



# **Bronx River Combined Sewer Overflow Long Term Control Plan**

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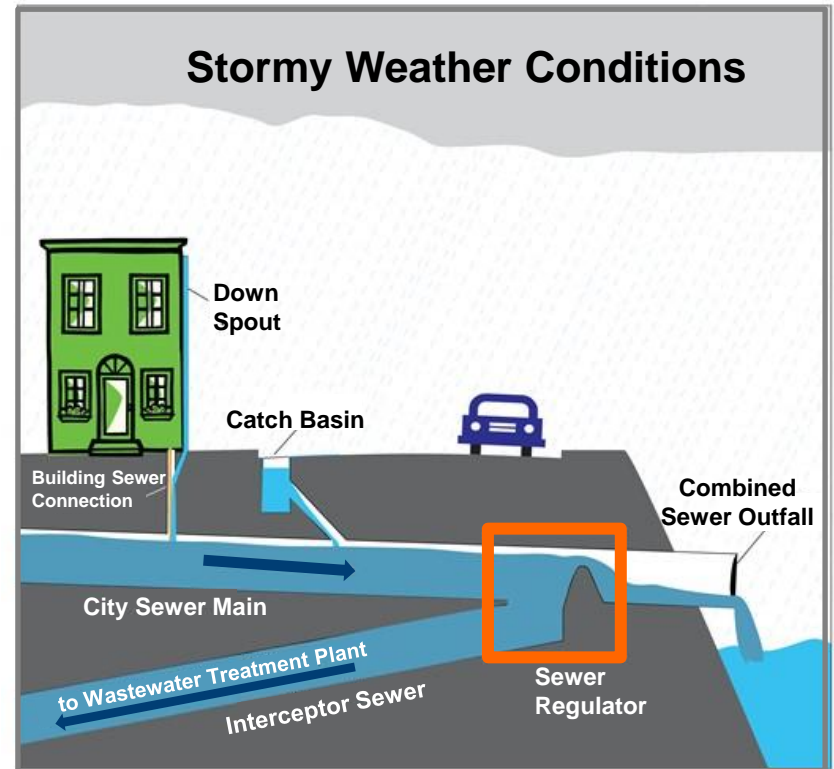
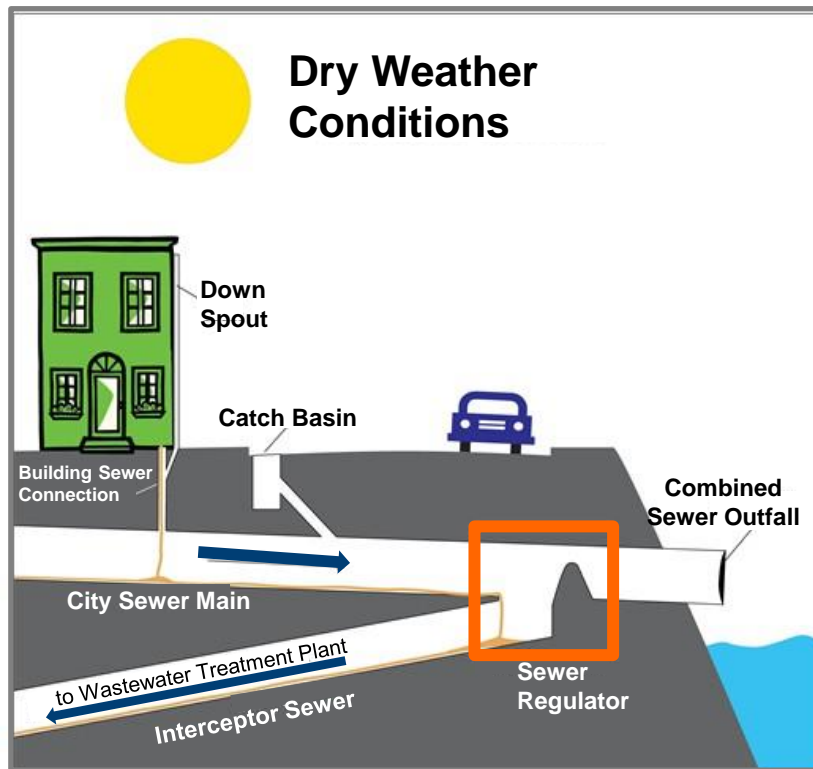
Bronx Borough President Office  
Combined Borough Board and Services  
January 22, 2015

# Welcome & Introductions

Ibrahim Abdul-Matin  
Director of Community Affairs  
DEP

# What is a Combined Sewer Overflow?

- NYC's sewer system is approximately 60% **combined**, which means it is used to **convey both sanitary and storm flows**.



- When the sewer system is at full capacity, a diluted mixture of rain water and sewage can be released into local waterways. This is called a combined sewer overflow (CSO).
- 65% to 90% CSOs are fully captured at treatment plants.

