

Ohio River Tunnel Update

July 19, 2017



Agenda

- Introductions
- Getting to Know You
- Consent Decree Overview
- Project Overview
- Ohio River Tunnel Projects
- Project Schedule
- Cost Estimate
- Keeping Each Other Informed
- Feedback

Getting to Know You



Public Engagement Tools: “Clickers” and Online Polling

“Clickers” for Public Meetings

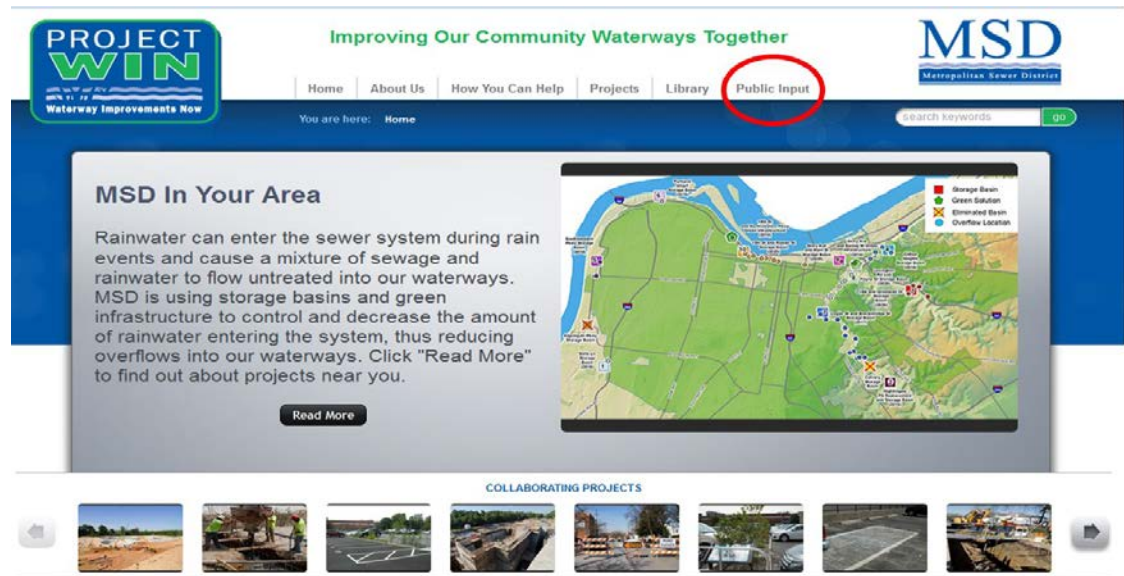
- Simple To Use
- Anonymous (No One Knows Your Answers)
- Simultaneous (We All See the Results At the Same Time)
- Equal Voice for All



Online Polling for Those Who Can't Attend Public Meetings

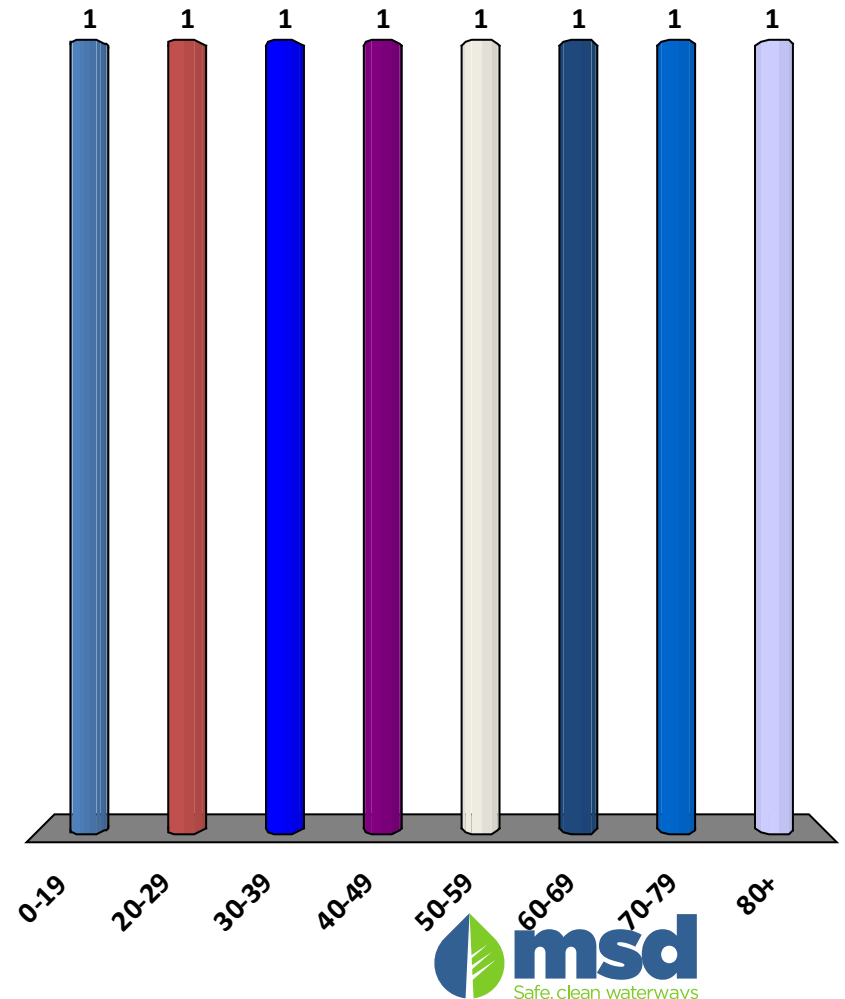
<http://tinyurl.com/OhioRiverTunnel>

msdprojectwin.org



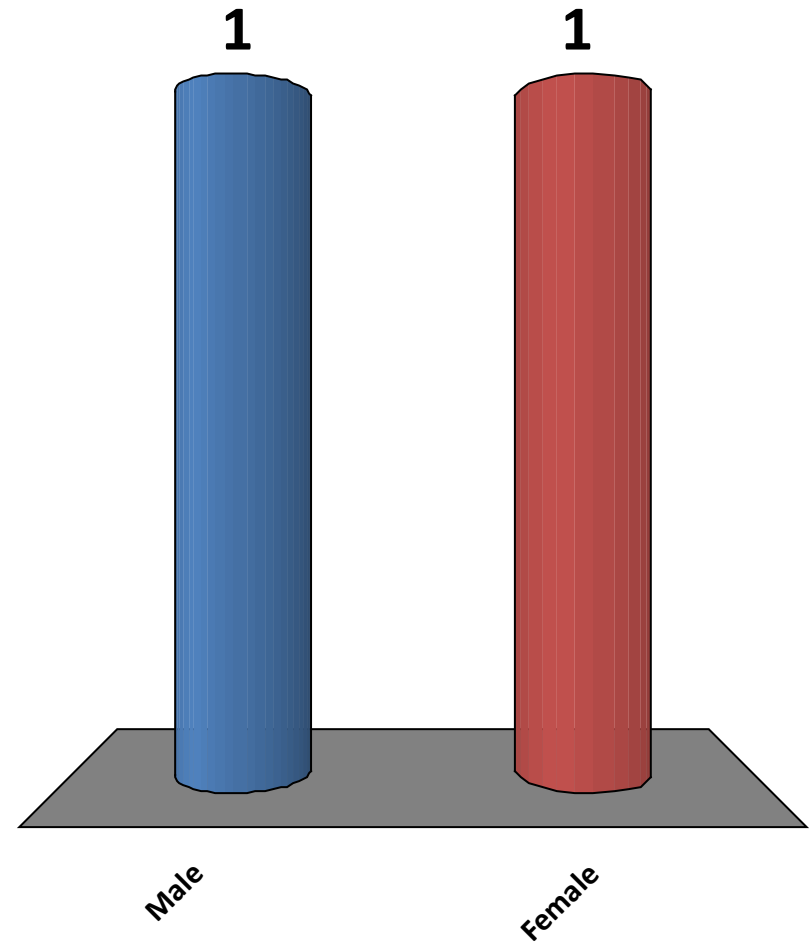
How Young Are You?

1. 0-19
2. 20-29
3. 30-39
4. 40-49
5. 50-59
6. 60-69
7. 70-79
8. 80+



Gender?

