

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

Engaging Municipalities in Stormwater Management

Rutgers Cooperative Extension Water Resources Program

www.water.rutgers.edu

September 26, 2018

Christopher C. Obropta, Ph.D., P.E.

obropta@envsci.rutgers.edu

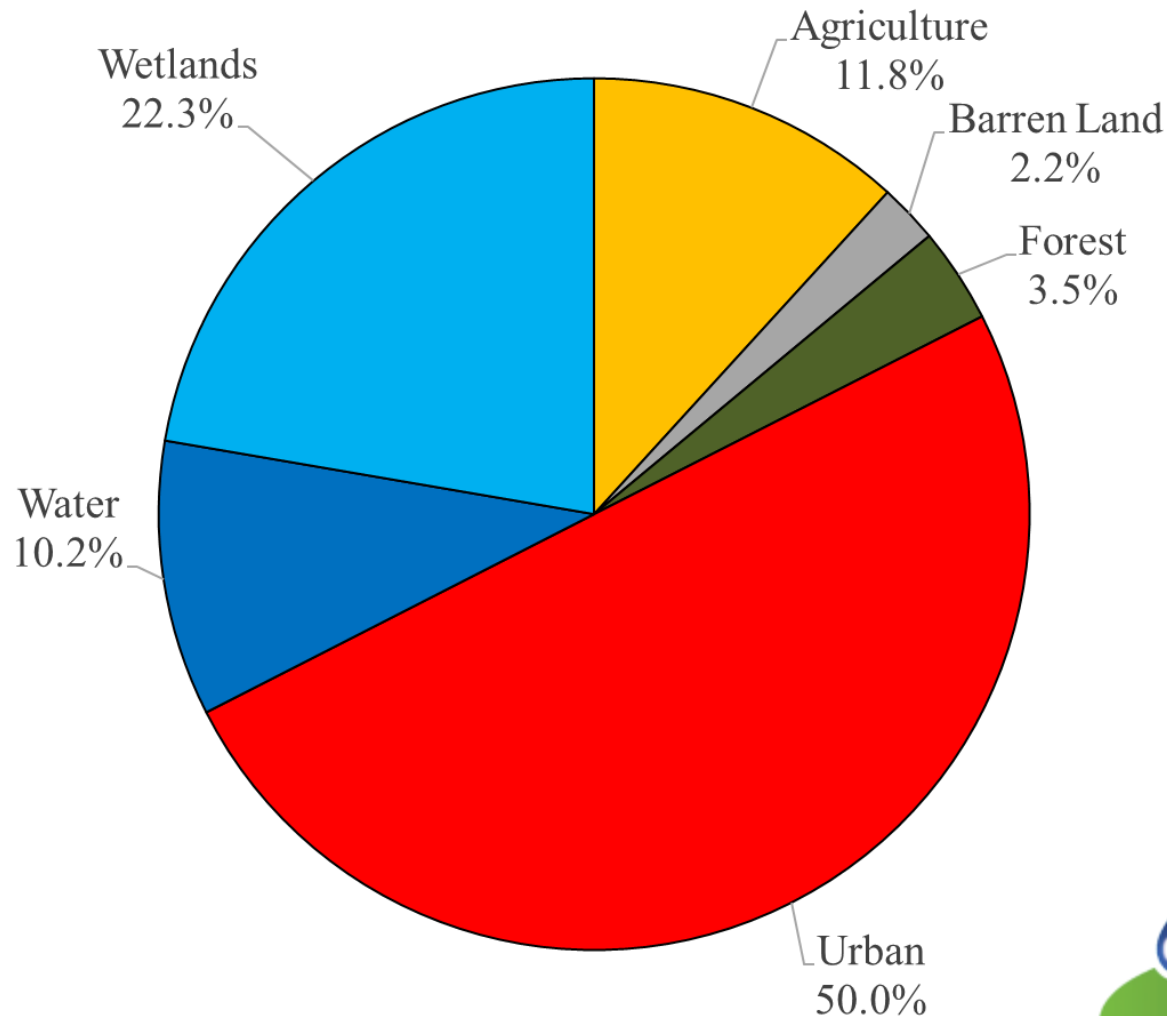


The Process

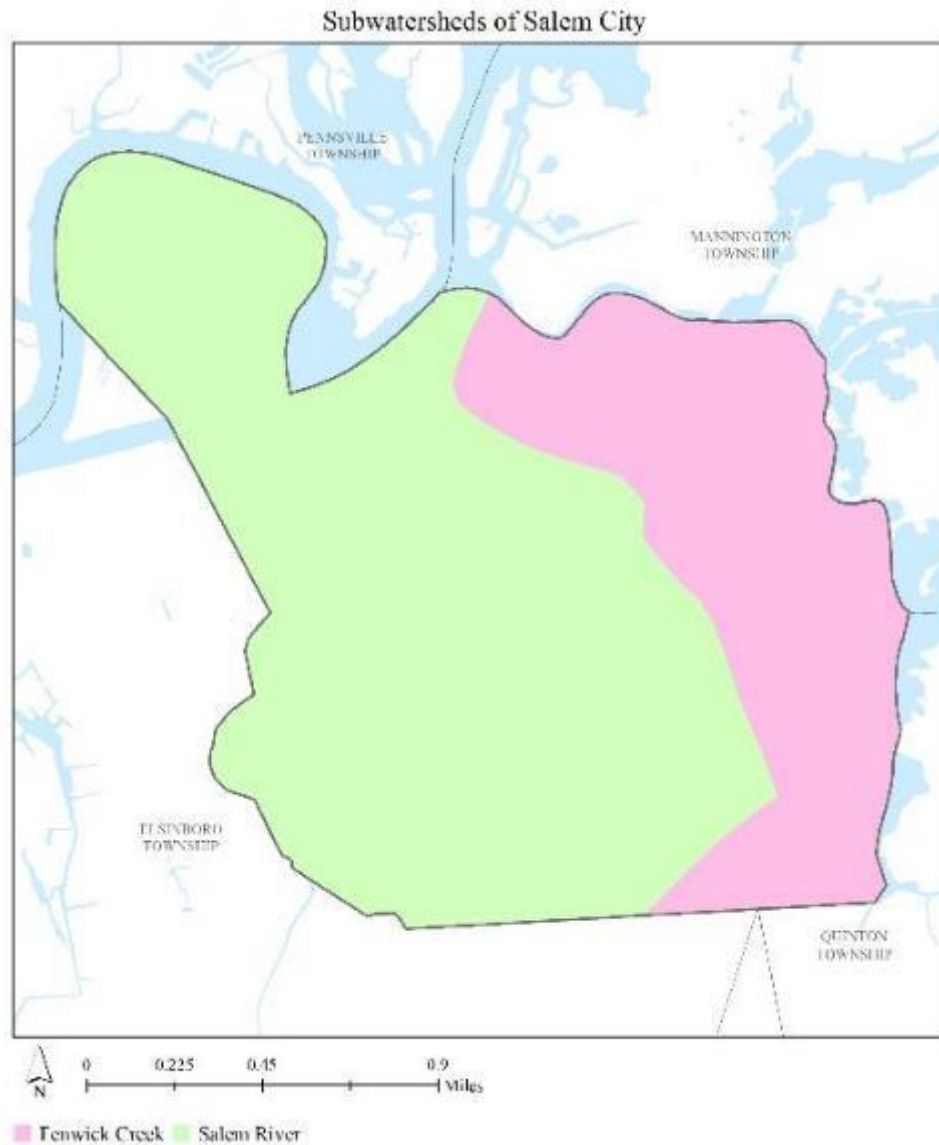
1. Approach the municipality with sound science that identifies the problem
2. Make sure they understand they are contributing to the problem
3. Provide them some quick, easy to implement solutions
4. Help them identify resources to implement the solutions including a local champion



Impervious Cover Assessment (ICA)



Impervious Cover Assessment (ICA)

