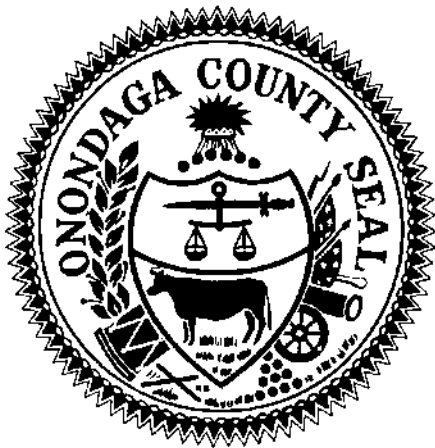


Save the Rain Program Overview

Joanne M. Mahoney, County Executive



Onondaga Lake
Amended Consent Judgment (ACJ)
Compliance Program,
January 2011

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 raindrops falling from it.

Agenda

1. Fourth Stipulation to the ACJ 2009-2018: “Save the Rain”
2. Gray Infrastructure Projects Completed/Pending
3. Benefits of a Balanced Program
4. Green Infrastructure Projects Completed/Pending
5. Education and Outreach
6. Program Schedule

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 Program: 2009-2018

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Regulatory Goals

- Capture and Treat 95% of the Annual CSO Volume via Gray & Green Infrastructure
- Achieve water quality standards in tributaries and lake

Community Impacts/Goals

- Improve quality of life
- Promote Sustainability
- Ensure cost effectiveness in compliance with ACJ milestones

Major Milestones

- 89.5% capture/elimination by 12/31/2013
- 95% capture/elimination by 12/31/2018

Gray Projects Completed to Date

Total Investment: \$367 million

- | | |
|--|---|
| 1. Aeration System Upgrade | 21. Siphon Rehabilitation |
| 2. Odor Control - residual handling and clarifiers | 22. Teall Brook FCF |
| 3. Chemical Storage Building and Feed System | 23. West St. Sewer Separation (CSOs 057, 058, 059) |
| 4. Digester and Lagoon Improvements | 24. Water St. Sewer Separation (CSO 024) |
| 5. Phase II Plant Improvements | 25. Brighton Sewer Separation (CSOs 053, 054) |
| 6. Ammonia Removal Pilot | 26. Ammonia Source Trackdown Program |
| 7. Phosphorus Removal Pilot – Phase I | 27. Tallman/Onondaga Sewer Separation (CSOs 038, 040, 046a and 046b) |
| 8. Digital System Upgrade | 28. Midland Phase II (includes Regional Storage and Treatment Facility plus 1,000 ft. pipeline) |
| 9. Ammonia Removal – BAF | 29. Phosphorus Removal Pilot – Phase II |
| 10. Phosphorus Removal – HRFS | 30. Biosolids Handling (mechanical thickeners) Improvements – Metro |
| 11. CSO Toxicity Evaluation Report | 31. South Ave./Bissell St. Sewer Separation (CSOs 047 and 048) |
| 12. Erie Boulevard Storage System Upgrade | 32. Sewer Separation 050 – Parkway/Rockland |
| 13. Franklin St. FCF | 33. Clinton Conveyances Phase 1 – pipeline outside the Trolley Lot & Armory Square |
| 14. Harbor Brook FCF | 34. Clinton Conveyances Phase 2A – pipeline behind the MOST under RR |
| 15. Hiawatha RTF | 35. Sewer Separation 051 – Colvin Avenue |
| 16. Kirkpatrick St. Pump Station Upgrade | |
| 17. Maltbie St. FCF | |
| 18. Midland Phase I Pipeline | |
| 19. Newell St. Pilot Disinfection | |
| 20. Onondaga Creek FCF - Boat | |

Gray Infrastructure Program Summary

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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 Control
- Remaining CSO Facilities Plan



Green Infrastructure Program Summary

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- 6.3% annual CSO volume capture
- 247 million gallons
- Multiple Projects Throughout Sewersheds
- 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 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

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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

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

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

Cities To Watch:

