Sewer & Water Advisory Board

Division of Sewerage & Drainage

PROGRAM UPDATE

THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF
PUBLIC UTILITIES

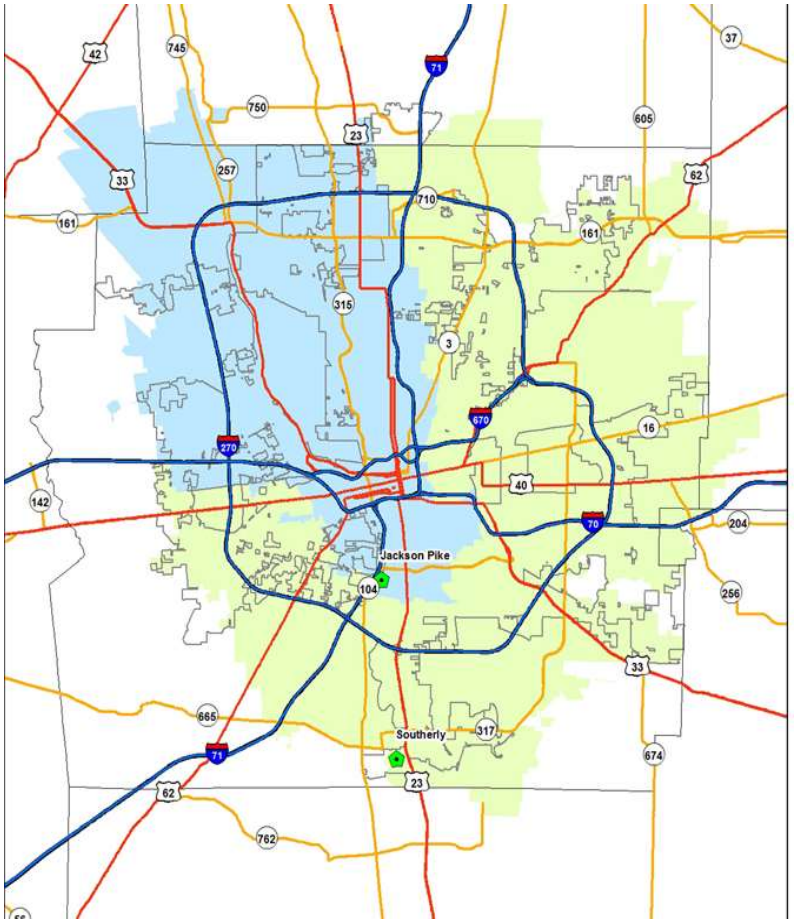
JUNE 3, 2020

Agenda

- DOSD Overview
- Consent Order Update
- Sanitary Collection System
- Stormwater Collection System
- Treatment Plant Improvements
- Biosolids
- COVID Wet Weather Response
- Looking Ahead

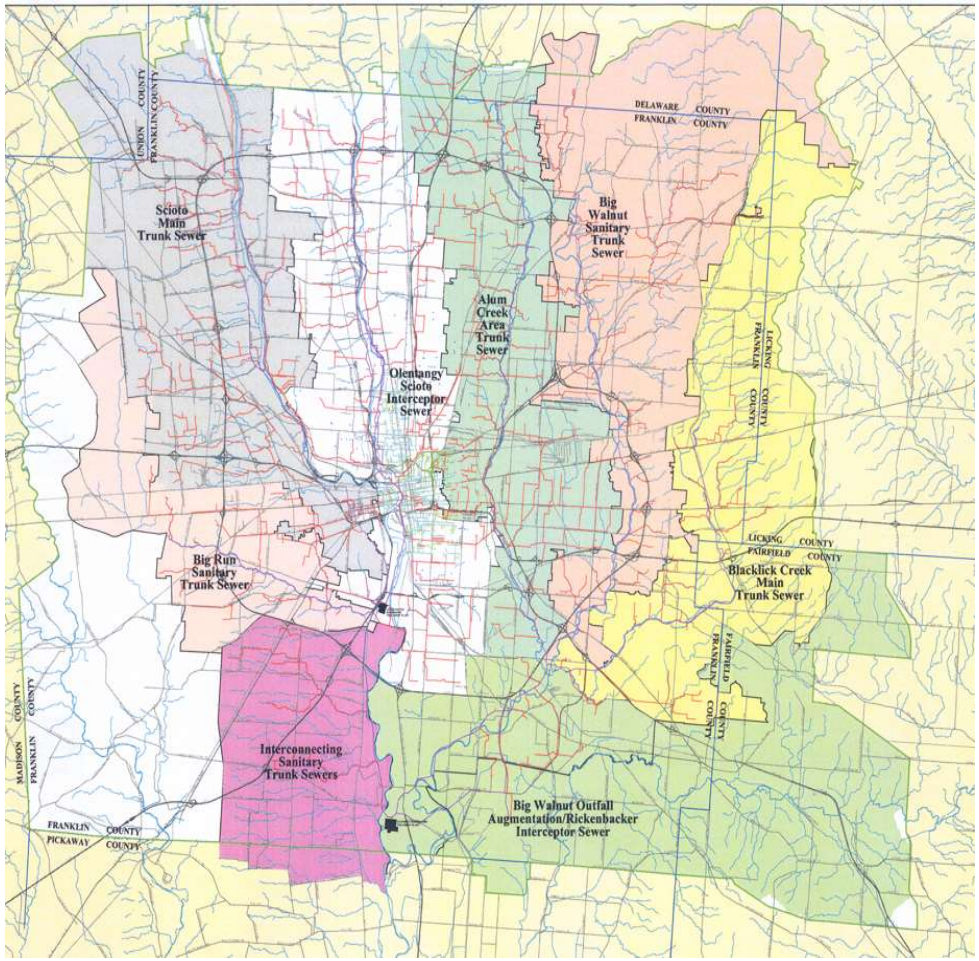
Division of Sewerage & Drainage

- 5-County Treatment Area
- Two treatment plants
  - **Jackson Pike** (150 mgd peak)
    - 45% of Total Annual Treated Flow
  - **Southerly** (330 mgd peak)
    - 55% of Total Annual Treated Flow
- Composting Facility



