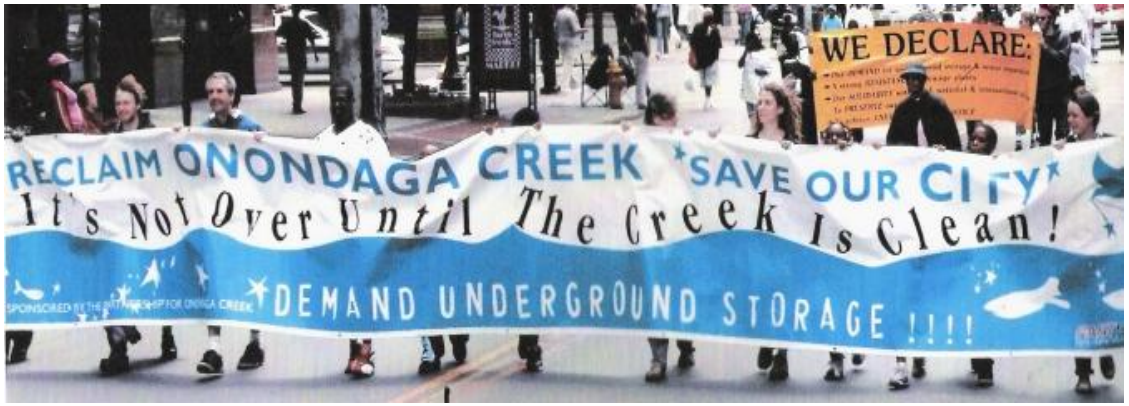
Education and Outreach: How to “Save the Rain”

March 23, 2011

Khris Dodson, Environmental Finance Center



Environmental Justice

Green Infrastructure means…

- *Injustice of Midland plant will not be repeated*
- *Onondaga Creek & Harbor Brook will be cleaner*
- *Community investment and beautification instead of further disruption*

Green Infrastructure

Dennis Nett / The Post-Standard

Syracuse would be pioneer in green approach to stormwater management

SYRACUSE, FROM PAGE A-1

back its construction of concrete-and-steel facilities and place more emphasis on natural systems that use plants and soils.

Going green would cost less, county officials said, but it's unknown how much less

"Syracuse will be one of the leaders in the country, easily, if this approach is taken and effectively implemented. It's a big deal."

— James M. Tierney, DEC's assistant commissioner for water resources

latest cleanup plan, called on

The tanks would be underground or "mostly underground," said engineer Matthew J. Marko, vice president of CH2M Hill, a consultant. The county also would undertake several sewer separation projects and other traditional

- Solution to capacity problems with underground storage – reduce the rain!
- Proposed by Onondaga Nation

Victory!! *Onondaga County Scraps Sewage Plants in Favor of Green Infrastructure*

Lindsay Speer

Change is in the air, and it smells sweet. Onondaga County Executive Joanne Mahoney announced on May 2, 2008 that the County will not award construction bids for the proposed Clinton Regional Treatment Facility (RTF) in Armory Square. Instead, it will explore more environmentally and economically sound options with the State of New York, Atlantic States Legal Foundation, City of Syracuse, and, for the first time, the Onondaga Nation and other community stakeholders.

Persistence Pays Off

Syracuse has an antiquated combined sewer system, in which stormwater runoff is directed into the sanitary sewers. A heavy rainfall results in Combined Sewer Overflows (CSOs), dumping sewage directly into Onondaga Creek. Onondaga County's previous solution was to treat the sewage with chlorine before dumping it into the existed year-round, not just after storms, calling into serious question the effectiveness of the RTFs' end-of-pipe solution.

Going Green

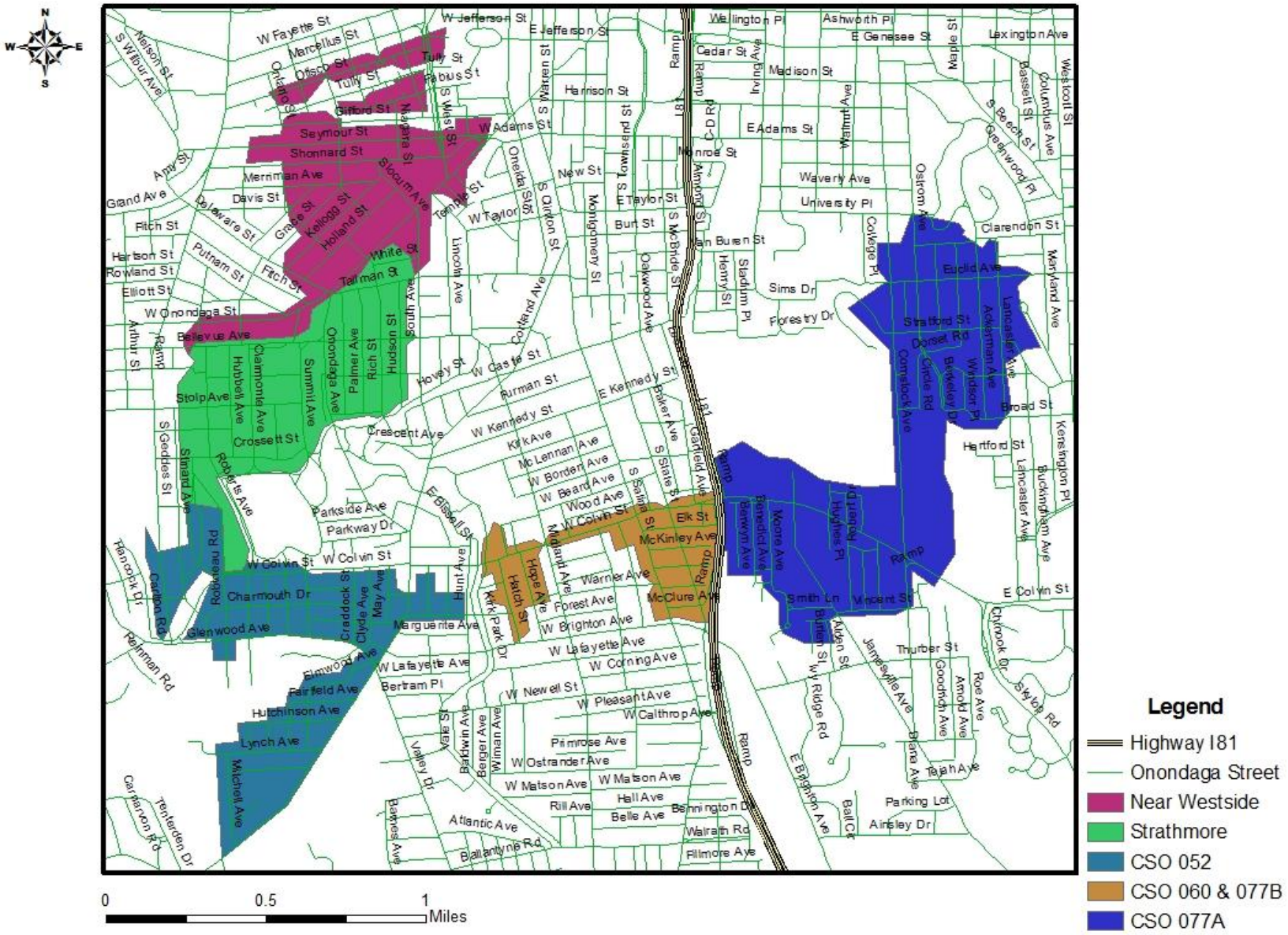
In January 2008, the federal Environmental Protection Agency released a report urging municipalities to use green infrastructure, such as rain barrels, green roofs, and other methods to keep stormwater out of the sewer system. These developments combined with new County and State leadership this year to create a perfect storm for revisiting the mandates of the Amended Consent Judgement (ACJ), which dictates the cleanup of sewer pollution in Onondaga Creek and Harbor Brook.