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

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

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



Pearl Street Parking Lot



Parking Lot #3

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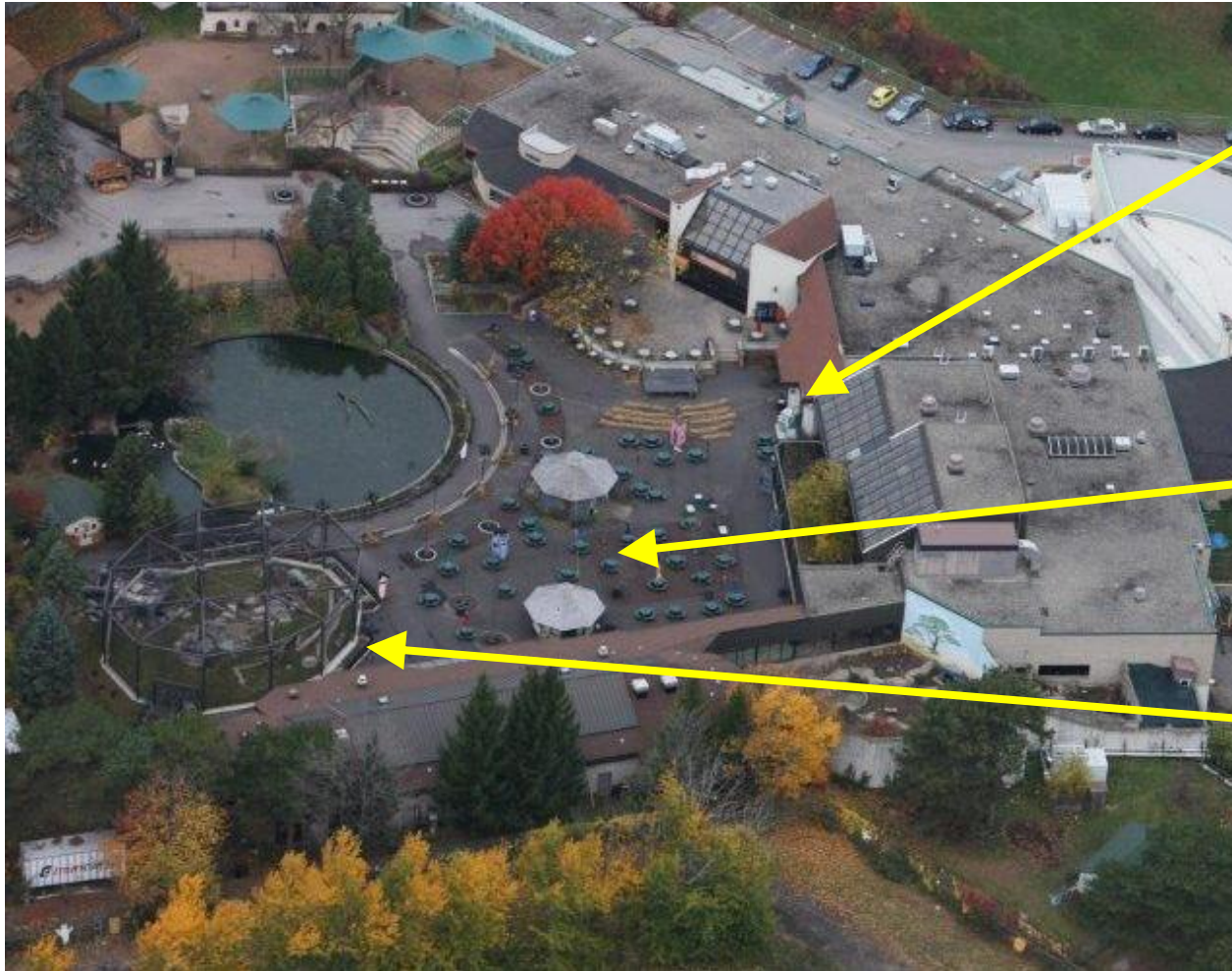


Porous Concrete
Captures over 700,000 gallons of stormwater annually

Rosamond Gifford Zoo

Primate Exhibit and Courtyard

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Rain Barrels and
Cisterns to harvest
runoff from rooftops

