



Beneficial Project Resequencing*

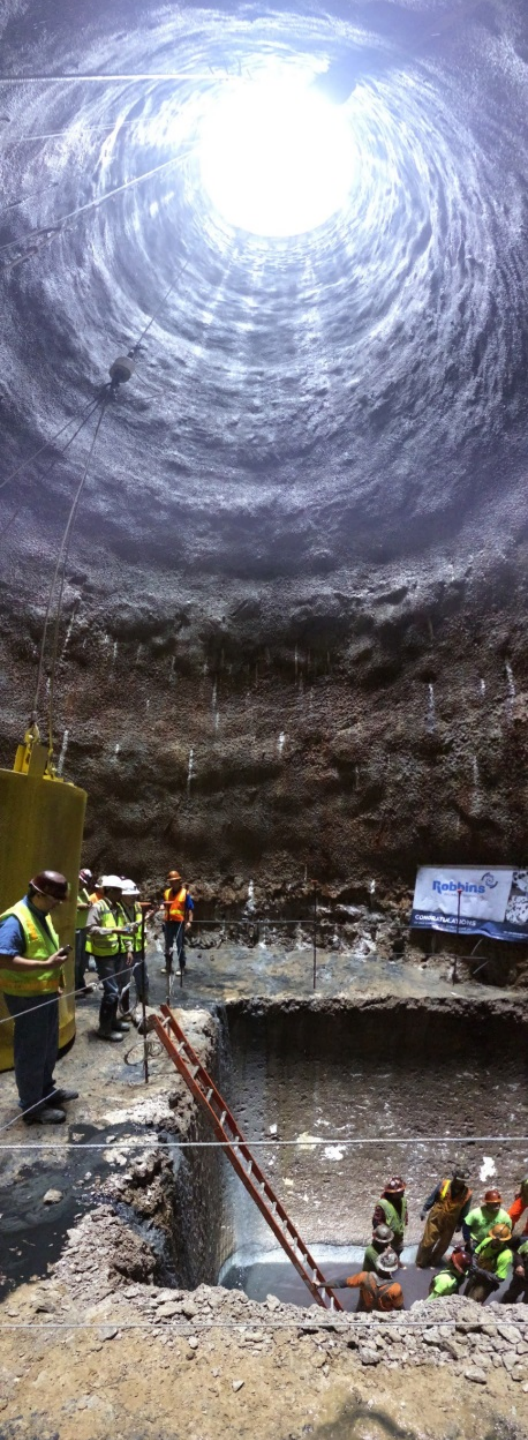
Fall Creek Combined Consolidation Sewer Project - Phases I&IA

*Alternate title – How We Ruined the Commute for Tens of Thousands of Indianapolis Drivers,
Which Had to be Done Sooner or Later, So Why Not Sooner?

Presentation by:

Jessica Bastin, PE – Manager of Planning and Design

Michael Miller, PE – Manager of Construction



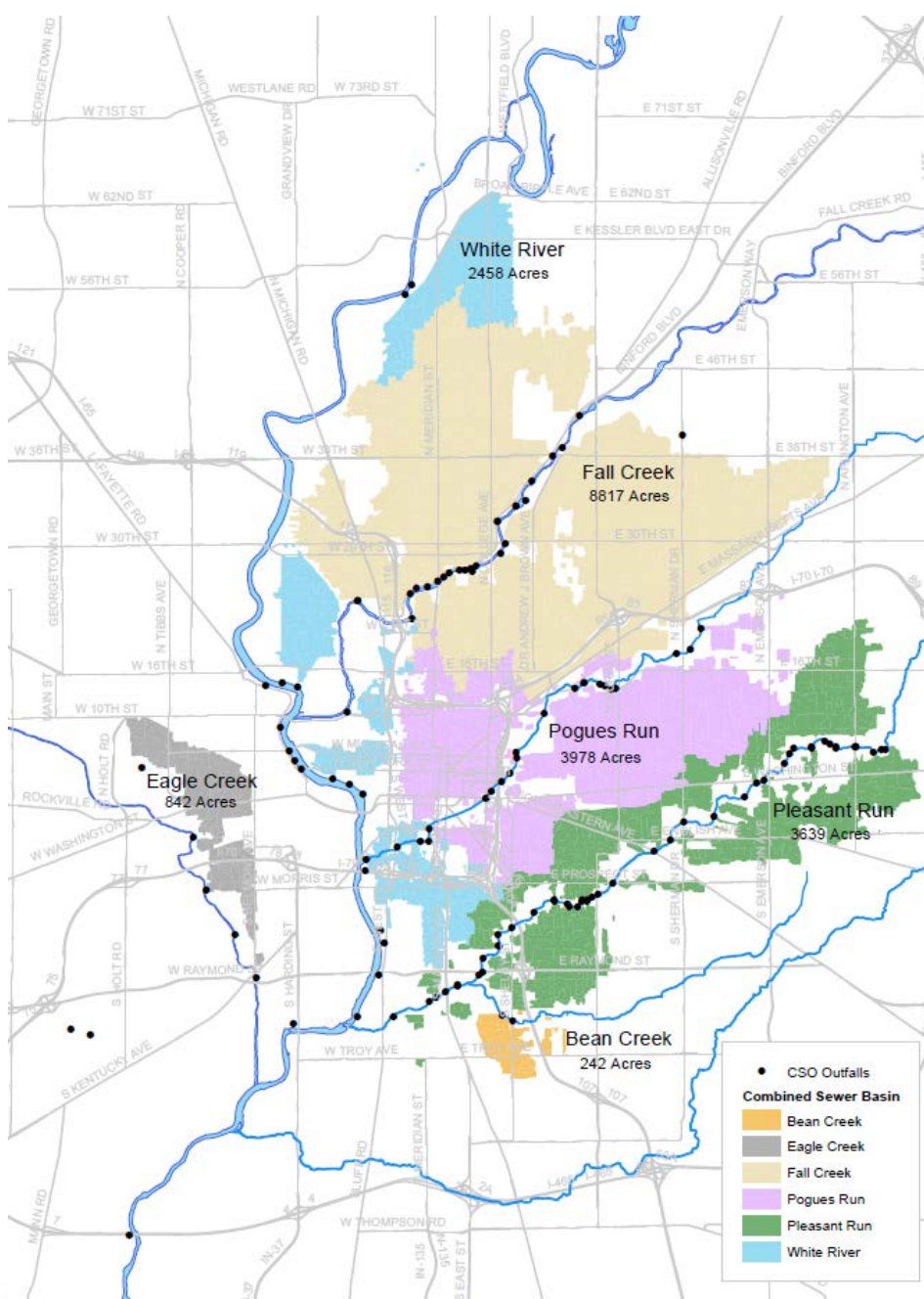
Presentation Overview

- The Problem: Indy's Combined Sewer Overflows
- The Solution: DigIndy Program Overview
- Beneficial Project Resequencing....what?
- Collaborative Success
- Construction Update

