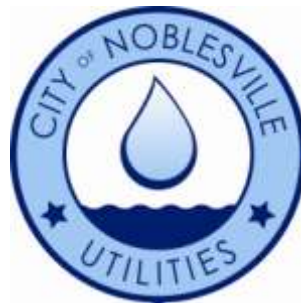


# City of Noblesville LTCP - Phase 3: A Case Study of Combined Sewer Separation and Streetscape Upgrades



Indiana Water Environment Association  
2010 Annual Conference  
November 17, 2010

# Today's Presentation

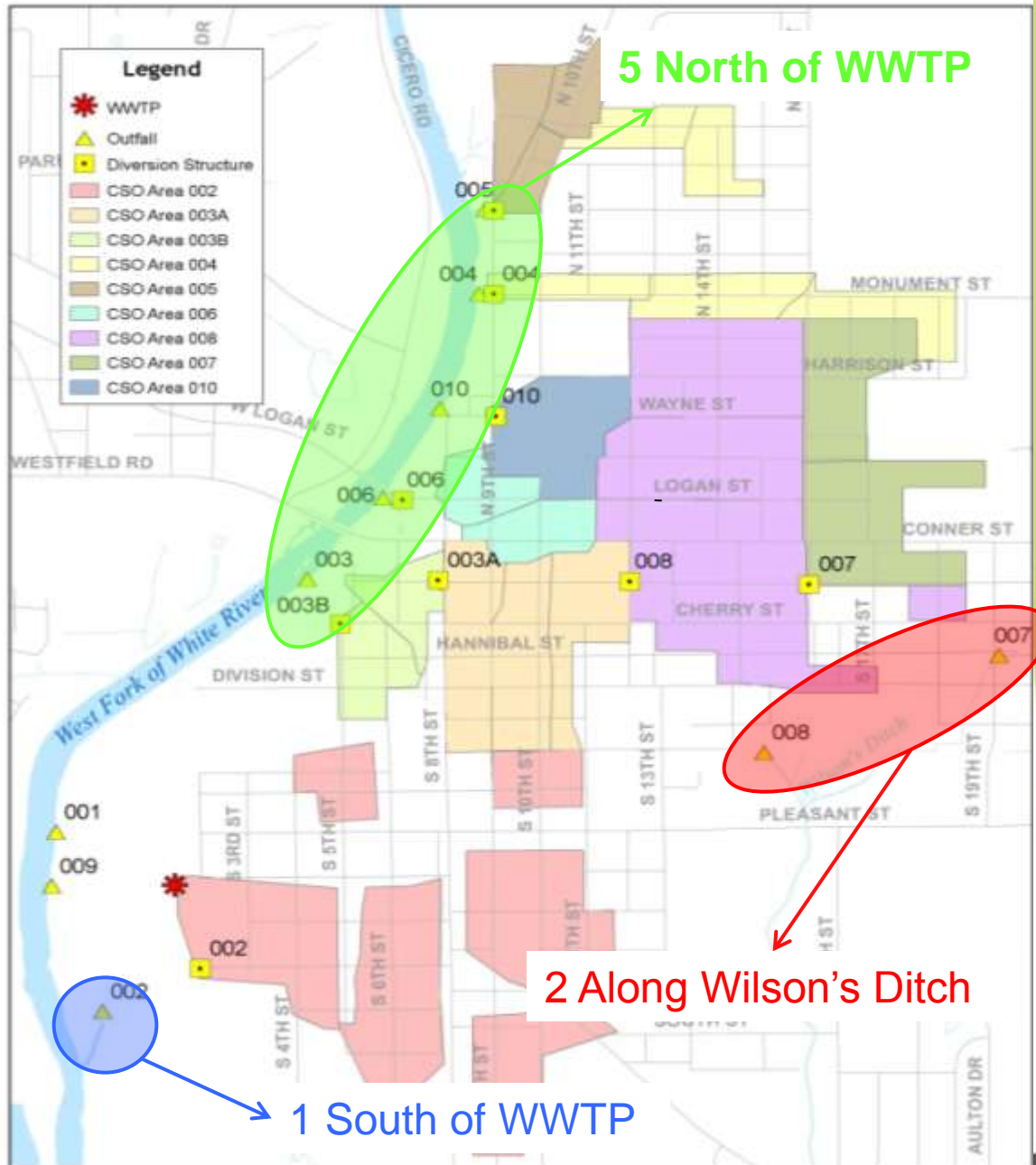
- **Background**
  - **City of Noblesville**
  - **Long-Term Control Plan**
  - **Preliminary Design**
- **Detailed Design / Design Challenges**
  - **Relief Sewers**
  - **Storm Sewers**
  - **Roadway Reconstruction**
- **Construction Implementation**