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## Long Term Control Plan (LTCP)

**identifies appropriate CSO controls to achieve  
applicable water quality standards**

consistent with the Federal CSO Policy and Clean Water Act

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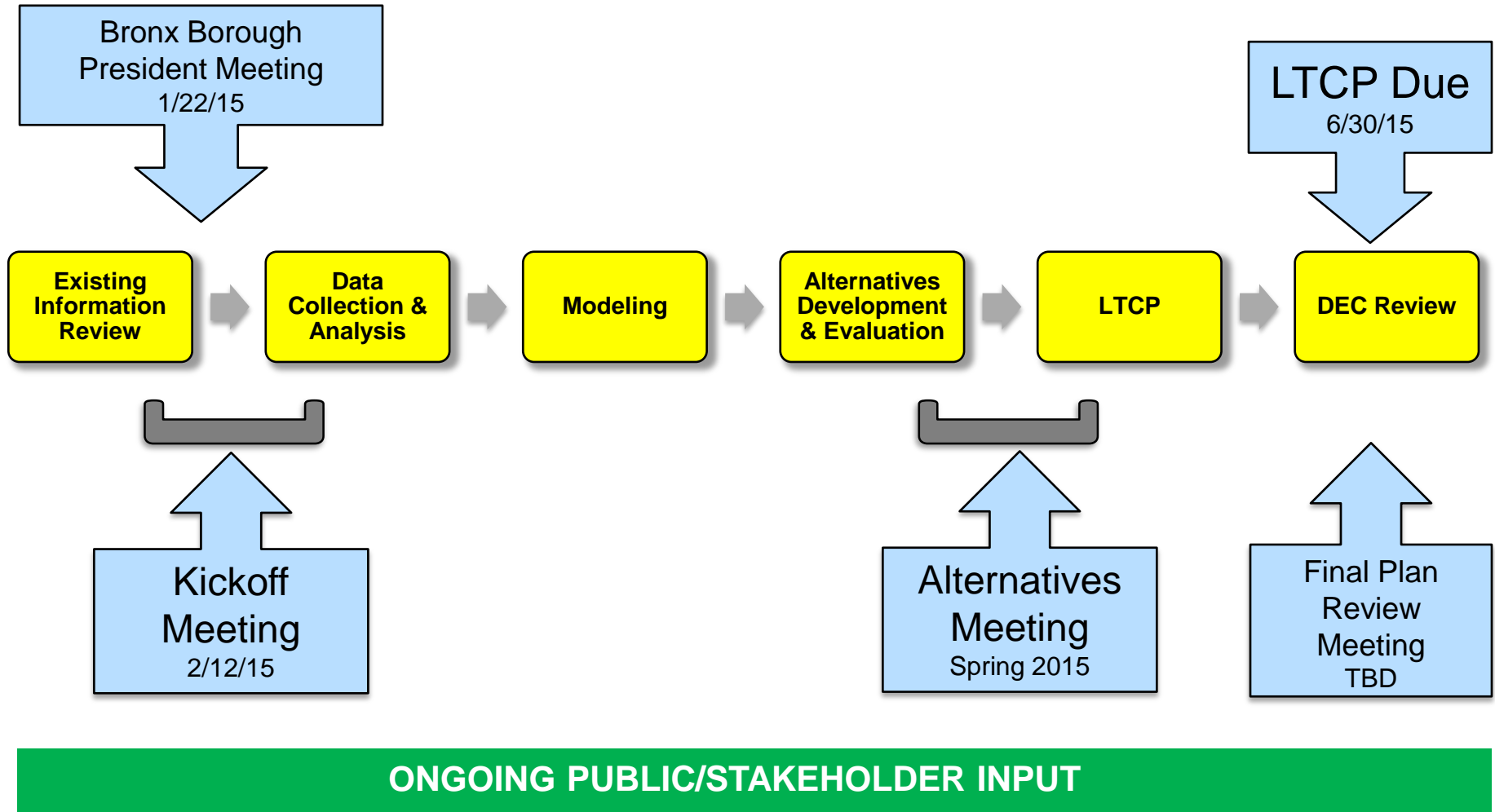
## CSO Consent Order

**an agreement that settles past legal disputes  
without prolonged litigation**

requires DEP to develop LTCPs and mitigate CSOs

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# LTCP Process and Public Involvement



