Worthington Utilities "Fast Facts"

Sanitary Sewer Rehabilitation,
and OEPA Compliance Update

March 2017

Service & Engineering Staff Represented

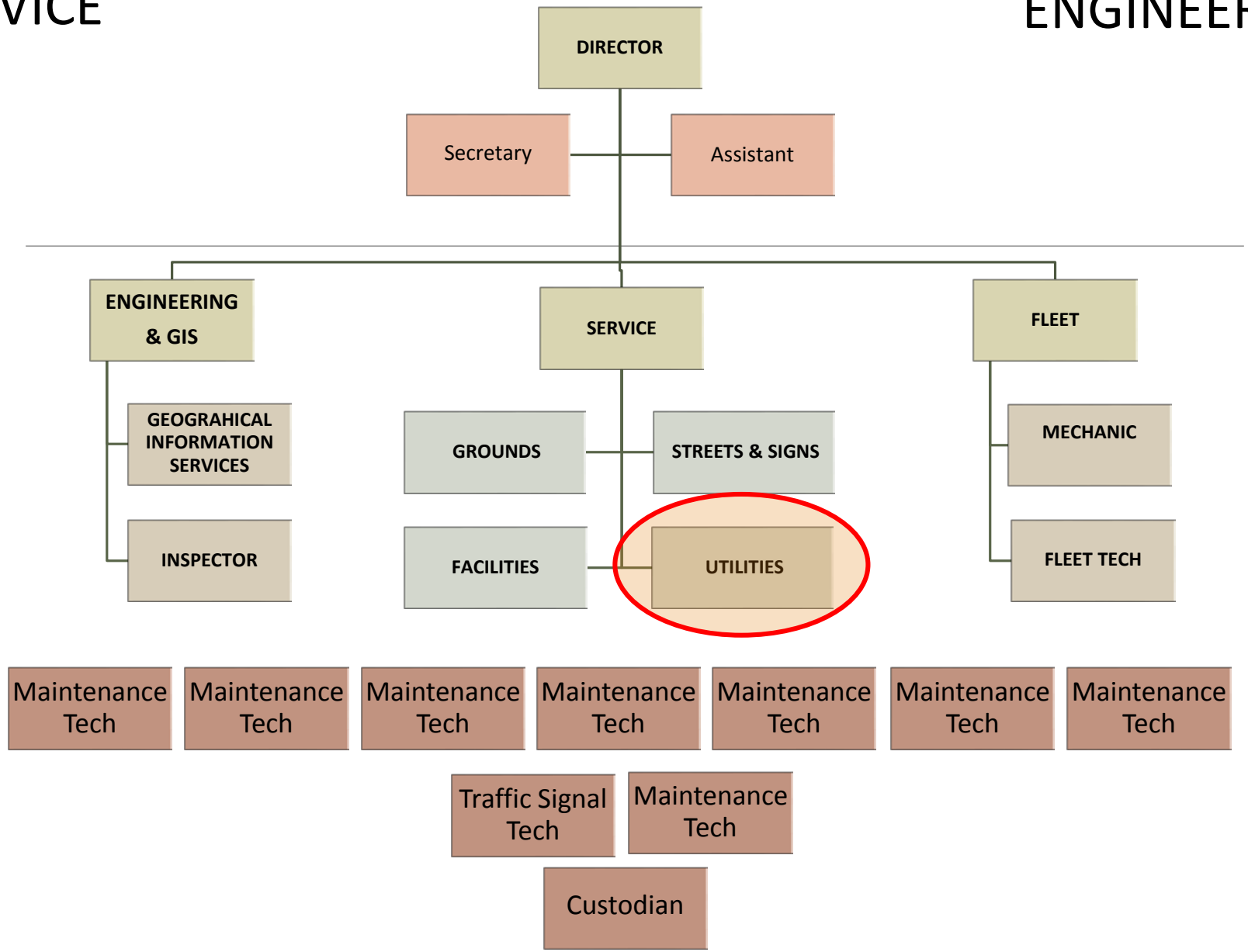
Service & Engineering

Provides high level of services to the residents of Worthington

- Installation, maintenance, repair of City owned utilities & infrastructure,
- Snow and ice control, leaf collection, street cleaning and maintenance, sanitary sewer, drinking water, and storm drainage services, traffic control, & grounds maintenance,
- Administers Street Improvement Program,
- Maintains record drawings of plats, streets, utilities and City buildings,
- Engineering support for all departments,
- Assists with community events,
- Manages the solid waste collection services,
- Keeps the City rolling by maintaining all City vehicles and equipment,
- Maintains all City buildings
- Geospatial data & attributes on all City infrastructure

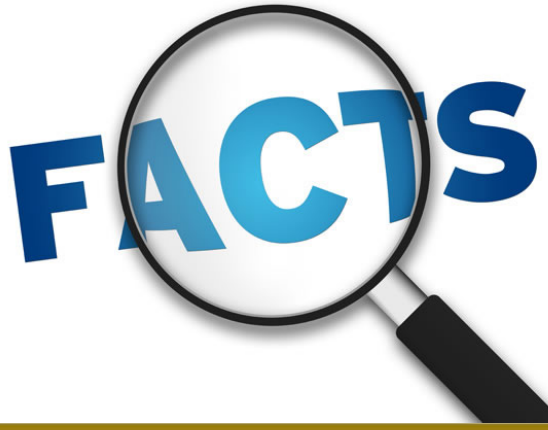
SERVICE

ENGINEERING



Worthington Utilities
Sanitary Sewer Fast Facts

- Sewer Utility Background
- Sewer Regulatory Requirements
- Sanitary Sewer Studies & Projects
- “Other Sewer Stuff”
- Q&A



Sewer Utility Background

Our Sanitary Sewer System

- Service & Engineering maintains > ninety miles of gravity sanitary sewer
- First sewers were installed in the 1920's
- No designed "combined" sewers in Worthington
- All sewerage is treated by the City of Columbus per agreement
- There are 89 homes still on private HSTS
- No publicly owned or maintained lift stations
- Eight sewer districts (based on topography)

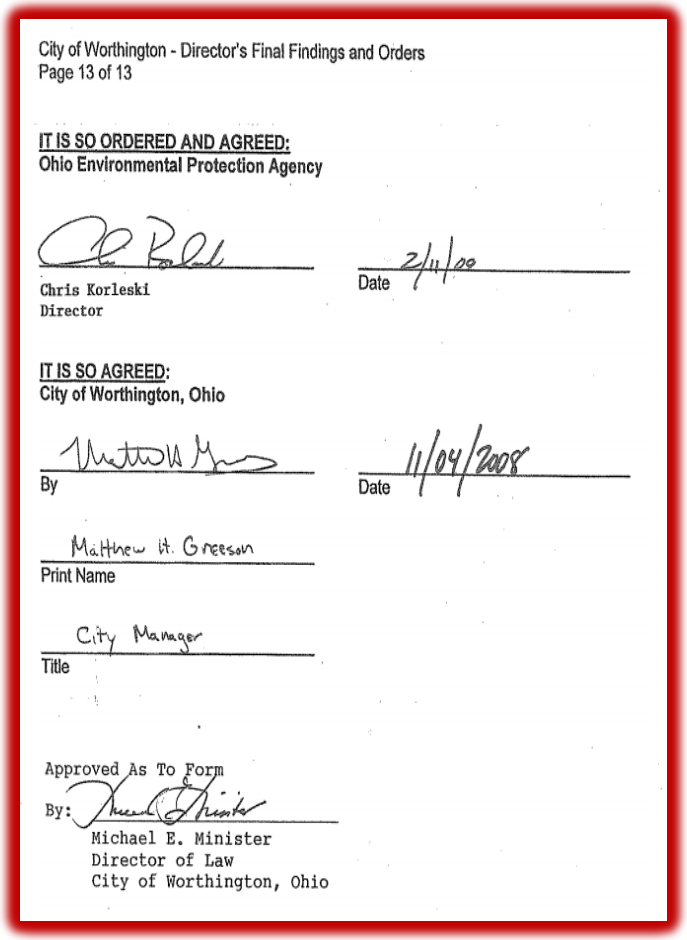
Sewer Maintenance

Maintenance Goals:

- Clean and video every sewer once every 8 years
- Log all video with our Pipeline Assessment Certification Program (PACP)
- Respond to every complaint or report of water in basement (WIB)
- Clean sewers with heavy fats, oils and grease (FOG) quarterly
- Treat all sewers that have been identified with heavy root intrusion biannually
- Repair sewers we can fix in house with our Spot Lining System
- Repair broken lines as identified
- Maintain GIS database

