



Sustainable Jersey Session #1

# Stormwater: Tools to help municipalities weather the storm





# Overview of Sustainable Jersey

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- Free sustainability certification program for New Jersey municipalities

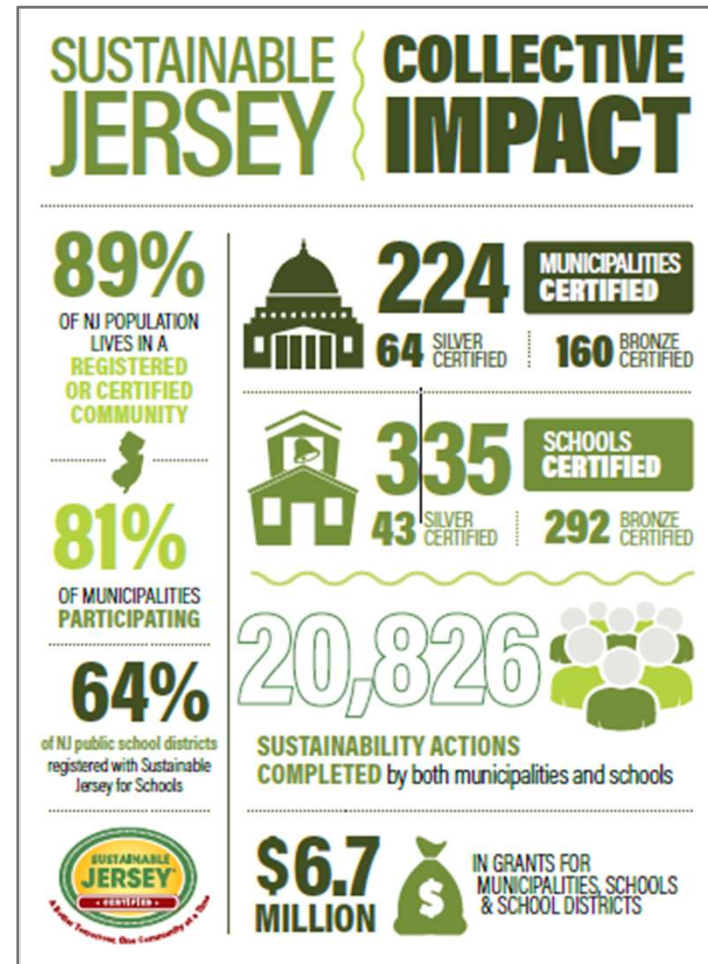
- **Our vision:** achieve a sustainable New Jersey, one community at a time
- **Our mission:** empower New Jersey communities to build a better world for future generations with the tools, training and financial incentives necessary to pursue critical sustainability initiatives





# A Framework for Action

- Coordinates priorities, resources, and policy among public and private state and local actors
- Develops **tools, resources,** and **guidance** to make progress
- Provides access to **grants** and **assistance**
- **Recognizes** accomplishments





# Program Participants



## Municipal Program

**463 Participating**

- 81% of NJ municipalities
- 210 Certified
  - 151 Bronze
  - 59 Silver
  - 1 Energy Gold Star (Woodbridge)





# Sustainable Jersey Actions

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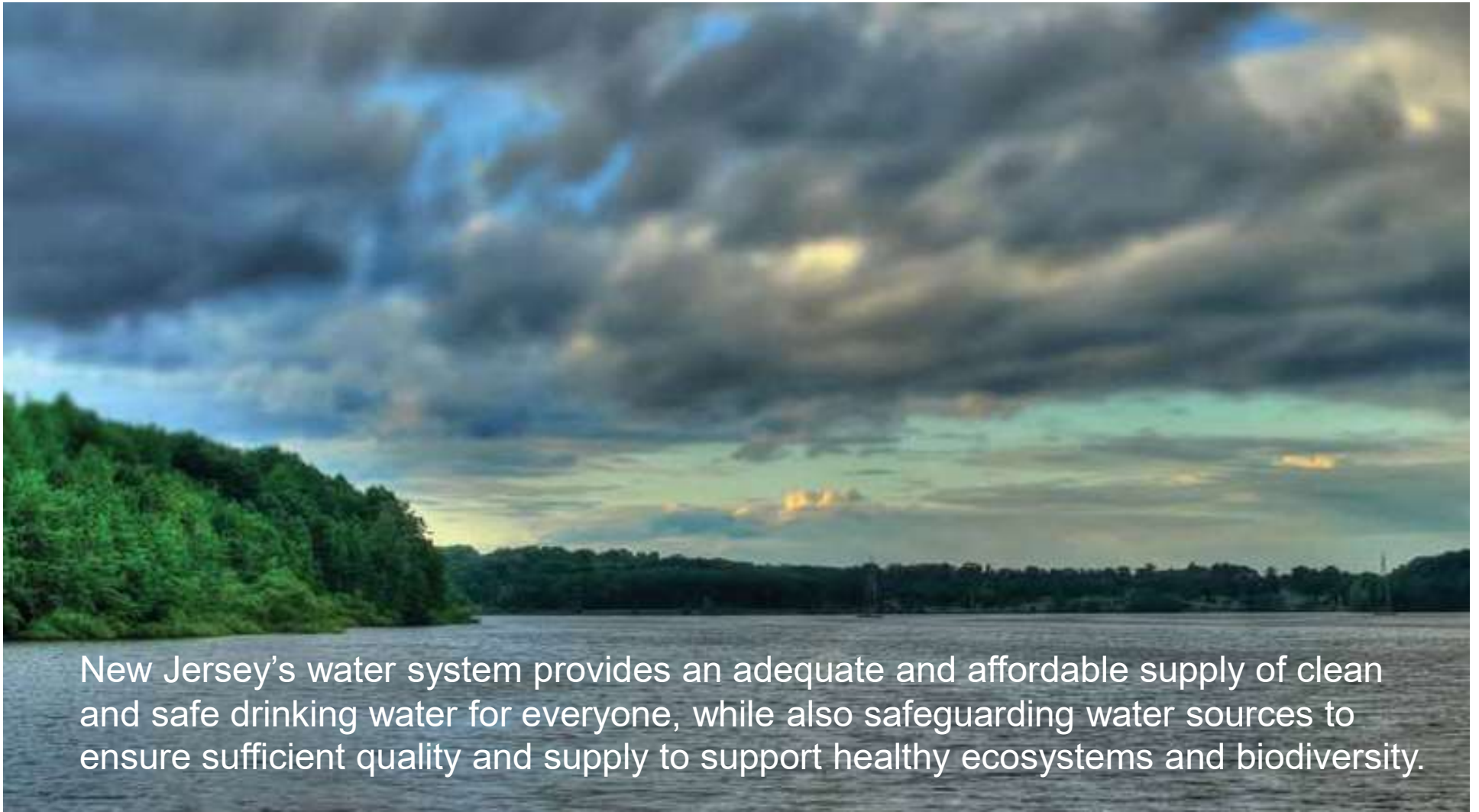
- Action purpose and points
- Why is it important?
- Who should be involved?
- How long will it take and what will it cost?
- What to do and how to do it?
- What to submit
- Spotlights
- Resources





# Water Goal

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New Jersey's water system provides an adequate and affordable supply of clean and safe drinking water for everyone, while also safeguarding water sources to ensure sufficient quality and supply to support healthy ecosystems and biodiversity.



Municipal Dashboard

> Action Development

Priority & Prerequisite Actions

2021 Certification Cycle

✓ Gold Star Standards

Energy Gold

Health Gold

Water Gold

Program Updates

Search Participating Municipalities & Approved Actions

Resources

### Gold Star Standards

All certified municipalities are eligible to earn Gold Star recognition for reaching high levels of achievement in key dimensions of sustainability. Gold Star Standards establish the specific actions and levels of performance that support what we need to achieve as individual communities and as a state, as defined in the [2015 Sustainable State of the State Report](#). The award of a Gold Star indicates that a municipality is making an effective, fair and timely contribution to the collective achievement of our sustainability goals.

Gold Stars are awarded for individual dimensions of sustainability. Current Gold Star Standards in [Energy](#), [Health](#) and [Water](#).



↑ BACK TO TOP

EXPAND ALL ↓ COLLAPSE

Energy

Health

Water

# Gold Star Standard in Water

Completing specific actions will help a municipality earn the gold star in water!



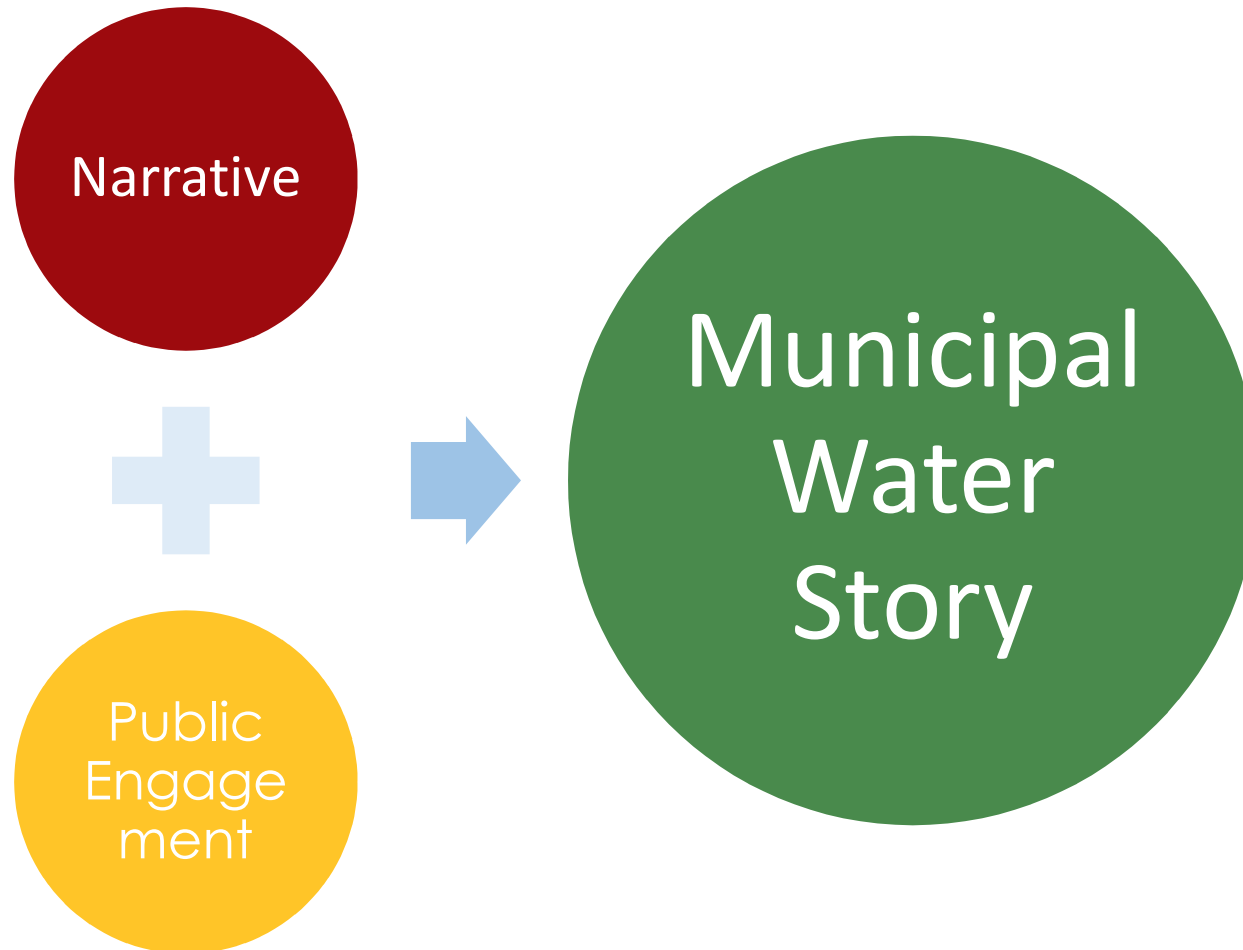
Learn more about Water Gold here:

[bit.ly/SJWaterGold](https://bit.ly/SJWaterGold)



# Municipal Water Story

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# Enhanced Stormwater Management Control Ordinance

Tier	Action	Points
1	Low impact techniques	5
2	Applicability; Retention and definition of Major Development	15
3	2 additional enhancements	25
4	4 additional enhancements	35





# Open Space Plan – Access to Water

## Open Space Plans

10 Points

### Why is it Important?

Who should lead and be involved with this action?

