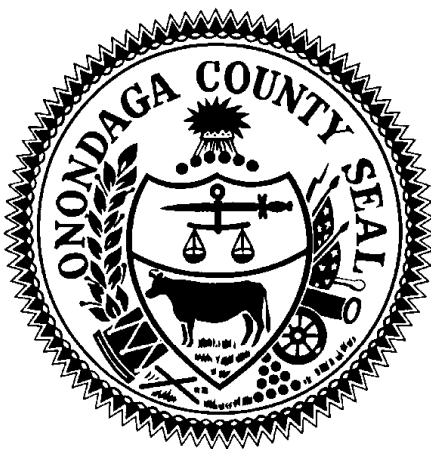


Save the Rain Program Overview

Joanne M. Mahoney, County Executive



Onondaga Lake
Amended Consent Judgment
Compliance Program,
November 2010

Save the Rain

- 1988 – Atlantic States Legal Foundation files lawsuit against County
- 1989 – Litigation settled through METRO consent judgment
- 1998 – METRO consent judgment replaced with Amended Consent Judgment (ACJ)
- 1st ACJ amendment May 1998
- 2006 ACJ Amended to include consolidation of ammonia and phosphorus treatment and Harbor Brook conveyances and RTF
- 3rd Amendment April 2008 (Extension)
- 2009 ACJ amended to authorize use of Gray and Green infrastructure

History

Onondaga Lake Facts

Watershed – 285 Square Miles

One Mile Wide – 4.6 Miles Long

Average Depth – 35 feet

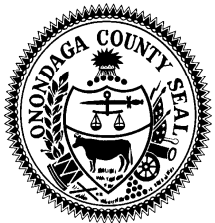
Max Depth – 63 feet

1940 – Swimming Banned

1970 – Fishing Banned

Metropolitan Syracuse Wastewater Treatment Plant

ACJ Related Improvements



Metropolitan Syracuse Treatment Plant

- Largest Biological Aerated Filter Process in US
- First large scale ballasted flocculation process for phosphorus removal in North East
- Project modified to two phases to save time and money; built on Brownfield site
- Meeting All Permit Requirements
- Upgrades Cost - \$170,000,000



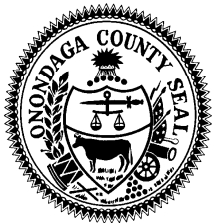
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Exterior of New Operations Building

Combined Sewer Overflow Abatement

ACJ Compliance 1998-2008



CSO Abatement Accomplishments

- Developed and Verified System Model (SWMM)
- Separated and closed 12 CSO's
- Constructed 4 Floatables Control Facilities
(HB, Franklin, Teall, Maltbie)
- Completed 2 Regional Treatment Facilities
(Midland, Hiawatha)
- Completed 1 storage facility (Erie Blvd)
- Completed Clinton Conveyances

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Midland Ave RTF

CSO
Storage,
Treatment
and
Conveyance
Project

Midland Avenue Regional Treatment Facility (RTF)

- Storage, Swirl Concentrators and Disinfection to capture one year design storm
- Cost: \$79.1 mm – Grants \$ 54.4 mm, Loans \$ 24.7 mm
- Opposed by Many Stakeholders & Local Officials
- Significant community disruption during construction
- Conveyances connect 60% of Midland Sewershed
- Will be Evaluated for Efficiency and Optimization

Midland Performance (2009 -10)



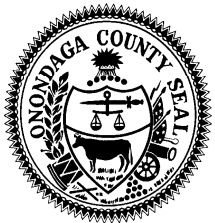
Flow to Facility	228.8 MG
Treated/Creek Discharge	123.2 MG
METRO Treatment	99.6 MG
Bypassed	6 MG

Fourth Stipulation to the ACJ

- Agreed to by all parties (State, ASLF, County)
- Authorized use of Gray and Green infrastructure
- Requires Storage Facilities in place of RTFs
- Includes time extension for Construction and Metro phosphorus effluent limit
- Balanced program provides additional water quality and community benefits

