

# Proactive Solutions Provide Success on a Fast-Track Project

A Discussion of Lessons Learned on a  
Time Sensitive Sanitary Sewer Project

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# Learning Objectives

During this presentation, the presenters will provide:

1. Examples of multiple challenges that were encountered and how **proactive thinking and creative solutions** kept this time sensitive project on schedule.
2. Examples of how careful **planning and coordination** was crucial to success.
3. Details of how **scheduled weekly meetings** with the entire project team, to proactively discuss potential issues, kept the project on track.



# Background Information

- More than **2 billion gallons** of untreated sewage annually was ending up in the local waterways from the CSOs in Akron, Ohio
- Environmental Protection Agency (EPA) mandated the city develop a **long-term control plan** to eliminate this overflow.
- The EPA consent decree required the city to **clean and inspect** every sanitary sewer asset in their system within a **five year period**.





# Background Information

- City of Akron, Sanitary Sewer Reconstruction (SSR) project was the final project in an investigation of approximately **18,870 manholes** and **20,878 sanitary sewer segments** (manhole to manhole)
- More than **860 miles** of sanitary and combined sewers
- City of Akron had started this project in 2010



# Project Scope

- The City found **220 assets** but then grew to **315 assets** after further research.
- SSR project had a fast-track schedule which had to be completed in the span of 8 months.
- City of Akron utilized the **construction manager at risk** delivery method. H.R. Gray provided CMAR services.
- Work began May 2015
- Work completed December 2015



# Client Goal

- The City of Akron's goal was to remain in compliance with the Environmental Protection Agency's consent decree's Achievement of Full Operation (AFO) deadline of December 31, 2015







# Project Scope

- Schedule, coordinate and supervise a team of inspectors who managed daily activities of identifying, inspecting, monitoring, cleaning and/or repairing the assets.
- Utilized six local construction companies as subcontractors.
- During the height of construction, there were a total of 12 crews strategically spread out over Akron's entire sewer service area, working on the various assets.



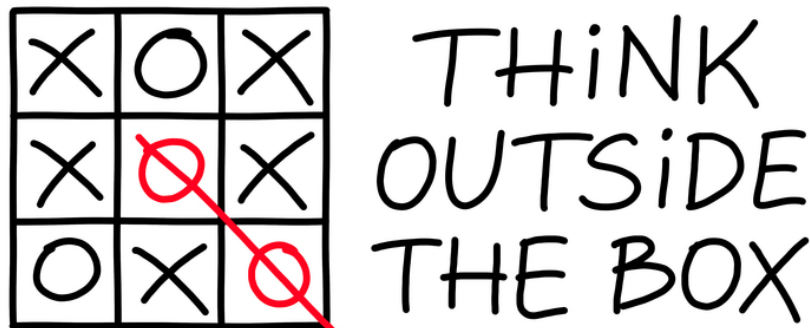
# Challenges

- Complete work by December 31, 2015
- Assets were the “worst of the worst”
- Needed to complete 10 assets per week
- Staffing – finding subcontractors to do the work.
- Information from the city did not always match what was in the field.
- Some locations (assets) were not easily accessible.
- Managing traffic (and public) in multiple scenarios.



# Learning Objective 1

**Proactive thinking and creative solutions**  
kept time sensitive project on schedule.



# Learning Objective 1

## **Example: Obstruction found in line of asset**

- Power pole driven through sewer pipe
- Existing sewer pipe could not be relocated
- Power pole could not be relocated

## **Potential for project delays**

- 12 month delay to the project while utility re-designed the area
- Complete re-design of the sewer would be necessary

Lateral locations are approximate per CCTV reports

Laterals shall be reconnected per the City of Akron Construction and Maintenance Specifications. Must ensure positive drainage to sewer connections. To ensure positive drainage, install a 45 degree bend and cleanout at each lateral connection

Abandon Asset 435801 in place

Rehab bottom of MH, install full bench 308460

New Segment 768881  
New sewer segment\* - use minimum possible bend in manholes

Approx. location of existing gas line (not shown)

