

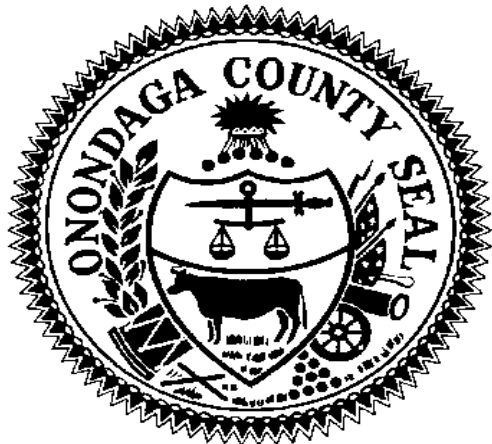
Onondaga County Planning Federation Annual Symposium

Joanne M. Mahoney, County Executive

Onondaga Lake Amended Consent Judgment (ACJ) Compliance Program

March 14, 2013

**Sean Skehan, PG
CH2M HILL**

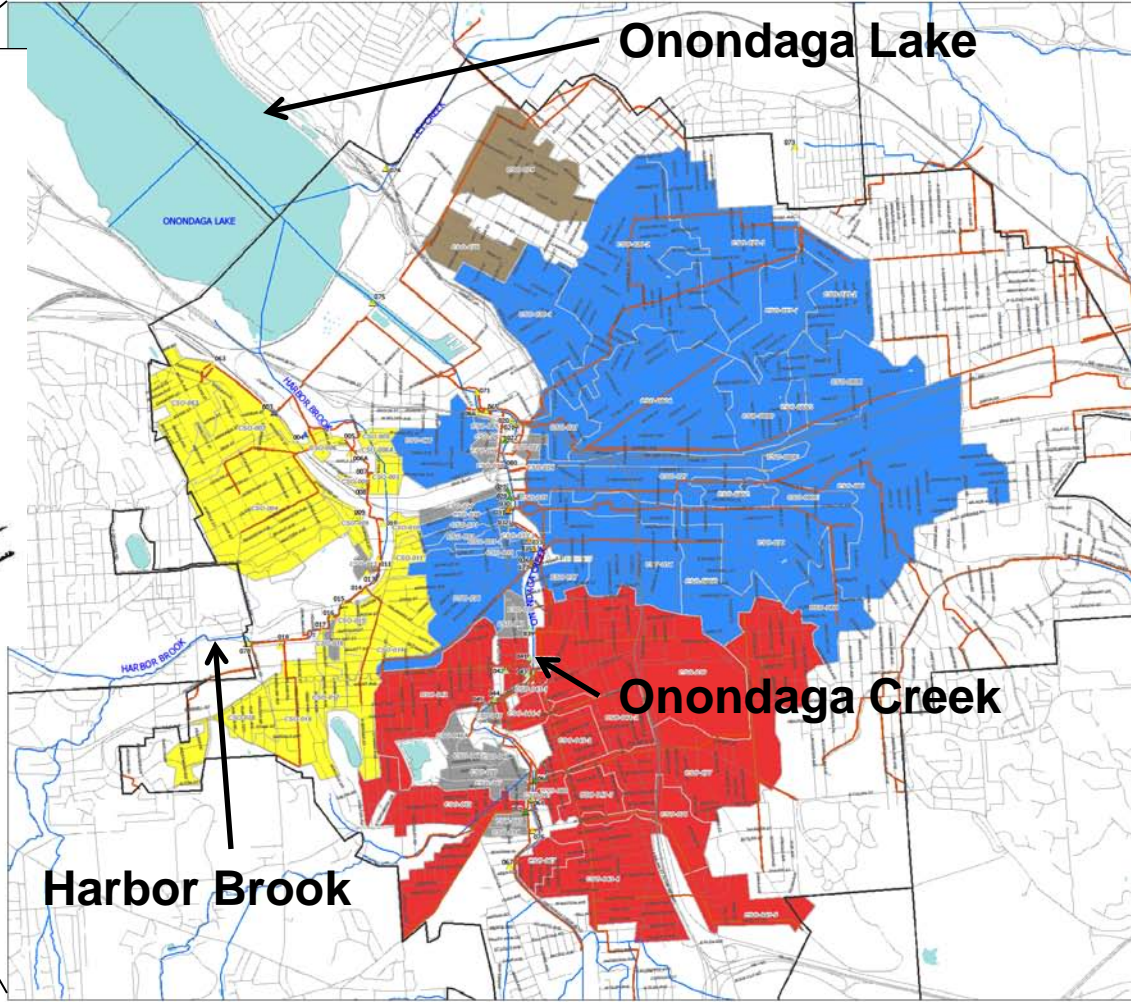
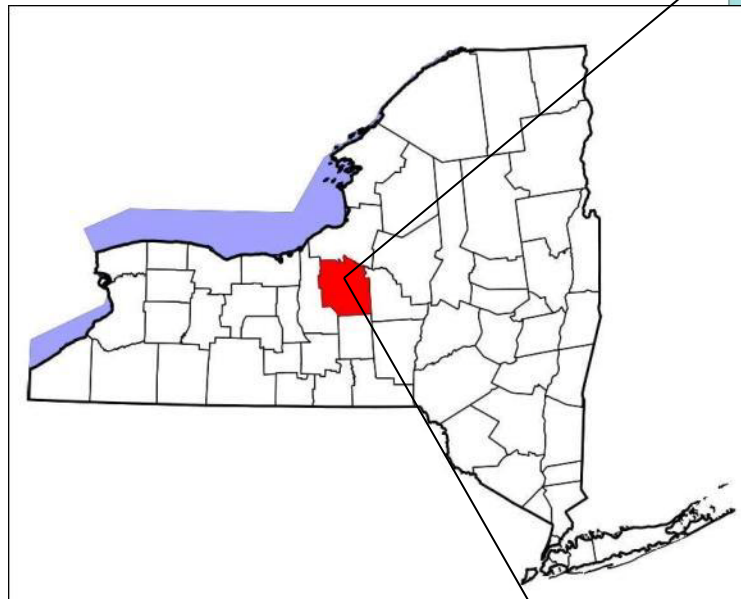