Save The Rain

4th Stipulation to Amended Consent Judgment
2009



Advantages of Revised Program

- Balanced approach: Gray & Green
- Improved water quality for tributaries and lake
- Gray:
 - Fixed capture benefit
 - Depreciates over time
- Green:
 - Appreciates over time
 - Ancillary environmental and community benefits
- Onondaga County at the forefront of GI Movement

Cities To Watch:

- | | | |
|--------------------|-----------------------|-----------------|
| • Philadelphia, PA | • Syracuse, NY | • Milwaukee, WI |
| • Portland, OR | • New York, NY | • Chicago, IL |
| • Cincinnati, OH | • Kansas City, MO | |

Green Infrastructure Technologies

Impervious Area Type	Green Infrastructure Technologies
Flat Roof Buildings	Vegetated Roof
Parking Areas & Sidewalks	Porous Pavements, Bioretention
Roadways	Green Streets (Bioretention, Street Trees)
Residential Rooftops	Downspout Disconnection
	Rain Barrels & Cisterns
	Rain Gardens
County Facilities & Schools	Combination of the Above Technologies

Green Infrastructure Program Summary

- 6.3% annual CSO volume capture
- 250 million gallons
- Compliments Gray Program
- Total Gray/Green volume capture:
 - 85.2% by 2013
 - 91.4% by 2015
 - 93.0% by 2016
 - 95.0% by 2018
- Extensive monitoring & reporting required



Green Street Concept Drawing
Edmonston, MD – Completed 2009

Green Projects Completed/Underway

1. Parking Lot #21 (former “Farmer’s Market Lot”)
2. Pearl Street Parking Lot
3. Parking Lot #3
4. Creekwalk (Jefferson St. to Fayette St)
5. Rosamond Gifford Zoo - Primate Exhibit and Courtyard
6. Rosamond Gifford Zoo - Elephant Building and Grounds
7. Townsend Parking Lot B
8. Townsend Median Reconstruction
9. Hazard Branch Library Green Roof
10. Urban Forestry Grant / Tree Planting Projects
11. Rain Barrel Program Installations
12. Green Improvement Fund Projects
(20+ applications to date):
 1. Jefferson Clinton Commons
 2. Dunbar Associates
 3. King & King Architects
 4. St. Lucy’s Church
 5. Lincoln Supply
 - ...and more...

Commercial Green Street,
Harrison Street (OnCenter)



Parking Lot #21 (Formerly "Farmer's Market Lot")