Abandon Asset 435799 in place

Lateral

Lateral

Lateral

Lateral

Lateral

Lateral

Waterloo Rd

E Waterloo Rd

E Waterloo Rd

E Waterloo Rd

New MH\*  
New MH 768878

Rehab bottom of MH, install full bench 308475

New sewer segment\*  
New Segment 768882

\*New sewer segments and manholes shall be installed per the EPA Submittal Documents dated July 8, 2015 and City of Akron Construction and Maintenance Specifications and Standard Drawings

New MH\*  
New MH 768879

New sewer segment\*  
New Segment 768883

\*Special care shall be taken to protect the existing utilities including watermain, gas lines, catch basins, storm lines and power poles during construction of the new sewer segments, manholes, and reconnection of the laterals.

New MH\*  
New MH 768880

New sewer segment\* - use minimum possible bend in manholes  
New Segment 768884

Google



# Learning Objective 1

## Solution:

- Sewer line relocated into the road with 3 new manholes, 1,000 feet of sewer pipe, and 6 new laterals
- 2 day repair turned into a 3 month project



# Learning Objective 1

## **Example: Obstruction in 72” storm sewer**

- Located 500 feet from main road, inside Summit County Metro Parks
- Backflow from river, assumed debris obstruction
- Attempted video surveillance twice
- Excavation in multiple locations
- Pipe sunk – pipe run of 200 feet had to be replaced







# Learning Objective 1

## Solution:

- Unstable conditions required structural solution before pipe could be replaced
- Spent 2 months developing design that would structurally support new pipe





# Learning Objective 2

Careful **planning and coordination** was crucial to success.



# Learning Objective 2

## Example: Coordination with railroads

- Identify affected railroad
- Required research to find railroad owners
- Had to contract with cleaning and video company to place camera on rail-car rig
- Had to be scheduled one month in advance
- Could only work certain hours – short window of time to complete work

# Learning Objective 2

## Lessons learned:

- Clean and inspect asset immediately upon completion
- Some assets had another obstruction between the time of repair and cleaning/inspection. Had to perform second restoration
- Disturbed property owner, additional costs



# Learning Objective 2

## Lessons learned:

- Scout future locations with contractors/inspectors
- Developed asset schedule
- Determine potential problems
- Coordinate in advance with stakeholders, identify utility or traffic conflicts
- Minimize downtown for contractor, develop creative solutions in advance of work



# Learning Objective 3

**Scheduled weekly meetings** with the entire project team kept the project on track.



# Learning Objective 3

## Weekly meetings: Multiple players

- City of Akron Traffic, Sewer, Public Works and Construction departments
- Public stakeholders included First Energy, Dominion East Ohio Gas, cable/IT companies (e.g. Time Warner, AT&T), Metro Parks, Metro RTA, railroads and homeowners
- City inspectors – invaluable researching historical drawings and coordination with utilities





# Learning Objective 3

## Weekly meetings: Issues log

- If asset started and could not fix entirely, we moved on
- Added this asset to “Issue Log”
- Next meeting, this asset issue was discussed
- Allowed time/teamwork to brainstorm game plan and formulate solution
- Downtime was kept to minimum