Save the Rain

The logo for "Save the Rain" features the text "Save the Rain" in a blue sans-serif font. To the right of the text is a stylized graphic of a green plant with two blue water droplets above it.

Onondaga County, New York

City of Syracuse



- 7,937 acres
- 49 CSOs
- **Over 500 MGY of CSO**

History

Onondaga Lake Facts

Watershed: 285 Square Miles

1 Mile Wide – 4.6 Miles Long

Average Depth: 35 feet

Max Depth: 63 feet

1940 – Swimming Banned

1970 – Fishing Banned

- 1988 – Atlantic States Legal Foundation files lawsuit against County
- 1989 – Litigation settled through METRO consent judgment
- 1998 – METRO consent judgment replaced with 1st Amended Consent Judgment (ACJ)
- 2006 ACJ Amended to include consolidation of ammonia and phosphorus treatment and Harbor Brook conveyances and RTF
- 3rd Amendment April 2008 – Time Extension (Co. Exec. J. MaHoney elected)
- 2009 ACJ amended (4th) to authorize use of Gray and Green infrastructure

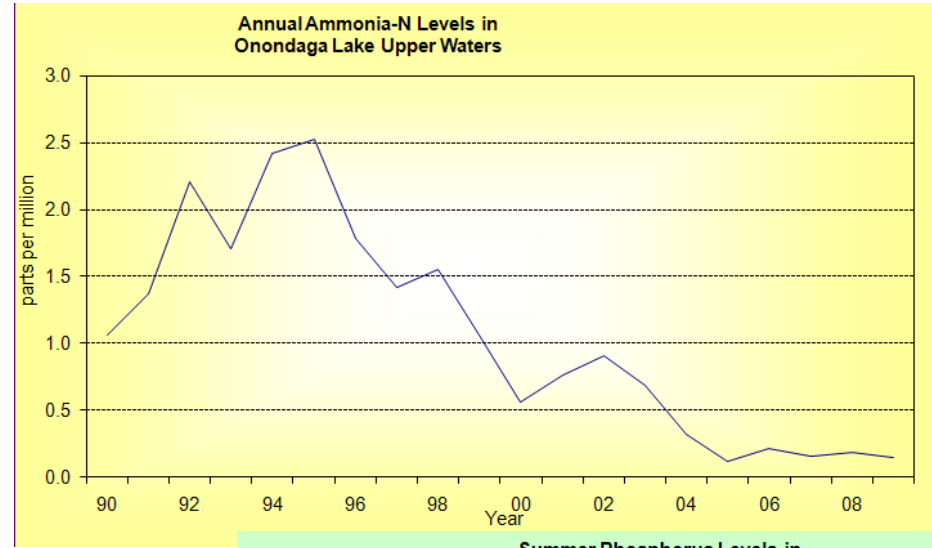
1998-2008 CSO Abatement Accomplishments

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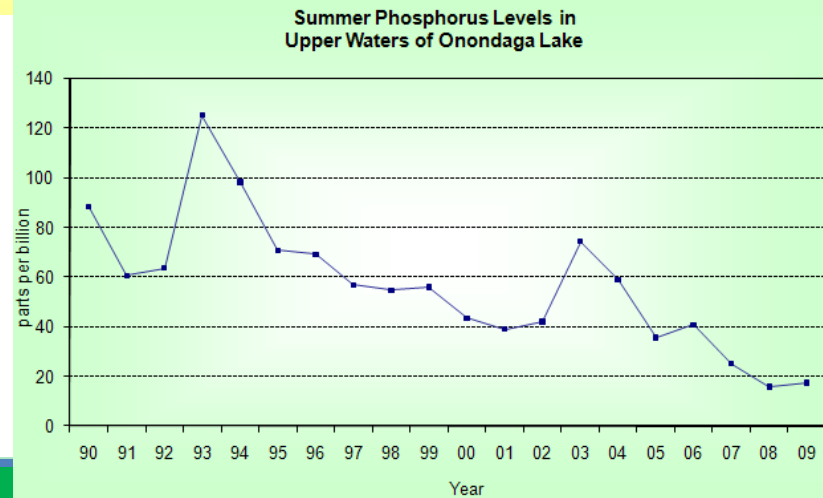
- Developed System Model (SWMM)
- Separated and closed 12 CSO's
- Constructed 4 Floatables Control Facilities (HB, Franklin, Teall, Maltbie)
- Completed 2 Regional Treatment Facilities (Midland, Hiawatha)
- Completed 1 storage facility (Erie Blvd)
- Completed Clinton Conveyances
- At least 35 projects investing over \$350 million

Gray Infrastructure Program Builds on 10 Years of System Improvements



Ammonia decreased from 8,000 pounds per day (ppd) to less than 50 ppd

Phosphorus decreased from 300 ppd to 50 ppd



Fourth Amendment to the ACJ (2009)

- Agreed to by all parties (State, ASLF, County)
- Authorized use of **Gray and Green** technology
- 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
 - Improve quality of life, Promote Sustainability, Ensure cost effectiveness in compliance with ACJ milestones

Gray Infrastructure Program Summary 2009-2013

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Gray Projects

- Harbor Brook Interceptor (ARRA)
- Midland Conveyance (CSO 044)
- Clinton Storage Facility
- Harbor Brook Storage Facility and Conveyances
- Erie Boulevard Storage System (EBSS) Gate Chamber #3 Improvement
- Sewer separation projects

Facilities Planning

- Floatable Controls



County Executive Mahoney Announces "Project 50!"

"Onondaga County will construct fifty distinct green infrastructure projects to return rain water and snow melt to the ground instead of our sewer system."