Division of Sewerage & Drainage

- **4600**+ miles of sanitary, combined, and storm pipes
- **17** sanitary pump stations
- **15** storm pump stations
- **5** Air Quality Control facilities
- Franklinton Floodwall



Consent Order History

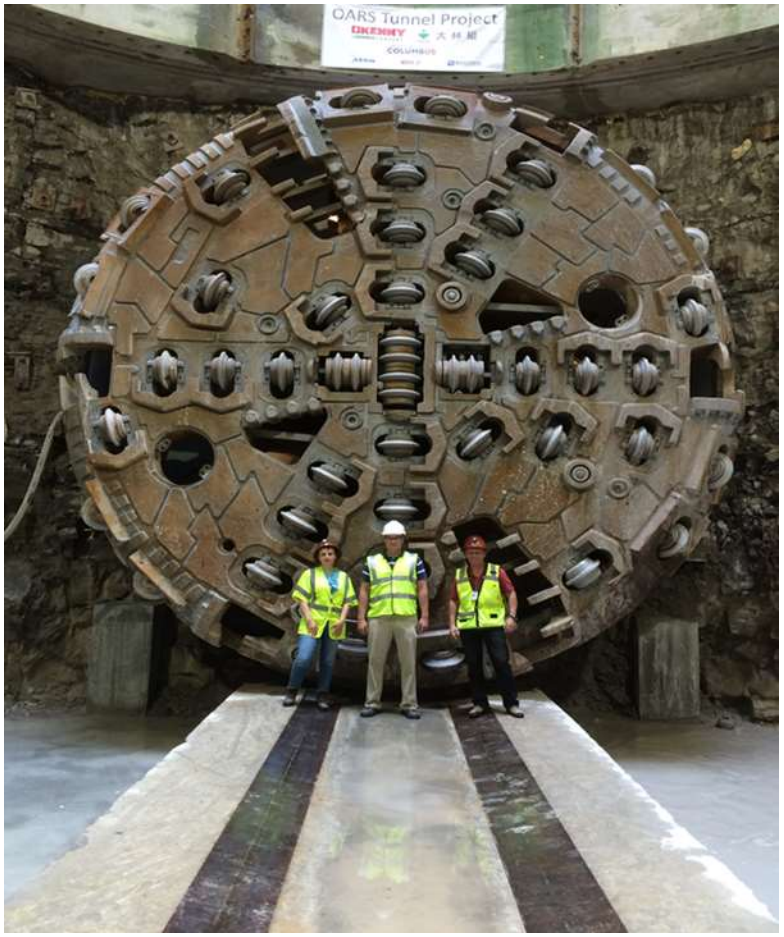
- 2002 Sanitary Sewer Overflow (**SSO**) Consent Order
  - System Evaluation and Capacity Assurance Plan (**SECAP**)
- 2004 Combined Sewer Overflow (**CSO**) Consent Order
  - CSO Long Term Control Plan (**LTCP**)
- **SECAP** and **LTCP** were combined to form the 2005 Wet Weather Management Plan (WWMP)
  - Submitted July 1, 2005

WWMP Capital Program

- Major Capital Projects focused on treatment plant and tunnels to address CSO and SSO
- First of these projects started in 2005 at the WWTPs
- Treatment plant project highlights
  - Treatment Plant work increased each plant capacity 50%
    - Projects completed in 2011
    - Jackson Pike WWTP: ($96 Million)
    - Southerly WWTP: ($550 Million)

WWMP Capital Program

- Collection System Project Highlight
  - OSIS Augmentation Relief Sewer (**OARS**)
- Construction Cost - $371M
- **OARS** started operation in July 2017
  - Relocation of largest CSO while providing 1.4B Gallons on storage in typical year



Blueprint Plan

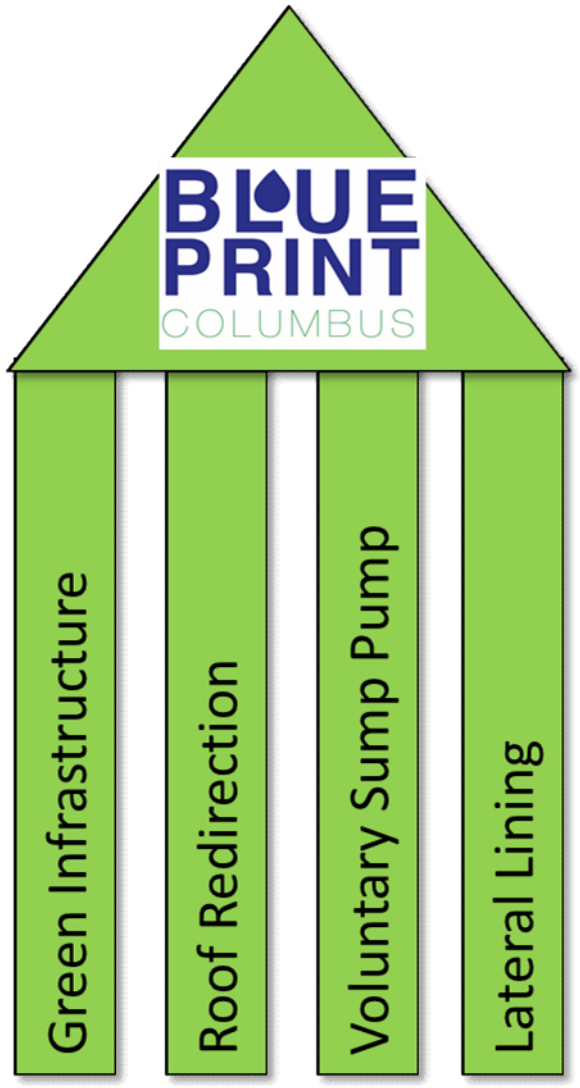
- In December 2015, Ohio EPA granted approval for City to revamp WWMP with Blueprint Columbus
  - Treat the root cause of overflows – Inflow/Infiltration
- Ohio EPA in 2018 extended deadline of completion to 2045 to match original WWMP

BLUE PRINT COLUMBUS

Clean streams.
Strong neighborhoods.

