



# ANNUAL REPORT 2021

## North Little Rock Wastewater

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P. O. Box 17898,  
North Little Rock, AR 72117-0898



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# 2021 HIGHLIGHTS

## Construction Highlights

\*New Five Mile Creek WRF Solar Array.

## Rehabilitation Highlights

Project	Status	L.F.	Cost
South Levy/Indian Hills Pipe Bursting 2017	Completed	39,108	\$3,557,155
South Levy/Indian Hills CIPP 2017	Completed	49,153	\$3,115,534
Dark Hollow Interceptors 2019	Completed	9,221	\$2,238,983
Rose City and Military Drive Pipe Bursting 2021	In Construction	26,215	\$2,091,201
Rose City and Military Drive CIPP 2021	In Construction	27,285	\$1,009,331
Dixie and Baring Cross Basins Pipe Bursting 2021	Under Contract	18,456	\$1,275,595
<b>Total</b>		<b>169,438</b>	<b>\$13,287,799</b>

## Operation Highlights

White Oak Influent Generator & ATS-Completed

Five Mile Effluent Flow Magmeter Replacement-Completed

Faulkner Lake Clarifier Launder Cover Project-In Progress

## Collection System Highlights

405,407 Linear Feet of the Collection System- Rehabilitation completed since 2012

131,850 Linear Feet of Collection System- Rehabilitation Underway or Bidding

31,852 Linear Feet of the Collection System-Rehabilitation Planned

# CONSTRUCTION SUMMARY

## Five Mile Creek Facility Solar Plant

Project overview:

- The 850 kW DC solar power plant is predicted to provide a savings of \$26,000 in the first year and \$846,000 over 20 years.
- The plant will produce 1,400,000 kWh of electricity in the first year, reducing the carbon emissions by 28,000 metric tons.
- The array is on a single axis tracker and has 27 modules per source circuit with a total module count of 2,025.



Five Mile Creek Solar Array

With the construction of the array, Five Mile Creek Facility will now get 20% of its electricity from the solar power plant. The North Little Rock Wastewater facility hired Scenic Hill Solar to design build the \$1.4 million project in June 2021

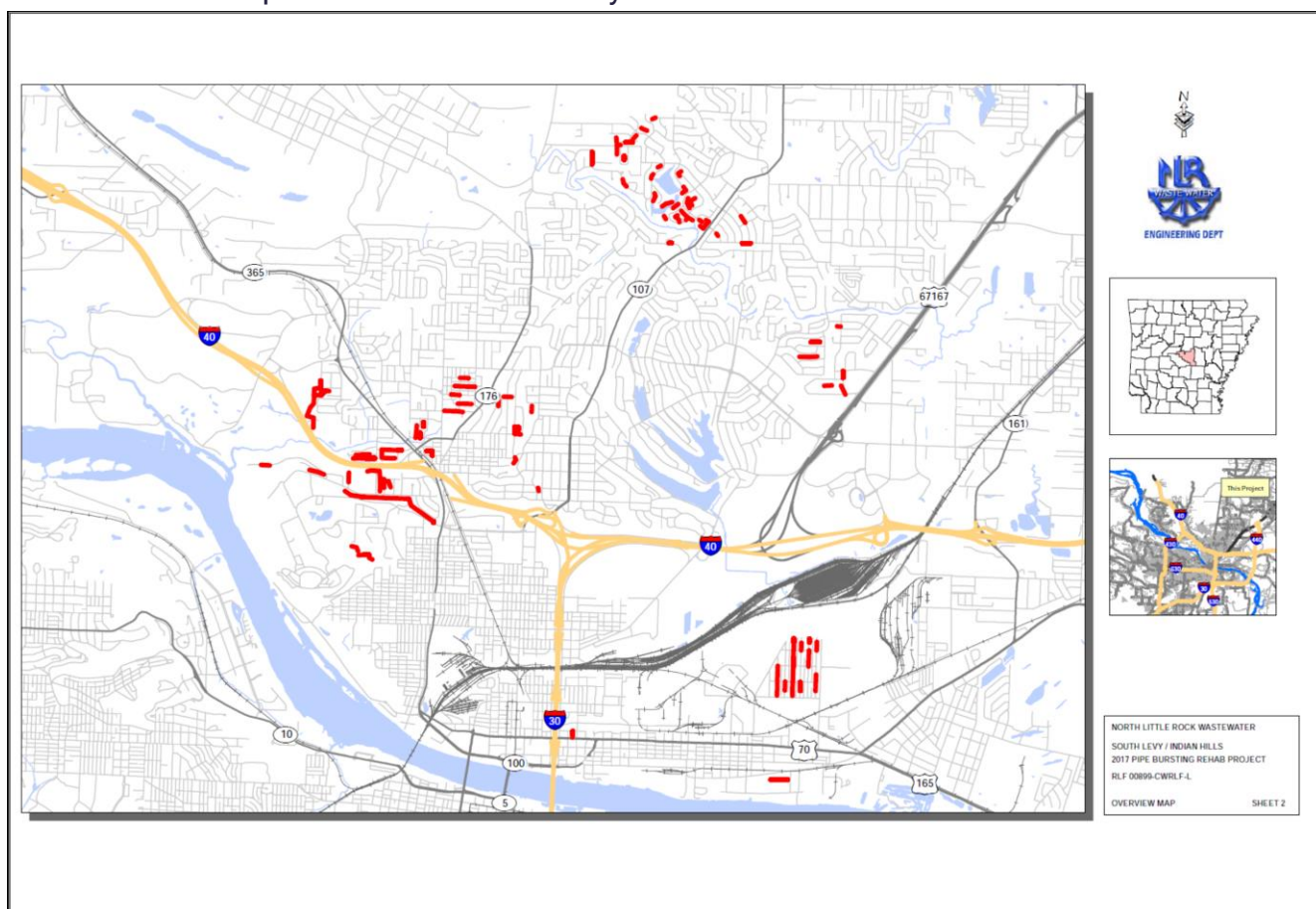


# REHABILITATION SUMMARY

## South Levy/Indian Hills Pipe Bursting 2017

Project overview:

- Rehabilitation of approximately 39,108 linear feet of 6” and 8” gravity sewer lines along with the external reconnections of existing service lines using Pipe Bursting methods.
- Notice of Award was granted in December 2018 to Horseshoe Construction. Total contract amount for the project, \$3,557,155.44.
- Certificate of Completion was issued in May 2021.