Before

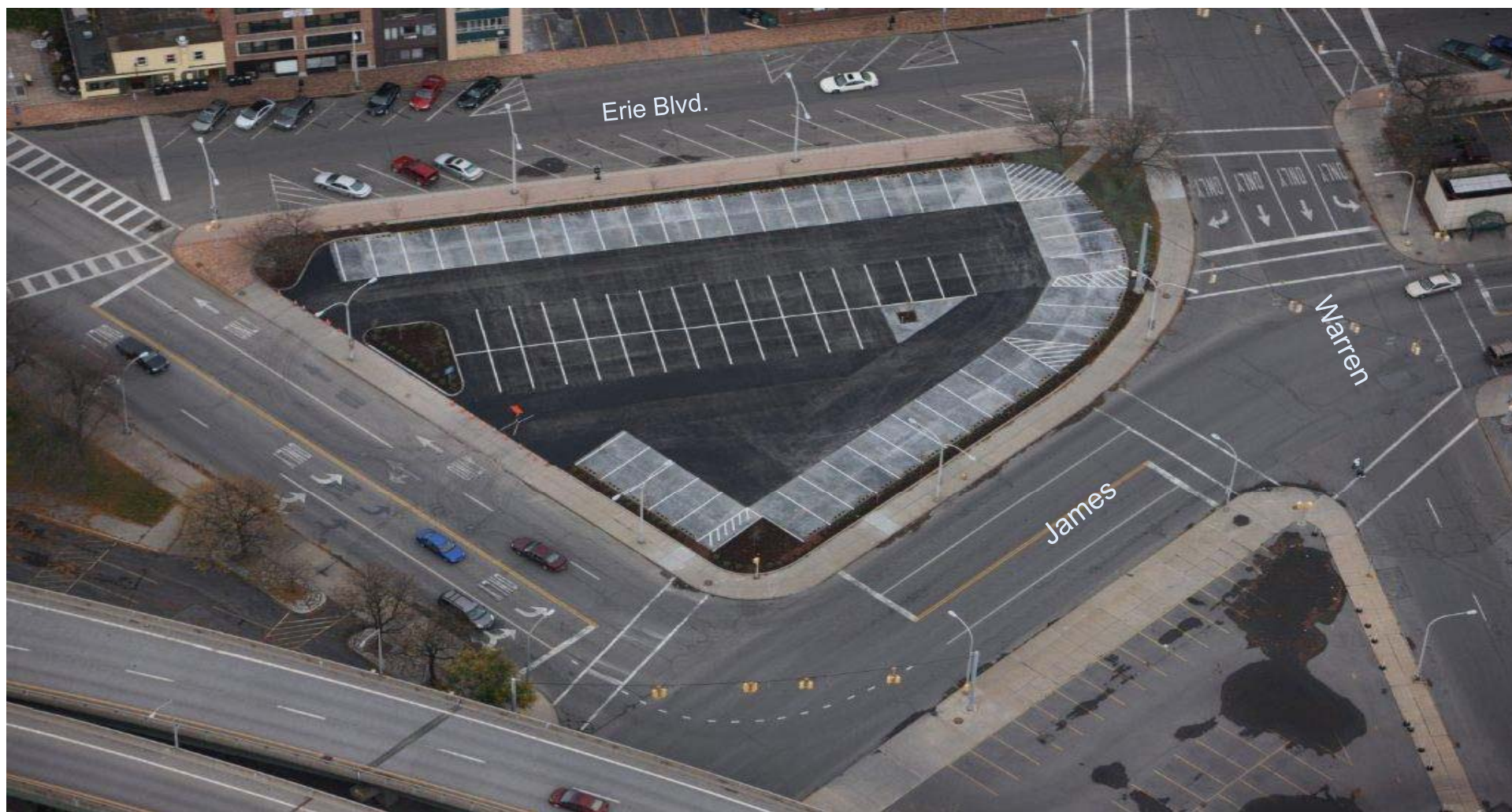
After



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Pearl Street Parking Lot



Parking Lot #3

Green infrastructure project at the Rosamond Gifford Zoo Primate Exhibit and Courtyard