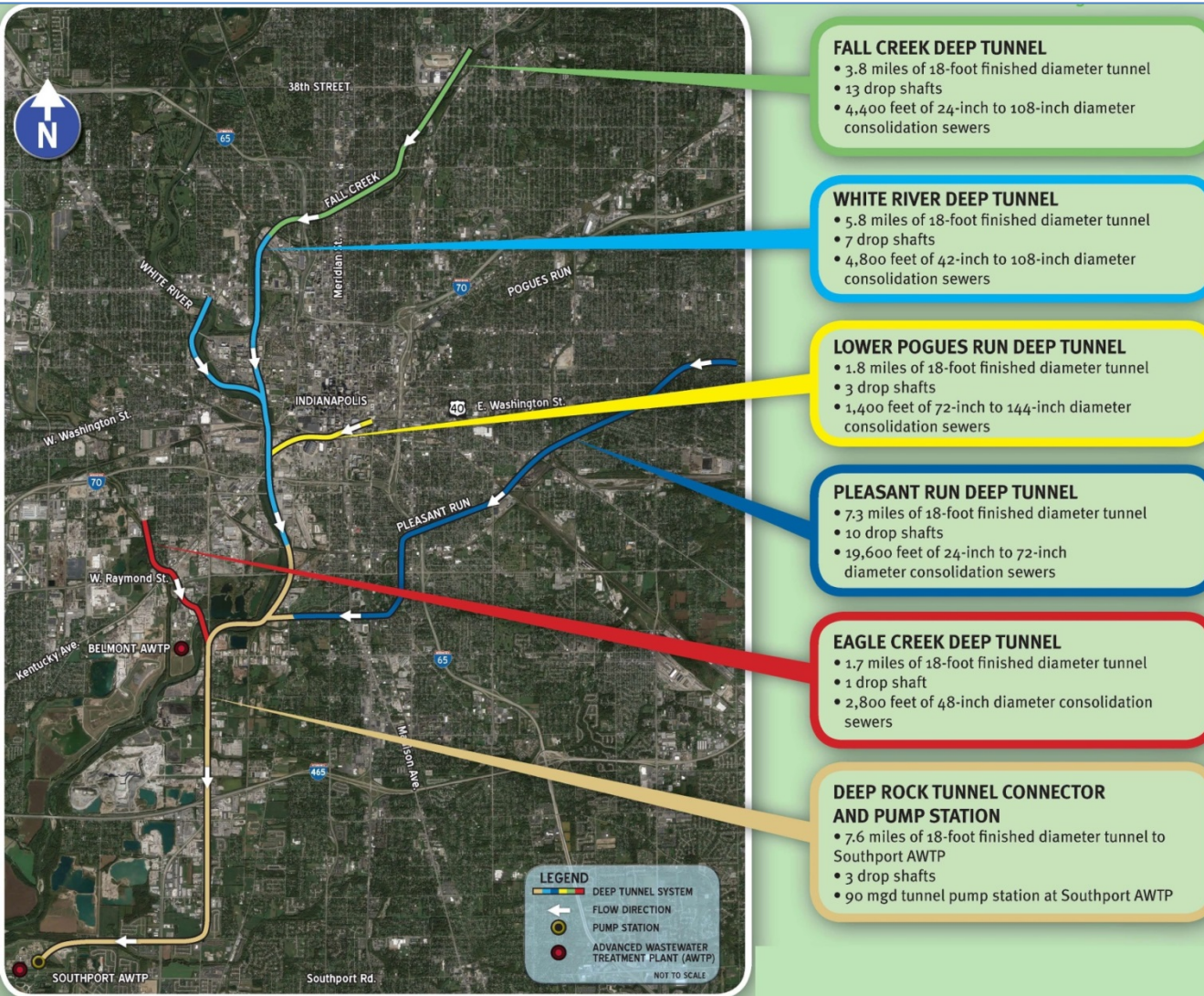


The Problem: Indy's Combined Sewer Overflows

- ~3,200 miles of sewers
- ~270 lift stations
- ~31 square miles of combined sewer area served
- ~130 CSOs
- Raw sewage overflow occurs ~60+ times / typical year
- ~5 - 6 billion gallons OFs / yr



The Solution: DigIndy Program Overview



- 6 deep rock tunnels (28 miles total!)
- 7 large dia. tunnel working shafts
- 240 feet deep
- 20-foot bore
- 12-inch concrete liner
- 18-foot finished tunnel
- 250+ million gallons
- 13 years to construct
- Staged construction to be completed by 2025

Beneficial Project Resequencing...what?