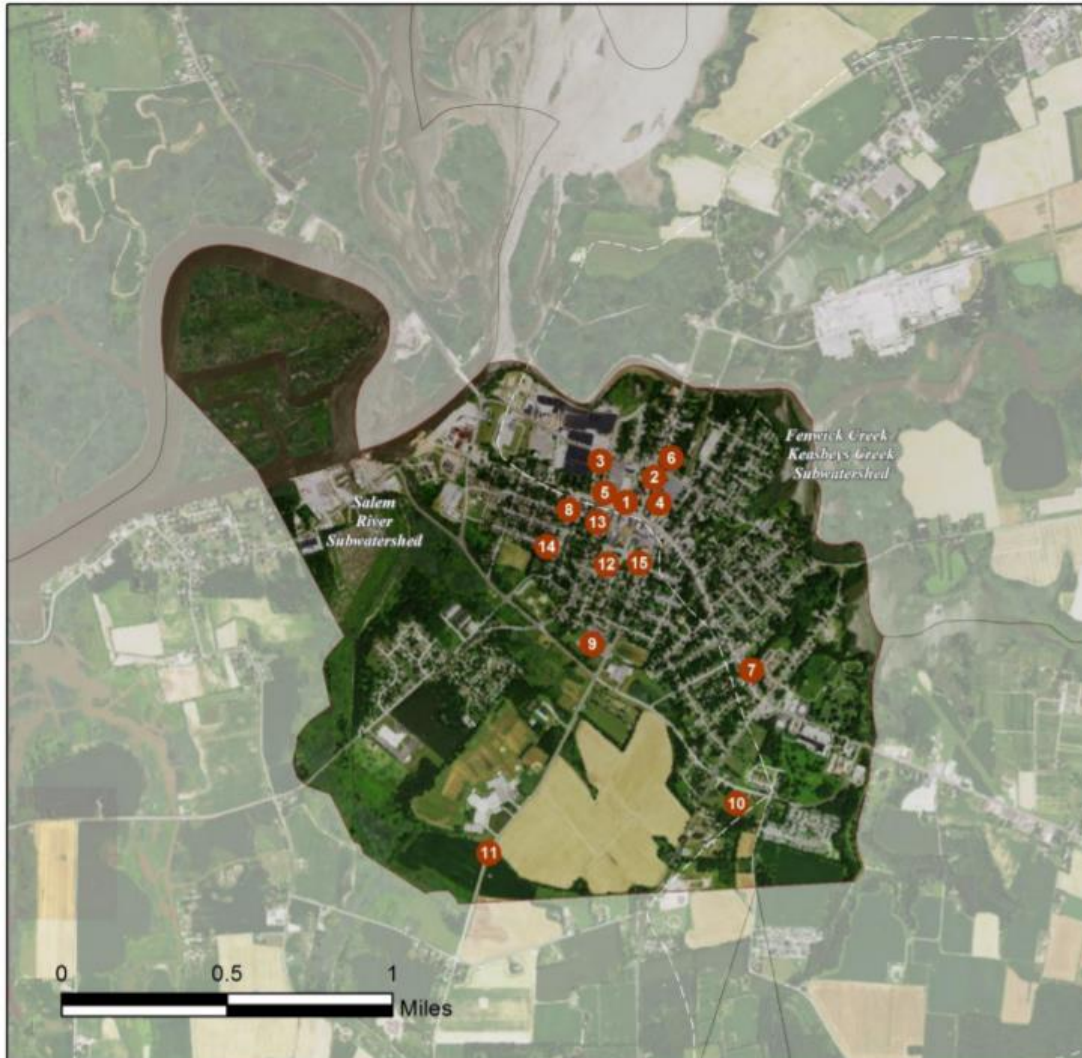


Impervious Cover Assessment (ICA)

Subwatershed	Total Area	Impervious Cover	
	(acres)	(acres)	(%)
Fenwick Creek	549.1	168.8	34.3%
Salem River	1,212.3	171.3	15.7%
Total	1,761.4	340.2	21.5%

Impervious Cover Reduction Action Plan (RAP)

SALEM CITY: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE FENWICK CREEK/ KEASBEYS CREEK SUBWATERSHED:

1. First Baptist Church
2. First Presbyterian Church
3. Liberty Fire Company
4. Salem County Courthouse
5. Salem Post Office
6. St. John's Episcopal Church
7. Washington Fire Company

SITES WITHIN THE SALEM RIVER SUBWATERSHED:

8. Broadway United Methodist Church
9. John Fenwick Elementary School
10. Mount Zion Baptist Church
11. Salem High School
12. Salem Middle School
13. Salem Police Department
14. St. Mary's Regional School
15. Union Fire Company No. 21



JOHN FEWICK ELEMENTARY SCHOOL

Subwatershed: Salem River
Site Area: 381,920 sq. ft.
Address: 183 Smith Street
 Salem, NJ 08079
Block and Lot: Block 83, Lot 6