Regulatory Requirements

- 2005 OEPA issued Director's Final Findings and Orders (DFFO's) to the City of Columbus
- City of Columbus contended that satellite communities contribute to sanitary sewer overflows and capacity issues
- OEPA issued "DFFO's" in 2008 to "satellite communities" that contribute to the City of Columbus



City of Worthington - Director's Final Findings and Orders
Page 13 of 13

IT IS SO ORDERED AND AGREED:
Ohio Environmental Protection Agency

Chris Korleski
Director

Date 2/4/09

IT IS SO AGREED:
City of Worthington, Ohio

By

Date 11/04/2008

Matthew H. Greeson
Print Name

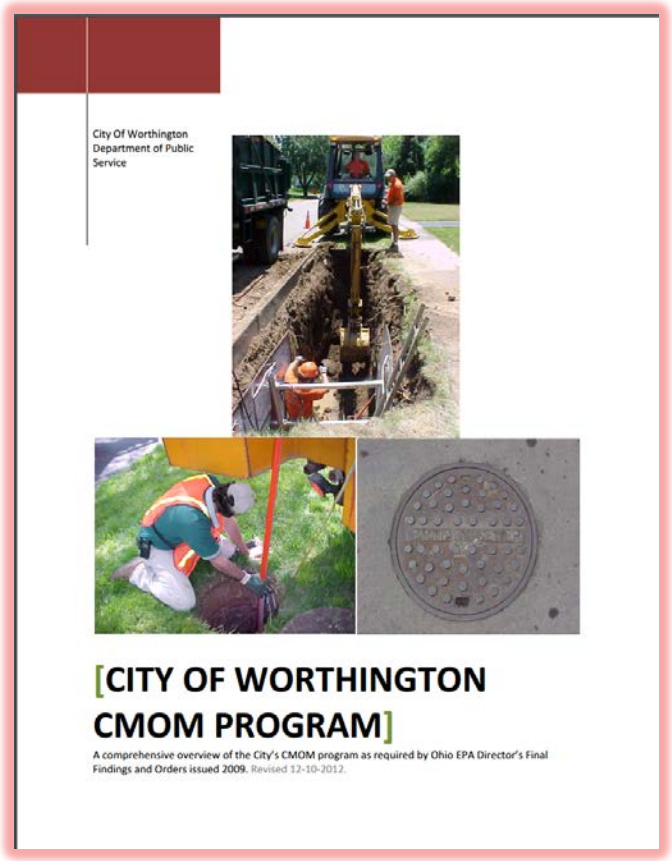
City Manager
Title

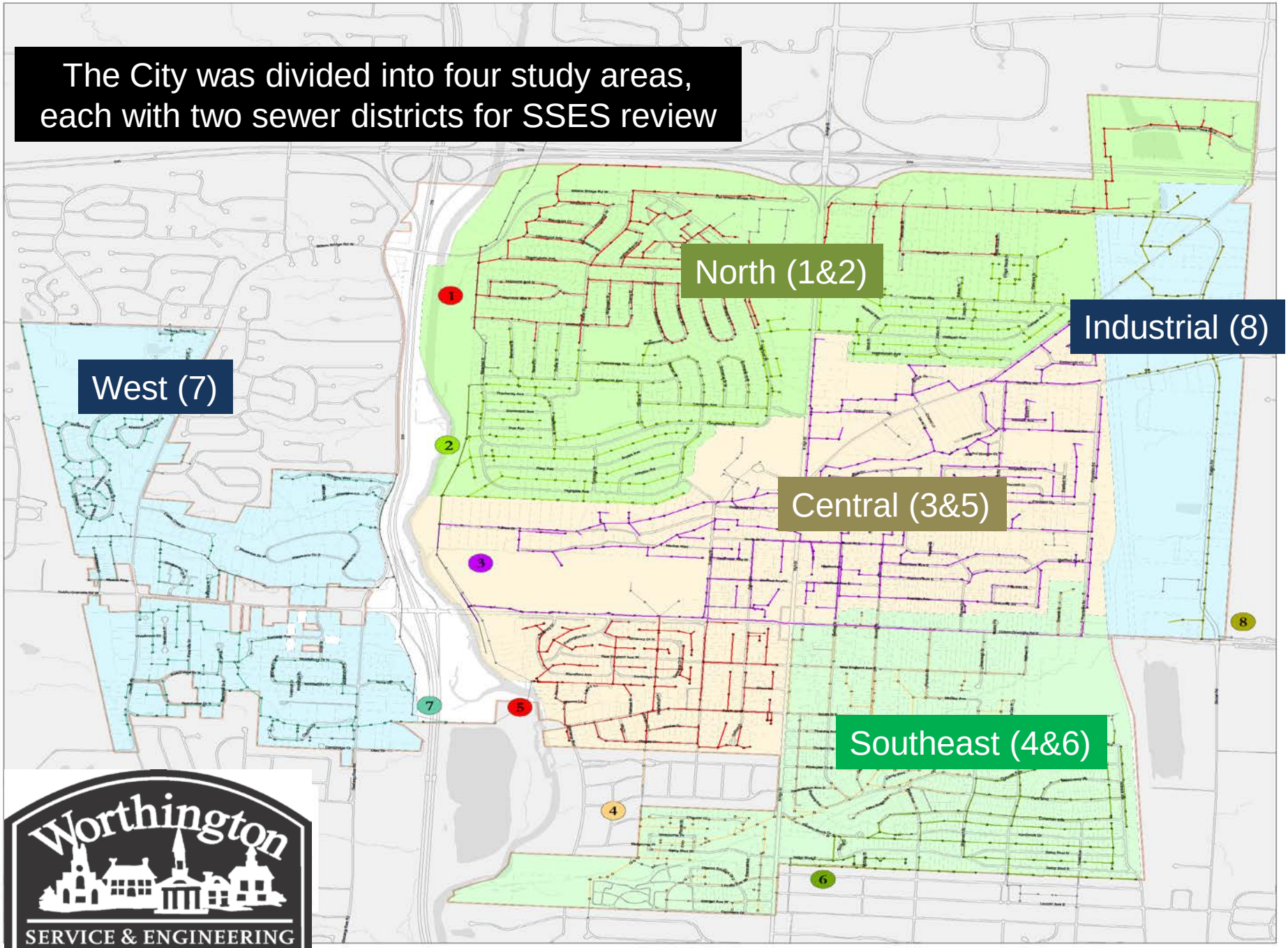
Approved As To Form
By:
Michael E. Minister
Director of Law
City of Worthington, Ohio

Directors Final Findings and Orders (DFFO)

DFFO Requirements

- Sewer System Evaluation Study (SSES) of all sanitary sewers owned by the City of Worthington within 15 years
- Identify, report and mitigate all Sanitary Sewer Overflows (SSO)
- Develop a Capacity, Management and Operation Maintenance program (CMOM)




The City was divided into four study areas, each with two sewer districts for SSES review
North (1&2)
Industrial (8)
West (7)
Central (3&5)
Southeast (4&6)
1
2
3
4
5
6
7
8
Worthington
SERVICE & ENGINEERING

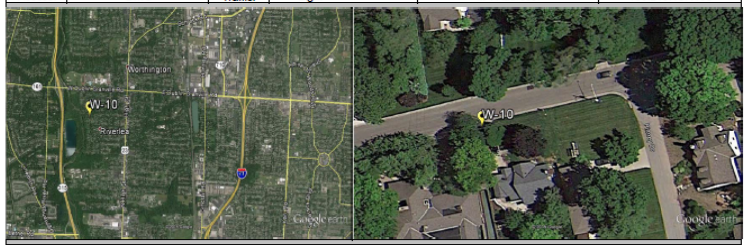
Sewer Study Benefits

Provide Flow & Response Data

ADS ENVIRONMENTAL SERVICES® — **SITE REPORT**

Project Name: Worthington.dlz.tfm.OH15
Project Number: 31910.11.100
Contact Name: Josh Brooks
Contact Number: 614.888.0040

Site Name:	W-10	Monitor Series:	FlowShark	Monitor S/N:	20182	Map #:	
Address / Location:	In grass of 355 W. South St.			Manhole #:			
				Pipe Diameter:		12 Inches	
Access:	Drive	Traffic:	Light	I.P. Address:		166.219.187.168	