Rain Barrels
and Cisterns
to harvest
runoff from
rooftops

Porous Pavement
in Courtyard

Rain Garden along
Primate Exhibit

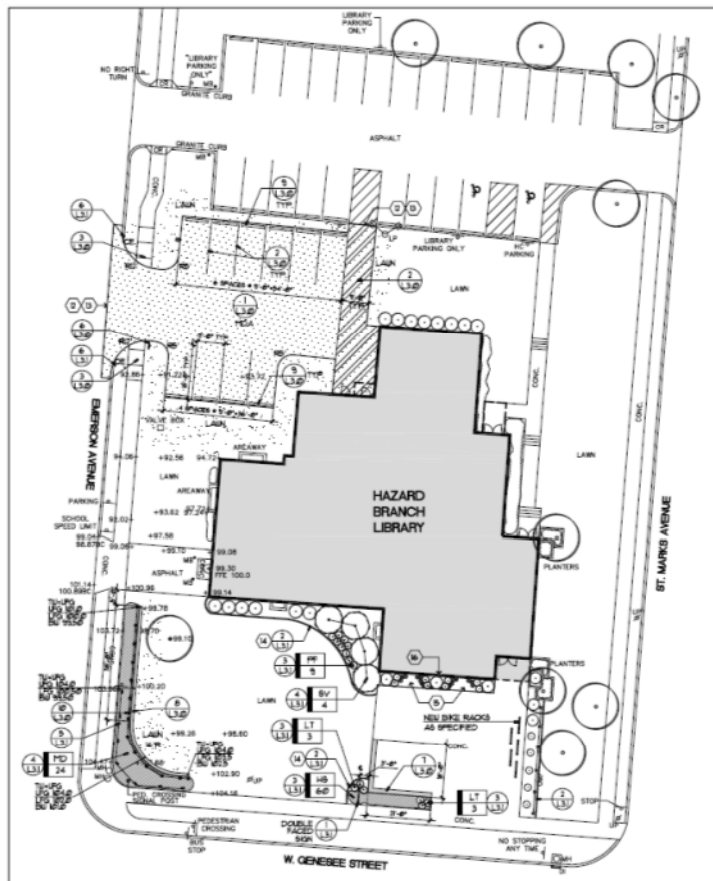
Green infrastructure project at the Rosamond Gifford Zoo Elephant Exhibit, 2011

6,000 sq.ft.
Green Roof

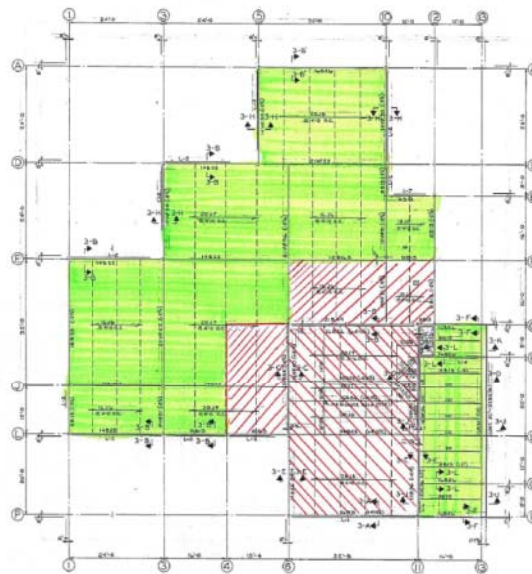
Enhanced
Stormwater
Management



Green Roof at Hazard Branch Library: Roof Membrane 2010; Green Planting, Spring 2011



LAYOUT PLAN



Green Roof at
SUNY ESF

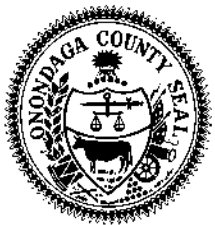


Rain Barrel Program for residences in the CSO 004 Sewershed; Grant Funded (Green Innovations Grant Program)



The Future

Project Planning for 2011 – 2018



Gray/Green Project Schedule



Completion	Project
12/31/2011	Harbor Brook Interceptor
12/31/2011	Midland CSO 044
12/31/2013	Clinton Storage
12/31/2013	Harbor Brook Storage
12/31/2018	Sewer Separation



2011 – Complete 50 Green Projects:
 Green Roof @ OnCenter
 Wetland Pilot @ Harbor Brook
 War Memorial Water Reuse
 Green Streets
 Green Improvement Fund
 2018 – Achieve Compliance with ACJ