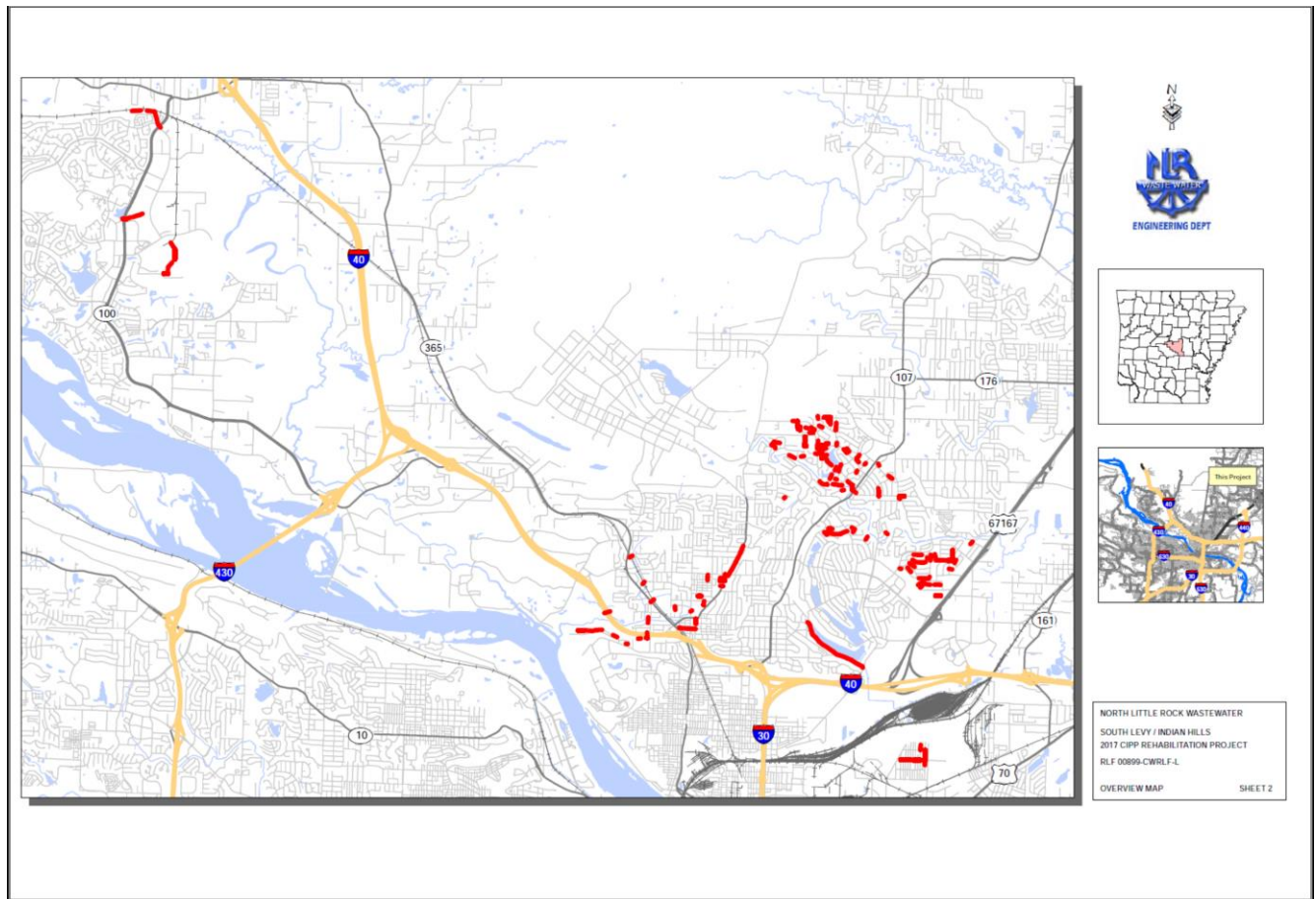
South Levy/Indian Hills Pipe Bursting Project Location

## South Levy/Indian Hills CIPP 2017

Project overview:

- Rehabilitation of approximately 49,153 linear feet of 6”, 8”, 10”, 12”, 15”, and 24” gravity sewer lines along with the external reconnections of existing service lines using Cured in Place Pipe methods.

- Notice of Award was granted in December 2018 to Insituform Technologies. Total contract amount for the project, \$3,115,534.05.
- Certificate of Completion was issued in December 2021.



South Levy/ Indian Hills CIPP Project Line Locations

Both South Levy/Indian Hills projects were in response to the 2016 Sewer System Evaluation Survey (SSES) conducted by RJN Group, Inc as well as from recommendations by the North Little Rock Wastewater staff. The 2016 SSES report evaluated the South Levy, Indian Hills and Dixie collection system for defects and inflow and infiltration (I/I) issues. The report helped highlight the areas in need of rehabilitation and these findings can be observed

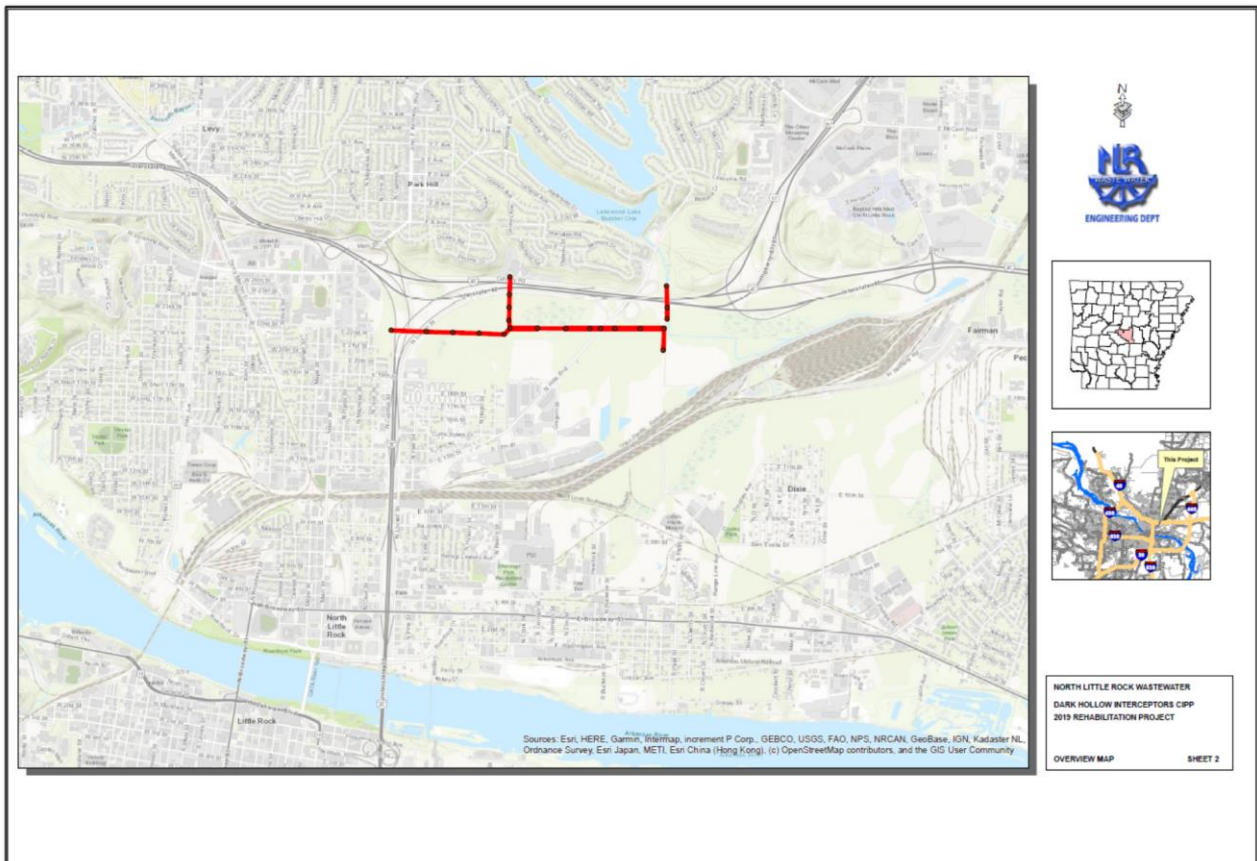
in the chart below:

SUMMARY OF SSES FIELDWORK										
Project Name	Smoke Testing			Manhole Inspections			Dye Testing			CCTV
	Quantity (LF)	Defects (EA)	I/I (mgd)	Quantity (EA)	Defects (EA)	I/I (mgd)	Quantity (EA)	Defects (EA)	I/I (mgd)	Quantity (L/F)*
2012 SSES (Levy Area)	205,569	256	0.539	571	633	0.354	50	42	1.567	276,870
2013 SSES (Lakewood Area)	308,152	945	0.625	641	566	0.351	64	49	0.843	229,503
2014 SSES (Baring Cross and Oakbrook SID)	340,896	1,238	2.424	1,636	1,515	0.846	81	70	2.42	317,521
2015 SSES (West Levy and District 212)	378,056	585	0.74	1,762	1,546	0.958	56	30	0.835	544,811
2016 SSES (S Levy, Indian Hills and Dixie)	385,530	499	0.442	1,763	2,187	1.448	33	24	0.271	437,809
2017 SSES (Rose City)	450,144	589	1.284	1,993	4,019	1.348	44	39	0.499	483,594
2018 SSES (Maumelle/White Oak)	437,058	193		1,833	2,047	1.232	15	11	0.168	402,424
2019 SSES	216867	281	0.25	877	820	0.471	15	13	0.131	50537
2020 SSES	274052	499	0.29	1048	853	1.792	18	16	0.142	242000
2021 SSES	339576			680						
* System Wide	3,335,900	5,085	6.594	12,804	14,186	8.8	376	294	6.876	2,985,069

## Dark Hollow Interceptors CIPP 2019

Project overview:

- Rehabilitation of approximately 9,221 linear feet of 18”, 24”, 30”, and 36” gravity sewer interceptors using Cured in Place pipe methods and the rehabilitation of 19 manholes.
- Notice of Award was granted in March 2021 to Insituform Technologies in the amount of \$2,238,983.10.
- Completion was in November 2021.

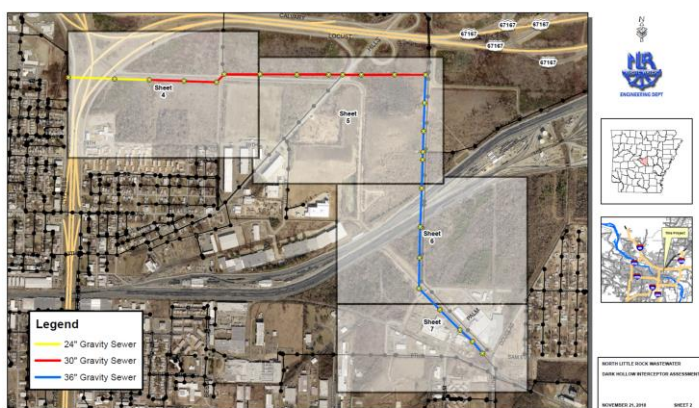


Dark Hollow Interceptors CIPP Project Locations



The Dark Hollow Interceptors CIPP project was a part of North Little Rock Wastewater's Masterplan for Interceptor Renewal (pg.17), the Dark Hollow Interceptor Assessments Phase I & II projects as well as the I-30 Interstate expansion.

The assessment projects were awarded to Ace Pipe Cleaning, Inc. in 2018 and 2020 for a total of \$127,808.50 and consisted of using a Multi-Senor Technology Internal Sanitary Sewer Inspection (MSI) to evaluate 1,546 linear feet of 24" RCP (reinforced concrete pipe), 5,328 linear feet of 30" RCP, 5,802 linear feet of 36" RCP and 4,666 linear feet of 48" RCP. Multiple defects which warranted rehabilitation were noted during the evaluation. Location of the projects can be observed in the maps below:



Dark Hollow Interceptor Assessment Phase I



Dark Hollow Interceptor Assessment Phase II

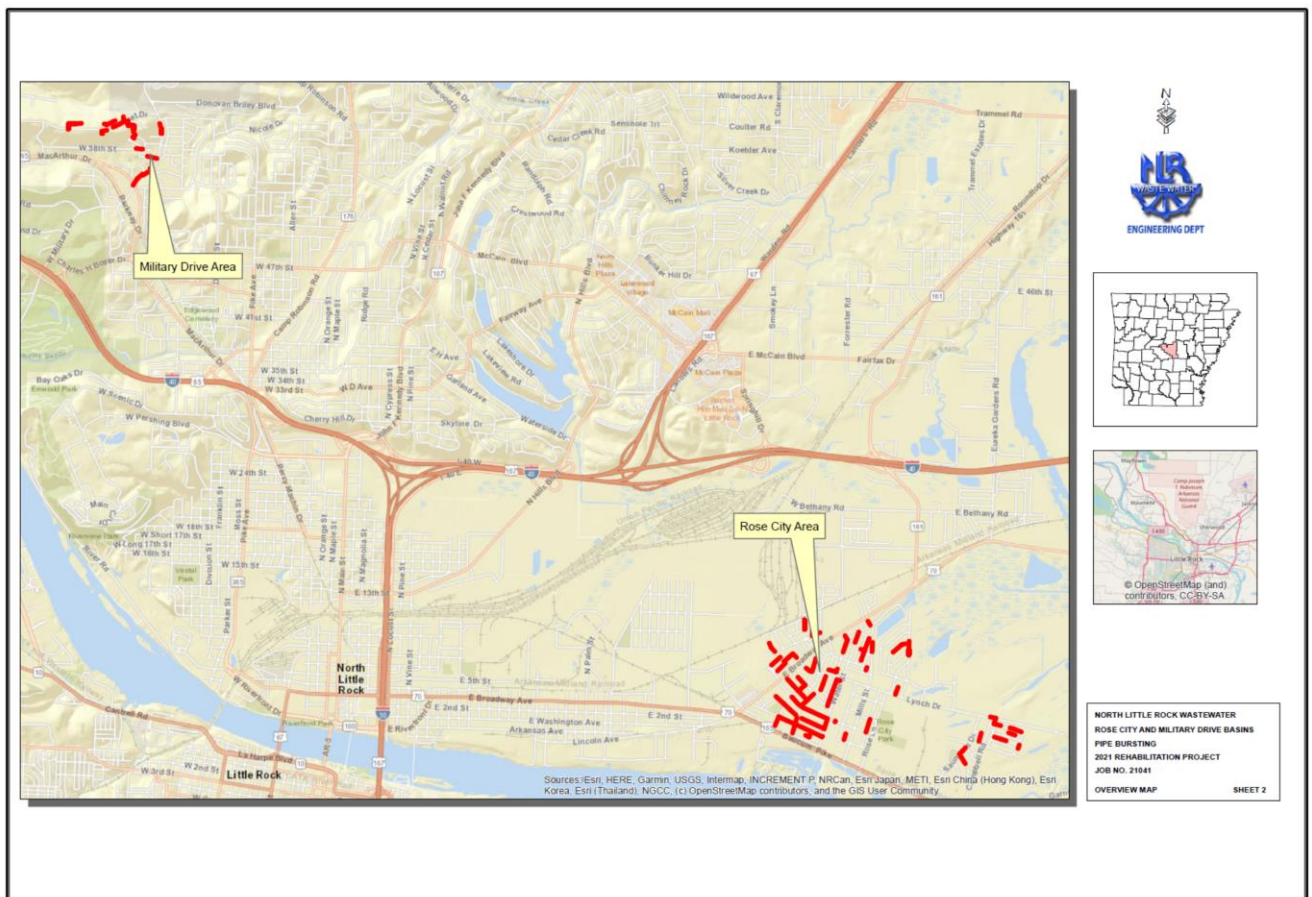
In 2019, the Arkansas Highway Commission broke ground on the I-30 expansion project. The project was designed to expand the interstate from four to six lanes of traffic using more than 162,000 cubic yards of concrete. This amount would increase the concrete load on the Dark Hollow Interceptors significantly. With the deteriorated condition of the Intercepts, as indicated from the MSI assessment, and the increased load on the line, the only viable option to help minimize future complications was rehabilitation; thus, prompting the Dark Hollow Interceptors CIPP project.

## Rose City and Military Drive Pipe Bursting 2021

### Project Overview:

- Rehabilitation of approximately 26,215 linear feet of 6" and 8" sewer mains along with external reconnections for existing services.
- Notice of Award was granted April 2021 to Burkhalter Technologies, Inc. in the amount of \$2,091,201.50.
- Project is under construction.



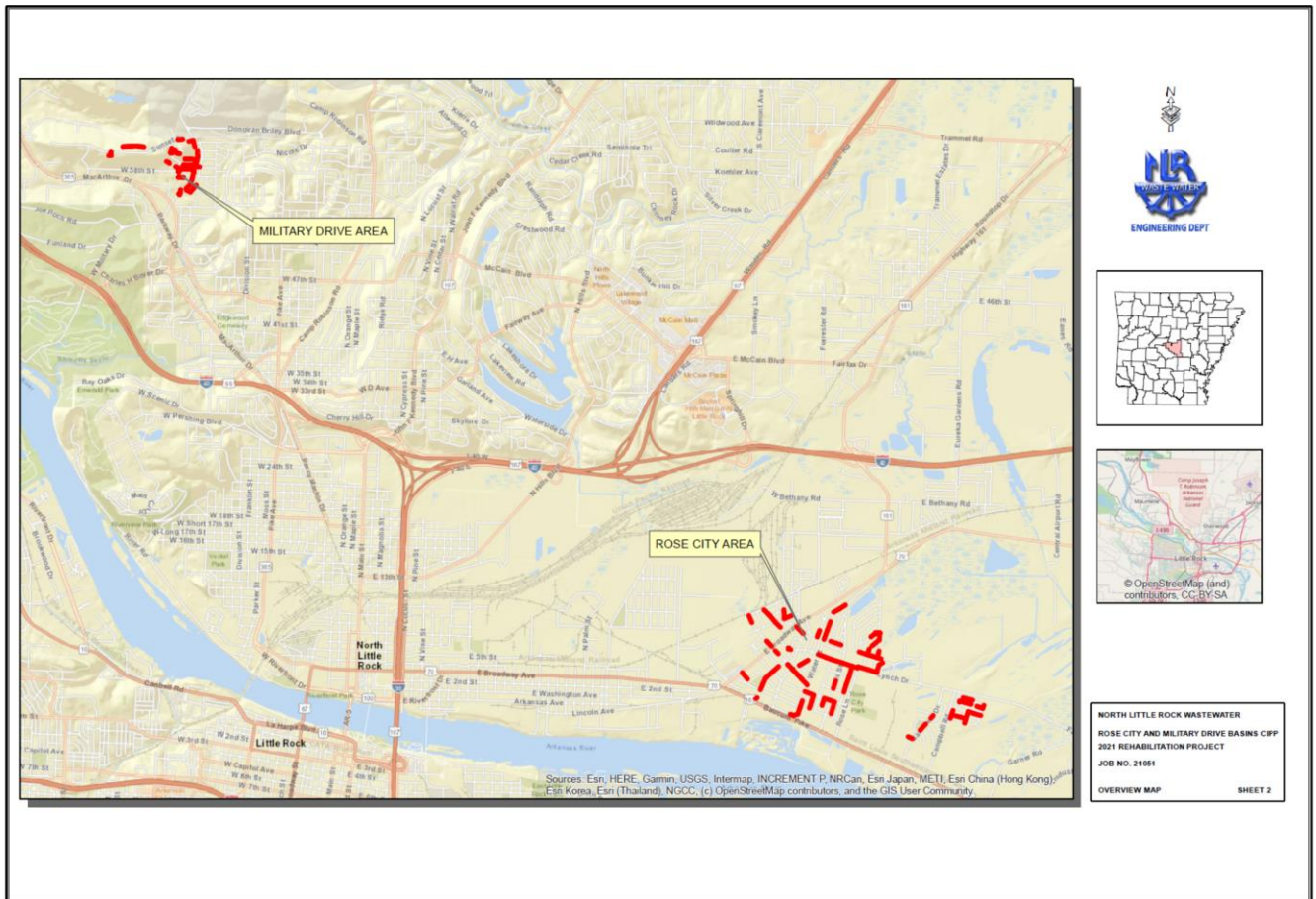


Rose City and Military Drive Basin Pipe Bursting 2021 locations

## Rose City and Military Drive CIPP 2021

### Project Overview:

- Rehabilitation of approximately 27,285 linear feet of 6" and 10" gravity sewer mains along with approximately 443 internal reconnections of existing service lines.
- Notice of Award was granted July 2021 to Insituform Technologies in the amount of \$1,009,331.53.
- Project is under construction.