Timeframe

Project Costs and Resource Needs

What to do and how to do it ("How to")

What to submit to earn points for this action

Resubmission Requirements

Approved Action Expiration Date

Updated April 2021

The goal of this action is municipal Recreation Plan and its adoption local Master Plan. An Open Space as the Open Space Plan, OSP) shd Jersey Department of Environmen The Green Acres guidelines requir municipal OSRP if a town wishes to Incentive Program for enhanced c establishes open space goals and of existing and potential open spc well as conservation objectives ar provides a framework and directio for preservation, improvement and

In addition to addressing the 10 c [Acres Program – Open Space and Recreation Plan Guidelines](#), the OSRP needs to be completed or updated and adopted as part of the local Master Plan within the last 10 years.

### **Why is it Important?**



Visitors to Cooper's Point Waterfront Park take in the view of the Delaware River, the iconic Benjamin Franklin Bridge and the Philadelphia skyline. ©2020/2021 by Cooper's Point Waterfront Park



# Drinking Water Actions

↑ BACK TO TOP	EXPAND ALL	COLLAPSE ALL
<b>Health &amp; Wellness</b>		
<u>Anti-Idling Education &amp; Enforcement Program</u>	10 Points	
<u>Building Healthier Communities</u>	5 Points	* THIS ACTION HAS VARIABLE POINTS: 5, 10, 15, 20, 25 * COMPETITIVE FUNDING AVAILABLE
<u>Health in All Policies Professional Development</u>	10 Points	
<u>Private Well Outreach and Testing</u>	10 Points	* THIS ACTION HAS VARIABLE POINTS: 10, 15, 20, 25
<u>Removing Lead in Drinking Water</u>	10 Points	* THIS ACTION HAS VARIABLE POINTS: 10, 30, 40
<u>Safe Routes to School</u>	10 Points	






# Green Infrastructure Planning and Implementation Actions

Rutgers | School of Environmental and Biological Sciences Search Rutgers

RUTGERS New Jersey Agricultural Experiment Station

Water Resources Program

- HOME PAGE
- About the Program
- Staff
- Projects & Programs
- Recent Presentations
- Water Pages
- Fact Sheets
- E-learning Tools
- Useful Links



Our green infrastructure initiative in urban centers for practices before it enters the combined sewer system

RUTGERS New Jersey Agricultural Experiment Station

Water Resources Program

**ABOUT US**

Rutgers Cooperative Extension  
Water Resources Program

G.H. Cook Campus  
14 College Farm Road  
New Brunswick, NJ 08901

[www.water.rutgers.edu](http://www.water.rutgers.edu)

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**Projects & Programs**

<b>Agricultural Watershed Planning &amp; Implementation</b>	<b>Municipal/Community Training</b>
<b>Green Infrastructure Program</b>	<b>Rain Gardens &amp; Rain Barrels</b>
<b>Keep the Rain from the Drain ~ Impervious Cover Reduction Program</b>	<b>Watershed Planning &amp; Implementation</b>
<b>Municipal Stormwater Management</b>	

**Agricultural Watershed Planning & Implementation**

- Watershed Restoration & Protection Plan for Assiscunk Creek, Burlington County, NJ
- Biofilter Wetland at Harrow Run, Water Quality Evaluation of Pollutant Removal Efficiency from a Tailwater Recovery System
- Watershed Restoration Plan for the Upper Cohansey River Watershed
- Upper Cohansey River Watershed Agricultural Mini-Grant Program
- Watershed Restoration Plan for the Upper Salem River Watershed
- Upper Salem River Watershed Agricultural Mini-Grant Program

**Green Infrastructure Program**

[Top of Page](#)

<http://www.water.rutgers.edu/Projects/Projects.htm>







# Gold Star Standard in Water



**Complete Four Pre-requisite Actions:** Two required Actions: Water Story and Environmental Resource Inventory as well as selection of a “high impact” and an additional action.

**Prepare Navigational Path:** as part of the Water Story action, in which municipality identifies water issues and corresponding actions to advance improvements in water in the years ahead.

**Water Gold Star Certification:** Apply on the Gold Star portion of the website – four completed actions; navigational path and reviewed during standard municipal certification cycle, if approved gold star awarded for 3 years.



# Municipal Water Story



SERVING ASBURY PARK • ALLENHURST • INTERLAKEN • LOCH ARBOUR • OCEAN GROVE • WANAMASSA

Concerns about drinking water quality
Areas of repetitive flooding after heavy rain
Concerns about water supply
Urban flooding and pollution due to combined sewer overflow
Impaired surface water quality
Equity Issues related to public access to water

## ASBURY PARK

### ASBURY GETS HELP TO WRITE ITS "WATER STORY"

Like 29  
Tweet

NEW JERSEY AMERICAN WATER PROVIDING GRANT FOR TECHNICAL ASSISTANCE FOR RESILIENCY AND SUSTAINABILITY

By Asbury Park Sun

Sustainable Jersey today announced that the City of Asbury Park was selected to receive technical assistance, funded by New Jersey American Water, to complete a new Sustainable Jersey Action: Municipal Water Story.

"At New Jersey American Water, we work to protect the viability, integrity and resiliency of water supplies and water and wastewater infrastructure in our service areas that are vulnerable to droughts, floods and extreme weather events," said Mark McDonough, president of New Jersey American Water. "This work will

ADVERTISE WITH US

SUGGEST A STORY



# Sustainable Jersey Grants Program



## 2022 Cycle: Announced!

- 20k, 10k, and 2k grants available
- Can be used for any Sustainable Jersey action-related project
- Funding Dispersed in early May

# Sustainable Jersey Grants Program



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An Exelon Company

Sustainable Communities Grant Program



# Sustainable Jersey Supporters & Sponsors

## Program Underwriters



## Grants Program



## Corporate Sponsors

### PLATINUM



### GOLD



### SILVER





**November 16, 2021**

**Comprehensive Mitigation & Resilience**

**Thomas C. Flynn, M.P.A., CFM**

**Environmental Specialist**

**Floodplain Administrator / CRS Coordinator**

**Township of Woodbridge, N.J., Division of Engineering**

**Mayor, John E. McCormac**

**Email: [Thomas.Flynn@Twp.Woodbridge.NJ.US](mailto:Thomas.Flynn@Twp.Woodbridge.NJ.US)**

**Email: [Thomas.Flynn@Twp.Woodbridge.NJ.US](mailto:Thomas.Flynn@Twp.Woodbridge.NJ.US)**

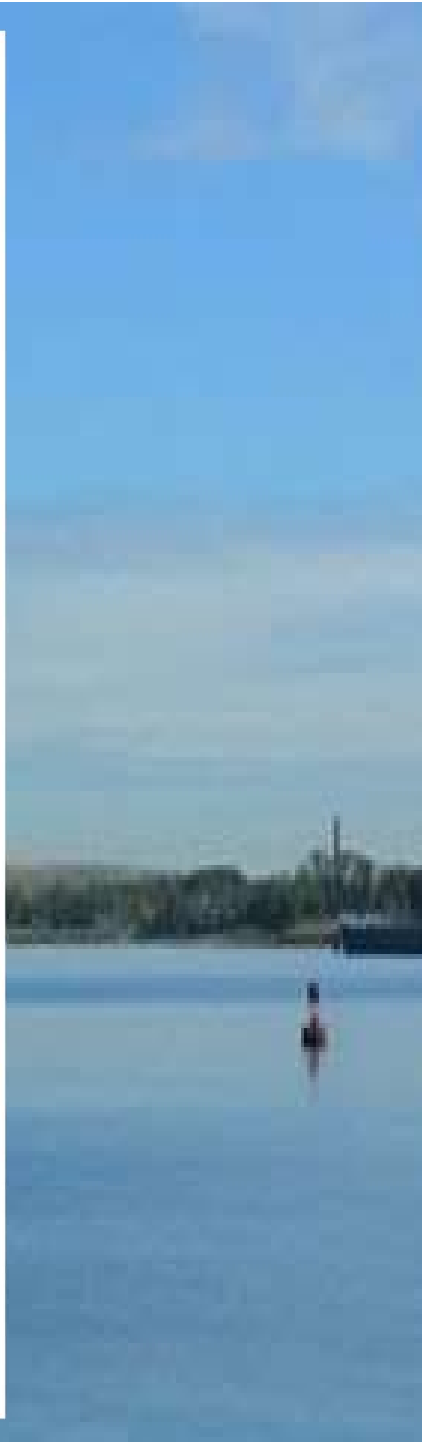
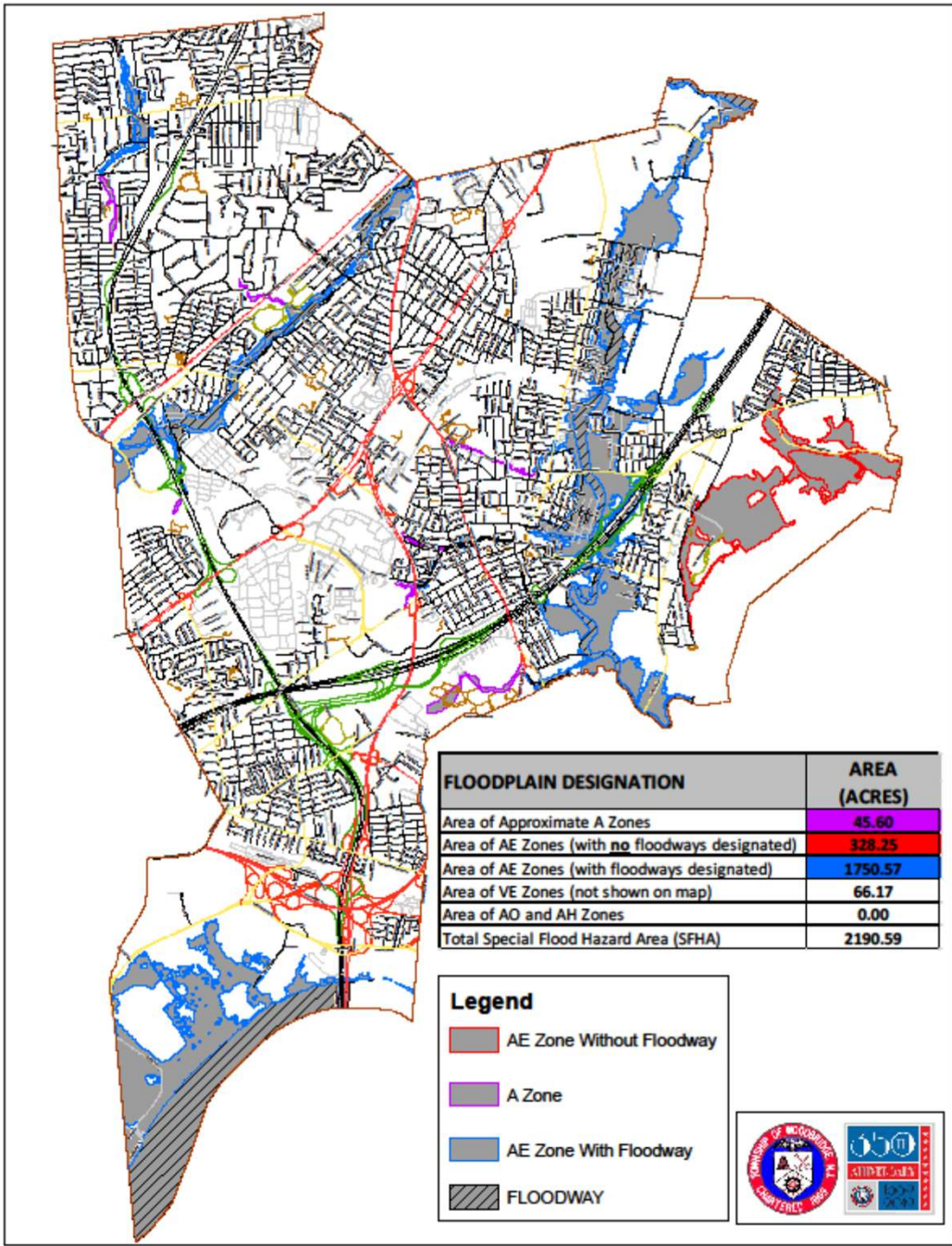
**Mayor, John E. McCormac**