1. Male
2. Female



Consent Decree Overview

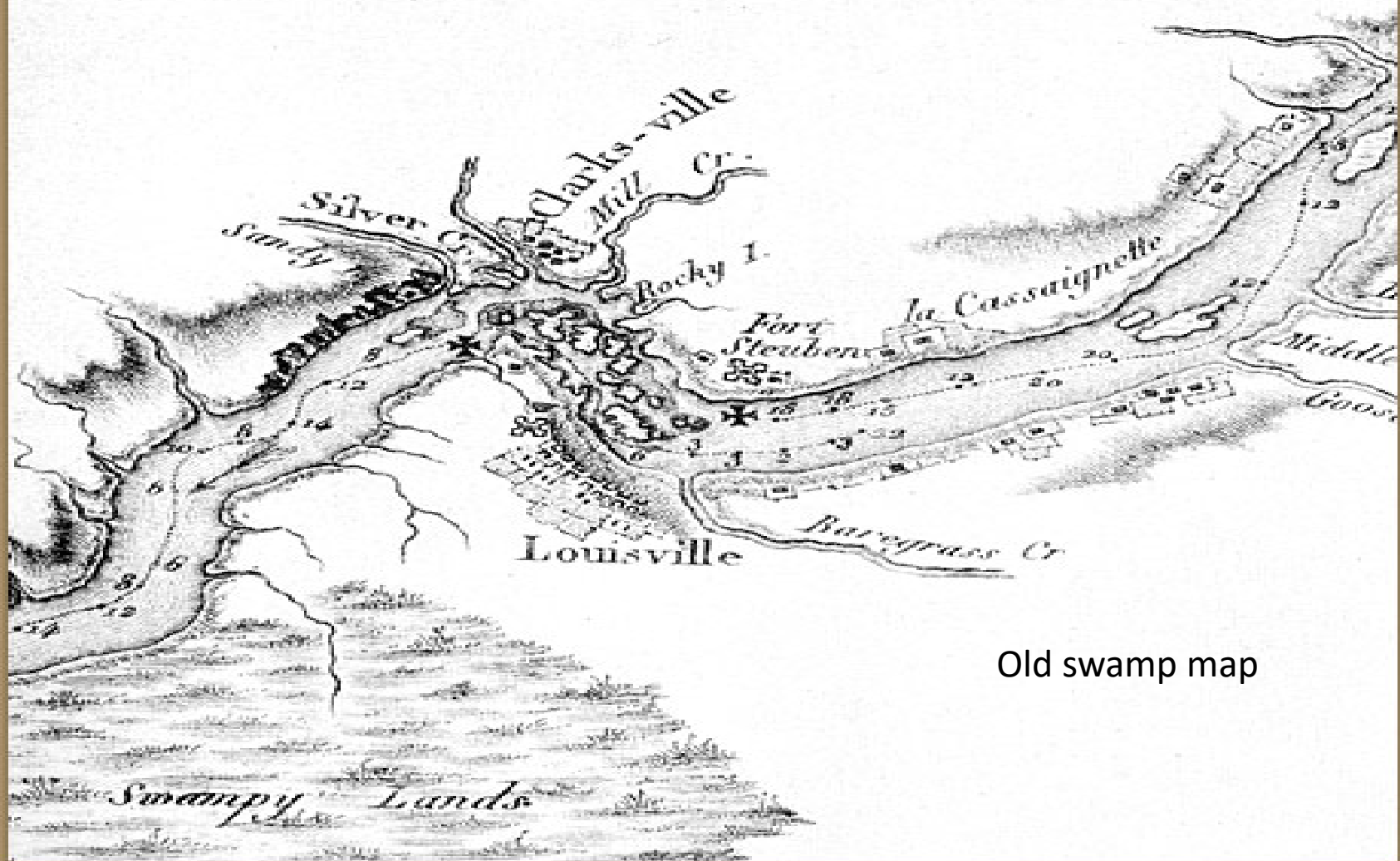


An illustration of a natural landscape. At the top, there are two stylized clouds, one light grey and one darker grey, against a light blue sky. Below the sky is a dark green silhouette of a treeline. In the foreground, a light blue stream flows from the left towards the right. The stream is bordered by bright green grassy banks. Several grey rocks of various sizes are scattered in the stream, creating small white ripples. A yellow rectangular text box with a thin black border is positioned in the middle of the stream, containing the text 'Undeveloped Land & Streams' in blue font with a drop shadow.

History of Louisville's Sewers and Overflows

Undeveloped Land & Streams

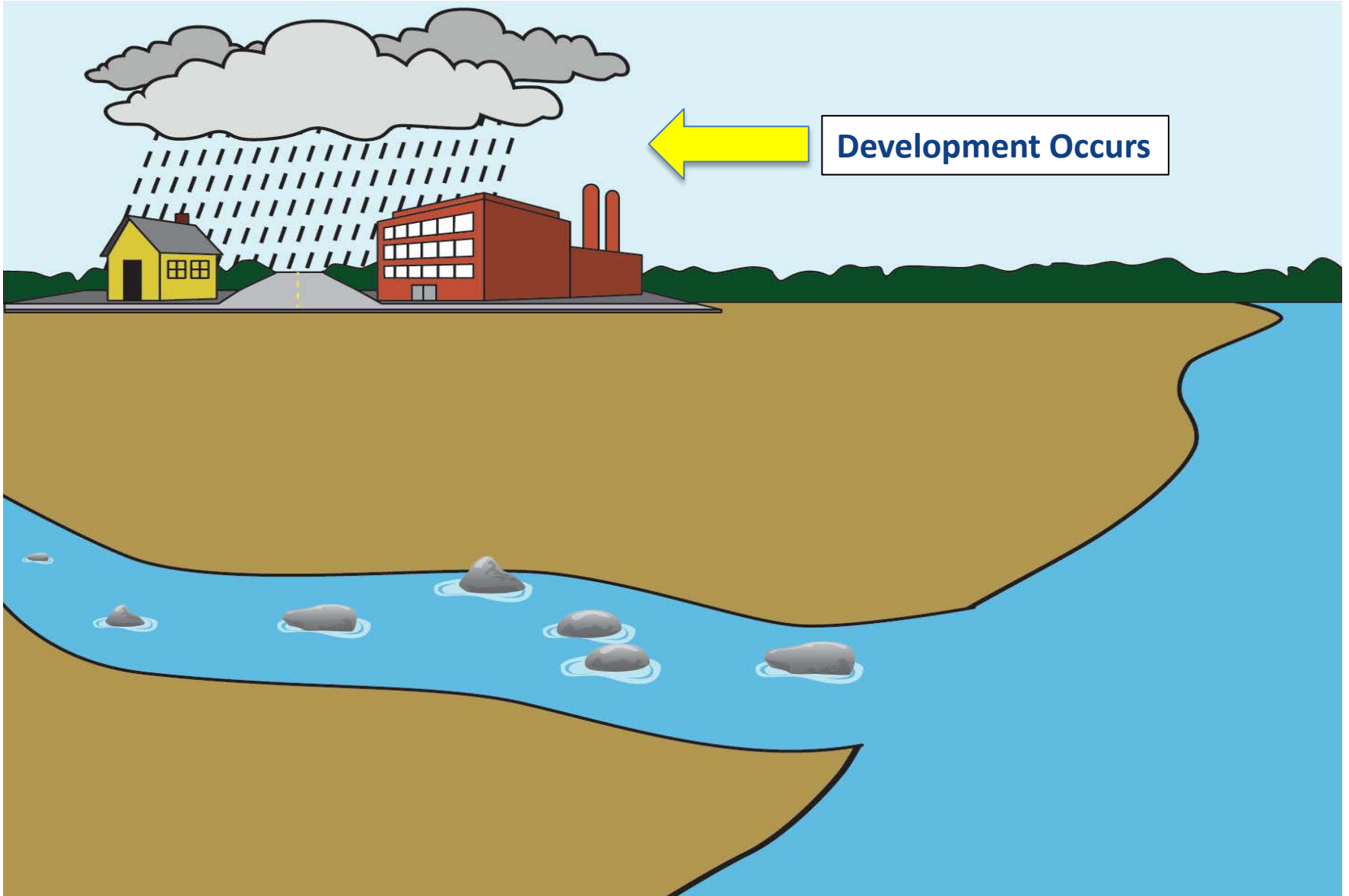
1796 Map of Louisville



Old swamp map

Victor Collot, *A Journey in North America* (1796)

Courtesy, East Tennessee State University

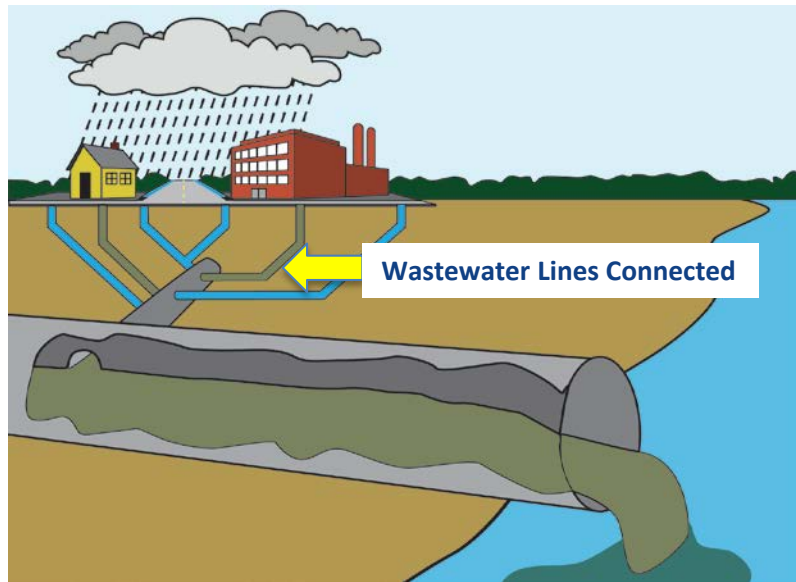




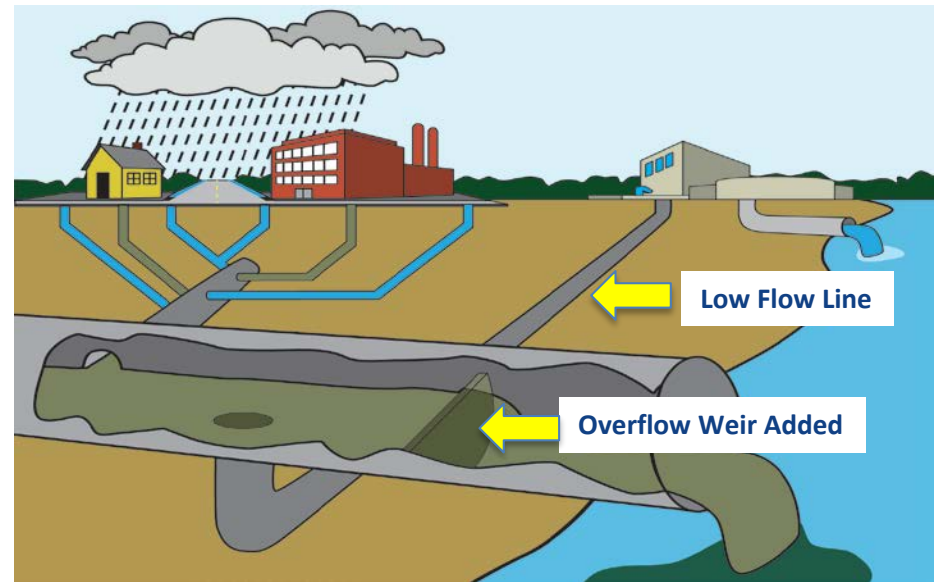
What is a Combined Sewer?

What is a combined sewer?

