Coney Island Creek

October 30, 2014
Recovery, Rebuilding, and Resiliency
In the aftermath of Sandy, the City set up a climate resiliency task force...

The goals were to identify ways to:

1. Rebuild neighborhoods not just as they were, but better; and

2. Strengthen critical infrastructure systems

by answering three key questions.

Question 1

What happened during Sandy and why?

Question 2

What could happen in the future?

Question 3

How do we rebuild post-Sandy and prepare for a future with climate change?
What Happened During Sandy

* Actual conditions may vary. This is a simulation based on modeled conditions.
A Stronger, More Resilient New York

...And while this is necessarily a long-term endeavor, the City has already taken steps, with many partners, to advance many of its key initiatives, including these highlights:

**Strengthen coastal defenses**
- Secured funding for nearly half of $3.7 billion coastal plan
- 670,000 cubic yards of sandy placed on Coney Island

**Upgrade buildings**
- Passed 16 local laws to upgrade the building code
- Released a new resiliency retrofit guide for homeowners

**Protect infrastructure and services**
- Completed Belt Parkway emergency bulkhead repairs
- Coney Island Hospital resiliency project application to FEMA

**Make neighborhoods safer and more vibrant**
- Secured flood insurance affordability reforms
- Coordinated neighborhood resiliency programs
Coastal Protection Measures

Multiple projects work together to reduce risk to make Coney Island safer from future climate events

- 1) T-groins in Sea Gate will diminish erosion
- 2) Bulkheads in Sea Gate will reduce wave action
- 3) Coney Island Creek study will determine feasibility of tidal barrier and wetlands concept
- 4) 670,000 cubic yards of sand added to replenish Coney Island beaches
A Resilient Transformation

Bold thinking about resiliency can transform neighborhoods and provide for enhanced safety, economic development, and stronger communities.
Current State of the Creek

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Current State of the Creek – Ecological Overview

• 2-mile long Creek varies in width from 900 feet at the mouth to 150 feet at the head (east side)

• Overall water quality is limited by confined nature of Creek, including low tidal flushing, background concentrations and illicit discharges

• Based on 2004 data, count and diversity of benthic species is low with a high proportion of pollutant tolerant organisms
Tidal Flushing Simulation

- Two tidal cycles per day; currents are very weak in Creek (1 ft/s is the surface tidal current or velocity)
- Addition of a “tracer”, for analysis purposes, illustrates the long residency time due to lack of tidal flushing
  - After approximately 20 days, tracer (in red) observed in high concentrations at east end
Water Quality Projections

- Construction of Avenue V Pumping Station upgrade is expected to:
  - **Reduce** CSO volumes
  - **Improve** dissolved oxygen in the Creek

- Impact of Avenue V Pumping Station will be included in the water quality analyses conducted as part of the Study

![CSO Volume Graph](image-url)
Understanding Drainage

• Impact of high water levels (including storm surge) in the Creek on stormwater and CSO discharges will be analyzed.

• The Study will also examine overland and pipe flow in the region to better understand the existing drainage system, as well as how a barrier, or other proposed changes, will affect drainage in the region.
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Community Connectivity, Transportation, Open Space

• Neighborhood connections from Gravesend to Coney Island are sparse with the only access routes being Cropsey and Stillwell

• Transit access is disjointed, pedestrian access is challenging, City’s bicycle network is fragmented, and local streets do not provide direct connections between neighborhoods

• Significant open space resources provide opportunity to consider expanded access and green infrastructure
The Study

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Feasibility Study

- NYCEDC, in partnership with Mayor’s Office of Recovery and Resiliency (ORR) and other City agencies, is conducting a detailed feasibility study of Coney Island Creek to:
  - Integrate hydrological management strategies that would prevent and mitigate upland flooding around Coney Island Creek
  - Improve waterfront open space
  - Enhance water quality and aquatic habitat
  - Strengthen connections between neighborhoods
  - Support economic development in surrounding areas

- Use of local and global experts
Questions to Answer

1. Is the tidal barrier & wetlands concept **technically feasible**? What are the environmental, engineering, and regulatory challenges, and how could they be overcome?

2. Is this a **cost-effective** way of addressing the threats severe weather and sea level rise pose to Coney Island and Gravesend?

3. What measures can be advanced to provide **near-term flood protection**?

4. Are there opportunities to provide other **community benefits**, such as improved access to waterfront recreation, without compromising the primary goal of flood protection?

5. What do community stakeholders think about the Creek proposal and how it could **best address their needs**?
Schedule

Projected Schedule

- Begin study **4Q 2014**

- Complete Part I – **Technical Analysis 2Q 2015**

- Complete Part II – **Development of Recommendations 4Q 2015**

Near-term flood protection measures can advance to design and then construction
Existing Conditions Analyses

• Hydrology
• Drainage
• Ecology & Water Quality
• Transportation
• Urban Design
• Economic
• Real Estate
• Land Use
• ...we want to hear from you
QUESTIONS?

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