On June 18th, the Partnership for Onondaga Creek gave a presentation to Onondaga County and the NYS Department of Environmental Conservation to outline alternatives to the remaining phase of the Midland plant: a $57 Million, 12

Rain barrels are a simple solution activists recommend for protecting Onondaga Creek and other waterways. Photo: goforgr33n on flickr.com

to capture water using residential rainbarrels and green roof installation on commercial

During 2008 and 2009 the POC, Syracuse University and SUNY-ESF cooperated to obtain over 200 surveys among five neighborhoods of the Midland and Clinton Sewershed to assess public attitudes toward Green Infrastructure (GI) Implementation



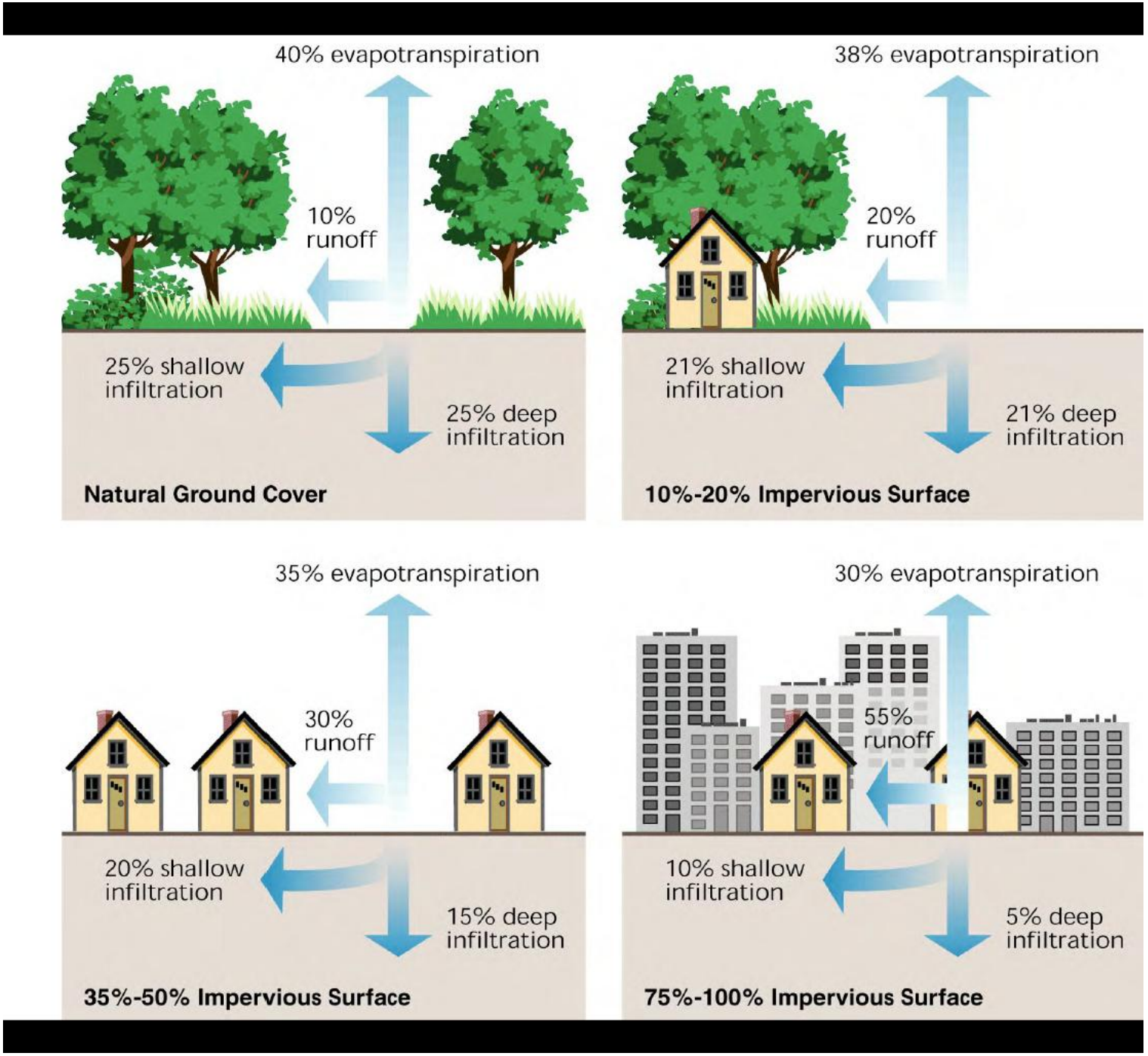
And, the survey says…

- People really aren't that into trees!
- Maintenance of rain gardens is a significant barrier
- Education needed on effective rainbarrel use
- If it's free (or less than $25) than count me in! Otherwise, I'm not so sure why I'd want to do this

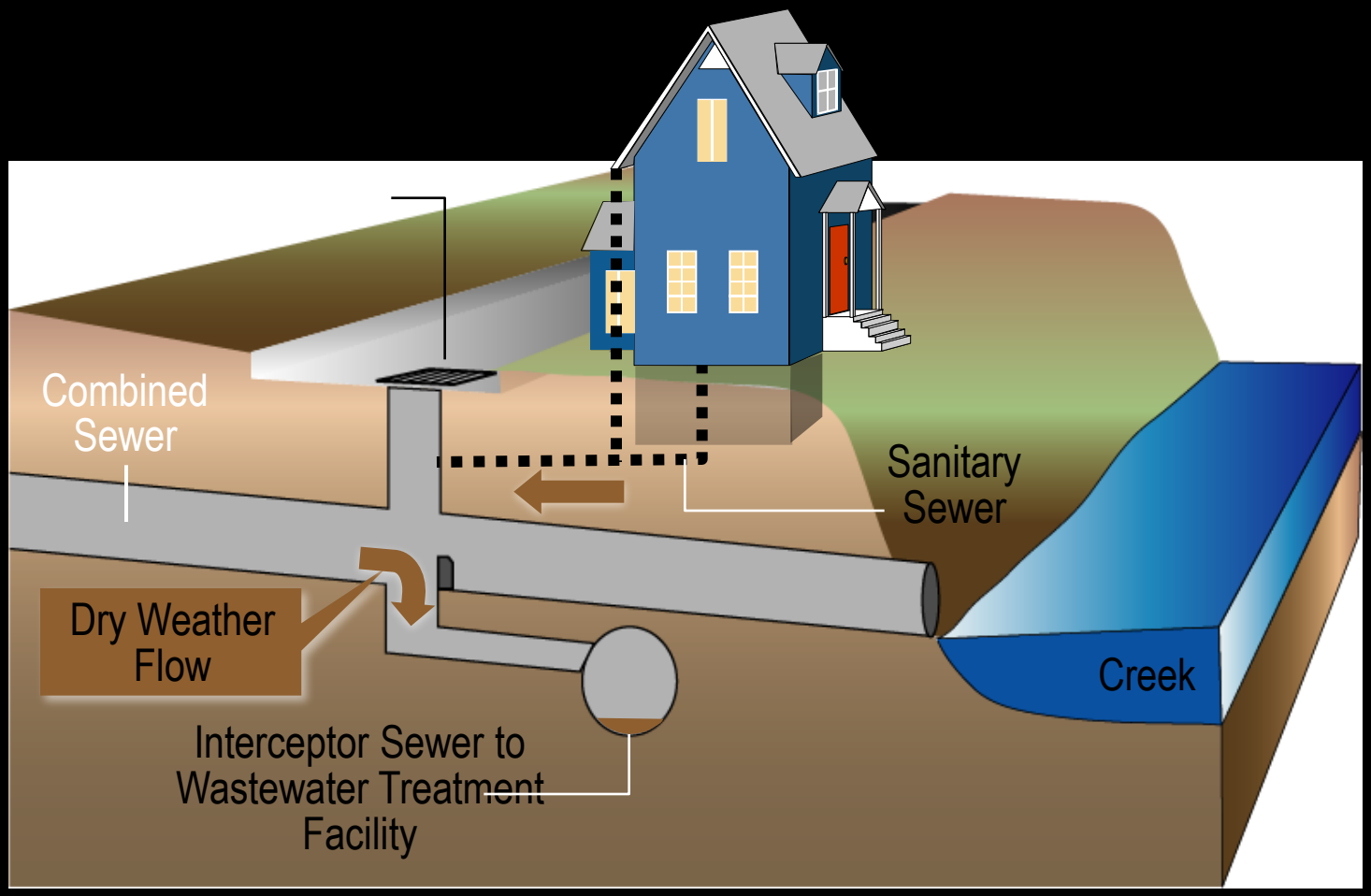
Understanding CSOs

There’s Sh@# in the water!