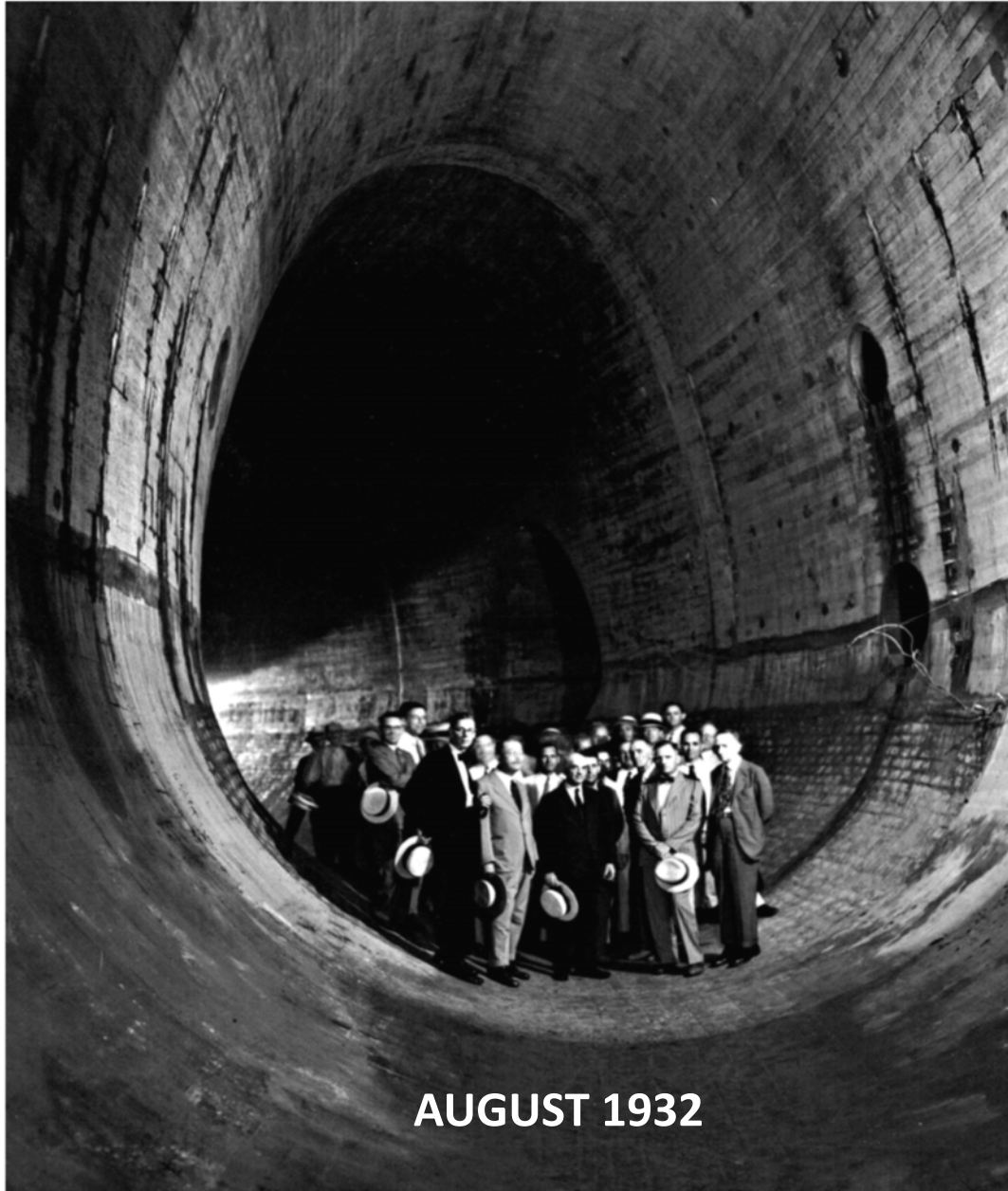
- Both storm water and wastewater conveyed in the same pipe



Original Combined Sewers discharged directly to rivers and streams



Wastewater treatment added in 1958. Dry weather flow treated. Some wet weather flow discharged to prevent flooding.



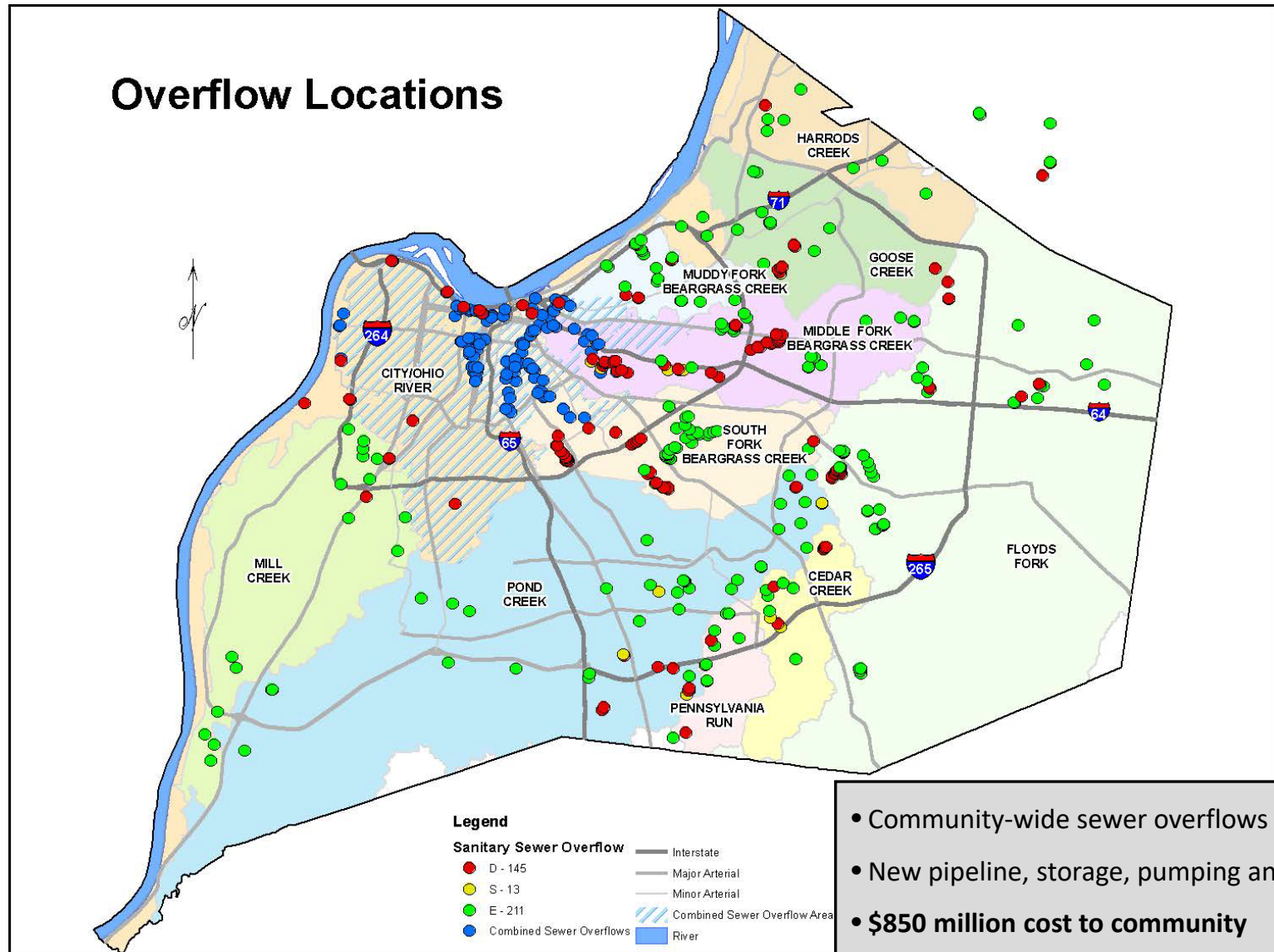
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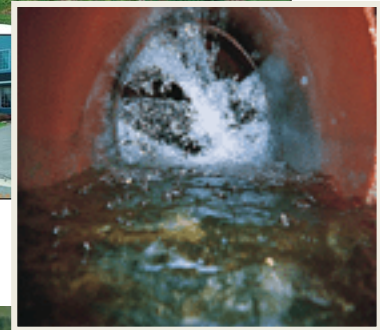
Sewer Overflow Locations



How Do We Control Overflows?

Source Control Projects

- Green infrastructure
- Downspout disconnections
- Sump pump disconnections
- Sewer rehabilitation