Green Infrastructure 2011 Signature Projects

OnCenter Convention Center Green Roof



Green Infrastructure 2011 Signature Projects

Treatment Wetland and Restoration Project



CSO 018

CSO 018
Constructed
Wetland

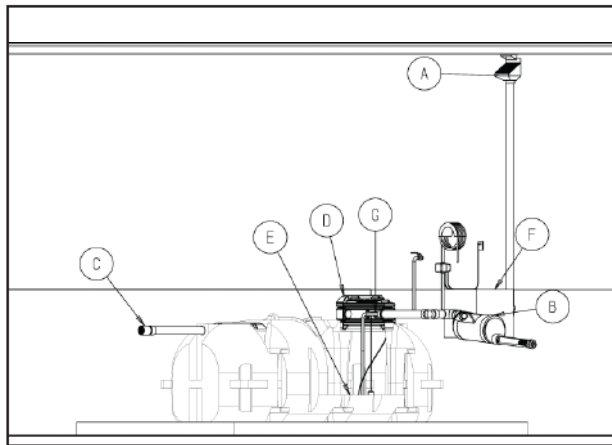
Harbor Brook

Green Infrastructure 2011

Signature Projects

Water Reuse at OnCenter War Memorial

Below Ground Cistern Tank Collection System



(Note how overflow is directed away from and downhill from the tank excavation and housing structure and must drain at the surface).

(Follow underground cistern installation instructions carefully which are included with each tank.)

The Complete System package detailing a 1200 gallon underground cistern (PN10010--).

- A. Leaf Eater (RCLE3).
- B. First Flush In-Ground Diverter (RCID12).
- C. 4" Overflow (RCOF4).
- D. 12" Riser.
- E. Submersible Pump (RCSUBPUMP) with controls (RCCONTROL).
- F. Filter Pit (optional) (RCFP).
- G. 3 Cord Seal (RC3CS).

Snyder Industries has the solution for your rain harvesting needs. Snyder is a leading manufacturer of exceptionally performing polyethylene water tanks and offers a full line of rain harvesting systems and components.