**Township of Woodbridge, N.J., Division of Engineering**

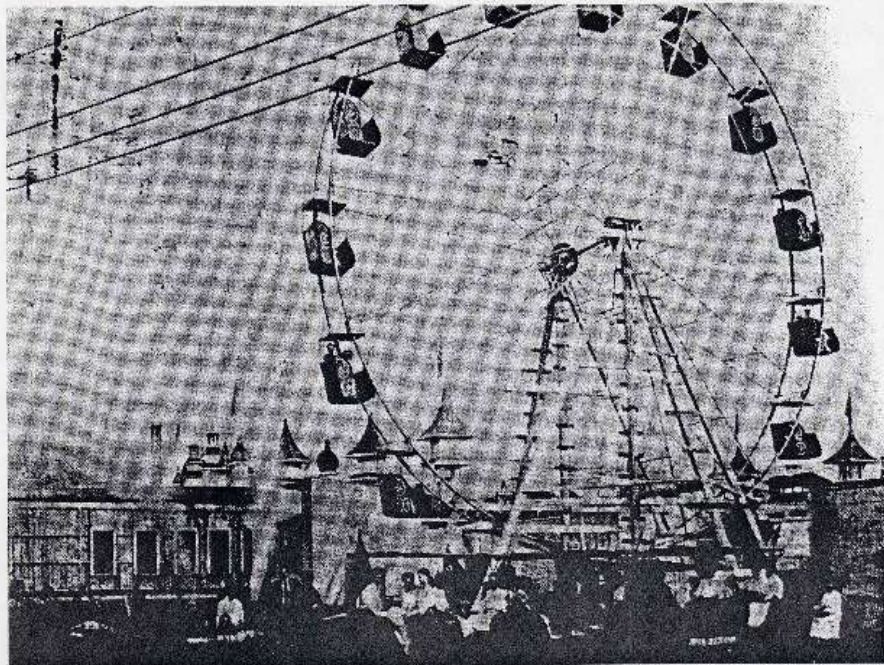
**Floodplain Administrator / CRS Coordinator**

Photo Credit: Beth Schreier









Ferris Wheel, Boynton Beach.

## BOYNTON BEACH

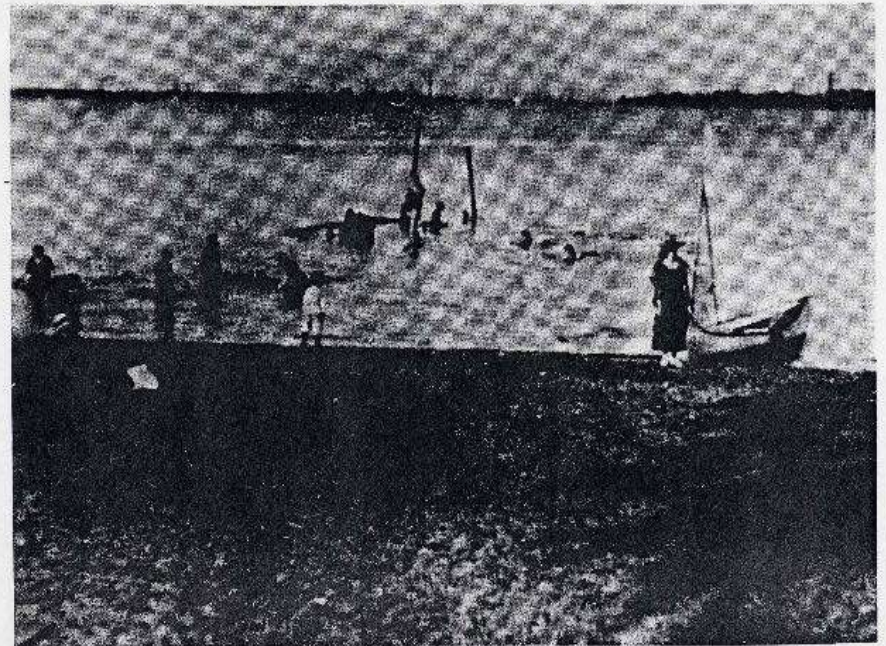
**A**t the turn-of-the-century, Boynton Beach was one of the most popular resorts along the Middlesex County coast. An issue of the Central Monthly, (c.1900), a promotional publication of the Jersey Central Railroad, was titled "Boynton Beach, N.J., An Ideal Day Summer Resort," and depicts vacationers arriving by train, trolley, bicycle and ferry. According to the author, "The Jersey Central Railroad accommodated excursion parties from New York City, and before the time of the railroad, large ferryboats docked at the landing unloading crowds of folks who had come to spend the day bathing, fishing or just relaxing under the trees on an all-day's picnic spree." Picnic groves, bath houses, a jetty, dance pavilion, a gently sloping beach and more than 100 row-boats for hire made Boynton Beach



Hopefully, the story that follows will give plausibility to the expression, "The Good Old Days," as it referred to life at the turn of this century. At that time, the township of Woodbridge, in Middlesex County, had extensive deposits of rich clay. A C. W. Boynton, an entrepreneur from Maine, built a brick and tile manufacturing plant in the Sewaren section of Woodbridge, near the mouth of Woodbridge Creek on the Staten Island Sound (Arthur Kill). The land extended north toward Smith Creek and included the beach front.

Boynton erected bath houses on the beach and developed the adjoining land into groves. Good transportation and a perfect setting made prosperity inevitable.

Left over from earlier days was a dock at the foot of Ferry Street. A



Boynton Beach.

## The Good Ol' Days

after 1844 and there was scheduled service to Boynton Beach from Perth Amboy, Elizabeth and New York.

There was also trolley service from Elizabeth. Service from Westfield to Perth Amboy also had a stop at Sewaren. A coach line that connected with major inland coach lines also served the beach in its earlier days. Of course, parking was also provided for the more affluent, who arrived at the beach in their buggies. The Central Railroad extended their line from Elizabeth to Sewaren.

During its heyday, the beach provided the best and safest swimming on the Kill, at both high and low water, and fishing, clamming and oystering were ideal.

An annual event carried down from the days of the Indians was "Salt Water Day." Originally, it was just a day set aside for swimming and eating oysters, but by the 1900s, it had

involving all the facilities.

Steamboat service faded out early in the century, primarily because of the terrible safety record. Boats, often facing heavy winds and currents, overloaded their woodburning heaters, which caused numerous boiler explosions. Land transportation, especially speedy, safe and frequent rail service, also improved.

The area continued to prosper until just prior to World War I. In 1917, The Dance Pavilion burned, along with most of the other buildings. The Sewaren Hotel had burned to the ground a few years earlier. About the same time came the first hints of water pollution in the area as well as development of better shore areas.

Photographs from the collection of the Woodbridge Township Public Library and Albert Housman, courtesy of the

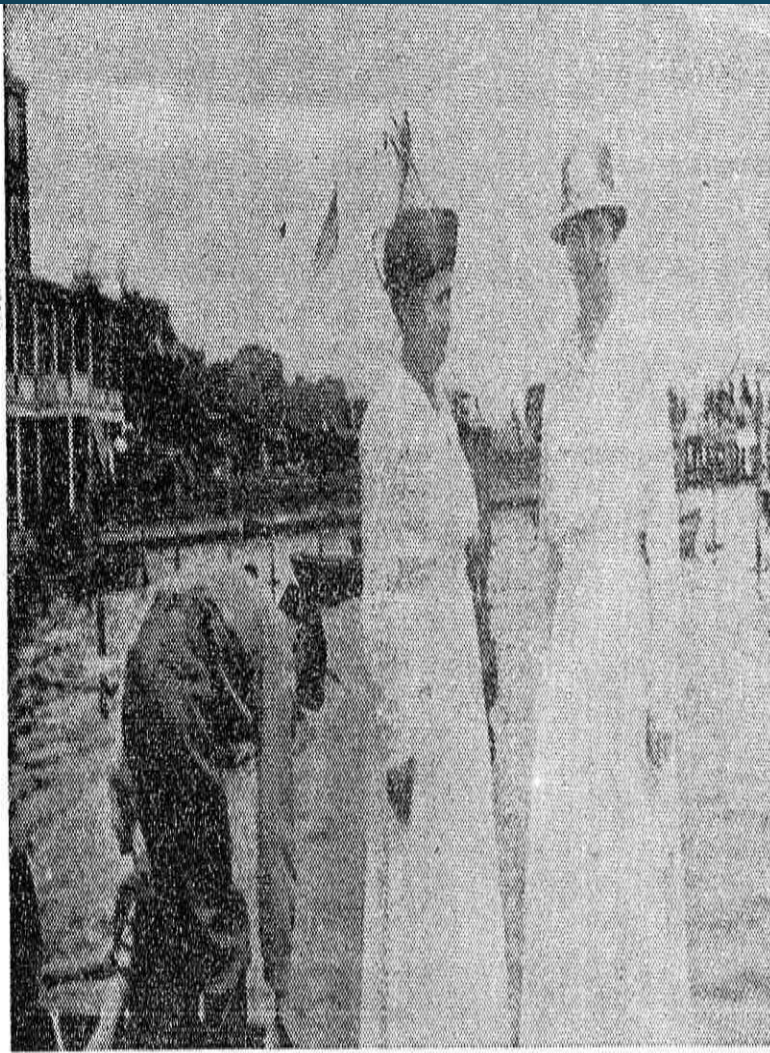
The houses along Cliff Road occupied the most fashionable location, and most were built in some variation or modification of the Shingle Style, with eclectic Queen Anne and Colonial Revival elements evident as well. The houses at the northern end of West Avenue were similar but less grandiose, while the houses at the opposite end of that street were modest, working-class dwellings with few high style features.

Although actual intrusions are few, the resort feeling of Boynton Beach has been destroyed by industrialization and pollution. Many of the houses along Cliff Road are poorly maintained and some have lost architectural integrity, largely because of superficial changes. Nevertheless, the district is the only remaining evidence of the once-thriving resort industry along the Middlesex coast, and has the largest collection of Shingle









A DAY AT THE BEACH: Dressed in the height of fashion for July, 1915, are Mrs. James Blair and daughter, standing on the dock at Sewaren Hotel, prior to boarding a boat for a trip around Staten Island. Many Township residents enjoyed the facilities at Boynton Beach during the first two decades of the century.



Boynton Beach N. J.

Dear Mr. Pitz:

We took a run down to Boynton Sunday, and it makes a nice little trip from Newark.

Would have run down to Perth Amboy only our time was limited.

