Introduction

Owner: City of Anderson

Tom Broderick, Mayor
David Eicks, BPW Chairman
Nara Manor, WWTF Superintendent
Mike Spyers, PE, City Engineer
Walter Evans, Assistant City Engineer
Samantha Pancol, Public Information Officer

Engineer: United Consulting

Bill Hall, PE, Vice President
Keith Bryant, PE, Vice President
Kelly Cunningham, PE, Project Manager
Introduction

Contractor: Insituform Technologies USA

Ken Quillen, Area Manager
Duane Ginderske, Project Manager
Kerry Lane, Operations Manager
Jay Ferguson, Business Development Manager
Introduction

Subcontractors: Rain for Rent
Thieneman Construction Inc.
Commercial Sewer Cleaning
Project Description

The Project included lining the 84-inch and 96-inch Greensbranch Sewer under Locust Street from 13th Street to 9th Street and under 9th Street from Locust Street to Arrow Avenue (approximately 3,500 feet total). The brick access manholes along the sewer route was also be lined as part of this project. The Project is required by the State of Indiana (IDEM) as part of the City’s Combined Sewer Overflow (CSO) Long Term Control Plan.
History of Greensbranch Sewer

- Originally called the Greensbranch Ditch prior to 1920. The headwaters began at 25th Street and headed north.
History of Greensbranch Sewer

- From 1920 to 1923, the ditch was filled in with 84 in. and 96 in. diameter clay block pipe.
History of Greensbranch Sewer

- 25th Street was and is also a contour break for both Prairie Creek & White River watersheds in the city of Anderson.
History of Greensbranch Sewer

- Prior to contraction in 1920, the Greensbranch served both as a ditch and a sewer in the city of Anderson.
History of Greensbranch Sewer

- It was a very reliable pipe conveyance for the city.
Current status of Greensbranch Sewer

- All of the conveyance went north to White River.
- It is a combined sewer and a part of a CSO treatment plan that was completed in 2009 and constructed by 2011.
Relative Project Scale
GREENSBRANCH SEWER REHABILITATION PROJECT

Area Map
Location Map

Project Location
Rehabilitation vs Replacement

- Replacement of 84”/96” sewers is not economical.
- Rehabilitation will provide sewers 50 more years of service life and is less expensive.
- Several rehabilitation options were evaluated with the less expensive and better option selected.
Project Purpose/Benefits

- Comply with State & Federal Mandates
- Reduce Flow to the Treatment Plant (WPCF) – Provides Operational Cost Savings ($$)
- Provide Structural Stability – Avoid High Cost Emergency Repairs from Catastrophic Failure ($$$)
Costs

• Original Estimate = $5.9M
• Bids ranged from $2,873,887.60 to $7,724,453.67
• Four bids were evaluated with 2 Cured in Place Pipe (CIPP) bids vs. 2 Centrifugally cast concrete (CCCP/CCGP) pipe bids
• Selected Bid Amount = $3,841,945.60
• Final Contract Amount = $3,821,298.94
Clear Water Infiltration

Collapse @ Locust & MLK Blvd
Why the need for Sewer Repairs?

- Eliminate Water coming into or out of the Sewer (infiltration and exfiltration)
- Prevent Sinkholes and Surface Settlement
- Increase Sewer Flow
- Protect Pipes from Corrosion
- Increase Pipe Strength
- Reduce Maintenance
- Renew the Sewer so that it has a life of 50 to 100 years
How did we do it?

Project is performed in stages:

• Preparation (Measurements, Notifications, Onsite Review)
  - Pipe measurements are important to make sure that everything fits
  - Handouts, online sites, doorhangers, TV, etc. – Working to keep you informed
  - Onsite review/walk-through will be completed as a rehearsal prior to beginning

• Site Preparations (Traffic Devices, Safe Zones and Marked Access Areas)
  - Project requires that we work in the middle of the street.
  - Traffic will be planned, monitored and maintained in order to keep everyone safe.
  - Clear marking of routes and access points.
  - Safety is our Top Priority
How did we do it?

- Bypass Pumping Setup (diverting the flow of the sewer)
  - Sewer Bypass Systems allow the flow to continue during the rehabilitation process.
  - Cleanouts will be used to monitor and maintain sanitary sewer service for all affected properties. If no cleanout exists one will be installed.
  - A pump or pump truck will keep the line from getting full via the cleanouts. This function will continue until the main lining is completed and normal flow is restored.
How did we do it?

- **Sewer Line Cleaning**
  - All debris must be removed in order to install CIPP.
  - Large vactor or suction trucks, in combination with a water jet nozzle, are utilized to clean the pipe from the manhole access.
  - Debris, sediment, roots and other obstructions cause your sewer to run slow or to build up. The vactor truck and nozzle will clear it all out.
  - Larger obstructions require “Man Entry” cleaning efforts.
Who is Insituform and What is Sewer Rehabilitation?

- In business since 1971.
- Innovator of the Cured in Place Pipe (CIPP) Technology.
- Largest installer of CIPP globally
- Over 30,000 Miles of CIPP installed

What is Cured In Place Pipe (CIPP)?