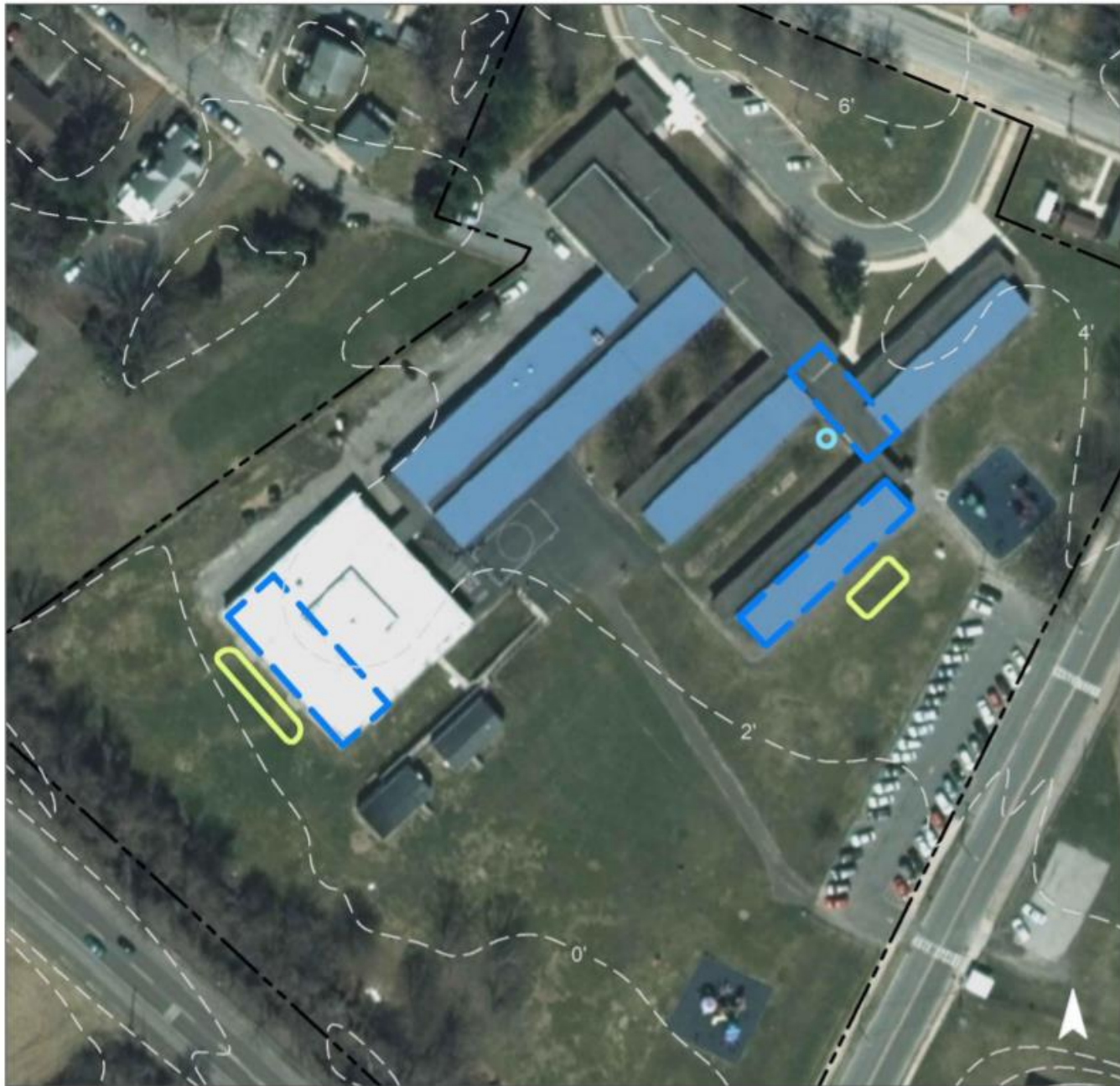


Bioretention systems may be installed to reduce stormwater runoff and can be used as landscaping for the school. A cistern near the mobile classroom can capture rainwater that can be reused for irrigation or classroom functions. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.






Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
36	138,002	6.7	69.7	633.6	0.108	3.78

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.094	16	6,934	0.26	725	\$3,625
Rainwater harvesting	0.054	9	3,949	0.15	2,000 (gal)	\$4,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



John Fenwick Elementary School

-  bioretention system
-  rainwater harvesting
-  drainage area
-  property line
-  2015 Aerial: NJOIT, OGIS





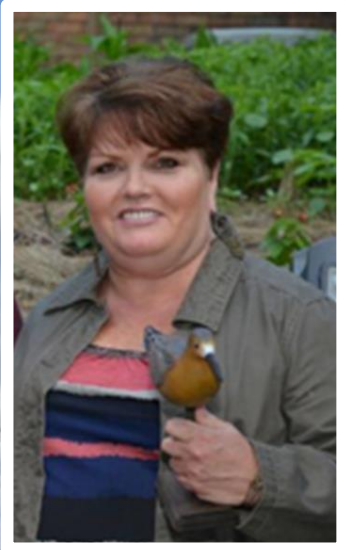


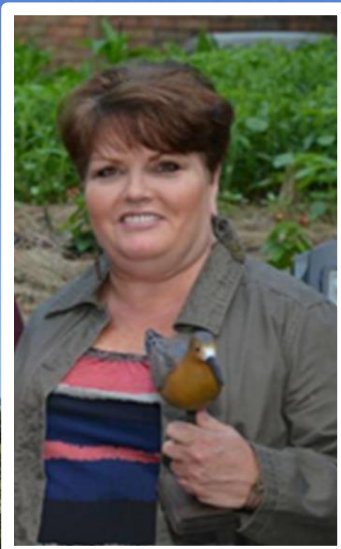
Recruit a Local Champion that:

- Promotes green infrastructure among local politicians, public workers, community groups, and residents
- Serves as a liaison between the Water Resources Program, the community, and other project partners
- Leverage local resources























Funding Implementation

- Leverage existing projects
- Build partnerships
- Write grants



RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

Rutgers Cooperative Extension Water Resources Program

www.water.rutgers.edu

Christopher C. Obropta, Ph.D., P.E.

obropta@envsci.rutgers.edu

848.932.5711