Porous Pavement
in Courtyard

Rain Garden along
Primate Exhibit

Rosamond Gifford Zoo

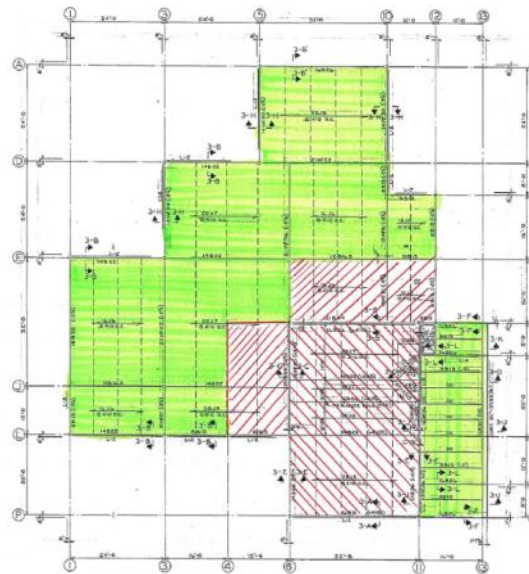
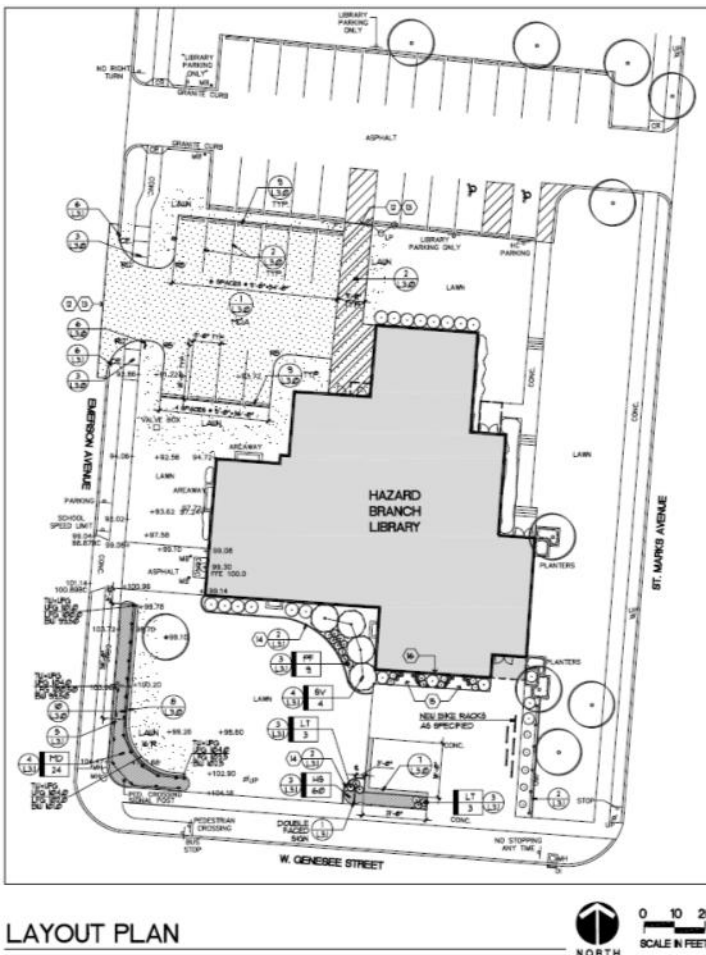
Elephant Exhibit (summer 2011)

6,000 sq.ft.
Green Roof

Enhanced
Stormwater
Management



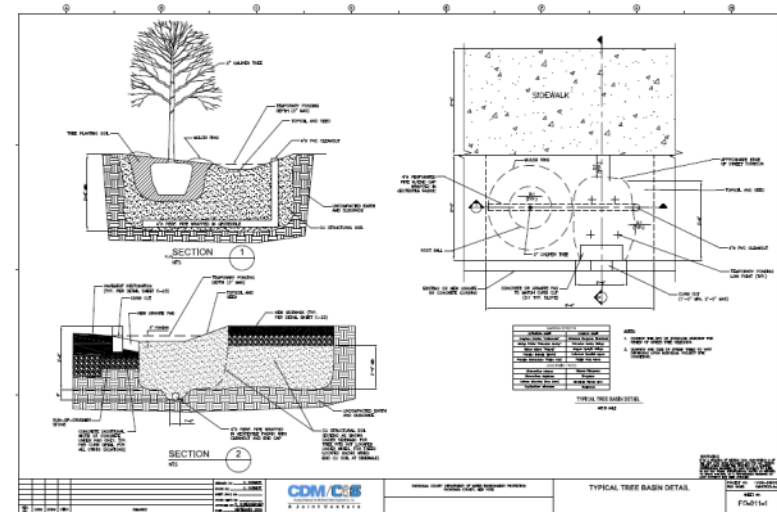
Green Roof at Hazard Branch Library: Roof Membrane 2010; Green Planting, Spring 2011