Joanne M. Mahoney, State of the County Address,
March 1, 2011

Syracuse
recognized as one
of EPA's ten
Green Cities



Paradigm shifts from
planning to construction

Green Infrastructure Program Summary

1/21/11

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- Over 100 projects throughout sewersheds
- Compliments Gray Program
- Total Gray + Green annual volume wet weather capture requirements:
 - 89.5% by Dec 2013
 - 91.4% by 2015
 - 93.0% by 2016
 - 95.0% by Dec 2018
- Extensive monitoring & reporting required
- ~250 MG CSO



Before/After



“Gateway Project” 300 Block of East Water Street,
Completed 2011-12

Green Infrastructure Technologies

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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



Onondaga County Civic Strip

Greening County Facilities Utilizing Multiple Green Infrastructure Technologies

Location	Green Technology	Impervious Drainage Area (sq. ft.)	Estimated CSO Volume Reduction (gallons)
Court House	Bioretention, Enhanced Street Trees	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 Headquarters	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 B	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

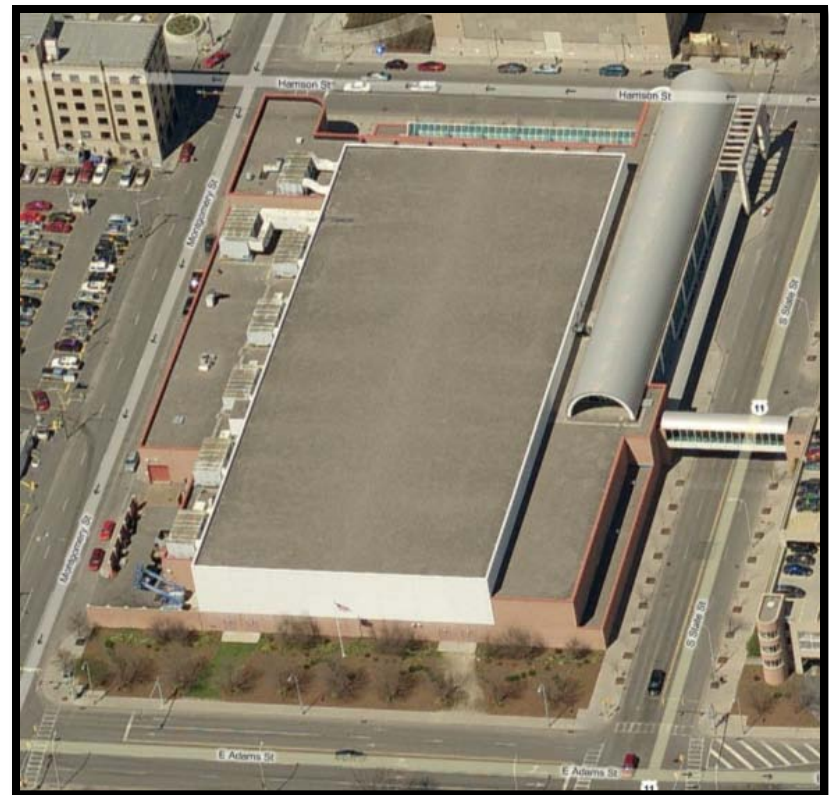
TOTAL 656,510 9,642,210



Onondaga County Civic Strip

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OnCenter Convention Center 66,000 Square Foot Green Roof







