Habitat Restoration and Green Infrastructure Planning for Staten Island’s North Shore

Walker Park
December 7, 2017

NYC Parks Forestry, Horticulture, and Natural Resources

Funded by the NYS Department of Environmental Conservation, Hudson River Estuary Program
Meeting Purpose and Agenda

- Review scope of grant

- Present a draft vision and overview of natural resources conditions and restoration opportunities

- Solicit input on visions and goals

- Solicit input on north shore natural resources priorities
Forestry, Horticulture, and Natural Resources

“To conserve New York City's natural resources for the benefit of ecosystem and public health through acquisition, management, restoration, and advocacy using scientifically supported and sustainable research”
"Created by state law in 1987, the Hudson River Estuary Program develops knowledgeable and effective stewards of the estuary and its ecosystem using an understanding of ecology as a foundation for all of its work."
Why the North Shore?

- Lack of dedicated natural resources planning
- Acceleration of development
- Environmental Justice
- Funding available
What is a Watershed Plan?

- Facilitates protection of natural resources in your community
- Differs from Master Planning
- Identifies opportunities
- Gains consensus on priorities
- Path towards implementation of priority projects
Past Planning

- West Brighton Brownfields Opportunity Area Report (EDC, NYC DCP 2016)
  - Snug Harbor identified as a Strategic Site for revitalizing waterfront

- North Shore 2030 (NYC DCP, NYC EDC, WBCLDC 2016)
  - Snug Harbor a potential stormwater management site and as a hub for waterfront access and transportation

- Comprehensive Waterfront Plan Vision 2020
  - Bluebelt designation at Snug Harbor and enhancement of the site for greenway and waterfront access

- Staten Island’s Gold Coast (NSWCSI, 2008)
  - Documents 21 contaminated sites on north shore and their affects on community
Draft Vision and Goals

Staten Island’s North Shore is a valued ecological, economic, and social resource, anchored by the Snug Harbor Cultural Center and waterfront of the Kill Van Kull which provide a wealth of social, recreational, educational, and environmental opportunities.

i. Restore, protect, and enhance natural resources to promote diverse, native ecological communities

ii. Manage stormwater to alleviate local flooding and to improve water quality

iii. Promote public engagement to increase community awareness, facilitate sustainable use, promote healthy living, and invite stewardship.
Natural Resources Characterizations

- Land Cover Overview
- Uplands and Forests
  - What are they
  - Where are they
  - Threats
  - Restoration Opportunities
- Streams and Floodplain Forests
- Freshwater Wetlands and Ponds
- Salt Marshes
- Green Infrastructure
- Street Trees
North Shore Habitats

- Forested Wetland
- Freshwater Emergent Wetlands
- Tidal Wetlands
- Tree Canopy Cover
- Upland Grass/Shrub
- Bare Soil
- Lawn
- Water
- Impervious Surfaces
North Shore Habitats
Natural Resources on North Shore

Goodhue Pond
Harbor Brook

Snug Harbor Cultural Center

Allison Pond Park

Goodhue Park
Uplands and Forests

- **Forests**
  - Oak – Hickory forests
  - Provide habitat for wide diversity of species

- **Serpentine Uplands**
  - Greenish-blue bedrock outcrops and nutrient-poor shallow soils
  - Rare geology in New York, only known from Staten Island
  - Ex. Jones Woods

- **Threats to these systems**
  - Invasive plants
  - Dumping
  - Off-road Vehicles
  - Fragmentation
Uplands and Forests Opportunities

Shooter’s Island
Uplands and Forests Opportunities

Richmond Terrace Wetlands
Uplands and Forests Opportunities
Uplands and Forests Opportunities

Snug Harbor
Uplands and Forests
Opportunities

Allison Pond Park
Uplands and Forests Opportunities

Goodhue Park
Uplands and Forests Opportunities

Jones Woods
Uplands and Forests Opportunities

Von Briesen Park
Streams and Floodplain Forests

• Floodplain Forests
  • Vegetated buffers around streams
  • Provides water quality benefits

• Streams
  • Provides habitat for invertebrates
  • 116 bird species identified in Goodhue Park and 122 bird species identified at Snug Harbor, including uncommon species such as Glossy Ibis and Common Nighthawk
  • Harbor Brook is the only connected stream system on North Shore