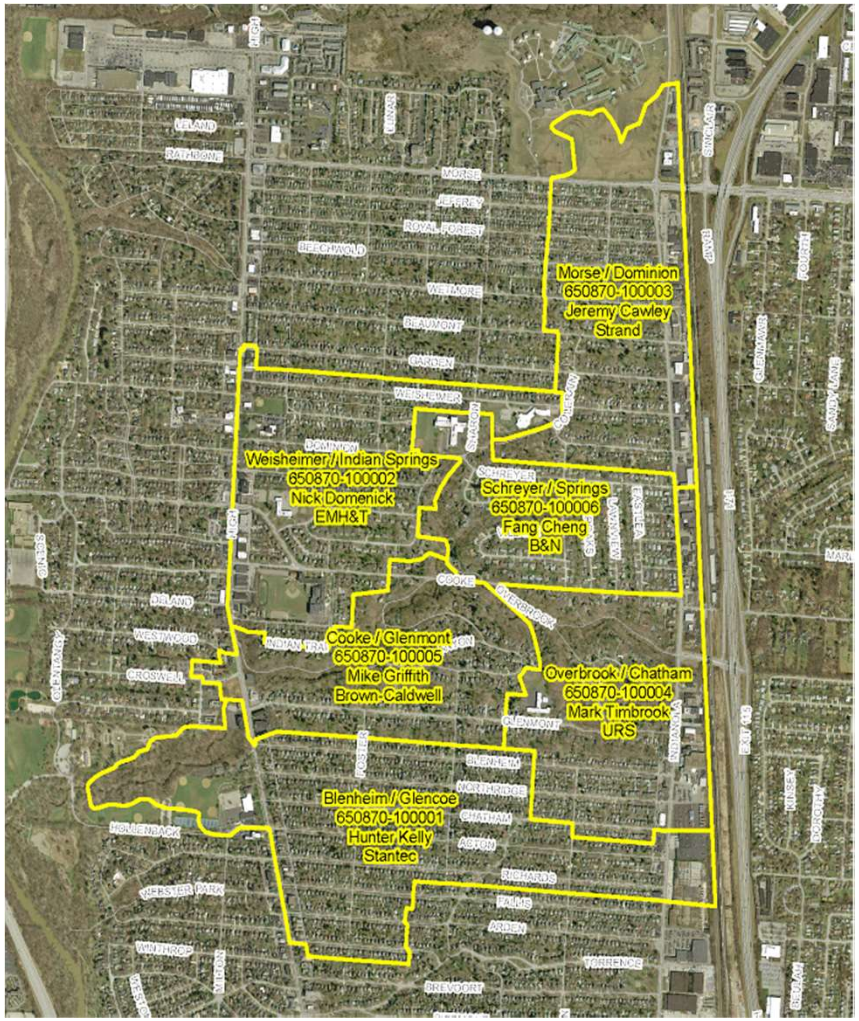
Blueprint Plan

- Core Changes from the WWMP
  - Blueprint Neighborhoods
    - 4 Pillar Approach
    - Chemically Enhanced Primary Treatment (**CEPT**)
    - Lower Olentangy Tunnel (**LOT)**
    - Real Time Control (**RTC**)
- Combined Sewer Overflow (CSO) projects from the WWMP remain

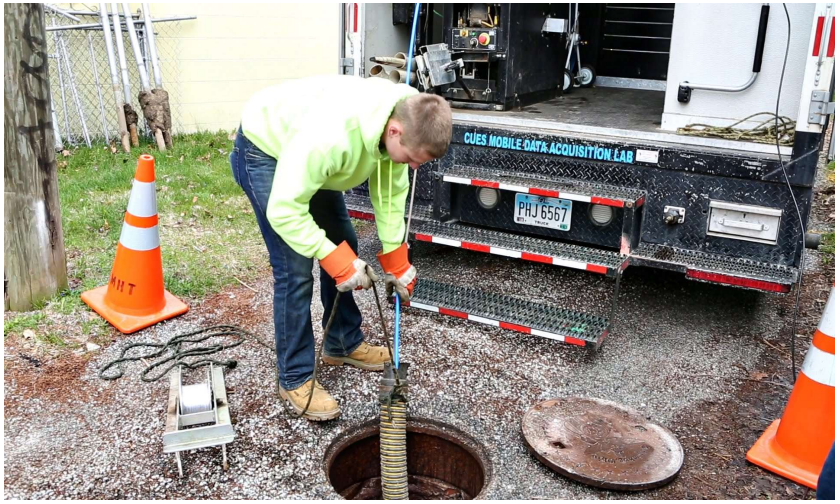


Blueprint Clintonville 1 (2012)

- Green Infrastructure
  - **All 6** projects complete
  - **415** rain gardens constructed
  - **4** Blocks of Pervious Pavers
- Sump Pump Program
  - Over **514** sump pumps installed
- Downspout Redirection/lateral lining
  - **4** projects completed
  - **3** projects currently under construction
  - **3** projects to start in 2020
  - **1366** laterals lined
  - **1098 Homes** with redirected downspouts



Blueprint Clintonville 1 (2012)



Blueprint Clintonville 1 (2012)

