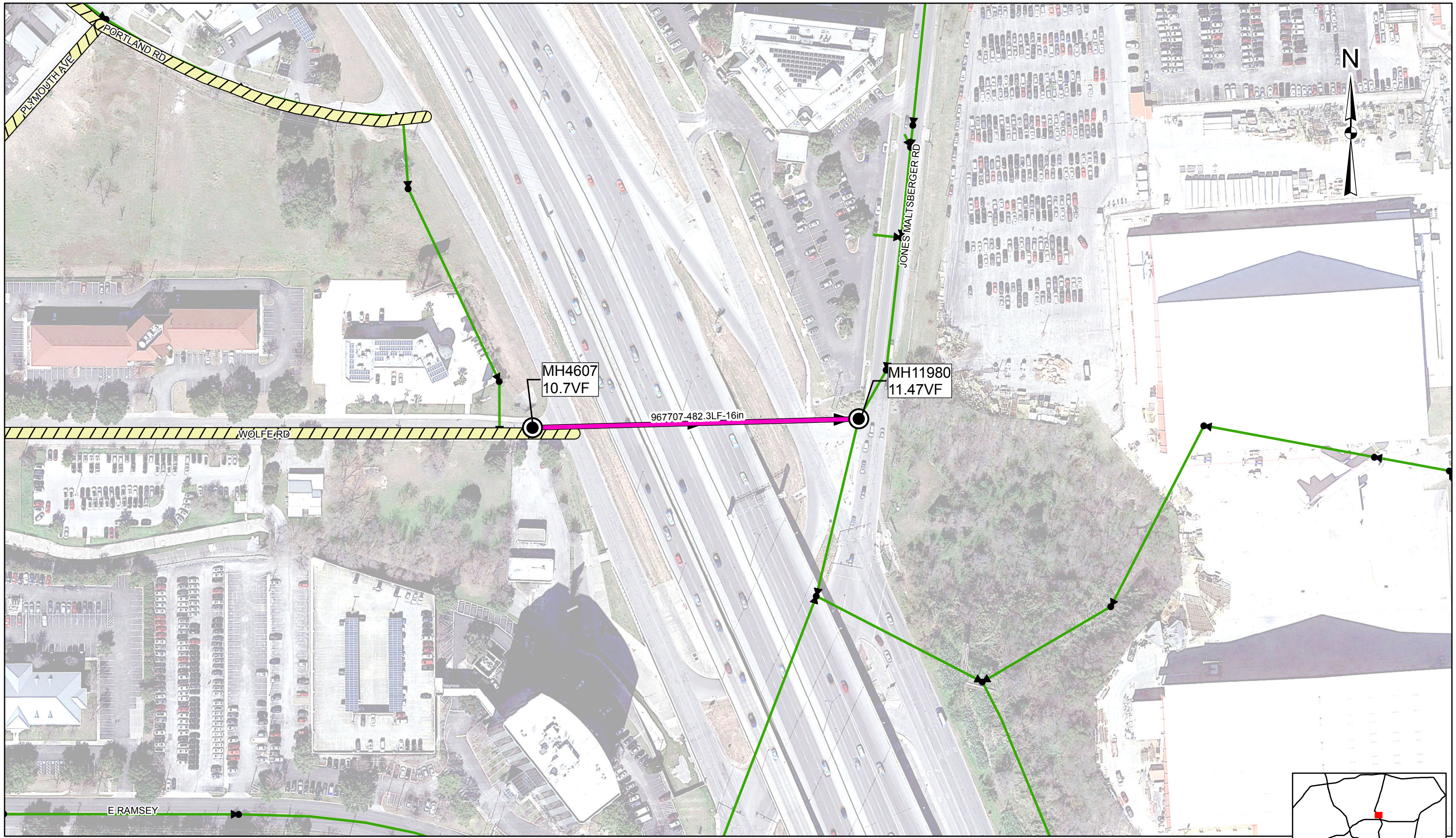
** Total amounts have been rounded to nearest \$1000.*

