Environmental Protection

Gowanus Canal
Combined Sewer Overflow
Long Term Control Plan

Public Meeting #2

Review of Alternatives

P.S. 32

May 14, 2015

Welcome & Introductions

Emily Lloyd
Commissioner
DEP

Context for LTCP

The **Clean Water Act** of 1972 sets as a national goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water."

- In the Gowanus Canal, CSOs introduce pathogens that contain bacteria that is harmful to humans when ingested in large quantities as well as organic matter that reduces dissolved oxygen levels, posing threats to aquatic life.
- The goal of the Long Term Control Plan is to bring water quality into compliance with DEC's water quality standards for pathogens and dissolved oxygen.
- Upcoming milestone: submit LTCP to DEC by June 30

The **Comprehensive Environmental Response, Compensation, and Liability Act** of 1980 (CERCLA, or more commonly referred to as Superfund) establishes prohibitions and requirements concerning closed and abandoned hazardous waste sites.

- In the Gowanus Canal, CSOs introduce polyaromatic hydrocarbons (PAHs) that may be toxic to humans and wildlife.
- The goal of DEP's remedy is to reduce CSOs by 58-74%.
- Upcoming milestone: submit site selection report to EPA by June 30

Upcoming Milestones in Gowanus Canal

Long Term Control Plan

- June 30: Submit LTCP to DEC

Superfund

- June 30: Submit Site Recommendation Report to EPA

Public Participation

GOAL

Raise awareness, foster understanding,
and encourage input on LTCP development

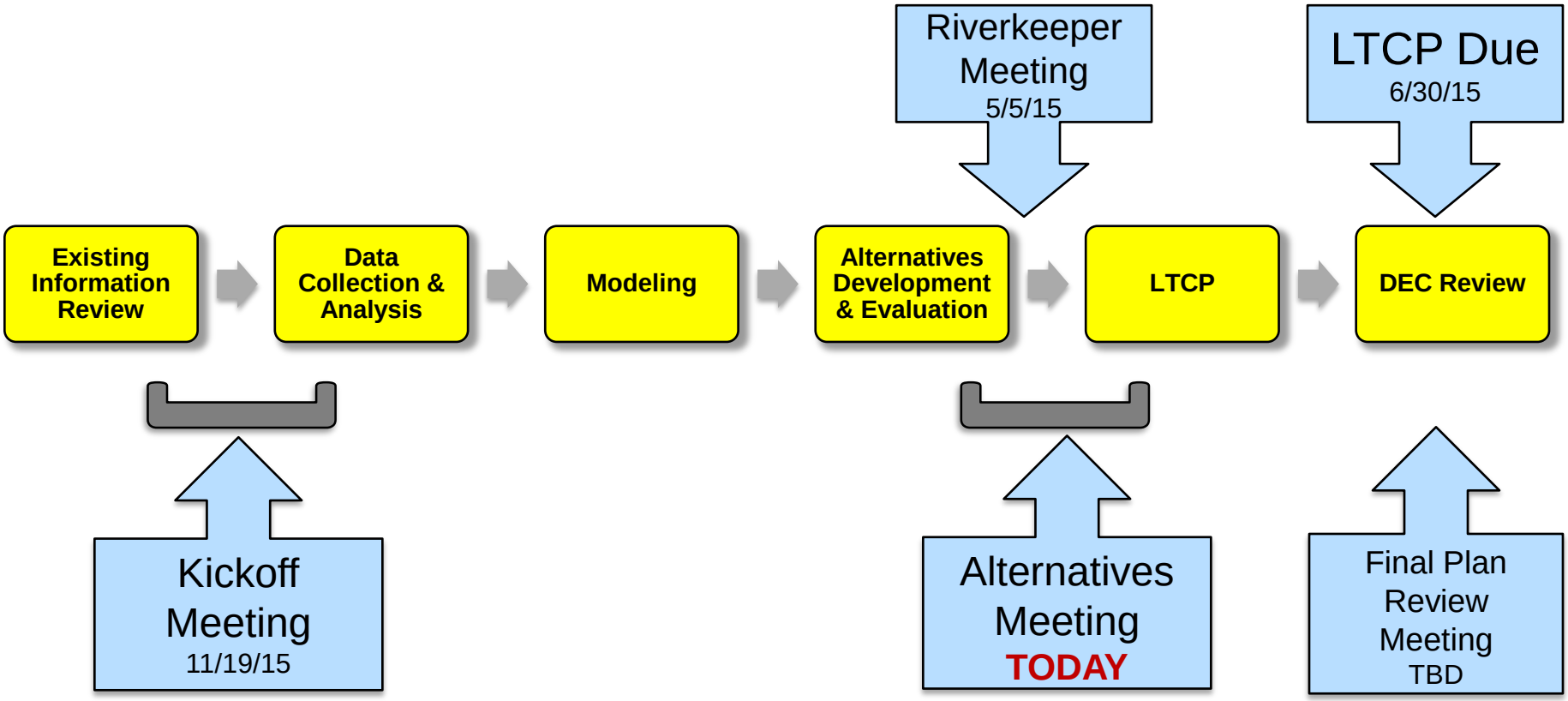
➢ Activities:

- **Local public meetings in each watershed and existing forums**
- Annual citywide public meetings rotating across boroughs
- Meeting with key stakeholders and organizations
- Briefings with elected officials and their staff

➢ Communication Tools:

- Program Website
- Social Media 
- Advisories & Notifications

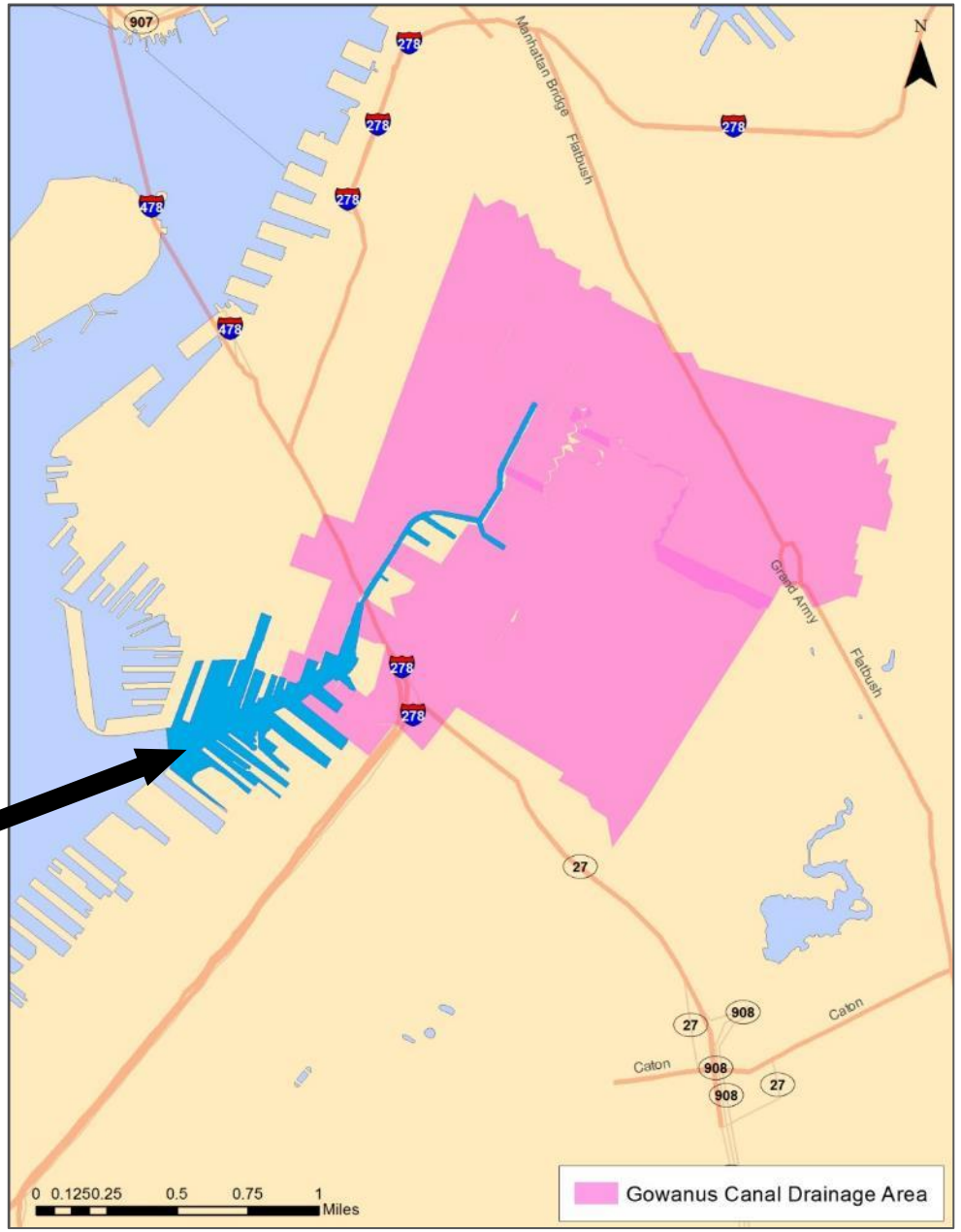
LTCP Process and Public Involvement



ONGOING PUBLIC/STAKEHOLDER INPUT

Gowanus Canal Watershed

Gowanus Canal



Gowanus Canal – Current Uses

➢ Boat Access Points

(Contains kayak/canoe launch site)

1. 2nd Street Boat Launch

➢ Waterfront Public Access

2. Whole Foods walkway with seating – along the 4th St Basin
3. Lowe's walkway with seating – back of the parking lot between 10th St and 11th St