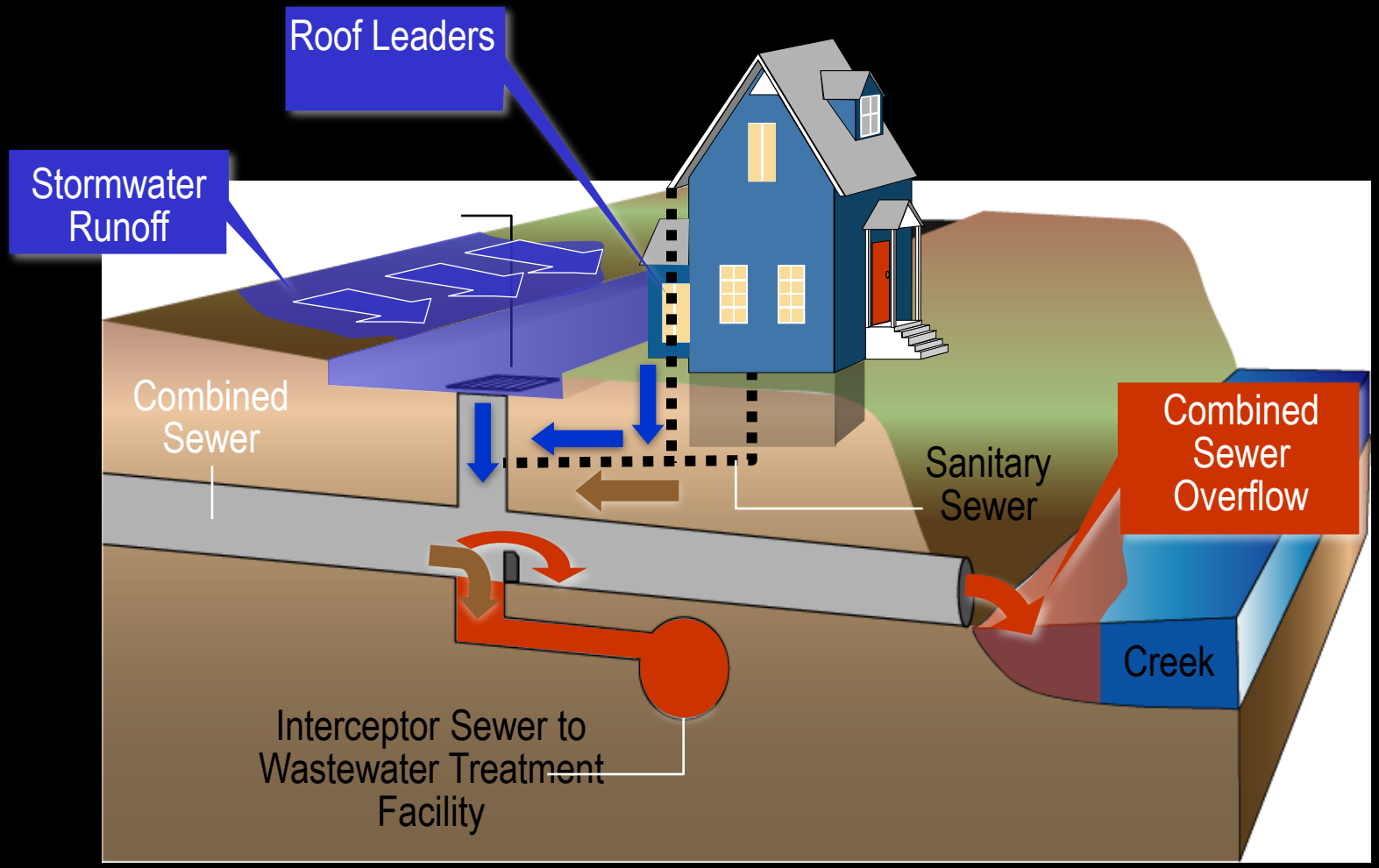
Save the Rain


40% evapotranspiration
10% runoff
25% shallow infiltration
25% deep infiltration
Natural Ground Cover
38% evapotranspiration
20% runoff
21% shallow infiltration
21% deep infiltration
10%-20% Impervious Surface
35% evapotranspiration
30% runoff
20% shallow infiltration
15% deep infiltration
35%-50% Impervious Surface
30% evapotranspiration
55% runoff
10% shallow infiltration
5% deep infiltration
75%-100% Impervious Surface

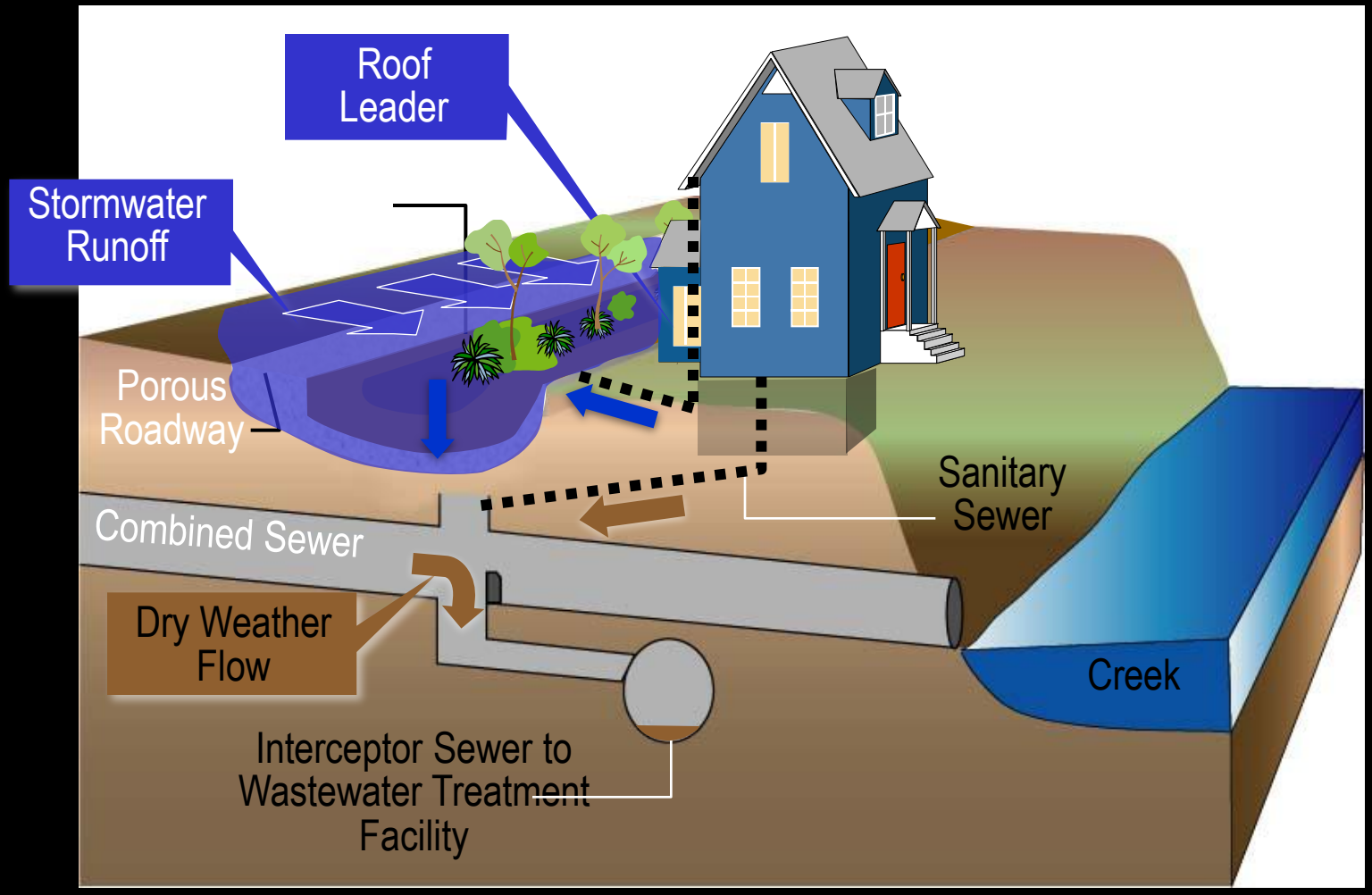
During dry weather, sanitary flows are collected in combined sewers for treatment at Wastewater treatment facilities



