



# 2022 SEWER ACTIVITY REPORT



*Prepared by*

**John Zeman, P.E., S.E. – City Engineer**

**Adam Shaw - Civil Engineering Technician III**



## M E M O R A N D U M

DATE: February 27, 2023

TO: Sanitary Sewer Technical Committee

FROM: John Zeman, P.E., S.E., City Engineer  
Adam Shaw, Civil Engineering Technician III

RE: Sewer Activity in the City of Urbana from January 1, 2022 to December 31, 2022

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### I. INTRODUCTION

The City of Urbana owns, operates, and maintains 543,524 linear feet (102.9 miles) of sanitary sewer and 759,972 linear feet (143.9 miles) of storm sewer. The sanitary sewer system includes 2,343 manholes while the storm sewer system includes 8,328 storm manholes or inlets. Based on the U.S. Environmental Protection Agency's estimated infrastructure replacement cost of one million dollars per mile of sewer pipe Urbana's sanitary and storm sewer infrastructure would be valued at almost one quarter of a billion dollars.

The sanitary and storm sewer budgets for the 2022-2023 fiscal year (July 1, 2022 to June 30, 2023) included:

- \$242,000 for sanitary sewer miscellaneous repairs
- \$258,000 for sanitary sewer lining
- \$151,250 for sanitary sewer reconstruction
- \$52,100 for Carle Sanitary Sewer planning study
- \$135,000 for sanitary sewer planning and GIS
- \$89,500 for various sanitary sewer reimbursement programs
- \$898,839 for sanitary sewer operation and maintenance activities
- \$200,000 for storm sewer miscellaneous repairs
- \$459,800 for storm sewer cleaning and televising
- \$15,000 for Vine Street pump station communications
- \$375,000 for storm sewer planning and GIS
- \$17,500 for various stormwater education, incentive, and reimbursements
- \$707,414 for storm sewer operation and maintenance activities

## **II. SEWER REHABILITATION ACTIVITIES**

### **A. Point Repairs**

Point repairs to the sanitary sewers were made at 6 separate locations. Approximately 37 linear feet of repairs were performed on the sanitary sewer system, as well as construction or replacement of 8 sanitary sewer manholes. Similarly, point repairs to the storm sewers were made at 20 separate locations. Approximately 87 linear feet of repairs were performed on the storm sewer system, as well as 12 storm sewer structure repairs and 8 new or replacement storm sewer structures.

Locations of sanitary and storm sewer repairs completed in 2022 are presented in Figures 1 and 2. Histories of sewer repairs from 2017 to 2022 are presented in Figures 3 and 4. Sanitary and storm sewer repair locations from 1998 to 2022 are presented in Figures 5 and 6.

### **B. New Sewer Construction**

As part of the 2021-2022 Miscellaneous Repairs contract 3 new storm sewer manholes or inlets were constructed to address localized drainage issues. Additionally 1081 linear feet of new storm sewer and five new storm structures were constructed as part of new developments within the City.

255 linear feet of new sanitary sewer and one new sanitary sewer manhole were constructed as part of the Cedar Street Sanitary Project. Additionally 1061 linear feet of new sanitary sewer and four new sanitary sewer manholes were constructed as part of new developments within the City.

### **C. Cured-in-Place Sewer Lining**

No sewer lining activities were completed in 2022.

The City has completed full length cured-in-place lining on 127,980 linear feet (24.2 miles) of sanitary sewer to date, which represents 23.8% of the sanitary sewer system. The City has completed full length cured-in-place lining on 25,183 linear feet (4.8 miles) of storm sewer to date, which represents 3.3% of the storm sewer system. Sanitary and storm sewer lining locations from 1998 to 2022 are presented in Figures 7 and 8.

### **III. MAINTENANCE ACTIVITIES**

The City's Operations Division performed routine sewer cleaning, grease treatment, and televising activities in 2021. The City completed 170 sanitary sewer inspections and a total of 31,727 feet of sanitary sewers were televised. The City also completed 309 storm sewer inspections and a total of 19,566 feet of storm sewers were televised. See Figure 9 for the City's Grease Treatment map showing the locations of the sanitary sewers that are chemically treated, a total of 36,707 feet were treated in 2022. See Figure 10 for a map showing the sanitary and storm sewers that were televised in 2022.

Moving forward the City is hoping to target cleaning and inspecting approximately 10% of its sanitary sewers and 10% of its storm sewers annually to help develop subsequent year's capital improvement projects as well as begin planning more proactive maintenance and hopefully reduce the number of reactive maintenance calls. The City plans to contract out cleaning and televising for storm sewers, while performing cleaning and televising of the sanitary sewers with the City's sewer crews.

### **IV. SANITARY SEWER BACK-UP CALLS AND RESPONSES**

The City of Urbana Operations Division responded to a total of 15 sanitary sewer back-ups in 2022. Of the 15 back-ups, 4 were in private lines while the remaining 11 were in city-owned sewers. One (1) of these events indicated heavy rainfall caused the surcharge. The City also responded to 27 calls about storm drainage problems and 16 calls about other sewer problems in 2022. Figure 11 is a map showing the locations of public sewer calls in 2022.

A history of sewer back-up complaints in the City from 2017 to 2022 is presented in Figure 12. The locations of sanitary sewer back-ups reported in 2022 are currently unavailable at this time due to reporting issues with newly implemented asset management software. Locations of sanitary sewer back-ups reported from 2010 to 2019 are shown in Figure 13.

### **V. SANITARY SEWER SURCHARGES AND RESPONSES**

In 2022, the City had no confirmed cases of sanitary sewer surcharge events caused by public sewers. When cases of sanitary sewer surcharge events are identified, the City typically sends each property owner an Overhead Sewer Program information packet and a letter urging them to contact the Public Works Department to discuss their complaint.

## **VI. SEWER SYSTEM INVESTIGATIVE STUDIES**

Dye water testing was done as needed to determine which sewer systems buildings or drainage structures were tributary to. More dye water testing is planned for 2023 in order to identify private sanitary sewers that serve multiple properties. No smoke testing was done in 2022.

## **VII. OVERHEAD SEWER PROGRAM**

There was one overhead sewer installations completed in 2022. Information on the Overhead Sewer Program was distributed to many eligible property owners and is also available on the City's website. A history of overhead sewer program participation from 2017 to 2022 is presented in Figure 14.

## **VIII. ILLEGAL CONNECTIONS AND DISCHARGES**

The City adopted an illegal connection reimbursement program in December 2007. Under this program property owners are reimbursed for 50% of the cost to eliminate an illegal sanitary connection to the storm sewer, up to \$4,000. Zero property participated in the illegal connection reimbursement program in 2022.

## **IX. PAVEMENT REPLACEMENT REIMBURSEMENT PROGRAM**

The City adopted a pavement replacement reimbursement program for sewer service laterals in December 2007. This program was revised in January 2018, with implementation of a unit price program taking immediate effect. Under the revised program, residents are reimbursed an amount proportional to the amount of pavement work completed. Property owners at 6 separate locations participated in this program in 2022. Figure 15 summarizes the pavement replacement reimbursement program participation in 2022. A history of program participation from 2017 to 2022 is presented in Figure 16.

## **X. HAZARDOUS SUMP PUMP DISCHARGE ELIMINATION PROGRAM**

When a hazardous sump pump is reported to the City, the property owner is notified and is asked to take action to abate the hazard. This can be done by moving the sump pump discharge to a different location or by connecting to the City's storm sewer system.

Zero hazardous sump pump discharge was identified in 2022. In a case, the property owner could chose to participate in the Hazardous Sump Pump Discharge Elimination Program, through which the City provides a public storm sewer within the right-of-way adjacent to the property and the sump pump discharge is connected directly to the new storm sewer. This program involves a cost share by the homeowner of 50% of construction costs, up to a maximum share of \$500.00. \$10,000 is budgeted for this program each year.

## **XI. PRIVATE TO PUBLIC SEWER CONVERSION PROGRAM**

The City adopted a private to public sanitary sewer conversion program in March 2010 and funded the program with \$25,000 from the Sewer Benefit Tax revenues. Under this program the City assumes ownership of private sanitary sewers which have undergone necessary infrastructure upgrades, serve two or more properties, and have been designated as priorities per the Department of Public Works criteria. The City pays for the cost of required infrastructure repairs. The City continues to identify properties that are served by shared private sanitary sewer laterals, with conversions taking place as deemed necessary by the condition of those sewers.

## **XII. NEW EQUIPMENT AND TECHNOLOGIES**

The City continues to use CUES GraniteNet inspection software with GIS integration. The City sewer crews continue to use computer tablets in the field to provide much more detailed information than in the past.