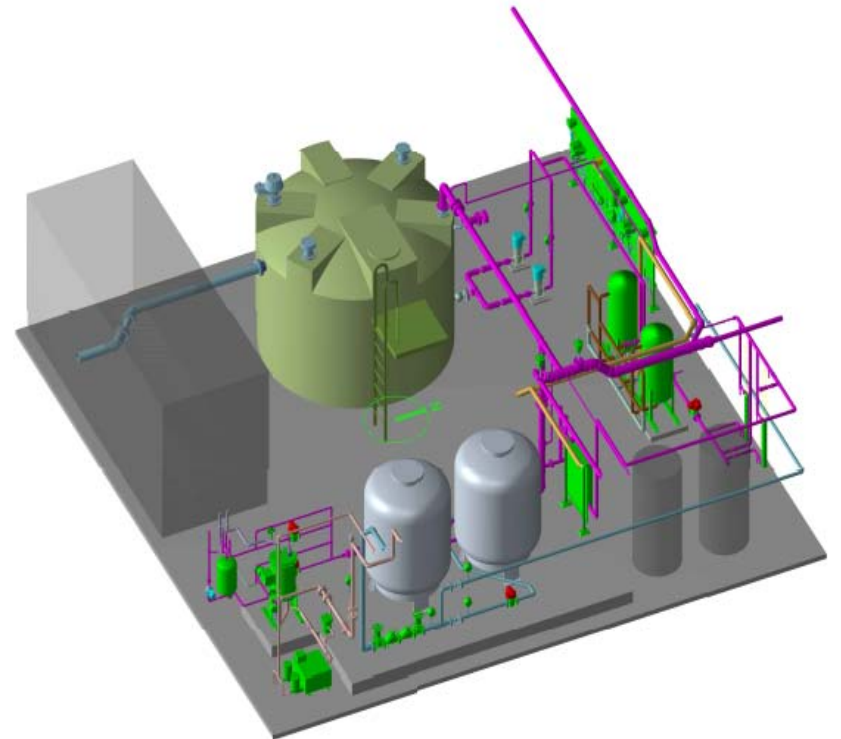




Onondaga County Civic Strip

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War Memorial Cistern Reuse System



War Memorial Cistern Reuse System



Reusing rainwater appears to allow the ice making to occur two to four degrees warmer than using potable water resulting in energy savings

First Commercial Green Street: Harrison Street

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BEFORE: Stormwater enters catch basins and is directly connected to sewer



AFTER: Stormwater is diverted to Green Streets and only overflows to sewer when necessary

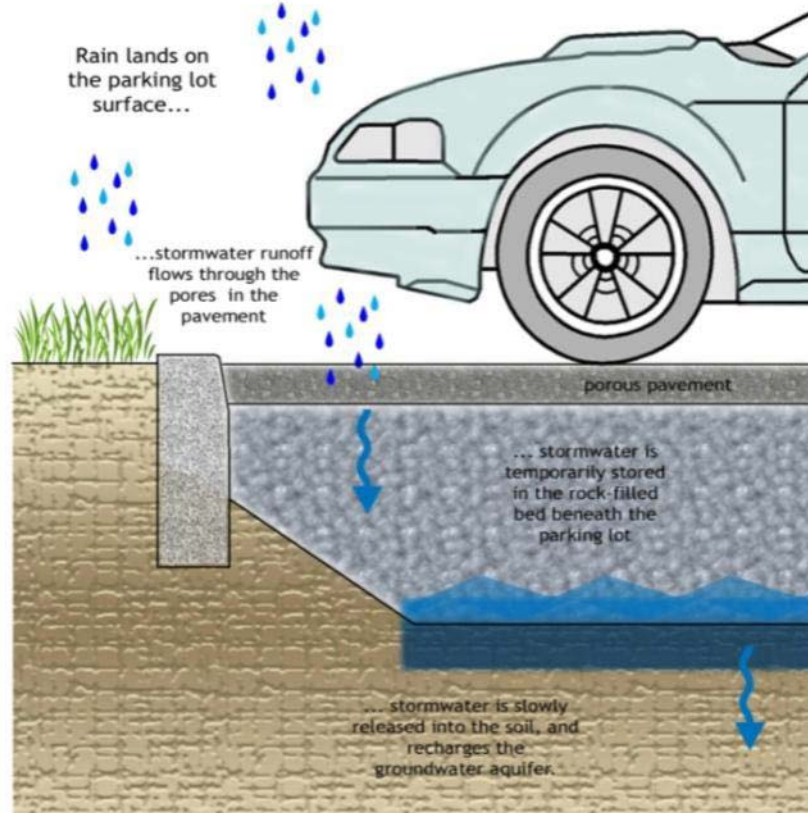


First Commercial Green Street: Harrison Street

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OnCenter Surface Parking Lot: 290 green spaces