During wet weather, inflows exceed the collection system's capacity and trigger a CSO



Green solutions intercept and reduce stormwater flows to sewers, providing storage, infiltration, and treatment



Green Infrastructure Improves:

- Water quality
- Air quality
- Neighborhood aesthetics
- Habitat and biodiversity
- Recreational and transportation opportunities
- Property values
- Community health and vitality

Save the Rain

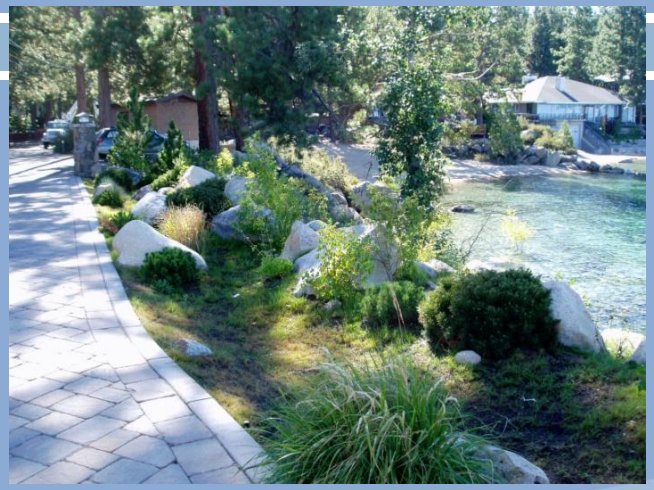
Green Infrastructure Reduces….

- Flooding
- Erosion
- Stormwater runoff volume
- Stormwater pollutant loadings
- CSOs
- Gray infrastructure operation, maintenance, energy and treatment costs