## **XIII. SEWER WORK PLANNED FOR 2023-2024 FISCAL YEAR**

### **A. Sanitary Sewer Work**

The following sanitary sewer projects are tentatively scheduled for the 2023-2024 fiscal year:

- |  |                       |
|--|-----------------------|
| • Sanitary Sewer Cleaning & Televising | by Public Works Staff |
| • Sanitary Sewer Miscellaneous Repairs | \$249,000             |
| • Sanitary Sewer Lining                | \$265,000             |
| • Carle Sanitary Sewer Improvements    | \$713,000             |

### **B. Storm Sewer Work**

The following storm sewer projects are tentatively scheduled for the 2023-2024 fiscal year:

- |                                     |           |
|-------------------------------------|-----------|
| • Storm Sewer Miscellaneous Repairs | \$205,000 |
| • Storm Sewer Cleaning & Televising | \$473,000 |
| • Storm Sewer Lining                | \$200,000 |

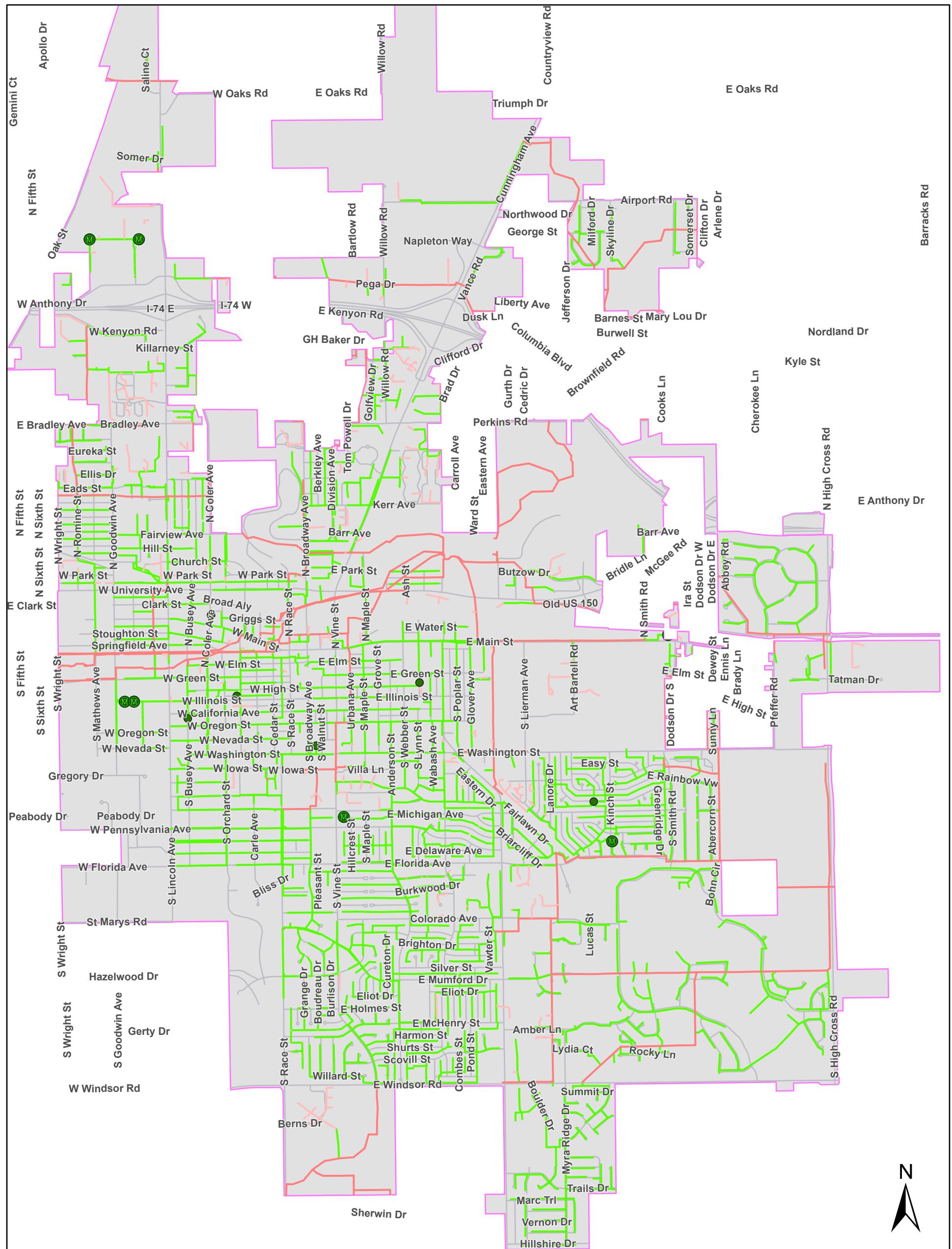
Figure 17 is a map showing the proposed sewer projects in the Capital Improvement Plan (fiscal years 2023 through 2027).

## 2022 SEWER ACTIVITY SUMMARY TABLE

	<b>Quantity</b>	<b>Comments</b>
<b>Rehabilitation Activities:</b>		
Sanitary Sewer Pipe Point Repairs	37 l.f.	
Sanitary Sewer Manhole Repairs	8 ea.	
New Sanitary Sewer Manhole Construction	5 ea.	
Storm Sewer Point Repairs	87 l.f.	
Storm Sewer Manhole/Inlet Repairs	20 ea.	
New Storm Sewer Manhole/Inlet Construction	8 ea.	
<b>Maintenance Activities:</b>		
Storm Sewer Cleaning and Inspections	19,566 l.f	309 Inspections
Sanitary Sewer Cleaning and Inspections	31,727 l.f	170 Inspections
<b>Sanitary Sewer Blockages:</b>		
In Private Service Lines	4 ea.	
In City Owned Mains	11 ea.	
<b>Sanitary Sewer Surcharges:</b>		
Reports of Sanitary Sewer Surcharges	0 ea.	
<b>Storm and Sanitary Sewer Programs:</b>		
Overhead Sewer Program	1 ea.	
Illicit Connections & Discharges	0 ea.	
Pavement Reimbursement Program	6 ea.	
Hazardous Sump Pump Discharge Elimination	0 ea.	
Private to Public Sewer Conversion	0 ea.	

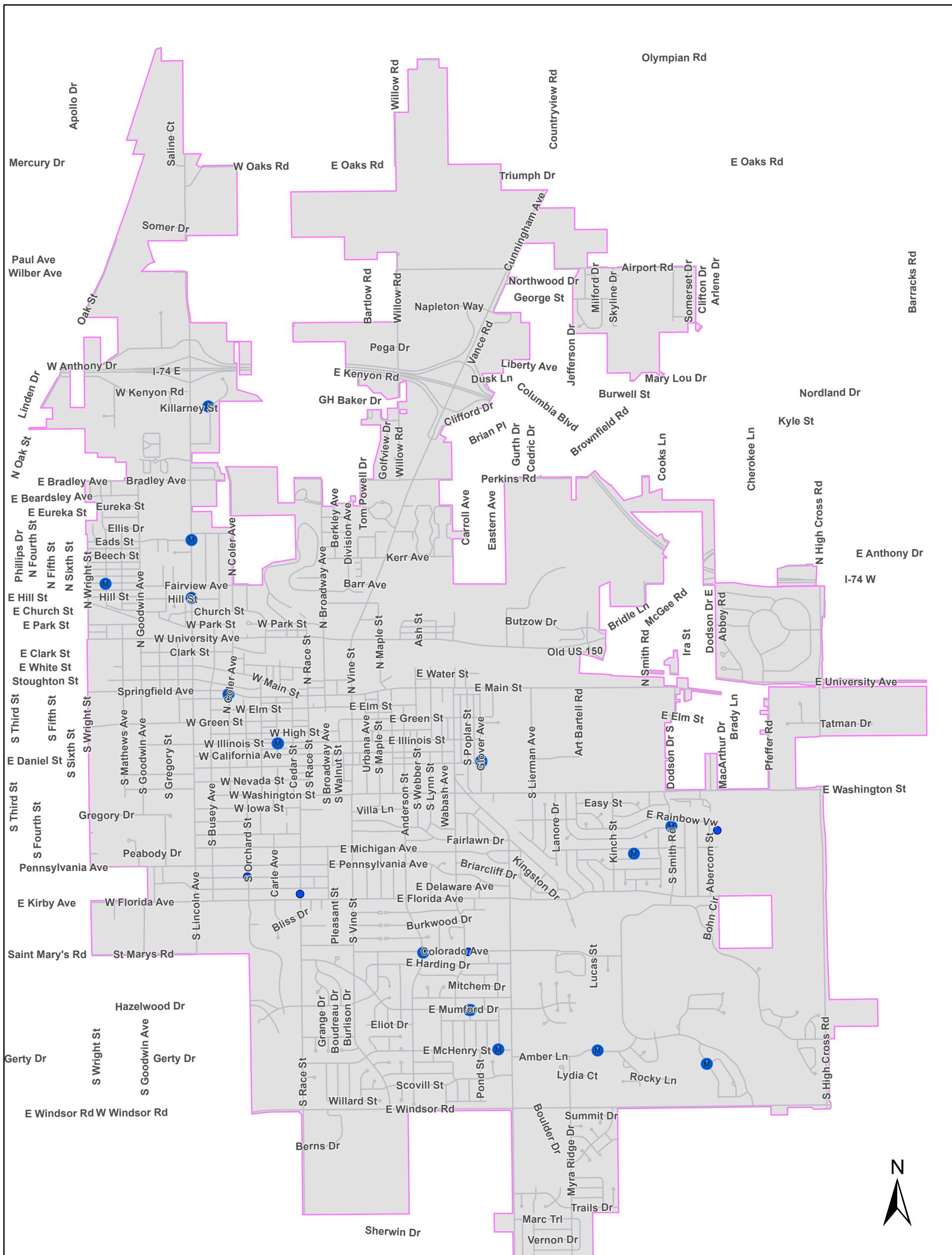
**Attachments:**

- Figure 1 - 2022 Sanitary Sewer Repair Locations
- Figure 2 - 2022 Storm Sewer Repair Locations
- Figure 3 - History of Sewer Pipe Repairs from 2017-2022
- Figure 4 - History of Sewer Manhole/Inlet Repairs from 2017-2022
- Figure 5 - Sanitary Sewer Point Repair Locations 1998-2022
- Figure 6 - Storm Sewer Repair Locations 1998-2022
- Figure 7 - Sanitary Sewer Full Length Lining Locations 1998-2022
- Figure 8 - Storm Sewer Full Length Lining Locations 1998-2022
- Figure 9 - Grease Treatment Map
- Figure 10 - Map of Sanitary and Storm Sewers Televised in 2022 in City of Urbana
- Figure 11 - 2022 Locations of Public Sewer Calls, City of Urbana
- Figure 12 - History of Sanitary Sewer Back-Up Complaints from 2017-2022
- Figure 13 - History of Sanitary Sewer System Back-Up Locations 2010-2019
- Figure 14 - History of Overhead Sewer Program Participation from 2017-2022
- Figure 15 - 2022 Pavement Replacement Reimbursement Program Participation
- Figure 16 - History of Pavement Replacement Reimbursement Program 2017-2022
- Figure 17 - Proposed Sewer Projects in Capital Improvement Plan