## ➤ 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



# **Waterbody & Watershed Characteristics**

Keith Mahoney, P.E.  
Division Chief  
DEP



# Bronx River Classifications



**CLASS C**  
Bathing/Fishing  
Westchester

**CLASS B**  
Bathing  
New York City

**CLASS I**  
Boating/Fishing  
New York City

Freshwater  
Section

Tidal  
Section

# Current Water Quality Standards

*Focusing only on the **New York City** portion of the **Bronx River**:*

Section	Class	Dissolved Oxygen (mg/l) Acute never less than	Bacteria	
			Fecal Coliform (col/100 ml)	Total Coliform (col/100 ml)
<b>Freshwater</b> NORTH of E. Tremont Ave.	Class B	> 5.0 (daily avg.) ≥ 4.0	≤ 200 (Monthly GM)	≤ 2,400 (Monthly Median) and 80% ≤ 5,000
<b>Tidal</b> SOUTH of E. Tremont Ave.	Class I	≥ 4.0	≤ 2,000* (Monthly GM)	≤ 10,000* (Monthly GM)

**\*Note:** New DEC proposed rulemaking for primary contact criteria for Class I:  
 ≤ 200 for Fecal Coliform and  
 ≤ 2,400 and 80% ≤ 5,000 Total Coliform

## ➤ Boat Access Points

*(Contains kayak/canoe launch site)*

- 1 219<sup>th</sup> Street
- 2 Forth Knox
- 3 Kazmiroff Blvd

## ➤ Portages

*(Re-access points to get around river obstructions)*

- A Stone Mill – Botanical Garden
- B Twin Dams – Bronx Zoo
- C River Park Dam



Twin Dams – Bronx Zoo



River Park Dam

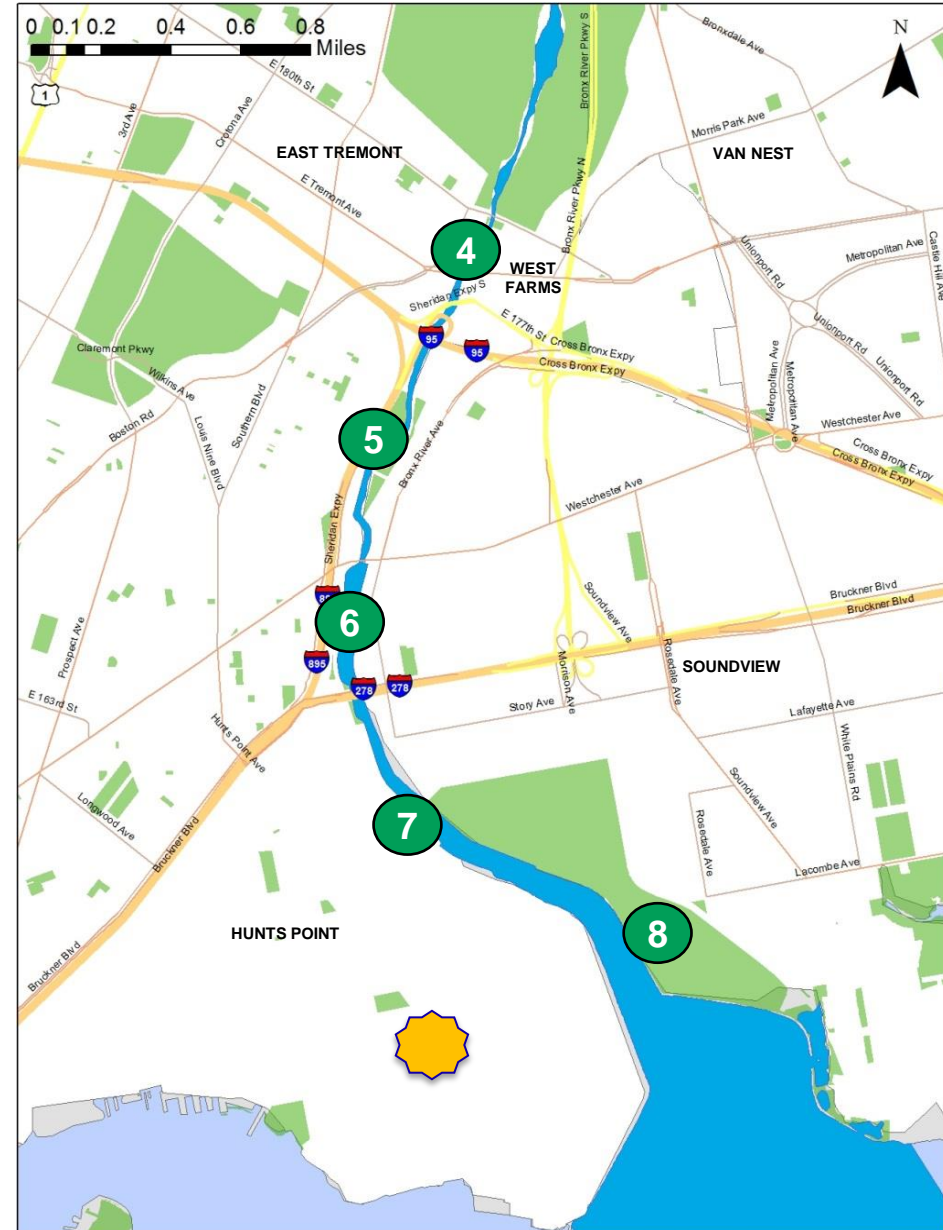
## ➤ Parks & Boat Access Points

*(Contains kayak/canoe launch site)*

- ④ West Farms Rapids
- ⑤ Starlight Park
- ⑥ Concrete Plant Park
- ⑦ Hunts Point Riverside Park
- ⑧ Soundview Park

