



Department of  
Environmental  
Conservation



New York State  
Water Resources Institute  
Cornell University

# Green Infrastructure Codes and Ordinances

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# Presentation Outline

- Hudson River Estuary Program
- Why are codes/ordinances important?
- Case studies
  - Wappinger and Clinton
  - Albany County
  - Nyack and Orangetown
- What you can do
- Resources



Rain Garden at Vassar College, Poughkeepsie

# Hudson River Estuary Program

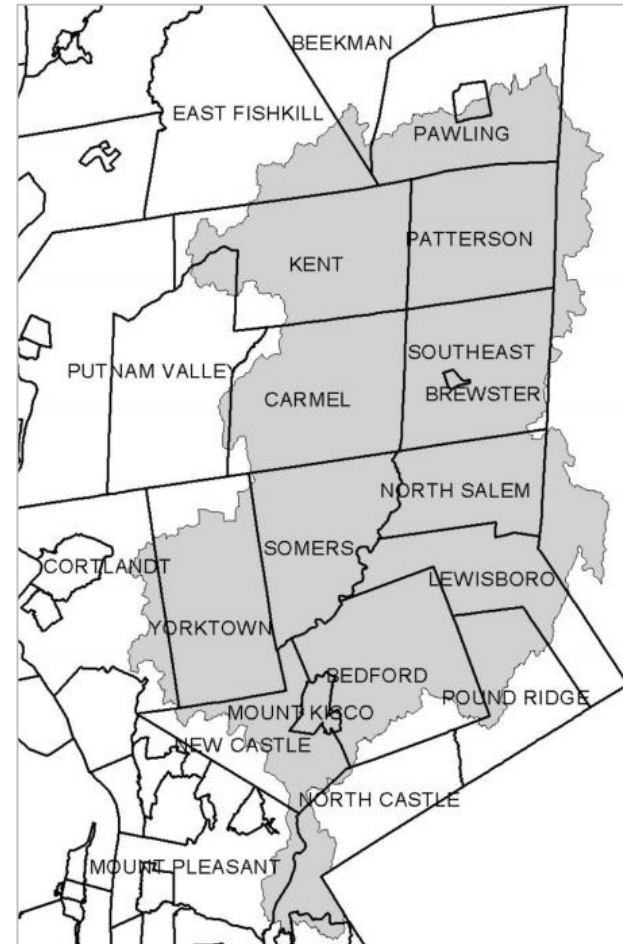
## Six Benefits:

- Clean water
- Resilient communities
- Vital estuary ecosystem
- Estuary fish, wildlife, and their habitats
- Scenic river landscape
- Education, river access, recreation, and inspiration



# Why codes and ordinances?

- Land use -> stormwater
- Municipalities can regulate land use
- Certain regulations required for MS4s
- Can incentivize/require green infrastructure
  - Smaller projects may not require a full SWPPP/post-construction stormwater (1 acre = 43,450 ft<sup>2</sup>)
  - Village of Nyack threshold = 10,000 ft<sup>2</sup>
  - In Croton watershed, threshold = 5,000 ft<sup>2</sup>





# Why codes and ordinances?

- Can be a barrier to some green infrastructure practices
- For example:
  - Parking lot or street width standards can make it hard to reduce impervious surfaces
  - Curb requirements can limit green infrastructure in parking lots
  - Prohibiting flat roofs can limit green roofs





# Code and Ordinance Case Studies

- Better Site Design Roundtables  
Clinton and Wappinger  
(Dutchess County) – 2006
- Green Infrastructure Model  
Local Law Project  
Albany County – 2013
- Green Infrastructure Code  
Review Project  
Nyack and Orangetown  
(Rockland County) – 2014



Green Roof at Marist College, Poughkeepsie

# Better Site Design Roundtables

- Towns of Clinton and Wappinger
- Code review with NYS Code & Ordinance Worksheet (COW) 2004-2005
- Consensus-based roundtables 2005-2006
  - Local government, non-profit, environmental, business, and community professionals
- Hudson River Estuary Program grant
  - Center for Watershed Protection
  - Wappinger Creek Watershed Intermunicipal Council
  - Cornell Cooperative Extension Dutchess County/ Dutchess County EMC





Rain barrel workshop, Town of Wappinger







# Better Site Design Roundtables

- Both in Wappinger Creek watershed
  - Clinton: rural
  - Wappinger: suburban
- Received scores based on code review
- Final reports include:
  - Recommendations for specific Better Site Design Principles to adopt
  - Code and ordinance revisions
- In 2007, Wappinger adopted 22 out of the 36 recommended code changes

**Town of Wappinger**  
 Recommended Model Development Principles  
 for Conservation of Natural Resources  
 in the Hudson River Estuary Watershed  
*Consensus of the Local Site Planning Roundtable*