Types of Green Infrastructure

Save the Rain

Bioswales



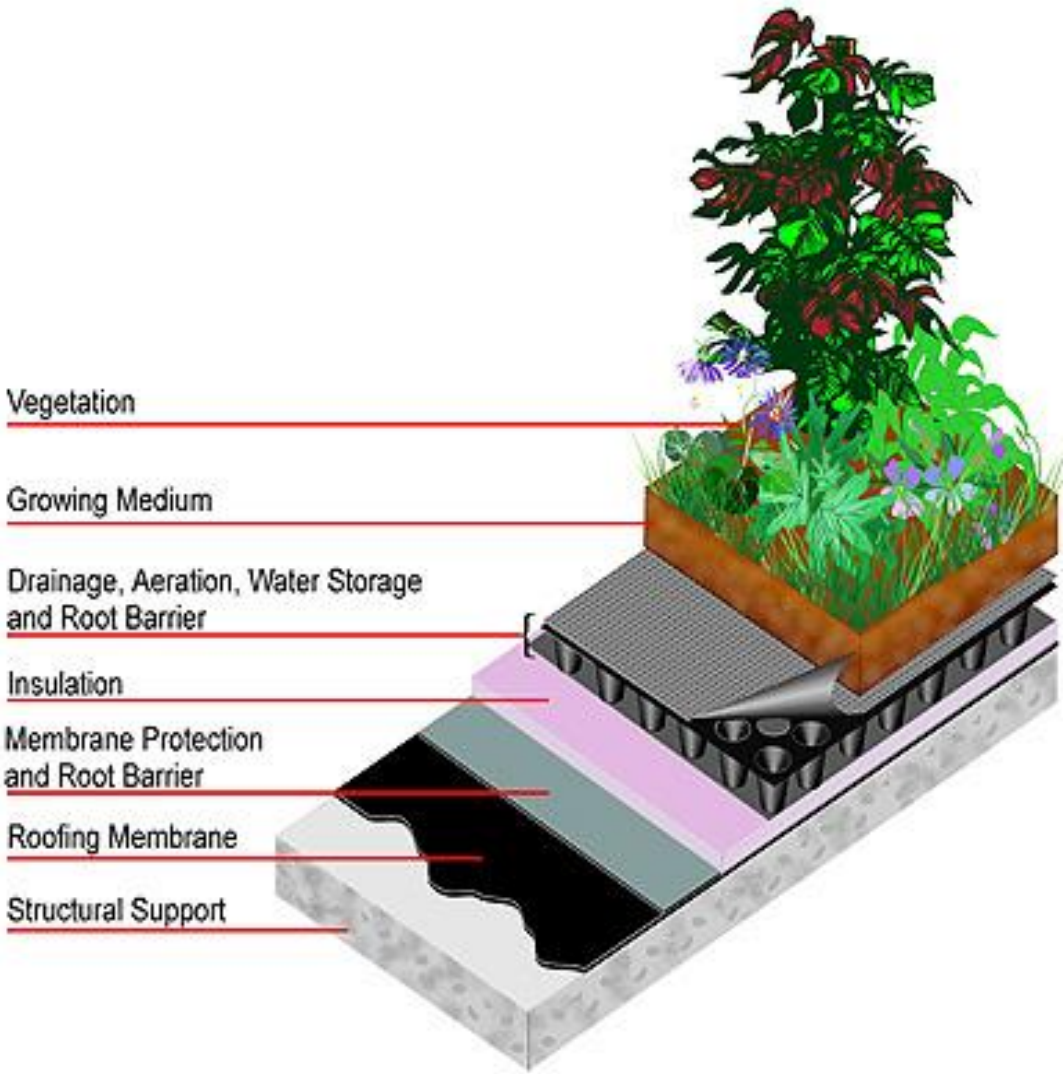
Rain Barrels

Rain Gardens

Save the Rain

Green Roofs

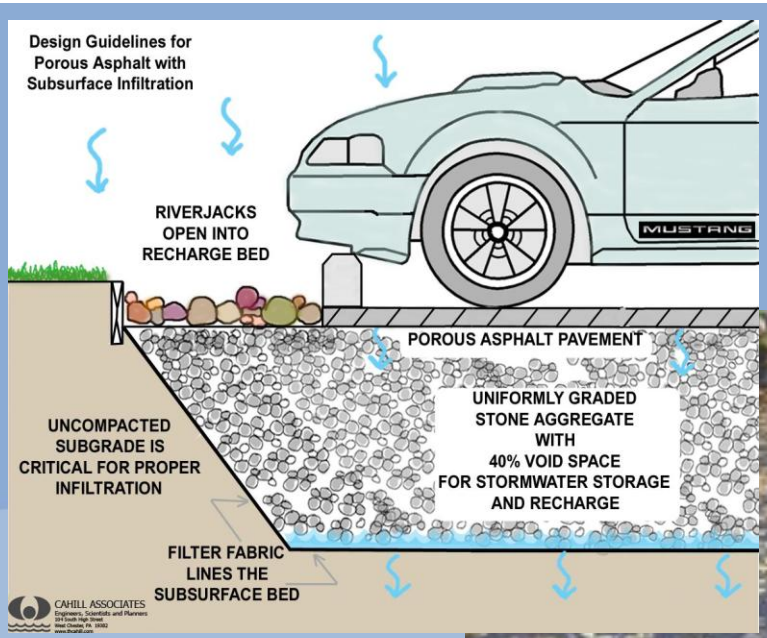
Walters Hall, SUNY ESF



Jamesville Correctional Facility

Save the Rain

Porous Pavements



New porous parking lot at Dunbar Center in Syracuse

Sidewalk at MOST in Syracuse

Save the Rain

Bringing people together…

Save the Rain Programs

- Workshops
  - Intro to GI for Homeowners and Businesses
    - Topics include basic principles of stormwater hydrology, examples of simple GI for homes (rain barrels and rain gardens), and other GI opportunities for the community and businesses.
  - GI for New Homeowners
    - Provides an introduction to green yard care and residential GI to participants in Home HeadQuarters' (HHQ) home ownership program.
  - Community Workshop
    - Includes hands-on training for design and implementation of residential GI. Residential GI projects will be installed or maintained during each workshop through assistance by workshop participants.

Save the Rain Programs

- Workshops
  - GI for Youth
    - Participants will use and develop games, skits, role-plays, and hands-on opportunities to increase awareness about GI and instill an appreciation for the role young people play in reducing pollution.
  - GI and Art for Children
    - combine crafts and hands-on activities to teach elementary and middle school age children about different kinds of GI: green roof birdhouse, painting a rain barrel, etc..

Save the Rain Programs

- Workshops
  - Rain Barrel
    - Participants at the workshops will learn proper installation techniques, maintenance and the role of rain barrels in reducing combined sewage overflows.
  - Landscape Professionals
    - includes a refresher on stormwater management principles, GI options, examples of local projects, and strategies for marketing GI to landscapers' customers.
  - Pervious Products
    - series of formal and hands-on workshops on the various pervious products available on the market will first provide an overview of the products, their uses and specifications, and installation guidelines.