- Coordination with OSU on Blueprint Neighborhood objectives:
  - Two of the primary objectives:
    - Analyzing the change in stormwater flows
    - Water quality improvements
- Coordination with Model Team and Data Analysis:
  - Starting the evaluation of the effectiveness of each of the technologies

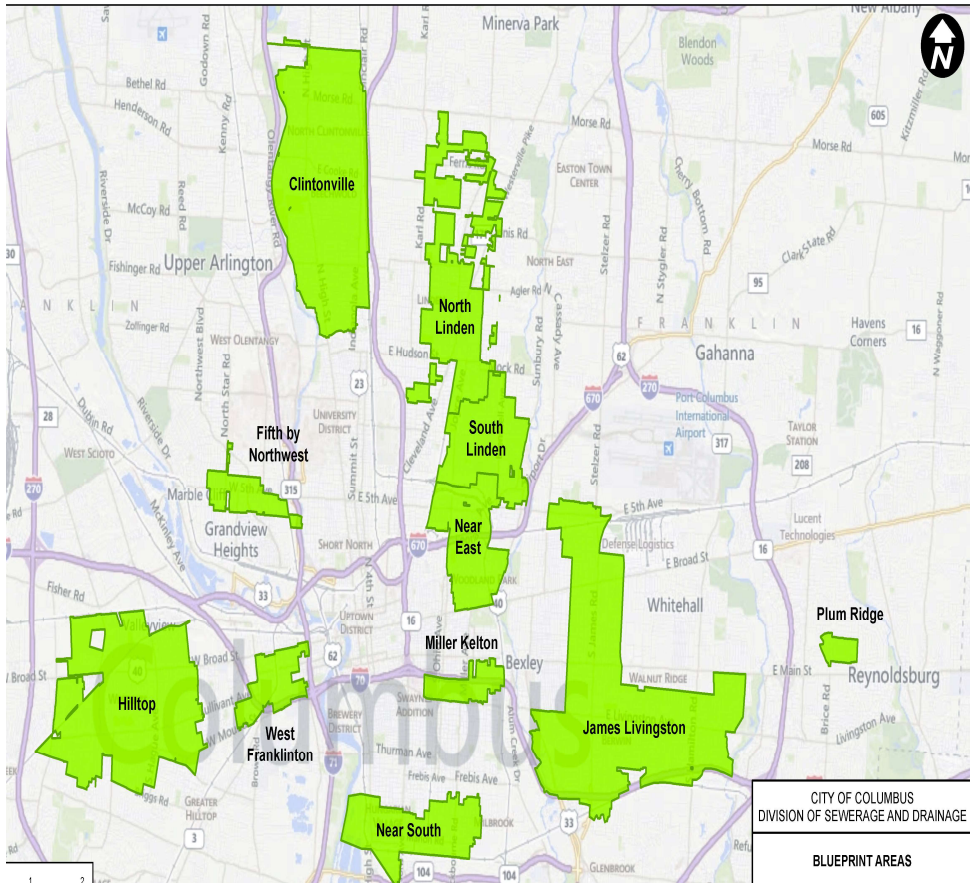
THE OHIO STATE UNIVERSITY — Food, Agricultural, and Biological Engineering

Testing Locations & Methods

Area	BRC Location	BRC Configuration	BRC Area (sf)	Tank or Hydrant?	Water Quality Testing?
Blenheim Glencoe	220 Blenheim Road, about midway between Foster Street and Sharon Avenue. Northern edge of neighborhood	In-Lawn	96	Tank	Yes
Blenheim Glencoe	146 Glencoe Road, midway between Foster and E. Torrence Road	In-Lawn	144	Tank	Yes
Blenheim Glencoe	Southeast Corner of Acton and Granden	In-Lawn	184	Tank	Yes
Cooke-Glenmont	427 Canyon Drive North	In-Lawn	137	Tank	Yes
Cooke-Glenmont	Intersection of Overbrook and Lenappe Drive	Regional	489	Hydrant	No
Cooke-Glenmont	107 Glenmont Ave, between North High Street and Foster Street.	Bump Out	144	Hydrant	No
Overbrook-Chatham	568 Northridge Rd, between Colerain Ave and Indianola Ave.	Bump Out	133	Tank	Yes
Overbrook-Chatham	Intersection of Yarona Drive and Wynding Drive	In-Lawn	120	Tank	Yes
Overbrook-Chatham	525 Blenheim and Colerain Corner	In-Lawn	241	Hydrant	No
Morse-Dominion	Near intersection of Beechwold Bvld and Indianola Ave	In-Lawn	1395	Hydrant	No
Morse-Dominion	602 E. Weisheimer, near intersection with Dominion Bvld (but a few houses East).	In-Lawn	111	Tank	Yes
Morse-Dominion	613 E. Beechwold, near intersection with Colerain Ave	In-Lawn	167	Tank	Yes
Schreyer- Springs	401 East Schreyer Place	In-Lawn	302	Hydrant	No
Schreyer- Springs	4276 Eastlea Drive	In-Lawn	120	Tank	Yes
Schreyer- Springs	4203 Eastlea Drive	In-Lawn	191	Tank	Yes
Schreyer- Springs	4240 Fair Oaks Drive, Southern half of Fairoaks Dr	In-Lawn	457	Hydrant	No
Weisheimer-Indian Springs	Intersection of Sheilds Place and East Shreyer Place	In-Lawn	85.1	Tank	Yes
Weisheimer-Indian Springs	181 Schreyer Place	Bump Out	156.2	Tank	Yes