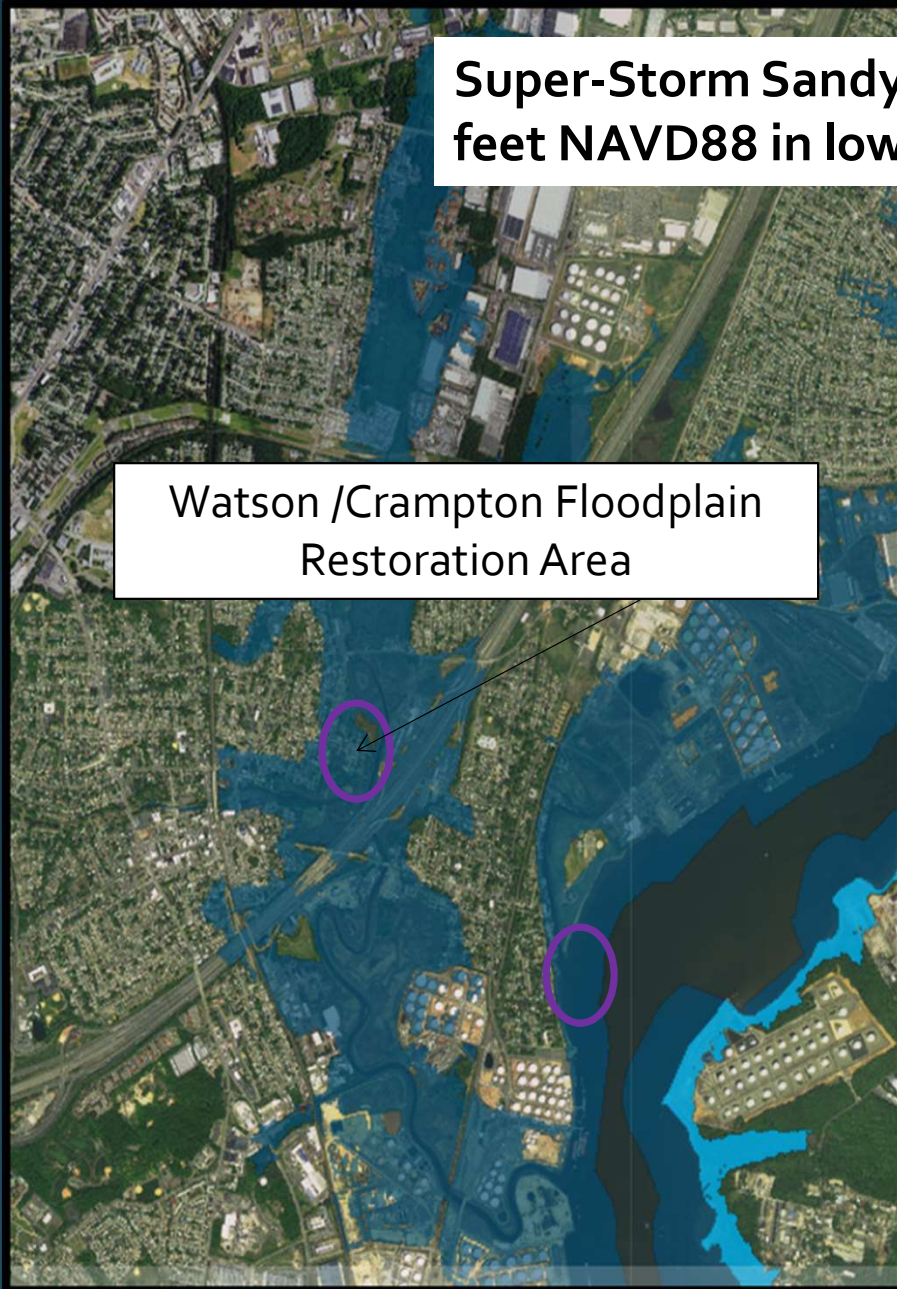
We made the run in 3  $\frac{1}{4}$  hours against tide.

Yours truly  
Harry Moll.

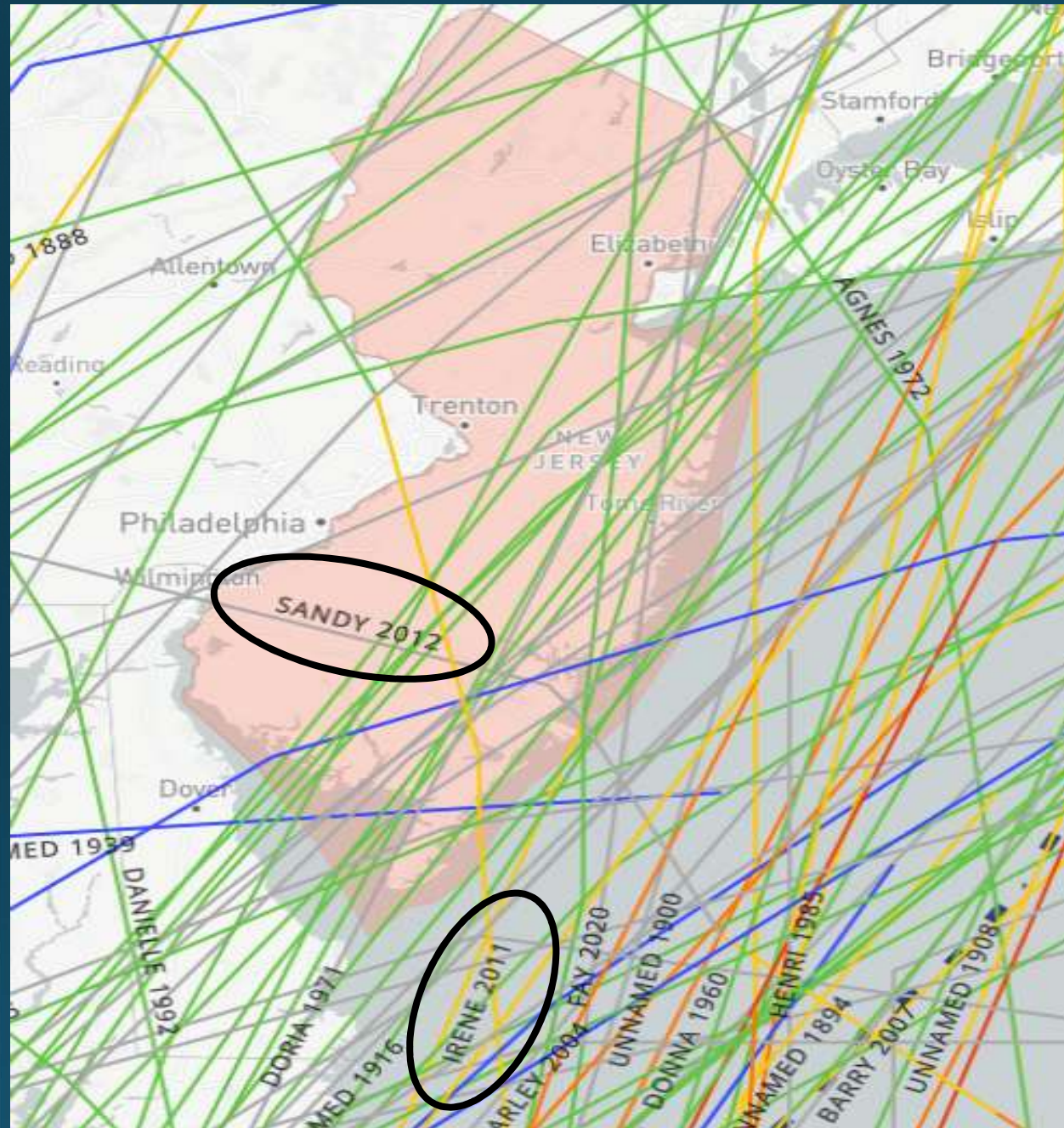


Super-Storm Sandy reached elev. 12.5 feet NAVD88 in lower Woodbridge River

Watson /Crampton Floodplain Restoration Area







Source: NOAA

Historical Hurricanes  
(1856 -2020)

Stop Calling It A  
Wake Up  
Call

Stop Calling It A  
Warning

Stop Calling It  
A Once In a  
Lifetime Event



A photograph of a river with a bridge, overlaid with text. The river is brown and turbulent, with a bridge in the background. The text is in a yellow, serif font with a black outline. The text reads: Plan Like Nature Has No Memory & Implement Like Time Has No Heart.

Plan  
Like Nature  
Has No Memory  
&  
Implement  
Like Time  
Has No Heart



# What Does That Look Like?





## RETAINING WALL



'Hard' infrastructure like retaining walls abruptly severs the ecological connection between the coast and water.

## LIVING SHORELINE



Not only do Living Shorelines defend land against destructive waves, but they also provide crucial habitat for fish and wildlife.



# So what exactly Is Green Infrastructure?







***Only Rain Goes Down the Storm Drain Campaign***

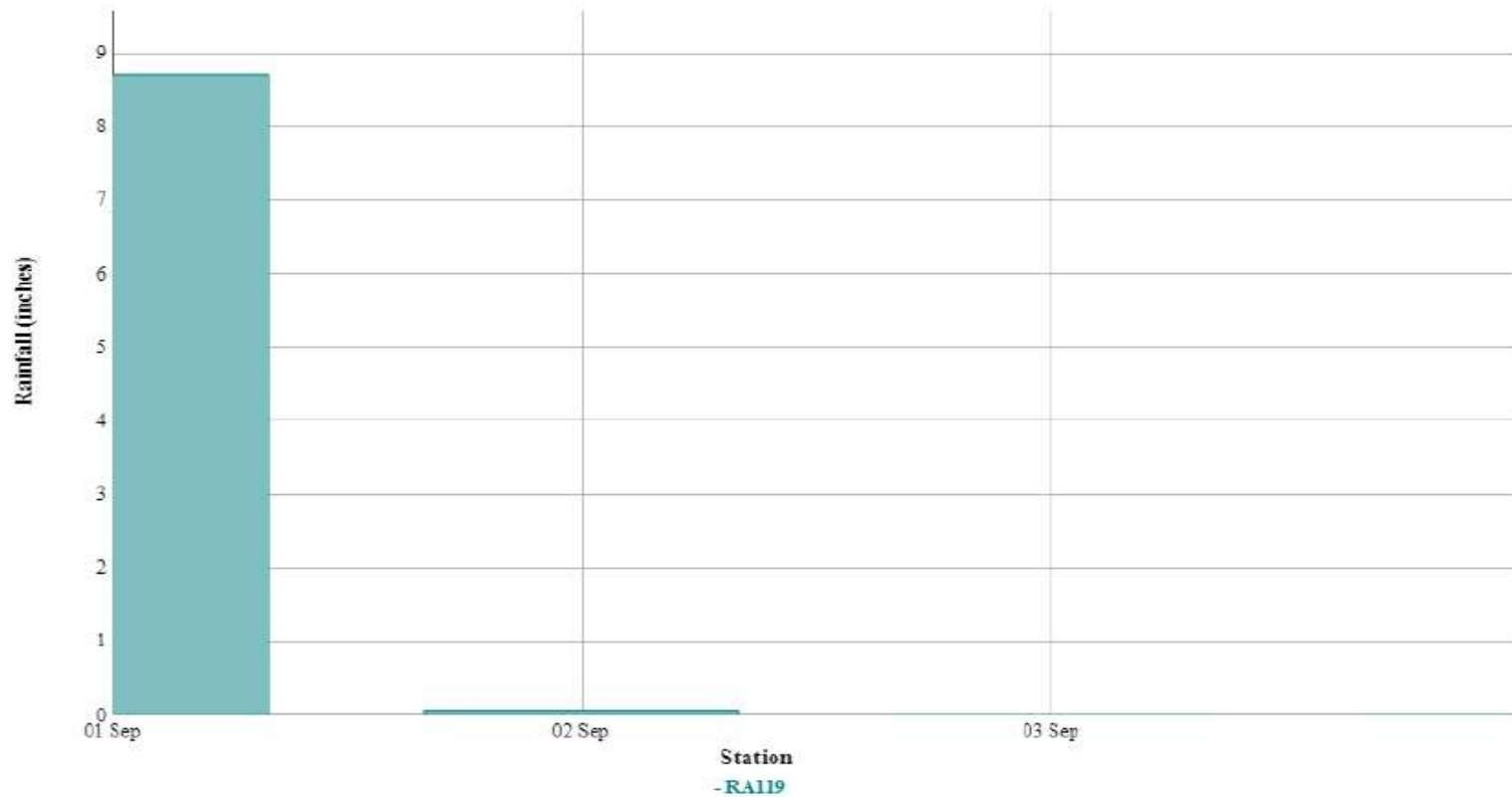
In streams suspended solids can reduce visibility and absorb light, which can increase stream temperatures and reduce photosynthesis.