• Threats to these systems
  • Invasive plants
  • Erosion
  • Dumping
  • Stormwater runoff

Crayfish from Harbor Brook

Deteriorated Dam, Goodhue Park
Freshwater Wetlands & Ponds

• Freshwater Wetlands and Ponds
  • Wet soils result in different plant communities
  • Habitat for numerous birds including the threatened Least Bittern and several raptors including Sharp-shinned Hawk, Northern Harrier
  • Habitat for amphibians and reptiles
  • Improves water quality, mitigate flooding

• Threats to these systems
  • Erosion
  • Nutrient loading
  • Harmful algal blooms
North Shore Site Characteristics

Historic Streams and Wetlands
Streams, Freshwater Wetlands, and Ponds Opportunities

Mariner’s Marsh
Streams, Freshwater Wetlands, and Ponds

Opportunities

Snug Harbor
Streams, Freshwater Wetlands, and Ponds Opportunities

Allison Pond Park
Streams, Freshwater Wetlands, and Ponds Opportunities

Allison Pond Park

Streams
Approximation of Piped Streams
USFWS NWI Freshwater Wetlands

Restoration Opportunities
- Freshwater Wetlands
- Stream
Streams, Freshwater Wetlands, and Ponds Opportunities

Goodhue Park

Restoration Opportunities
- Freshwater Wetlands
- Stream
Streams, Freshwater Wetlands, and Ponds

Opportunities

Restoration Opportunities

- Freshwater Wetlands
- Stream

Eibs Pond
Salt Marshes

• Tidal Wetlands
  • Some of the most ecologically productive habitats on earth
  • Historically common on North Shore
  • Uncommon and migrating species of birds such as bald eagle, red-necked grebe, horned grebe, red-bellied woodpecker, peregrine falcon, black skimmer, yellow-crowned night-heron, and others

• Threats to these systems
  • Pollution/Oil Spills
  • Marine Debris
  • Erosion
  • Sea Level Rise
Salt Marshes Opportunities

Arlington Marsh
Salt Marshes Opportunities

Shooter’s Island
Salt Marshes Opportunities

Richmond Terrace Wetlands
Salt Marshes Opportunities

Heritage Park
Salt Marshes
Opportunities

Snug Harbor
Green Infrastructure

• Bioswales
  • Streetside stormwater intervention
  • Retains water, mitigating surface runoff and sewer system overload
  • Captures pollutants and provides micro-habitats

• Subsurface Storage
  • Detains water until opportune time to release
  • Mitigates flooding and sewer overload

• Blue Belts
  • Modifies wetland and stream systems to manage stormwater
Green Infrastructure

North Shore Drainage

- Combined Sewer
- Direct Drainage
- Separate Sewer
Green Infrastructure Opportunities

Clove Lakes Park
Green Infrastructure Opportunities

Snug Harbor: Snug Harbor Road
Green Infrastructure Opportunities

Snug Harbor: Harbor Brook Bluebelt
Green Infrastructure Opportunities

- Grandview Playground – The Big Park
- Levy Playground
- Mahoney Playground
- De Matti Playground
- Rain Gardens
- Permeable Pavement
- Subsurface Detention
Green Infrastructure Modeling

Model Output
- Least Viable for GI
- Most Viable for GI

Harlem River Watershed Plan, Bronx, 2017
Street Trees

• Street Trees
  • Provides shade and cooling via evapotranspiration
  • Air pollution mitigation
  • Connectivity to larger natural areas

• Stormwater
  • Tree guards

• Maintenance and Stewardship
  • Excellent educational resource
  • Green Neighborhoods Program
Street Trees Opportunities

Street Tree Density By Census Tract

Low
Medium
High

NYC Parks Street Tree Census, 2015
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Next Steps

• Continue coordinating with project partners (Ongoing)
• Get Webpage Live (Ongoing)
• Incorporate feedback (January 2018)
• Complete Green Infrastructure Modeling (Feb 2018)
• Advance Snug Harbor Conceptual Design (May 2018)
• Second community meeting (Target: June 2018)
Thank You!

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