Installation Information			Manhole Information		
Installation Type:	Doppler Standard Ring and Crank Installation		Manhole Depth:	10 Feet	
Sensors / Devices:	Ultra, Velocity, Pressure (Non I.S.)		Manhole Material / Condition:	Brick	Good
Monitoring Location:	Upstream	0 - 5 Feet	Air Quality:	20.9 O2, 0 LEL, 0 CO, 0 H2S	
Monitor Location:	Manhole		Min. M/H Opening Dia.:	Inches	
Rain Gauge Zone:			Manhole Diameter:	Inches	
Installation QC:	Thomas Plentak		Manhole Cover / Frame:	Unbolted	
Hydraulic Report / Rating:	Fast, choppy flow.		Active Drop Connections?	No	
			Pipe Material / Condition:	Vetrified Clay Pipe	Good
Surcharge Height:	Feet		Mini System Character:	Residential	

Confirmation at Installation Information:			Telephone and AC Power Information:	
Date/Time at Installation:	March 12, 2015	6:02 PM	Access Pole #:	N/A
Pipe Diameter:	12.13H X 12W Inches		Distance From Manhole:	N/A Feet
Pipe Shape:	Circular		Road Cut Length:	N/A Feet
Depth of Flow (Wet Dof):	2 Inches		Trench Length:	N/A Feet
Range (Air Dof):	8.5 Inches		AC Power Access Pole #:	N/A
Ultra. Physical Offset:	1.63 Inches		AC Power Trench Length:	N/A
Confidence (+/-):	0.38 Inches		Additional Site Information / Comments:	
Peak Velocity:	6 fps			
Silt:	0 Inches			
Pressure Serial #:	81634	0 -5 psi		
Performed By:	Jimmie Hinton			

Help Identify Problems

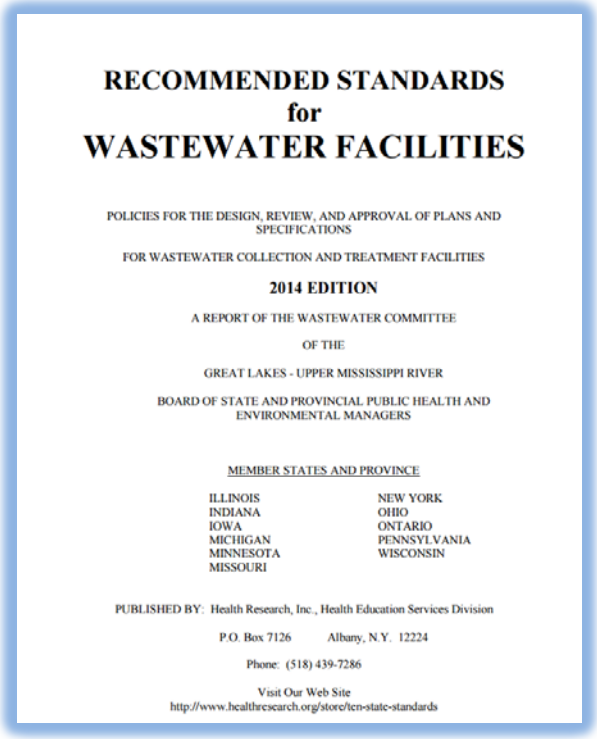
Sewer Study Benefits

Provide cost estimates for repairs needed

Pipe Segments 03-0154 to 03-0153 (CIP 618-15):

Based on the capacity evaluation of the current peak wet weather flows, DLZ recommends these existing 8-inch sewer segments be replaced with approximately 529 feet of new 12-inch diameter sewer for improved hydraulic capacity. These improvements correlate with WIB events described in Section 2.2, which occurred in June 2014 relative to East North Street and Crandall Drive. It should be noted, these improvements are to be implemented as part of the City's ongoing CIP No. 618-15. These sewer improvements are highlighted in green on **Figure 5-1** and are located along East North Street, between the intersections of Hartford Street and Morning Street. The opinion of probable cost for this project is provided below.

Probable Construction Cost	$165,000
Engineering Cost (10%)	$17,000
Construction Contingency (20%)	$33,000
Opinion of Probable Project Cost	**$215,000**



RECOMMENDED STANDARDS
for
WASTEWATER FACILITIES

POLICIES FOR THE DESIGN, REVIEW, AND APPROVAL OF PLANS AND SPECIFICATIONS

FOR WASTEWATER COLLECTION AND TREATMENT FACILITIES

2014 EDITION

A REPORT OF THE WASTEWATER COMMITTEE

OF THE

GREAT LAKES - UPPER MISSISSIPPI RIVER

BOARD OF STATE AND PROVINCIAL PUBLIC HEALTH AND ENVIRONMENTAL MANAGERS

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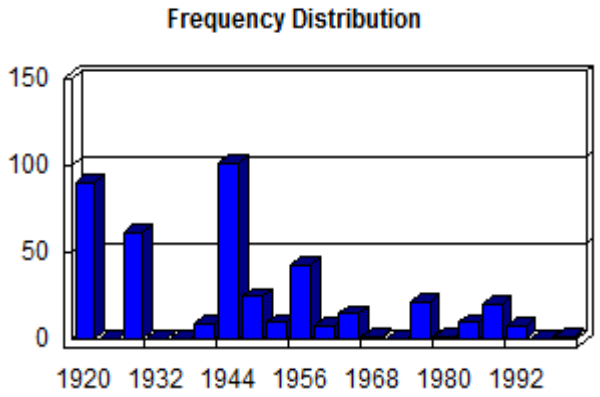
http://www.healthresearch.org/store/ten-state-standards

Ensures that the sewer system is designed and operating per the 10 state standards

Southeast Sewer Shed

Districts 4 and 6

average year built 1946



Southeast (4&6)

Southeast Sewer Study Update

Southeast Sewer Shed SSES:

Study completed in 2011, recommended improvements ongoing

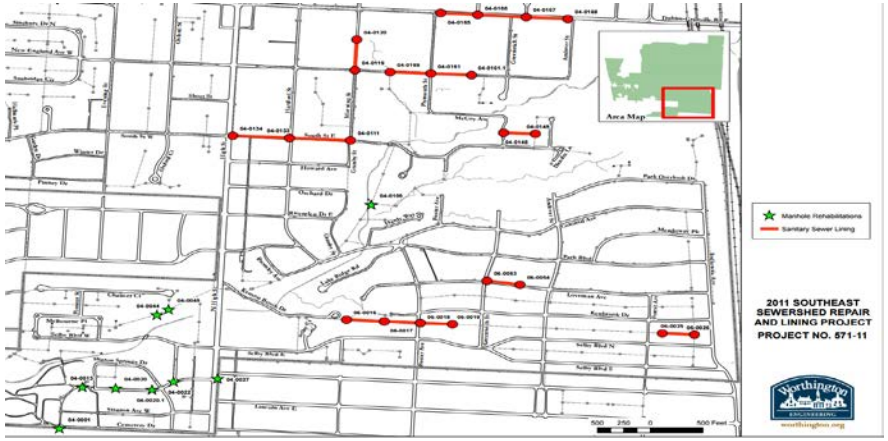
Completed

- *2012 Lined 5500 feet of sewer Manhole rehabilitation*
- *2013 Removal of Siphon and line trunk sewers*
- *2015 Lined 4300 Feet of sewer*

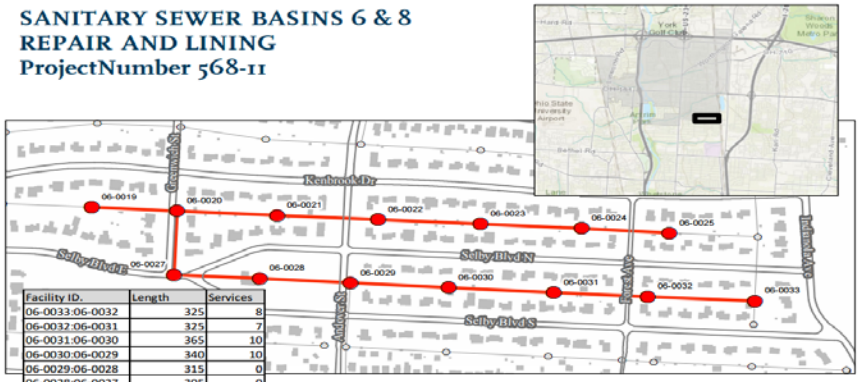
Southeast (4&6)

Southeast Sewer Study Update

Completed Projects



SANITARY SEWER BASINS 6 & 8
REPAIR AND LINING
ProjectNumber 568-11



Facility ID.	Length	Services
06-0033:06-0032	325	8
06-0032:06-0031	325	7
06-0031:06-0030	365	10
06-0030:06-0029	340	10
06-0029:06-0028	315	0
06-0028:06-0027	305	0
06-0027:06-0020	275	4
06-0025:06-0024	310	8
06-0024:06-0023	355	10
06-0023:06-0022	350	10
06-0022:06-0021	355	7
06-0021:06-0020	345	10
06-0020:06-0019	305	6
Totals	4270	90