5.0 Planning Recommendation






5.1 General

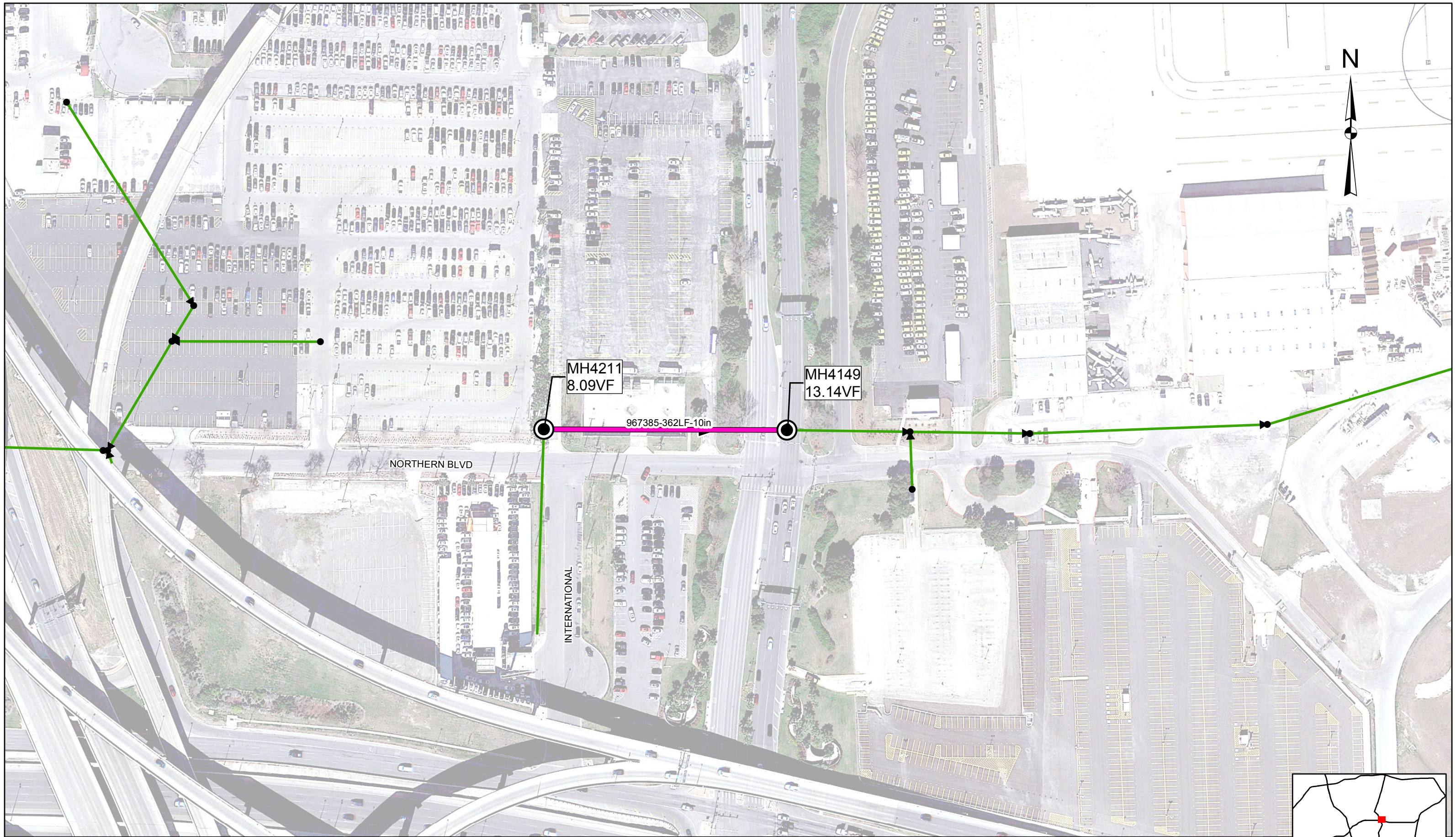
Table 5-1 provides detailed information, the preliminary remediation method, as well as the reason behind each method chosen for each pipe segment included in this package. The location maps are provided in the Exhibits section of this report.

