Sussex County Green Infrastructure Seminar Series
Seminar 3

Monday, November 8, 2010
6:30 – 8:30PM
Sussex County Administrative Center

Green Infrastructure: Projects & Programs for Green Teams & Environmental Commissions

Rutgers Cooperative Extension Water Resources Program

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water.rutgers.edu
Goals & Objectives

GOAL

Help communities become sustainable.

OBJECTIVES

Provide attendees with good examples of projects and programs they can implement.

Help attendees understand the opportunities to partner with RCE to implement projects and programs.
What is Sustainability?

“What is Sustainability? Design, construction, operations, and maintenance practices that meet the needs of the present without compromising the ability of future generations to meet their own needs.”

- Brundtland Report, Our Common Future (1987)
Taking Steps Toward a Sustainable Future

1. Form a municipal Green Team
2. Develop and distribute educational materials
3. Implement educational and training programs within the community
4. Change the behavior of residents, officials, municipal employees, and contractors while implementing best management practices
5. Reduce energy and resource consumption
6. Reduce nutrients and sediment in stormwater runoff and conserve water
7. Better develop our lands and become stewards of our environment
8. Provide hands-on experiences for citizens in taking the first steps towards building a sustainable community
<table>
<thead>
<tr>
<th>Community Partnership &amp; Outreach</th>
<th>Funding</th>
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<td>Community Education and Outreach</td>
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<td>Education for Sustainability Programs</td>
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<td>Green Challenges &amp; Community Programs</td>
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<td>Green Fairs (Subactions)</td>
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<td>Lead Education and Outreach Programs</td>
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<td>Lead-Safe Training Programs</td>
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<td>Cumulative Risk Assessment</td>
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<td>High Efficiency Municipal Buildings</td>
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Sustainable Jersey Actions
Earm up to 10 points
<table>
<thead>
<tr>
<th>Sustainable Jersey Actions</th>
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<tr>
<td><strong>Greenhouse Gas</strong></td>
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<td>Municipal Carbon Footprint</td>
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<td>Community Carbon Footprint</td>
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<td>Climate Action Plan</td>
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<td>Wind Ordinance</td>
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<td><strong>Green Design</strong></td>
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<td>Green Building Policy/Resolution</td>
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<td>Green Building Training</td>
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<td>Green Design Commercial and Residential Buildings</td>
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<td>Green Design Municipal Buildings</td>
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<td><strong>Health and Wellness</strong></td>
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<td>Building Healthier Communities</td>
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<td>Anti-Idling Education &amp; Enforcement Program</td>
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<td>Safe Routes to School</td>
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<td><strong>Land use &amp; Transportation</strong></td>
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<td>Sustainable Land Use Pledge</td>
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<td>Sustainability Master Plan Revision</td>
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<td>Complete Streets Program</td>
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<td>Municipal Planning and Zoning Self-Assessment</td>
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<td><strong>Local Economies</strong></td>
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<td>Buy Local Programs Subactions</td>
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<td>Green Business Recognition Program</td>
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<td>Green Jobs/Economic Development</td>
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### Sustainable Jersey Actions

**Earn up to 10 points**

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<td>Environmental Commission</td>
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<td>Caring for Conservation Easements</td>
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<td>Natural Resource Inventory</td>
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<td>Natural Resource Protection Ordinances</td>
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<td>Tree &amp; Woodlands Management</td>
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### Food Subactions

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<td>Food Production Subactions</td>
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<td>Planning for Local Food Production Subactions</td>
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<td>Farmland Preservation Subactions</td>
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### Operations & Maintenance Subactions

| Green Purchasing Program Subactions                    | Click to View |
| Grounds & Maintenance Subactions                       | Click to View |
| Green Fleets Subactions                                | Click to View |
| Adopt Behavioral Policies Subactions                   |               |

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**Sustainable Jersey Certified**