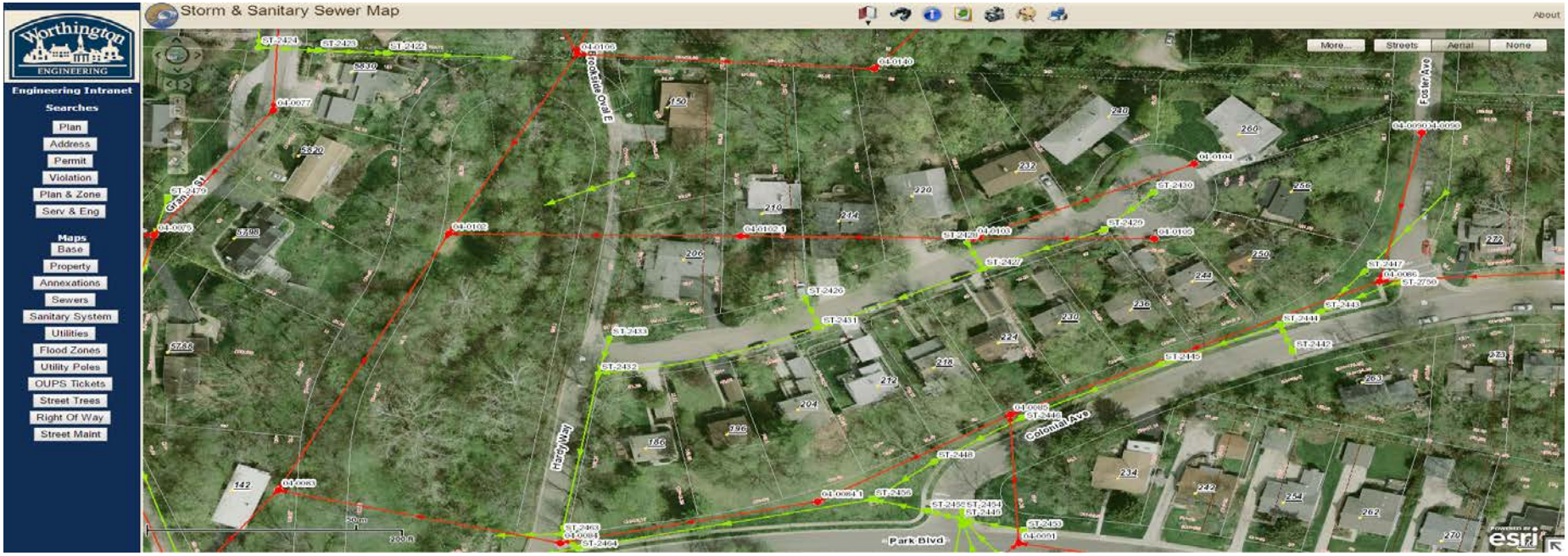
Worthington SERVICE & ENGINEERING
worthington.org

Southeast (4&6)

Southeast Sewer Study Update

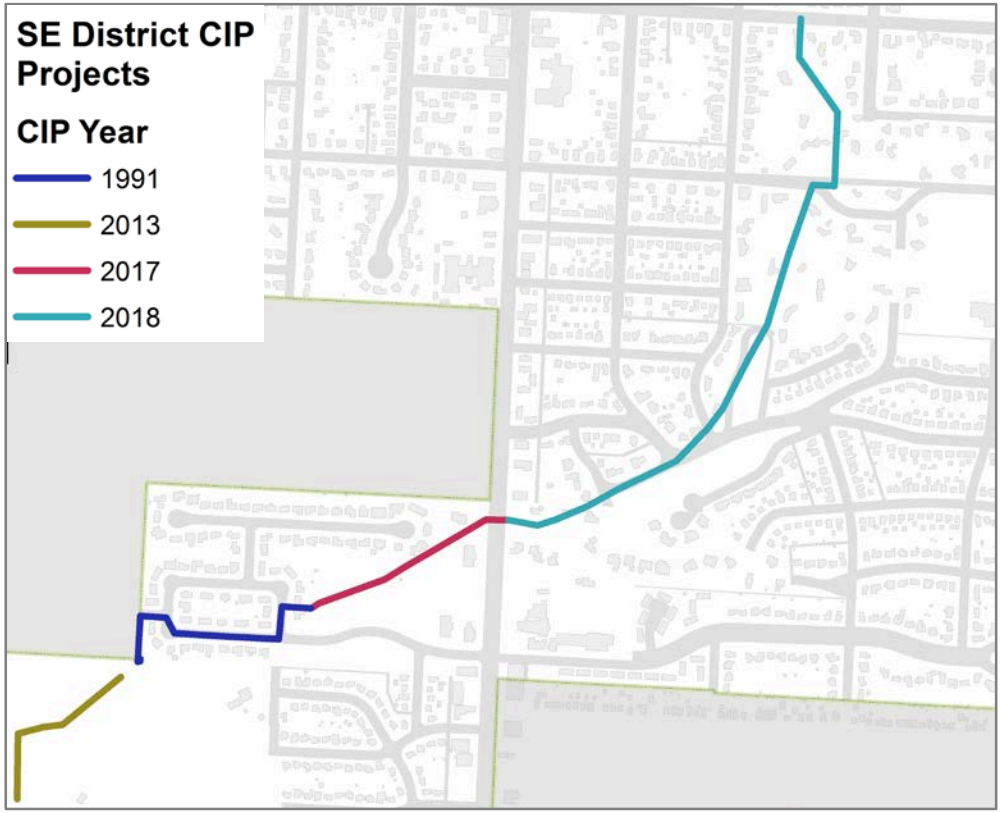
Ongoing Projects

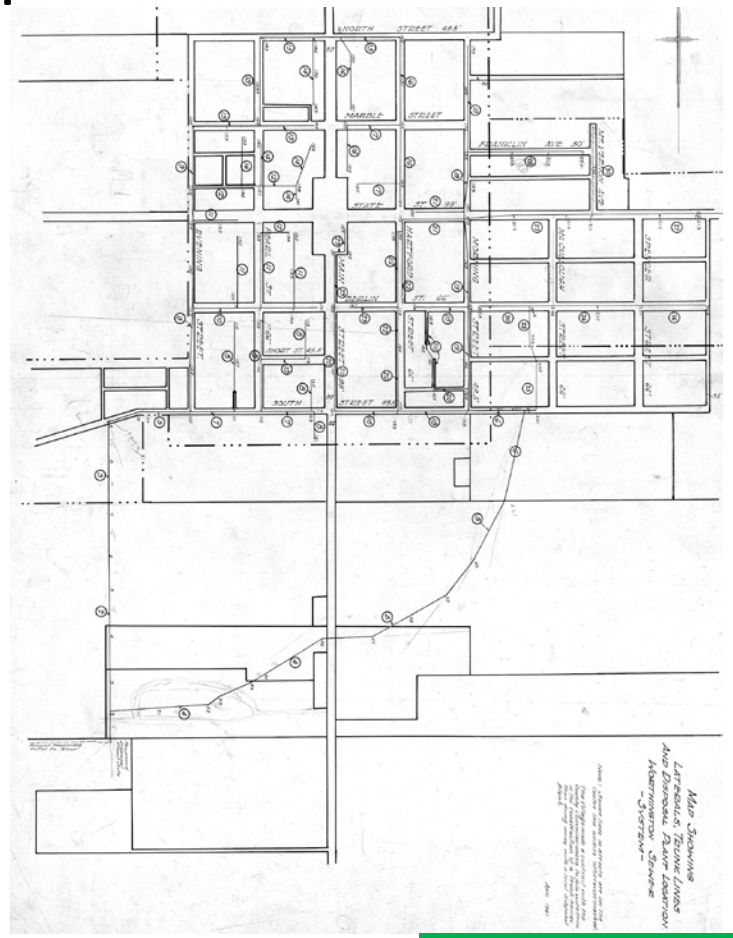
- ***2016*** *– began easement discussions, Northbrook Phase II sewer replacement*
- ***2017*** ***-*** *replace sewer in Northbrook Phase II (Northbrook Dr. to High St.)*
- ***2018*** ***-*** *design/replace Kenyonbrook Sewer (High St to New England Ave. E.)*
- ***2018*** *- Hardy Way; install sewer into r.o.w., remove sewer from under homes*