Rose City and Military Drive CIPP 2021 locations

Both Rose City and Military Drive projects were in response to the 2017 Sewer System Evaluation Survey (SSES) conducted by RJN Group, Inc as well as part of the ongoing Capital Improvements Plan for the rehabilitation of the total collection system.

The 2017 SSES report evaluated the Rose City collection system for defects and inflow and infiltration (I/I) issues. The report helped highlight the areas in need of rehabilitation. These findings can be observed in the chart below:

SUMMARY OF SSES FIELDWORK

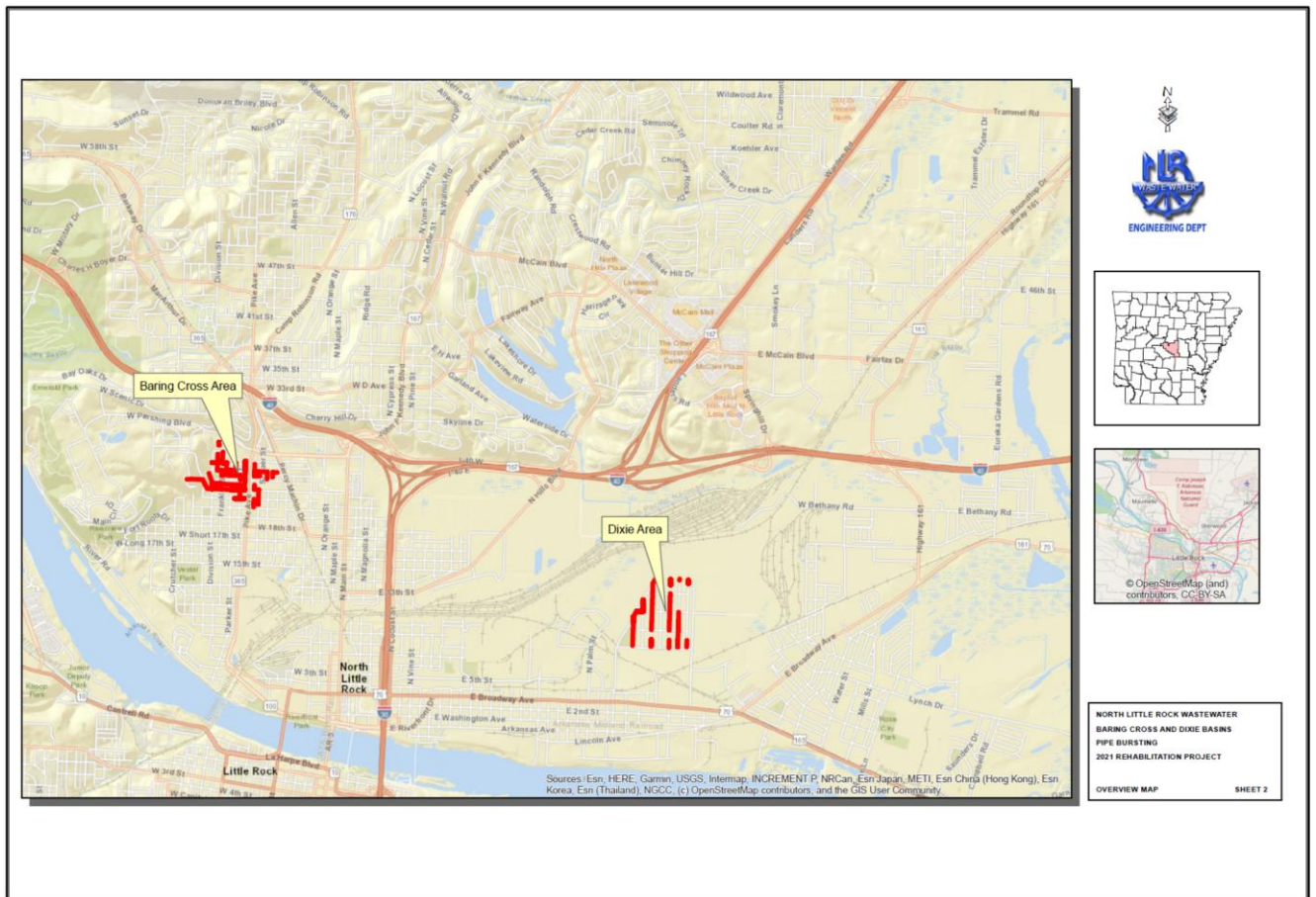
Project Name	Smoke Testing			Manhole Inspections			Dye Testing			CCTV
	Quantity (LF)	Defects (EA)	I/I (mgd)	Quantity (EA)	Defects (EA)	I/I (mgd)	Quantity (EA)	Defects (EA)	I/I (mgd)	Quantity (L/F)*
2012 SSES (Levy Area)	205,569	256	0.539	571	633	0.354	50	42	1.567	276,870
2013 SSES (Lakewood Area)	308,152	945	0.625	641	566	0.351	64	49	0.843	229,503
2014 SSES (Baring Cross and Oakbrook SID)	340,896	1,238	2.424	1,636	1,515	0.846	81	70	2.42	317,521
2015 SSES (West Levy and District 212)	378,056	585	0.74	1,762	1,546	0.958	56	30	0.835	544,811
2016 SSES (S Levy, Indian Hills and Dixie)	385,530	499	0.442	1,763	2,187	1.448	33	24	0.271	437,809
2017 SSES (Rose City)	450,144	589	1.284	1,993	4,019	1.348	44	39	0.499	483,594
2018 SSES (Maumelle/White Oak)	437,058	193		1,833	2,047	1.232	15	11	0.168	402,424
2019 SSES	216,867	281	0.25	877	820	0.471	15	13	0.131	505,37
2020 SSES	274,052	499	0.29	1,048	853	1.792	18	16	0.142	242,000
2021 SSES	339,576			680						
* System Wide	3,335,900	5,085	6.594	12,804	14,186	8.8	376	294	6.876	2,985,069



## Dixie Baring Cross Basins Pipe Bursting 2021

### Project Overview:

- Rehabilitation of approximately 18,456 linear feet of 6” and 8” gravity sewer mains using pipe bursting methods and the reconnection of approximately 398 active services.
- Notice of award was granted to Burkhalter Technologies, Inc., November 2021, in the amount of \$1,275,595.00.
- Project is under contract.