Green Roof at
SUNY ESF

Enhanced Street Trees

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



Green Improvement Fund (GIF)

Program developed to provide financial incentives to private and 501 (c) 3 property owners for the implementation of green infrastructure.

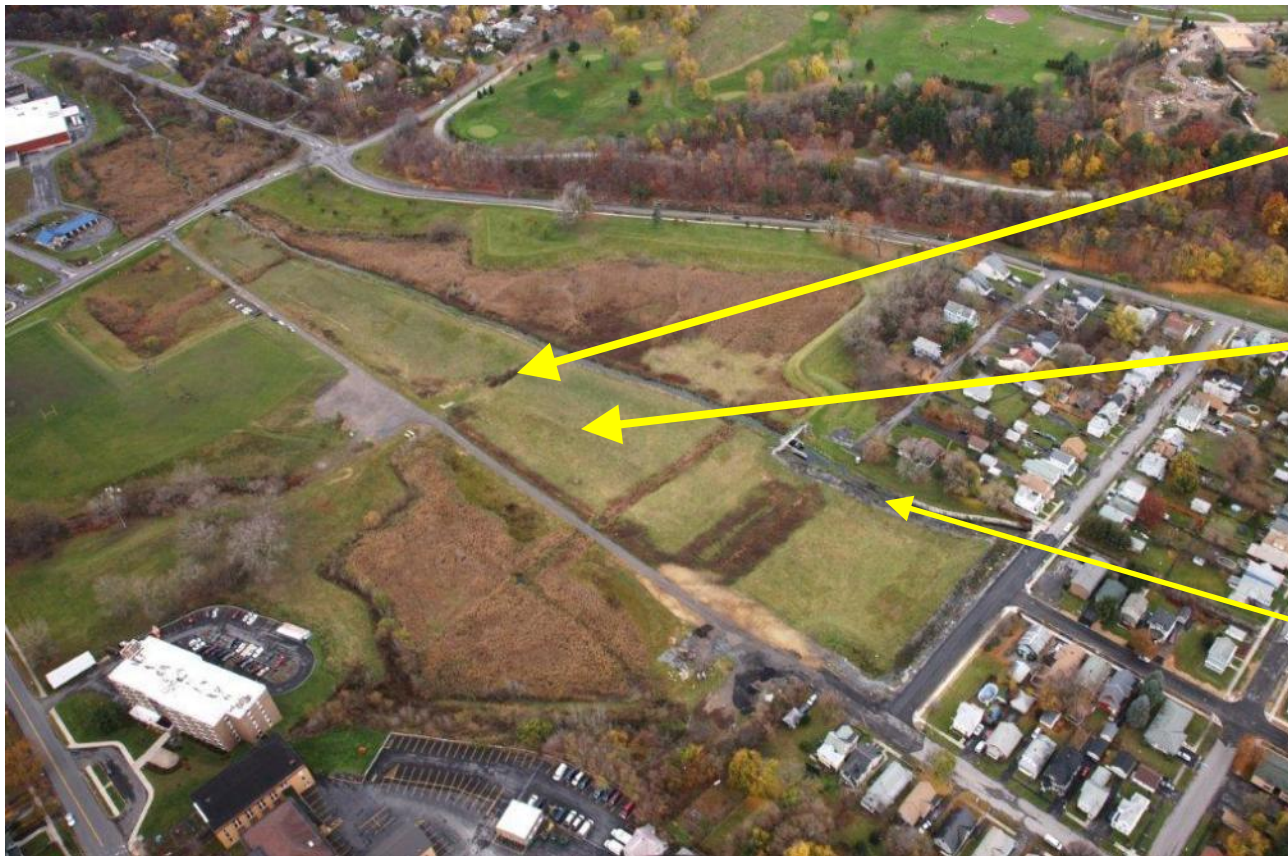
- 3 million dollar pilot program
- Storm water management on private property is vital to success of green infrastructure program
- Grant funding for targeted sewer sheds in the City of Syracuse (Midland, Harbor Brook, Clinton)
- GIF Program Committee created to review funding opportunities for potential projects
- Applications are reviewed by Program Committee for final recommendation on funding level
- Over \$1 Million dollars currently allocated under program