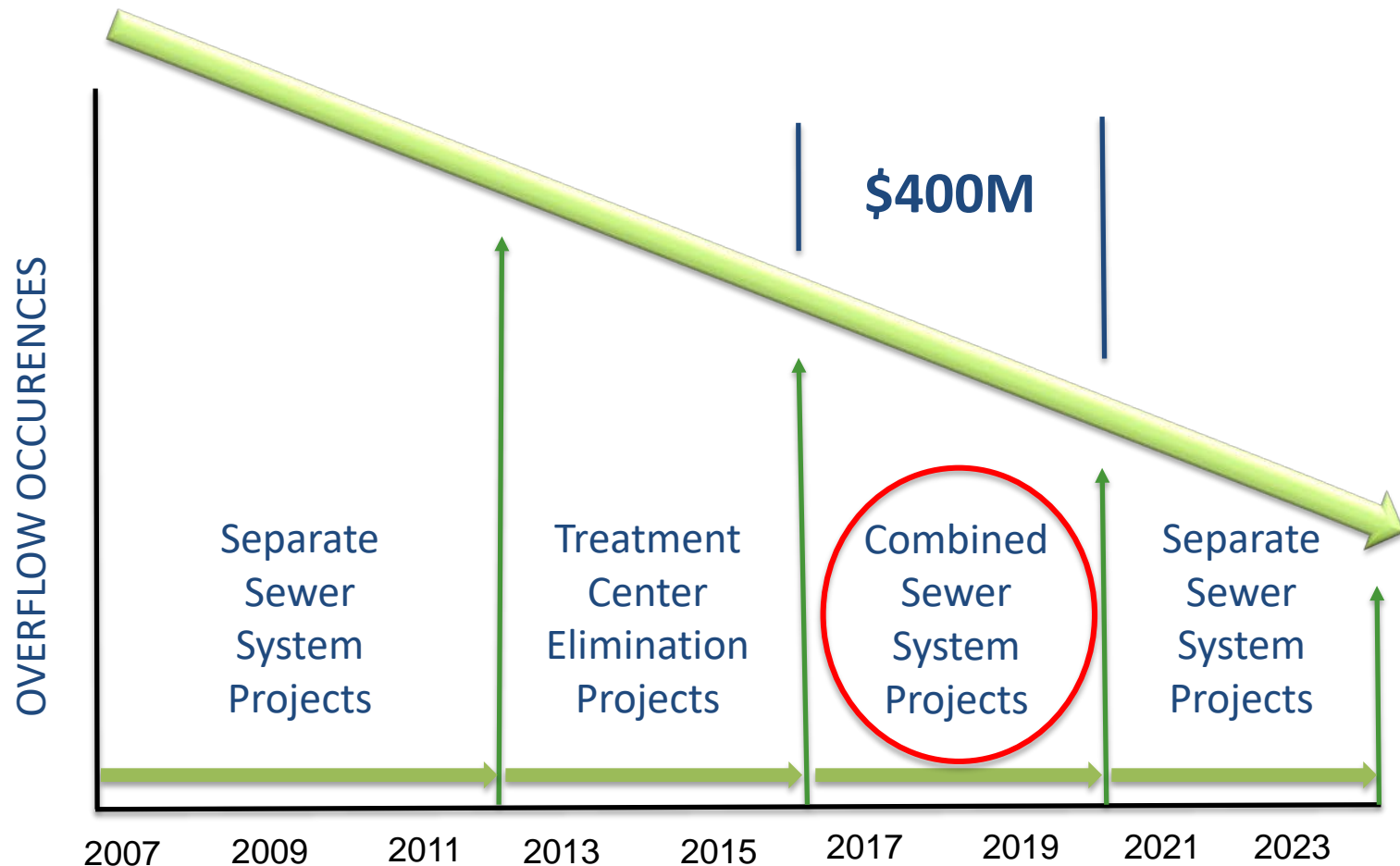


Gray Infrastructure Projects

- Pipeline projects
- Pump station expansions
- Wastewater treatment plant expansions
- **Storage Basins**



Consent Decree Program Status



The map displays the following storage basins and infrastructure projects in Portland, Maine:

- 1** Bells Ln Storage Basin (2016)
- 2** Nightingale PS Replacement and Storage Basin (2016)
- 3** Logan St and Breckinridge St Storage Basin (2017)
- 4** Clifton Heights Storage Basin (2018)
- 5** Southwestern Pkwy Storage Basin (2018)
- 6** Portland Wharf Storage Basin (2019)
- 7** I-64 and Grinstead Dr Storage Basin (2020)
- 8** Lexington Rd and Payne St Storage Basin (2020)
- 9** Story Ave and Main St Storage Basin (2020)
- 10** 13th St and Rowan St Storage Basin (2020)

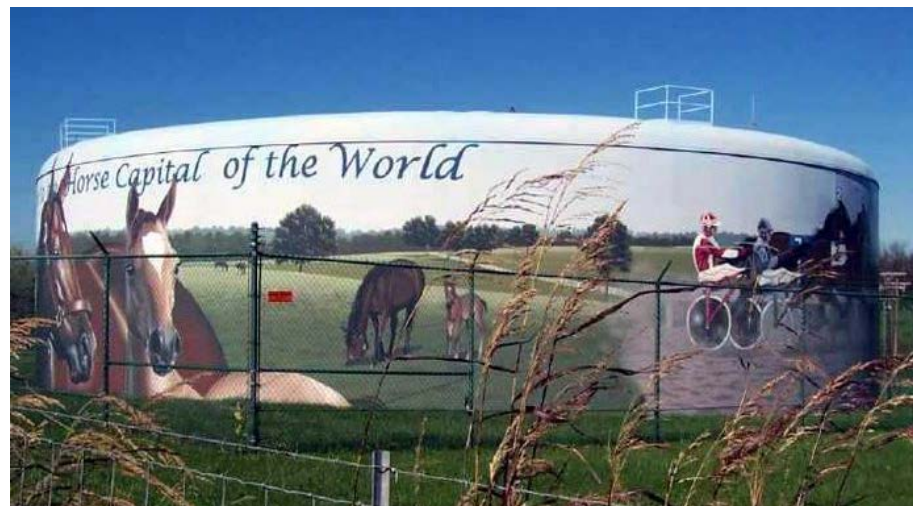
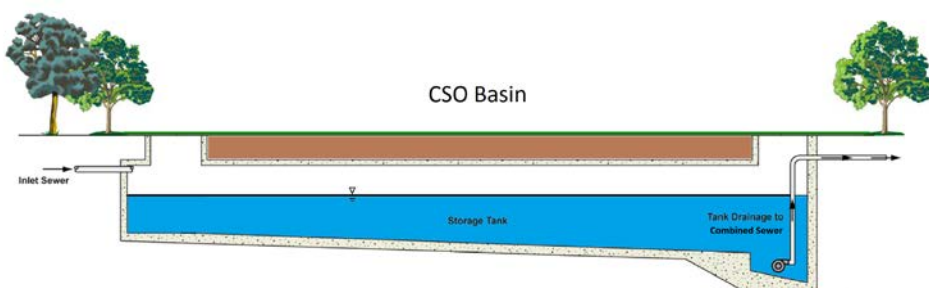
Green infrastructure projects are also marked:

- 18th St and Northwestern Pkwy Green Infrastructure (2018)
- Story Ave and Spring St Green Infrastructure (2014)

The map includes major roads (I-64, I-71, I-264, I-65, W Broadway, E Broadway, Algonquin Pkwy, S Broadway, S 2nd St, S 3rd St, S 4th St, S 5th St, S 6th St, S 7th St, S 8th St, S 9th St, S 10th St, S 11th St, S 12th St, S 13th St, S 14th St, S 15th St, S 16th St, S 17th St, S 18th St, S 19th St, S 20th St, S 21st St, S 22nd St, S 23rd St, S 24th St, S 25th St, S 26th St, S 27th St, S 28th St, S 29th St, S 30th St, S 31st St, S 32nd St, S 33rd St, S 34th St, S 35th St, S 36th St, S 37th St, S 38th St, S 39th St, S 40th St, S 41st St, S 42nd St, S 43rd St, S 44th St, S 45th St, S 46th St, S 47th St, S 48th St, S 49th St, S 50th St, S 51st St, S 52nd St, S 53rd St, S 54th St, S 55th St, S 56th St, S 57th St, S 58th St, S 59th St, S 60th St, S 61st St, S 62nd St, S 63rd St, S 64th St, S 65th St, S 66th St, S 67th St, S 68th St, S 69th St, S 70th St, S 71st St, S 72nd St, S 73rd St, S 74th St, S 75th St, S 76th St, S 77th St, S 78th St, S 79th St, S 80th St, S 81st St, S 82nd St, S 83rd St, 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What is a CSO Basin?

- A CSO Basin provides temporary storage for wet weather overflows that would otherwise flow directly to creeks, streams and rivers
- Released back into the collection system for treatment when system capacity is available



Frequently Asked Questions

- Will it create potential for back-ups?
 - No, the high-water elevation will be below basement elevations
 - Also will not eliminate the potential of back-ups
- What happens when the basin is full?
 - The system will function as it does today with the overflows being discharged to South Fork Beargrass Creek
- Will this project reduce flooding?
 - The basin will increase capacity of the combined sewer system during wet weather events
- Will the basin be visible?
 - No; underground, covered facility
 - There will be a control building and a screened generator
 - Access points/hatches may be visible

Frequently Asked Questions

- What about odor?
 - Highly diluted flow (mostly storm water)
 - Basin is underground and covered
 - Basin will be equipped with flushing equipment
 - Typically, odor control is not necessary with these types of facilities
 - MSD is being pro-active
 - Performing odor control monitoring/testing
 - Basin will be designed to accommodate a future odor control system

Project Overview

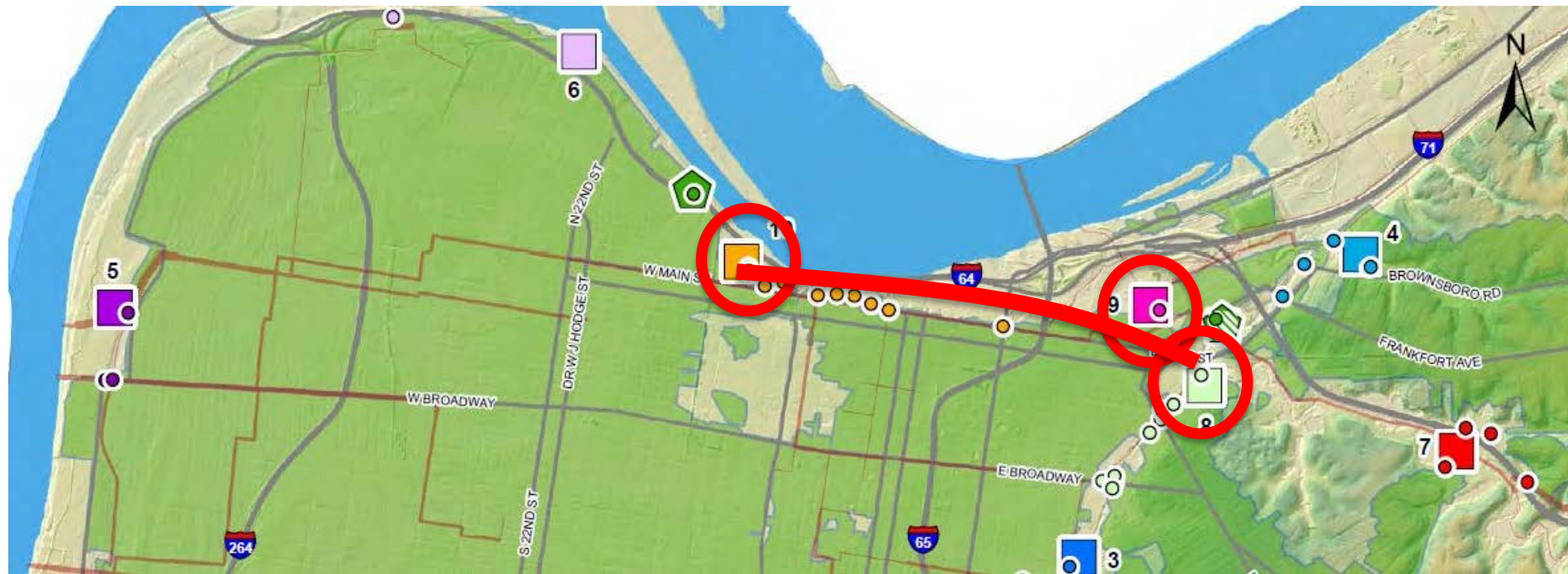


Ohio River Tunnel Overview

A project to combine the volume of 3 individual Combined Sewer Overflow (CSO) basins into a single deep rock tunnel

