Coney Island Creek
Combined Sewer Overflow
Long Term Control Plan

Public Kickoff Meeting

PS 90, Brooklyn, NY
November 4, 2015
Welcome & Introductions

Ibrahim Abdul-Matin
Director of Community Affairs
DEP
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 rainwater and sewage may be released into local waterways. This is called a combined sewer overflow (CSO).

65% to 90% of **combined** sanitary & storm flow is captured at treatment plants.
What is a LTCP and CSO Consent Order?

**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

**CSO Consent Order**

an agreement between NYC and DEC that settles past legal disputes without prolonged litigation

DEC requires DEP to develop LTCPs and mitigate CSOs
How does rainfall affect CSOs?

- Rainfall characteristics that trigger a CSO event at Coney Island Creek:
  - 0.4 to 1-inch of constant rainfall over a period of 2 to 10 hours

- Not every rainfall causes a CSO event:
  - Of the average 100 rainfall events per year about 22 CSO events may occur at Coney Island Creek

Photo Credit: Baptisete Pons
https://www.flickr.com/photos/bpt/2882285636/
Rainfall Selection for Model Updates

Evaluated a comprehensive range of rainfall data:

- Historical data range: **42 years** from 1969 to 2010
- Four representative rainfall gauges: Central Park, LGA, JFK, and ERW
- Selected **2008 JFK rainfall** as the most representative of average annual rainfall across all four gauges
LTCP Process and Public Involvement

Brooklyn Borough President’s Service Cabinet Meeting 9/9/2015

Existing Information Review → Data Collection & Analysis → Modeling → Alternatives Development & Evaluation → LTCP → DEC Review

Kickoff Meeting TODAY

LTCP Due 6/30/16

Alternatives Meeting Spring 2016

Final Plan Review Meeting TBD

ONGOING PUBLIC/STAKEHOLDER INPUT
Questions?
Waterbody & Watershed Characteristics

Jim Mueller, P.E.
Assistant Commissioner
DEP
Historical Photos of Coney Island Creek

Land Uses of Coney Island Creek Drainage Area

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Residential &amp; Commercial</td>
<td>70%</td>
</tr>
<tr>
<td>Park and Open Space</td>
<td>10%</td>
</tr>
<tr>
<td>Transportation &amp; Utility</td>
<td>7%</td>
</tr>
<tr>
<td>Public Facility</td>
<td>6%</td>
</tr>
<tr>
<td>Industrial</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
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Current Uses

Waterfront Public Access

1. Coney Island Creek Park
2. Calvert Vaux Park
3. Kaiser Park
4. Home Depot public park and walkway with seating

Boat Access

5. Private boat dock at Marlen Gas Station (Neptune Ave & W 20th Street)
1) Coney Island Re-Zoning
   - Coney Island West: re-zone for residential uses with ground-floor retail
   - Coney Island North: re-zone for residential uses with ground-floor retails
   - Coney Island East: amusement and entertainment district (hotels, restaurants, retail, etc.)

2) Ocean Dreams Towers
   - Three residential towers with 500 condos
   - 25,000 square feet of retail and 400 parking spaces

3) Coney Island Creek Resiliency Study
   - Conduct robust technical analysis of large-scale tidal barrier and wetlands
   - Identify measures to provide near-term flood protection
   - Recommend comprehensive flood protection plan

**CLASS I**

**Boating/Fishing**

The best usages of Class I waters are secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival.

<table>
<thead>
<tr>
<th>Dissolved Oxygen (mg/L)</th>
<th>Fecal Coliform (col/100 mL)</th>
<th>Total Coliform (col/100 mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 4.0</td>
<td>≤ 2,000* (Monthly GM)</td>
<td>≤ 10,000 (Monthly GM)</td>
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</table>

*Note: New rulemaking is proposed by DEC for primary contact criteria for Class I and Class SD of ≤ 200 col/100 ml for Fecal Coliform.
Coney Island Creek Drainage Area

- **Annual Wet-Weather Discharge Volume:**
  - ~1,740 million gallons (MG) (typical year pre-WWFP)
  - 235 MG CSO (14%)
  - 1,505 MG Direct Drainage and Stormwater (86%)

- **Sewer System:**
  - 1 CSO Outfalls (▲)
  - 8 MS4 Outfalls (○)