GI Technology:
Perimeter porous asphalt and tree infiltration trench

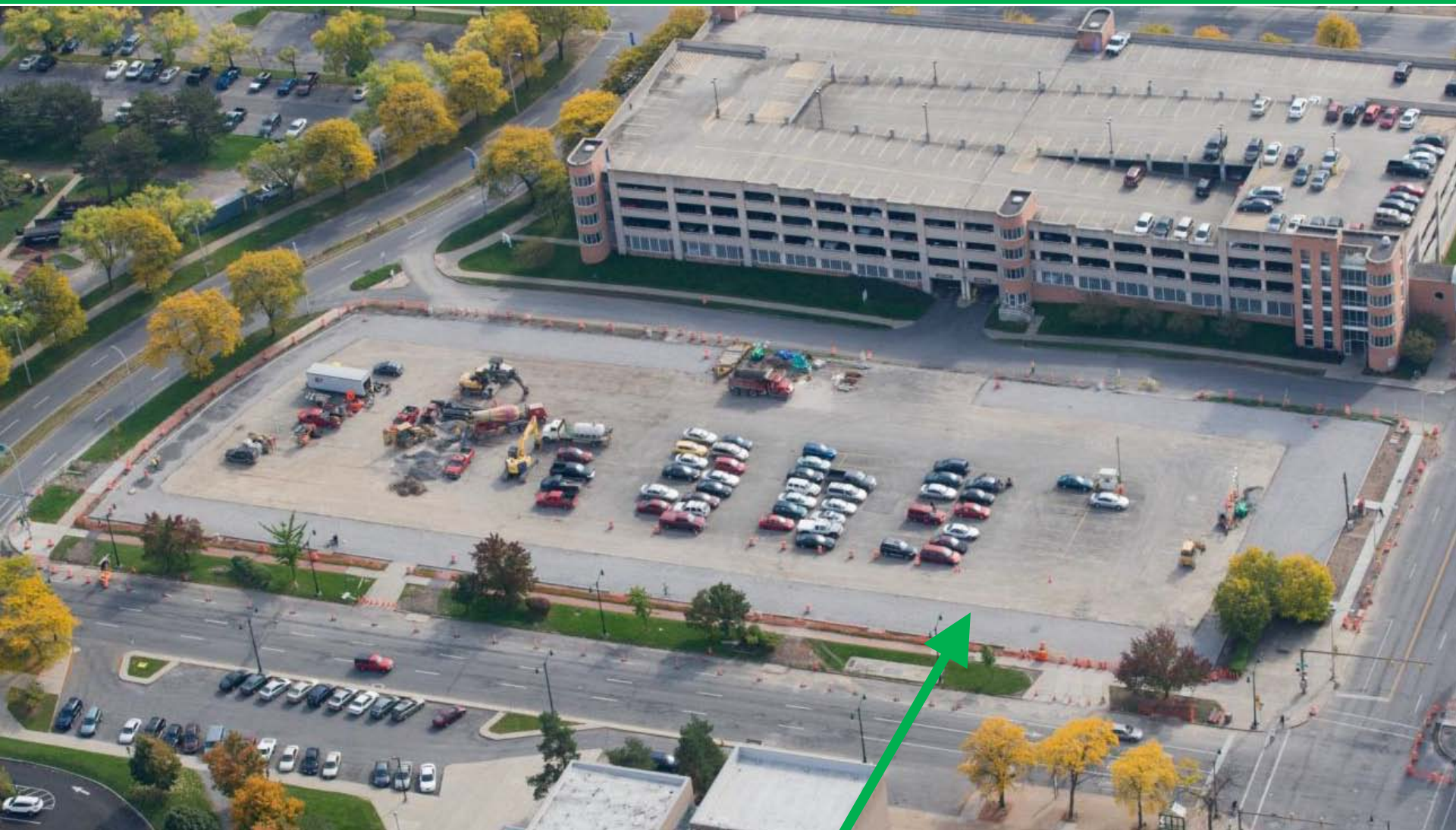
Project Owner:
County

Capture Area:
134,000 square feet

Runoff Reduction:
2,360,000 gallons/year

Construction Cost:
\$812,000 (bid)