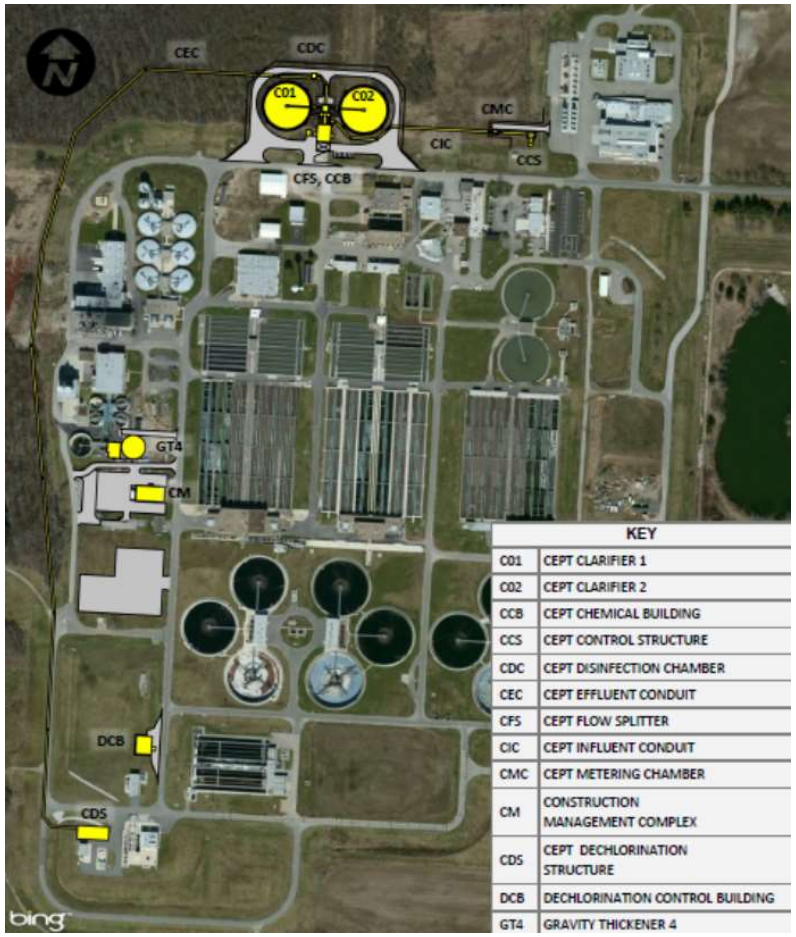
Blueprint Neighborhoods

- **Blueprint** Neighborhood Areas
- Currently in various phases in these neighborhoods:
  - Clintonville (2012)
  - Linden (2013)
  - Hilltop (2014)
  - Miller/Kelton (2014)
  - W. Franklinton (2015)
  - Fifth by Northwest (2015)
  - Near South (2017)
  - James/Livingston (2019)



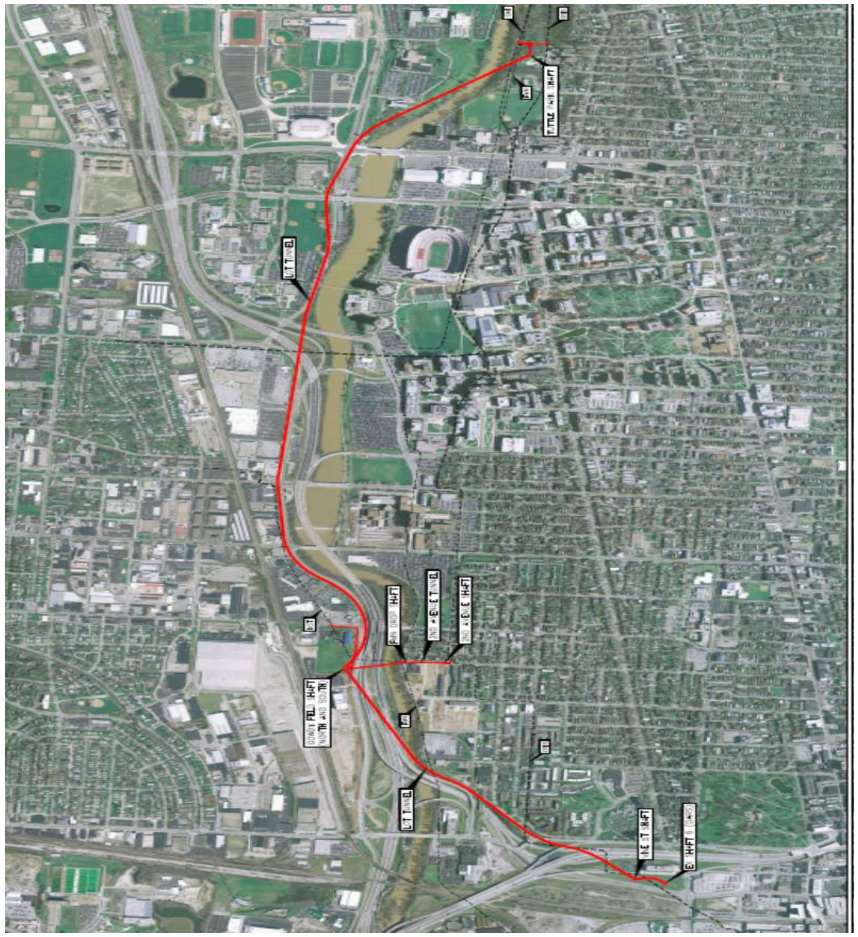
Chemically Enhanced Primary Treatment (CEPT)

- Located at the SWWTP
- Add 110 million gallons per day (mgd) of high rate treatment capacity to assist during wet weather events
- Construction substantially completed in 2019
  - 4 Activations since December 2019