# Noblesville: CSO Locations



5 North of WWTP

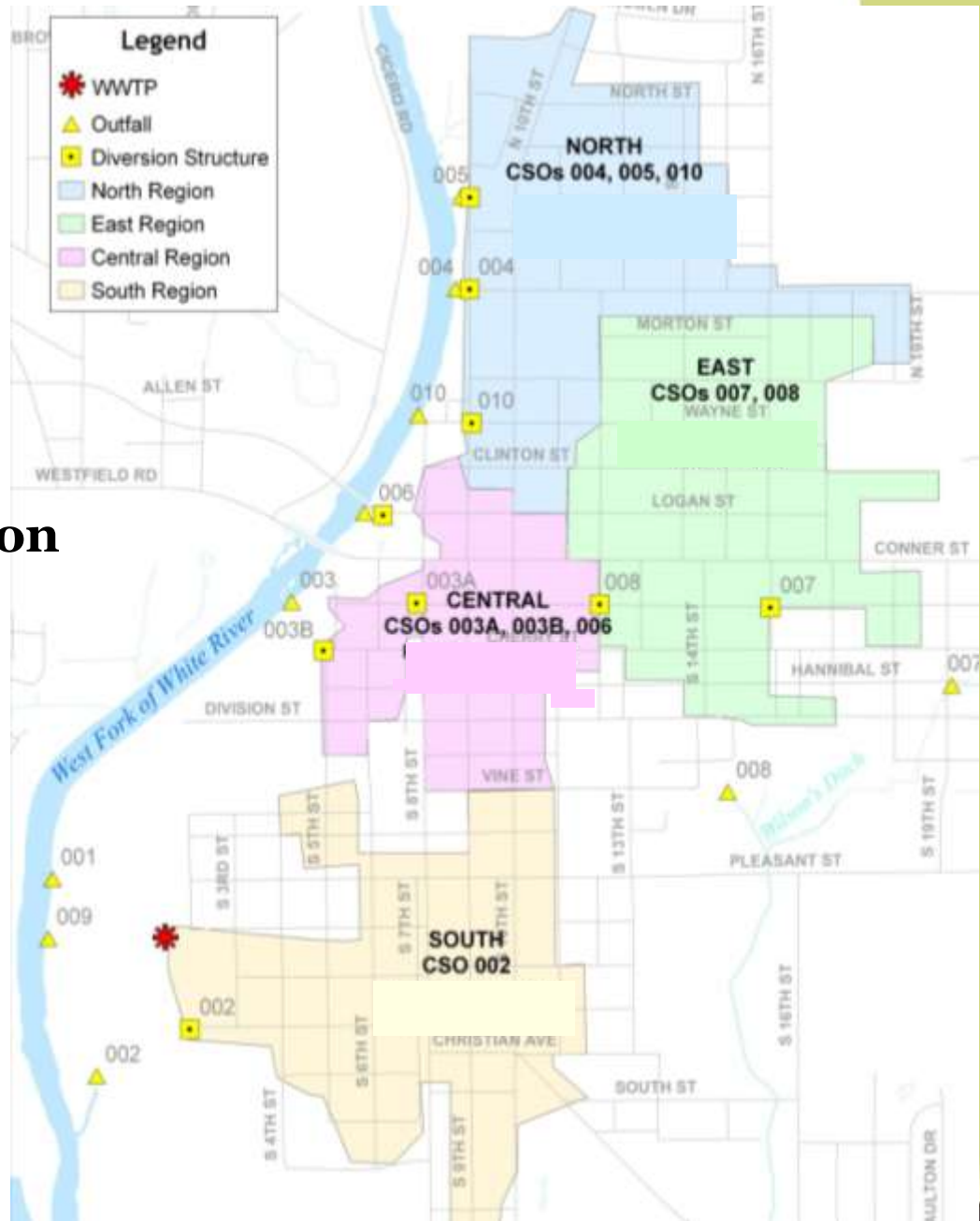
2 Along Wilson's Ditch

1 South of WWTP



# Noblesville: Regional/ Phased Approach to LTCP

- **North – Sewer Separation**
- **East/Central/South – Convey, Store & Treat**



# Long-Term Control Plan

- **Draft submitted in December 2004**
- **Revised plan approved June 2007**
  - **Regional\Phased Solutions**
- **“Michigan” Approach**
  - **Full Treatment for 1-Year, 1-Hour**
  - **Preliminary Treatment for 10-Year, 1-Hour**
- **15-year implementation schedule**
- **Total Cost = \$67.4 M (2006 Dollars)**





# City of Noblesville Combined Sewer Overflow Long-Term Control Plan



Phase 1, 2 and 3 Treatment Plant Improvements

### Phase 1 Treatment Plant Upgrades

- Increased capacity at the headworks (screening, grit removal, pumping capacity) from 15 to 30 MGD
- Expanded control building
- Constructed new vactor truck receiving station
- Constructed additional 1 million gallons of wet-weather equalization storage
- \$9.3 million

### Collection System Upgrades

- Increased flow capacity to the treatment plant by upsizing existing interceptors
- Replaced failed sanitary sewers in North Harbour to decrease the wet-weather flow to the lift stations and treatment plant
- \$2.2 million

### Phase 2 Treatment Plant Upgrades

- Increase average daily flow capacity of the treatment plant (primary secondary clarifiers, and aeration tanks) from 5 to 10 MGD
- Construct new UV disinfection facility to replace the existing chlorine disinfection facility
- \$18.2 million

### Phase 4 Collection System Upgrades

- Decrease wet-weather flow to the treatment plant
- Construct storm sewers in combined areas in North Region
- \$7.3 million

### Phase 3 Treatment Plant Upgrades

- Construct additional wet-weather storage facilities
- Construct a high rate treatment facility
- \$10.6 million

### Collection System Upgrades

- Install large diameter relief sewers to convey wet-weather flow to the treatment plant storage facility
- \$13.4 million