2021  
Problem Site Maintenance (PSM)  
Post Storm Event Assessments  
(IDA)

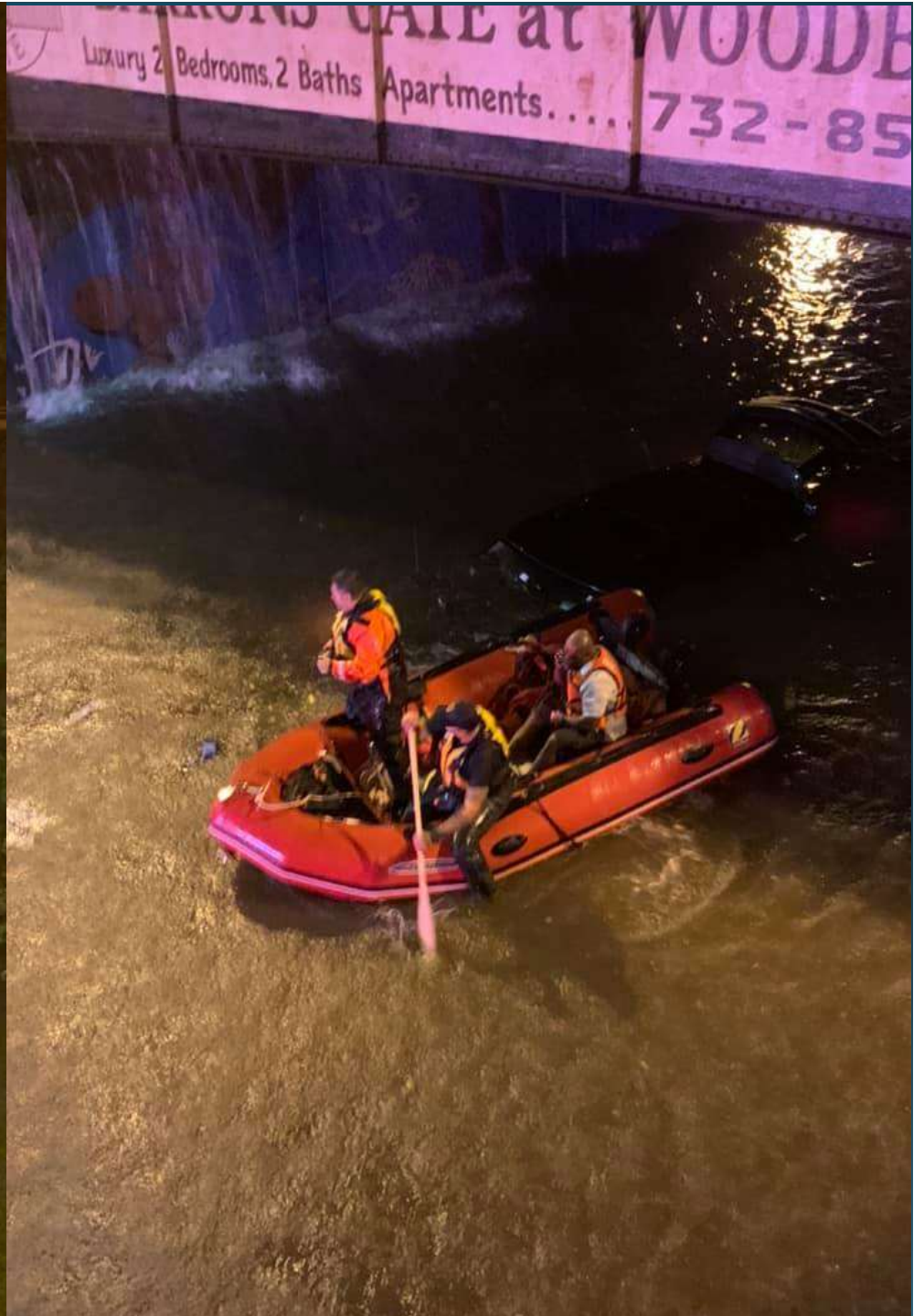
NJDEP New Jersey Department of Environmental Protection - Rainfall - Graph

**Rainfall data**

**From 09/01/2021 to 09/04/2021**







# Remembering Super-Storm Sandy

## *Reshaping Resilience*

- The misleading 100-year storm
- ABFE's & PFIRM's
- Restoring the Shore





# Removing Families from Harm's Way





*Watson Crampton Neighborhood Plan*  
*Township of Woodbridge*



Prepared by Heyer, Gruel & Associates

August 2015

Development of Codes, Ordinance, Regulations,  
and Design Standards  
&  
Permit and Application Process Quality Improvements

For the Township of Woodbridge  
Middlesex County  
New Jersey

POST SANDY PLANNING ASSISTANCE PROGRAM

New Jersey Department of Community Affairs  
Office of Local Planning Services

August 12, 2016

Prepared by:



**Heyer, Gruel & Associates**

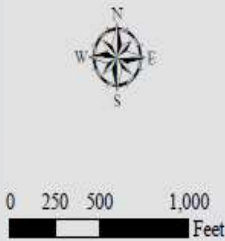
Community Planning Consultants

236 Broad Street, Red Bank, NJ 07701

(732) 741-2900



# Woodbridge Township Open Space and Flood Plain Restoration Plan



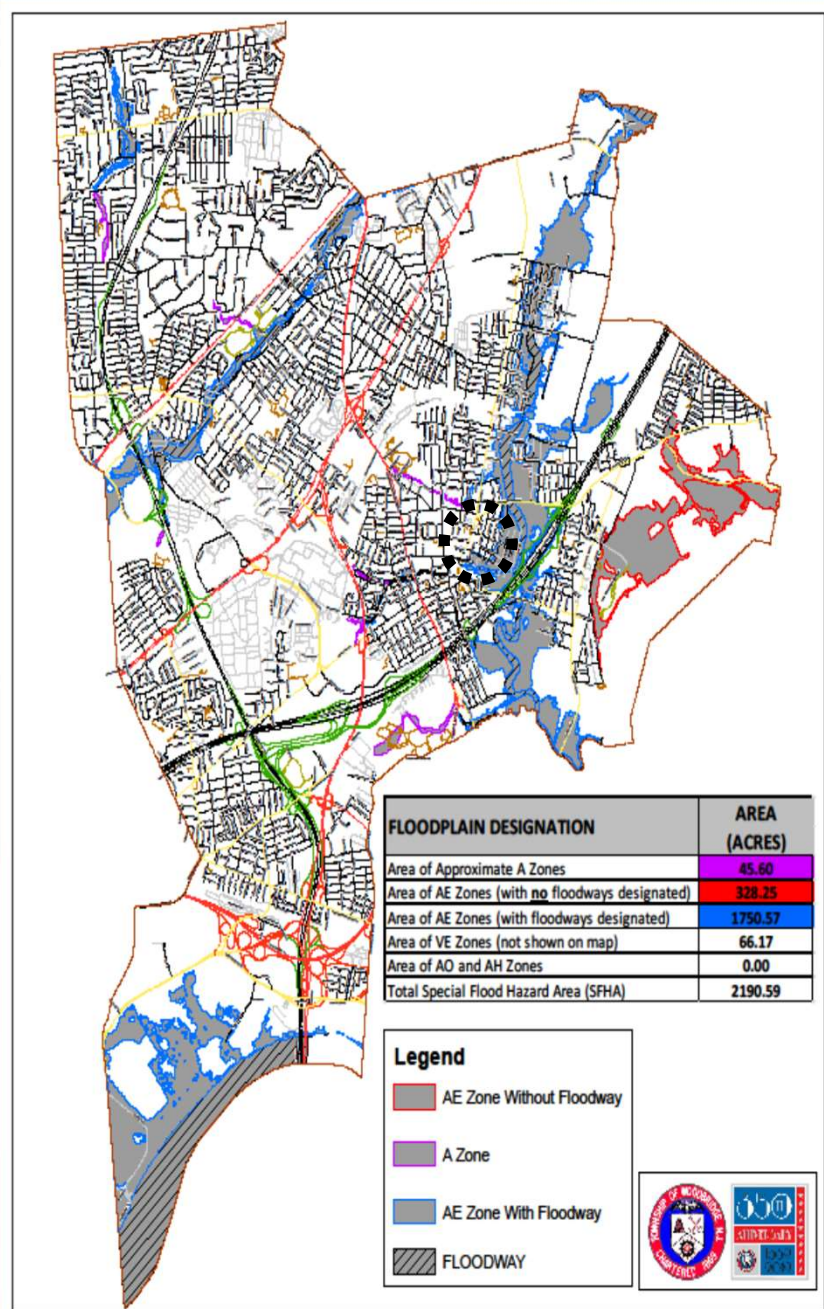
Scale = 1:7,200  
1" = 600'

Source: NJAES, NJOIT-OGIS, NJDEP  
Map Creation: 1/2016  
Projection: NAD83 SPNJ  
This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.



## Watson-Crampton Neighborhood Flood Plain

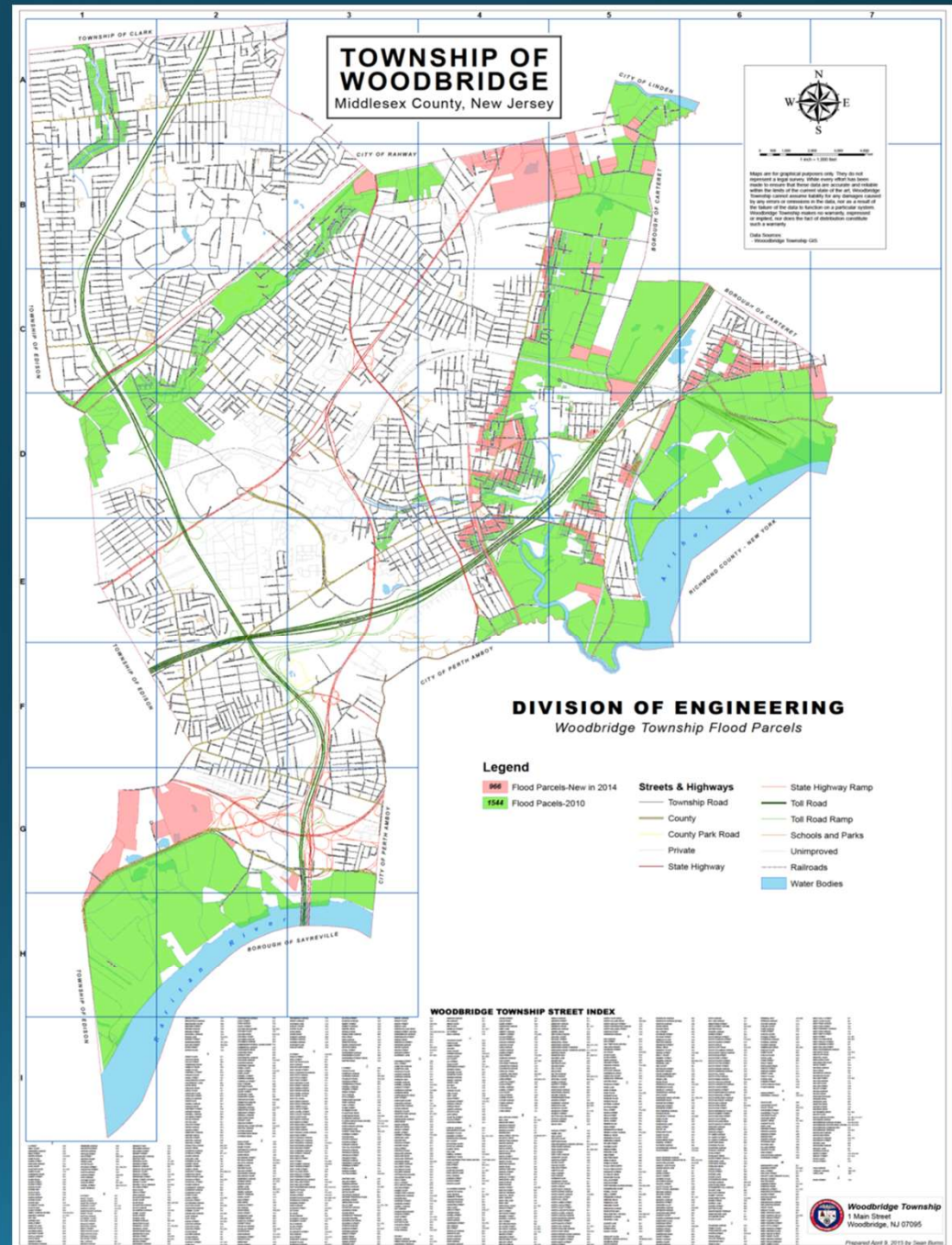
- Neighborhood Boundary
- Streams (NJDEP)
- 100 Year Flood Plain
- 500 Year Flood Plain