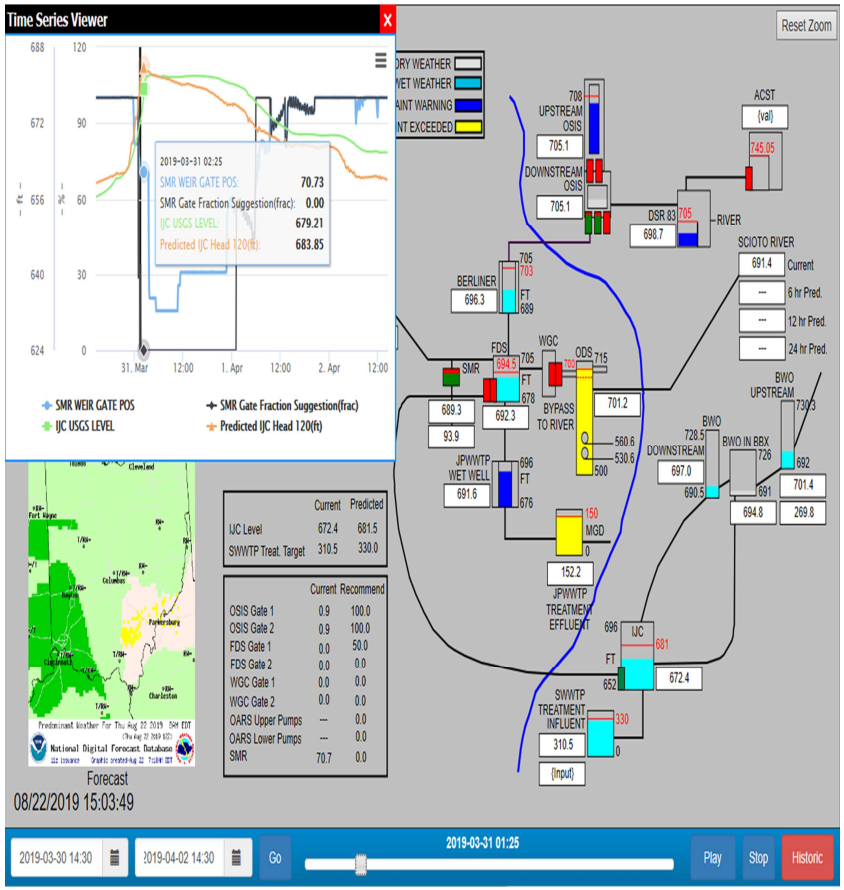
CSO Program

- **CSO Program to be completed by July 1st, 2025**
  - LOT Tunnel – CSO and SSO relief (+$200M)
  - Moler Street Overflow
  - Noble and 4th
  - Kerr and Russell
  - Markinson Inflow
  - Various Weir Raisings

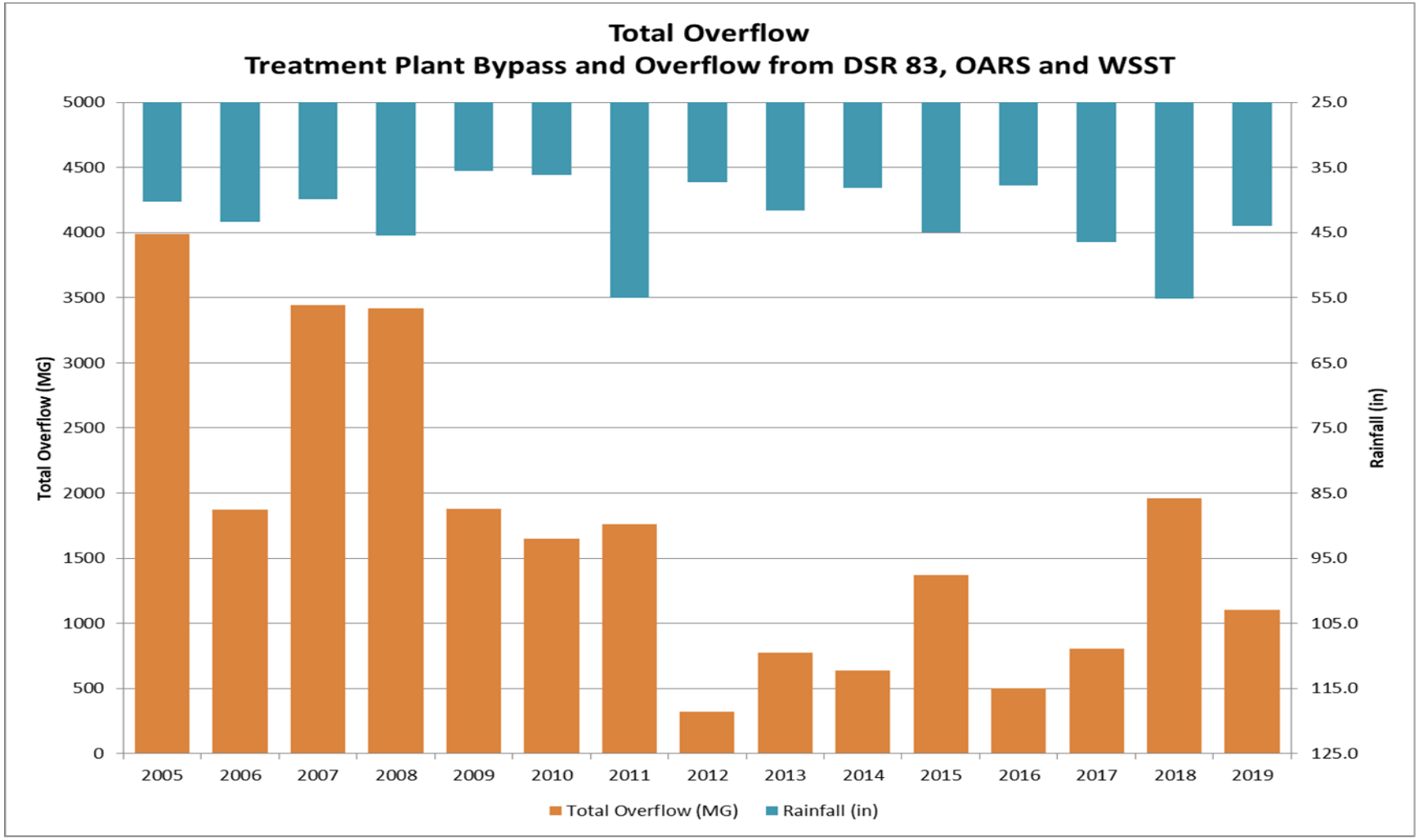


Real Time Control (RTC)