- Otherwise known as Trenchless Technology (repairing without having to replace the entire system)
- CIPP is the most commonly used method of trenchless rehabilitation
- Restoring the pipe condition to an equal or better state than when it was new.
How did we do it?

- Setup and Preparation for CIPP Installation
  - Manhole modifications are required due to the size of the pipe to be rehabilitated.
  - Some excavations will also be required for the bypass operations to work effectively.
  - Due to the size of the CIPP liner to be installed, an “Over the Hole” Wetout is necessary. This setup requires all lining material and equipment be placed on site in order to complete the wetout and installation process.
How did we do it?

- “Over the Hole” Installation of the CIPP Liner (shift equipment as needed)
  - 2 Over the Hole setup locations
  - 3 separate installations
  - Equipment will have to be shifted in order to complete all installations. Over the Hole setup requires a great deal of equipment and space.
  - Installations and equipment shifts are rehearsed in order to minimize the duration.
  - Insituform will be working around the clock to complete the lining work quickly.
**How did we do it?**

- **Once the Installations are complete:**
  - Manhole Rehabilitation will take place following CIPP Installation
  - All heavy equipment will be moved from the site as soon as the work is completed.

- **Project Area Restoration**
  - There are areas of the worksite that will require some restoration. We will fix what we touch.
  - We will be filming the project site condition prior to and after construction.
  - We will leave the jobsite in as good or better condition than before we started.
Project Timeframe:

• Schedule:
  - Pre-Measurements/Site Walk: May 22 – June 11, 2017
  - Public Meeting: June 7, 2017
  - Traffic Control/Bypass Pump Setup: June 12 – July 12, 2017
  - Install Structures and Cleanouts: June 12 – July 12, 2017
  - Sewer Cleaning: July 12 – July 14, 2017
  - Lining Work: July 17 – August 6, 2017
  - Remove Bypass/Traffic Control/Restoration and Site Cleanup: August 7 – August 25, 2017

• Complete Construction Schedule:
  - Construction would start June 12, 2017 and was scheduled to be completed by August 25, 2017. However, weather, contingencies and utility schedules increased the completion time to October, 2017
Traffic Control Plan

- Locust Street would be closed to through traffic and would have no on-street parking for the duration of the Project, but will be accessible to local traffic from the east with 1-way travel from south to north. The west side sidewalk along Locust Street will also be closed between 9<sup>th</sup> Street and 14<sup>th</sup> Street.
- The alley (Atwood Drive) between 9<sup>th</sup> and 10<sup>th</sup> Streets would be closed for the duration of the Project. Henry, Laurel and Sycamore Streets would also be closed to through traffic at this alley.
- Portions of 9<sup>th</sup> Street will be closed for the majority of the Project, but will be accessible to local traffic from the east, west and north.
- Nichol Avenue and 10<sup>th</sup>, 11<sup>th</sup>, & 13<sup>th</sup> Streets will be closed to through traffic at Locust Street.
GREENSBRANCH SEWER REHABILITATION PROJECT
Public Notifications on Project Status

Status Updates Provided Weekly

TV: Comcast channel 18, ATT U–Verse channel 99
Radio: WHBU 1240 AM, 103.7 FM
Newspaper: Herald Bulletin
City’s Website: http://www.cityofanderson.com/
Facebook: @anderson.indiana
GREENSBRANCH SEWER REHABILITATION PROJECT
GREENSBRANCH SEWER REHABILITATION PROJECT
GREENSBRANCH SEWER REHABILITATION PROJECT
GREENSBRANCH SEWER REHABILITATION PROJECT
GREENSBRANCH SEWER REHABILITATION PROJECT
GREENSBRANCH SEWER REHABILITATION PROJECT
GREENSBRANCH SEWER REHABILITATION PROJECT
What we learned from project

• Roads, curb and sidewalk were damaged as a result of the access structures/pits (4–total), bypass pumping system and force mains, and Insituform staging area. The restoration related to the bypass pumping system/force mains and Insituform’s own equipment may not have been accounted for by the subcontractor that was in charge of the underground work.

• As a result of the work being performed within shored pits (prior to installation of the structures), the disturbed pavement areas became larger than expected due to undermining and pump vibration. The City also made the Contractor square up the patches and in some cases go curb to curb, which ultimately added to the project cost.
What we learned from project

- It took 6 weeks to get the bypass pump system and force mains installed. During this time, traffic control measures were staged so that roads (especially Nichol Ave) could remain open as long as possible. Weekly updates were provided to the City and presented on their website, Facebook page, etc. to keep the residents informed.
- There were impacts to pedestrian traffic due to sidewalks being blocked. A wooden stairway was fabricated so that pedestrians could cross over the bypass pump force mains.
- There was also an unregistered, abandoned vehicle parked on the road that eventually had to be towed because it was in the way.
Questions?

Walter Evans, Assistant City Engineer
Phone: (765) 648-6129
Email: wevans@cityofanderson.com