# Potential impacts associated with floodplain development

- Alters the dynamics of flooding
- Building and infrastructure damage
- Could compromise sensitive natural areas







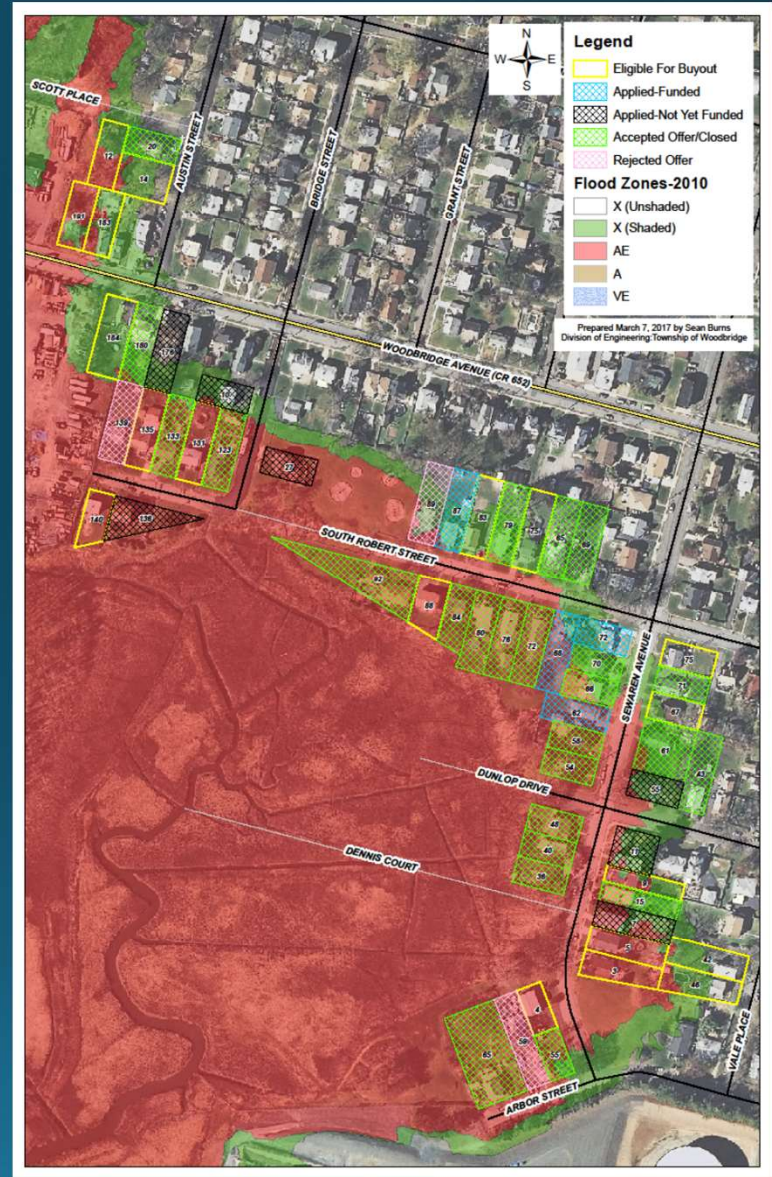
**A Partnership Between Woodbridge Township and Rutgers University Cooperative Extension Water Resources Program**







# Sewaren





# Colonia

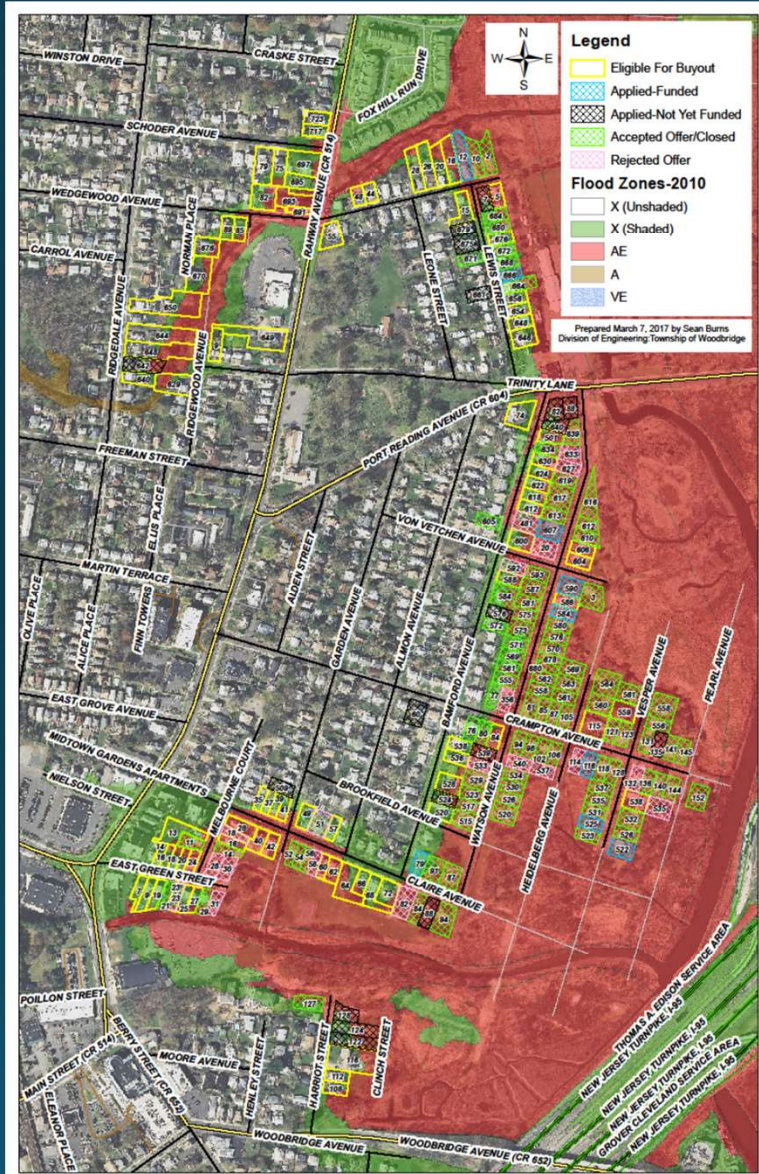


# Port Reading

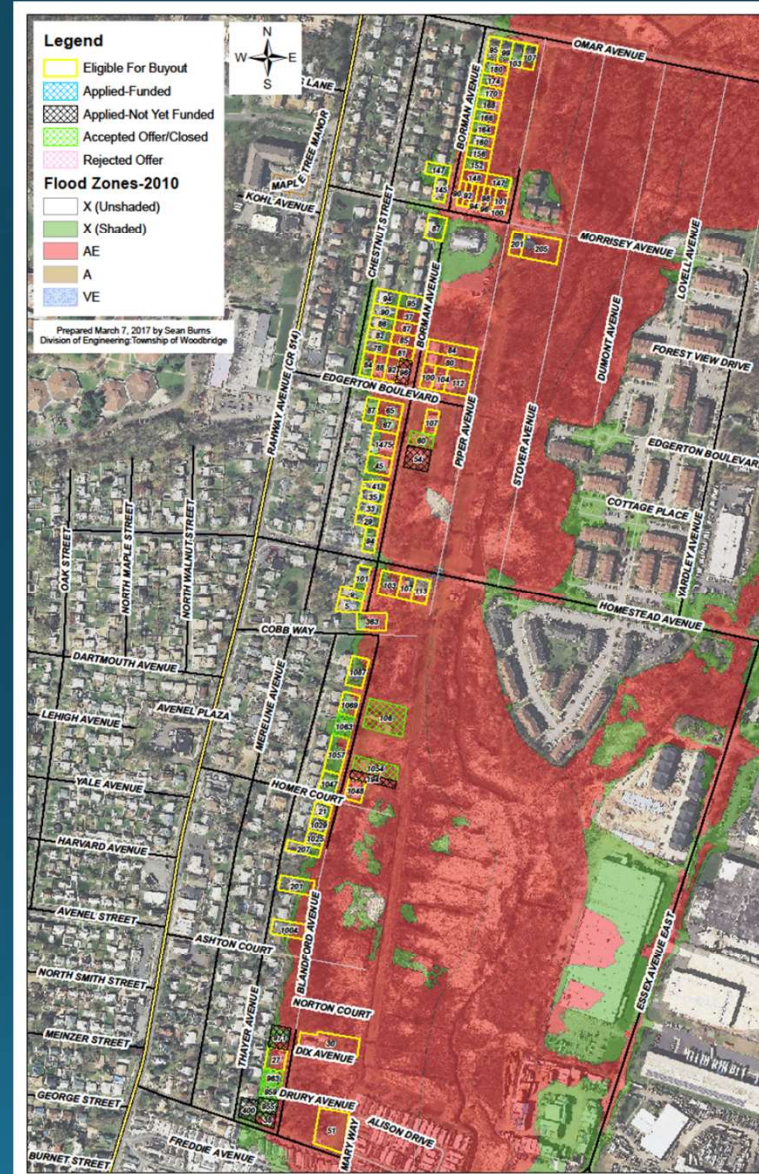




# Woodbridge Proper



# Avenel





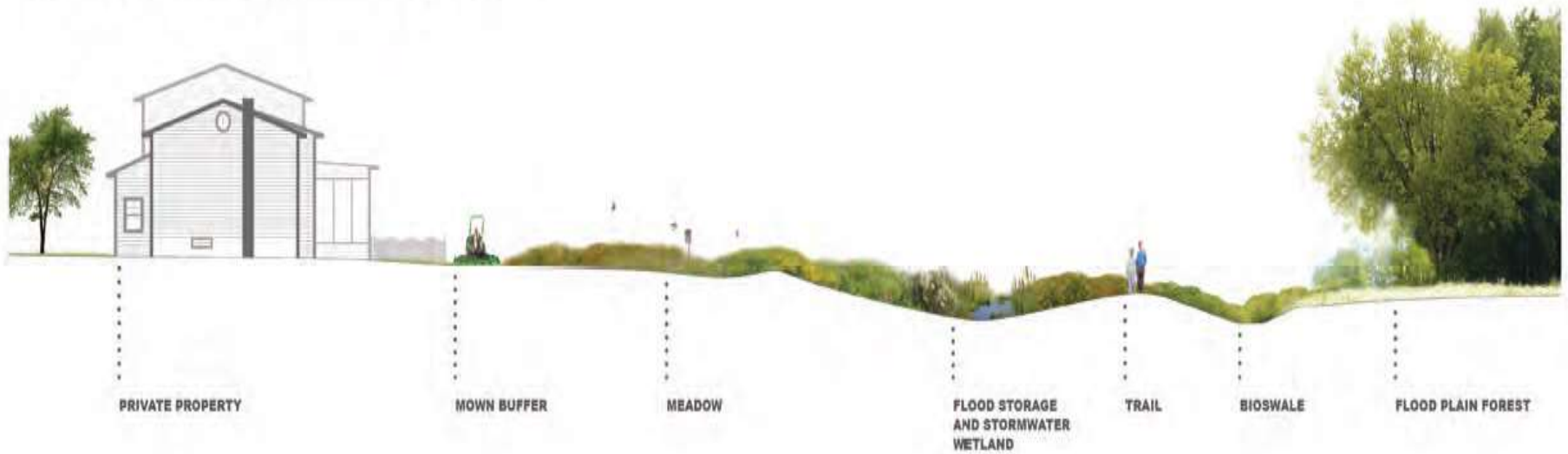


Rutgers Cooperative Extension (RCE) developed a floodplain restoration plan for the area focusing on:

- 1) Protect safety and health of Township residents
- 2) Restore the natural function of the floodplain to promote storage and infiltration of stormwater in appropriate areas, particularly during significant storm events.