EXHIBITS: Detailed Maps



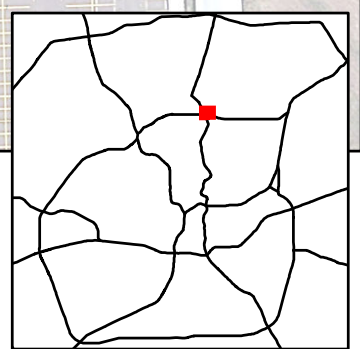
Central Sewershed Package 9 Airport Rehab Package

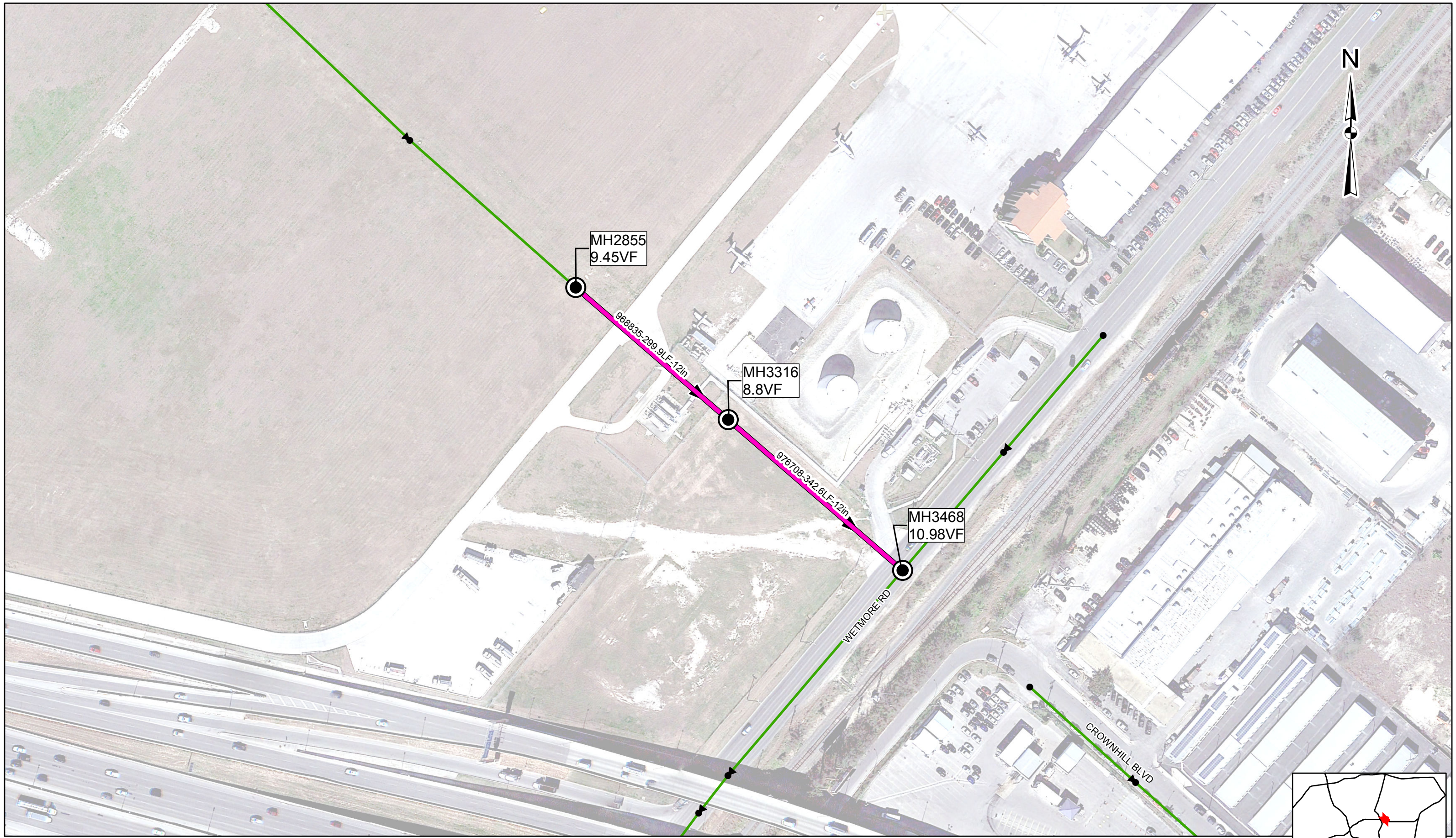
	MHs in Scope		5 Year IMP Street Maintenance
	Proposed CIPP		2017 - 2022 Bond Projects
	Proposed Replacement		