- Maximize treatment and storage
- Minimize overflows
- Design system for real time analysis
- Enhance awareness of current sewer conditions
- Predict future depth and flow at key locations
- Develop operational recommendations



Overflow Performance



Sanitary Collection System CIP

- Continuation of the following Programs:
  - Sanitary Sewer Extension Projects
    - Continuation primarily in the NE and SE quadrants of Central Ohio
  - Large Diameter Program
    - Assessment of sanitary complete; CIP Improvements underway
    - Actively working on combined system

Sanitary Collection System CIP

- Annual Lining Contract

  Increase the lifespan of existing pipe at a fraction of the cost

- Septic Tank Elimination Program (STEP)
  - Approximately a 13% reduction in Household Sewage Treatment Systems (HSTS) since start of the program

Stormwater Collection System CIP

- Several Projects currently in final stages of design/under construction
- Large diameter condition assessment project
  - to follow sanitary model for rehabilitation
- Storm Pump Station Upgrades
- Storm Upgrades in Blueprint Areas

Wastewater Treatment Plants

- Biosolids Largest Focus of Improvements

  SWWTP

  – Construction of Digester 7 in 2020

  – Design of Acid Phase Digestion in 2020

  JPWWTP

  – Design of New Tank Covers in 2020

  – Biosolids Land Application Project 2021

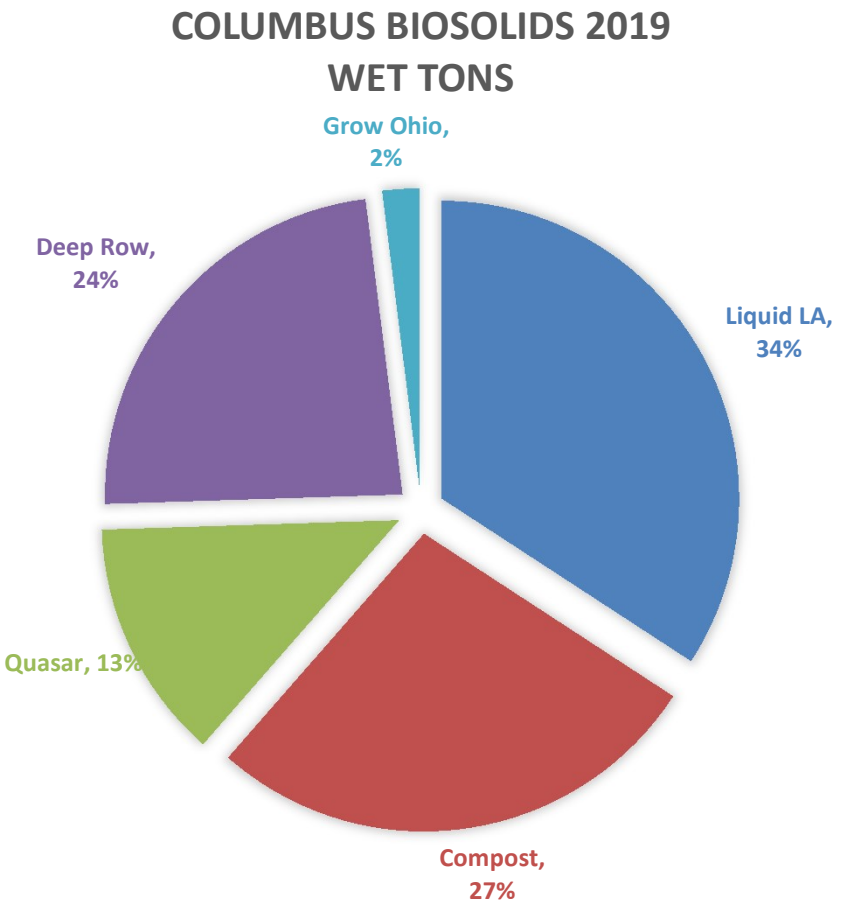
  – Cogeneration Project Currently in Design

Biosolids Utilization

- Columbus uses multiple methods to manage biosolids
  - Diversity of methods provides resiliency to changing regulations and market forces
- Emphasis of biosolids program is to shift to both greener and less costly methods

Biosolids Reutilization

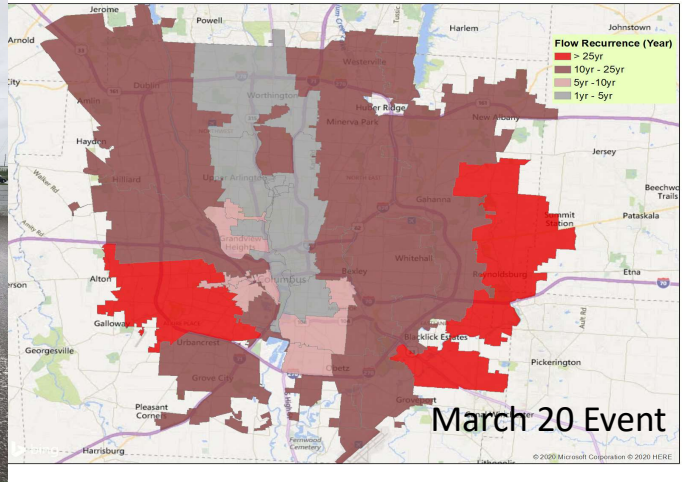
- Fourth Straight Year of 100% Beneficial Reuse
- Flexibility will continue in the future with improvements in storage, co-gen and compost upgrades
- PFAS/PFOA