## 2022 SEWER ACTIVITY REPORT

FIGURE 1  
2022 SANITARY SEWER REPAIR LOCATIONS



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## Legend

## Corporate Limits

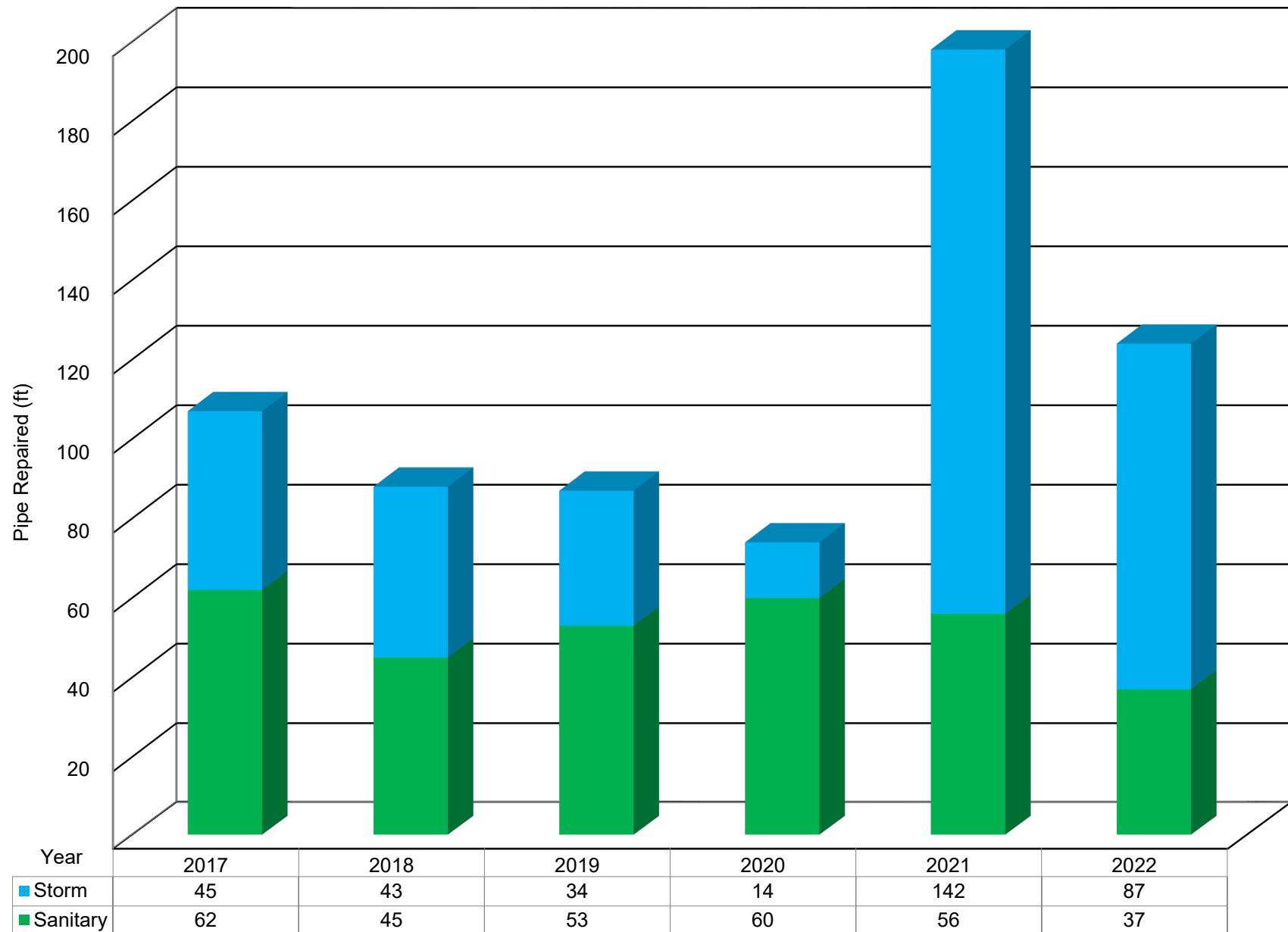
- City of Urbana
  - Urbana Mask
  - Storm Manhole & Inlet Repairs, 2022
  - Storm Sewer Repair, 2022

A scale bar indicating distances in feet. The bar is divided into three segments by tick marks. The first segment is labeled "0". The second segment is labeled "1,000". The third segment is labeled "2,000". To the right of the third segment, there is additional unlabeled space followed by the label "4,000". Below the scale bar, the word "Feet" is centered.