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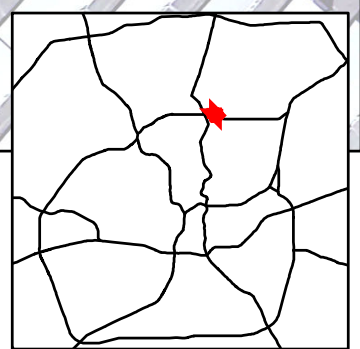
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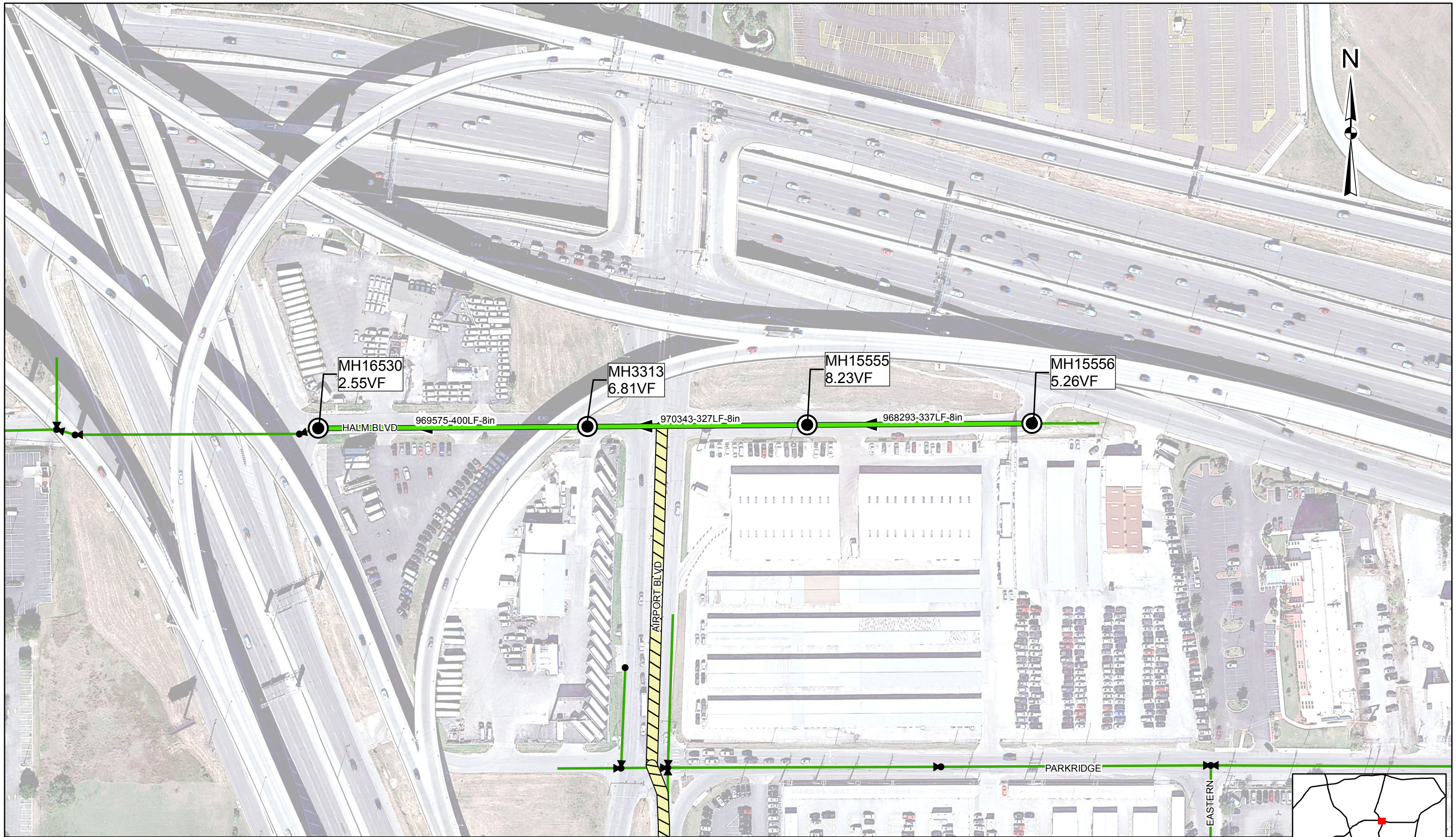