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Acres</th>
<th>Served by Combined Sewers</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>3,470</td>
<td>24%</td>
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</table>
**GOAL**
Assess attainment of Primary Contact Fecal Coliform criteria and understand the Entero attainment

**LTCP Sampling:**
- **CSO Outfall Pipe**
  - 1 location
  (Regulator upstream of Avenue V Pump Station)
- **Receiving Water Sampling**
  - 7 location (C1 to C7)
  (Sampled on day of video recording of CIC)

**Other Sampling Programs:**
- **Harbor Survey Monitoring**
  - 2 locations (CIC2, CIC3)
- **Sentinel Monitoring**
  - 1 location (S21)
Fecal Coliform Results


Geometric Mean Fecal Coliform (#/100 ml)

- Wet Weather
- Dry Weather

2000 #/100 ml

200 #/100 ml

Secondary Contact Standard

Potential Future
Primary Contact Standard

CSO Outfall (OH-021)

S21
15 Dry and 0 Wet Weather Samples

CIC3
46 Dry and 30 Wet Weather Samples

CIC2 (head-end)
44 Dry and 27 Wet Weather Samples
Fecal Coliform Results

One Day Sampling Results (10/19/2015) (Dry Weather)


- **Wet Weather**
- **Dry Weather**

**Geometric Mean Fecal Coliform (#/100 ml)**

- Primary Contact Standard
  - 2000 #/100 ml
  - 200 #/100 ml

- Secondary Contact Standard
  - 46 Dry and 30 Wet Weather Samples

**Potential Future**

- 44 Dry and 27 Wet Weather Samples

CSO Outfall (OH-021)

- C1
- C2
- C3
- C6
- C5
- C4
- C7

- 6,700
- 7,100
- 10,249
- 14,236

- S21
  - 15 Dry and 0 Wet Weather Samples

- CIC3
  - 46 Dry and 30 Wet Weather Samples

- CIC2 (head-end)
  - 44 Dry and 27 Wet Weather Samples
Enterococci Results


Geometric Mean Enterococci (#/100 ml)

Wet Weather
Dry Weather

30 #/100 ml

Potential Future Primary Contact Standard

46 Dry and 30 Wet Weather Samples
44 Dry and 27 Wet Weather Samples

CSO Outfall (OH-021)
Enterococci Results


Wet Weather
Dry Weather

Geometric Mean Enterococci (#/100 ml)

Potential Future
Primary Contact Standard

One Day Sampling Results (10/19/2015)
(Dry Weather)

46 Dry and 30 Wet Weather Samples

44 Dry and 27 Wet Weather Samples

CIC3
CIC2

CSO Outfall (OH-021)
Dissolved Oxygen Results


Dissolved Oxygen, mg/L

≥ 4.0 mg/L

Current WQ Standard for Class I

Wet Weather

Dry Weather

CIC2

CIC3

27 Dry and 18 Wet Weather Samples (top samples only)

44 Dry and 27 Wet Weather Samples (top samples only)

27 Dry and 18 Wet Weather Samples (top samples only)

44 Dry and 27 Wet Weather Samples (top samples only)
Questions?
Water Quality Improvement Projects
Grey and Green Infrastructure

Jim Mueller, P.E.
Assistant Commissioner
DEP

Angela Licata
Deputy Commissioner
DEP
1890s: Coney Island WWTP placed into service as one of NYC’s first treatment plants to help protect the City’s beaches

1930s: Upgraded from chlorine disinfection to primary treatment.

1980s: Upgraded again to a secondary treatment plant to comply with the Clean Water Act (CWA)

- Current plant capacity = 110 MGD (220 MGD in wet weather)
- Population served ≈ 600,000
- Drainage area served ≈ 15,000 acres
- Design is currently in progress to upgrade the facility to remove Nitrogen
Grey Infrastructure: Avenue V Pumping Station

2016 ACEC New York Platinum Award

Facility is also eligible for Listing on the State Register for Historical Places
Grey Infrastructure: Avenue V Pumping Station

- Avenue V Pumping Station upgrade from 30 MGD to 80 MGD
- 42” DW and 48” WW force mains to convey wet weather additional flows away from Coney Island Creek
- Floatables boom with periodic skimming

Upgraded Pump Station Operational: October 17, 2014

Total Construction Cost = $196 Million
Improvement in Wet Weather Fecal Coliform Levels