**Rutgers University - New Jersey Agricultural Experiment Station**

*Water Resources Program*
## Sustainable Jersey Actions

**Sustainability Planning**

<table>
<thead>
<tr>
<th>Activity</th>
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<td>Community Visioning</td>
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<td>Sustainable Community Plan</td>
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**Waste Management**

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<td>Waste Reduction</td>
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**Innovative Demonstration Projects**

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<td>Green Roofs</td>
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<td>Raingardens</td>
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**Animals in the Community**

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<td>Pledge Supporting NJ Wildlife Action Plan</td>
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<td>Wildlife Interaction Plan</td>
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<td>Animals in the Community Education</td>
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**Arts/Culture/Historic Preservation**

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<td>Historic Preservation Plan</td>
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Earn up to 10 points.
The Water Resources Program is currently working with municipalities throughout New Jersey to implement programs that encompass these actions.
Community Rain Barrel Programs

One Barrel at a Time Co-op Program
One Barrel At a Time Co-op Program

• Aesthetic appeal, accessible to general public

• Highlights work of 35 local artists from communities all across NJ

• Earth Day – all barrels available for bid on eBay®

Painted rain barrels on display at East Greenwich Township Building.
One Barrel At a Time Co-op Program

1. Create a contract between sponsoring organization and artist
2. Each artist submits design
3. Artist agrees to have completed barrel on display at local venues with informational brochures
4. Profit from auction is remitted to the artist

Painted rain barrels on display at United States Environmental Protection Agency Region 2 headquarters in NYC.
“Name Your Own Rebate”

- Rahway Water Savings
- Reverse auction method
- Homeowners given opportunity to request rebate award at the dollar increment needed to purchase various water-saving products
Turf Management for a Healthier Lawn

- Problem: soil stripping
- Solution: 2 demonstration sites
  - 2-month long process of killing invading weeds
  - Install 55 yards of compost
  - Prepare soils
  - Hydro-seeding
- 1 demo site will feature Smart Irrigation System that accounts for soil moisture and atmospheric conditions when scheduling and applying water
Build-Your-Own Rain Barrel Workshop

- Post flyers and distribute handouts
- $45 Registration includes 30 minute training, guidance, and all materials to retrofit rain barrels
Build-Your-Own Rain Barrel Workshop
Holmdel, NJ (June 6, 2010)
Build-Your-Own Rain Barrel Workshop
New Brunswick, NJ (September 14, 2010)
Build-Your-Own Rain Barrel Workshop
Burlington County, NJ (July 30, 2009)
Build-Your-Own Rain Barrel Workshop
Union County, NJ (August 13, 2009)
Build-Your-Own Rain Barrel Workshop
Middlesex County, NJ (July 28, 2009)
Build-Your-Own Rain Barrel Workshop
Middlesex County, NJ (July 28, 2009)
Peters Brook Neighborhood Program

- Somerset, NJ (Somerset County)
- Summer 2010
- Part of an initiative to reduce stormwater runoff and conserve water in the Peters Brook watershed
- Series of 4 rain barrel workshops
- Grant subsidized – lower cost at $20 per barrel
Peters Brook Neighborhood Program

- Preliminary survey results:
  - 94.1% installation rate (statewide 67% installation rate)
  - many participants already purchased or planning to purchase a 2\textsuperscript{nd} or 3\textsuperscript{rd} rain barrel
RAIN GARDENS & STORMWATER BMPs

INNOVATIVE DEMONSTRATION PROJECTS
STORMWATER MANAGEMENT IN YOUR BACKYARD

EDUCATIONAL
1. Biotechnology High School (Freehold, NJ)
2. Hurffville Elementary School (Sewell, NJ)
3. Village School (Holmdel, NJ)

RELIGIOUS
1. Holy Nativity Lutheran Church (Wenonah, NJ)

MUNICIPAL
1. Springfield Township (Union County)
2. Belmar Township (Monmouth County)
3. Clawson Park (Ringoes, NJ)
4. Leonard Park (Rockaway, NJ)
5. Parsippany Troy Hills Municipal Building (Morris County)
Biotechnology High School