Staged Consent Decree Milestones

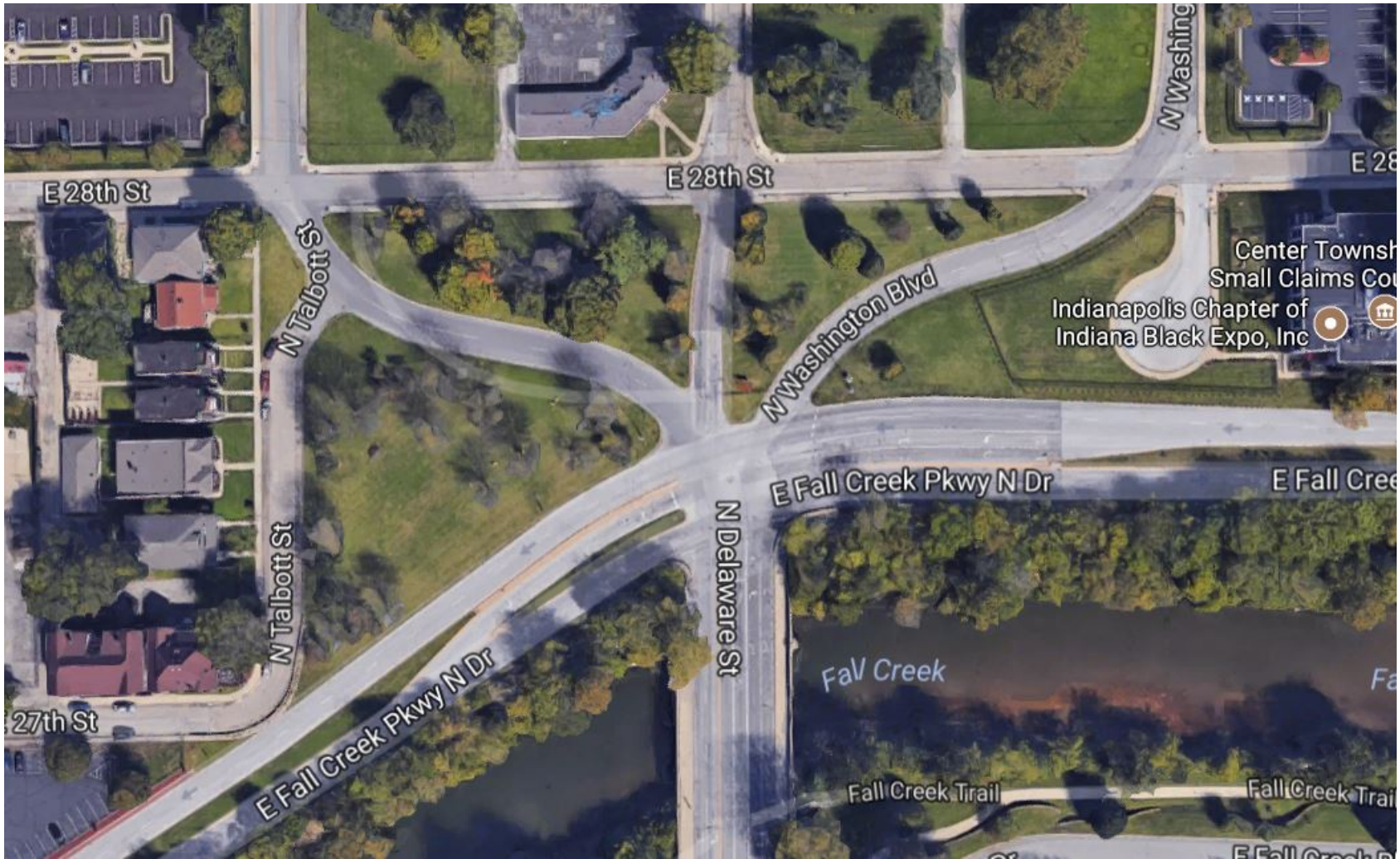
Long-Term Construction Schedule

+ Massive Third-Party Impacts

☰ Sometimes we have to do build stuff out of order!



“Potential” Collaborative Success



Collaborative Success



Mapleton-Fall Creek
Development Corporation



Collaborative Success

- 2016 DPW traffic reconfiguration project
- 2017 Community led City park upgrades
- 2017 – 2019 Multiple bridge rehab
- 2018 IndyGo bus rapid transit system
- 2018 Multi-family affordable housing development
- **2023 Citizens Fall Creek CCS Phase I Project**
- FC CCS P1 would *significantly* impact all of the above constructed projects
- Decision was made to fast-track FC CCS P1 project to get ahead of other planned projects

Why Resequence?

- Socioeconomic Impacts
- Physical Impacts
- Traffic Impacts
- Quality of Life
- Public Perception

The Goal!

INDIANAPOLIS BUSINESS JOURNAL JULY 13-19, 2015

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CONSTRUCTION & DEVELOPMENT



Standardizing the width of tunnels at 20 feet, 2 inches reduced the cost of the project about \$30 million.

Big project, low profile

Go behind the scenes of \$1.9B sewer overhaul dug by machine that helped tunnel NYC subways

By Sam Stall
Special to IBJ

With only moderate fanfare, contractors recently finished boring the first, roughly nine-mile leg of the DigIndy project. But even though it's the largest public works project in the state, the underground sewage-storage system is arguably the lowest-profile mega project in the city's history.

The \$1.9 billion plan to bore 27 miles of tunnels 230 feet below the city sounds like the sort of undertaking that would make a pharaoh proud. That fact that it doesn't get pyramid-like attention is probably due to its proletarian function and relative invisibility. It's not a high-profile sports facility or skyline-changing building, but rather a massive, 18-foot-diameter sewer pipe designed to catch sewage-laced storm runoff. The same stuff that's currently shunted straight into local streams.

When finished, the system will largely solve that problem by storing more than 250 million gallons of wastewater at a time for processing. The work isn't glamorous, but when completed in 2025, it could make a big difference in the cleanliness of the White River and its tributaries.

"We certainly excite a lot of engineers,"

See next page



Two decades underground

Project	Start Year	End Year
Southport plant	2006	2010
Belmont plant	2006	2010
East Creek tunnel	2014	2017
White River tunnel	2014	2017
Southport tunnel	2014	2017
East Creek tunnel	2021	2025
White River tunnel	2021	2025
Southport tunnel	2021	2025

Source: Citizens Energy Group

Key Drivers - Socioeconomic



Key Drivers – Quality of Life



Key Drivers – Public Perception

THE INDIANAPOLIS STAR
INDYSTAR★COM | SEE WHAT HAPPENS

What's with all the construction at Delaware and Fall Creek?