## ➤ Upcoming Development

- 🌟 Hunts Point Vision Plan



# Bronx River Drainage Area

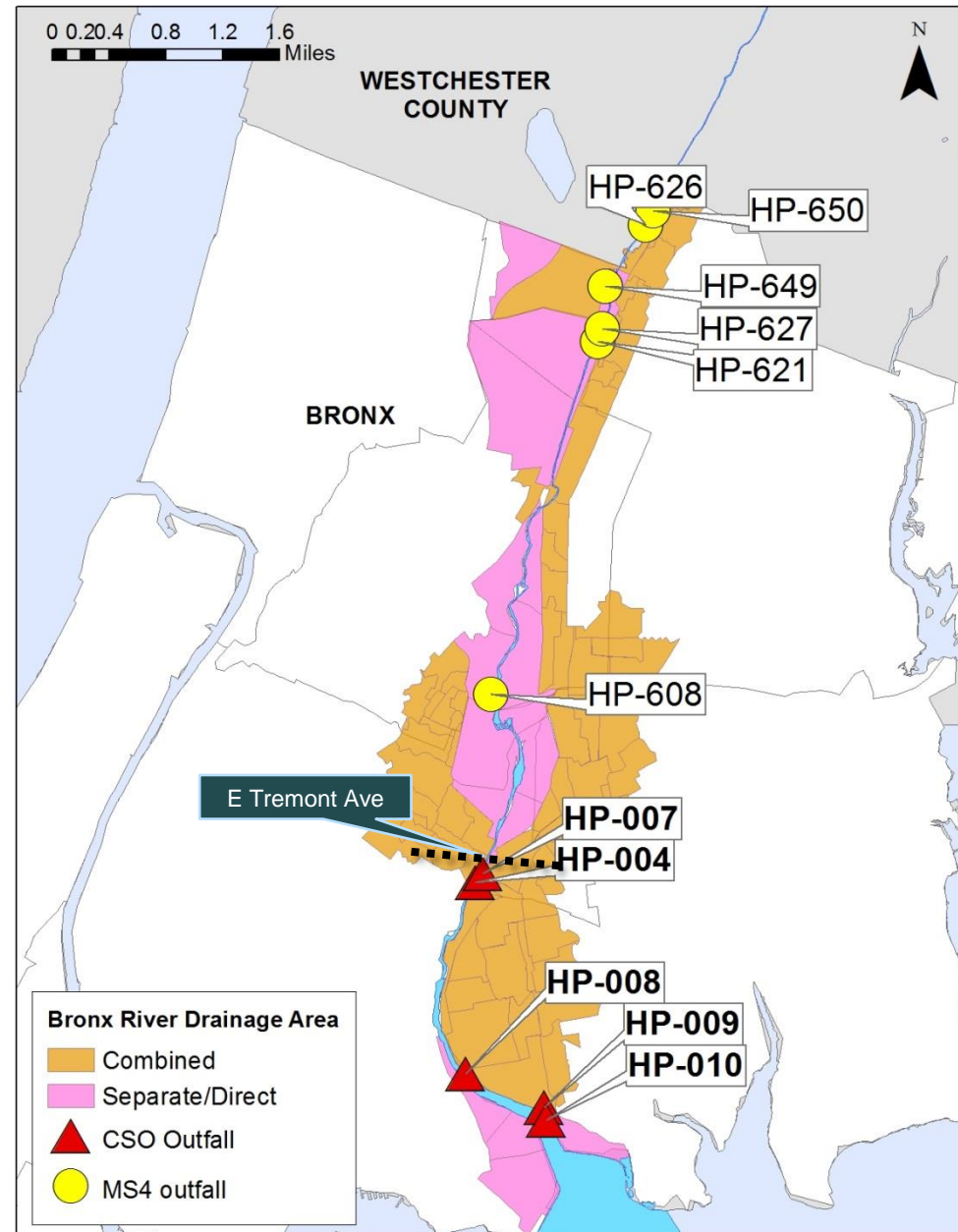
## ➤ Annual Wet-Weather Discharge Volume:

- ~1,950 MGal (*typical year*)
  - 26% CSO
  - 74% Primarily Direct Drainage and some Stormwater