	MHs in Scope		5 Year IMP Street Maintenance
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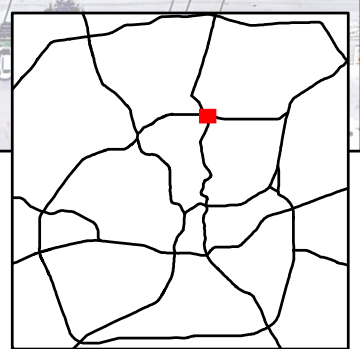
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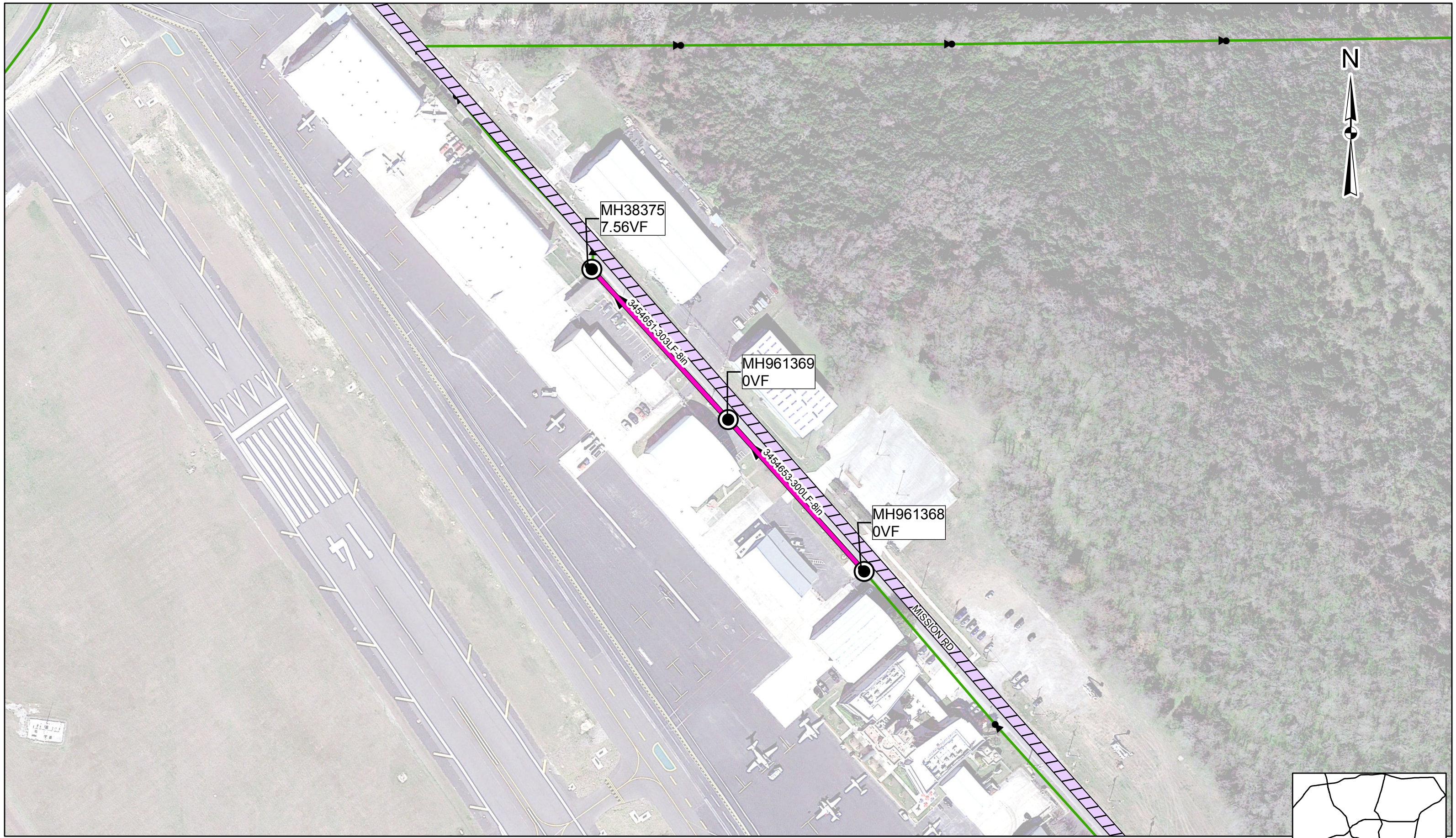