September 30, 2016 approval by MSD's Board to move forward with design

Three basins will be eliminated by the consolidated tunnel solution



Careful consideration resulted in the new solution

Variety of factors considered:

- Discussions with Community Leaders
- Input from public meetings
- Traffic disruptions along key commercial corridors
- Economic impacts to downtown businesses and the emerging Butchertown district
- Consent Decree mandates for completion by December 2020
- Technological advances of deep tunnel construction over the last decade have reduced costs
- Eliminates challenges of construction and final land use planning on a brownfield site

Meetings to Date: Community

Project Phase	Butchertown	Irish Hills
Orientation	June 16, 2015	January 19, 2016
Conceptual Design	February 10, 2016	April 26, 2016
Update	October 11, 2016	October 18, 2016
Update	July 11, 2017	

Meetings to Date: Louisville Downtown Partnership

Group	Date
Lou. Downtown Partnership	February 10, 2017
Lou. Downtown Partnership	February 24, 2017
Lou. Downtown Partnership	March 1, 2017
KY. Science Center & Ali Center	April 26, 2017

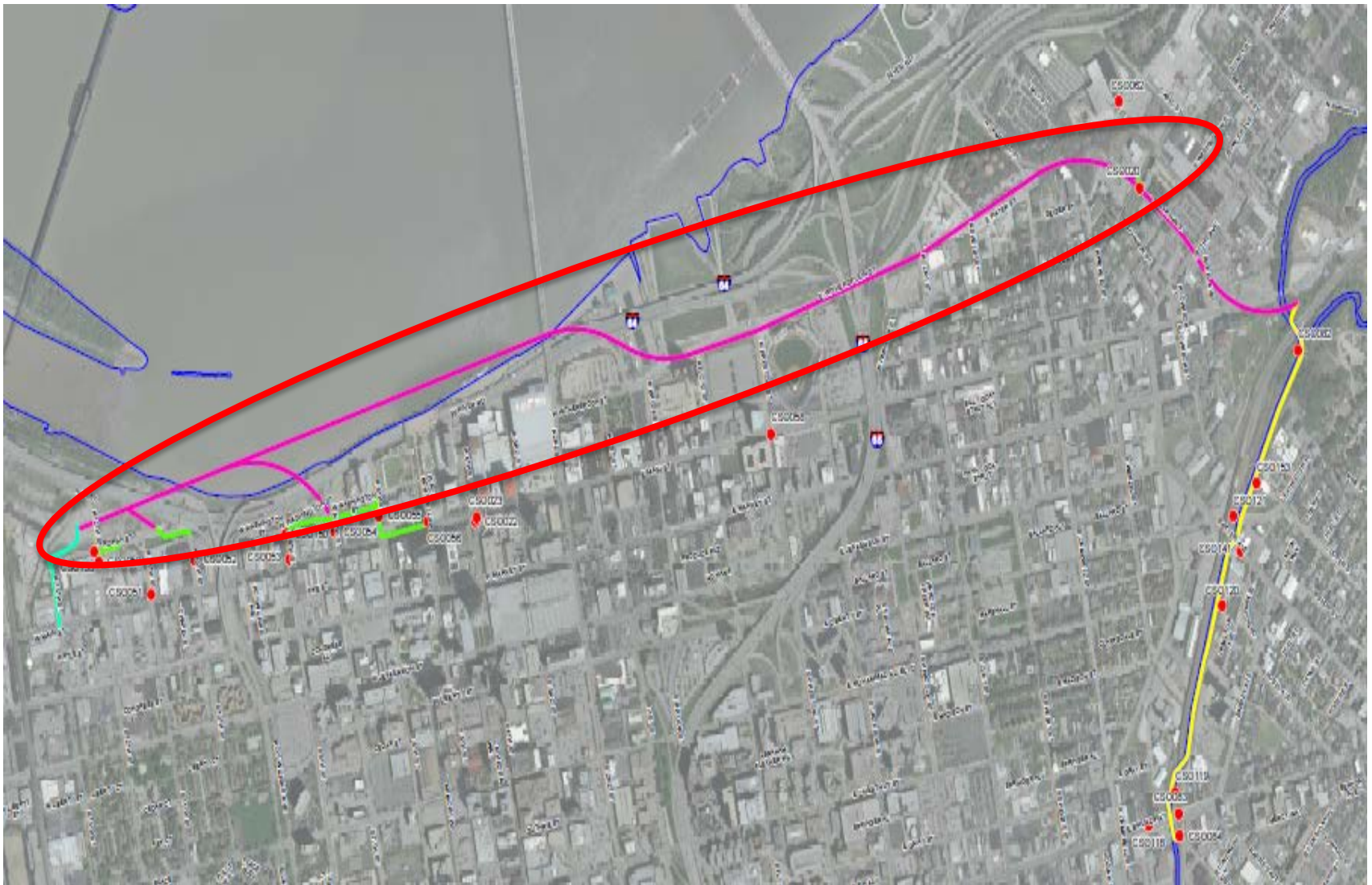
Ohio River Tunnel: An Innovative Alternative to 3 CSO Basins



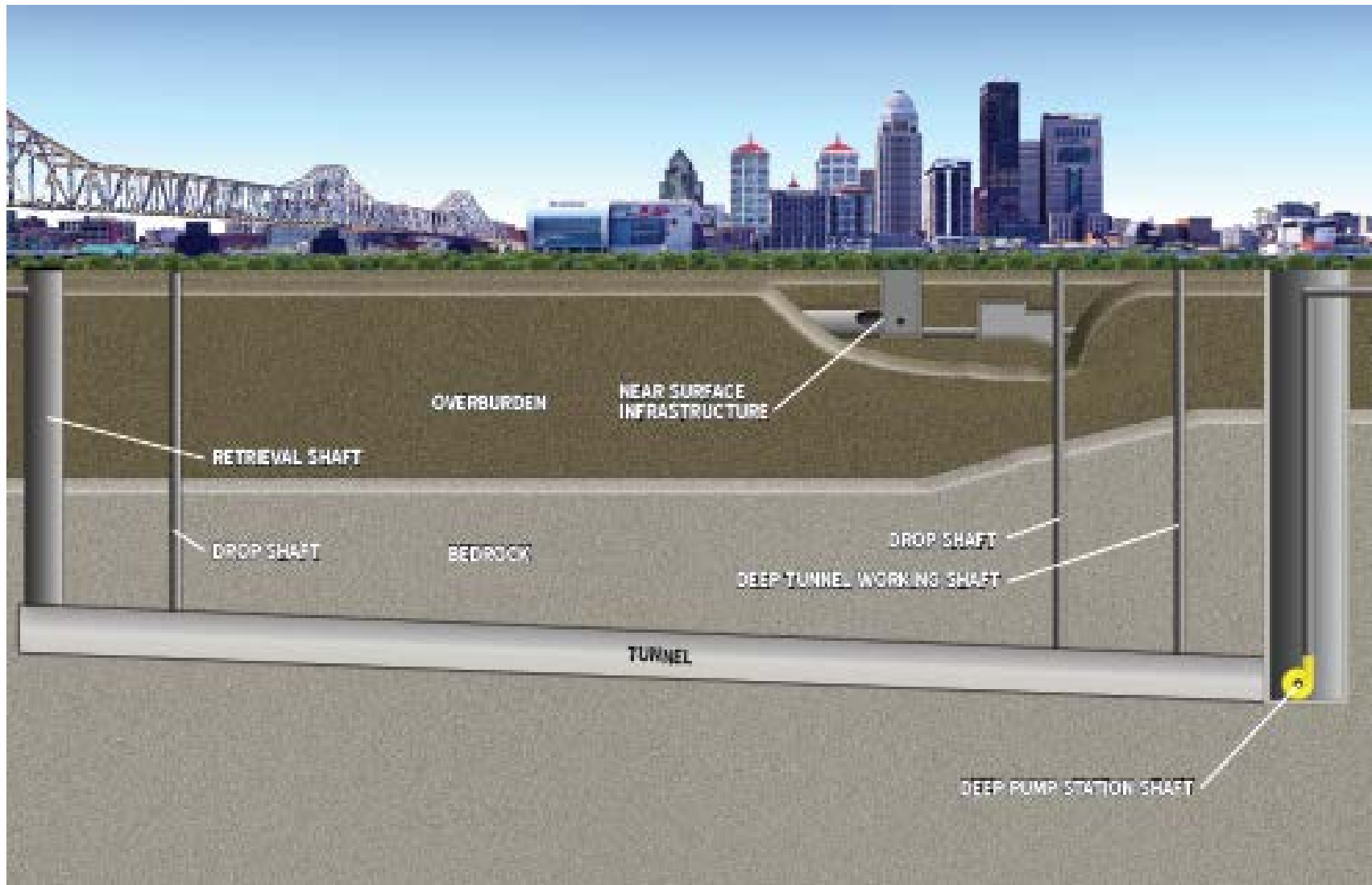
Project Background

- Divided into four (4) separate projects
 - Ohio River Tunnel
 - Rowan Pump Station
 - Lexington & Payne CSO Interceptor
 - Downtown CSO Interceptor
- Consent Decree Deadline of December 31, 2020

Ohio River Tunnel – Project Alignment



Ohio River Tunnel – Project Profile



Ohio River Tunnel – Project Facts

- Parameters
 - 13,400 linear feet in length (main tunnel)
 - 1,200 linear feet in length (bifurcation)
 - 200 feet below ground to invert
 - 20 feet minimum internal diameter
- Volume
 - Required - 33.7 million gallons
 - Provided - 37.0 million gallons
 - Rock Removal – 300,000 CY or 30,000 trucks