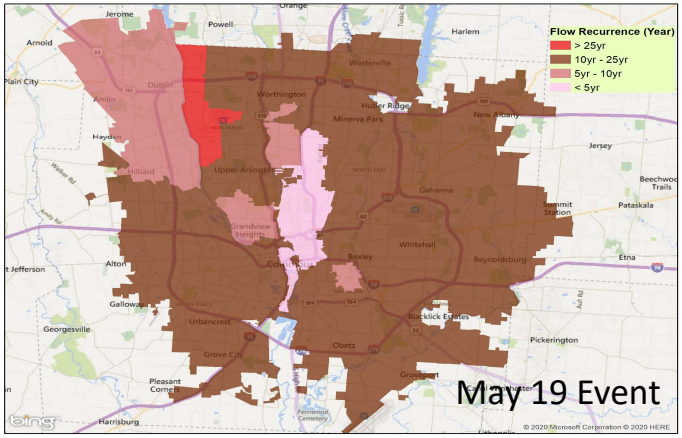


COVID-19 Wet Weather Response

Scioto Historic Crests

(1) 27.22 ft on 01/22/1959
(2) 26.61 ft on 01/06/2005
(3) 24.88 ft on 02/24/1975
(4) 24.78 ft on 06/02/1997
(5) 24.70 ft on 03/21/1927
(6) 24.70 ft on 01/27/1952
(7) 24.50 ft on 01/15/1937
(8) 24.45 ft on 12/31/1990
(9) 24.32 ft on 03/14/1933
(10) 24.20 ft on 05/19/2020

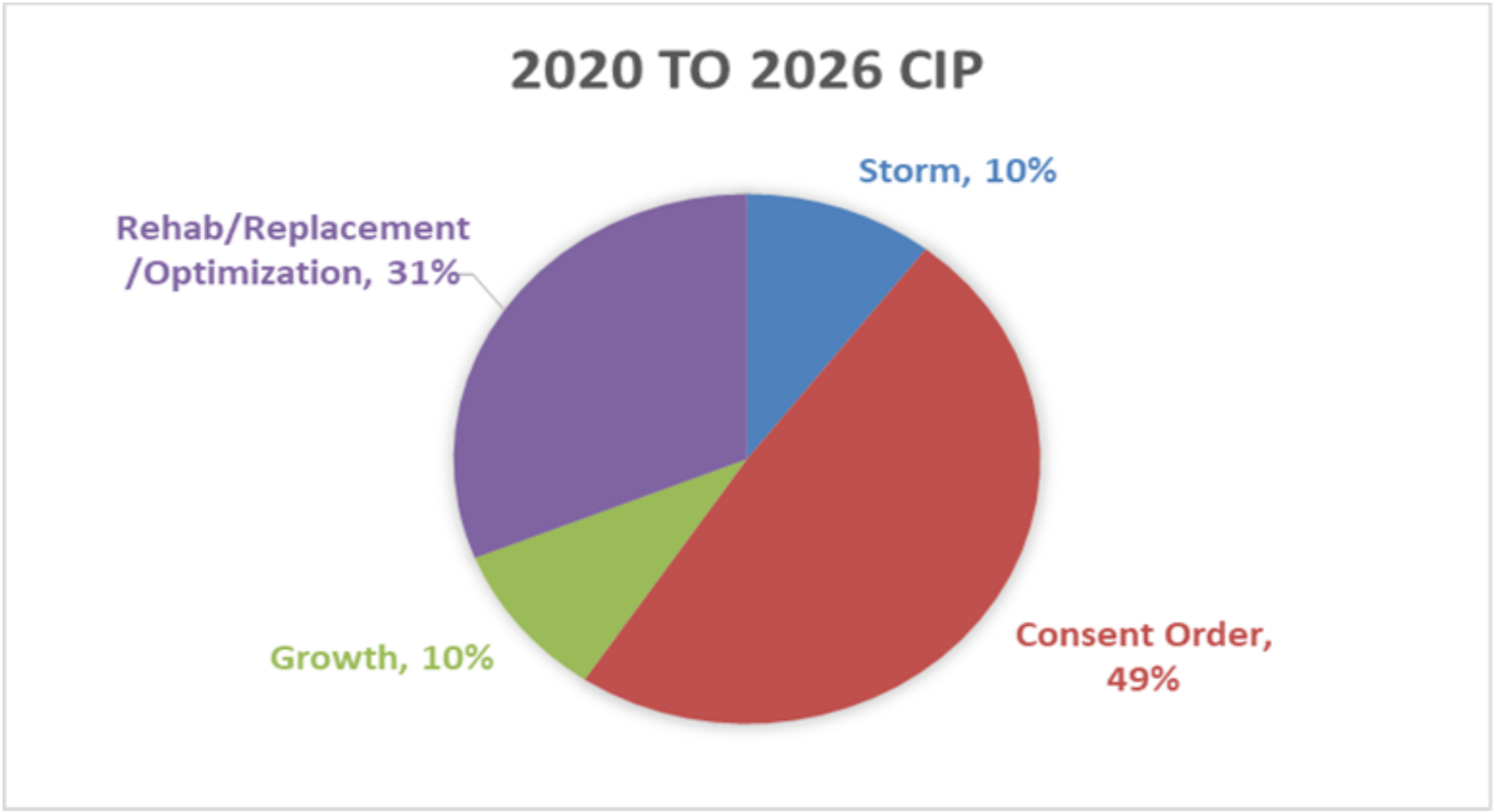




Looking Ahead

- Nutrients
  - Nitrogen and Phosphorus
- PFAS/PFOA
  - Forever Chemicals

Looking Ahead




Thank you
Questions?
H.R. Gray - Southerly WWTP S88 Chemically Enhanced Primary Treatment Clarification
Blake Ashbrook - March 3 2020