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Central Sewershed Package 9 Airport Rehab Package





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Central Sewershed Package 9 Airport Rehab Package

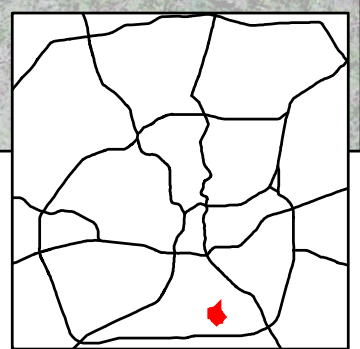


Table 5-1: Recommendation Summary

Index Page	Compkey	As-built No.	Block Map No.	Install Year	Dia. (in.)	Material	Avg. Depth (ft)	Length (ft)	Verified Cond. Rating	Preliminary Remediation Method	IAP Comments
7	967707	DJ - 4402	162616	1975	16	VCP	11	482	E	CIPP	May need mechanical cleaning, but no serious defects. Lining.
8	967385	OM - 555	166614	1955	10	CP	11	362	E	CIPP	Will need obstruction removals for roots but can be lined.
9	968835	DJ - 3621	168612	1949	12	CP	9	300	D	CIPP	No significant defects, lining is recommended.
9	976708	DJ - 3621	168612	1949	12	CP	10	342	E	CIPP	Pipe can be lined but needs a PR for the hole that looks to be caving in.
10	968293	DJ - 0056	166612	1957	8	CP	7	337	E	Replacement	Two pipes are going through sewer, would have to replace.
10	970343	DJ - 0056	166612	1957	8	CP	8	327	E	Replacement	Multiple sections of missing pipe, would say to replace.
10	969575	DJ - 0056	164612	1957	8	CP	5	400	D	Replacement	Due to US mains being replaced would recommend replacing main as well.
11	3454651	DJ - 3979	165848	1967	8	VCP	7	303	D	CIPP	Some broken pipe but can be lined.
11	3454653	DJ - 3979	168546	1967	8	VCP	5	300	E	CIPP	Had broken pipe w/ visible soil at MH 961369, but remaining pipe can be lined.