- Freehold, NJ (Monmouth County)
- August 2009
- Student initiative
- Rain garden certification class project
Installation
Installation
Completed
Hurffville Elementary School

- Sewell, NJ (Gloucester County)
- October 2009
- PTO Funds
- Manages stormwater runoff from the sidewalk and a portion of one of the school’s parking lots
- Student planting (Grades 1-5)
Hurffville Elementary School

BEFORE

AFTER
Hurffville Elementary School

BEFORE

AFTER

Rutgers
New Jersey Agricultural Experiment Station
Installation
Village School

- Holmdel, NJ (Monmouth County)
- September 2010
- Holmdel Township Environmental Commission
- Holmdel Board of Education
- Monmouth County
Village School

BEFORE

AFTER
Village School
Village School

BEFORE

AFTER
Village School

BEFORE

AFTER
Planting Plan
Indoor Learning

EnviroScape® Watershed Model
Indoor Learning
Student Planting

Spring Rain Garden
Student Planting

Fall Rain Garden

Spring Rain Garden
Student Planting

Winter Rain Garden

Summer Rain Garden
Completed

Summer Rain Garden

Spring Rain Garden
Student Evaluations
Rain gardens pull bad water in and let clean water out.

What causes water pollution:
1. People litter.
2. Oil spills out of cars.
3. People put too much fertilizer on their yards. The farmer puts too much herbicide on his crops. All of this key then washes into the lake.

Before: Litter **=** Herbicide **=** Fertilizer **=**

After: **muck**
Holy Nativity Lutheran Church

- Wenonah, NJ (Gloucester County)
- Summer 2008
- Master gardener and retiree
- Church involvement
Holy Nativity Lutheran Church
Completed
Completed
2 Years After Installation
Springfield Township Municipal Annex Building

- Springfield, NJ (Union County)
- May 2007
- RCE of Union County
- Springfield Environmental Commission
- Springfield Public Works Department
Installation
Installation
Completed
Completed
Silver Lake Rain Garden

- Belmar, NJ (Monmouth County)
- Fall 2009
- Belmar Borough Environmental Commission
- Monmouth County and RCE Master Gardeners
- Divert runoff from the road going into storm sewer leading into Silver Lake
Installation
Completed
Clawson Park

- Ringoes, NJ (Hunterdon County)
- Bioretention basin
- Clawson Park Project Coordinator
- 3 hour classroom training with demonstration project
Clawson Park

Existing Conditions
Installation
Installation
Completed
Leonard Park

- Boonton, NJ (Morris County)
- Rockaway Valley Garden Club
- Town donations
- Landscape supplier donations
Installation
Installation
Completed
Completed
Parsippany-Troy Hills Town Hall

EXISTING
Training
Installation
Installation
Installation
Completed
INNOVATIVE DEMONSTRATION PROJECTS

OTHER OPPORTUNITIES
Irrigation Efficiency

• Belmar, NJ
• According to USEPA – nationwide, landscape irrigation is estimated to account for 1/3 of all residential water use
• 50% of water is wasted
• 2009 – NJ Water Savers and Middletown Sprinkler Company conducted irrigation audit of the Magical Garden in Belmar
• Study showed water savings of 58%
Irrigation Efficiency
Rainwater Harvesting

• East Greenwich Township Board of Education
• Samuel Mickle School
• Middletown Sprinkler Company
• Spring Irrigation Company
• Two 500 gallon rainwater-harvesting tanks and irrigation system installed
Rainwater Harvesting

Samuel Mickle School Rainwater Harvesting System
Rainwater Harvesting

Project WILD site at Samuel J. Mickle School in East Greenwich Township, NJ.
Rainwater Harvesting

Newly installed sprinkler head at the Project WILD site at Samuel J. Mickle School.