Ohio River Tunnel - Dig INDY Site Visit



Ohio River Tunnel - Dig INDY Site Visit



Ohio River Tunnel - Dig INDY Site Visit



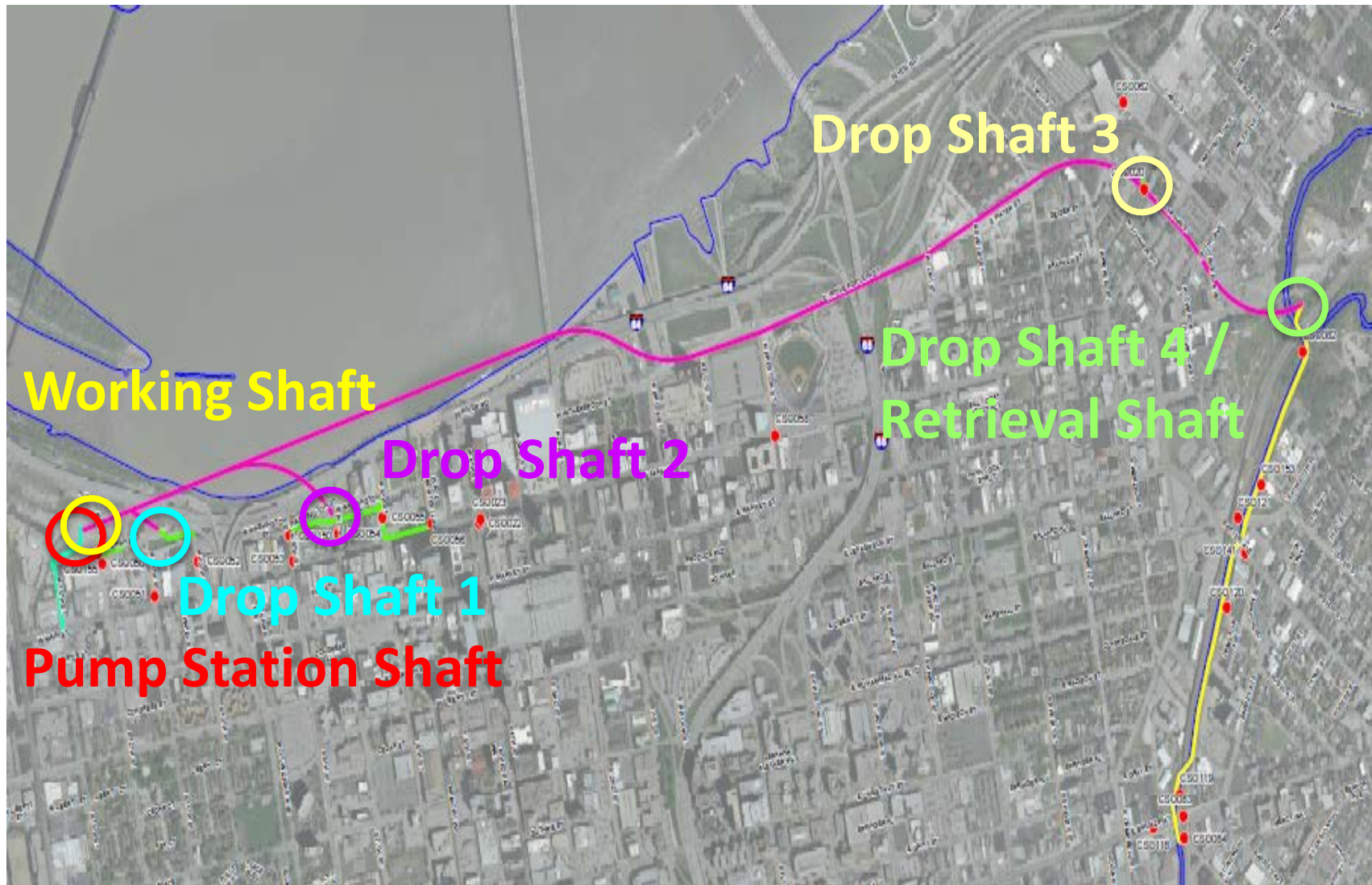
Ohio River Tunnel - Dig INDY Site Visit



Ohio River Tunnel - Dig INDY Site Visit



Ohio River Tunnel – Shaft Locations



Rowan Pump Station



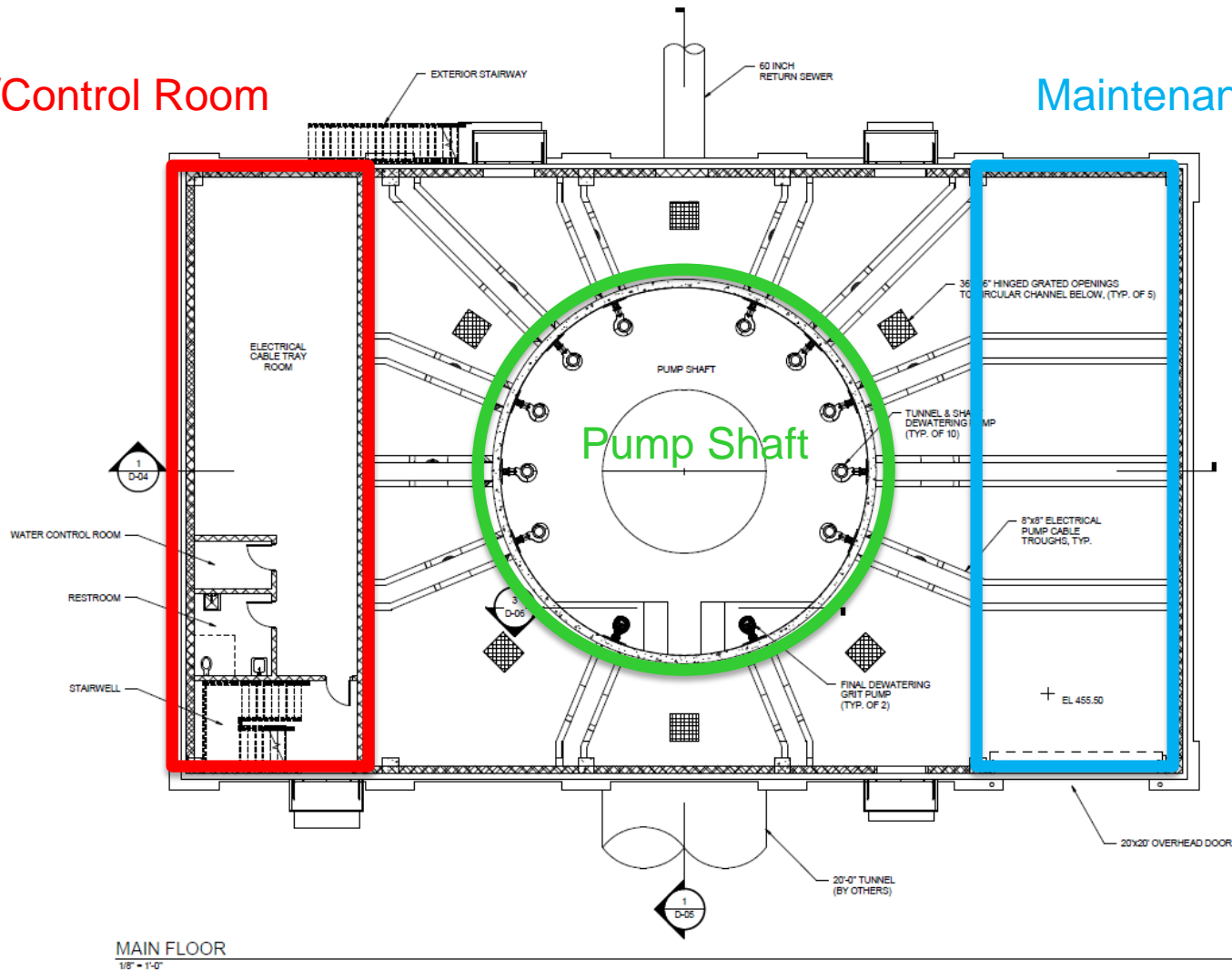
Rowan Pump Station – Project Facts

- Pump Station Building
 - 120 foot x 72 foot
 - Pump Station Shaft
 - Loading/Maintenance Area
 - Elevated Electrical/Control Room
- Wet Well
 - 10 submersible pumps (3,500 gpm each)
 - 2 grit pumps (1,000 gpm each)
 - 60 inch gravity sewer to Ohio River Interceptor (ORI)