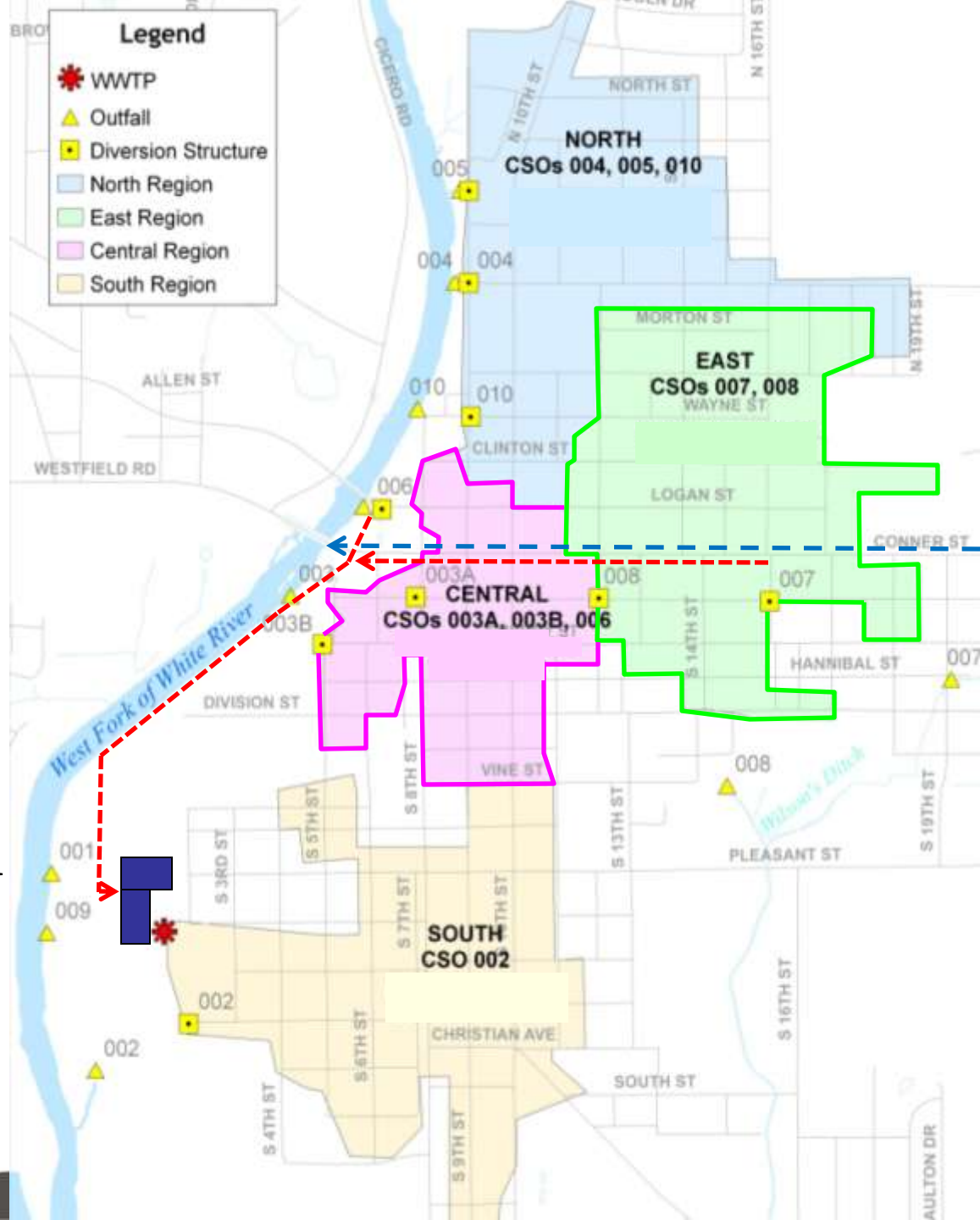
### Phase 5 Collection System Upgrades

- Increase flow capacity of combined sewage to treatment plant
- Install large diameter relief sewer to convey wet-weather flow to the treatment plant storage facility
- \$1.7 million



# Phase 3: Preliminary Design

- **SWMM Modeling**
- **East Relief Sewer**
- **Central Relief Sewer**
- **Storage Facility**
- **Modeled Proposed Facilities**