## LOW-MAINTENANCE MANAGEMENT ZONE:



## RESTORATION ZONE:



# Local Level Floodplain Management

## Four Main Strategies

1. Modify human susceptibility to flood damage
2. Modify the impact of flooding
3. Modify flooding itself
4. Preserve and restore natural functions of floodplains





# The Unified National Program for Floodplain Management

- Regulations in high hazard areas
- Building codes / flood resistant design
- Acquisition and relocation
- Modifying / retro-fitting
- Controlling storm water run-off
- Providing self-help to property owners

Regulation

Mapping


Flood  
Insurance


Three legged  
stool of the  
NFIP

Safeguarding Human Life &  
Protecting Natural Functions of  
Floodplains

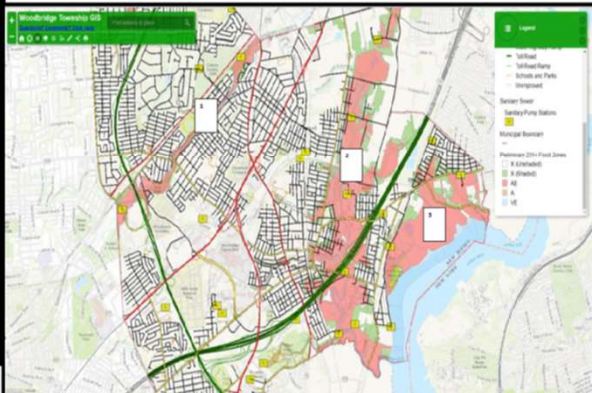



# What about the locals?

**Woodbridge Township**  
*Celebrating our 150th Anniversary*  *The Best Town Around*



## Six Ways for Township Property Owners to Become More Flood Resilient



The map displays various flood hazard zones in Woodbridge Township, including Special Flood Hazard Areas (SFHAs) such as AE, A, Coastal A, and VE zones. It also shows other features like water bodies, roads, and buildings.

**John E. McCormac**  
Mayor

To Learn More About Flood Protection and Community Rating System...  
Visit: <http://www.twp.woodbridge.nj.us/635/Floodplain-Management>

### 1. KNOW YOUR FLOOD HAZARD

Woodbridge Township has areas of special flood hazards located in the AE, A, Coastal A, and VE zones. You can locate Special Flood Hazard Areas in your neighborhood by looking at the Flood Insurance Maps online at FEMA's Map Service Center. Or for detailed FEMA Flood Insurance Rate Map (FIRM) determinations based on a street address contact the Woodbridge Township Division of Engineering for personal assistance: 732.602.6057.

### 2. INSURE YOUR FLOOD-PRONE PROPERTY

Most homeowner's policies do not cover costly flood damages, so flood insurance is recommended, even in areas that do not normally flood.

### 3. PROTECT PEOPLE FROM FLOODING HAZARDS

Always heed official flood warnings, and never walk or drive through flooded areas - especially running water.

### 4. PROTECT YOUR PROPERTY

Install flood vents in your foundation walls to protect them from storm damage and lower your flood insurance premiums.

### 5. BUILD RESPONSIBLY

When you build on or repair a property within or near flood hazard areas, you must comply with the NJDEP Flood Hazard Area Control Act Rules and the Township's Floodplain Management ordinances. Be sure to obtain all necessary permits before construction. Contact the Division of Engineering (732-602-6057) for questions regarding designing and permitting projects in Special Flood Hazard Areas.

### 6. PROTECT NATURAL FLOODPLAIN FUNCTIONS

Help your Township preserve its natural floodplains and wetland buffers to reduce flooding impacts and improve water quality.

1 Main Street  
Woodbridge NJ 07095  
Phone: 732-634-4500  
E-mail: [thomas.flynn@twp.woodbridge.nj.us](mailto:thomas.flynn@twp.woodbridge.nj.us)

# Flood Insurance Study Report

- Hydrology
- Background about community
- Review of flood problem
- Hydraulics
- Peak discharge of flood levels
- Profile and data tables



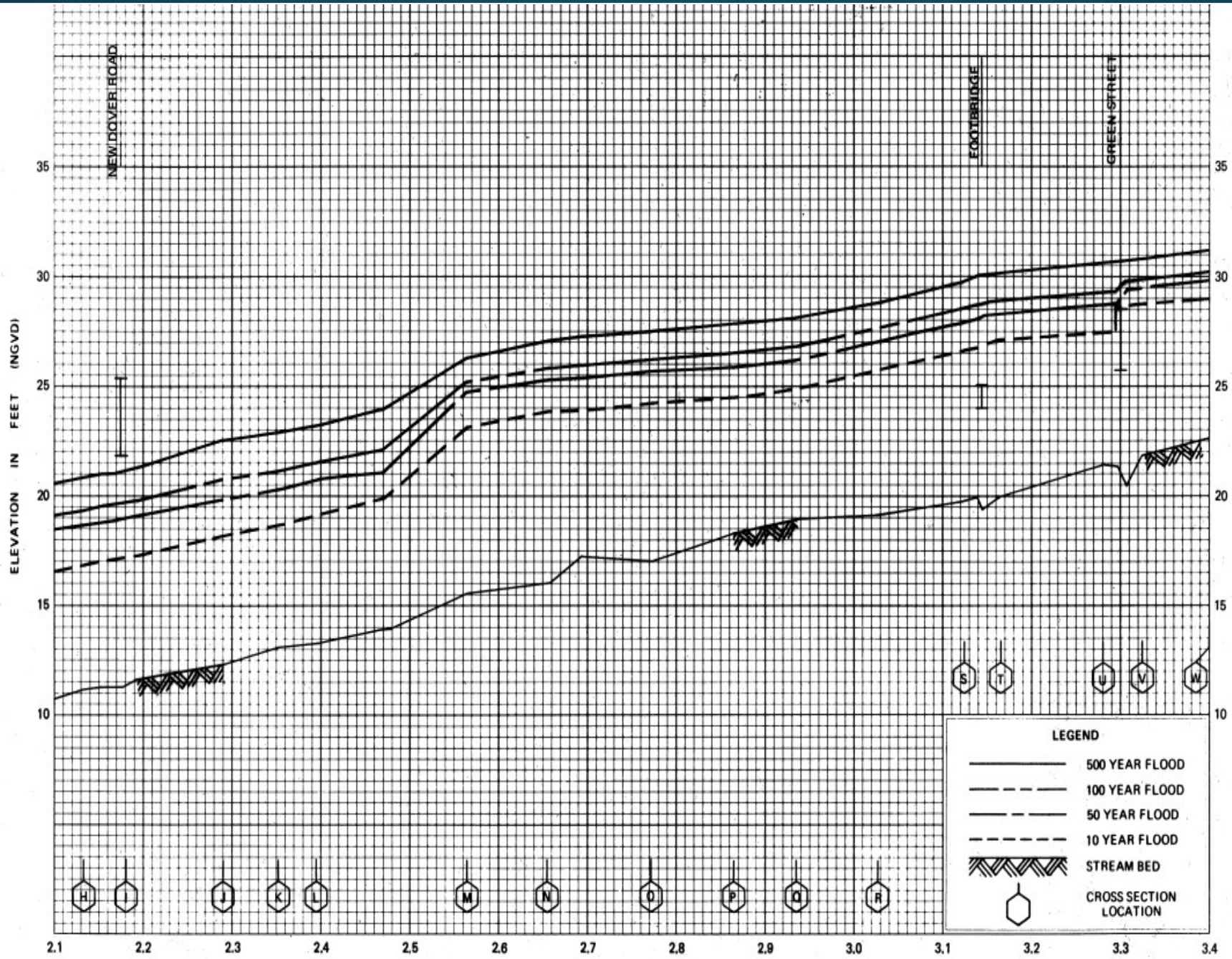
FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY	INCREASE
South Branch Rahway River (continued)								
M	2.563	230	1,080	2.5	25.1	25.1	25.3	0.2
N	2.657	200	1,060	1.9	25.8	25.8	26.0	0.2
O	2.771	193	1,202	1.6	26.2	26.2	26.4	0.2
P	2.864	303	1,339	1.5	26.5	26.5	26.7	0.2
Q	2.934	155	700	2.8	26.8	26.8	27.0	0.2
R	3.028	170	698	2.8	27.6	27.6	27.8	0.2
S	3.123	146	798	2.5	28.5	28.5	28.7	0.2
T	3.163	300	1,561	1.3	28.9	28.9	29.1	0.2
U	3.280	240	1,064	1.9	29.3	29.3	29.4	0.1
V	3.324	225	1,043	1.9	29.8	29.8	29.9	0.1
W	3.400	232	1,192	1.7	30.3	30.3	30.4	0.1
X	3.494	220	769	2.6	30.7	30.7	30.8	0.1
Y	3.589	440	1,839	1.1	31.4	31.4	31.5	0.1
Z	3.684	425	1,564	1.3	31.7	31.7	31.9	0.2
AA	3.797	450	1,395	1.4	32.3	32.3	32.5	0.2
AB	3.847	425	1,471	1.3	32.6	32.6	32.8	0.2
AC	3.956	219	723	2.7	34.3	34.3	34.4	0.1

<sup>1</sup>Miles above confluence with Rahway River

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**TOWNSHIP OF WOODBRIDGE, NJ**  
 (MIDDLESEX COUNTY)