Rowan Pump Station – Building Layout

Electrical/Control Room

Maintenance Area



Rowan Pump Station – Draft Rendering



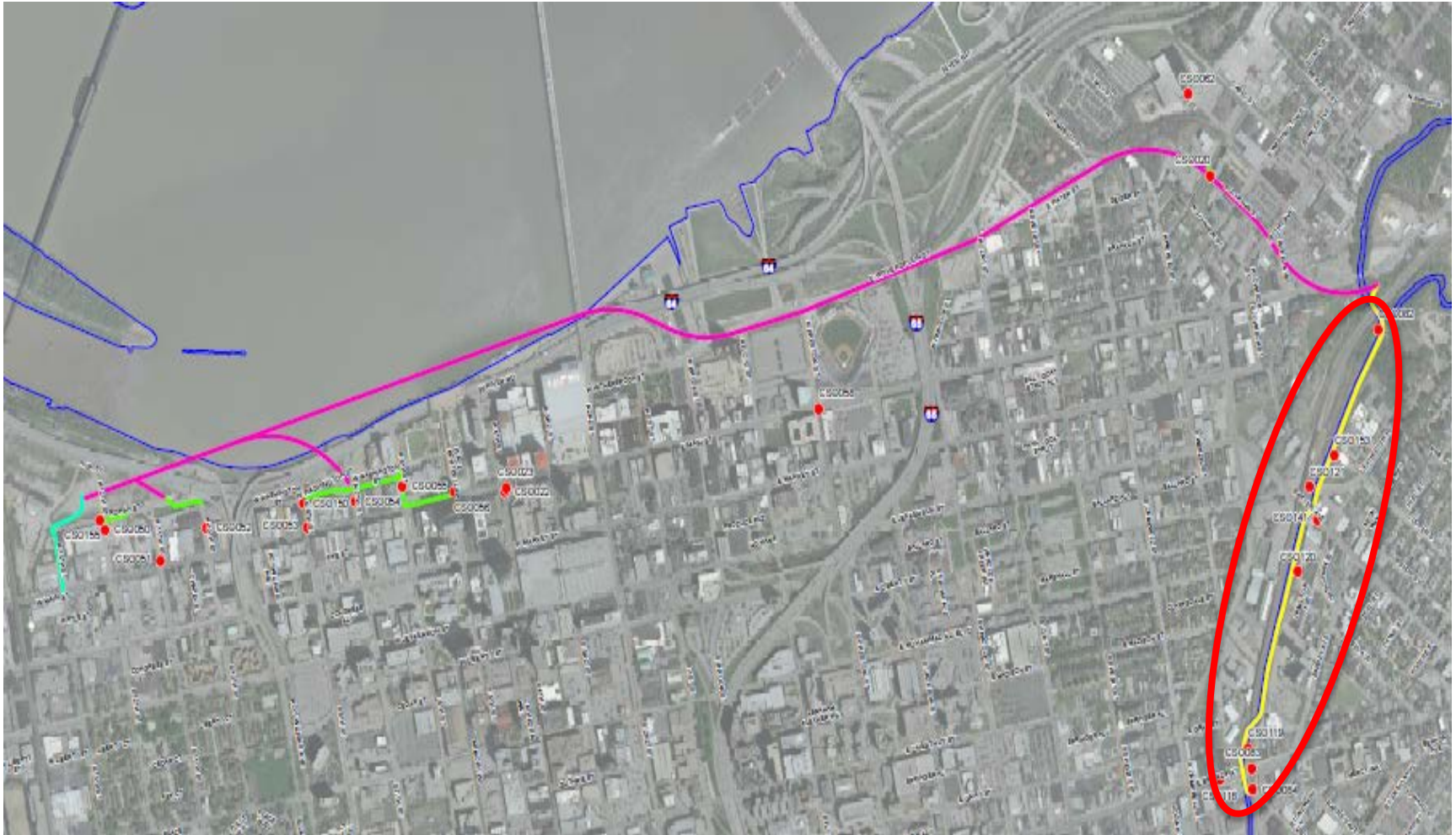
Rowan Pump Station – Draft Rendering



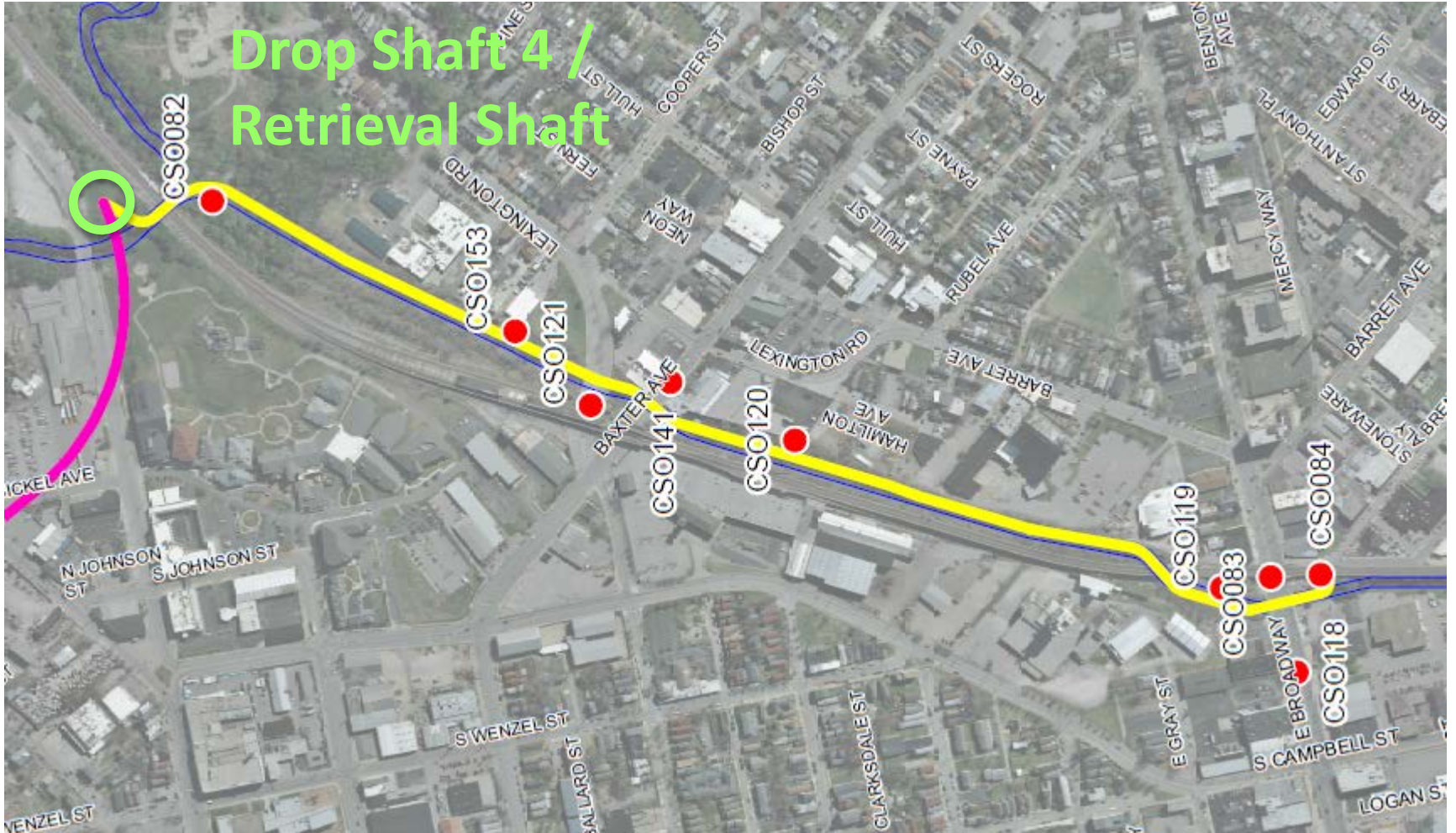
Lexington & Payne CSO Interceptor



Lexington and Payne CSO Interceptor – Project Alignment



Lexington and Payne CSO Interceptor – Project Alignment



Lexington and Payne CSO Interceptor - Project Facts

- Sewer line to capture overflows from nine (9) existing CSOs and convey that flow to the tunnel
- Interceptor will be below the concrete channel of South Fork Beargrass Creek
- Approximately 5,000 linear feet in length
 - From E Broadway to E Main Street
 - Pipe size ranging from 36-inch to 102-inch diameter

Example Project - Logan CSO Interceptor



Example Project - Logan CSO Interceptor



Example Project - Logan CSO Interceptor



Example Project - Logan CSO Interceptor



Downtown CSO Interceptor



Downtown CSO Interceptor – Project Alignment



Downtown CSO Interceptor - Project Facts

- Sewer lines to capture overflows from twelve (12) existing CSOs and convey that flow to the tunnel
- Approximately 2,000 linear feet total in multiple segments
- 12-inch to 60-inch diameters
- Street Impacts
 - Rowan Street between 10th & 13th Streets
 - Washington Street between 6th & 8th Streets
 - 6th Street between Main & Washington Streets
 - Main Street between 5th & 6th Streets