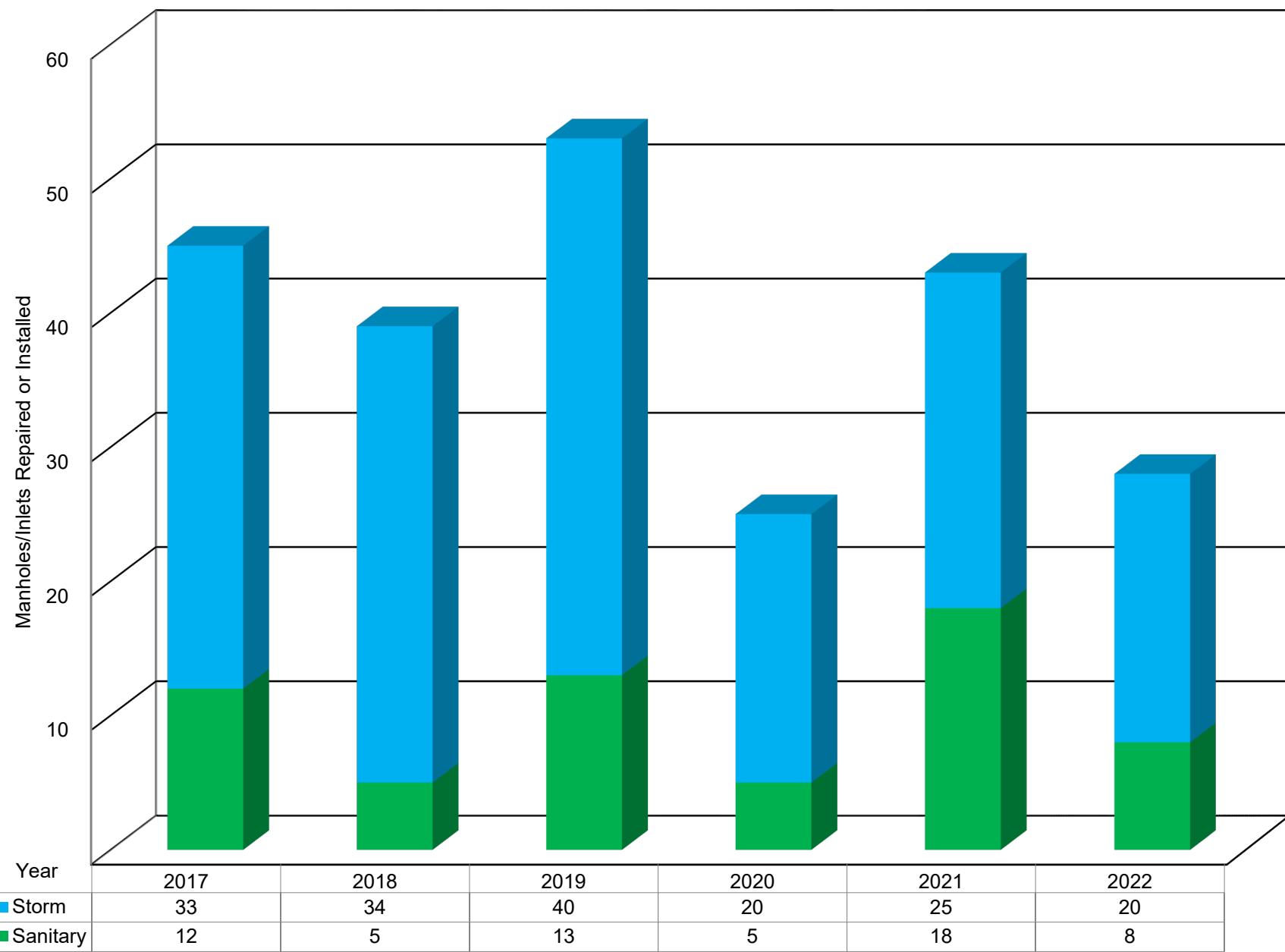


# **2022 SEWER ACTIVITY REPORT**

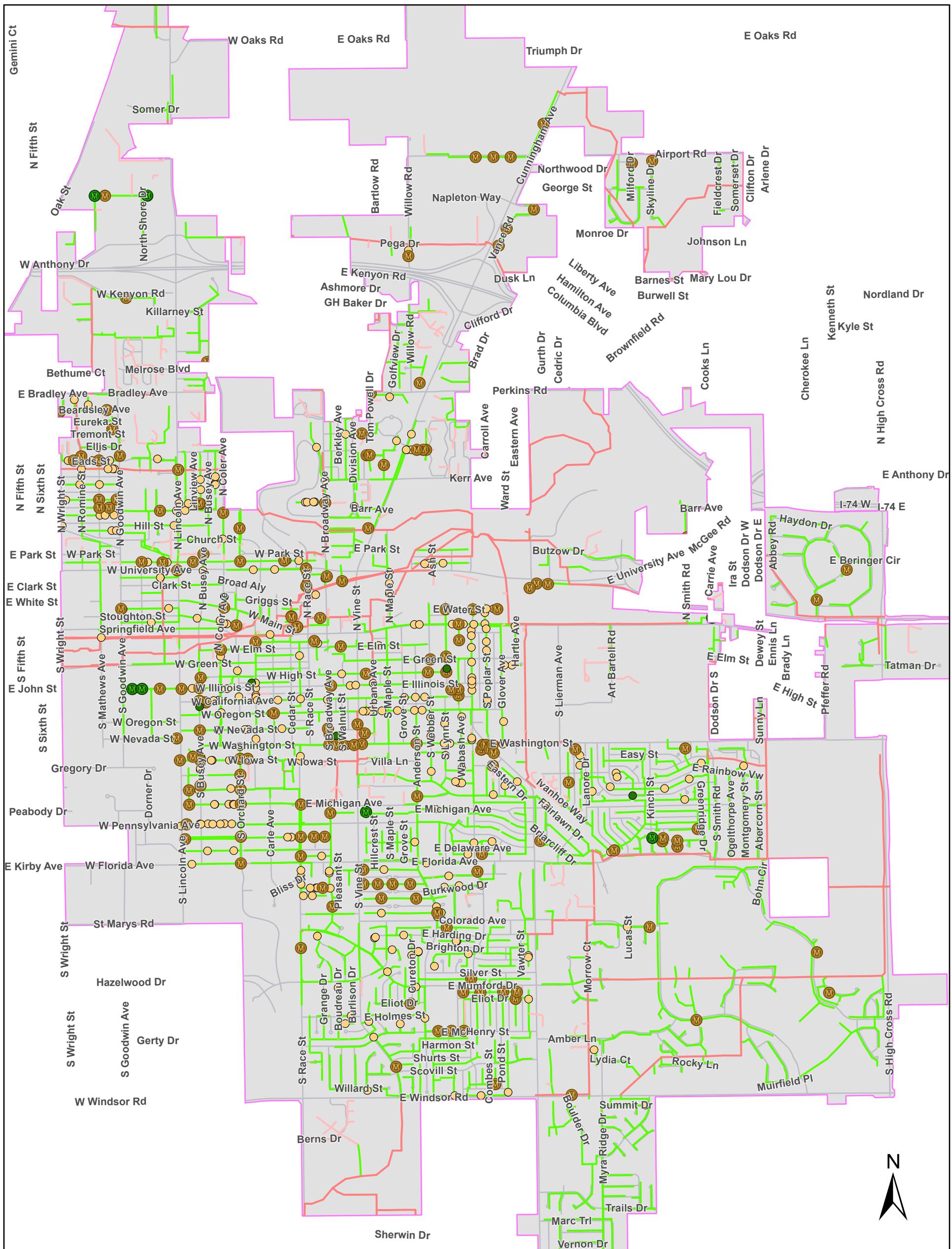
**FIGURE 2  
2022 STORM SEWER  
REPAIR LOCATIONS**



**Figure 3**  
Sanitary and Storm Sewer Pipe Repair History



**Figure 4**  
Sanitary and Storm Sewer Manhole/Inlet Repair and Installation History



**Legend**

- Sanitary Manhole Repairs, 2022
- Sanitary Pipe Repairs, 2022
- Sanitary Manhole Repairs, 1998-2021
- Sanitary Sewer Pipe Repairs, 1998-2021
- Urbana City Limits
- Corporate Limits
- City of Urbana
- Private
- Streets
- City of Urbana

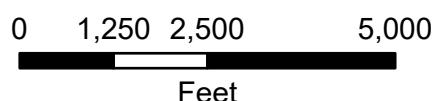
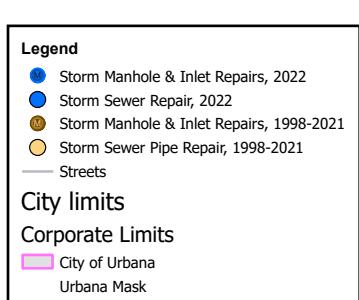
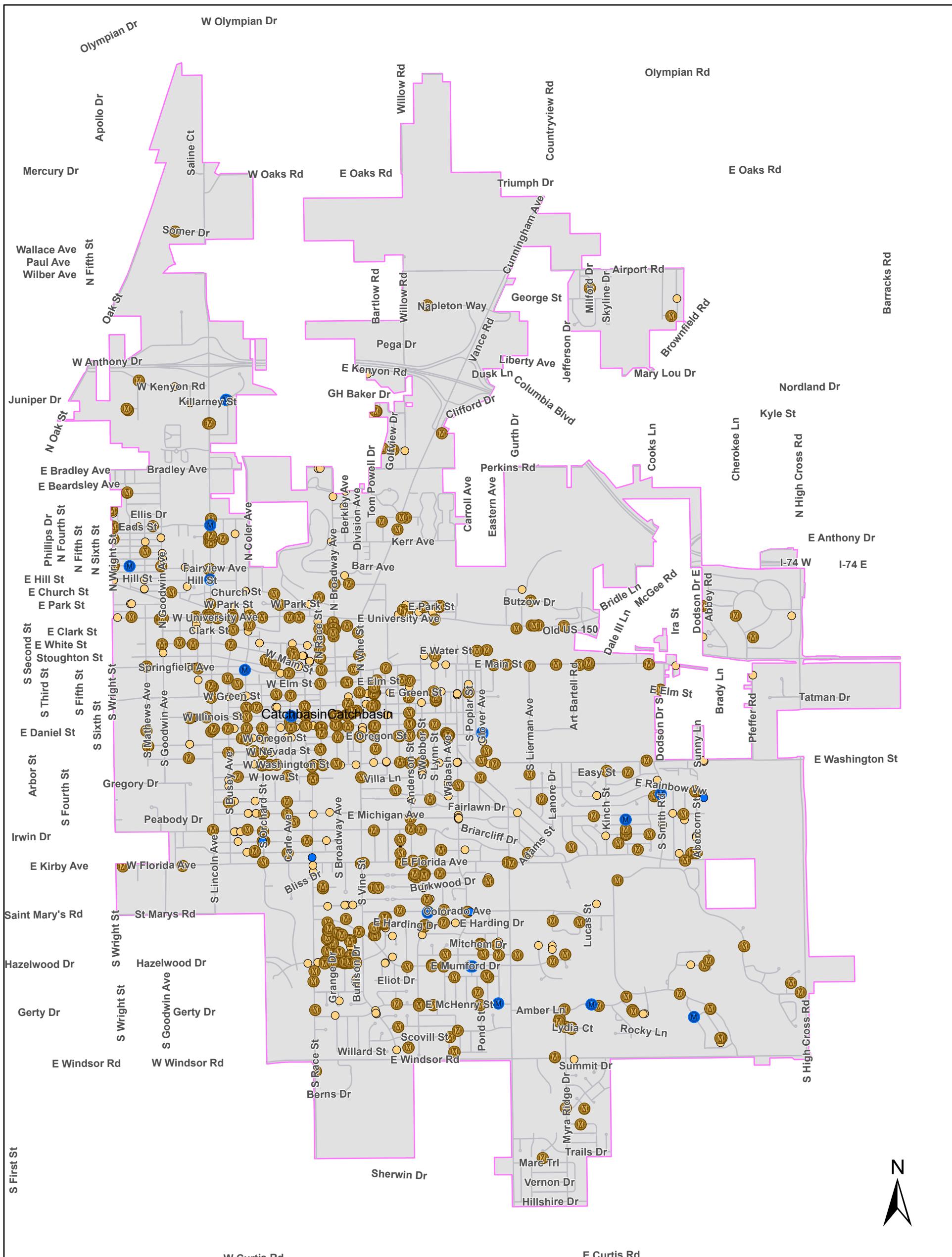
**Ownership**

- City of Urbana

0 1,000 2,000 4,000  
Feet



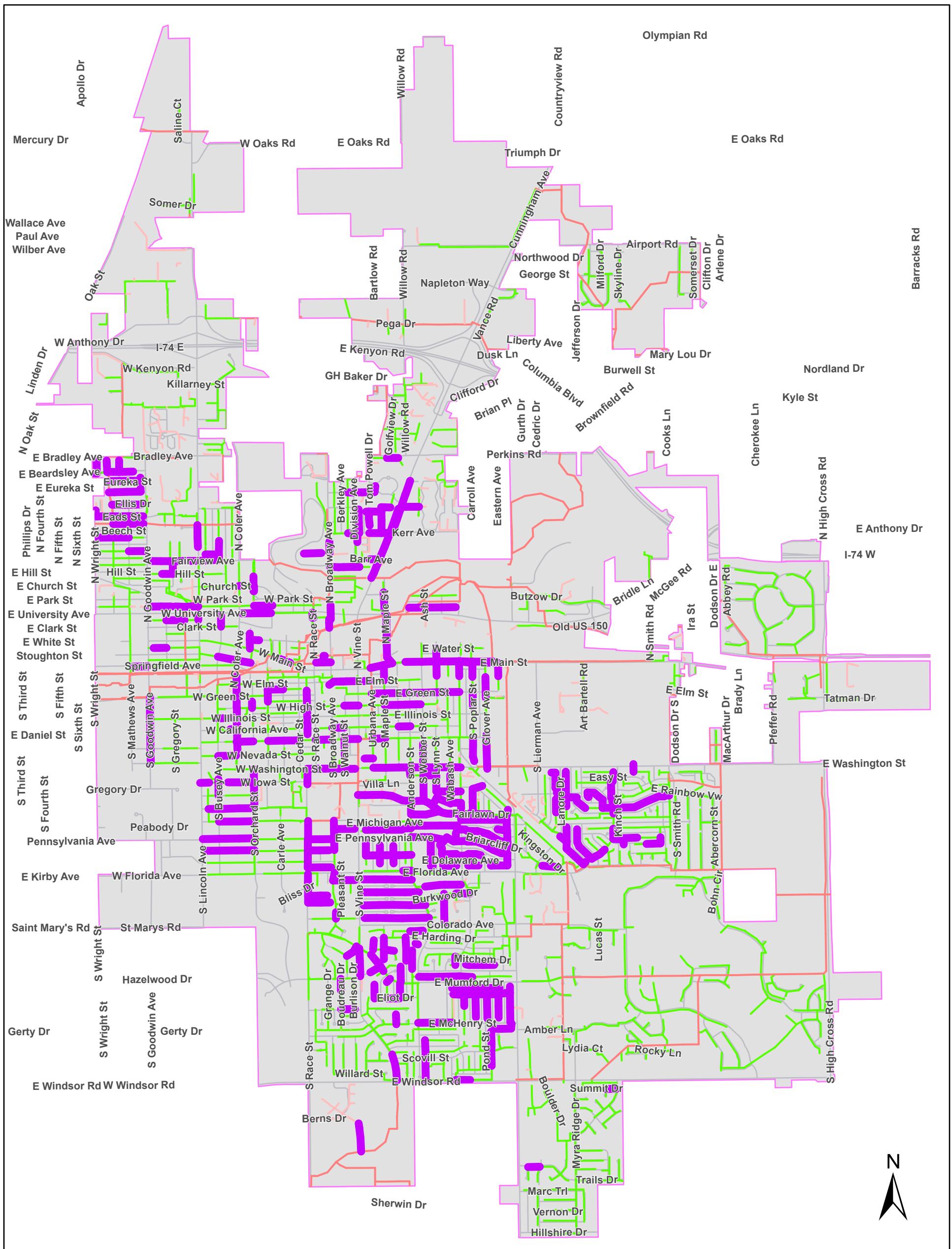
**2022 SEWER ACTIVITY REPORT**  
**FIGURE 5**  
**SANITARY SEWER REPAIR LOCATIONS**  
**1998 - 2022**