Save the Rain Programs

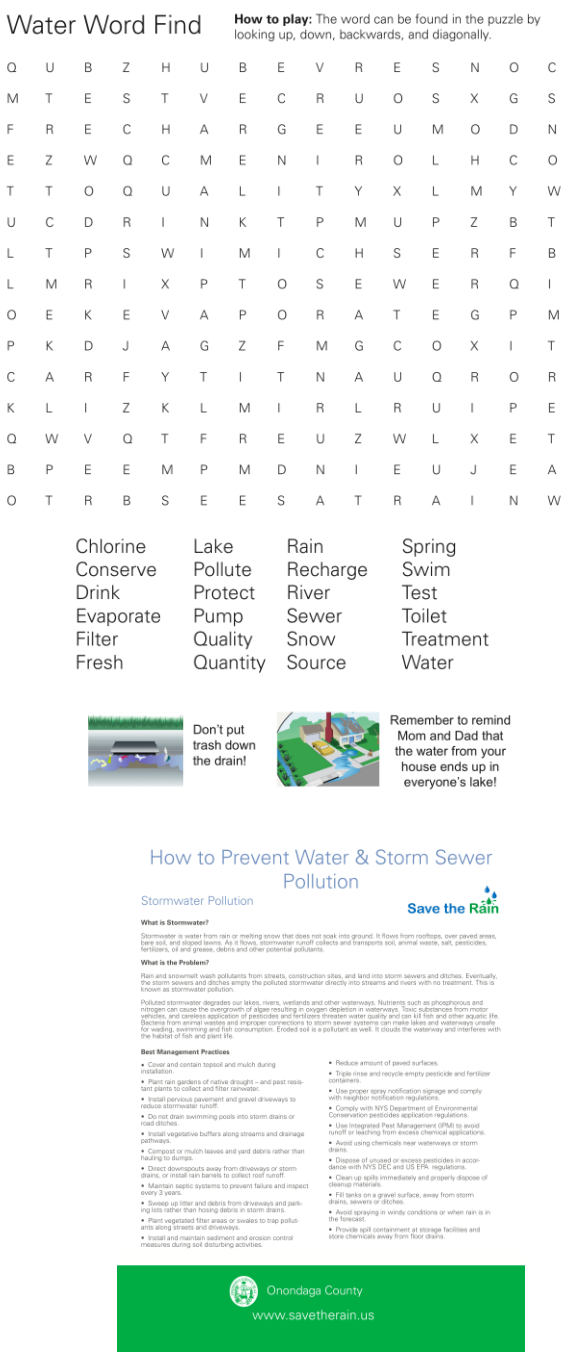
- Design Charettes
  - This process will include community members in the visioning and decision-making process as plans are created to implement a neighborhood-planned and approved green street.
- Demonstration Projects
  - Rain gardens, green roofs, etc.

Save the Rain Programs

- Nature in the City
  - 3rd Grade classes learning about GI throughout SCS. The lessons will be: Traveling Water Drop, Stream Exploration, and Clean Water Matters.
- ESF in the High School
  - High school classrooms learning about GI throughout SCSD
- Exhibiting at Events
  - Come to local events like Blue Rain ECOFest and more to learn about Saving the Rain!

Save the Rain

Brochures, activity books, bookmarks, and a board game: “Raindrop Run”



Water Word Find

How to play: The word can be found in the puzzle by looking up, down, backwards, and diagonally.

Q	U	B	Z	H	U	B	E	V	R	E	S	N	O	C
M	T	E	S	T	V	E	C	R	U	O	S	X	G	S
F	R	E	C	H	A	R	G	E	E	U	M	O	D	N
E	Z	W	Q	C	M	E	N	I	R	O	L	H	C	O
T	T	O	Q	U	A	L	I	T	Y	X	L	M	Y	W
U	C	D	R	I	N	K	T	P	M	U	P	Z	B	T
L	T	P	S	W	I	M	I	C	H	S	E	R	F	B
L	M	R	I	X	P	T	O	S	E	W	E	R	Q	I
O	E	K	E	V	A	P	O	R	A	T	E	G	P	M
P	K	D	J	A	G	Z	F	M	G	C	O	X	I	T
C	A	R	F	Y	T	I	T	N	A	U	Q	R	O	R
K	L	I	Z	K	L	M	I	R	L	R	U	I	P	E
Q	W	V	Q	T	F	R	E	U	Z	W	L	X	E	T
B	P	E	E	M	P	M	D	N	I	E	U	J	E	A
O	T	R	B	S	E	E	S	A	T	R	A	I	N	W

Chlorine
Conserve
Drink
Evaporate
Filter
Fresh

Lake
Pollute
Protect
Pump
Quality
Quantity

Rain
Recharge
River
Sewer
Snow
Source

Spring
Swim
Test
Toilet
Treatment
Water

Don't put trash down the drain!

Remember to remind Mom and Dad that the water from your house ends up in everyone's lake!

How to Prevent Water & Storm Sewer Pollution

Stormwater Pollution

Save the Rain

What is Stormwater?

Stormwater is water from rain or melting snow that does not soak into ground. It flows from rooftops, over paved areas, bare soil, and sloped lawns. As it flows, stormwater runoff collects and transports soil, animal waste, salt, pesticides, fertilizers, oil and grease, debris and other potential pollutants.

What is the Problem?

Rain and snowmelt wash pollutants from streets, construction sites, and land into storm sewers and ditches. Eventually, the storm sewers and ditches empty the polluted stormwater directly into streams and rivers with no treatment. This is known as stormwater pollution.

Polluted stormwater degrades our lakes, rivers, wetlands and other waterways. Nutrients such as phosphorous and nitrogen can cause the overgrowth of algae resulting in oxygen depletion in waterways. Toxic substances from motor vehicles, and careless application of pesticides and fertilizers threaten water quality and can kill fish and other aquatic life. Bacteria from animal wastes and improper connections to storm sewer systems can make lakes and waterways unsafe for wading, swimming and fish consumption. Eroded soil is a pollutant as well. It clouds the waterway and interferes with the habitat of fish and plant life.