Inspector	ASSET ID	MH ID#	Subcontractor	Construction Start Date	Construction End Date	FINAL CLEAN & INSPECTION DATE	To B&N	B&N Approv	Changes/Notes	Future Work Needed	Punch List
	365486			N/A	N/A	11/6/2015	B&N 3	11/19/2015	Clean and Inspect only - per construction documents.	NO	NO
PC	365541	309355	Canal	7/6/2015	7/16/2015	N/A	2015.12.17	2015.12.17	Excavated to locate and repair 30" water line per Fred Fassnacht, however, no repair needed. N/A Per Barry Pruitt on 11/30/2015. ( Submitted under B&N1, Survey Abandoned - HR Cray confirmed inspection was for investigation purposes only.) After further investigation, asset to be abandoned per Barry Pruitt.	NO	YES
	365787	299427	H.M. Miller	N/A	N/A	N/A	2015.12.17	2015.12.17	N/A per Barry Pruitt on 11/30/2015.	NO	NO
		299410		N/A	N/A	N/A	2015.12.17	2015.12.17			
				N/A	N/A	N/A	2015.12.17	2015.12.17			
	366016		H.M. Miller	N/A	N/A	9/29/2015	B&N 3	Video OK, downstream MH not required		NO	NO
PC/ZB	366412		H.M. Miller	9/22/2015	9/22/2015	10/6/2015	B&N 4	12/1/2015	Line inactive/abandoned Dye test confirmed Per COA. See as-built for dye locations. ** THIS LINE IS ACTIVE - IT DIVERTS THE FLOW FROM UPSTREAM OF MH 299365 TO THE 54". ***Future Work - hole in line 8.5' DS of MH 299365 - Soil visible.	YES	NO
TT	366801		H.M. Miller	6/1/2015	6/11/2015	8/6/2015	B&N 2	2015.10.19		NO	YES
BW	366881		Cioffi	6/23/2015	6/24/2015	8/7/2015	B&N 2	2015.10.19		NO	YES
		291619		N/A	N/A	7/27/2015	B&N 3	2015.09.09		NO	YES
HM	366937		Canal	5/21/2015	5/26/2015	7/10/2015	B&N 1	2015.09.09	Both obstructions found in one location; unnecessary excavation due to scope wording; 2.5 - DAYS Extra WORK. Extra restoration work.	NO	YES
HM	367096		H.M. Miller	5/20/2015	5/27/2015	7/28/2015	B&N 2	2015.10.19	4-DAYS EXTRA WORK; Existing waterline above sewer rear. Extra work to temporarily remove & reconnect	NO	YES
PC	367367		H.M. Miller	9/14/2015	9/15/2015	N/A	N/A	2015.09.16	No CCTV Required - COA already inspected. See email dated 2015.09.16 from Brandon Long.	NO	YES
		303631		N/A	N/A	8/5/2015	B&N 1	2015.09.09		NO	YES
PC	367547		H.M. Miller	8/11/2015	8/11/2015	11/30/2015	B&N 9	12/21/2015	Botzum - Non Perform Manhole Install Per COA Fred Fassnacht.	NO	YES
		ID TBD		N/A	N/A	N/A	2015.12.17	2015.12.17		NO	YES
PC	367602		H.M. Miller	6/24/2015	6/26/2015	N/A	2015.09.30	2015.10.07	Excavated for new MH install over 8" SAN lateral; no existing 8" SAN lateral. Found two 6" laterals and one 12" lateral; 12" was capped. None perform new MH construction per Barry Pruitt, C.O.A., backfilled with CDF and restored pavement. 3-DAY change order work. Reviewed with B&N 2015.10.07	NO	YES
		ID TBD (DNP)		N/A	N/A	N/A	2015.09.30	2015.10.07		NO	YES
PC	368238		H.M. Miller	7/9/2015	7/28/2015	7/28/2015	B&N 2	2015.10.19	By Pass pump.	NO	NO
PC	368239		H.M. Miller	7/9/2015	8/13/2015	7/30/2015, Final on 8/17	B&N 2	2015.10.19	By Pass pump. 8/12 - Per CCTV, line broken at MH. When exposed, line is cased in concrete except at the MH where it was broken - HMM repaired bell piece and encased in concrete.	NO	YES
	368316		H.M. Miller	9/28/2015	9/30/2015	11/4/2015	B&N 6	12/18/2015	Notify Childrens Hospital	NO	NO
	368366		H.M. Miller	need date	11/3/2015	12/10/2015	B&N 8	12/21/2015	MH to be re-classified as junction chamber.	NO	YES
		303411		need date	need date	N/A	2015.12.17	2015.12.17			
	368367		H.M. Miller	need date	11/3/2015	12/10/2015	B&N 9	12/21/2015			
	368776		Kenmore	11/1/2015	11/2/2015	11/4/2015	B&N 6	12/18/2015	need to install locking casting.	NO	YES



# Learning Objective 3

## Weekly meetings: Sharing experiences

- What went right, what went wrong
- Team learned from experiences, helped with future planning
- Discussed upcoming assets, what problems may be encountered
- Determined what coordination might be required
- Information gathering



Thank you for attending this session.

# Questions?