Southeast Sewer Study Update

Trunk Sewer Replacement





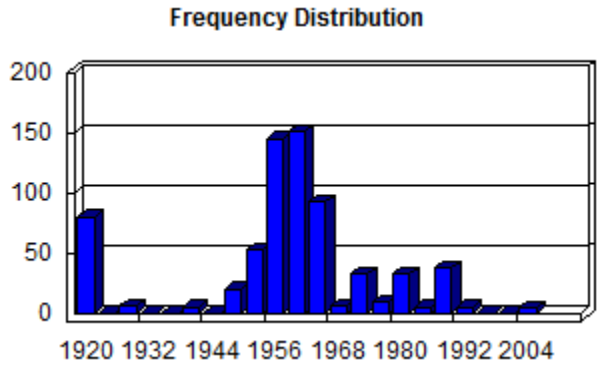
Southeast (4&6)

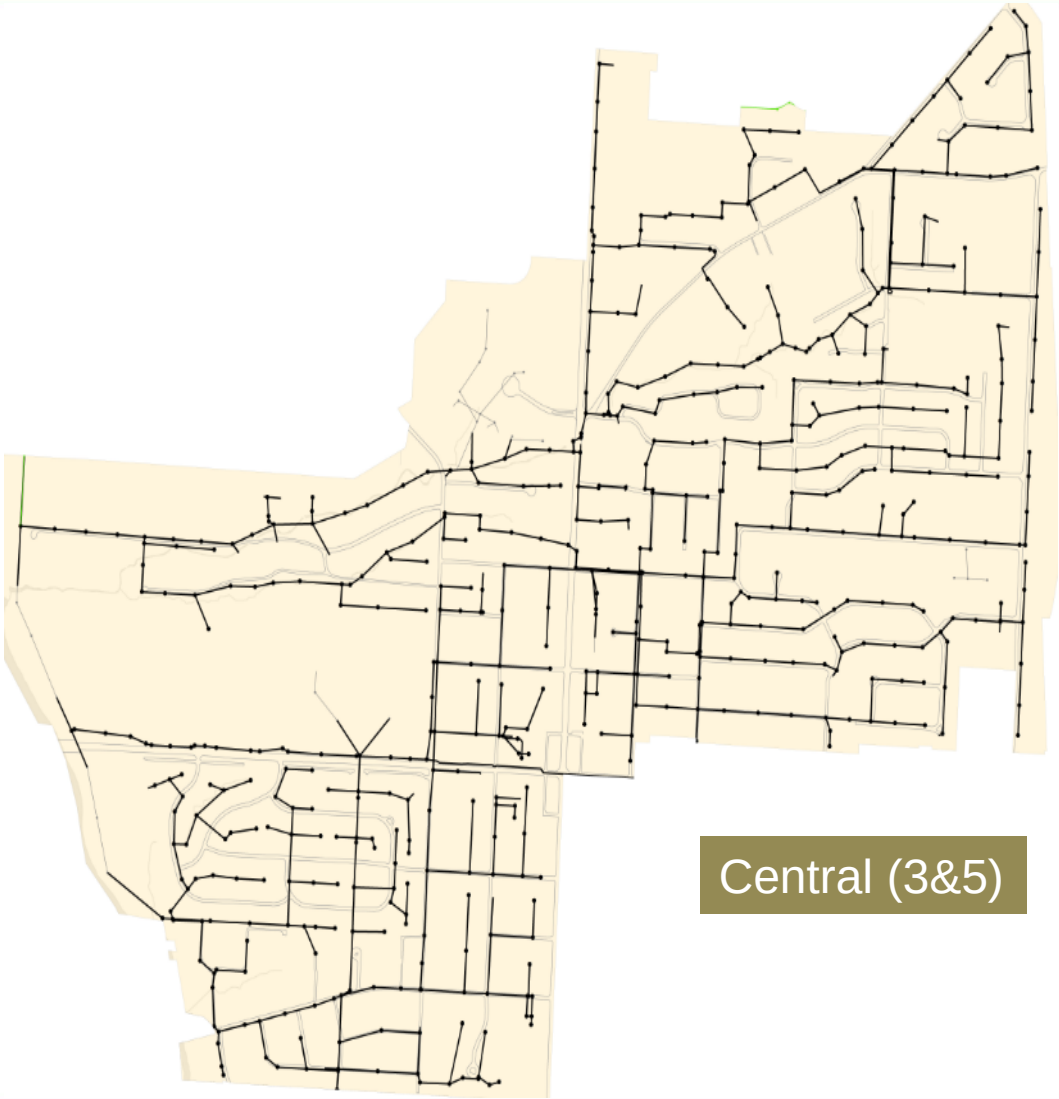
Central Sewer Study Update

Study began in 2015

Districts 3 and 5

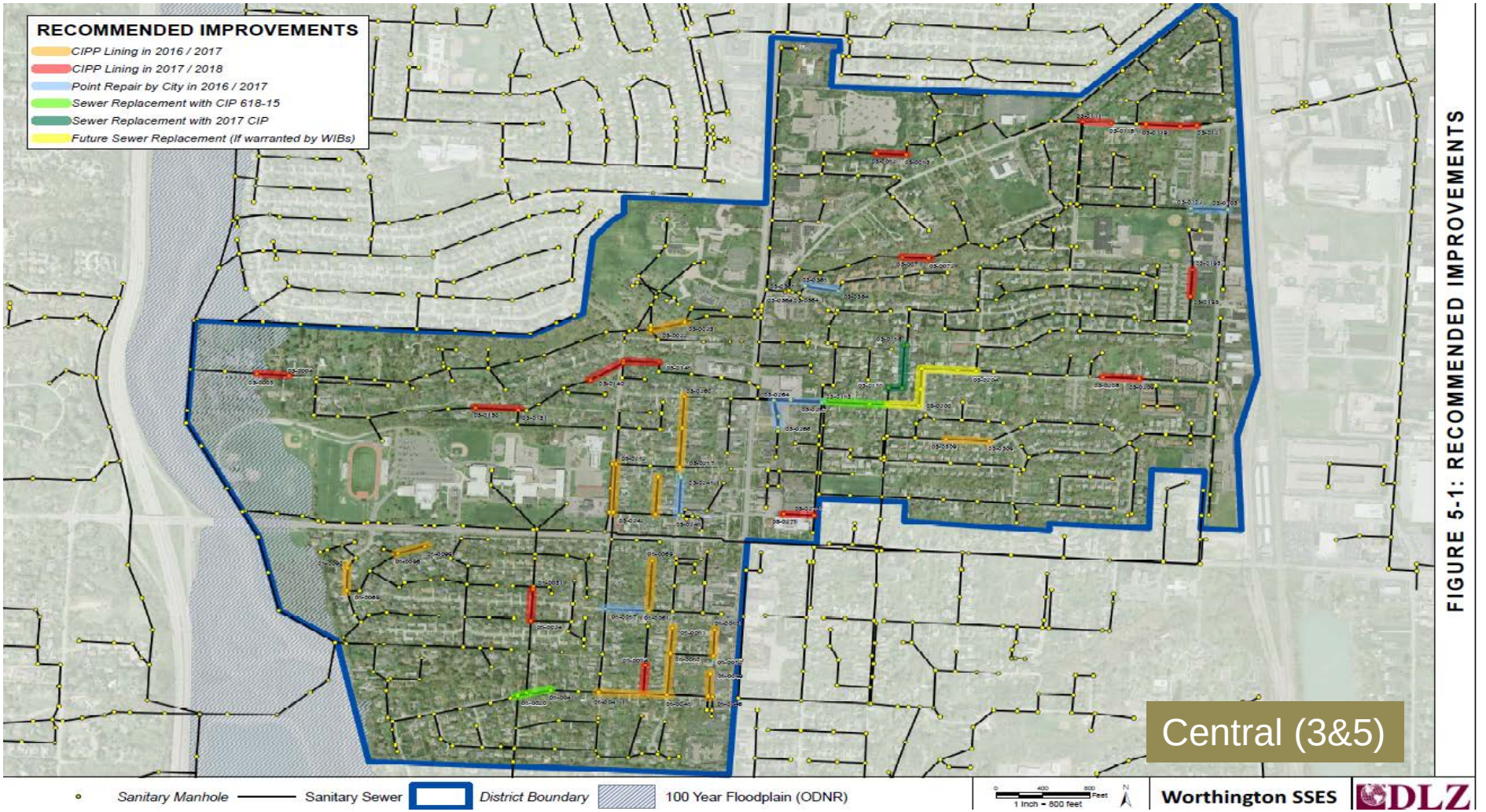
Average year built 1959





Central (3&5)