## ➤ Outfalls:

- 5 CSO Outfalls (▲)
- 6 Permitted Stormwater Outfalls (●)

	NYC	Westchester
Drainage Area (Acres)	4,318	23,020
Served by Combined Sewers	64%	N/A



# Sampling Locations

## LTCP Sampling:

### ➤ Outfall Pipe

- ▲ 2 CSO (HP-007 & HP-009)
- 2 Stormwater (HP-608, HP-627)

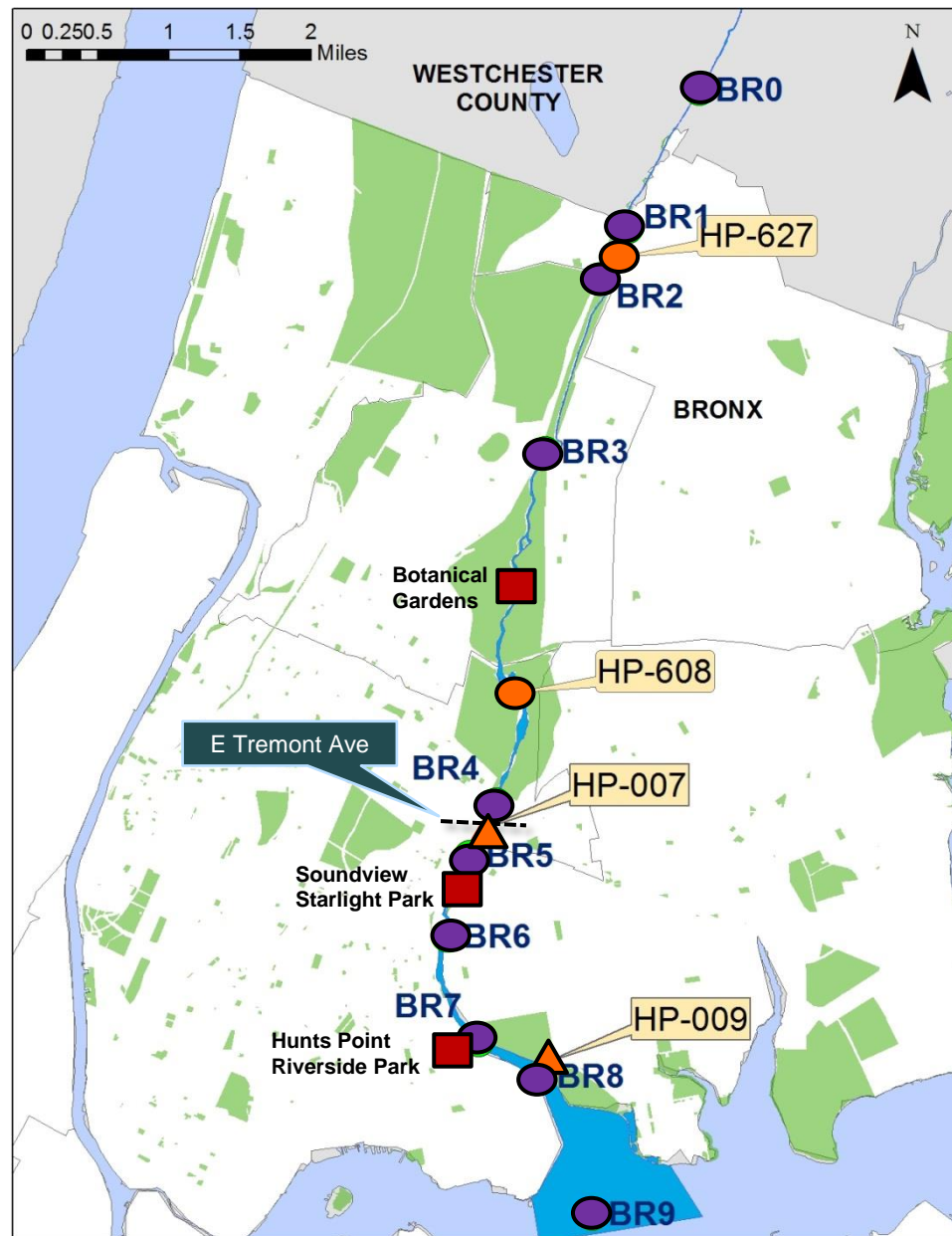
### ➤ Bronx River

- 10 Locations
  - BR0 in Westchester County
  - BR1 at County line
  - BR2 - BR9 in NYC

## Citizen Sampling:

### ➤ Bronx River

- 3 Locations Near:
  - Botanical Gardens
  - Soundview Starlight Park
  - Hunts Point Riverside Park