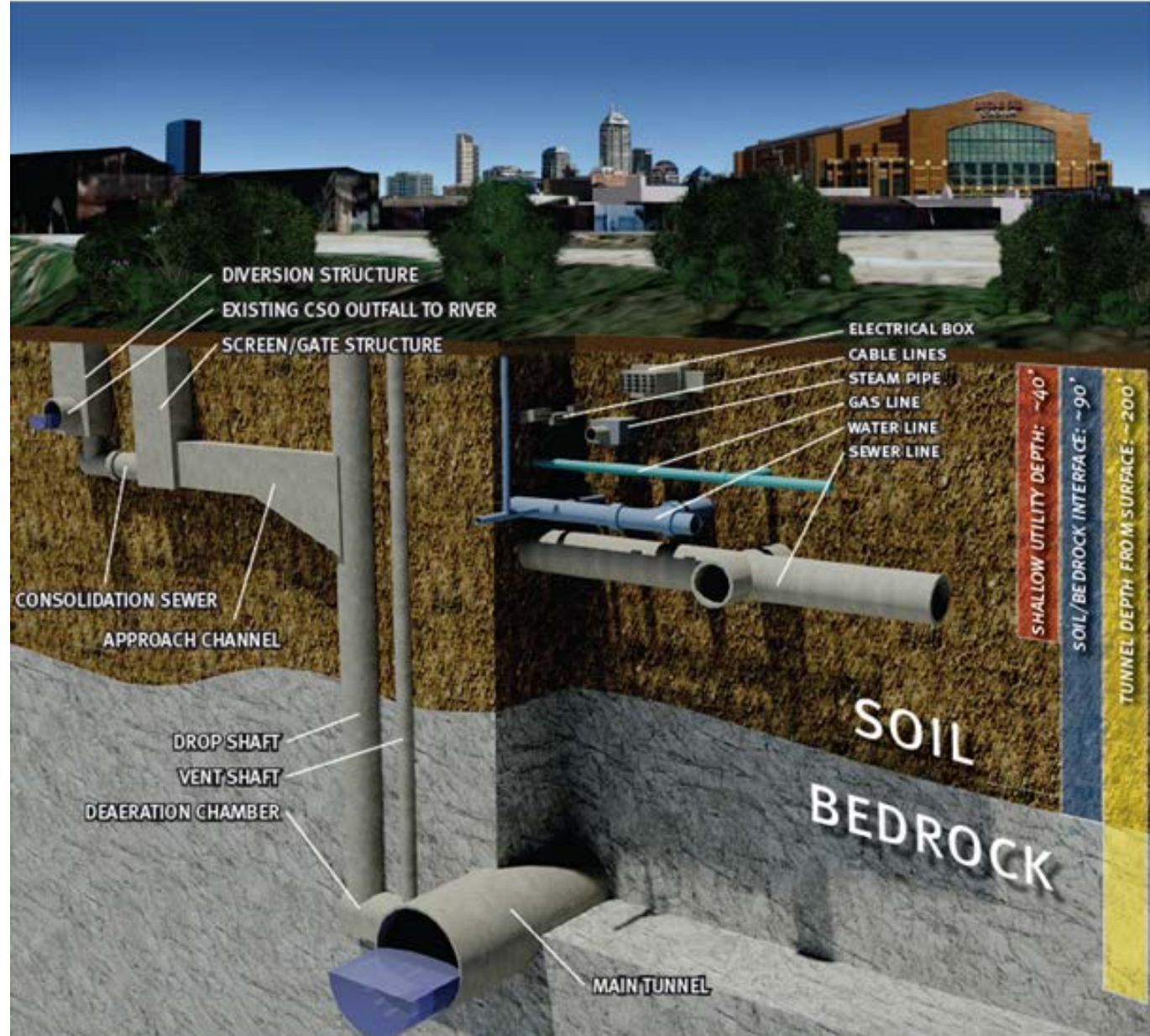
[Amy Bartner, amy.bartner@indystar.com](mailto:amy.bartner@indystar.com)

Published 3:36 p.m. ET Oct. 7, 2016 | Updated 3:44 p.m. ET Oct. 7, 2016

Construction Update

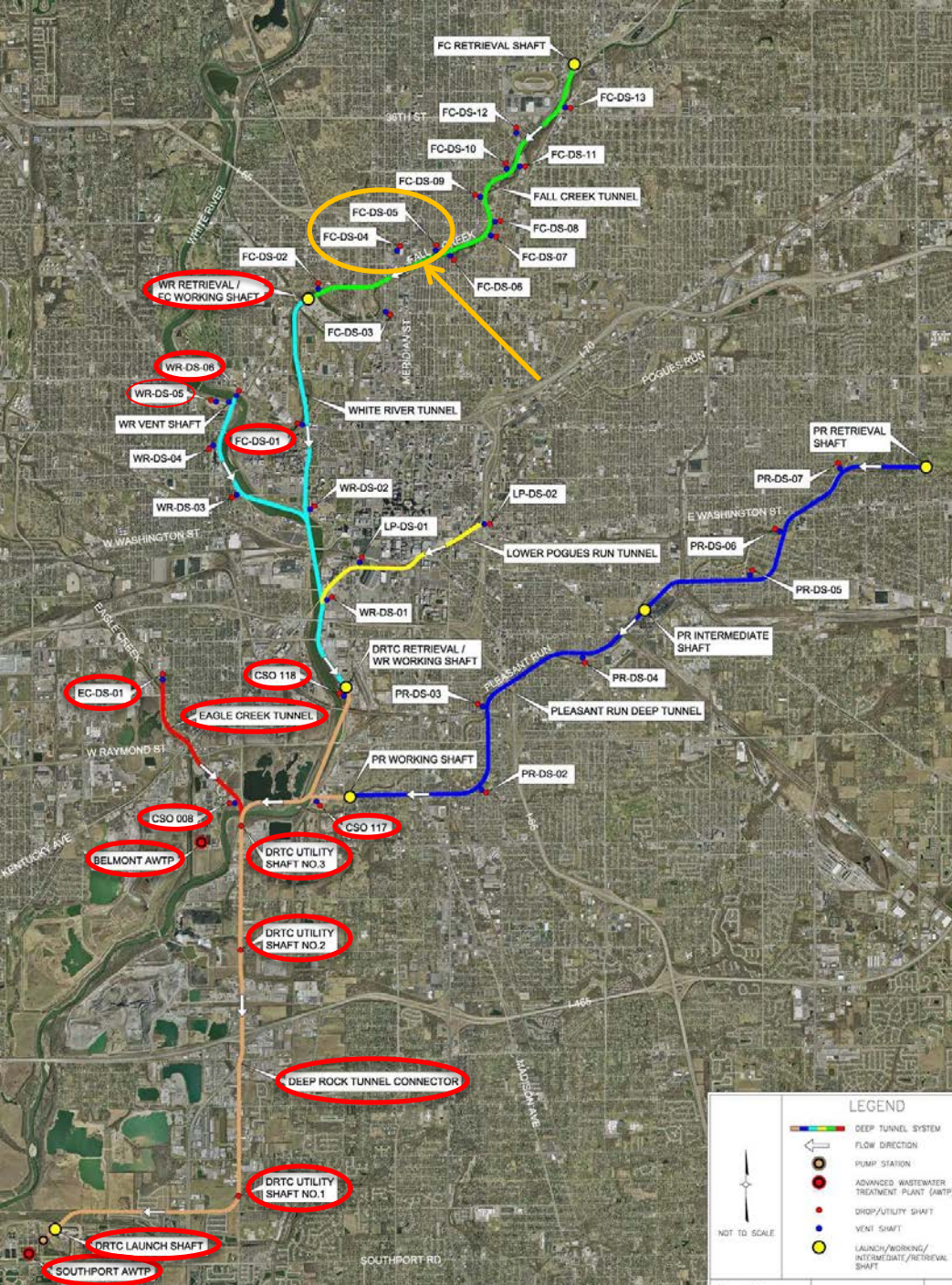


Deep Tunnel System Components



DigIndy Program – Impacts Galore!