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County Facilities

Greening the Civic Strip Utilizing Multiple Green Infrastructure Technologies

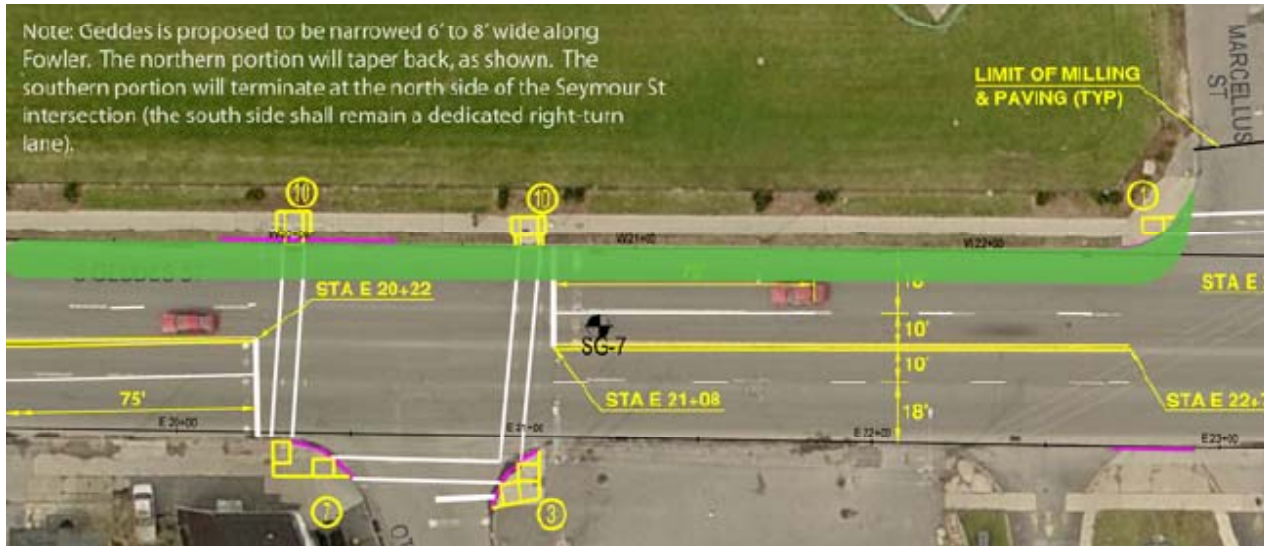


Location	Green Technology	Impervious Drainage Area (SF)	Estimated CSO Volume Reduction
Court House	Vegetated Roof	20,100	290,203
	Bioretention	6,100	88,072
Civic Center	Vegetated Roof	68,600	990,444
War Memorial	Cistern System	20,300	293,090
Convention Center	Vegetated Roof	58,700	847,508
	Pavement Removal/Bioretention	9,650	139,326
	Bioretention	15,100	218,013
Sheriff's Office HQ	Vegetated Roof	15,100	218,013
	Porous Parking Lot	11,550	196,628
Criminal Court House	Vegetated Roof	22,400	323,410
	Porous Parking Lot	30,750	523,491
Public Safety Building	Vegetated Roof	29,000	418,701
Justice Center	Vegetated Roof	53,200	768,099
Steam Station	Vegetated Roof	3,400	49,089
Community Plaza	Bioretention	43,000	620,832
County Parking Lot	Porous Parking Lot	53,940	918,280
Convention Center Parking Lot	Porous Parking Lot	95,950	1,633,462
Convention Center Garage	Downspout Diversion to Bioretention	72,500	1,046,752
	Pavement Removal/Bioretention	6,650	96,012
S. Townsend St. Median	Enhanced Street Trees	20,520	252,988
TOTAL		656,510	9,932,412

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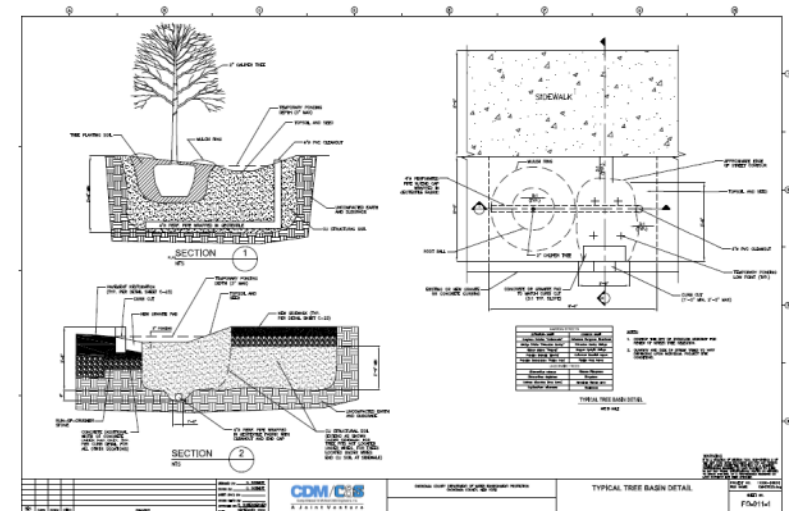


Greening the Geddes Street Corridor



11/18/2010

Enhanced Street Trees



Education & Outreach

Save The Rain





**Save
The Rain
Clean
The Lake**

**Every drop counts.
We can all make a difference.**

Over 38 inches of rain falls in Central New York each year.
Pollution in Onondaga Lake affects our whole community.
A cleaner lake means a cleaner future for us all.

Onondaga County is leading efforts with the development of green infrastructure and environmentally friendly solutions. Reduction of stormwater run-off will help keep Onondaga Lake clean.

Every drops counts. We can all make a difference. And you can help!