Best Management Practices

- Cover and contain topsoil and mulch during installation.
- Plant rain gardens of native drought – and pest resistant plants to collect and filter rainwater.
- Install pervious pavement and gravel driveways to reduce stormwater runoff.
- Do not drain swimming pools into storm drains or road ditches.
- Install vegetative buffers along streams and drainage pathways.
- Compost or mulch leaves and yard debris rather than hauling to dumps.
- Direct downspouts away from driveways or storm drains, or install rain barrels to collect roof runoff.
- Maintain septic systems to prevent failure and inspect every 3 years.
- Sweep up litter and debris from driveways and parking lots rather than hosing debris in storm drains.
- Plant vegetated filter areas or swales to trap pollutants along streets and driveways.
- Install and maintain sediment and erosion control measures during soil disturbing activities.
- Reduce amount of paved surfaces.
- Triple rinse and recycle empty pesticide and fertilizer containers.
- Use proper spray notification signage and comply with neighbor notification regulations.
- Comply with NYS Department of Environmental Conservation pesticides application regulations.
- Use Integrated Pest Management (IPM) to avoid runoff or leaching from excess chemical applications.
- Avoid using chemicals near waterways or storm drains.
- Dispose of unused or excess pesticides in accordance with NYS DEC and US EPA regulations.
- Clean up spills immediately and properly dispose of cleanup materials.
- Fill tanks on a gravel surface, away from storm drains, sewers or ditches.
- Avoid spraying in windy conditions or when rain is in the forecast.
- Provide spill containment at storage facilities and store chemicals away from floor drains.

Onondaga County
www.savetherain.us

Save the Rain

Only Rain in the Drain

[illegible] pollution out of Onondaga Creek [illegible] Onondaga Lake?
Try these puzzles and look for hints along the way!

What will you pledge to do to help clean up our creek and lake?

Water Maze

Start

Finish

Residential Rain Gardens

Save the Rain

Everything you need to know to build a rain garden

Make sure to pick up your dog's waste!

It's Your Doodie!

Dog waste can contaminate our lake, our creek, and our streams.

Save the Rain

Onondaga County
www.savetherain.us

Always pick up your pet's waste!

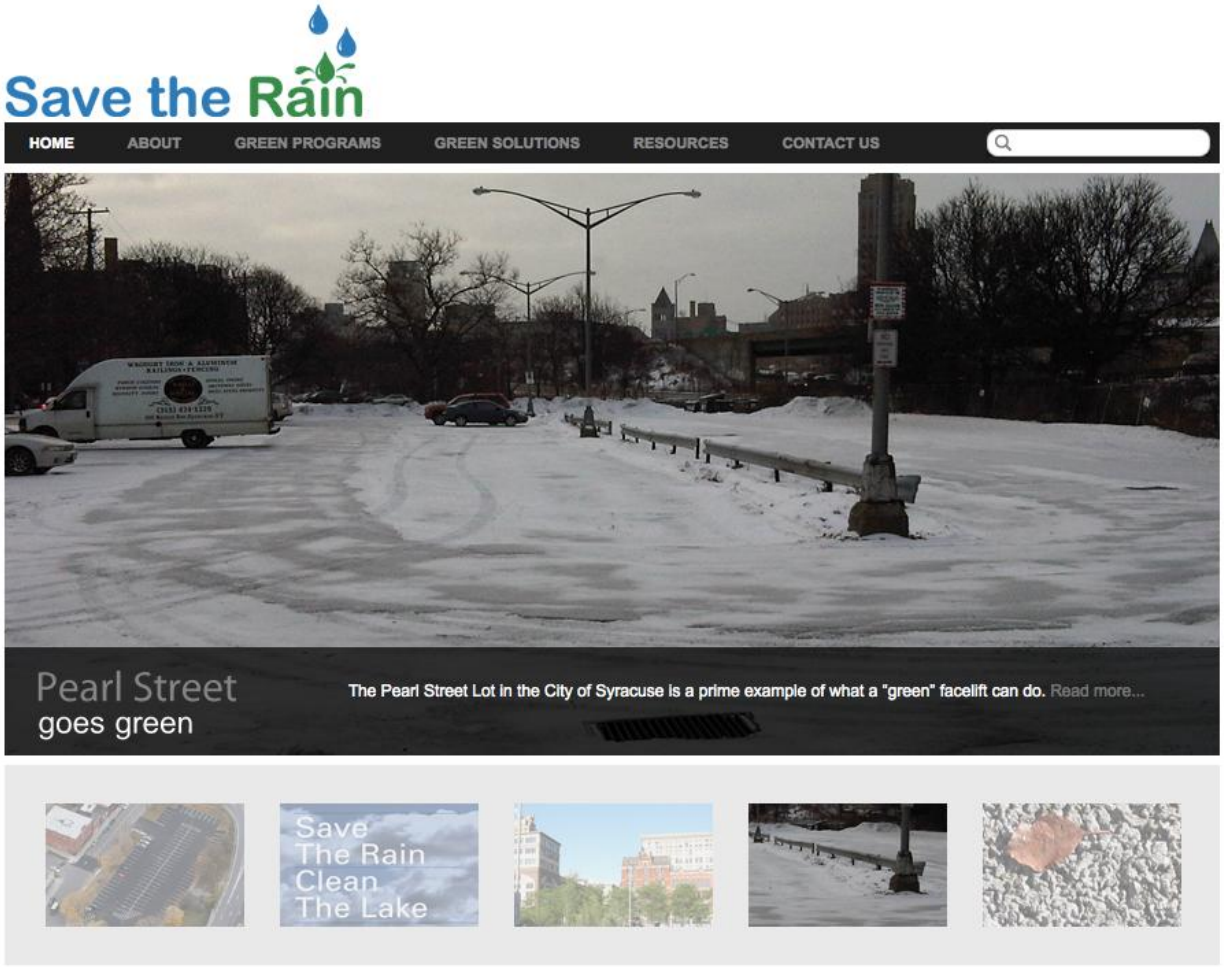
Never wash your car on pavement!

Check the weather and don't fertilize the lawn before it rains!

Billboards, ads, exhibit materials, and giveaways

Save the Rain

Savetherain.us



Our many project partners include…

ESF
State University of New York
College of Environmental Science and Forestry

Baltimore Woods Nature Center
Nature in your hands

Onondaga Environmental Institute

Onondaga Earth Corps

The Partnership for Onondaga Creek
www.onondagacreek.org

Environmental Finance Center
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Syracuse University

Save the Rain