# **2022 SEWER ACTIVITY REPORT**

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## **FIGURE 6 STORM SEWER REPAIR LOCATIONS 1998 - 2022**

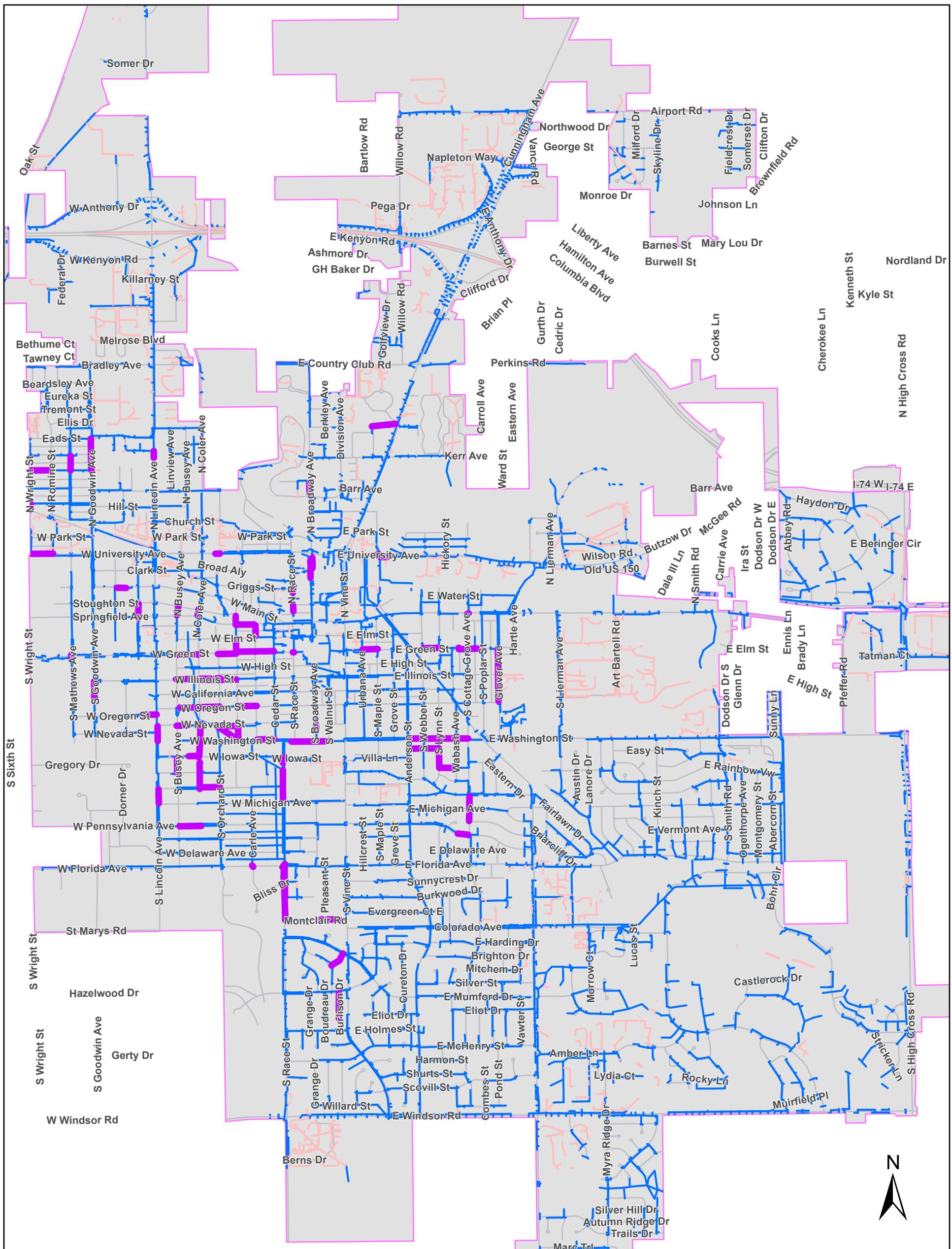


0 1,000 2,000 4,000  
Feet



**2022 SEWER ACTIVITY REPORT**

**FIGURE 7**  
**SANITARY SEWER LINING**  
**1998-2022**



## Legend

## **Corporate Limits**

City of Urbana

## Storm Sewers

## Storm 30 Ownership

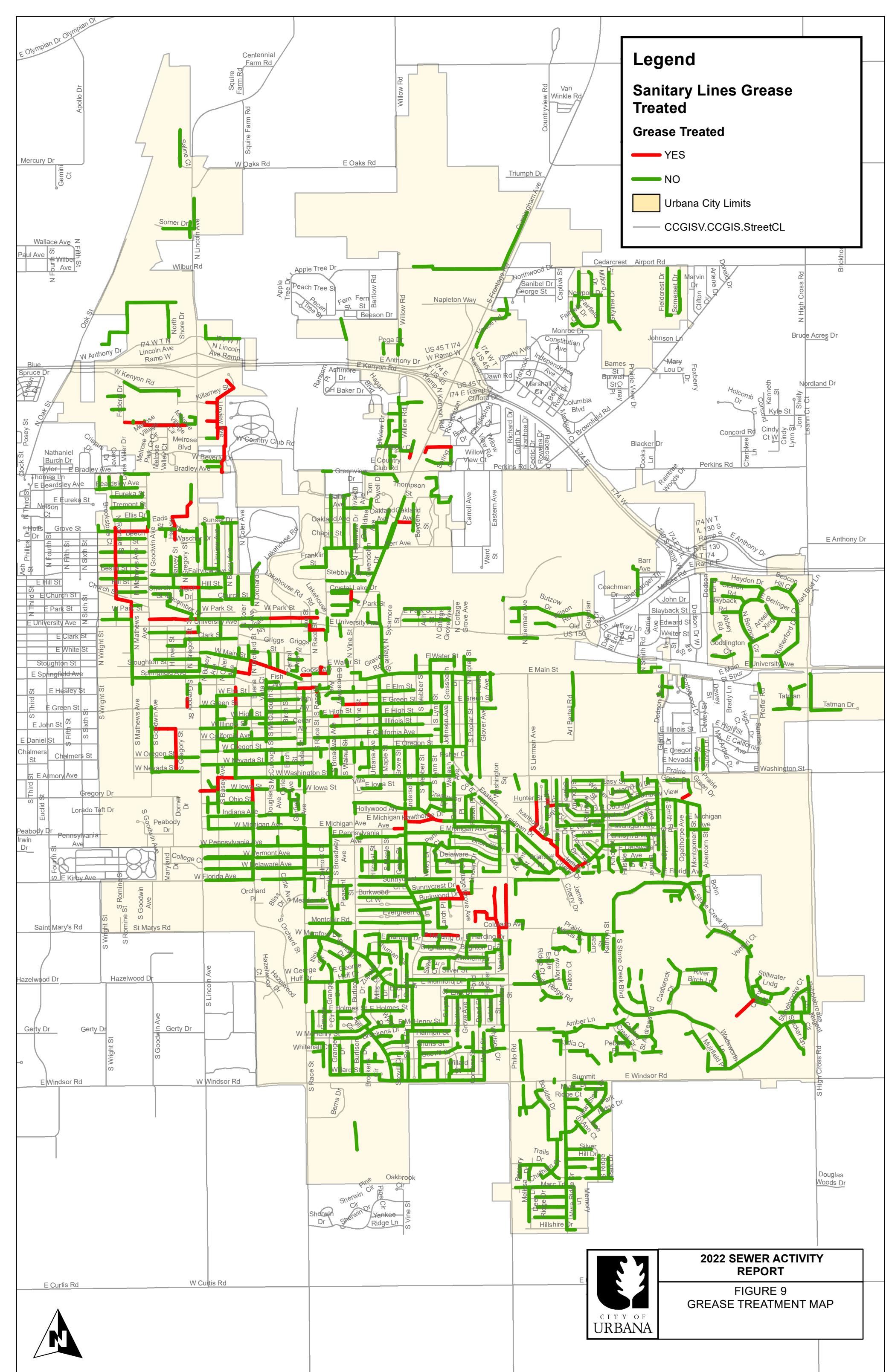
- City of Urbana
  - Private

A scale bar representing distance in feet. It features a horizontal black line with tick marks at 0, 1,000, 2,000, and 4,000 feet. Below the line, the word "Feet" is centered.