- 2017 – Deep Rock Tunnel Connector
- 2017 – DRTC Pump Station
- 2018 – Eagle Creek Deep Tunnel
- 2021 – White River Tunnel
- 2021 – Lower Pogues Run Tunnel
- 2021 – Upper Pogues Run
- 2025 – Fall Creek Tunnel
- 2025 – Pleasant Run Tunnel
- 2030 – Post-Construction Monitoring



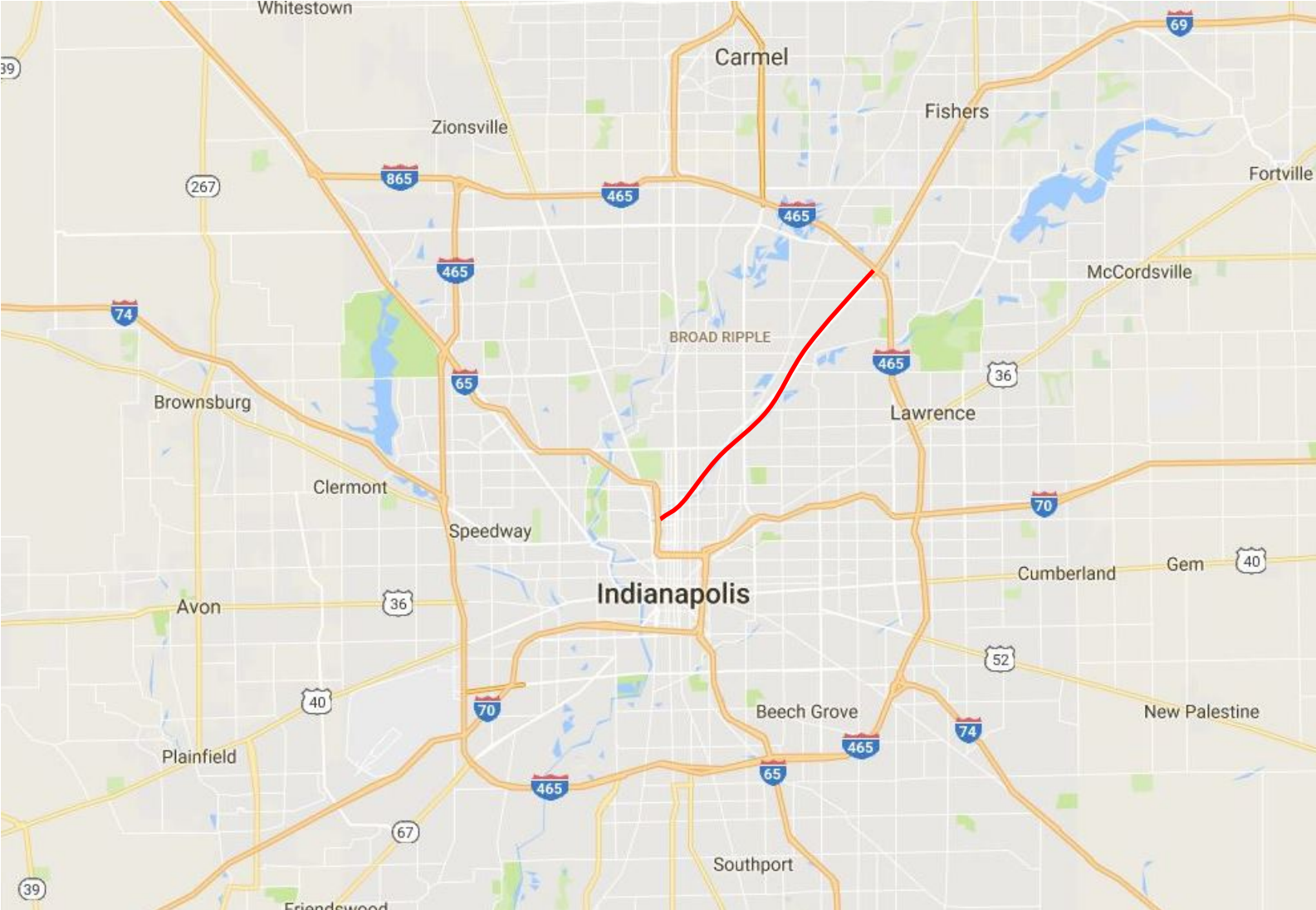
LEGEND

- DEEP TUNNEL SYSTEM
- FLOW DIRECTION
- PUMP STATION
- ADVANCED WASTEWATER TREATMENT PLANT (AWTP)
- CHOP/UTILITY SHAFT
- VENT SHAFT
- LAUNCH/WORKING/INTERMEDIATE/RETRIEVAL SHAFT