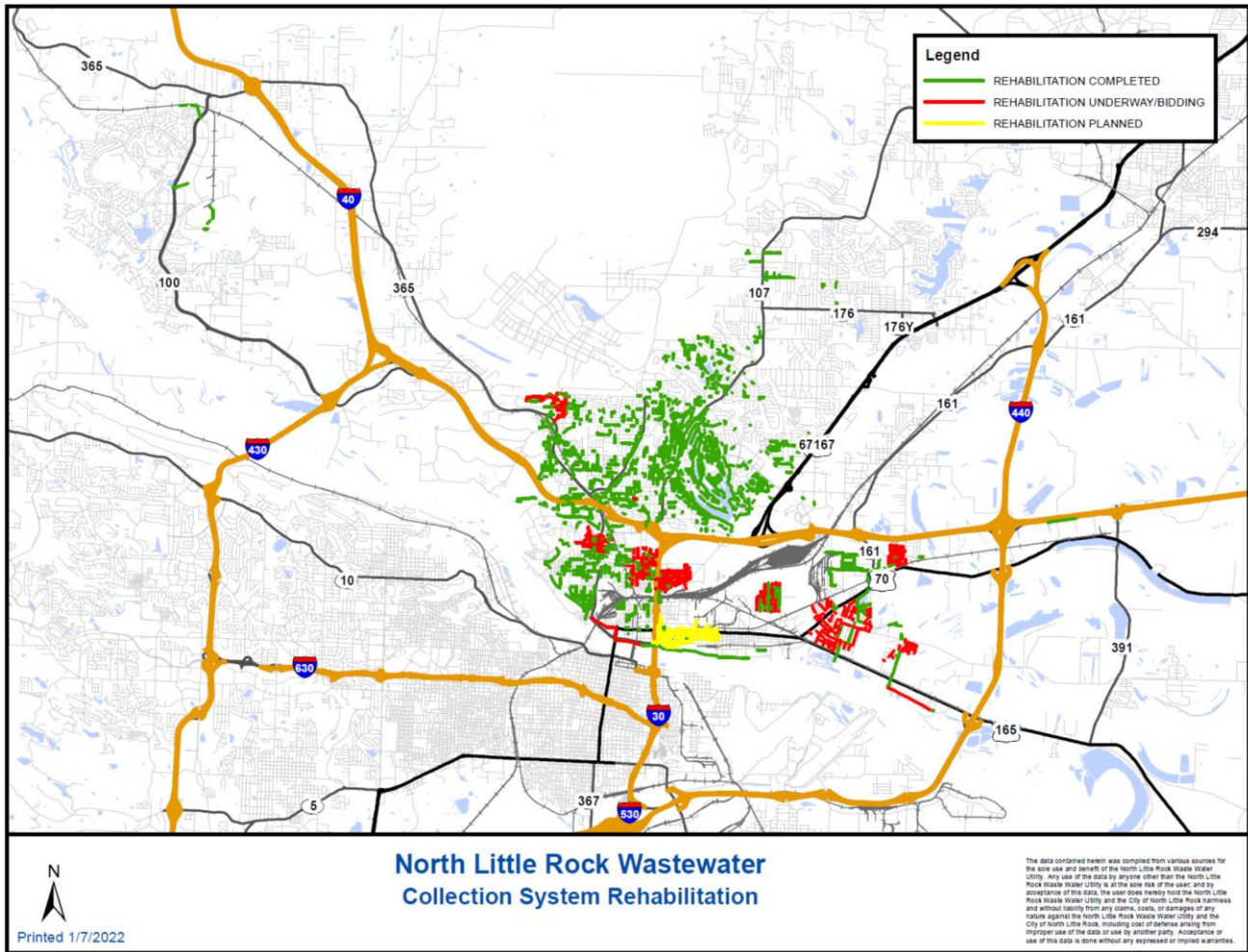


Dixie Baring Cross Basin Pipe Bursting 2021 locations

The Dixie Baring Cross Basin Pipe Bursting project was in response to the Sewer System Evaluation Survey (SSES) conducted by RJN Group, Inc as well as part of the ongoing Capital Improvements Plan for the rehabilitation of the total collection system.



The purpose of the Capital Improvements Plan is to rehabilitate the aging collection system as well as to minimize the overflows caused from I/I. A map highlighting the current status of the rehabilitation can be found below:



# OPERATION SUMMARY

## White Oak Influent Auxiliary Power & ATS

- Auxiliary power is used to power the influent pump station and headworks during power outages.
- Completed in July 2021

## Five Mile Effluent Flow Magmeter Replacement

- Allows the removal of a flow restrictive measuring weir on the contact chamber outfall
- Reduces storage of water in the polishing pond during high flow events
- Started in December 2021 and Completed March 2022

## Faulkner Lake Clarifier Launder Cover Project

Project overview:

- Furnish and install covers over the clarifier weirs and outer launders to block sunlight and inhibit algae growth
- Project was awarded to Rebuild-It Services Group for \$348,140 for the installation of Aluminum covers.