# **2022 SEWER ACTIVITY REPORT**

**FIGURE 8**  
**STORM SEWER LINING**  
**1998 - 2022**



## Map View Report

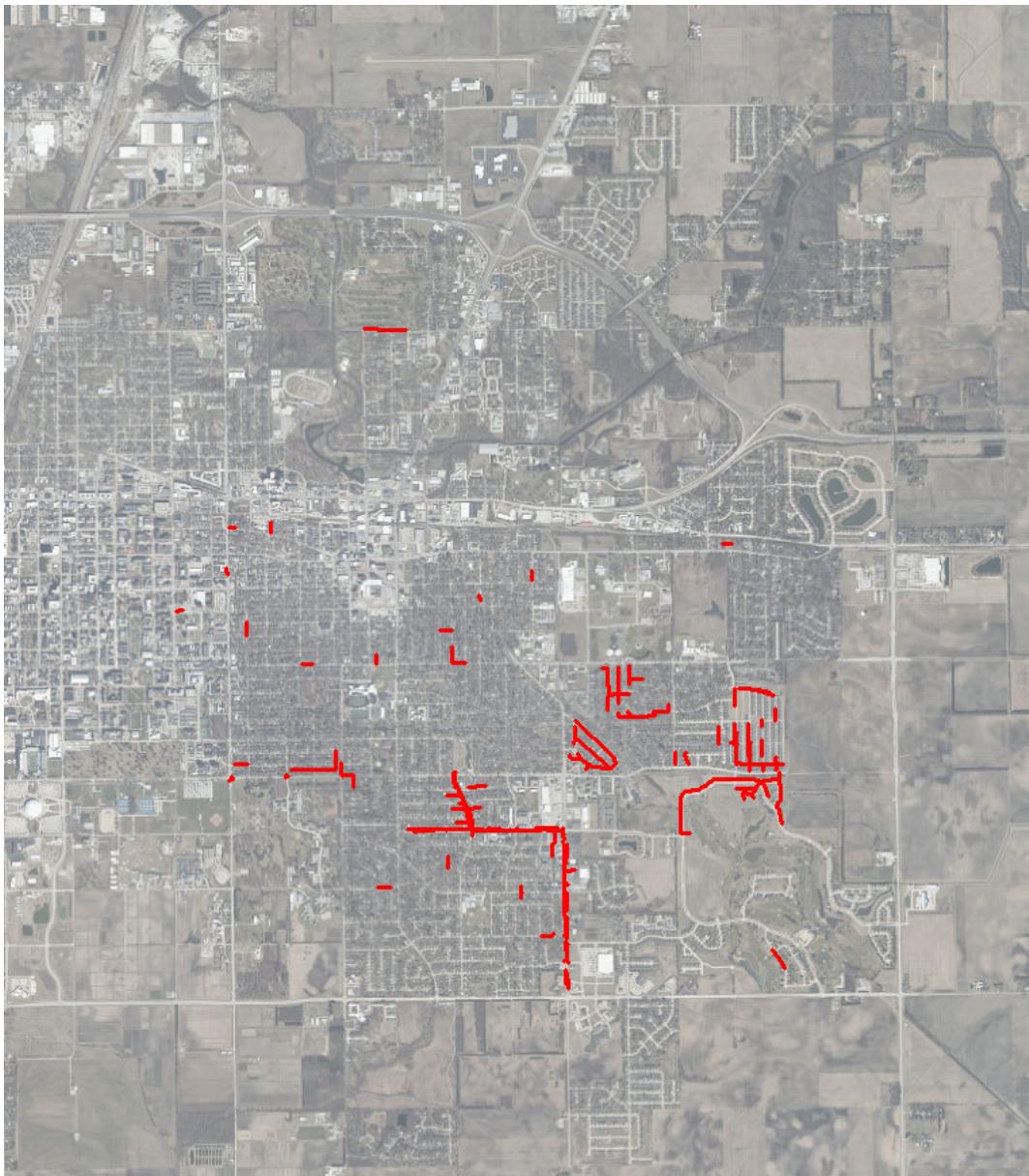


Figure 10 Map of Sanitary and Storm Sewers Televised in 2022 in the City of Urbana