2nd Street Boat Launch


Lowe's Walkway

NYCDEP Investments in Water Quality Improvements

Jim Mueller, P.E.
Assistant Commissioner
DEP

Angela Licata
Deputy Commissioner
DEP

Gowanus Grey Infrastructure Improvements

Pumping Station Upgrades

- Increased pumping capacity from 20 to 30 MGD
- Add screening device
- Operational since June 2014

➢Benefits

- Reduce CSO discharges by 34%
- Reduce floatables discharges at head end

Post-Upgrade Rendering of the Gowanus Facilities

Flushing Tunnel Upgrades

- 3 pumps
- New automated screens
- Operational since May 2014

➢Benefits

- Increase flow through tunnel
- Improve dissolved oxygen
- Minimize shutdowns

Total Capital Cost for
Pumping Station
& Flushing Tunnel Upgrades

= $190 Million

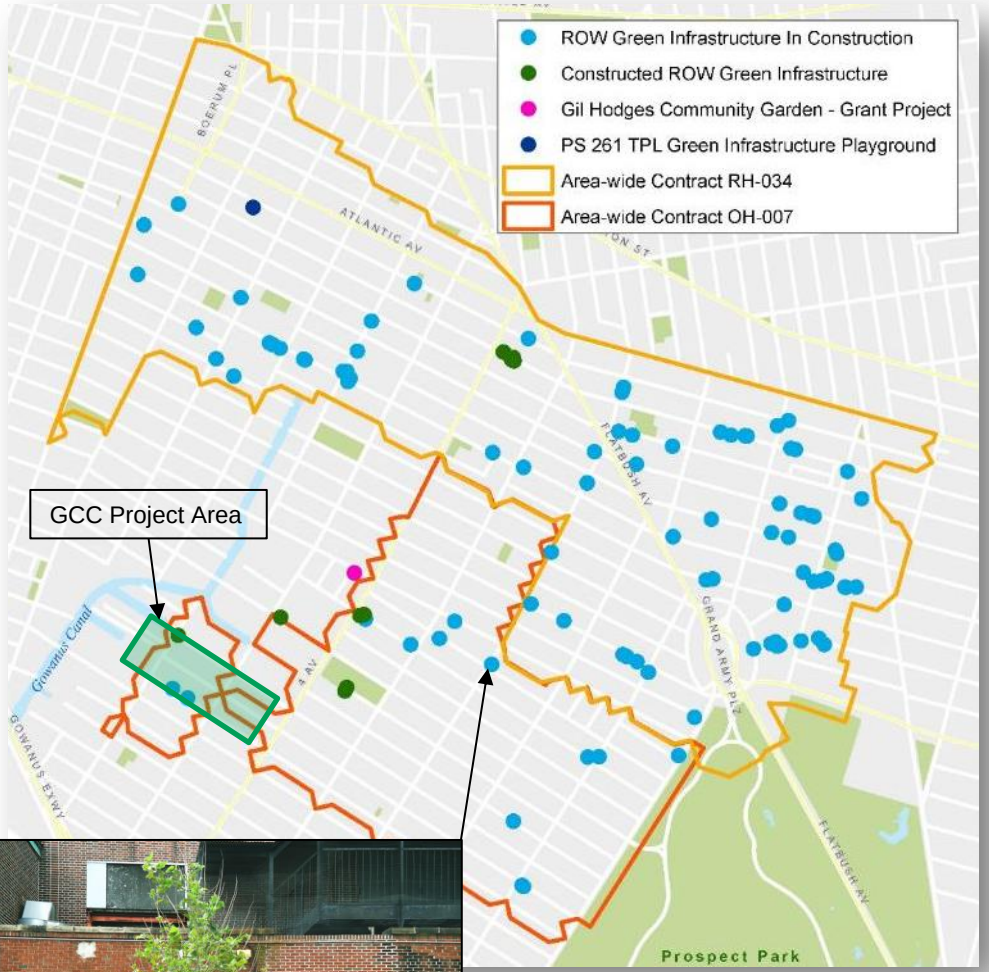
Green Infrastructure in Gowanus (RH-034/OH-007)

➢ Built

- 18 bioswales
  - Including 11 ROW green infrastructure sites in partnership with the Gowanus Canal Conservancy
- Porous pavement installation at 4th Street and 5th Avenue
- Gil Hodges Community Garden (grant)
- PS 261 playground (TPL project)

➢ In-Construction

- RH-034/OH-007 Area-wide Contract
  - 90 bioswales
  - 2 stormwater greenstreets



Right of way Bioswale

Green Infrastructure in Gowanus (RH-034/OH-007)

- **PS 261 – DEP, DOE, TPL Partnership Project**
  - Synthetic turf field with infiltration capability
  - Rain Garden
  - Trees with porous pavers

PS 261

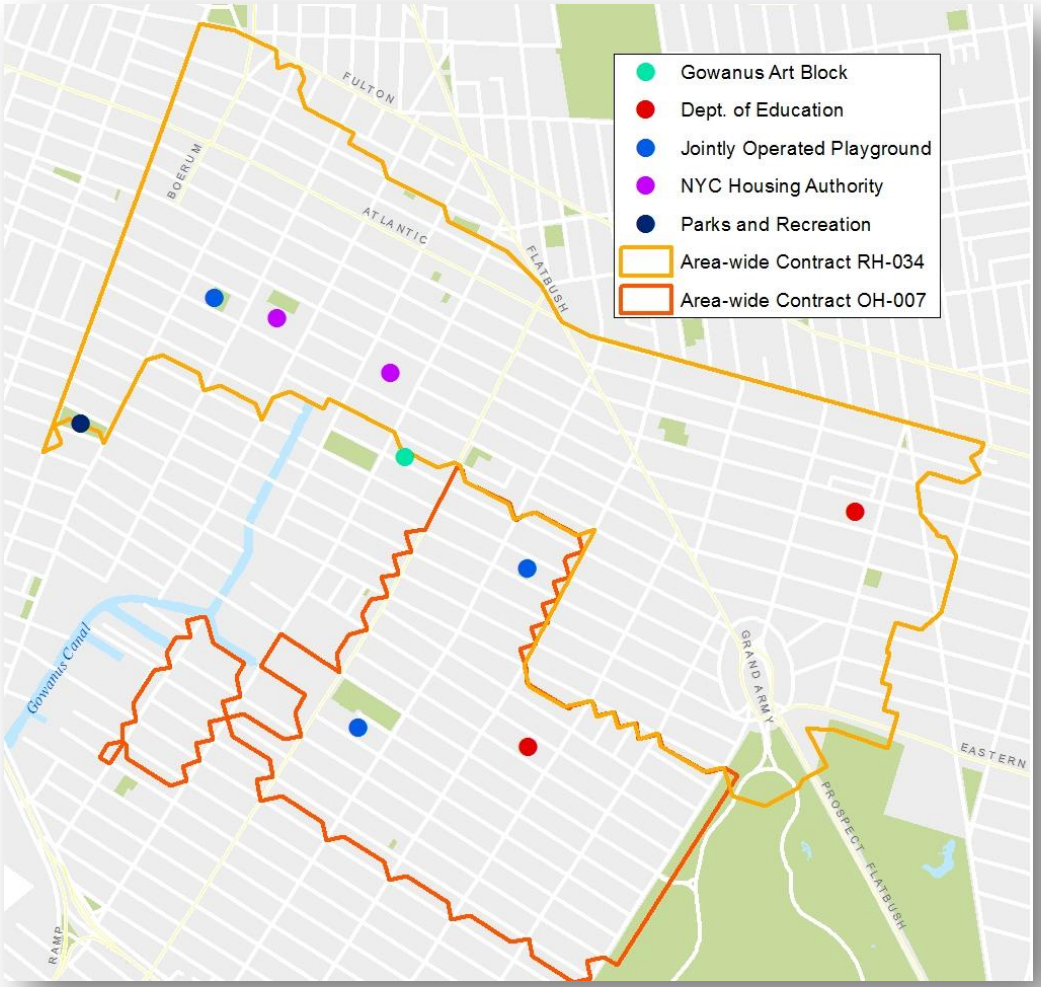
- **NYRP Gil Hodges Community Garden, 2011 Green Infrastructure Grantee**
  - Underground infiltration basin for stormwater storage
  - Porous pavers
  - One bioswale on Denton Place

Gil Hodges Community Garden

Green Infrastructure in Gowanus (RH-034/OH-007)

➢ Planned Retrofits

- GI Grant Projects with private owner:
  - Gowanus Arts Block
    - – rooftop garden/farm
- DOE Public Schoolyards:
  - PS 321
  - PS 9
- DPR Playgrounds:
  - Washington Park/MS 51
  - Boerum Park/Cobble Hill School
  - Park Slope Playground/PS 282
- NYCHA properties:
  - Gowanus Houses
  - Wyckoff Houses
- DPR Parks:
  - Carroll Park