Joanne M. Mahoney
County Executive

Save the Rain

 Onondaga County

To find out what your home or business can do to help visit: www.savetherain.us

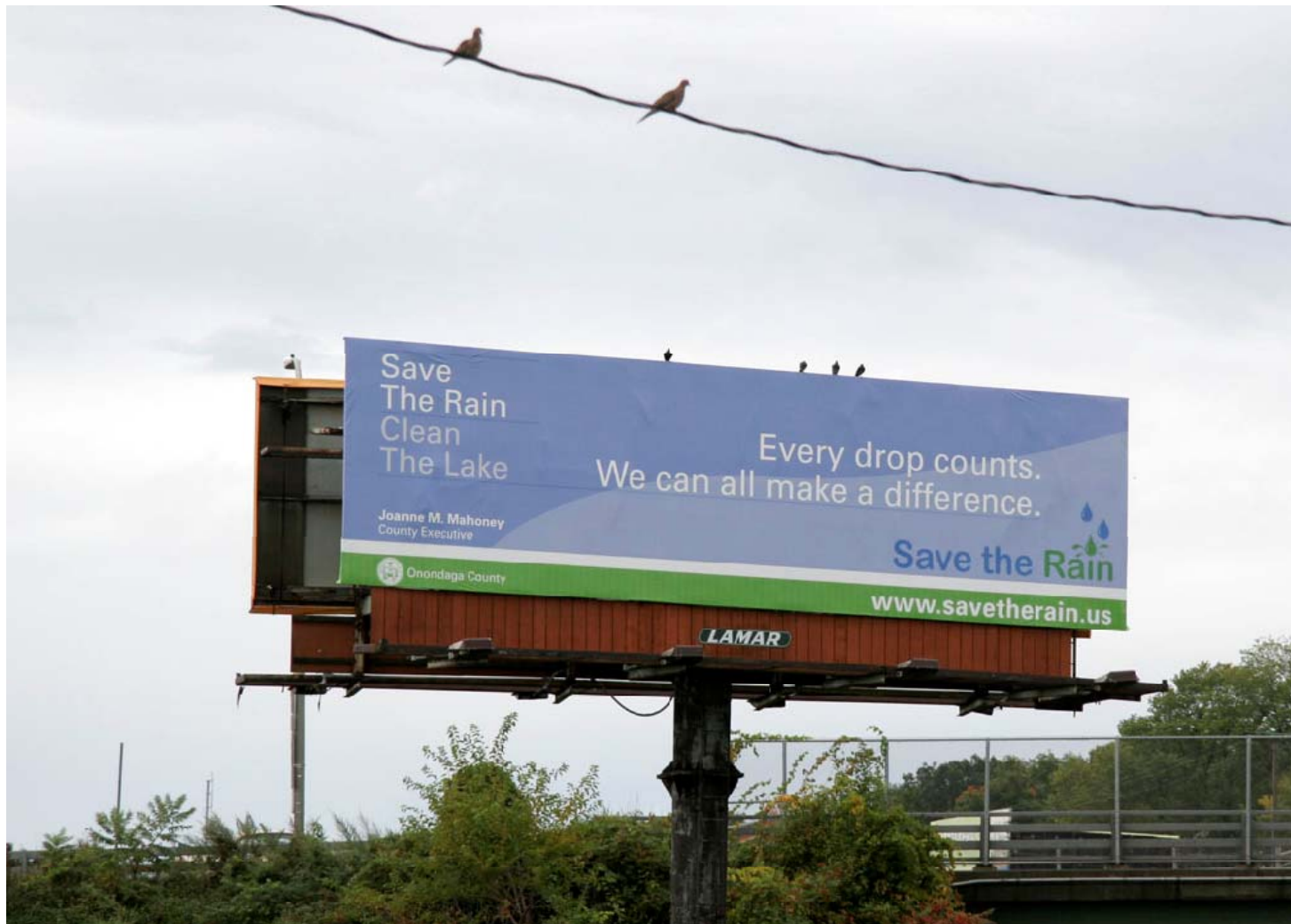
**Save The Rain
New Look**



Education & Outreach Partners:

Environmental Finance
Center
SUNY ESF
Onondaga
Environmental
Institute

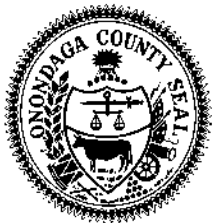
11/18/2010



Thank You!

Questions?

Please Visit:
www.SaveTheRain.us



Save the Rain