# Figure 11

Sanitary Sewer Back-Ups

•  
2022

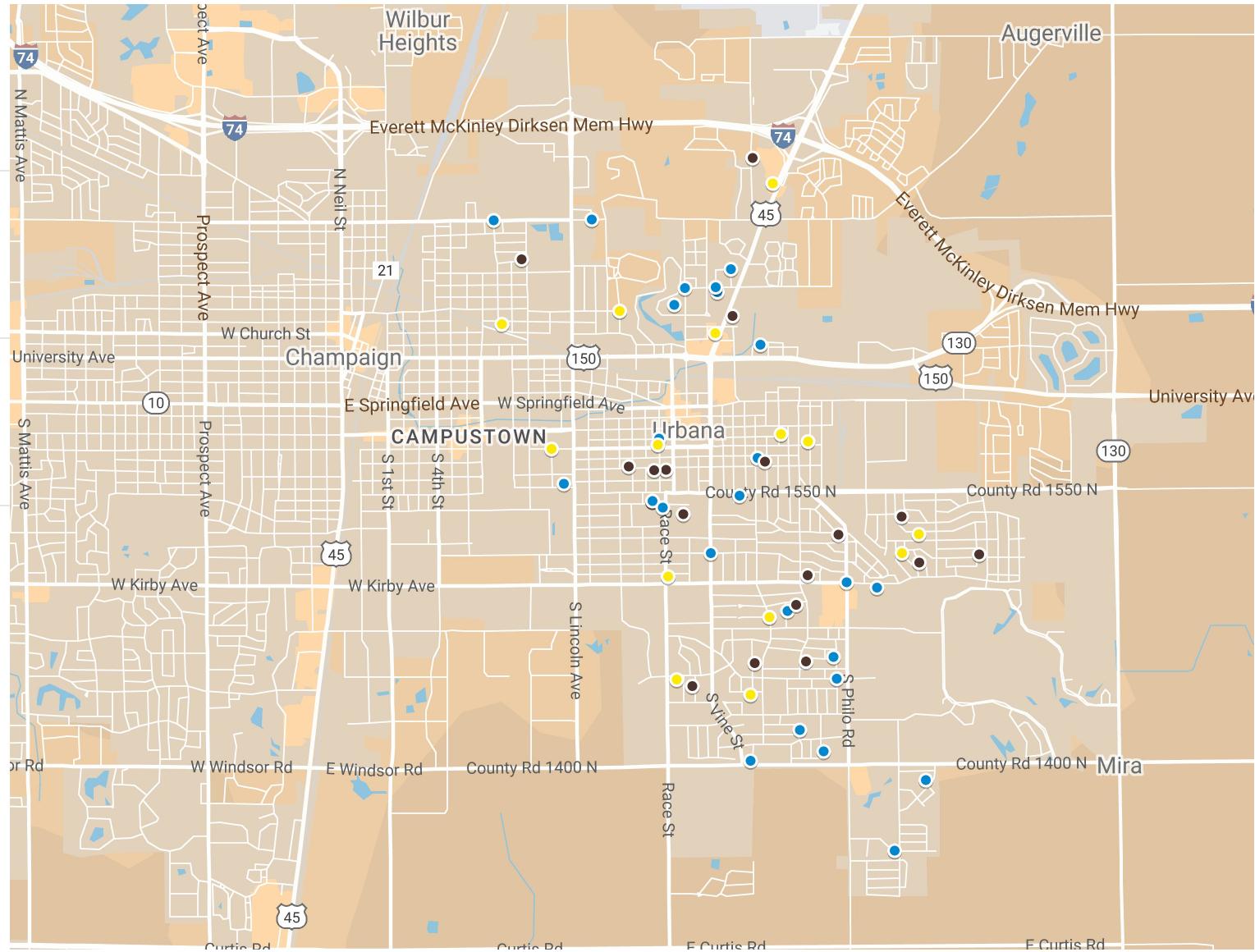
Storm Drainage Problems

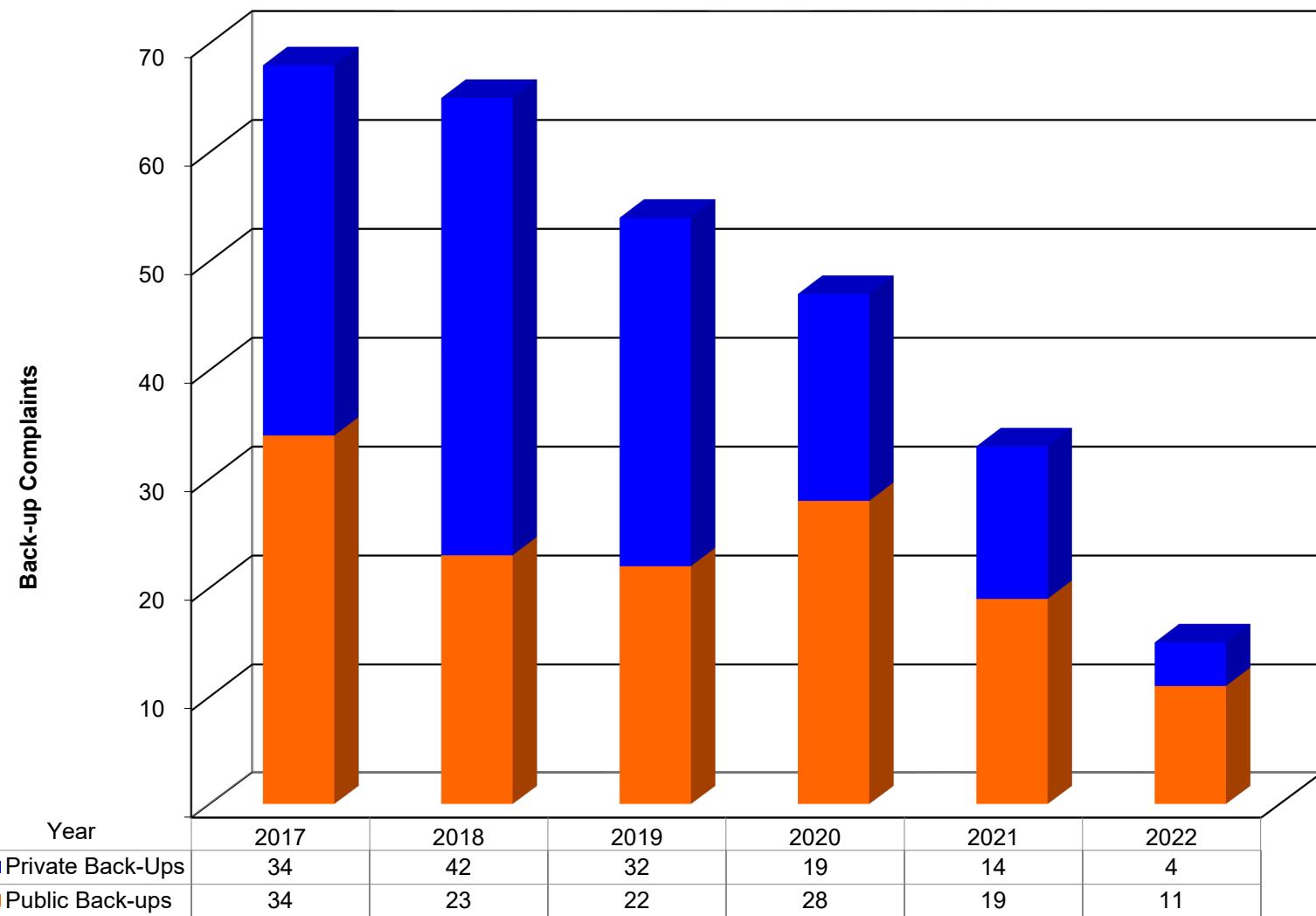
•  
2022

Other Sewer Problems

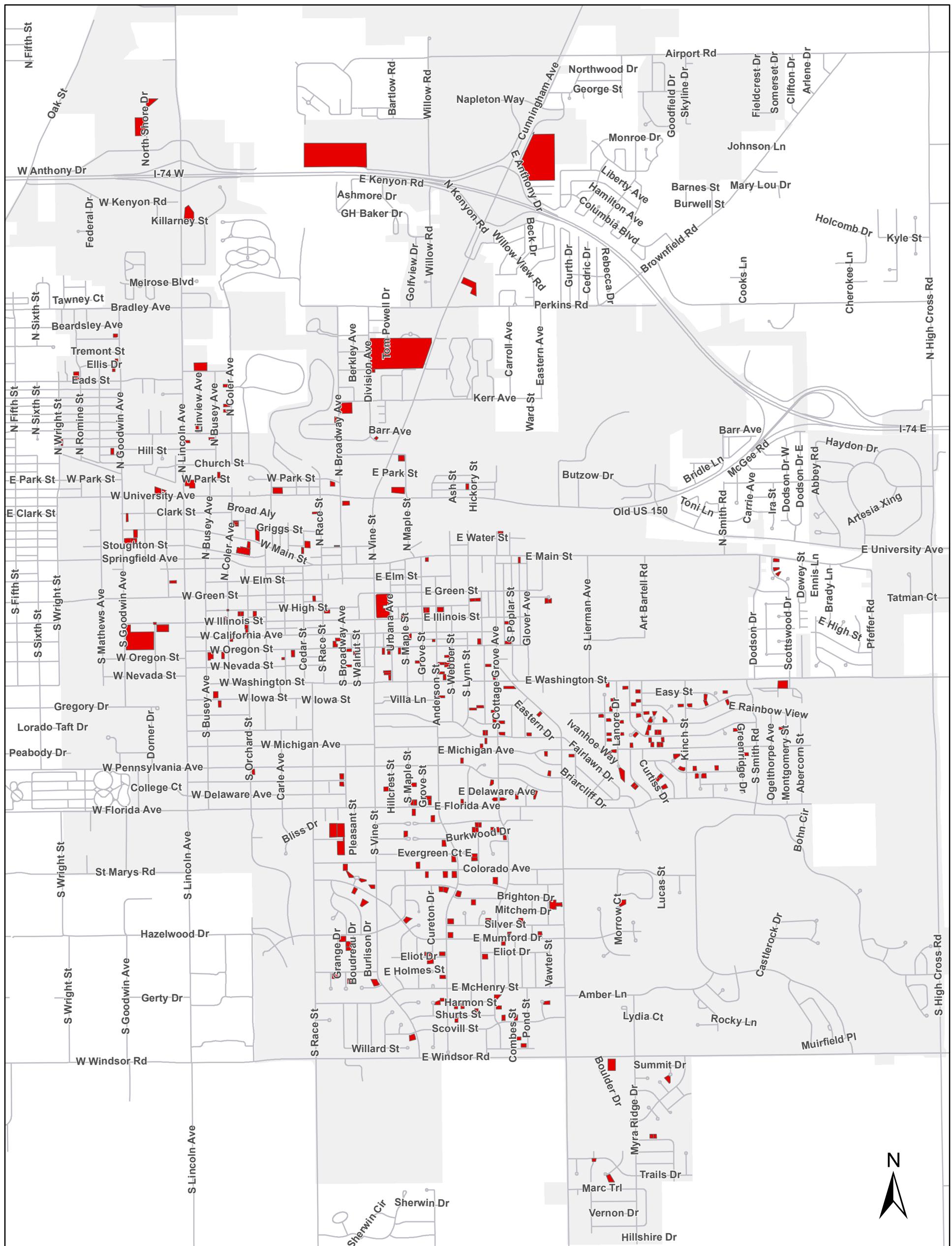
•  
2022

2022 Locations of Public  
Sewer Calls, City of Urbana





**Figure 12**  
**Dry Weather Sanitary Sewer Back-Up Complaint History**



#### Legend

Sanitary Sewer Back-Ups



Back-Up Location

Corporate Limits

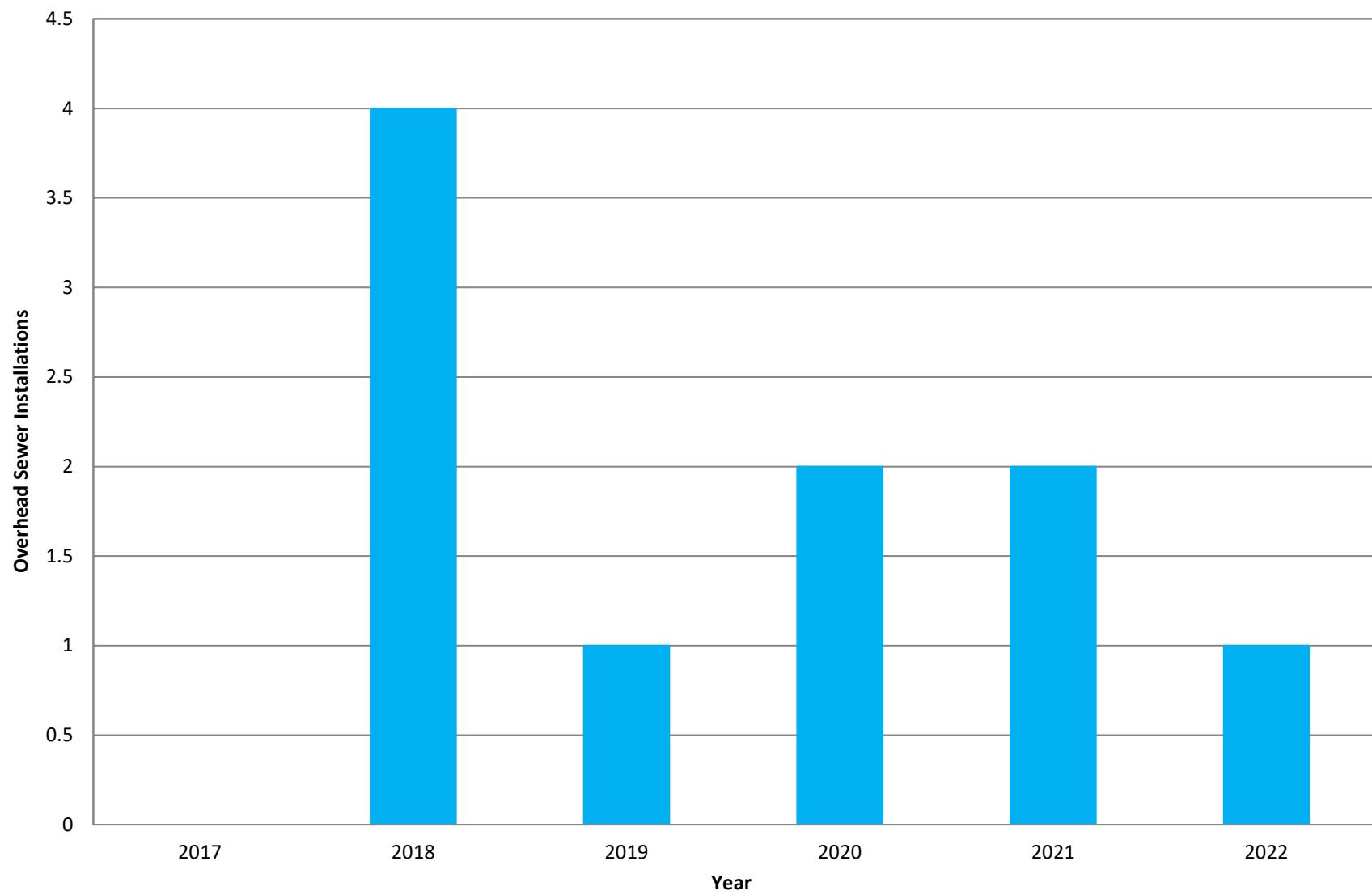
City of Urbana

0 1,000 2,000 4,000  
Feet



#### 2022 SEWER ACTIVITY REPORT

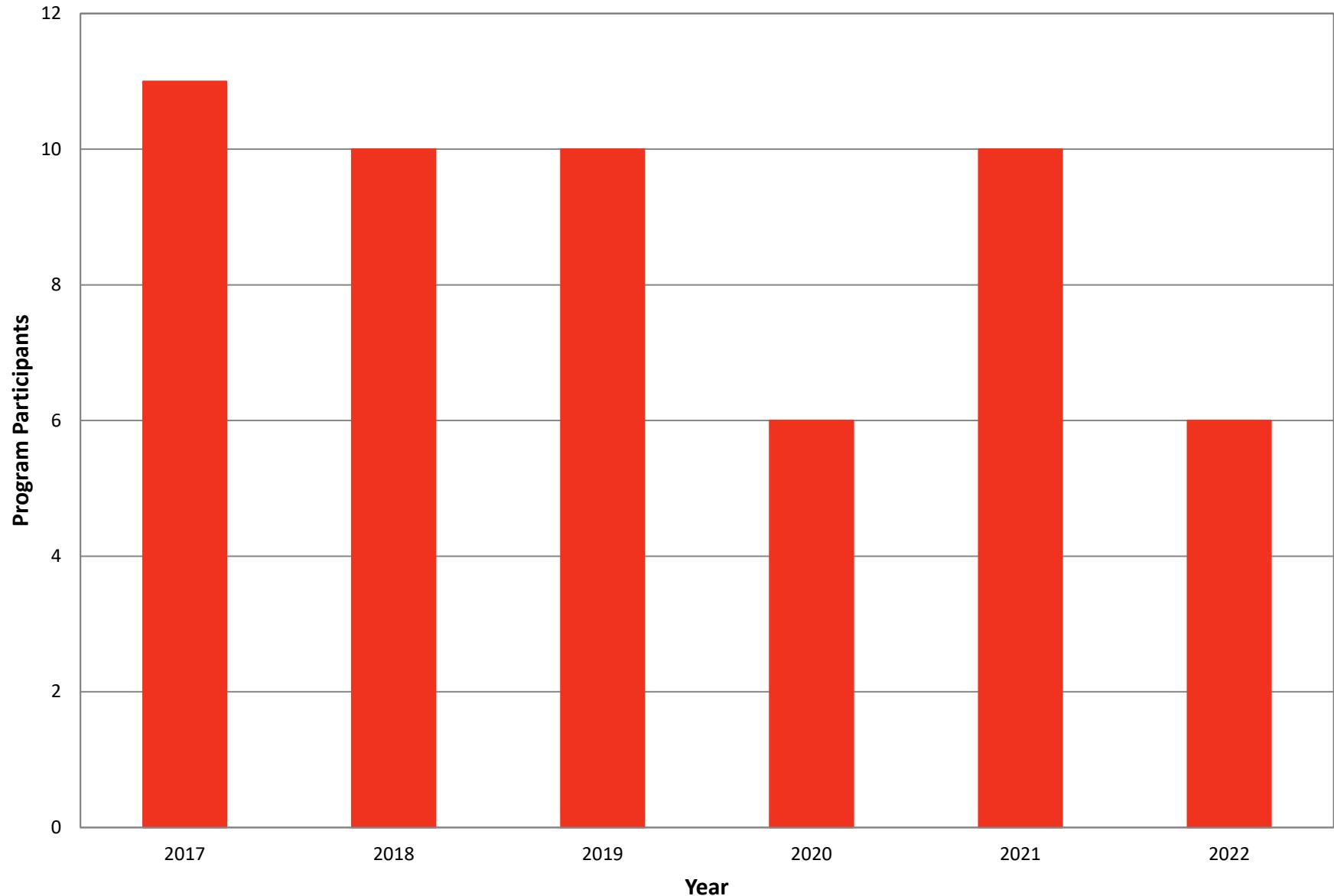
FIGURE 13  
PUBLIC SANITARY SEWERS  
DRY WEATHER BACK-UPS  
2010 - 2019



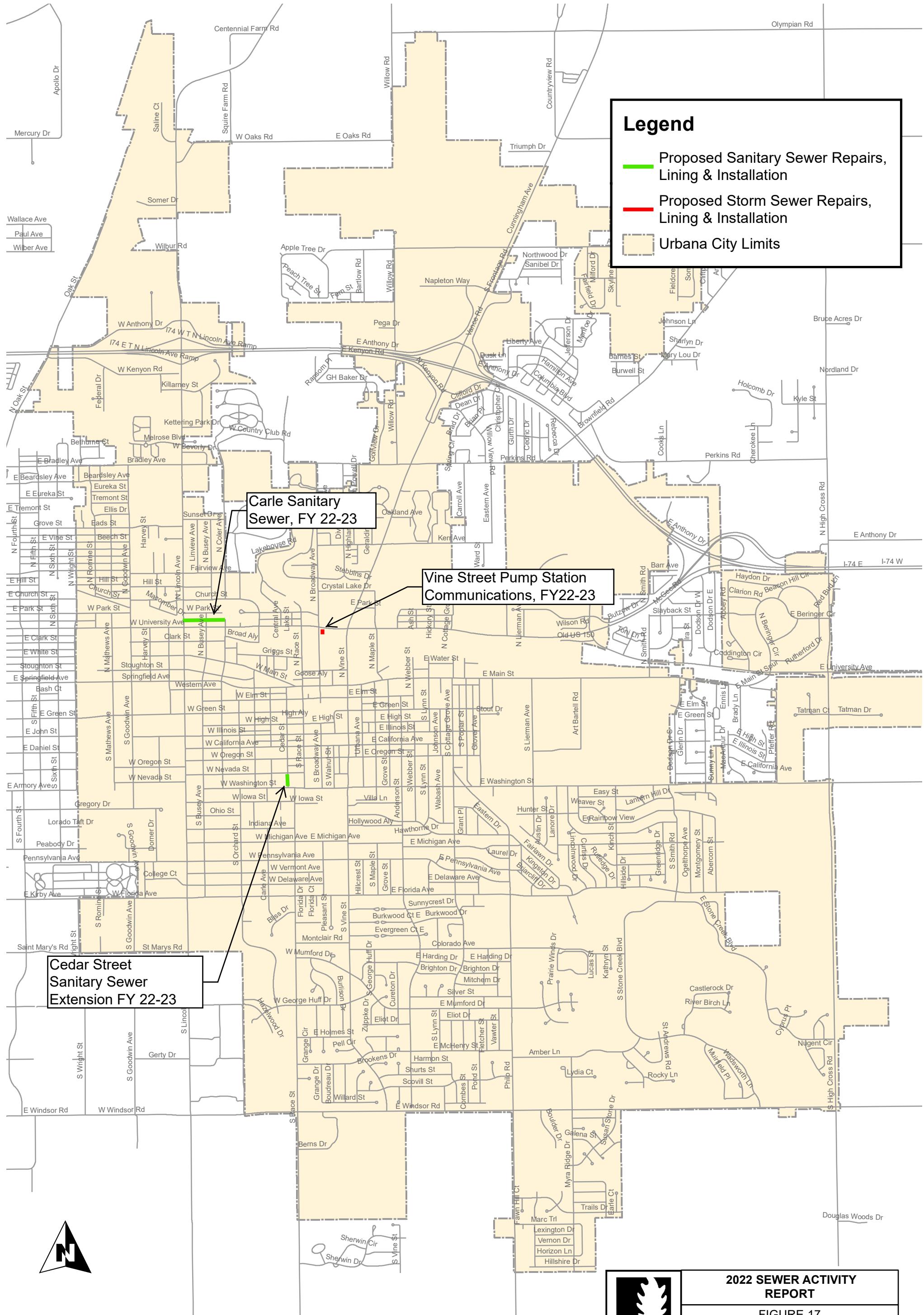