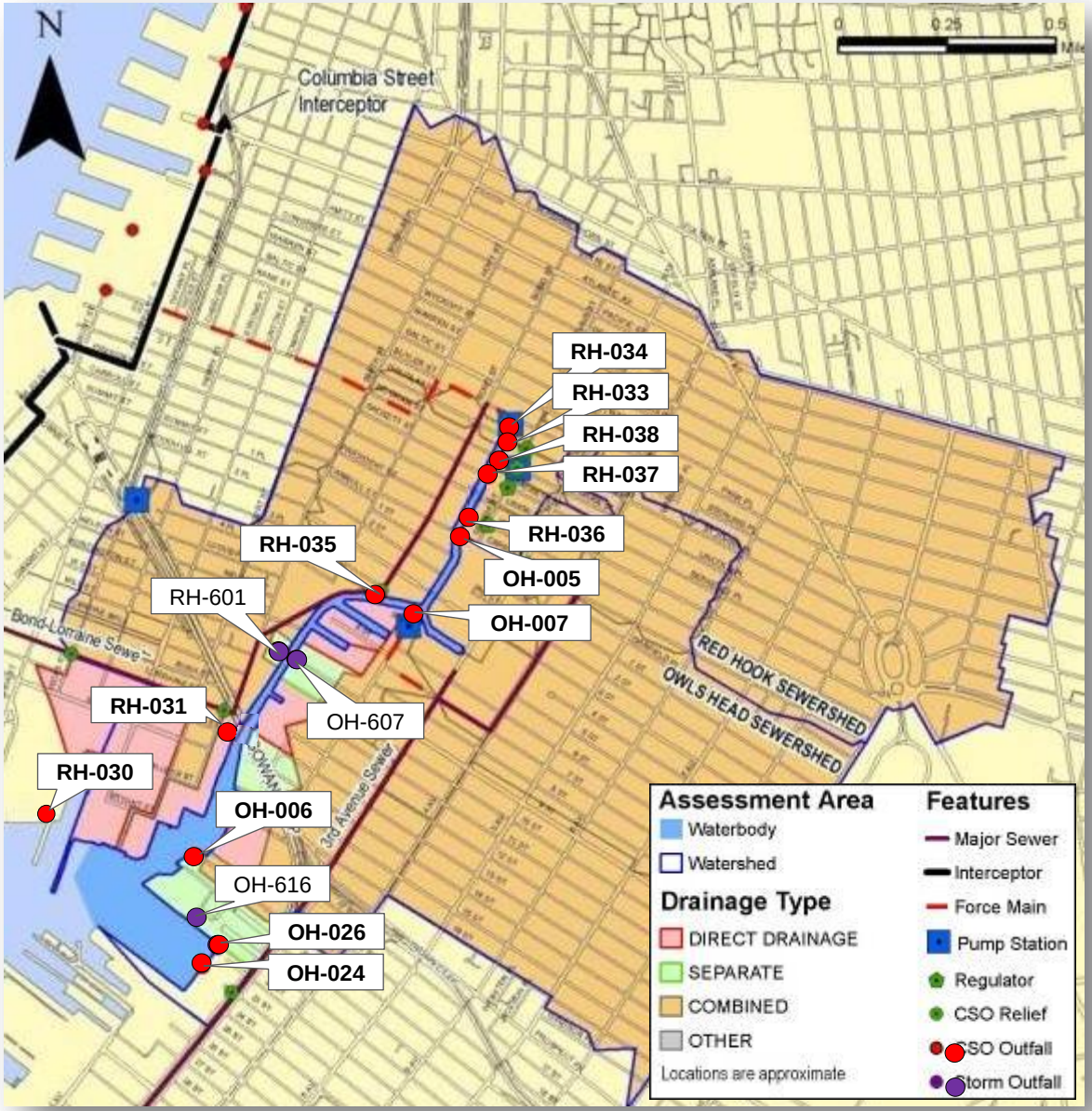


Review of Water Quality & LTCP Alternatives

Jim Mueller, P.E.
Assistant Commissioner
DEP

Gowanus Canal Watershed

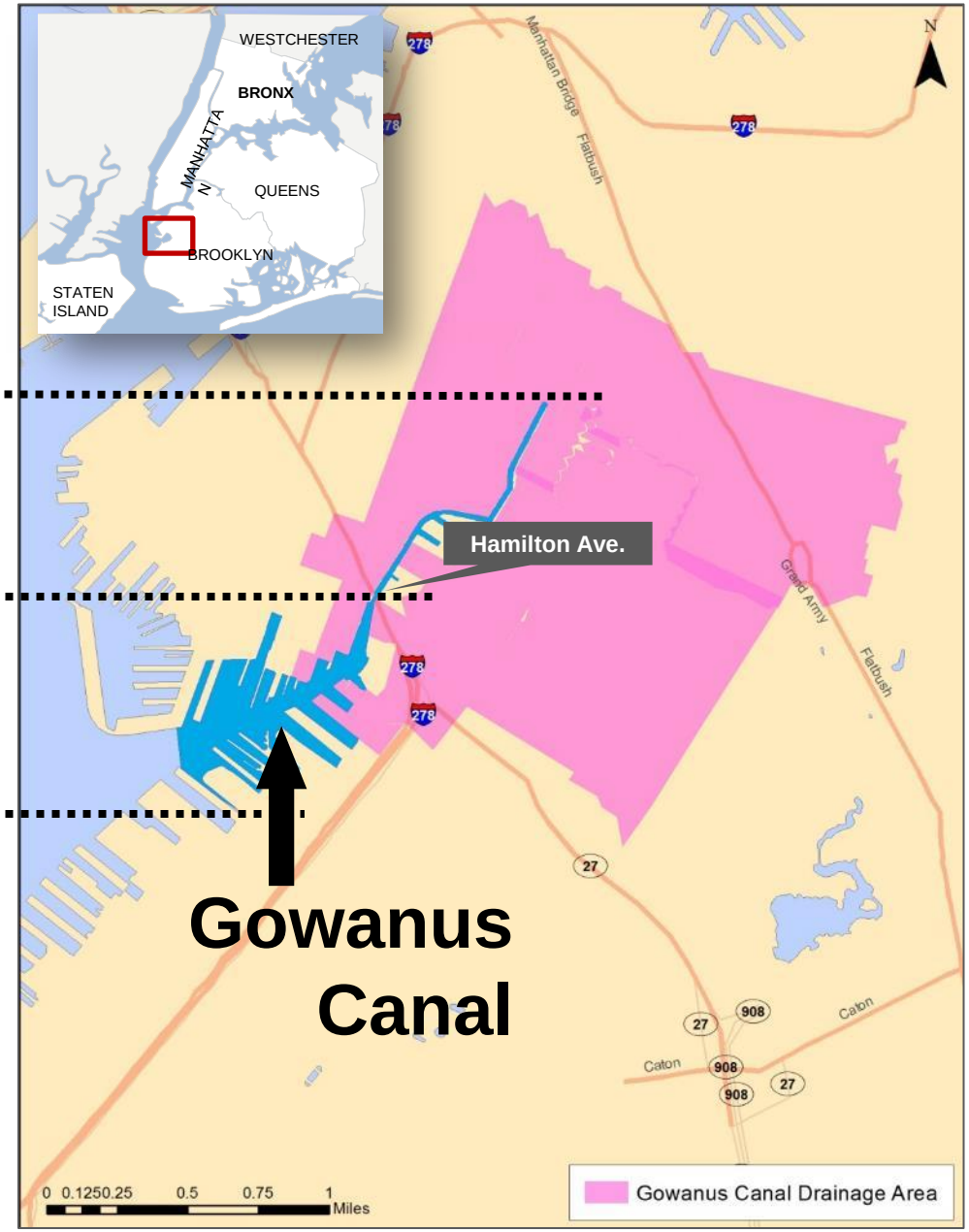
- **Watershed Drainage Area**
  - 1,958 Acres
- **Combined Sewer System**
  - Red Hook and Owls Head WWTP Service Areas
  - Gowanus Pump Station
  - 13 CSO Outfalls (●)
  - 3 MS4 Outfalls (●)
- **Annual Wet-Weather Discharge Volume:**
  - ≈ 300 MGal (typical year)



Gowanus Canal Classifications

CLASS SD
Fish Survival

CLASS I
Boating/Fishing



Water Quality Standards

Classification			Dissolved Oxygen (mg/l)	Bacteria		
				Fecal Coliform (col/100 ml)	Total Coliform (col/100 ml)	Enterococcus (col/100 ml)
Current	Head End to Hamilton Ave.	SD	≥ 3.0	no limit	no limit	N/A
	Hamilton Ave. to Upper Bay	I	≥ 4.0	≤ 2,000* (Monthly GM)	≤ 10,000 (Monthly GM)	N/A
DEC Proposed Rulemaking		-	No change	≤ 200 (Monthly GM)	≤ 2,400 (Monthly Median) and 80% ≤ 5,000	No Change
EPA Potential Future Primary Contact Criteria		-	No Change	None	None	≤ 30 (30-day-rolling GM) and STV ≤ 110

STV = Statistical Threshold Value = 30-Day-Rolling-90th Percentile

Overview of Sampling Stations

Note:
Locations **GC3, GC4, GC5, GC6** and **GC8** are consistent HSM locations.

Sampling locations selected to assess tidal phases.