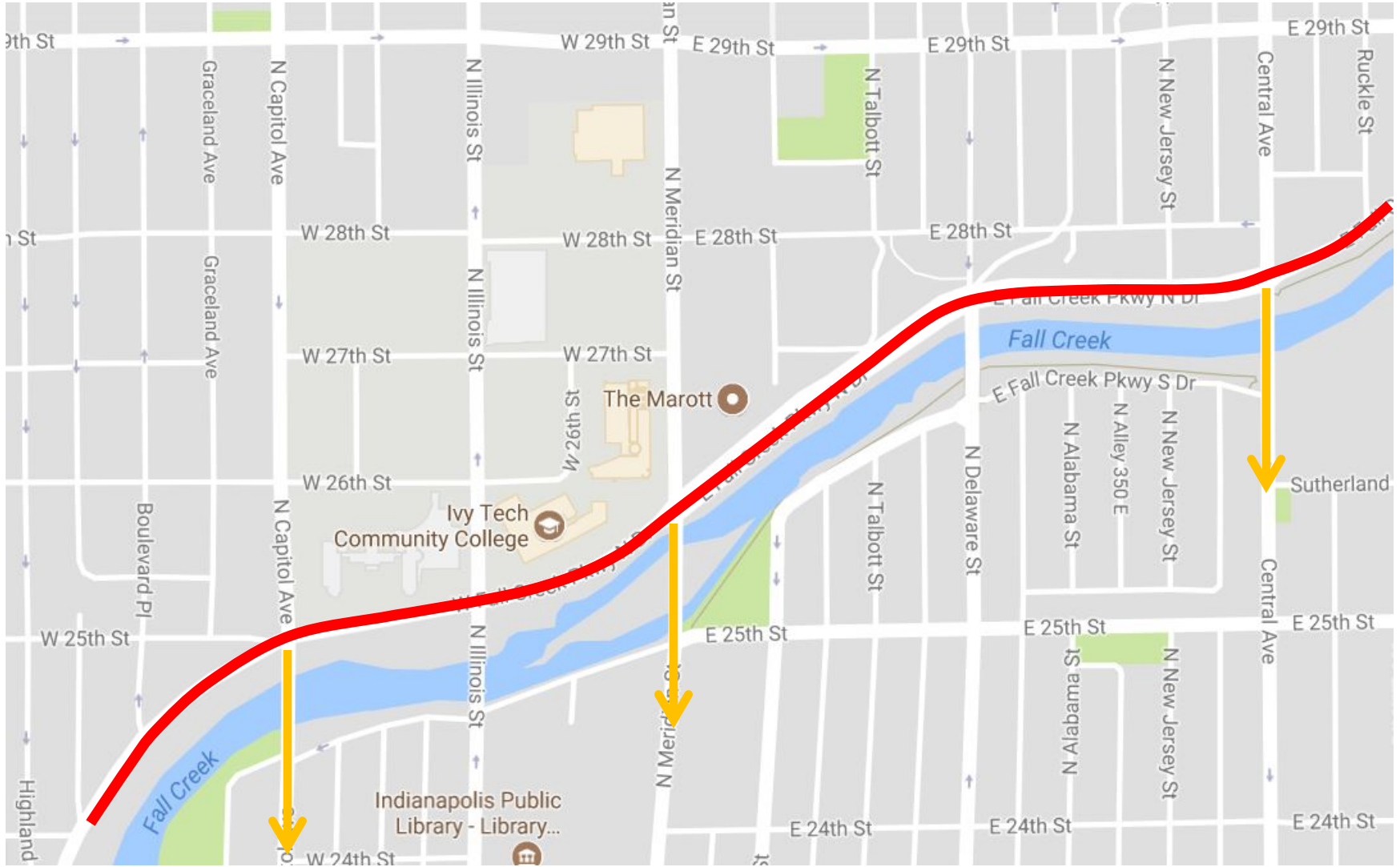
NOT TO SCALE

citizens energy group | BLACK & VEATCH | JUN 2016

Project Orientation



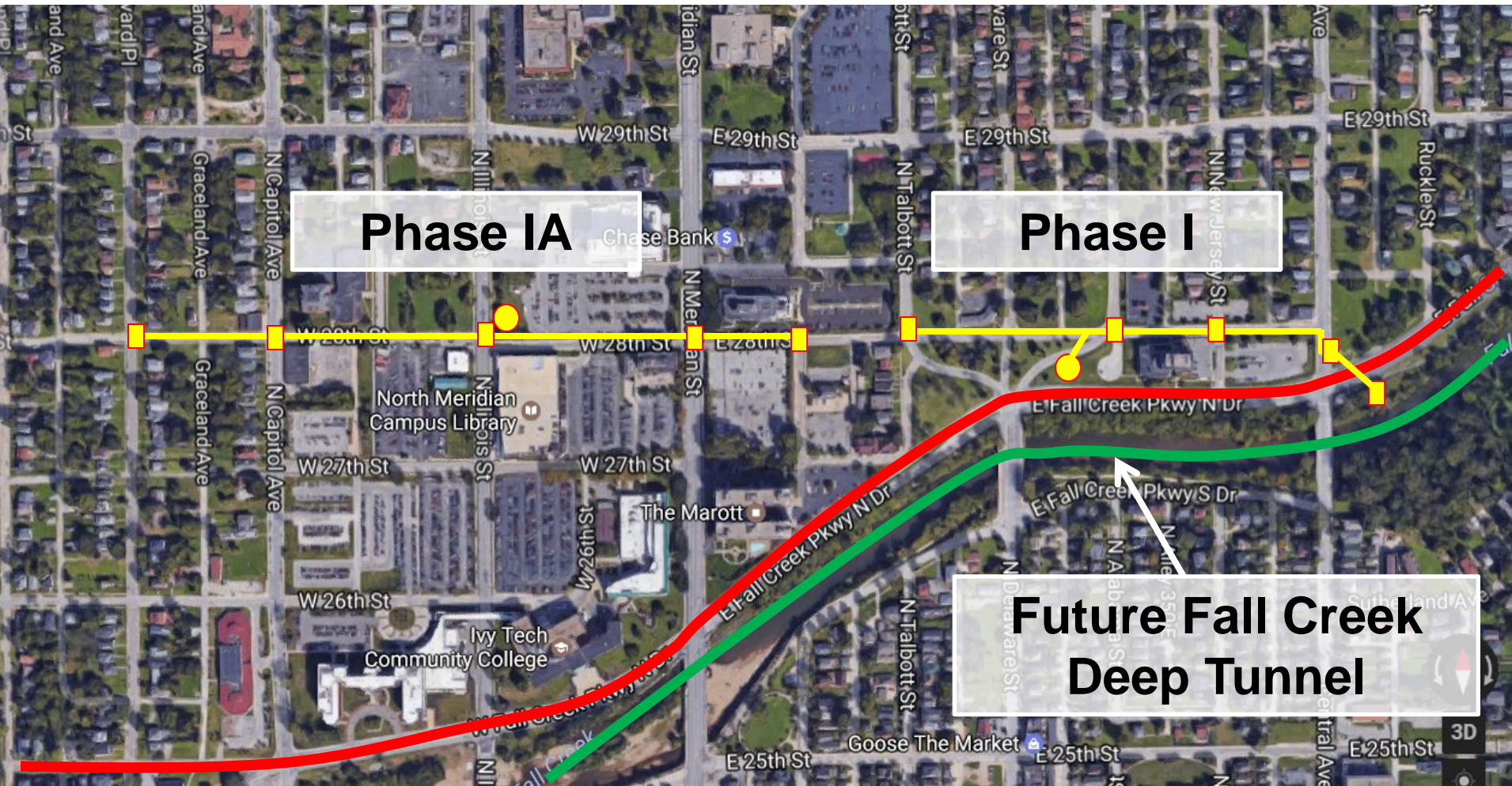
Project Orientation



Project Orientation



Fall Creek CCS Phase I, IA

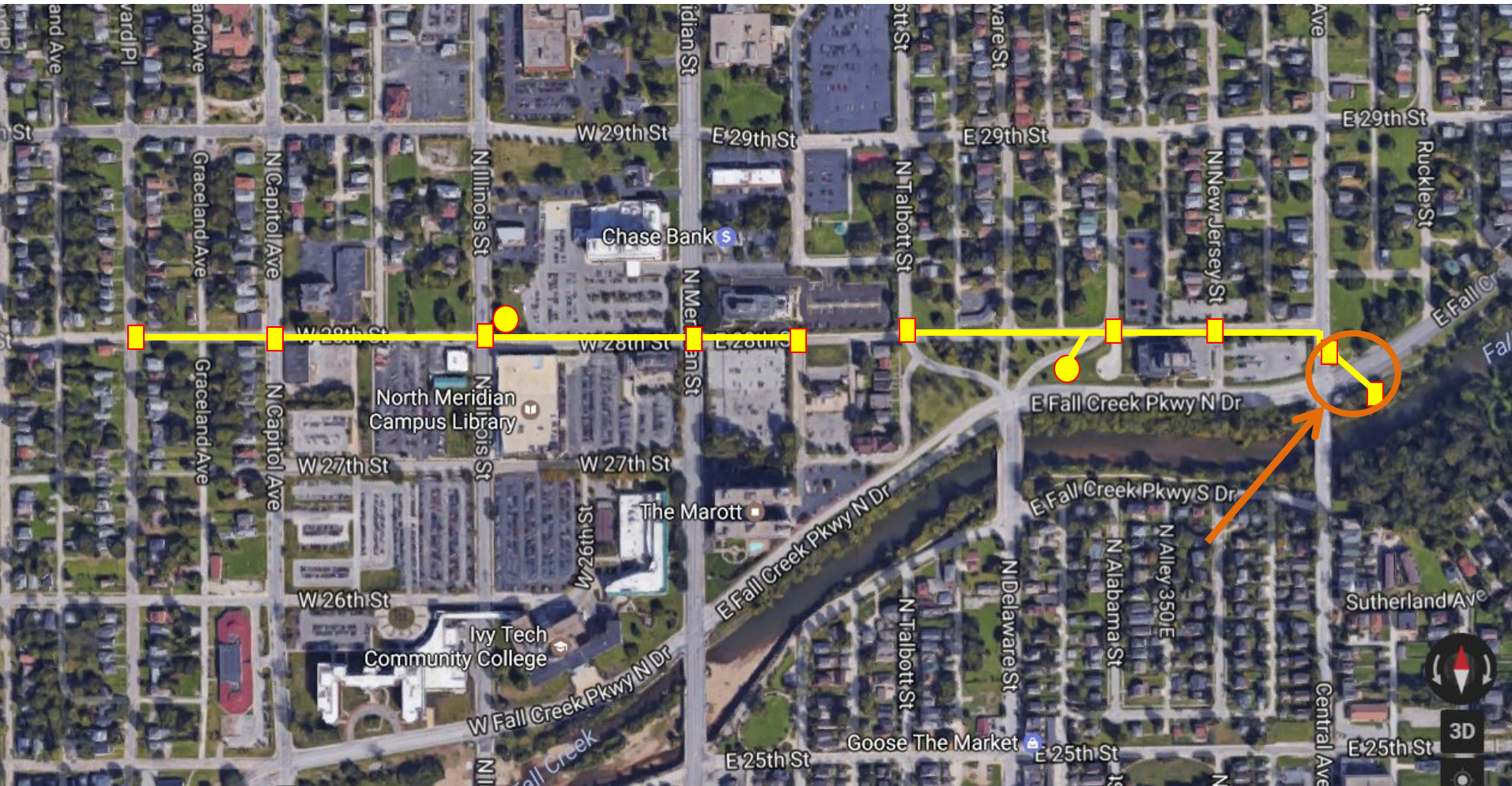




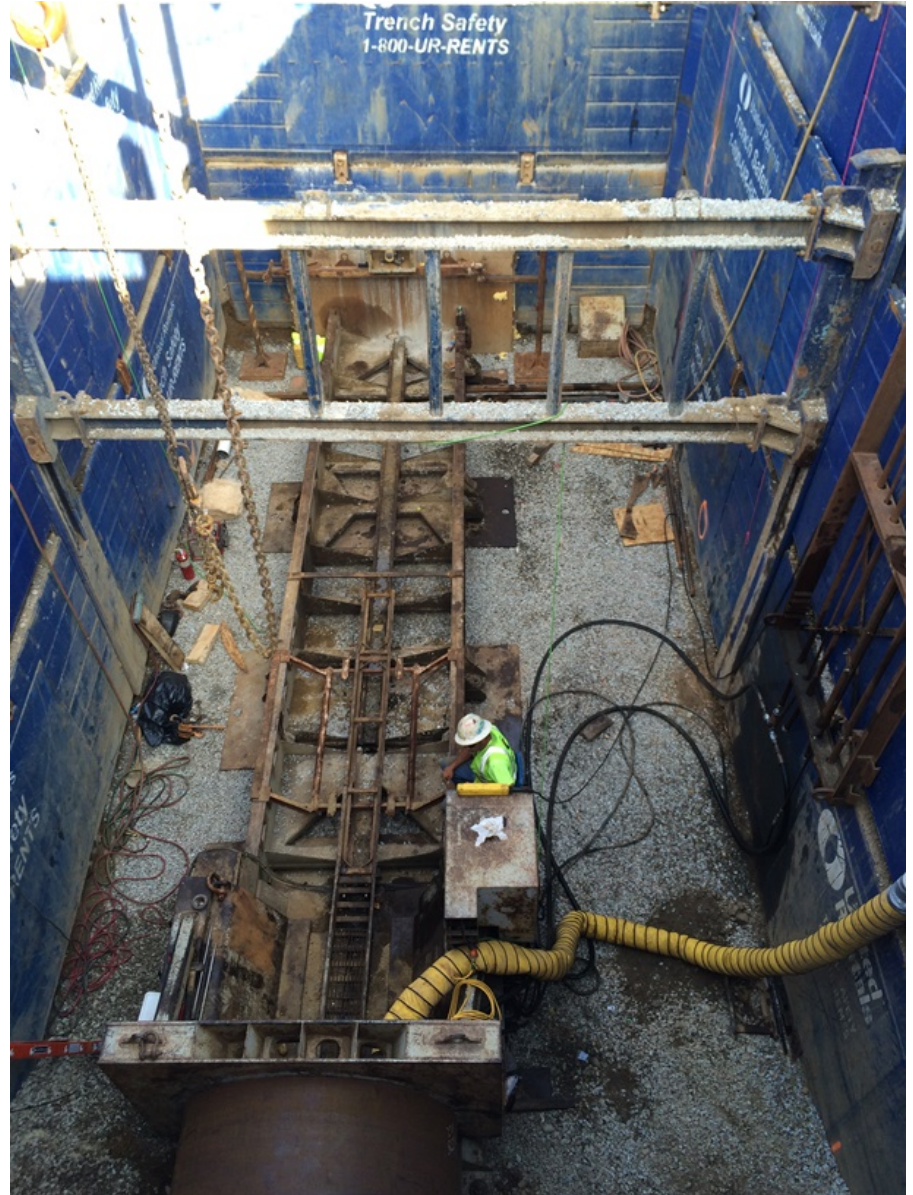
Fall Creek CCS Phase I

- Consolidation Sewer
- Diversion Structures
- Tunnel below Fall Creek Parkway
- Contractor FA Wilhelm