**Figure 14**  
**Overhead Sanitary Sewer Installation History**  
**Overhead Sewer Installations 2017-2022**

#	Address	Date	Reimbursement	Description
1	506 West Stoughton	1/21/2022	\$3,000.00	Collapsed Sewer Lateral Pipe
2	106 South Lynn Street	5/6/2022	\$8,858.33	Collapsed Sewer Lateral Pipe
3	105 Hartle Avenue	5/18/2022	\$3,527.78	Severe Root Intrusion and Collapsed Sewer Lateral Pipe
4	708 West Main Street	8/15/2022	\$7,155.56	Severe Root Intrusion and Collapsed Sewer Lateral Pipe
5	209 West Washington Street	9/13/2022	\$6,100.00	Collapsed Sewer Lateral Pipe
6	902 East Park Street	9/20/2022	\$2,750.00	Collapsed Sewer Lateral Pipe
Total			\$31,391.67	

**FIGURE 15**  
**2022 SEWER LATERAL PAVEMENT REIMBURSEMENT PROGRAM PARTICIPATION**



**Figure 16**  
**Sewer Lateral Pavement Reimbursement Program**



CITY OF  
URBANA

#### 2022 SEWER ACTIVITY REPORT

FIGURE 17  
PROPOSED SEWER PROJECTS  
IN CAPITAL IMPROVEMENT PLAN