# Water Quality Improvement Projects

## **Green Infrastructure**

Mikelle Adgate  
DEP



**Bioswale**

- **Green Infrastructure (GI)** collects stormwater runoff from impervious surfaces
- 2012 Amended Consent Order: GI investments over 20 years
- Budget **\$1.5 billion** for GI Citywide to manage 1" of stormwater runoff from 10% of impervious combined sewered areas by 2030
- Meet this goal through:
  - Bioswale Area-Wide Projects
  - Public Property Retrofits
  - Grant Program for Private Property Owners
  - New Site Connection/Detention Rule



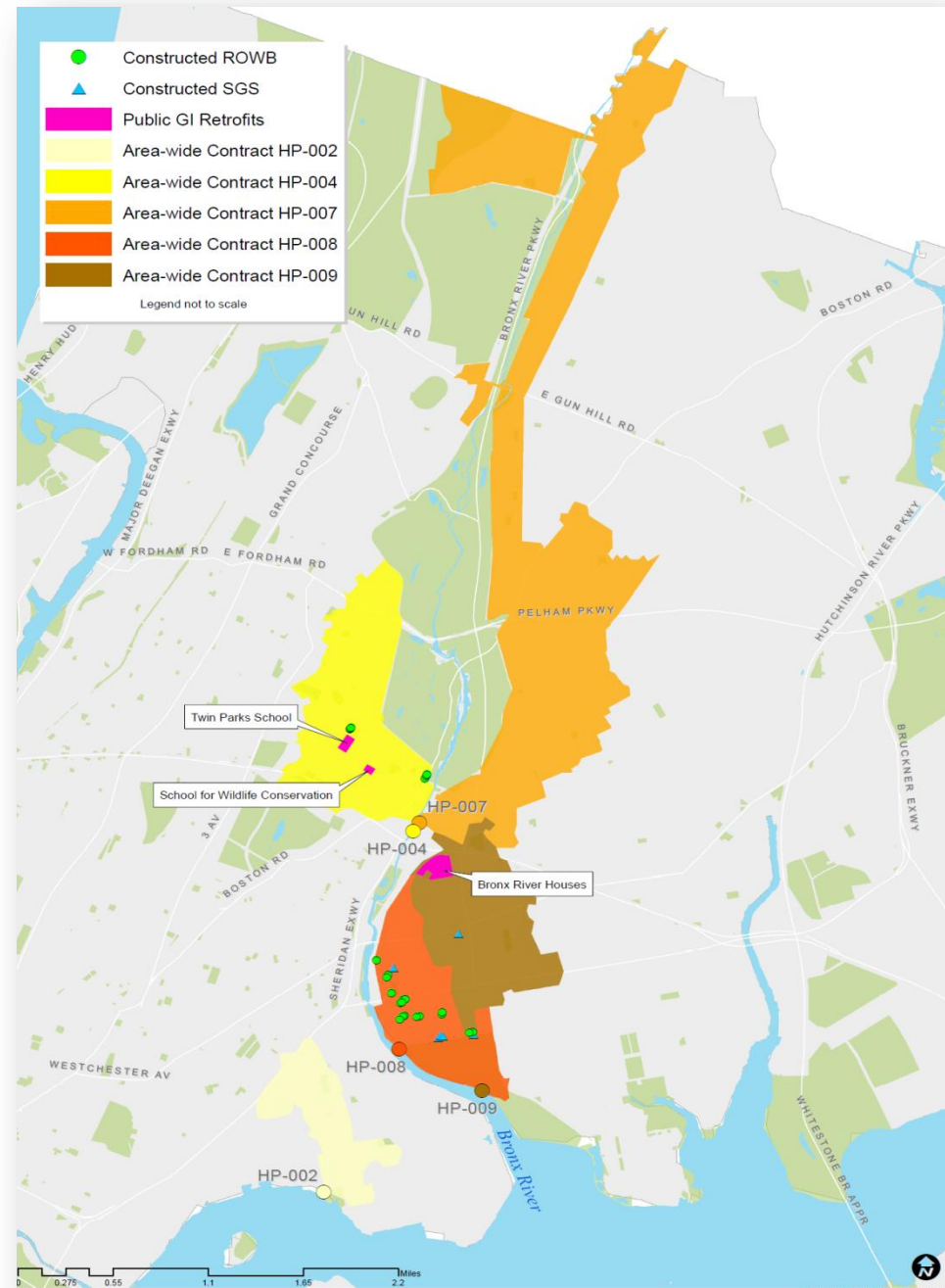
# Planned GI Projects in Bronx River

## Area-Wide GI Contracts:

- 23 bioswales and 8 stormwater greenstreets constructed to date in HP-008 and HP-009
- Design will begin in HP-002, HP-004 and HP-007 in 2016