Program Highlights

- 30 Applications submitted to-date
- 7 completed projects in 2010:
 - King & King Architects
 - Dunbar Association
 - Near Westside Initiative (2)
 - St. Lucy's Church
 - Jefferson Clinton Commons
 - Hotel Skyler
- Over 15 Projects slated for 2011

Green Infrastructure 2011 Signature Projects

Treatment Wetland and Restoration Project



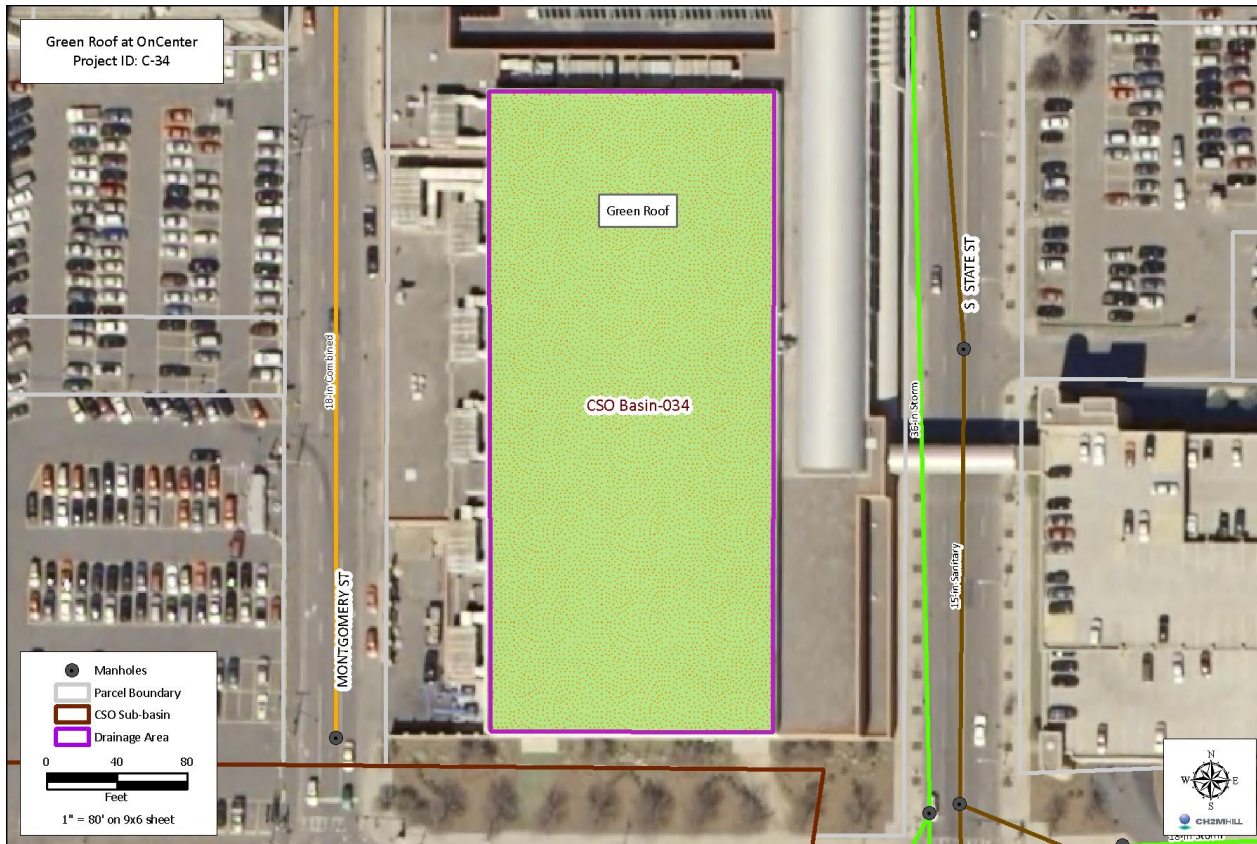
CSO 018

CSO 018
Constructed
Wetland

Harbor Brook

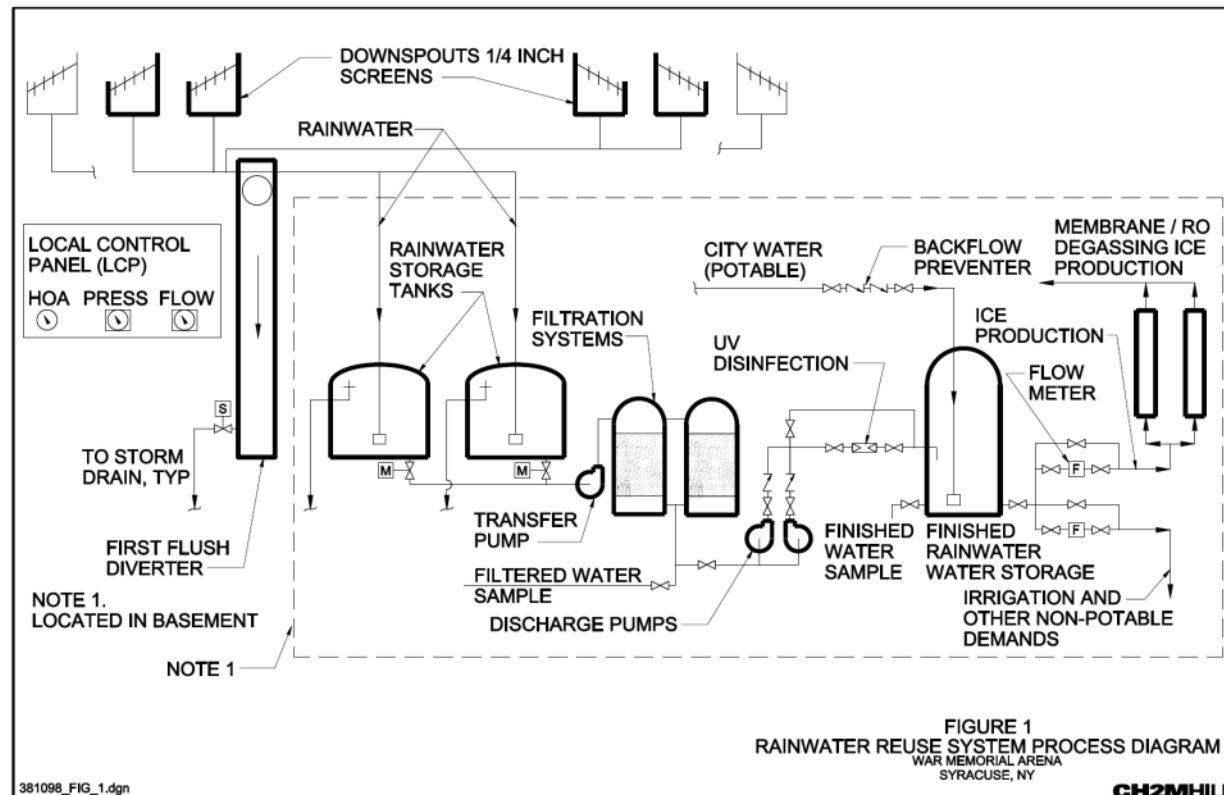
Green Infrastructure 2011 Signature Projects

OnCenter Convention Center Green Roof



Green Infrastructure 2011 Signature Projects

Water Reuse at OnCenter War Memorial



Benefits of Save the Rain Strategy

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- Fewer Construction Impacts
- Higher Level of Public Acceptance
- More Sustainable
- Lower Life Cycle Cost
 - Energy Savings
 - Avoided Operations & Maintenance
 - Lower Staffing Needs



Gray/Green Project Schedule

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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



Education & Outreach Partners:

- Environmental Finance Center
- SUNY ESF
- Onondaga Environmental Institute

Thank You!

Questions?

Please Visit:
www.SaveTheRain.us



Save the Rain