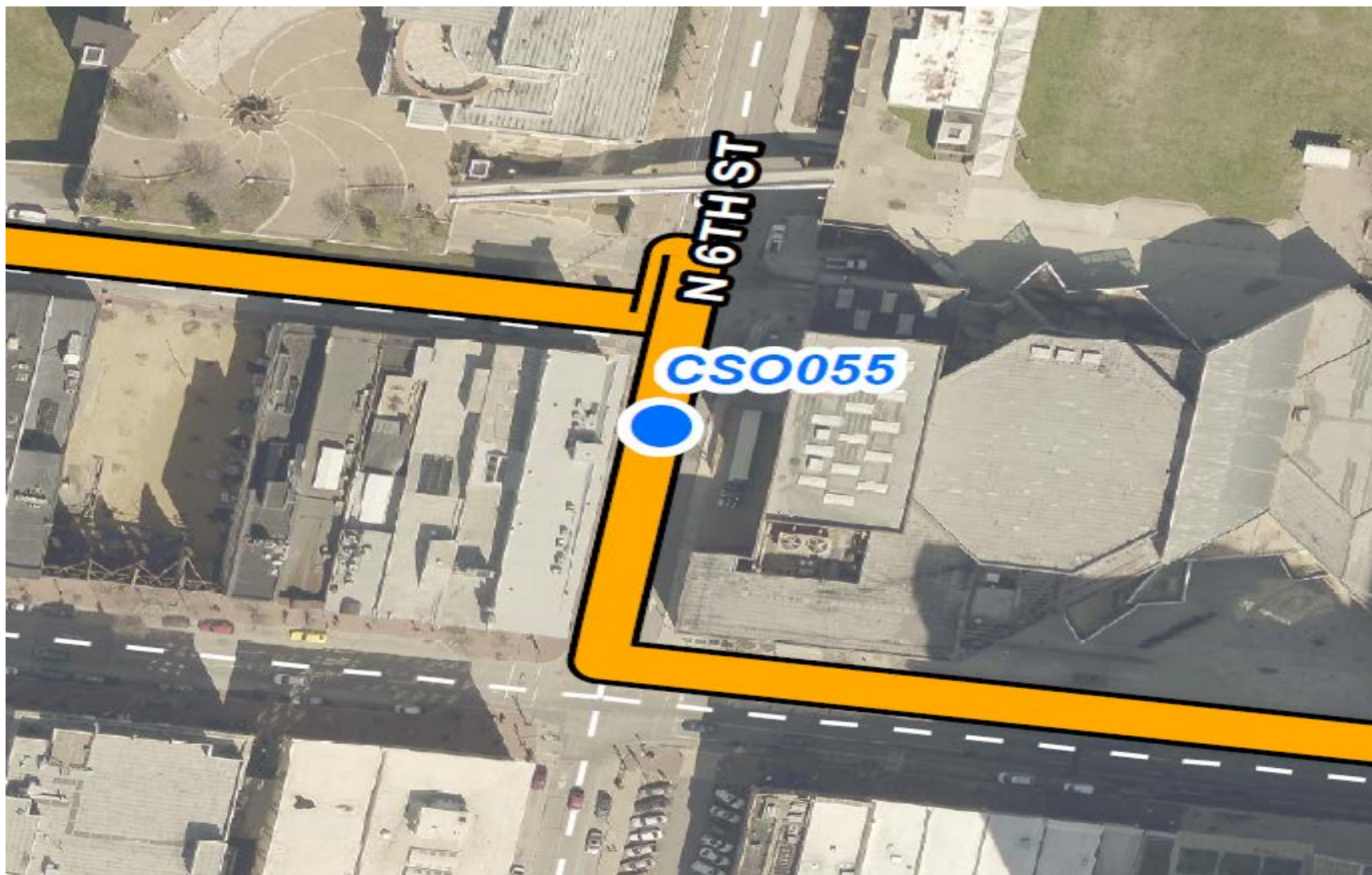
Downtown CSO Interceptor – Rowan Street



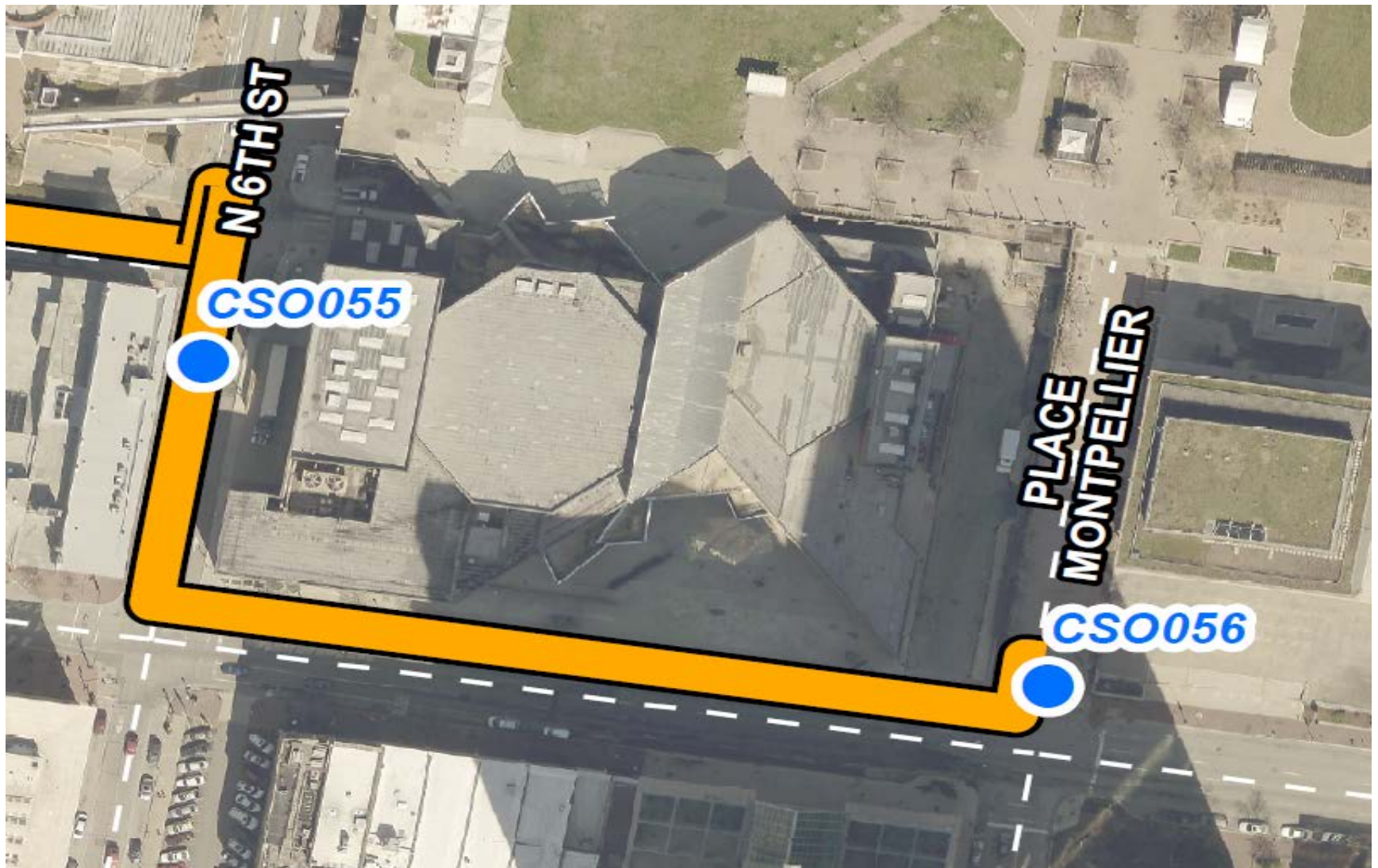
Downtown CSO Interceptor – Washington St



Downtown CSO Interceptor – 6th Street



Downtown CSO Interceptor – Main Street



Story and Main Connector – Project Alignment



Story and Main Connector - Project Facts

- Sewer line to capture overflows from two (2) existing CSOs and convey that flow to the tunnel
- Approximately 200 linear feet in length
 - Near the intersection of Franklin Street and Buchanan Street
 - Pipe size: 48-inch diameter

Project Schedule



Ohio River Tunnel – Schedule

Milestone	Ohio River Tunnel	Lexington & Payne CSO Interceptor	Downtown CSO Interceptor	Rowan Pump Station
Final Design	May 2017	Feb. 2017	Sept. 2017	Nov. 2017
Construction Start	Oct. 2017	Oct. 2017	Nov. 2017	Feb. 2018
Substantial Completion	June 2020	June 2019	Oct. 2019	Aug. 2020
Consent Decree Deadline	Dec. 31, 2020	Dec. 31, 2020	Dec. 31, 2020	Dec. 31, 2020

Cost Estimate



Ohio River Tunnel – Construction Costs

Project	Construction Cost Estimate
Ohio River Tunnel	\$ 135,000,000
Lexington & Payne CSO Interceptor	\$ 25,000,000
Downtown CSO Interceptor	\$ 15,000,000
Rowan Pump Station	\$ 25,000,000
Total	\$ 200,000,000

Keeping Each Other Informed



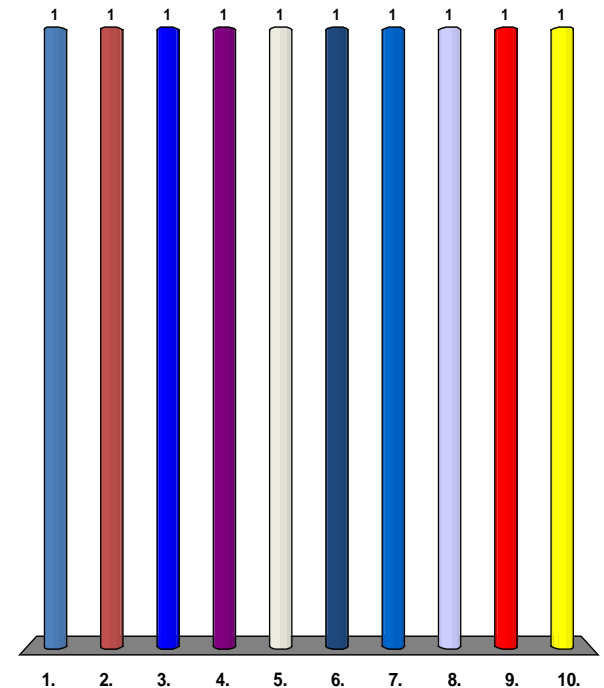
MSD Wants to Keep You Informed, and We Want to be Informed

The tunnel will greatly reduce surface disturbance and construction impacts, and the tunnel boring will not be heard, but...

- Some streets will be closed for interceptor installations at different times over the next three years
- There will still be significant construction traffic and impacts
- MSD will create information resources to keep you up to date, help you plan for any possible construction impacts, and help you keep us informed about impacts we should be aware of.
- **We'd like your opinion on the best ways to accomplish this.**

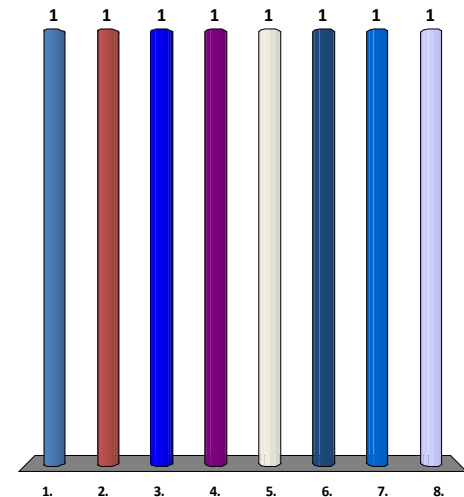
How Would You Like to Learn About MSD's Ohio River Tunnel Progress? (5)

1. Public Meetings
2. Local Mainstream Print or Broadcast Media
3. Metro Council District Newsletters
4. MSD Website
5. Dedicated MSD Project Website
6. MSD Email List
7. @LouisvilleMSD (Twitter)
8. Facebook Updates
9. Text Messages to Your Phone
10. Louisville Downtown Partnership Website



What Types or Styles of Information Exchange Would be Most Useful During the Project? (5)

1. Real Time Animation Of Tunnel Or Construction Progress
2. Moderated Discussion / Message Board
3. 800 Number for Questions
4. FAQ Derived from items 2 and 3
5. MSD and Project Event Announcements / Calendar
6. Weekly Update / Map of Construction Impacts
7. URL's to Related Project Resources



THANK YOU!

Next Steps

- Ohio River Tunnel and Lexington and Payne CSO Interceptor
 - Board Award in 3rd Quarter 2017
 - Construction in 4th Quarter 2017
- Downtown CSO Interceptor
 - Board Award in 4th Quarter 2017
 - Construction in 1st Quarter 2018
- Rowan Pump Station
 - Board Award in 1st Quarter 2018
 - Construction in 2nd Quarter 2018

Discussion



For *general information or emergencies*
regarding the MSD system, call:

502-587-0603

Your Call Will be Answered

- By an MSD Staff Member
- Around the Clock
- Every Day of the Year