## Other Built and Planned Projects:

- **Partnership with NYCHA and DPR:**
  - Bronx River Houses
  - Shoelace Park
- **Partnership with TPL/SCA/DOE:**
  - P.S. 129 (in construction)
  - P.S. 67 (under consideration)
- **GI Grant Program:**
  - ~\$1 million for the Bronx Zoo's Parking Lot – rain gardens, porous paving



# Types of Green Infrastructure



**Permeable Pavers**



**Stormwater Greenstreets**



**Green Roof**



**Rain Garden**

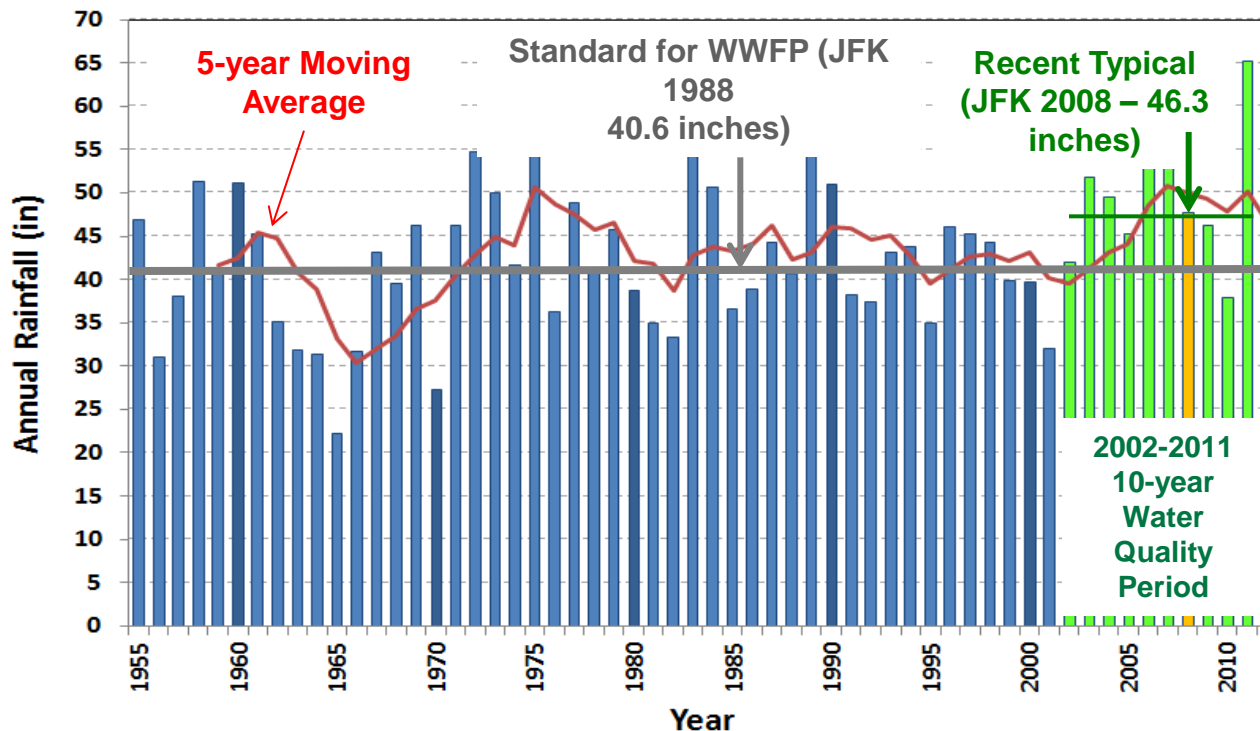
- **Green Infrastructure Grant Program:** DEP provides up to 100% reimbursement for the design and construction of select green infrastructure on private property in combined sewer areas.
- **Green Roof Tax Abatement:** The City provides a one year property tax abatement for private properties that install a green roof. The value is \$5.23 per square foot (up to the lesser of \$200,000 or the building's tax liability) and is available through March 15, 2018.
- **2012 Stormwater Rule:** In 2012 DEP modified the allowable flow rate of stormwater to the City's combined sewer system for new and existing development. Site Connection Proposals may use green infrastructure technologies to meet the new allowable rate.