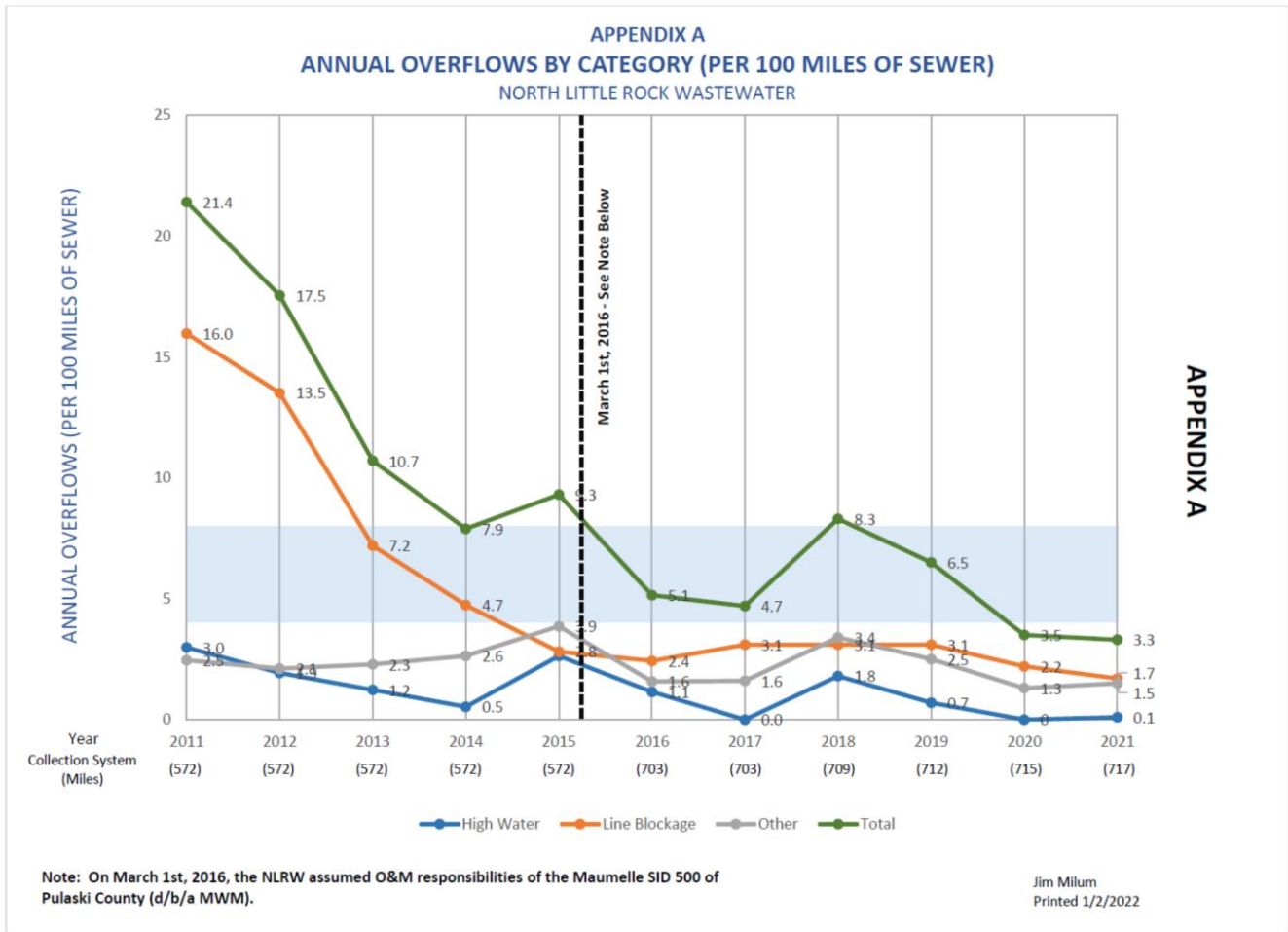


Faulkner Lake WW Treatment Plant

# COLLECTION SYSTEM SUMMARY

## Rehabilitation of Gravity Sewer Lines

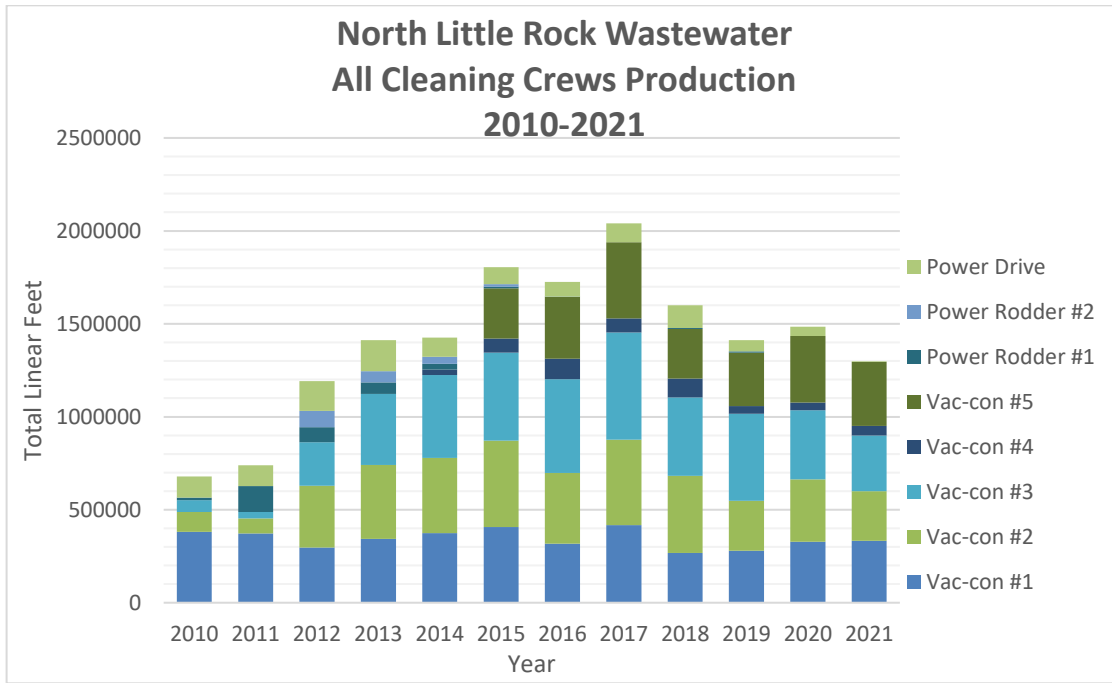
- Over 537,257 lines have been rehabilitated since January 2012
- Twenty-three SSO incidents were reported in 2021, an 8% decrease from 2020.
- 2021 had an average of 3.3 SSOs/100miles of sewer as noted in the following chart:



## Gravity Sewer Lines Cleaned

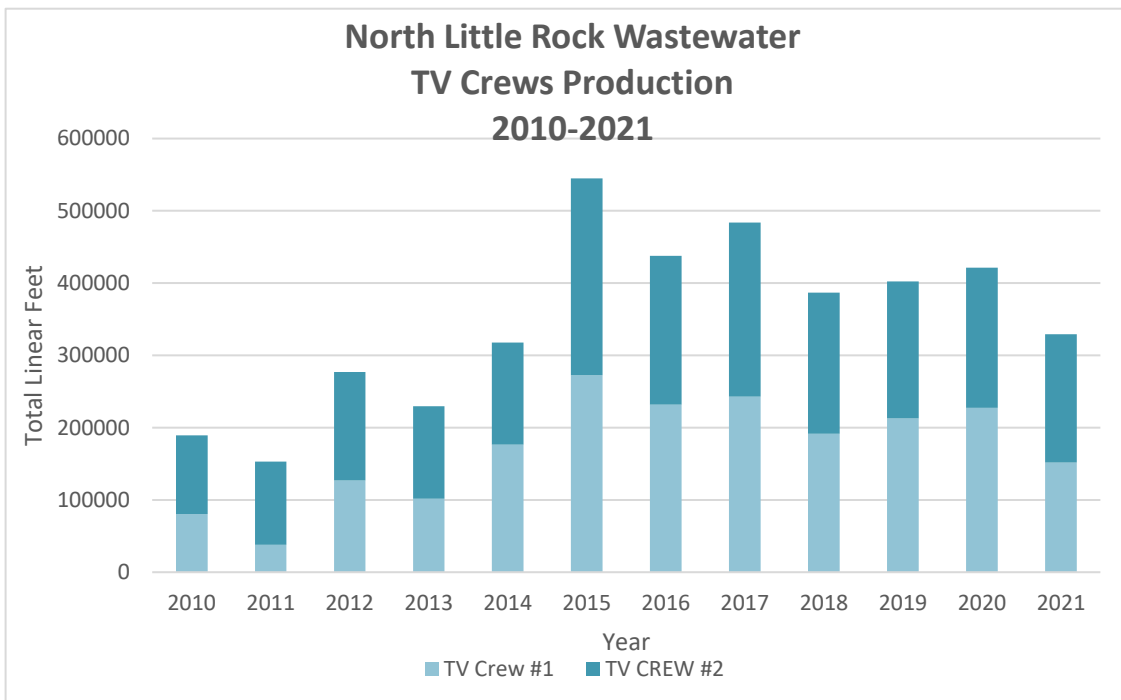
- 1,297,899 LF of the gravity collection system was cleaned using high pressure jetting in 2021.
- The following graph shows the different cleaning methods used per year:





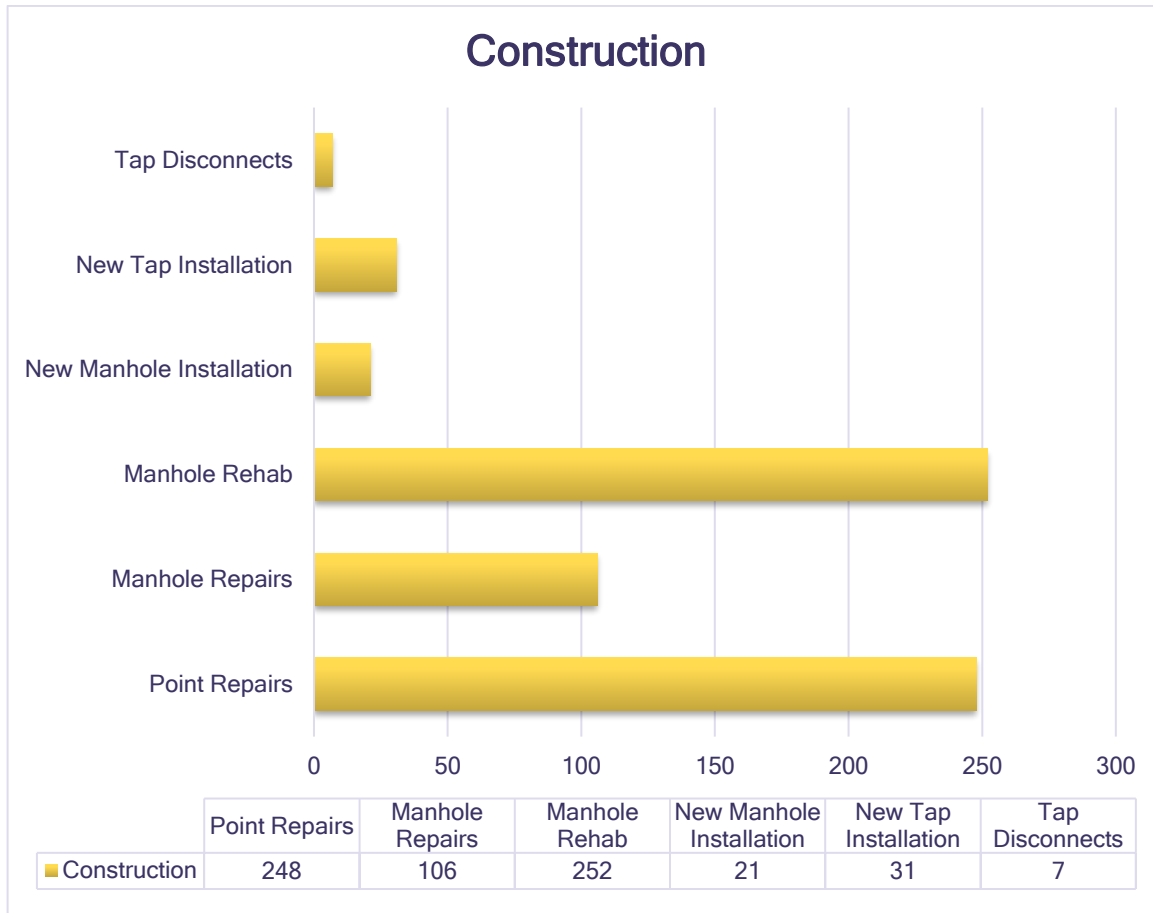
## CCTV

- 362,245 LF of the gravity collection system was televised in 2021
- The following graph displays the video production per year:



## Construction

- The following graph is the 2021 Year end totals for Construction Work Recap:



# PLANNING

In December 2021, NLRW applied for a \$45 million loan with the Natural Resources Division of the Arkansas Department of Agriculture from the Arkansas Revolving Loan Fund for Water and Wastewater for the rehabilitation of 50+ year old interceptors as well as extending the life of the aging infrastructure.

## 2020 Masterplan for Interceptor Renewal

- The following graph displays the ten projects projected for the Masterplan Interceptor Renewal project.

Project	Description	Estimate
1	Dark Hollow Interceptor Rehab.	\$2,000,000
2	Maumelle to White Oak Diversion	\$18,200,000
3	Lower Riverside Interceptor Rehab. Ph. I	\$4,700,000
4	Lower Riverside Interceptor Rehab. Ph. II	\$9,600,000
5	Five Mile Creek Interceptor Rehab.	\$3,400,000
6	Shillcutt Interceptor Capacity Upgrades	\$2,400,000
7	Upper Riverside Interceptor Rehab.	\$2,000,000
8	Dark Hollow Interceptor Capacity Upgrades	\$2,000,000
9	Dark Hollow Redwood Tunnel Interceptor Rehab. Ph. I	\$1,500,000,
10	Dark Hollow Redwood Tunnel Interceptor Rehab. Ph. II	\$1,000,000
	<b>Project List Total</b>	<b>\$46,800,000</b>

## Aging Collection System Renewal

- NLRW provides wastewater services to 41,830 customers in North Little Rock, Maumelle, Sherwood, and Pulaski County.
- The NLRW Loan Projects invest in rehabilitating the gravity wastewater lines in these areas in order to extend the life of the aging collection system an additional 50 years.
- In February 2021, the North Little Rock city council adopted an ordinance for a 5-year rate increase to support the new loan and the continued efforts of rehabilitation for the existing sewer facilities.