CSO Outfall Sampling & Flow Monitoring Locations

- **Sampling & Flow Monitoring Period:**
  - July 2014 to Oct 2014

- **CSO Outfalls (▲):**
  - RH-034
  - OH-007
  - OH-026

Additional Sampling Locations

- **Sampling Period:**
  - Dec 2014 to Present
- **Original Stations:** GC1 – GC11
  - GC7 is consistent with Riverkeeper sampling location
- **Added Sampling Points:**
  - **Turning Basin:** TB1-TB5
  - TB1 and TB3 are consistent with Citizen sampling locations

- LTCP2 Turning Basins Sampling
- LTCP2 Receiving Water Sampling
- Citizen Sampling Locations
- Riverkeeper Sampling Location

Sampling Program Overview

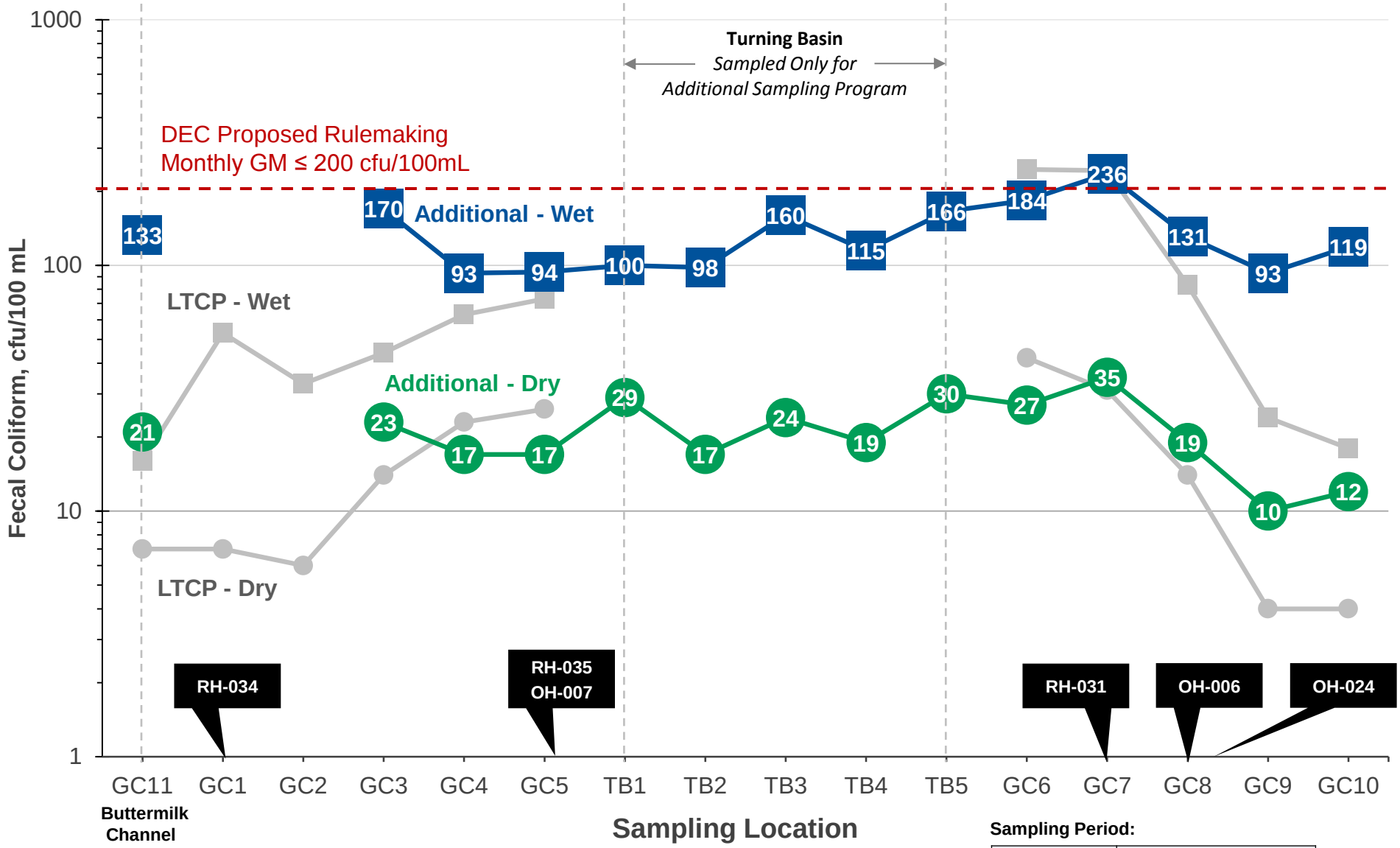
LTCP:

- **11 Locations** (1300+ analyses)
  - Sampled GC1-GC11
- **4 Wet Events**
  - Total Precipitation (0.27” to 0.77”)
  - Peak Intensity (0.04” to 0.10”)
- **3 Dry Events**

Additional LTCP:

- **14 Locations** (1400+ analyses)
  - Sampled GC3-GC11 and TB1-TB5
  - Limited access to GC1-GC2 due to National Grid cable installations
- **3 Wet Events**
  - Total Precipitation (0.75” to 1.63”)
  - Peak Intensity (0.03” to 0.22”)
- **5 Dry Events**

Fecal Coliform – Sampling Data – GMs



LTCP - Dry
LTCP - Wet
Additional - Dry
Additional - Wet

Sampling Period:

Additional	Dec. 2014 to April 2015
LTCP	Jul. 2014 to Sept. 2014

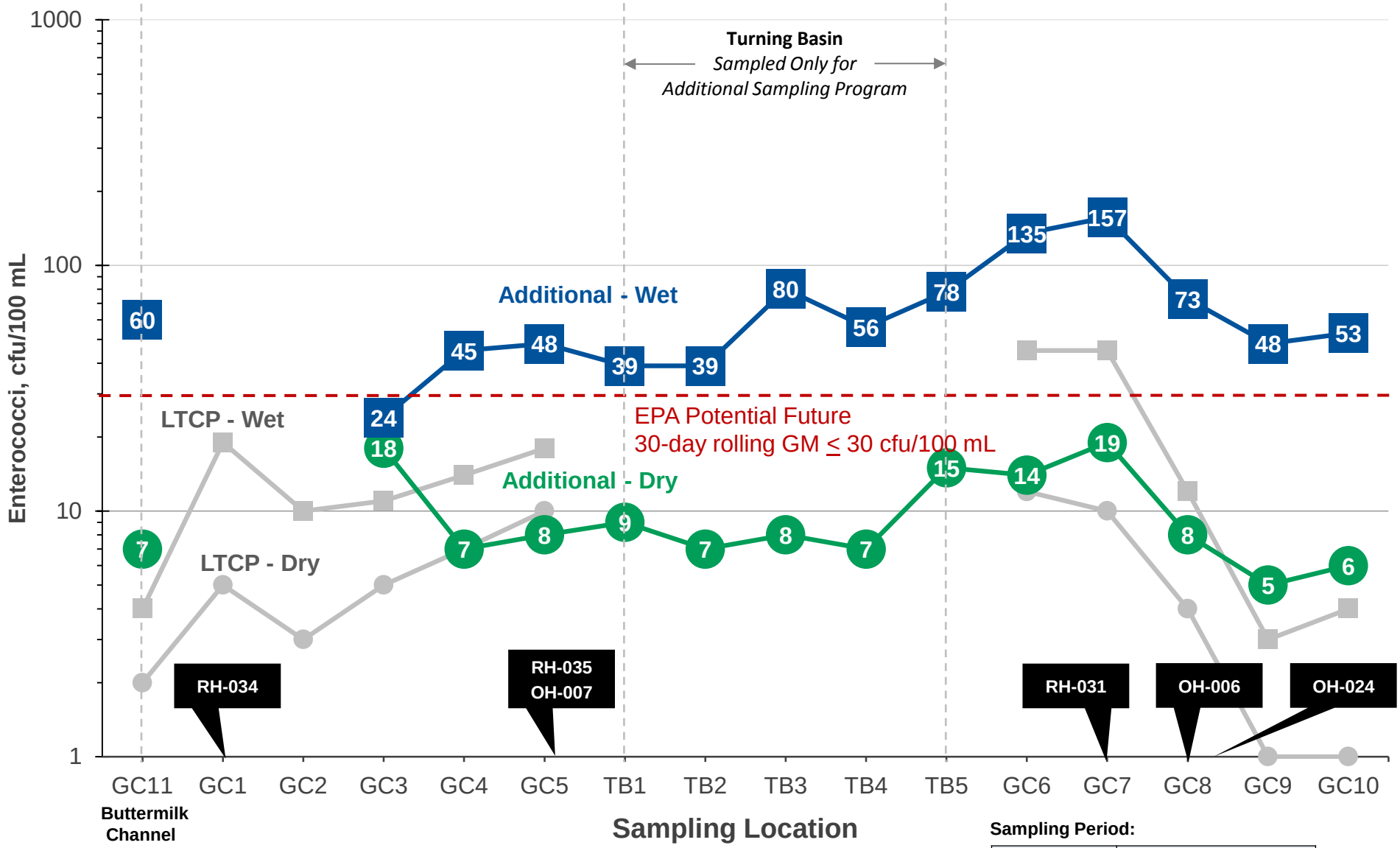
*GC3, GC4, GC5, GC6 and GC8 includes Harbor Survey results within each timeframe

Projected Time to Recover (Based on August 2008 Storm)

Class	Station	Baseline Projected Time to Recover (hours) (≤ 24hrs for Max. Fecal Coliform of 1,000 cfu/100mL)
SD	GC1 to GC7	8 - 14
I	GC8 to GC10	0 - 10

Compliance with Time to Recover (≤ 24hrs) is projected throughout Gowanus Canal under Baseline Conditions.