Central Sewer Study Update



Central Sewer Study Update

Study completed in 2016

Identified Repair/Replacements

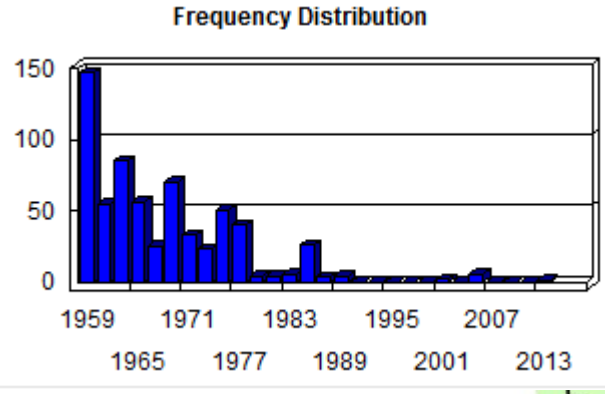
- **2016** -South St W. sewer repair / Completed
- **2016** -Recommended sewers to be lined is in process
- **2017**- Hartford/North St manholes need realignment (Design)
- **2017**- Design and replace sewer on North St. E. from Hartford to Ridgedale
- **2017**- Design/replace sewer on Morning St from Wilson Dr. to Morning St Alley
- **2017** – In house spot repairs identified in study to eliminate infiltration

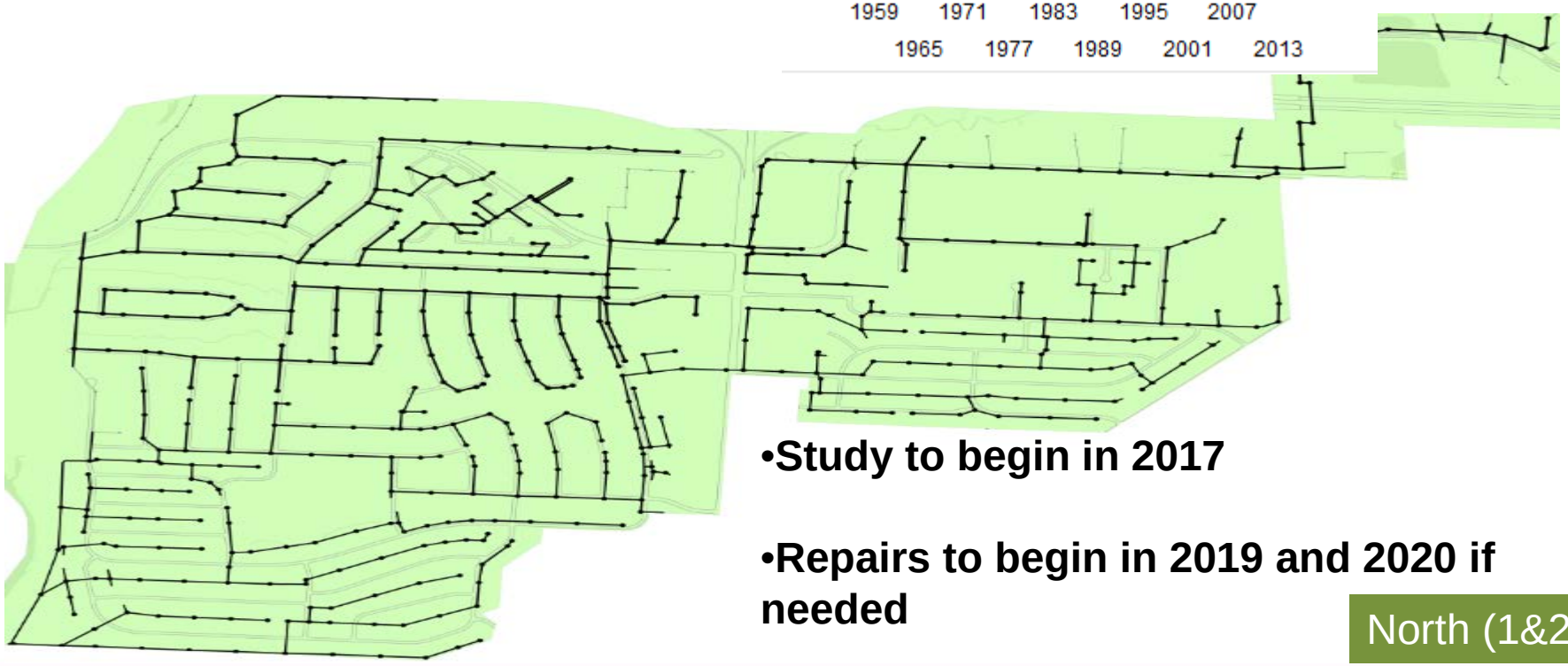
Central (3&5)

North Sewer Shed

Districts 1 and 2

Average year built 1968



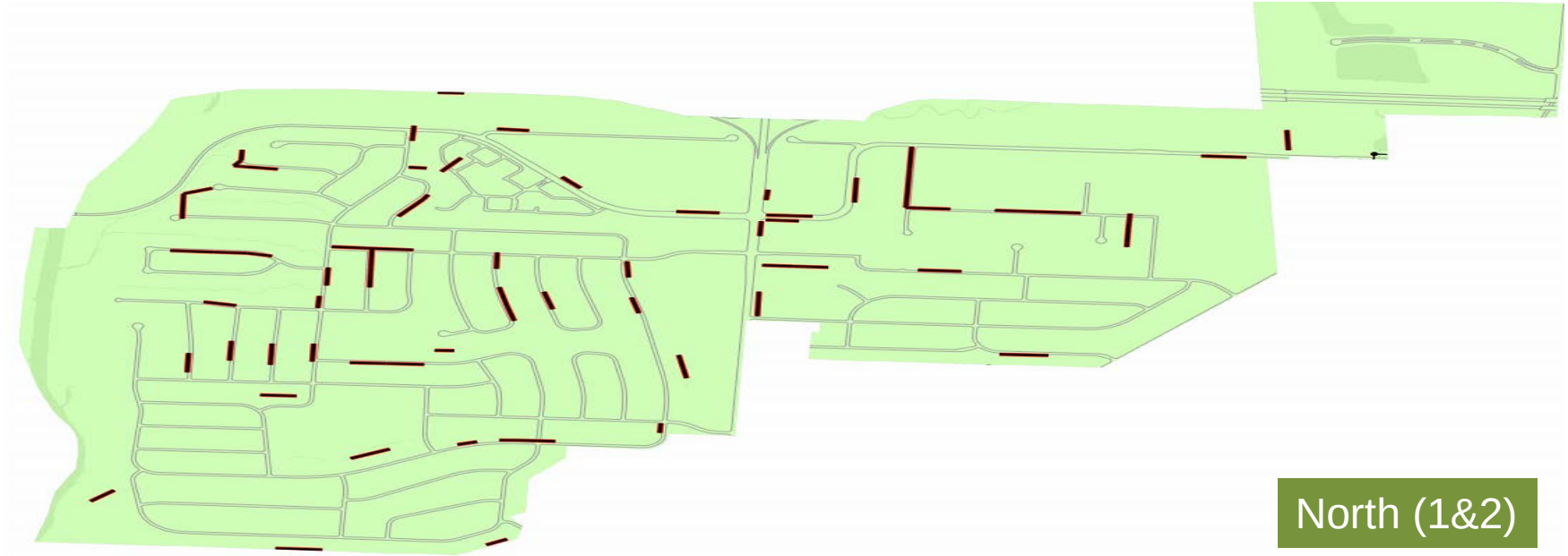


- **Study to begin in 2017**
- **Repairs to begin in 2019 and 2020 if needed**

North (1&2)

In House Data Collection

Data Collected by staff and potential Repairs and Replacements in the North Sewer Shed



North (1&2)

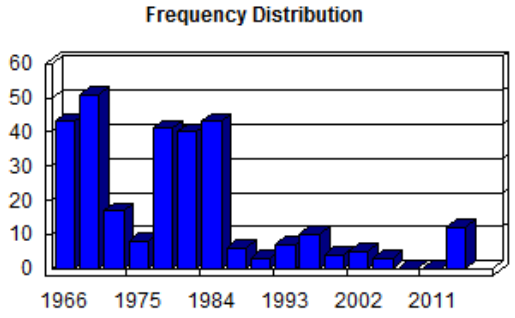
16387' of potential lining with IR, IW, IG, B, BSV, BVV, H, HSU, HVU, X

