Presentation Outline

• Hudson River Estuary Program
• Green Infrastructure
• Specific practices and local examples
• Resources available
Hudson River Estuary Program

Core Mission

• Ensure *clean water*
• Protect and restore fish, wildlife, and their *habitats*
• Provide water recreation and river *access*
• Adapt to *climate change*
• Conserve world-famous *scenery*
Green Infrastructure

• The network of naturally occurring and engineered systems in the environment, generally vegetated, that provide ecosystem services

• Manage stormwater runoff while maintaining or restoring natural hydrology
  – allow stormwater to *infiltrate* and be used by plants

• Green vs. gray infrastructure
Green Infrastructure

- Applies to both regional and local scales
- Number of benefits
- Includes projects defined as “better site design” or “low impact development”
1. Planning
   A. Preserving natural areas
   B. Reducing impervious surface cover

2. Green infrastructure practices

   Avoid stormwater
   Reduce stormwater
   Manage stormwater
Green Infrastructure Practices

• Site- and neighborhood-specific practices that allow stormwater to infiltrate on-site
• Includes natural features and engineered practices
Rain Gardens

• Manage and treat small volumes of stormwater, filter runoff through soil and vegetation within a shallow depression

Vassar College (Prentiss Fields), Poughkeepsie

SUNY Orange, Middletown
Bioretention

• Larger than rain gardens and may be designed with an underdrain to connect to the storm drain system

Beacon Institute for Rivers and Estuaries, Beacon  Vassar College, Poughkeepsie
Vegetated Swales

- Natural drainage paths or vegetated channels used to transport water above ground
Greef Roofs

- Layers of soil and vegetation on rooftops that capture runoff

Rensselaer County Master Gardeners shed, Wynantskill

Beacon Institute for Rivers and Estuaries, Beacon
Porous Pavement

• Pervious types of pavements allow stormwater to infiltrate through the surface

Garrison Institute, Garrison

NYS Parks, Recreation & Historic Preservation, Staatsburg
Rain Barrels or Cisterns

• Capture and store water to use for watering plants and other non-contact uses

Private home, Millerton

Children's Garden at Boyce Park, Wingdale
Stream Buffer Restoration

- A healthy vegetated buffer helps improve stream health and water quality by filtering and slowing polluted runoff, with many other benefits.

Greenvale Park, Poughkeepsie  Dinsmore Park, Staatsburg
Other Green Infrastructure Practices

- Disconnection of rooftop runoff
- Stormwater planters
- Tree planting/tree pit
- Stream daylighting

NYS Parks, Recreation & Historic Preservation, Staatsburg

Ardsley, Westchester
Benefits of Green Infrastructure

- Stormwater management (quality and quantity)
- Groundwater recharge
- Reduced potential for combined sewer overflows
- Cooling effect in urban areas – energy savings
- Wildlife habitat
- Improve air quality
- Improve human health
- Increase land values
- Beautify neighborhoods
Implementing Green Infrastructure

• Homeowners, businesses, neighborhoods, regional planners, and

• Municipalities
  – Planning
  – Codes/ordinances can encourage, incentivize, or require
  – Demonstration sites

SUNY Orange, Middletown
Resources from the Estuary Program

What can you do?

- Review local codes and ordinances
- Visit Green Infrastructure Examples site
- Restore buffers/Trees for Tribs
Review Local Codes and Ordinances

- Codes and Ordinances Worksheet for New York State
- Town of Wappinger and Town of Clinton case studies

http://www.dec.ny.gov/lands/42053.html
Green Infrastructure Examples in the Hudson Valley

http://www.dec.ny.gov/lands/58930.html

Vassar College Rain Garden

Description
This rain garden is an example of green infrastructure in an institutional setting. The runoff from the maintenance building is directed to the rain garden where it is infiltrated into the ground.

Site Location
- Site Address: Hooker Ave, Poughkeepsie, NY 12601
- Town: Poughkeepsie
- County: Dutchess
- Land Use of Site: College Campus
- Can Site be visited?: Check with College
- Location on Site: North of first building on the right after entering the athletic complex from Hooker Avenue

Practice Information Details
- Intent of Design: Treat parking lot runoff through infiltration and biological uptake.
- Stormwater Management Capacity: 152 Cubic Feet
- Year of Installation: 2007
- Plant Material Used: Unknown
- Annual Operational and Maintenance: Weeding and replacement of any dead vegetation.
- Required Zoning Change or Special Permit: None
Participate in Trees for Tribs

http://www.dec.ny.gov/lands/43668.html
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