Enterococci – Sampling Data – GMs



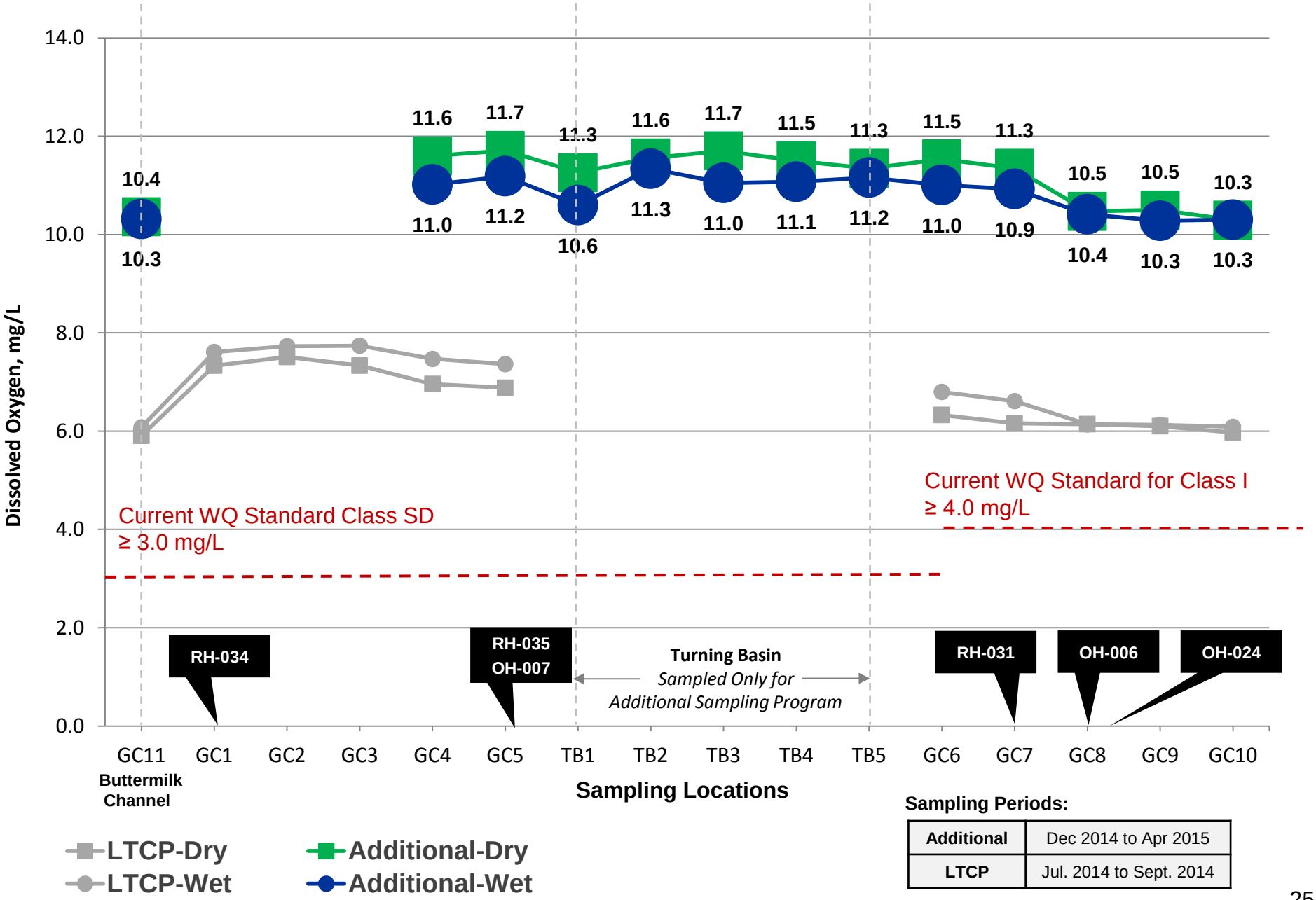
LTCP - Dry
LTCP - Wet
Additional - Dry
Additional - Wet

Sampling Period:

Additional	Dec. 2014 to April 2015
LTCP	Jul. 2014 to Sept. 2014

*GC3, GC4, GC5, GC6 and GC8 includes Harbor Survey results within each timeframe

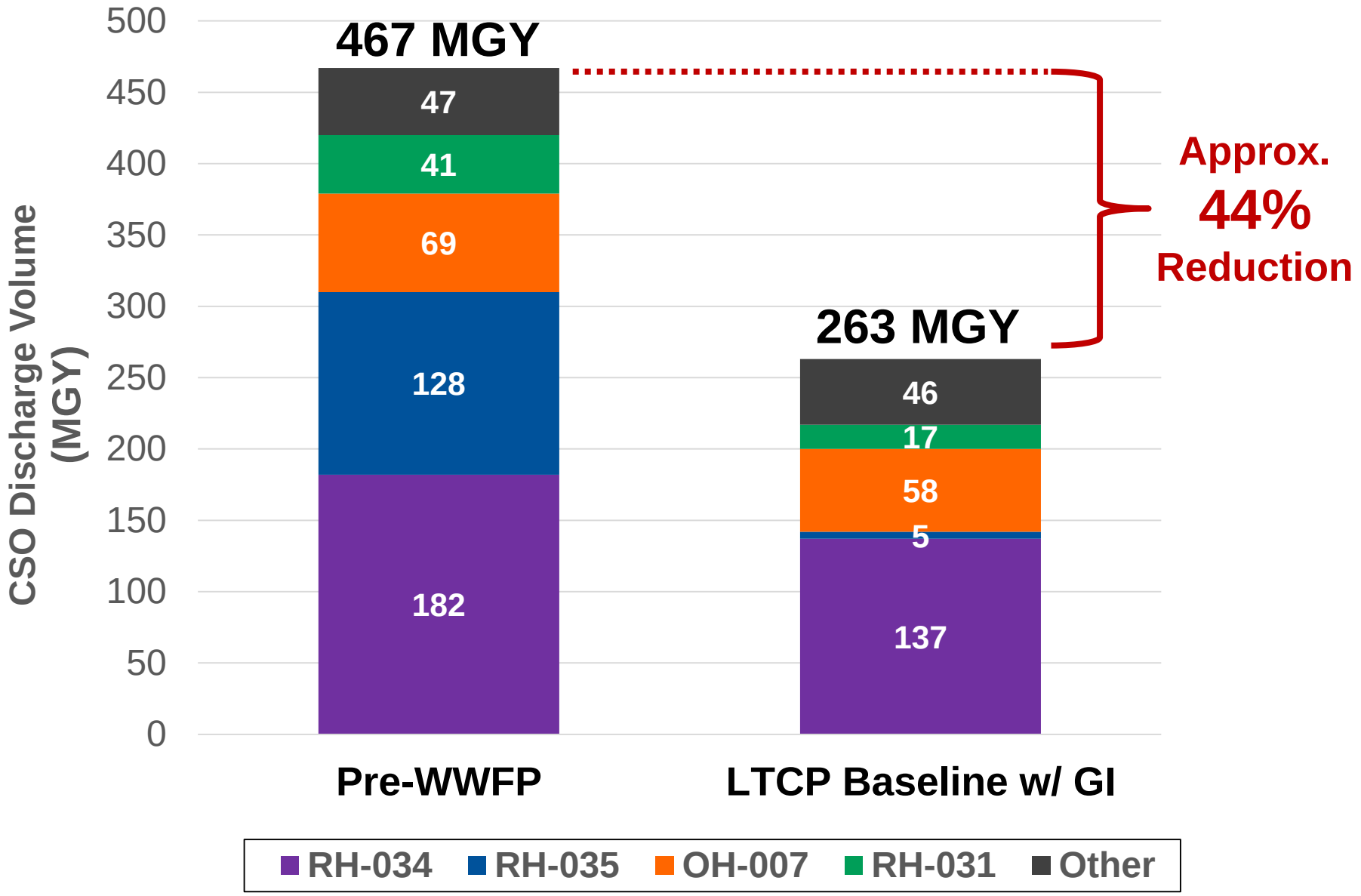
Dissolved Oxygen – Sampling Data – Averages



Sampling Periods:

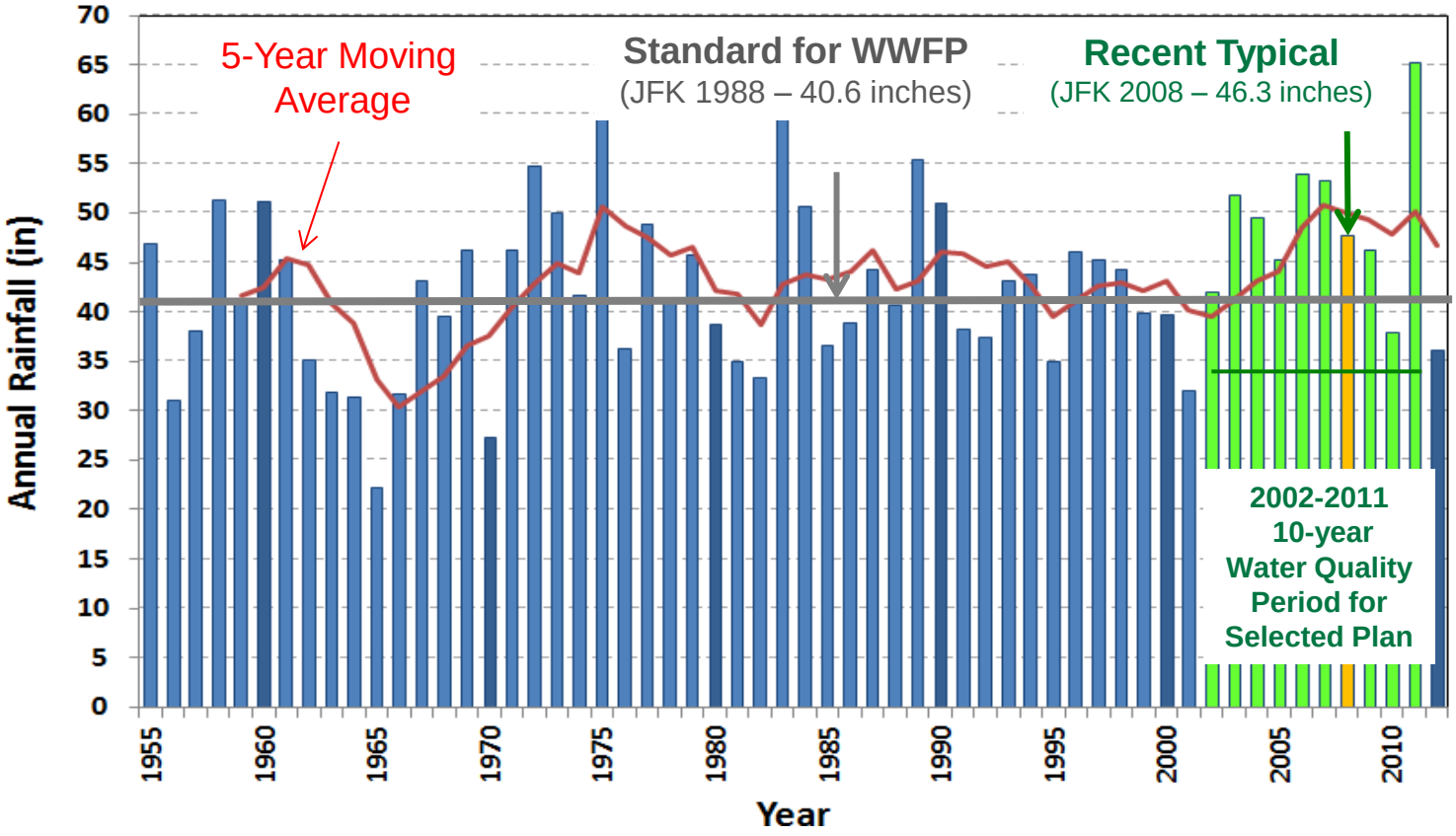
Additional	Dec 2014 to Apr 2015
LTCP	Jul. 2014 to Sept. 2014