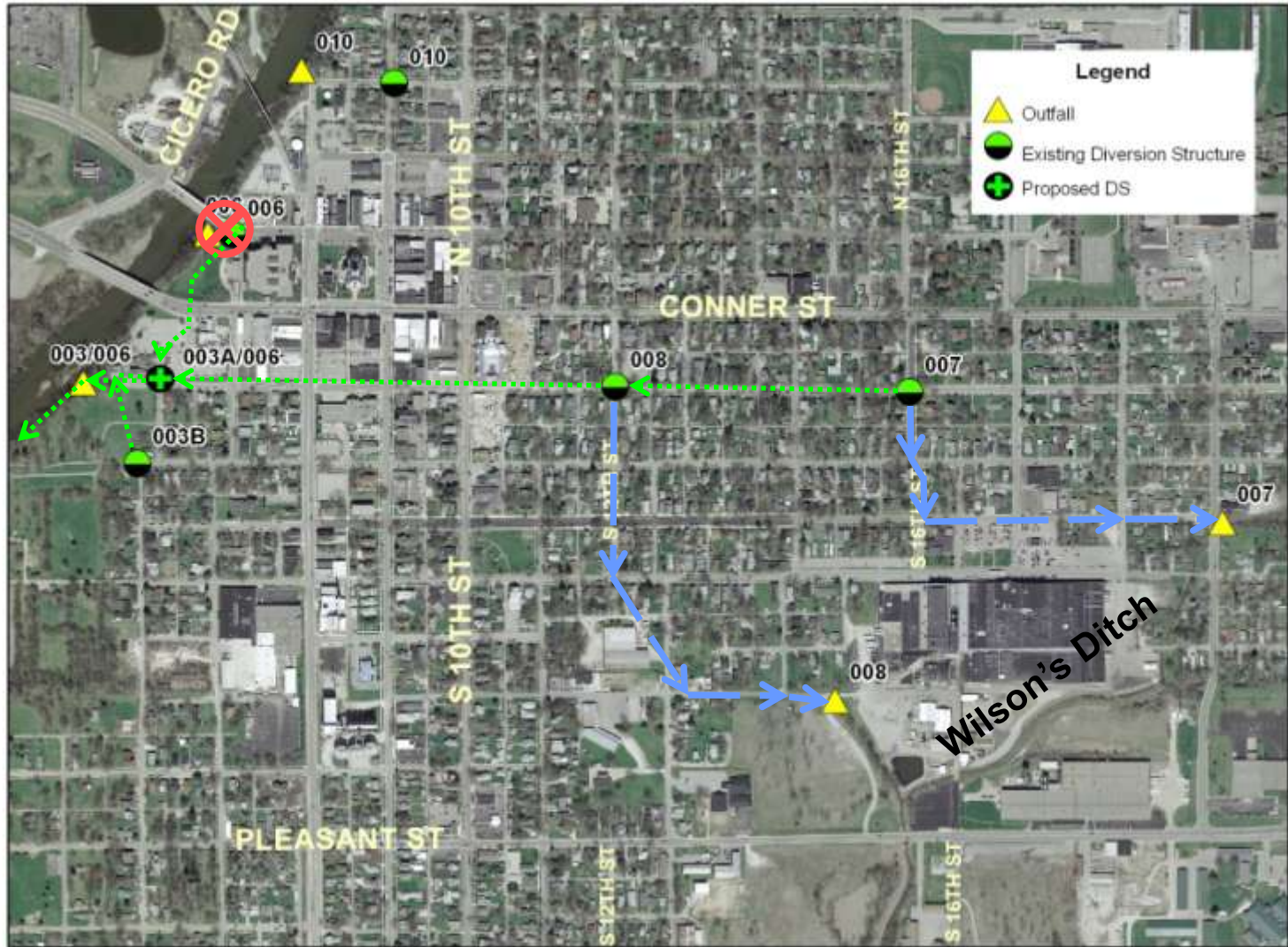


# Preliminary Design → Detailed Design

- **East Relief Sewer Alignment**
- **Storm Sewer Separation**
- **Phasing of Construction**