# **Bronx River LTCP Development**

Keith Mahoney, P.E.  
Division Chief  
DEP

# Model Updates & Baseline Assumptions

- 2012 InfoWorks based on revised impervious areas
- Model runs are based on 10 years of data (2002 – 2011) for pathogens; 1 year of data used for DO (2008, “typical year rainfall”)
- 2040 population projections
- Model is calibrated with Harbor Survey data plus LTCP sampling data



# CSO Mitigation Toolbox

INCREASING COMPLEXITY 

INCREASING COST 

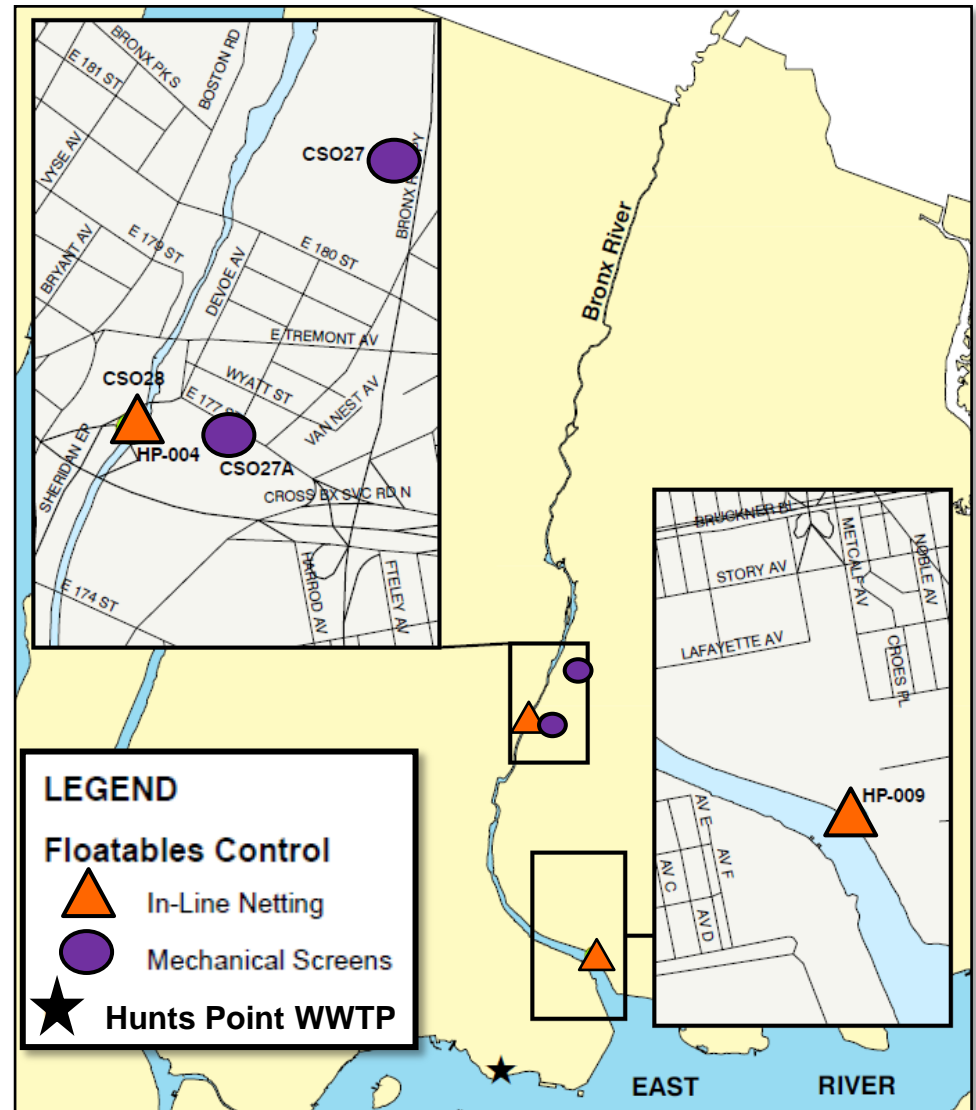
<b>System Optimization</b>	Fixed Weir	Parallel Interceptor / Sewer	Inflatable Dams Bending Weirs Control Gates	Pump Station Expansion
<b>CSO Relocation</b>	Gravity Flow Tipping to Other Watersheds	Pumping Station Modification	Flow Tipping with Conduit/Tunnel and Pumping	
<b>Water Quality / Ecological Enhancement</b>	Floatables Control	Dredging	Aeration	Flushing Tunnel
<b>Treatment <i>Satellite:</i></b>	Outfall Disinfection	Retention Treatment Basin (RTB)		High Rate Clarification (HRC)
<b><i>Centralized:</i></b>	WWTP Expansion			
<b>Storage</b>	In-System	Shaft	Tank	Tunnel

## ➤ Floatables Control

- **In-Line Netting Facilities**  
at CSO Outfalls HP-004 & HP-009
- **Mechanical Screens**  
at Regulators CSO27 & 27A

➤ Construction Cost ~ \$47M

➤ Completed in June 2012



- Bronx River LTCP Public Kick-off Mtg, Feb 12 2015
  - Review proposed alternatives and related waterbody uses
  
- Comments can also be submitted to:
  - New York City DEP at: [ltcp@dep.nyc.gov](mailto:ltcp@dep.nyc.gov)
  
- Additional CSO LTCP information available at [www.nyc.gov/dep/ltcp](http://www.nyc.gov/dep/ltcp)