Modeled Gowanus CSO Volumes



Model Updates & Baseline Assumptions

- Alternative model runs are based 1 year of data (2008, “typical year rainfall”)
- Selected Plan model run is based on 10 years of data (2002-2011)
- 2040 population projections
- Model is calibrated with Harbor Survey data plus LTCP sampling data
- 2012 InfoWorks recalibration based on revised impervious areas



WQ Attainment Summary

Sampling Data

Water Quality Model

Model Projections

Water Quality Parameters				Projected Water Compliance		
	Metric	Frequency	Current Regulatory Status	Recreational Season (May 1 - Oct 31)	Annual	Time To Recover[2]
Fecal Coliform	≤ 200 cfu/100 mL	Monthly Geomean	DEC Proposed Rulemaking	Meets Standard	One month out of compliance (Feb 2008)	Meets Target
Enterococcus	≤ 30 cfu/100 mL	30-day-rolling Geomean	EPA Potential Future	Meets Potential Standard		
	STV[1] ≤ 110 cfu/100 mL	30-day-rolling 90th percentile	EPA Potential Future	Exceeds Potential Standard		
Dissolved Oxygen	≥ 3 mg/L Class SD	Never Less Than	Existing Standards	Meets Standard	Meets Standard	
	≥ 4 mg/L Class I					

1) STV = Statistical Threshold Value

2) Time to Recover = ≤ 24 hrs for Max. Fecal Coliform to reach 1000 cfu/100 mL

= Current LTCP Benchmark

Future Grey Infrastructure in Gowanus

➢ High Level Storm Sewers

- HLSS to be built on 14% of Gowanus PS drainage area (RH-034)
- This captures 50% of the runoff within the HLSS built area
- 96-acre area bounded by 1st Pl, 4th Ave, State St, 3rd Ave
- Total estimated construction cost = $35 M

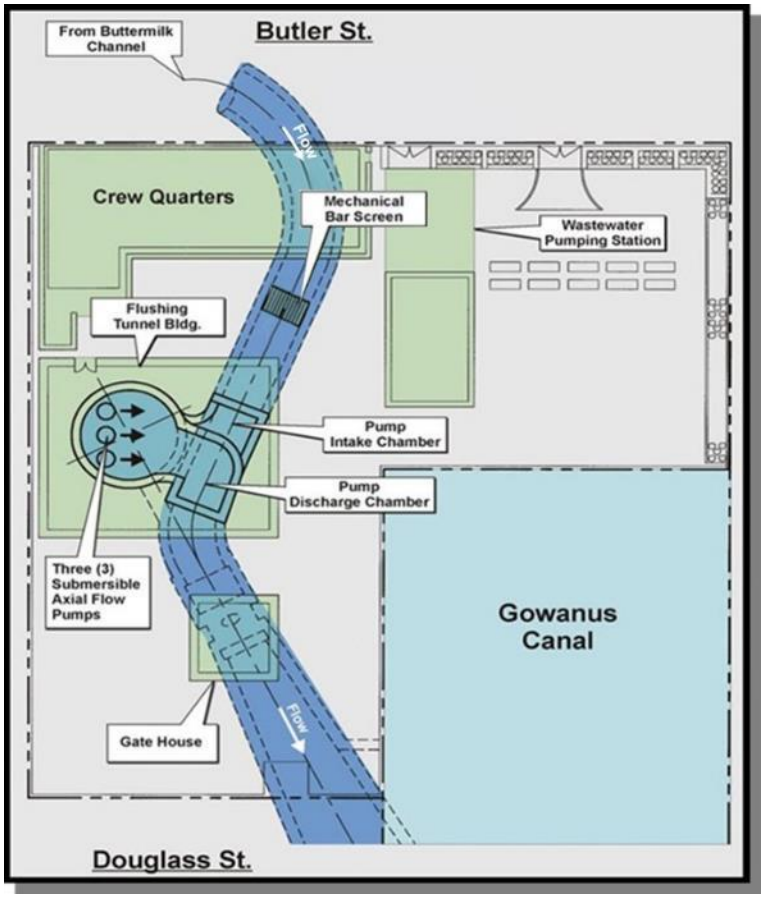
➢ Environmental Dredging

(deferred due to ongoing Superfund remediation under consideration)

Summary

Current Status:

- Flushing Tunnel Activation and Gowanus PS Upgrade with floatables control **enables Gowanus to meet current & future dissolved oxygen and recreational season fecal water quality standards**
- EPA ROD requires an estimated reduction of 58% to 74% of sewer solids at:
  - OH-007
  - RH-034
- DEP CERCLA remedy will be the proposed LTCP.



DEP is evaluating alternatives to meet ROD reductions…

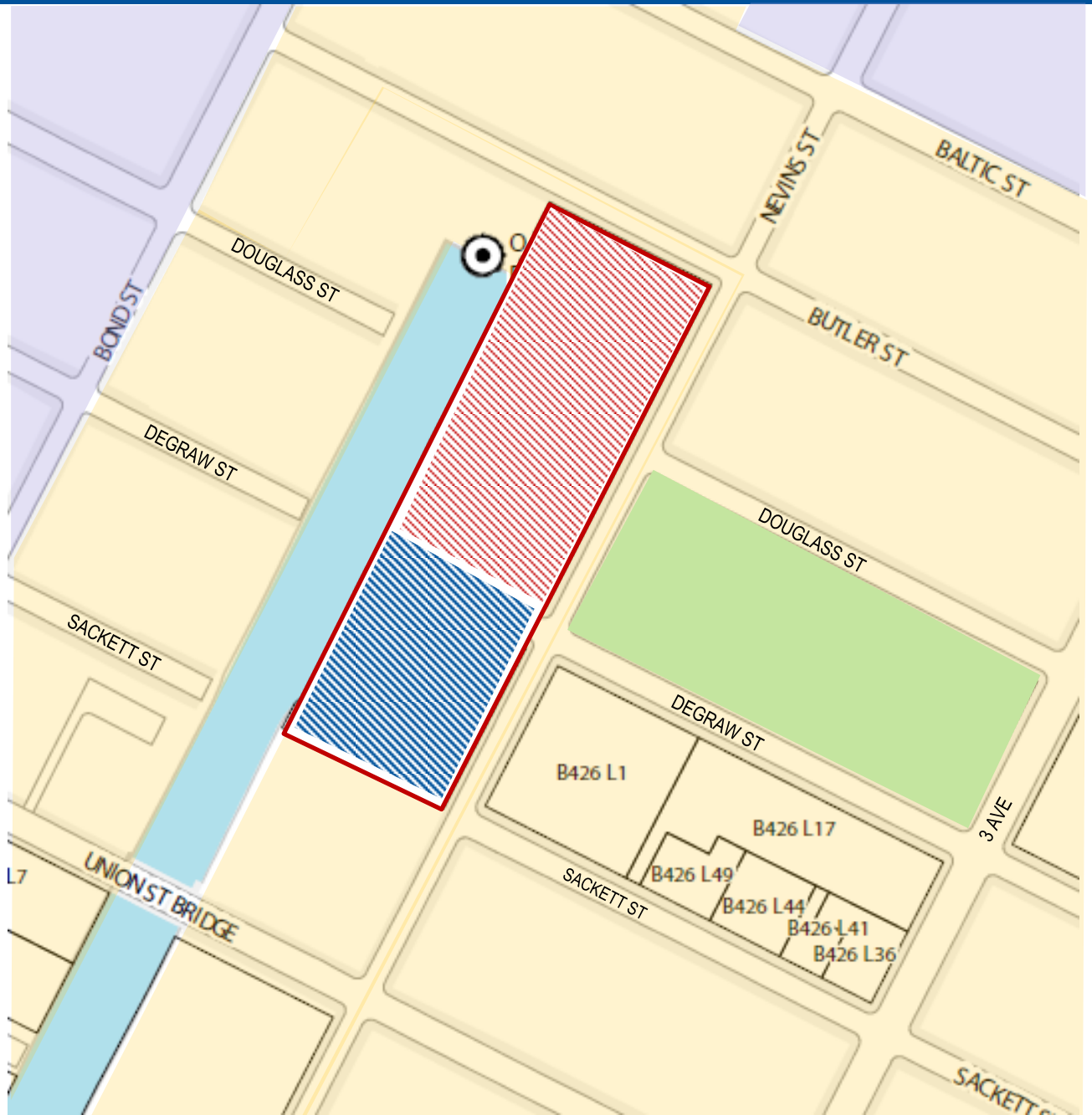
CSO Storage Tanks Under Evaluation

Outfall	Alternatives Under Evaluation		
	ROD Proposed*	58% *Sewer Solids Reduction*	74% *Sewer Solids Reduction*
RH-034	**8 MG**	**3.5 MG**	**5.7 MG**
OH-007	**4 MG**	**1.4 MG**	**2.5 MG**

