Green Infrastructure Implementation in the Jamaica Bay Watershed

State of the Bay Symposium

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NYC Combined and Separate Sewer Systems

New York City Sewer System Map

Legend
- Jamaica Bay Watershed
- Combined Sewer System
- Separate Storm Sewer System (MS4)
- Direct Drainage
- Federal Land and Airports

*Preliminary Map For Planning Purposes Only
**Stormwater Source Control: Green Infrastructure**

**Green infrastructure (GI) practices** are designed, constructed and maintained to collect stormwater runoff when it rains.
NYC Green Infrastructure Program

City Sidewalks

City Streets

Grant Program for Private Property Owners

Public Property Retrofits
Scaling-Up Implementation

www.nyc.gov/dep/gimap
Green Infrastructure Typologies

Bioretention
- Right-of-way Bioswale
- Stormwater Greenstreet
- On-site bioretention

Permeable Pavement

Subsurface Retention

Constructed Wetland

Green Roof

Blue Roof
• Monitoring Protocol Development and Implementation
  o Peer review workshop held March 2016
  o Experiments currently being refined by scientific leads
  o Start data collection this year and continue program for 5 years

• CSO Performance Metrics Modeling
  o Model CSO volume reduction associated with green infrastructure implementation
  o In development, to be finalized June 30, 2016

• Cost/Benefit Analysis
  o Initial scope for establishing baseline program costs has begun
  o Inputs will be used for larger cost/benefit analyses (life-cycle analysis, green/grey comparison, citywide policy scenarios)

• Operations and Maintenance (O&M)
  o Initial scope includes O&M manual and workforce training
  o Future scope will include optimization and performance based training and standard operating procedures
Monitoring Protocol: Research Targets

• **Stormwater performance**
  - Hydraulics: inflow, bypass, overflow, infiltration, exfiltration
  - Evapotranspiration

• **Materials**
  - Plant palette
  - Engineered soil mixes

• **Maintenance and operations**

• **Co-benefits**: urban heat island mitigation, pollinators, etc.

• **New technologies and ideas**
Protocol Development

Review previous/existing protocols

Establish experimental procedures
- C1: Equipment installed within GI
- C2: Data collection via portable instruments
- C3: Laboratory and/or greenhouse experiments
- C4: New technologies to be tested
- Desktop: Existing data evaluation

Develop schedule
- Prioritization of research targets
- Experiment timelines
  - Review and preparation
  - Data collection
  - Analysis

Create data management plan

Refine and update procedures throughout project
Monitoring Implementation
Thank You

For more information:

Links
www.nyc.gov/dep/greeninfrastructure
www.nyc.gov/dep/gimap

Contact
GIOutreach@dep.nyc.gov