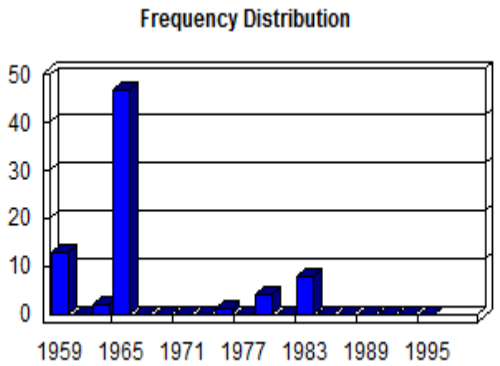
West & Industrial Sewer Sheds

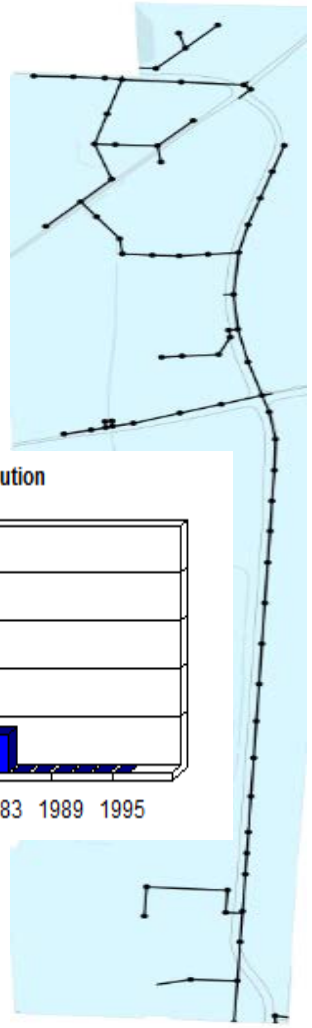
Districts 7 and 8

Average years built, 1980 West & 1968 Industrial

- Study to begin in 2020
- Repairs to begin in 2021 if needed, complete by 2023





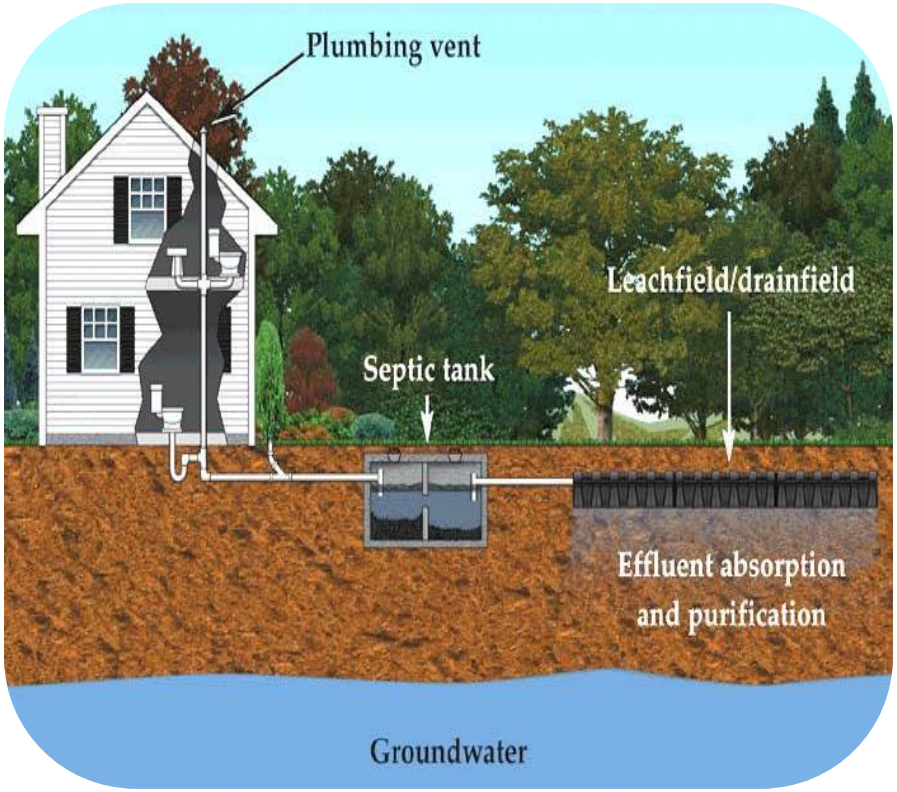


West (7)

Industrial (8)

Other Sewer Stuff

Home Sewer Treatment Systems (HSTS)



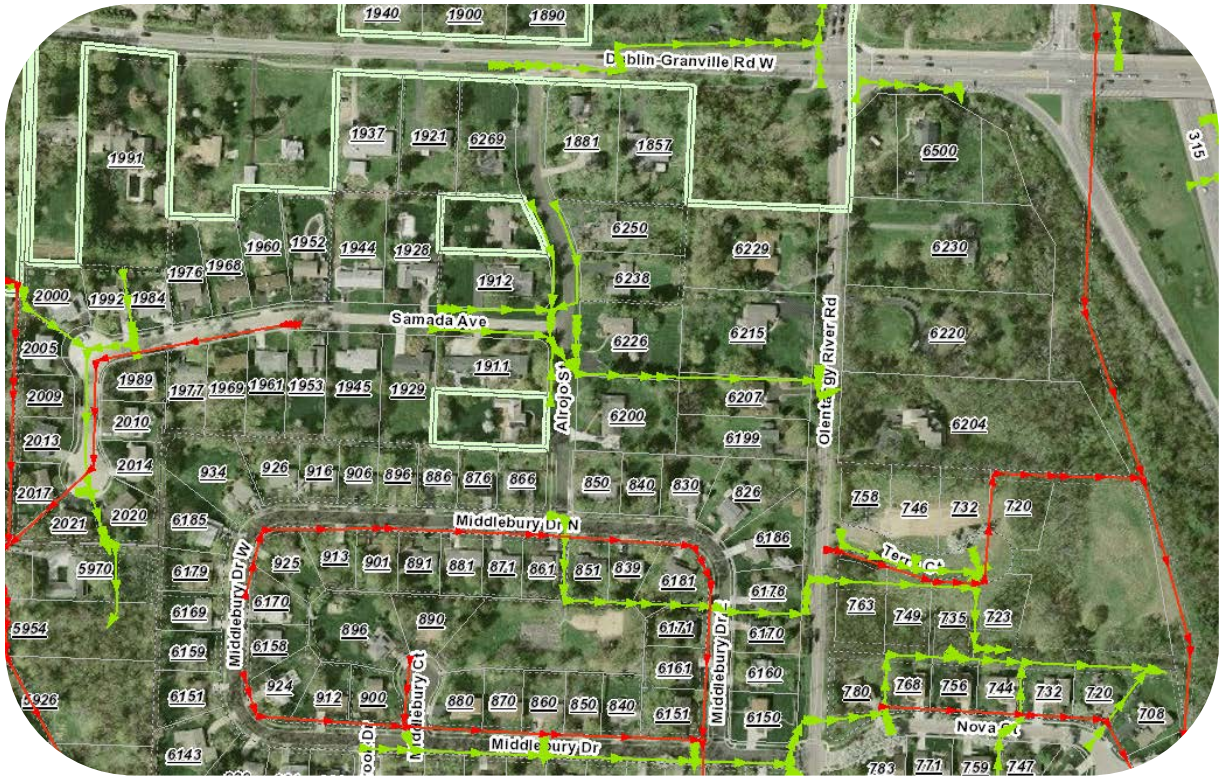
Sewers Outside of Recorded Easements

Home Sewage Treatment Systems (HSTS)