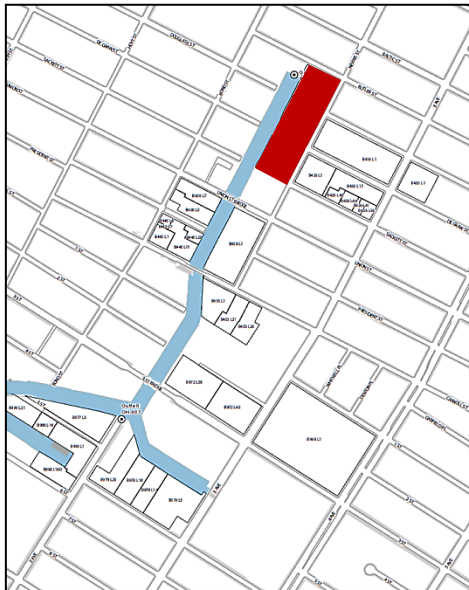
***ROD Proposed tanks would result in:**

- RH-034 = 82% Sewer Solids Reduction
- OH-007 = 87% Sewer Solids Reduction

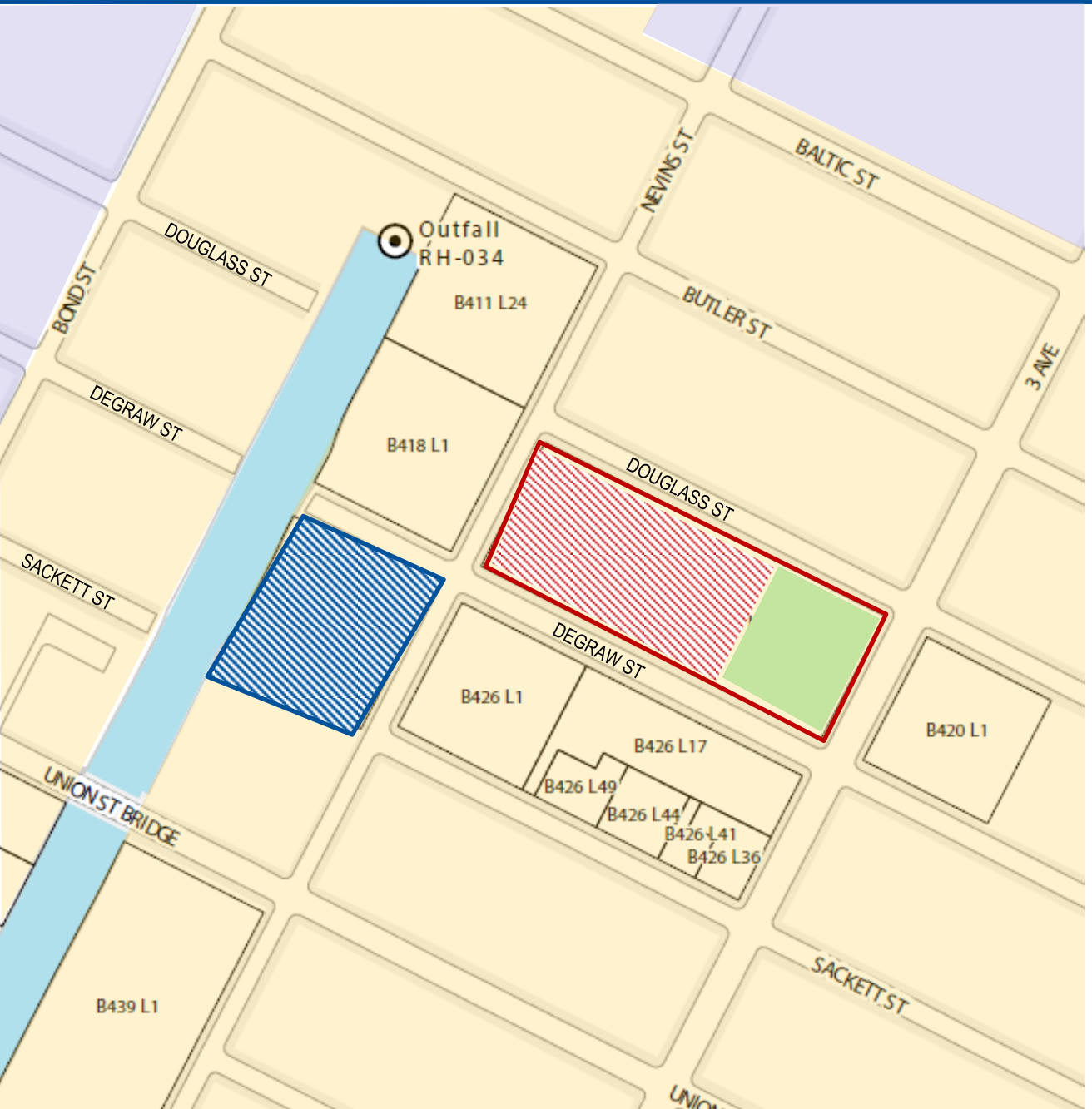
Site A: RH–034



- Tanks
- Staging Area
- Park
- Zoned Residential
- Zoned Manufacturing



Site 5: RH-034



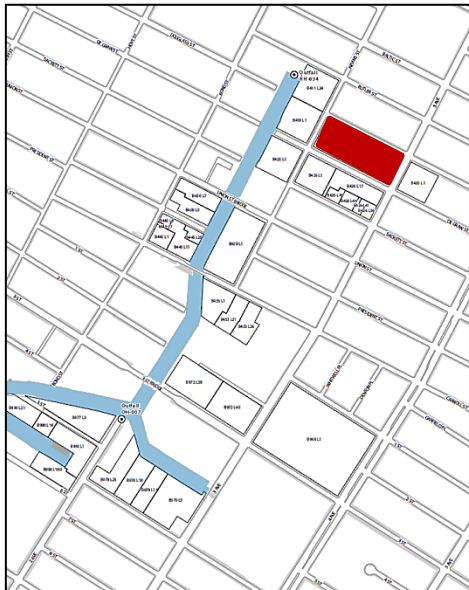
Tanks

Staging Area

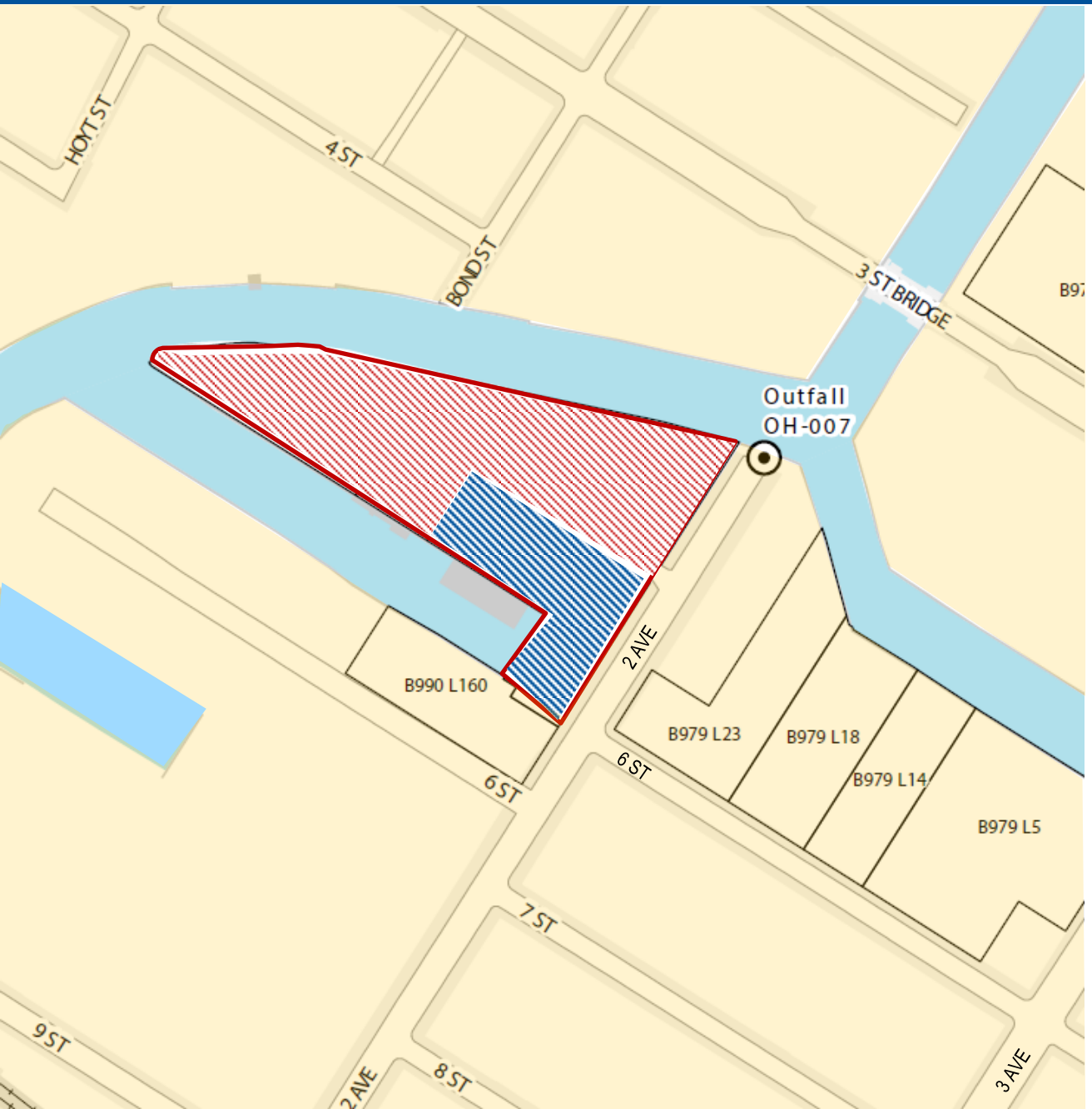
Park

Zoned Residential

Zoned Manufacturing



Site A: OH-007

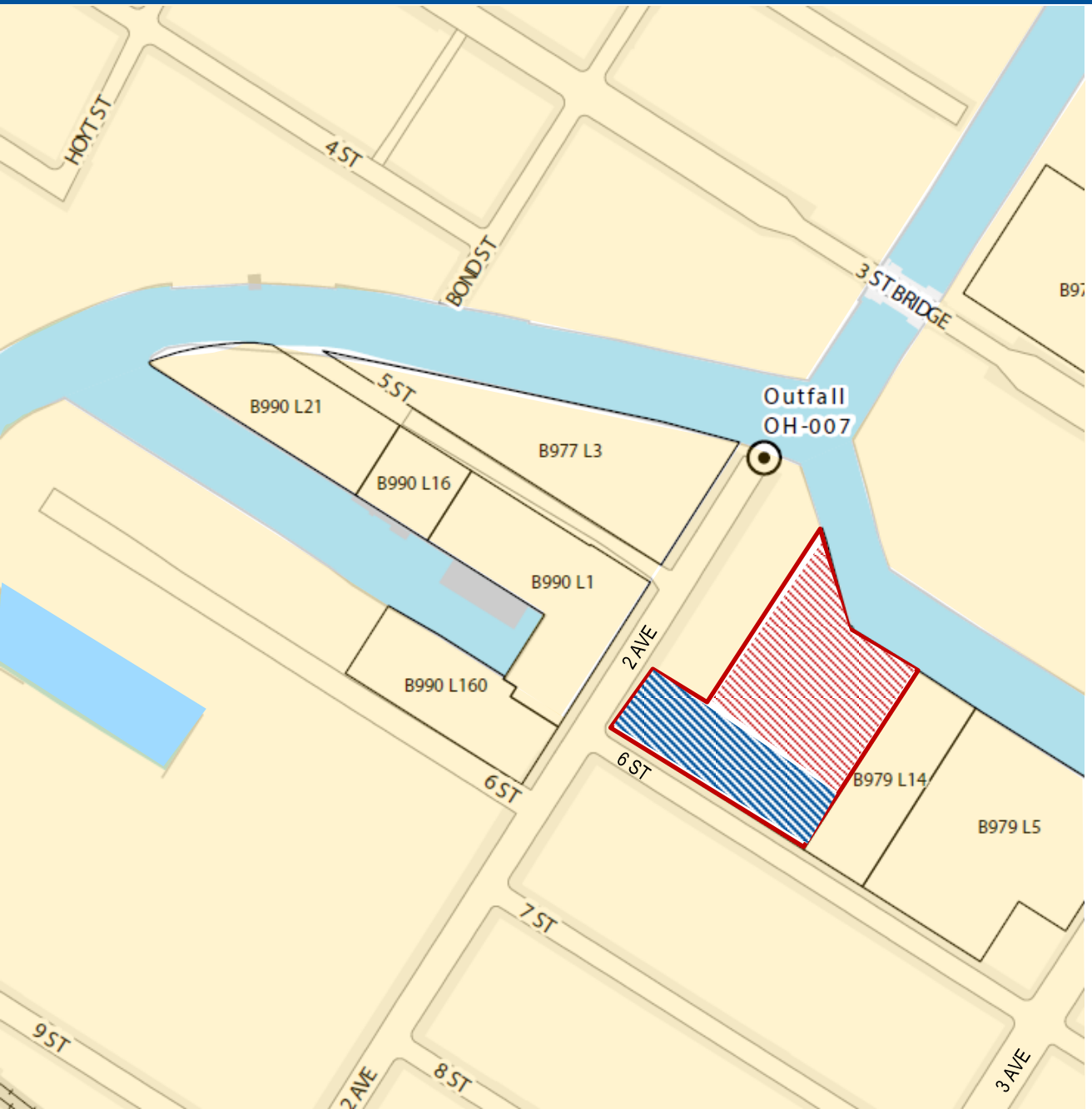


Tanks

Staging Area

Zoned Manufacturing

Site B: OH-007



Tanks

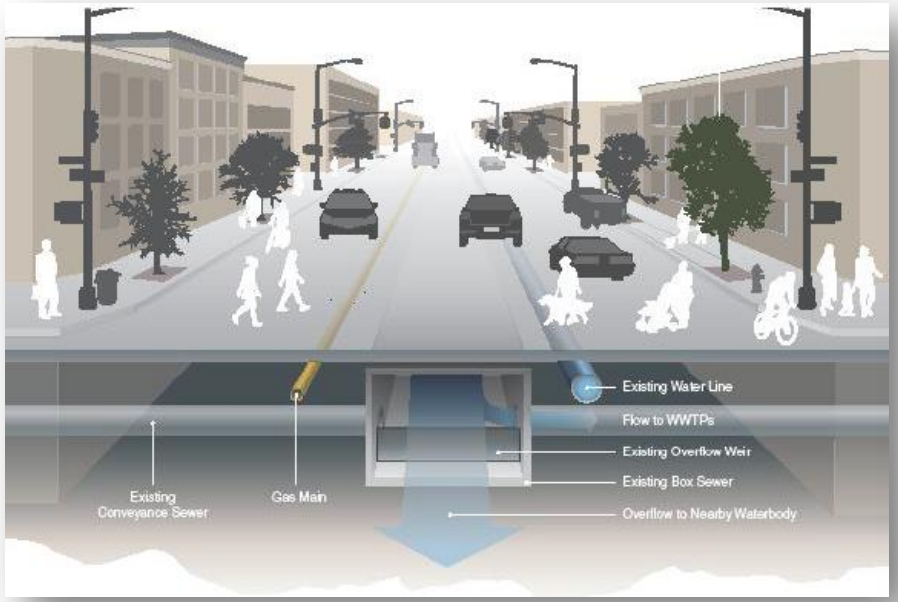
Staging Area

Zoned Manufacturing

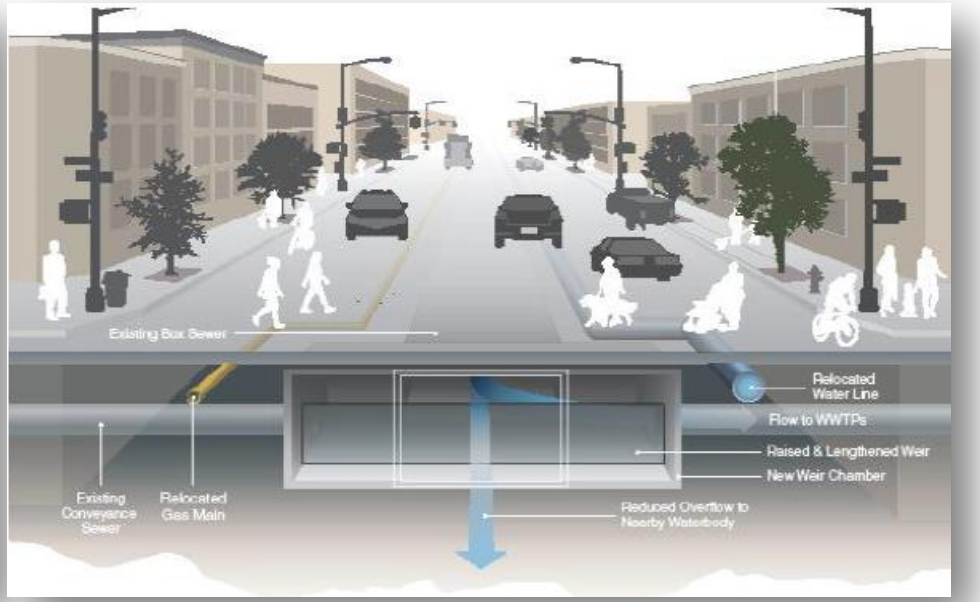
Alternative to Tank Under Consideration at OH-007

OH-007 Weir Modification:

- Takes advantage of available capacity in sewer system to achieve 58% to 74% sewer solids reduction



Before



After Weir Modification

Next Steps

- DEP will continue analysis of alternatives
- Coordination with other agencies (DEC, USEPA)
- Additional public forums: TBD
  - LTCP
  - Siting Recommendations under Superfund
- Comments can be submitted to:
  - New York City DEP at: ltcp@dep.nyc.gov

Additional Information & Resources

- Visit the informational tables tonight for handouts and poster boards with detailed information

- Go to www.nyc.gov/dep/ltcp to access:
  - LTCP Public Participation Plan
  - Presentation, handouts and poster boards from this meeting
  - Links to Waterbody/Watershed Facility Plans
  - CSO Order including LTCP Goal Statement
  - NYC's Green Infrastructure Plan
  - Green Infrastructure Pilots 2011 and 2012 Monitoring Results
  - NYC Waterbody Advisory Program
  - Upcoming meeting announcements
  - Other LTCP updates

Discussion and Q&A Session