\$/gallon: \$0.48



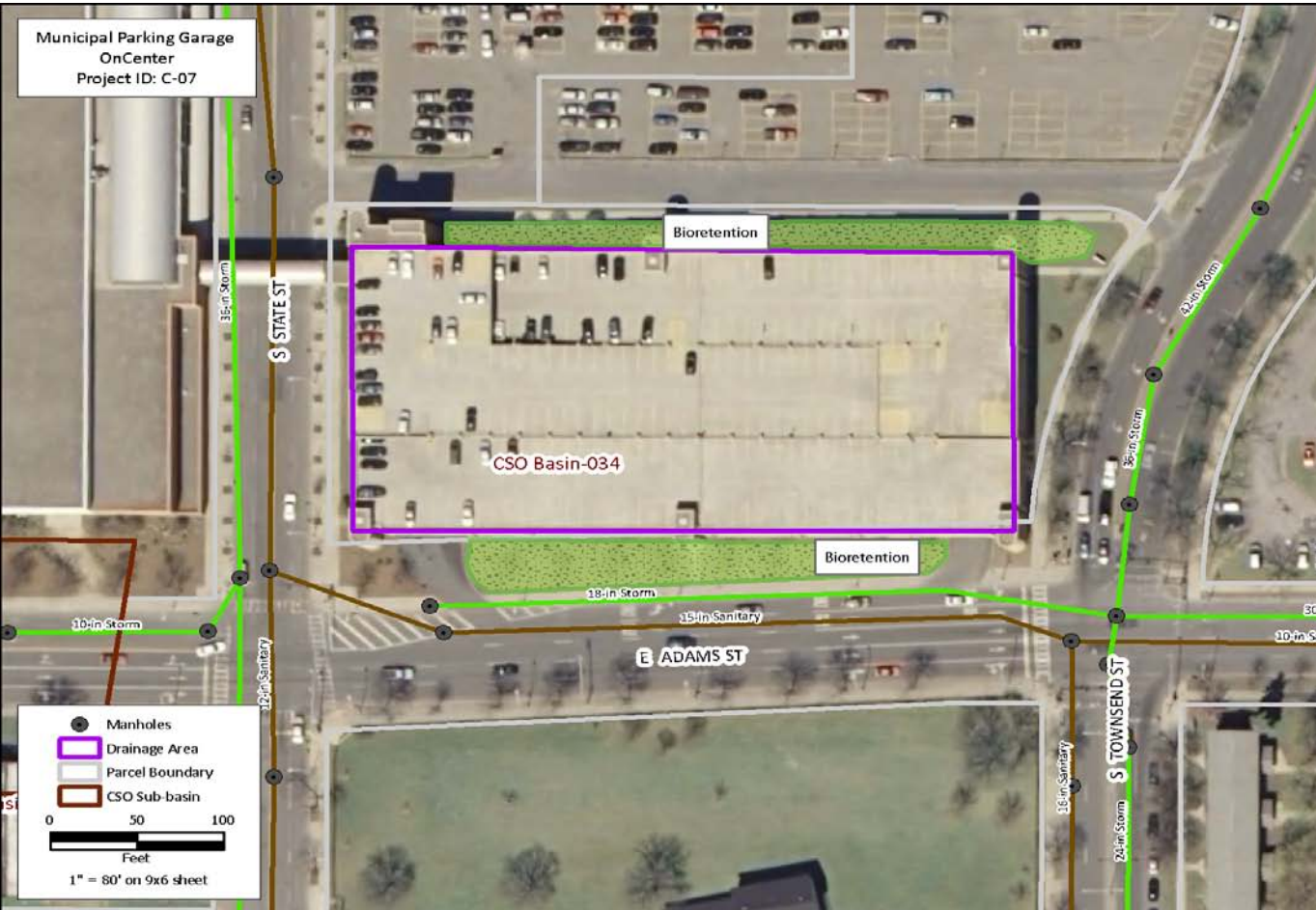
Installation of Stone Storage Bed

OnCenter Surface Parking Lot



Porous
Asphalt
Perimeter

OnCenter Municipal Parking Garage



GI Technology:
Roof leaders to rain gardens

Project Owner:
County

Capture Area:
72,500 square feet

Runoff Reduction:
1,277,000 gallons/year

Construction Cost:
\$234,000 (bid)