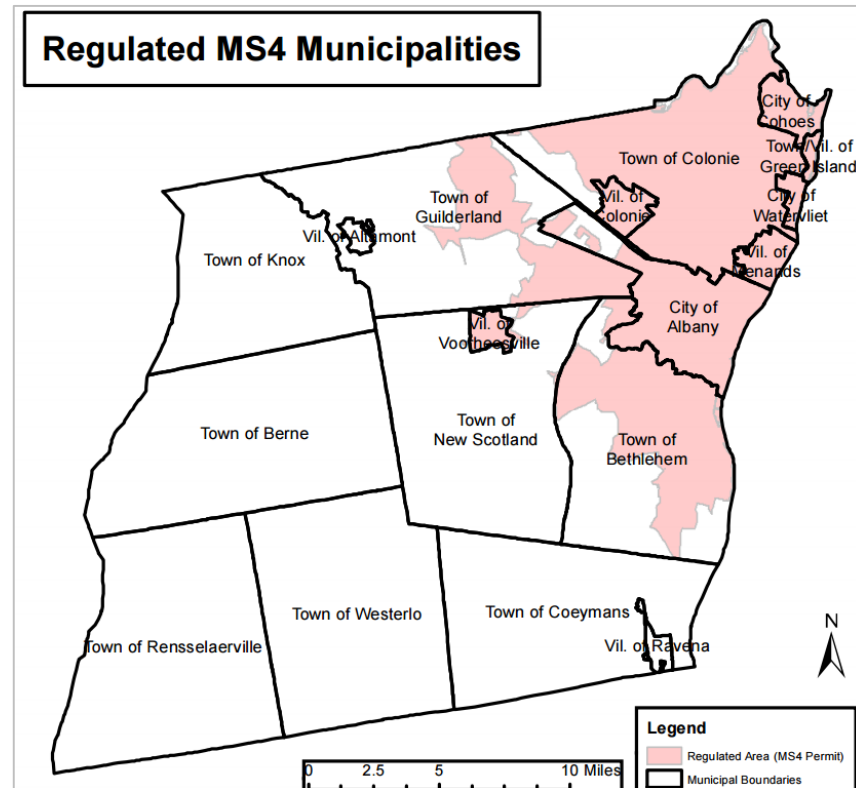
A partnership among:  
 Town of Wappinger, Dutchess County, New York  
 Dutchess County Environmental Management Council  
 Wappinger Creek Watershed Intermunicipal Council  
 NYSDEC Hudson River Estuary Program  
 Center for Watershed Protection, Maryland

June 2006

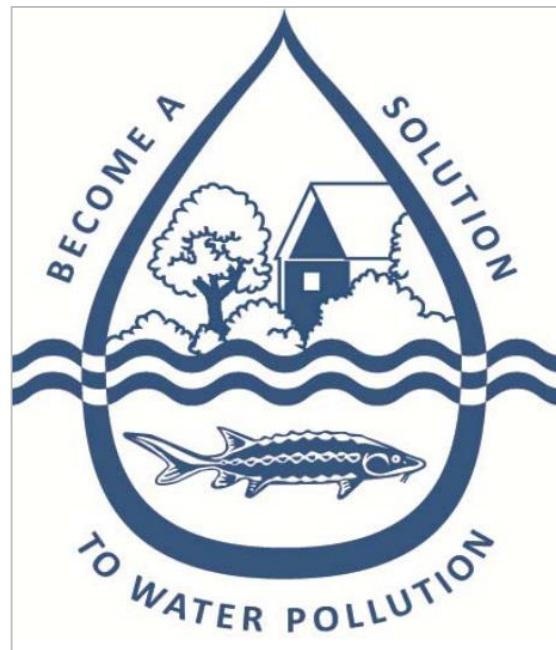
# Albany County Green Infrastructure

- NYS DEC Water Quality Improvement Project grant
- Stormwater Coalition of Albany County – MS4
  - 3 cities, 4 towns, 4 villages, Albany County, SUNY Albany
- Project Advisory Committee
  - Barton and Loguidice
  - Legal support from Young/Sommer
  - Albany County staff



# Albany County Green Infrastructure

- Green Infrastructure Model Local Law Project – 2013
  - Inventory existing comprehensive plans and local laws by using a Water Quality Scorecard
  - Identify local law “gaps”
  - Research other local laws, and develop models
  - Present to municipalities and get feedback



# Albany County Green Infrastructure

- Encourage green infrastructure beyond Construction Permits
- Identified potential gaps, prioritized the top 8 for draft local laws
  - Noted standard municipal policies or practices that aren't in code
  - Certain issues best addressed through education/outreach

## What is a Rain Garden?



Vietnam Memorial Park - Cohoes

Rain gardens are where form meets function and the gutter meets the ground. Simply put, rain gardens are gardens that are specifically designed to soak up rain water, mainly from roofs, but also from driveways and patios. Rain gardens may look like regular flower gardens, but they are actually much more. When it rains, a rain garden fills with a few inches of water that then slowly filters into the ground rather than running off to the storm drains. Compared to a patch of lawn, rain gardens allow about 30% more water to soak into the ground. They also add beauty to neighborhoods and provide wildlife habitat.