- Approx. \$12M
- Collaboration with City and Mapleton Fall Creek
- Completion 6/2017
- **Began Phase 1A Spring 2017**

Fall Creek CCS Phase I, IA



Fall Creek CCS Phase I – Hand Mining



Fall Creek CCS Phase I – Fall Creek Restrictions



Fall Creek CCS Phase I





Fall Creek CCS Phase I – Diversion Structure



Fall Creek CCS Phase I – Diversion Structure



Fall Creek CCS Phase I – 28th St. Open Cut



Fall Creek CCS Phase I – 28th St. Restored

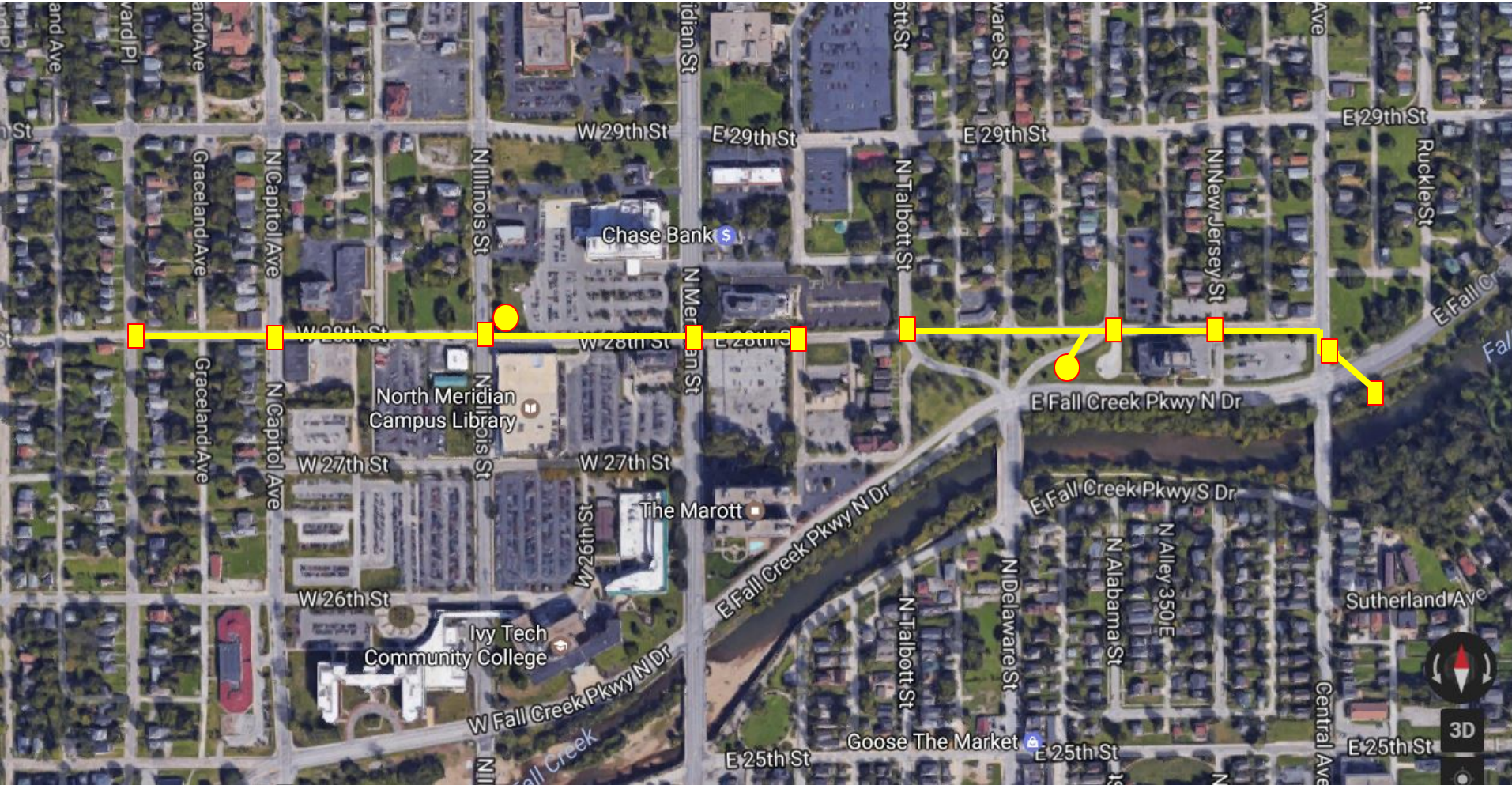




Fall Creek CCS Phase IA

- Consolidation Sewer
- Diversion Structures
- Contractor FA Wilhelm
- Approx. \$12M
- Collaboration with City and IndyGo
- Completion 12/2018

Fall Creek CCS Phase I, IA



Fall Creek CCS Phase IA – Capitol St. Diversion





Fall Creek CCS Phase IA – Capitol St. Diversion  citizens energy group™
We're all citizens.

THANK YOU!



Jessica Bastin & Mike Miller
Citizens Energy Group