Increasing Storm Resiliency in Urban Areas Through Ecological Restoration and Design

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FRAMEWORK FOR SUCCESS

Woodbridge Township Open Space and Flood Plain Restoration Plan

Benefits:

- protect safety and health of Township residents
- increase Township’s resiliency to severe storms
- improve wildlife habitat and increase biodiversity
- enhance recreational opportunities

ecological restoration planning
open space design
facilitation of partnerships
construction oversight

project coordination funding

technical support funding
Problem

• Storm surge left many homes damaged following Hurricane Irene & Superstorm Sandy
• Repeated flooding continues to damage properties and threaten the health and safety of residents
• Many homes built between 1940-1960 sit at levels just above sea level and are at risk of major damage from future storms
Planning Objectives

• Protect safety and health of Township residents
• Encourage homeowners to relocate permanently out of harm’s way
• Restore natural function of flood plain areas
• Promote storage and infiltration of stormwater
Woodbridge: A Pro-active Approach

• Prepared a plan to identify, prioritize and guide purchase of homes in flood plain areas
• Township secured Blue Acres funding to purchase nearly 200 properties
• Developing a plan in partnership with extension specialists from the State University
• Actively seeking partnerships to implement plan and manage costs
Blue Acres Program Requirements

- All existing structures to be removed
- Property to maintained as open space for conservation of natural floodplain functions
- No new permanent structures allowed
- Allowed uses of property include passive recreation, wetland management, natural areas, unpaved parking
Township Goals

• Understand opportunities and benefits of newly acquired properties

• Maximize flood protection for the community

• Enhance recreational opportunities for residents

• Develop a long-term, sustainable management plan
Watson-Crampton Neighborhood

- Approximately 215 acres
- Bounded by three waterways:
  - Wedgewood Brook
  - Heards Brook
  - Woodbridge River
- Includes almost 75 acres of unmanaged natural areas
Project Challenges

• flood storage and mitigation
• varying expectations for land management
• urban to natural area transition
• isolated Blue Acres properties
Rutgers Cooperative Extension’s Role

- Develop a flood plain restoration plan
- Generate opportunities for passive recreation
- Create sustainable long-term management strategies
- Maximize benefits and function of public open space
Habitat Restoration

- Management of invasive vegetation
- Conversion of existing lawn and turf
- Enhancement of vegetative cover, diversity and vertical structure for a range of habitats:
  - Woodland
  - Scrub/shrub
  - Meadow
  - Freshwater wetland
  - Saline Marsh
Habitat Restoration

**RESTORATION ZONE:**

**SCRUB SHRUB**
A unique hilltop within the Watson-Crampton neighborhood can be augmented with small trees and shrubs while providing an elevated pathway and lookout opportunity across the salt marsh.

**FLOOD PLAIN FOREST**
Forested areas can provide shaded pathways and flood and wind protection while acting as a sound and sight buffer from the nearby New Jersey Turnpike.

**HIGH MARSH EDGE**
Transitional areas between forested and salt marsh habitats can be planted with salt-tolerant high marsh plants to manage invasive species and erosion.

**SALT MARSH**
Saline marsh areas provide flood protection while enhancing tidal habitats in Woodbridge Township and allowing residents an opportunity to enjoy nature.
Flood Storage & Stormwater Management

- Flood Storage and Stormwater Wetland
- Trail
- Bioswale
- Flood Plain Forest
URBAN TO NATURAL GRADIENT

Watson-Crampton Neighborhood:
- Mown turf
- Fescue edge
- Flowering meadow areas
- Tree planting

Varying degrees of maintenance
Regular maintenance
Low maintenance
No/minimal maintenance
RECREATIONAL OPPORTUNITIES

• Passive recreation opportunities
  – Walking paths
  – Canoe/kayak launch
  – Birding

add trailhead rendering
Recreation and Pocket Parks

BEFORE

AFTER
2016 IMPLEMENTATION

- removal of ~3 acres of impervious cover
- planting of ~50 trees
- seeding of ~3 acres of native meadow

pic of tree installation
FOUNDATION FOR SUCCESSFUL PROGRAM

Recognition of the Value of Cooperative Extension

development of trust

funding for initial plan

Multidisciplinary Approach

Funding Commitment

Open Communication Among Project Partners
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