89 Private Sewer Treatment Systems

Alrojo*, Samada Dr*, Olentangy River Rd, Olen Dr,

Plesenton Dr*, Linworth Rd, Castle Crest*



2017 Projects

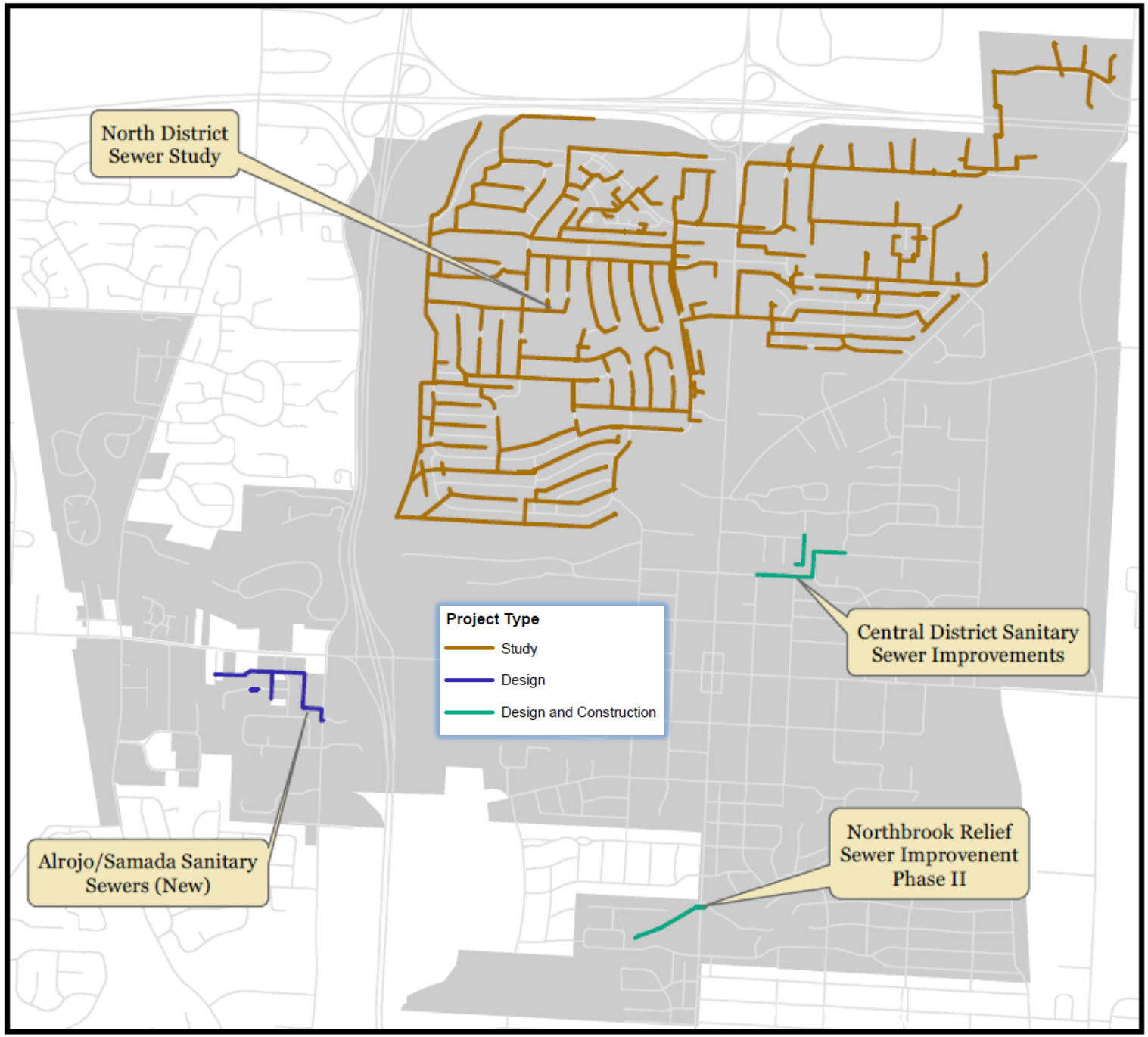
2017-2021 Capital Improvement Program - Projects

Project	Dept.	Category	Funding						Total
			CIP Fund	Bonds	Assessment	License Tax	State	Other	
Year: 2017									
Northbrook Relief Sewer Phase II (design update and construction)	S&E	LM		$460,000					**$460,000**
Replacement of the trunk sanitary sewer between High Street and Northbrook Subdivision. This project was recommended in the Southeast Sewer Shed Study / Master Plan, which was conducted in compliance to the Consent Order between the Ohio Environmental Protection Agency and the City of Worthington. Prior to bidding the project, the design will be reviewed and updated in consideration of the changes made to the Kenyonbrook Siphon Removal plans.									
Central District Sanitary Sewer Rehabilitation - (Morning Street Design & Construction)	S&E	LM		$215,000					**$215,000**
Replacement of 565 feet of sanitary sewer on Morning St. from Wilson Drive to the end of the street. Manholes 03-0158:03-0156 and 03-0156:03-0155. This section of sewer was identified in the Central District Sewer Study as in need of replacement.									
Central District Sanitary Sewer Rehabilitation - North & Hartford St Reconfiguration (Design & Construction)	S&E	LM		$62,000					**$62,000**
Sewer line reconfiguration at North Street & Hartford Street. Manholes were identified in the Central District Sanitary Sewer Study as in need of reconfiguration.									
Central District Sanitary Sewer Rehabilitation - North St Sewer Replacement (Hartford to Morning)	S&E	LM		$215,000					**$215,000**
Replacement of 530 feet of sanitary sewer from Hartford Street to Morning Street on East North Street. Manholes 03-0153.1:03-0153 and 03-0154:03-0153.1. This section of sewer was identified in the Central District Sewer Study as in need of replacement.									
Central District Sanitary Sewer Rehabilitation - North St Sewer Replacement (Morning to Ridgedale)	S&E	LM		$392,000					**$392,000**
Replacement of 1,125 feet of sanitary sewer on East North Street from Morning Street to Ridgedale Drive. This section of sewer was identified in the Central District Sewer Study as in need of replacement.									
North Districts Sewer Study	S&E	LM	$175,000						**$175,000**
Sanitary Sewer Evaluation Study (SSES) of the north sanitary sewer districts as mandated by the Director's Findings and Orders issued to the City by the Ohio EPA.									

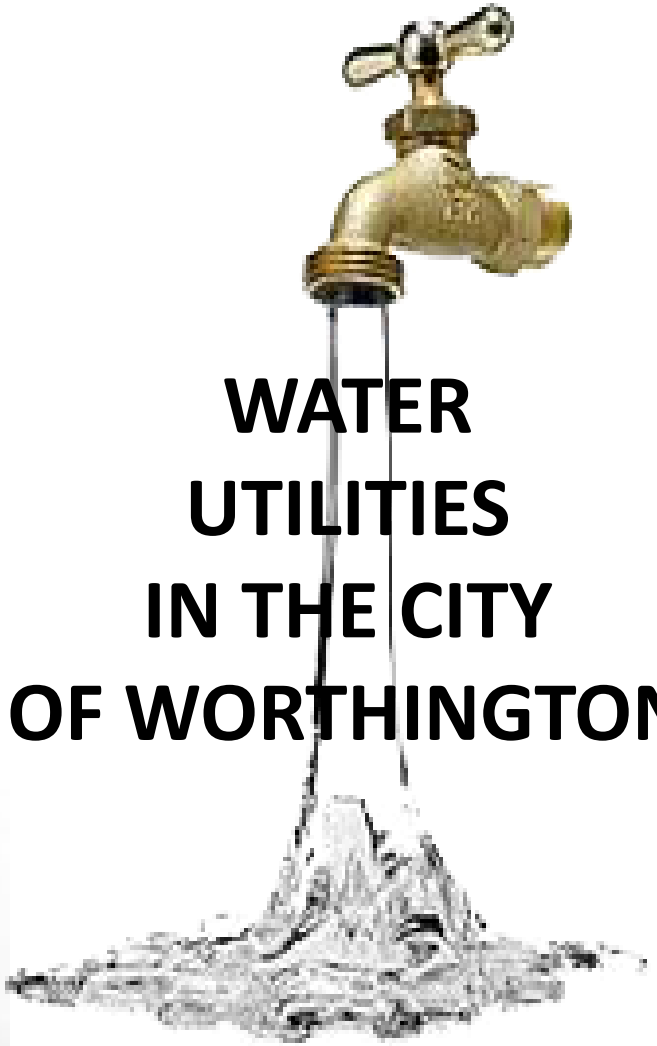
2017 Projects

PROJECT	Est Cost
2016 CIPP*	$160k
Northbrook Relief Sewer Phase II	$460k
Central District Sanitary Sewer Rehabilitation (Morning Street)	$215k
Central District Sanitary Sewer Rehabilitation (North & Hartford St)	$62k
Central District Sanitary Sewer Rehabilitation - North St Sewer Replacement (Hartford to Morning)	$215k
Central District Sanitary Sewer Rehabilitation - North St Sewer Replacement (Morning to Ridgedale)	$392k
North Districts SSES	$175k
TOTAL	**$1.67M**

2017 Sanitary Sewer CIP Projects



March 20, 2017
Council Meeting



WATER
UTILITIES
IN THE CITY
OF WORTHINGTON

Q&A

THANK YOU!

City of Worthington
Service & Engineering

Dan Whited, Director
Steve Tennant, Superintendent
Robb Wetmore, GIS Manager