# Nyack and Orangetown

- Hudson River Watershed Alliance
- Grant from Hudson River Estuary Program (in cooperation with NEIWPC)
- Barbara Kendall, then Marcy Denker coordinating project



Pervious Pavement at Lamont-Doherty, Orangetown



# Green Infrastructure Planning: Nyack

- Formed green infrastructure committee in 2011
- Concerned about water quality, flooding, and new development in dense village
- Code review roundtable with village officials, board members, staff, residents (2012-2013; faster than Dutchess roundtables)
- Didn't use scoring – seemed to work better for rural/suburban community



Nyack Brook, Village of Nyack

# Green Infrastructure Planning: Nyack

- Identified tasks for Village Planner, an expanded Green Infrastructure Committee, a new Tree Commission, and the Village Board for phased code changes
  - Ranged from mapping stormwater infrastructure to street tree management plan
- Developed new Sustainability chapter in code



Nyack Brook entering the Hudson River,  
Village of Nyack

# Green Infrastructure Planning: Orangetown

- Code review without roundtable – limited opportunities for discussion
- Less than 6 month timeframe
- Worked with town staff on first draft, then feedback from local environmental groups
- Used adapted scorecards from Albany County, EPA, Nyack without scores
- Focused on regulation – code revisions
- Found gaps in existing natural resource protection

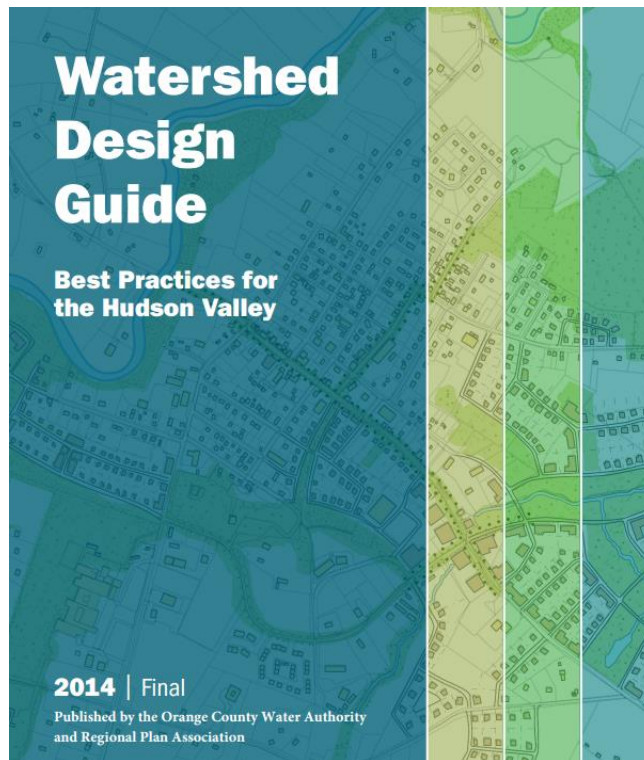


Rain barrel at Orangetown Highway Department



# Green Infrastructure Planning: Orangetown

- Feedback from a professional planner not affiliated with the town
  - Value of developing design guidelines
  - Provide guidance for planning boards and applicants in the short term
  - Could evolve to standard practice or codes
- Orange County Water Authority Watershed Design Guide could be useful reference



# Summary of Code/Ordinance Projects

- Motivation: water quality, compliance with MS4 regs, flooding
- Examples of projects and laws in rural/suburban towns, villages, & cities
- Value to scorecards/worksheets, roundtable process, design standards
- Even if code was recently updated, GI focus can help show gaps
- ID opportunities outside of local laws – plans, maps, outreach/education
- List of actions, follow through



Green infrastructure tour – University of Albany green roof (Photo: John Purcell, Bethlehem Spotlight)



# What you can do

- What water quality or natural resource issues matter most to your community?
- What are the regulations or standards in your code that relate to stormwater?
- Review codes/ordinances/policies
- Educate yourself and others on green infrastructure and its benefits
- Set a good example with municipal property/policies
- Use green infrastructure guide to facilitate stormwater review



Rain garden at Newburgh Town Hall

# Resources

- Code review worksheets & case studies
- Hudson River Estuary Program Guide to Creating a Natural Resources Inventory
  - Appendix H: Checklist for assessing sites
- Pace Green Infrastructure Guide for CACs
- Orange County Watershed Design Guide
- EPA Enhancing Sustainable Communities with Green Infrastructure
- NRDC The Green Edge: How Commercial Property Investment in Green Infrastructure Creates Value

## Creating a Natural Resources Inventory

A Guide for Communities in the Hudson River Estuary Watershed



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- **Marcy Denker**, Hudson River Watershed Alliance
  - Nyack and Orangetown projects



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