Reduced Fecal Coliform Levels through Implementation of Waterbody/Watershed Facility Plan Recommendations
Improvement in Wet Weather DO Levels

Before WWFP Improvements (Jan 1, 2013 - Oct 17, 2014)

- CIC3: Before: 7 Wet weather samples
- CIC2: Before: 19 Wet weather samples


- CIC3: After: 11 Wet weather samples
- CIC2: After: 8 Wet weather samples

Increased DO Levels through Implementation of Waterbody/Watershed Facility Plan Recommendations

≥ 4.0 mg/L

Current Class I Water Quality Standard
Municipal Separate Storm Sewer System (MS4)

What is an MS4:

- a conveyance or system of conveyances;
- system that is owned by a state, city, town, village, or other public entity that discharges to waters of the US;
- designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.);
- not a combined sewer; and
- not part of a Publicly Owned Treatment Works (sewage treatment plant).
Affected Areas of NYC under MS4 Permit

Draft Municipal Separate Storm Sewer System (MS4) Map

Not Covered
- COMBINED SEWER
- FEDERAL LAND AND AIRPORTS

Covered
- DIRECT DRAINAGE
- SEPARATE STORM SEWER
  - MS4 Outfalls - 365

MS4 drainage area: 84,300 acres
40% of the City

*Preliminary Map For Planning Purposes Only*
MS4 Permit Timeline

- **2015*:**
  - Aug 1, 2015 Permit Effective Date

- **2016**
  - SWMP Plan Development

- **2017**
  - Aug 1, 2018 Submit SWMP plan to DEC
  - Fiscal Analysis with SWMP plan

- **2018**
  - Annual Progress Reporting
  - Implementation

- **2019**
  - Annual Reporting

- **2020**
  - Aug 1, 2020 Permit Renewal

* - Calendar years

Legal Authority
Requirements for Impaired Waters with Approved LTCPs

- Identify MS4 priority waterbodies
  - Waterbodies where an approved LTCP does not predict compliance with WQ standards and stormwater contributions from MS4 are expected to be a significant contributor

- Categorize sources of pollutants discharging to the MS4 priority waterbodies

- Identify additional or customized non-structural BMPs and a schedule to commence implementation

- Describe opportunities for implementing green infrastructure pilot projects and other structural retrofits
Major Elements

1. Public Education & Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations
7. Industrial Stormwater Sources
8. Control of Floatables and Settleable Solids
9. Monitoring and Assessment of Controls
10. Annual Reporting
11. Recordkeeping
12. Fiscal Analysis
13. Mapping
# CSO Mitigation Toolbox

## INCREASING COMPLEXITY

<table>
<thead>
<tr>
<th>System Optimization</th>
<th>Fixed Weir</th>
<th>Parallel Interceptor / Sewer</th>
<th>Bending Weirs Control Gates</th>
<th>Pump Station Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSO Relocation</td>
<td>Gravity Flow Tipping to Other Watersheds</td>
<td>Pumping Station Modification</td>
<td>Flow Tipping with Conduit/Tunnel and Pumping</td>
<td></td>
</tr>
<tr>
<td>Water Quality / Ecological Enhancement</td>
<td>Floatables Control</td>
<td>Dredging</td>
<td>Dissolved Oxygen Improvement</td>
<td>Flushing Tunnel</td>
</tr>
<tr>
<td>Treatment Satellite:</td>
<td>Outfall Disinfection</td>
<td>Retention Treatment Basin (RTB)</td>
<td>High Rate Clarification (HRC)</td>
<td></td>
</tr>
<tr>
<td>Centralized:</td>
<td>WWTP Expansion</td>
<td></td>
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<td></td>
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<tr>
<td>Storage</td>
<td>In-System</td>
<td>Shaft</td>
<td>Tank</td>
<td>Tunnel</td>
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Questions?
Next Steps

Ibrahim Abdul-Matin
Director of Community Affairs
DEP
Next Steps

- Coney Island Creek LTCP Public Meeting #2, Spring 2016
  - LTCP Submittal to NYSDEC is June 2016

- Public Comments will be accepted for Coney Island Creek through December 4th, 2015
  - There will be subsequent comment periods following the alternative and final plan review meetings.

- Comments can be submitted to:
  - New York City DEP at: ltcp@dep.nyc.gov
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