\$/gallon: \$0.26

OnCenter Municipal Parking Garage

Bio-Infiltration



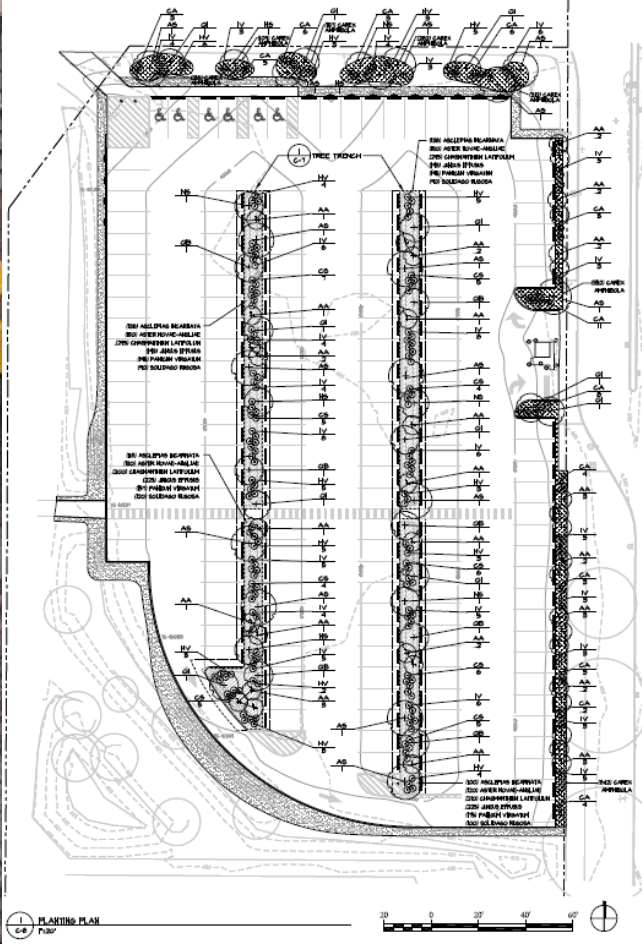




Before

Townsend Parking Lot ("Lot B")

Vegetated Infiltration Beds, 90 Trees Planted





Base Course Asphalt Installed prior to winter shutdown



American Asphalt Services, L.L.C.
315-422-4722

Volume capture: 975,000 gallons/year



Onondaga County Civic Strip

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Beyond the Civic Strip...

- Green Streets
 - Commercial and Residential
- CSO Treatment Wetlands (Harbor Brook)
- Green Parks
- Green Schools
- Green Parking Lots

Other Program Elements

- Green Improvement Fund: Onondaga County's Public-Private-Partnership for Incentivizing GI
- Legislative Agenda
 - New and Innovative City Ordinances: Permission
 - Existing City Ordinances (Stormwater, Tree, Sidewalk)
- Enhanced Street Tree Program: 8500 new street trees
- Rain Barrel Program: 1000 and counting (Goal: 3600)
- Vacant Lot Program
- Grant Funding: Federal/State successes, >\$5 M

Save the Rain: 2012-2013

- Focus on Efficiency over Quantity
 - Improved Constructability
 - Lower Maintenance
- Utilize SWMM for prioritization of project location
- Unit Price - Quantity Based Construction Procurements
 - Civil Site Work Contract
 - Landscape Installation and Maintenance Contract
 - Post-Warranty Maintenance Contract, conducted by Conservation Corps (**Community Based Green Jobs**)
- Asset Management Program Development

Advantages of Revised Program

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



- Philadelphia, PA
- Portland, OR
- Cincinnati, OH

Cities To Watch:

- **Syracuse, NY**
- New York, NY

- Milwaukee, WI
- Chicago, IL
- Kansas City, MO

Thank You!



The Paradigm is REAL!
Please Visit us at
www.SaveTheRain.us



Save the Rain