Newly installed control system at the Samuel J. Mickle School.
Smart Irrigation Controllers

• Thompson Soccer Field in East Greenwich Township

• Smart Irrigation Controllers use sensors and weather information to manage watering times and frequency

• 15-30% estimated water savings
Detention Basin Retrofit Program
Hillsborough Detention Basin Retrofit Program
Somerset County, NJ

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<tr>
<th>SHEET</th>
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<td>Francis and Updike Street</td>
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<td>S-3</td>
<td>Wescott Road</td>
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<td>S-4</td>
<td>Valis and Prall Road (Alternative Landscaping Plan)</td>
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<td>Francis and Updike Street (Alternative Landscaping Plan)</td>
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<td>S-6</td>
<td>Wescott Road (Alternative Landscaping Plan)</td>
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APRIL 30, 2009

Rutgers
New Jersey Agricultural Experiment Station
Detention Basin Retrofit Program

Prall Road Detention Basin Retrofit
Township of Hillsborough, NJ

PROPOSED PLANTS SPECIES + QUANTITIES
Herbaceous plantings 4' on center:
- BIG BLUESTEM - 110 plugs
- INDIAN GRASS - 130 plugs
- LITTLE BLUESTEM - 125 plugs
- SWITCHGRASS - 130 plugs
Herbaceous plantings 3' on center:
- FOX SEDGE - 80 plugs
- SOFT RUSH - 45 plugs
620 PLANTS TOTAL
Always remember…

1. Sustainability is more than getting 150 points
2. People often want to take action, but need guidance
3. Don’t be afraid to ask for help
4. Sustainability doesn’t have to be expensive
5. Rutgers Cooperative Extension is a resource for you and your community
## CONTACTS

<table>
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<tr>
<th>PROGRAM</th>
<th>CONTACT</th>
<th>PHONE</th>
<th>EMAIL</th>
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<tbody>
<tr>
<td>WATER CONSERVATION</td>
<td>Elaine Rossi</td>
<td>732-932-9800 ext. 6129</td>
<td><a href="mailto:erossi@aesop.rutgers.edu">erossi@aesop.rutgers.edu</a></td>
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<tr>
<td>RAIN GARDEN PROGRAMS</td>
<td>Amy Boyajian</td>
<td>732-932-9800 ext. 6164</td>
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<td>RAIN BARREL PROGRAMS</td>
<td>Sara Mellor</td>
<td>732-932-9800 ext. 6163</td>
<td><a href="mailto:saramellor@envsci.rutgers.edu">saramellor@envsci.rutgers.edu</a></td>
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[www.water.rutgers.edu](http://www.water.rutgers.edu)
GRANT FUNDING OPPORTUNITIES

• Sustainable Jersey – Small Grants Program
  – http://www.sustainablejersey.com/resources.php

• ANJEC – Smart Growth Planning Grants
  – http://www.anjec.org/index.htm

• NJ Watershed Institute

• NJ American Water – Environmental Grant Program

• Johnson & Johnson grants:
  – http://thesah.org/template/page.cfm?page_id=15
GRANT FUNDING OPPORTUNITIES

• Home Depot Building Healthy Communities Grant

• Lowe’s Charitable and Educational Foundation

• NJ Dept of Health and Senior Services Healthy Community Development Mini-Grant
  – [http://www.state.nj.us/health/fhs/shapingnj/grantopportunities.shtml](http://www.state.nj.us/health/fhs/shapingnj/grantopportunities.shtml)

• The Big Help Grant Program: "Million Dollars for a Million Moves" – Projects for Schools & Children
  – [http://pro-social.nick.com/grant-application/](http://pro-social.nick.com/grant-application/)
QUESTIONS?

Rutgers Cooperative Extension Water Resources Program

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Upcoming Seminars

Green Infrastructure Planning, Design & Implementation: Training for Design Professionals
Tuesday, November 30, 2010
1:00-3:00PM
Sussex County Administrative Center

Spring Seminars
Details and schedule to come. Topics to include:

1. Streamside living and open space management
2. Green alternatives and opportunities for homeowners
3. Green alternatives and opportunities for commerce/business/industry
4. Build-Your-Own Rain Barrel Workshop
5. Rain garden training and certification

Visit www.water.rutgers.edu to register for each seminar.