# East Relief Sewer Routing



# Storm Sewer Separation



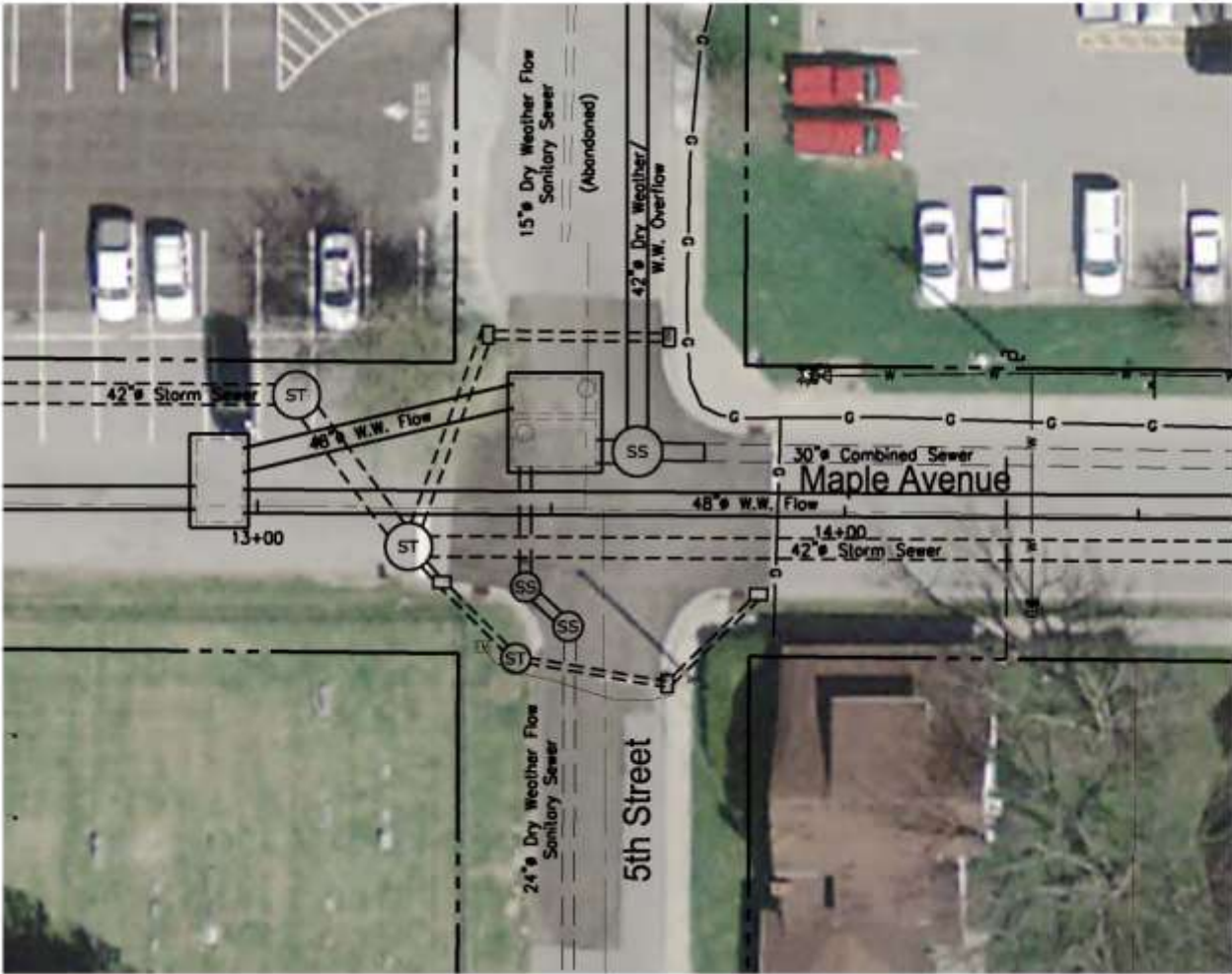
# Design Considerations

- **Storm Sewer Separation**
- **Utility Interferences**
- **Urban Road Reconstruction**



# Utility Interferences

## 5th Street & Maple Avenue (Proposed)



# Typical Streetscape



# Construction Progression

## 5<sup>th</sup> Street



# Construction Progression 5<sup>th</sup> Street



# Construction Progression

## 5<sup>th</sup> Street



# Construction Progress 8<sup>th</sup> Street



# Construction Progression

8<sup>th</sup> Street  
(Jack & Bore)



# Construction Progression 8<sup>th</sup> Street



# Construction Progression

## 8<sup>th</sup> Street



# Construction Progression 10<sup>th</sup> Street



# Construction Progression 10<sup>th</sup> Street



# Construction Progression 10<sup>th</sup> Street



# Construction Progression 12<sup>th</sup> Street



# Construction Progression 12<sup>th</sup> Street



# Construction Progression 12<sup>th</sup> Street

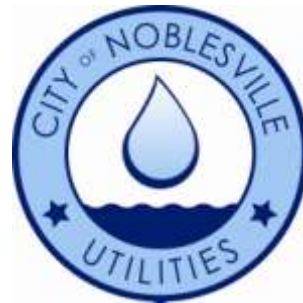


# Project Cost Summary

<b>Engineer's Estimate</b>	<b>\$7,921,024.00</b>
<b>Low Bid</b>	<b>\$6,599,976.00</b>
<b>Actual Construction Cost</b>	<b>\$6,395,873.00</b>



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## *Questions?*

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