**FLOODWAY DATA**

**SOUTH BRANCH RAHWAY RIVER**

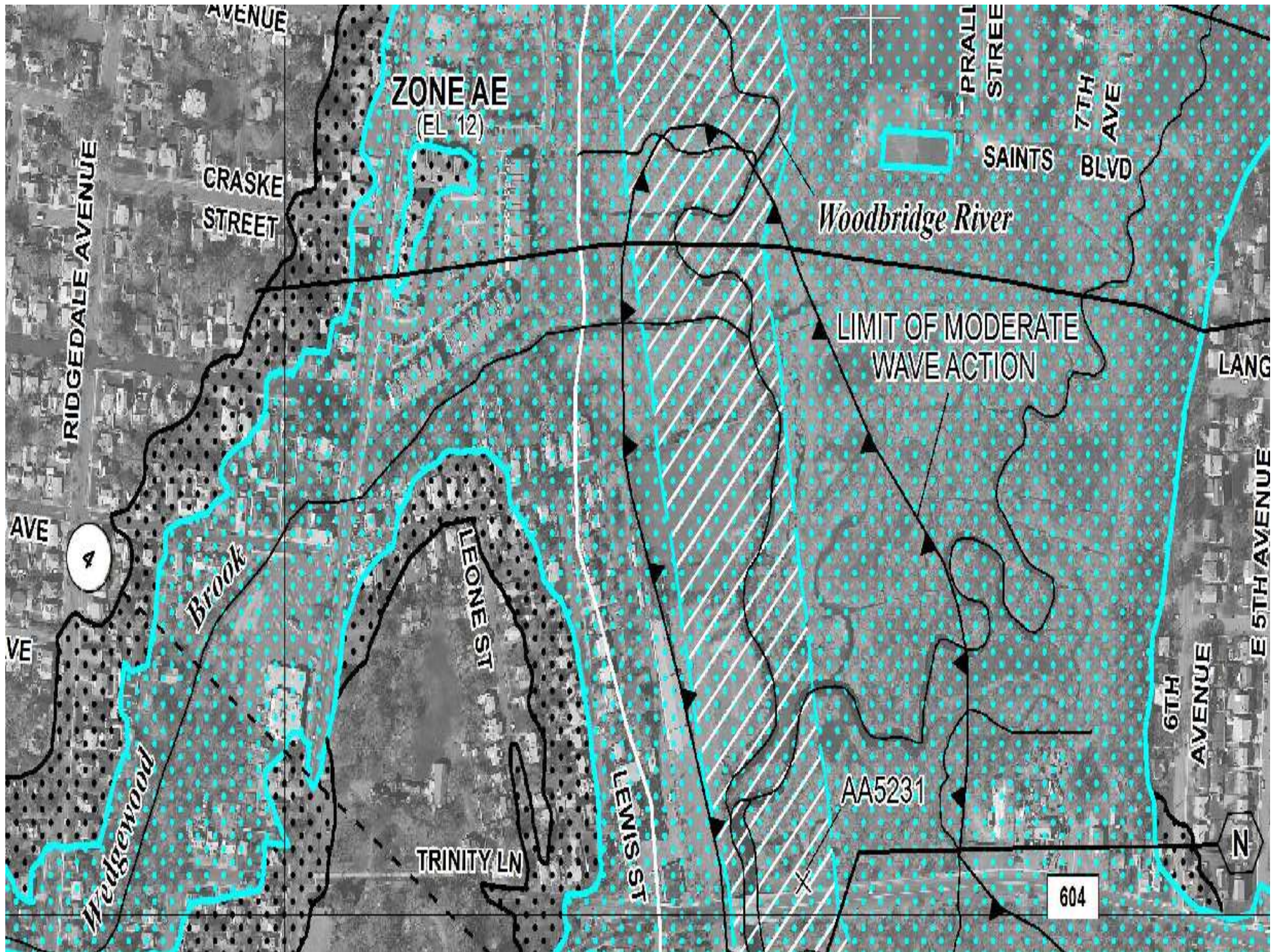


**FLOOD PROFILES**  
**SOUTH BRANCH RAHWAY RIVER**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**TOWNSHIP OF WOODBRIDGE, NJ**  
 (MIDDLESEX CO.)

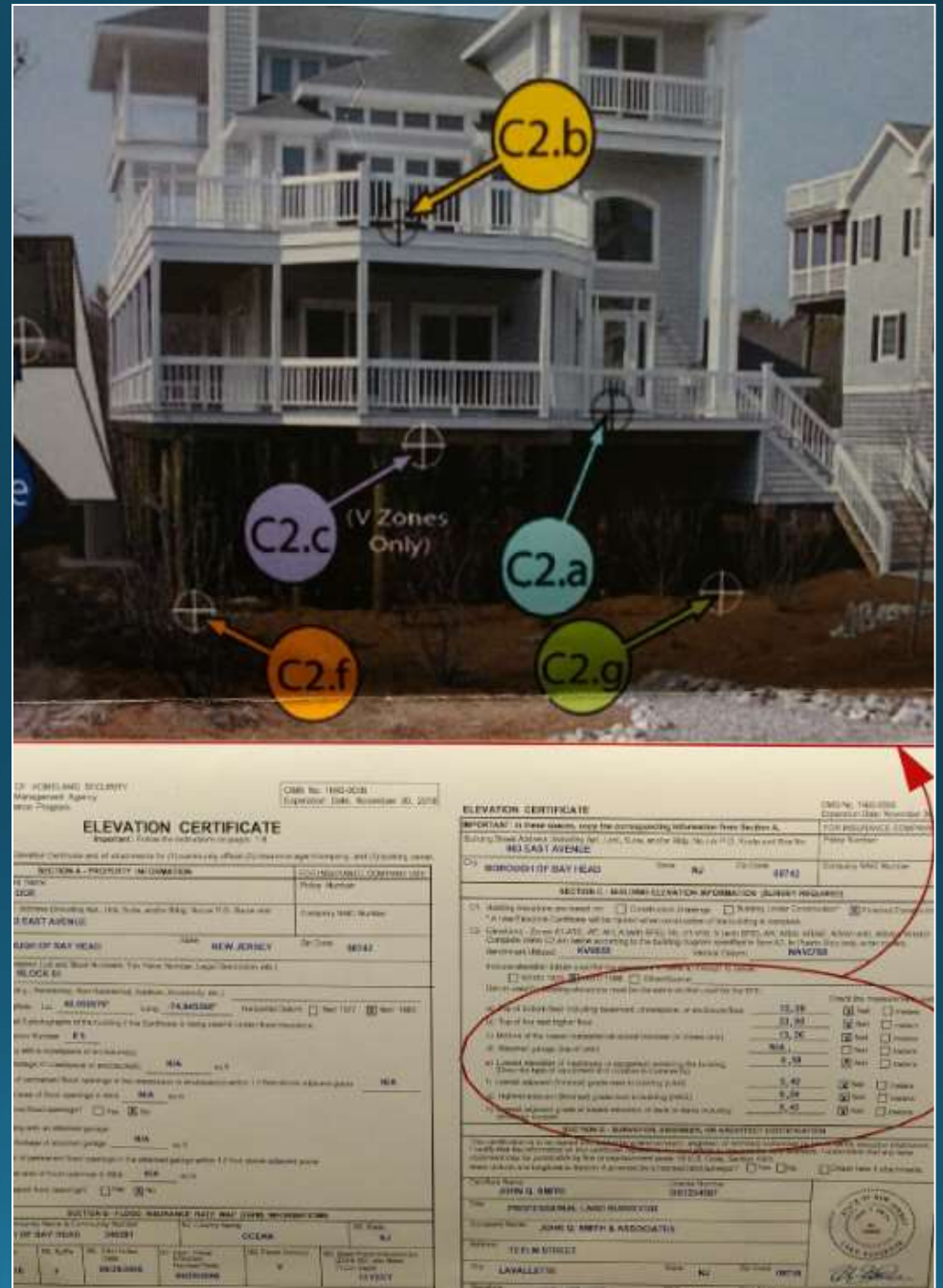






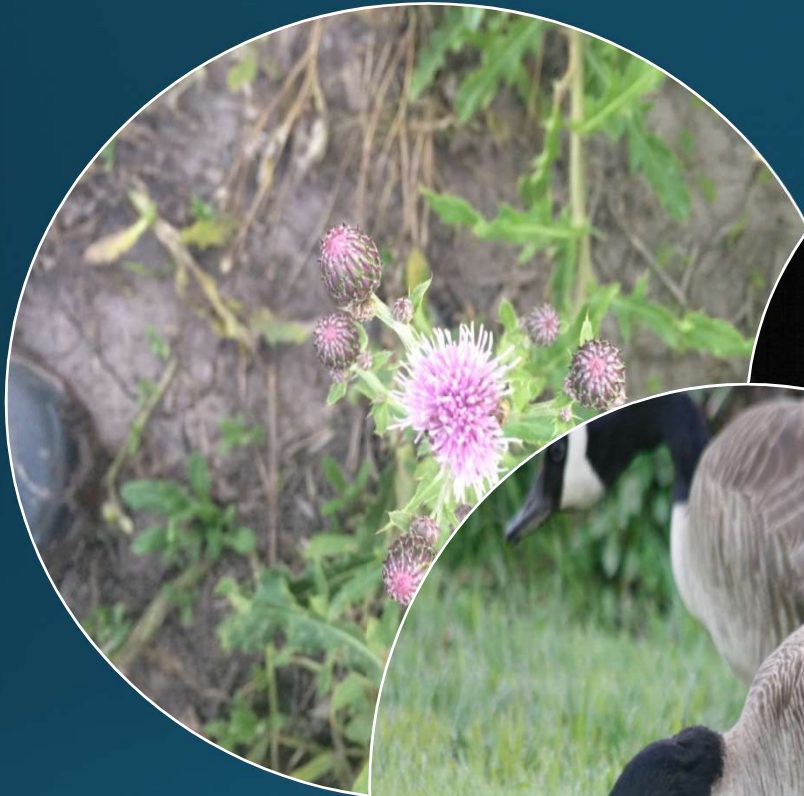
# Community Outreach and Property Protection Assistance Meetings

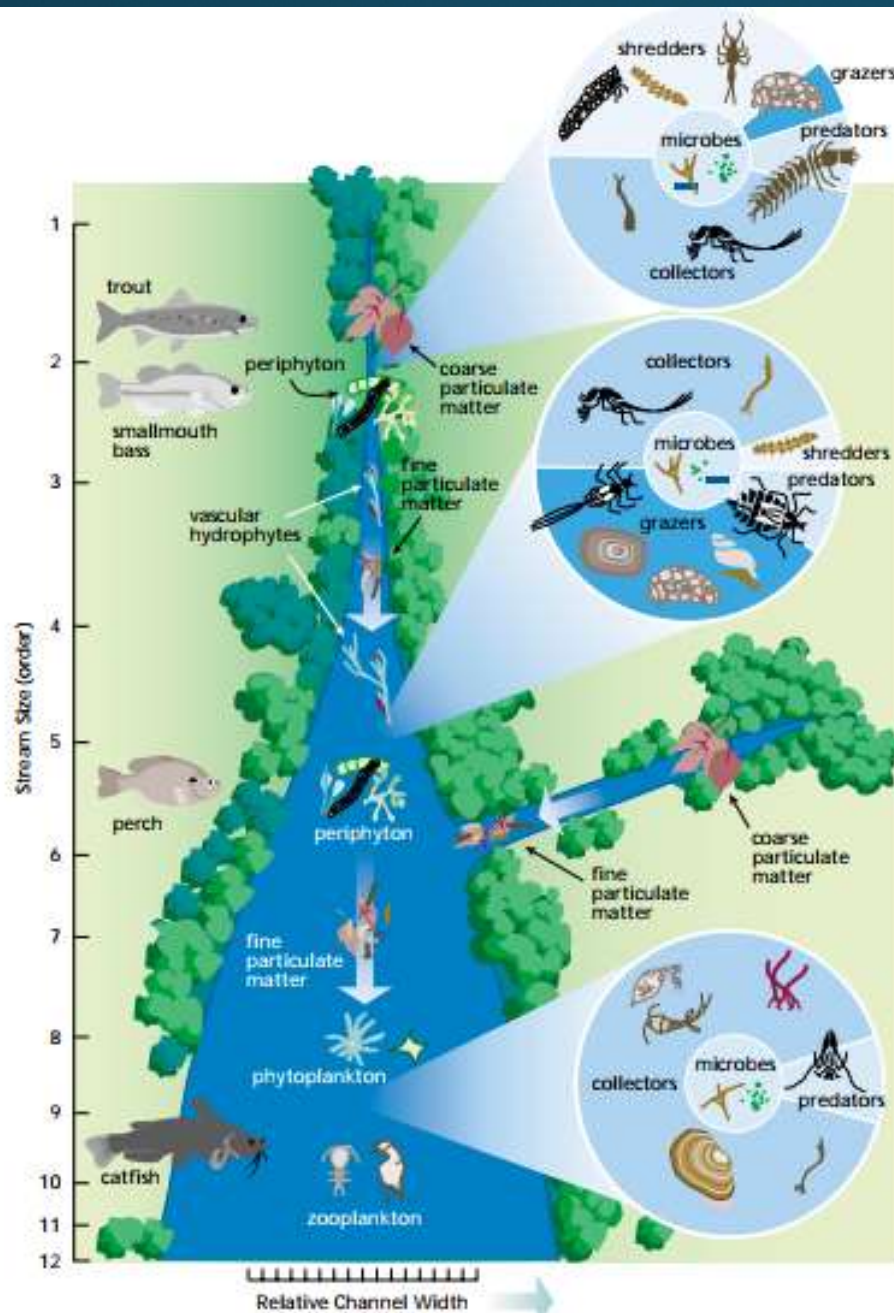
- EC Review
- Retrofitting
- Natural Functions of Floodplains
- Etc.





## What about the *other* locals...





## *Preserve and restore natural functions of floodplains*

- Biodiversity
- Flood Storage
- Ecosystem services

Photo credit: FISRWG (10/1998). Stream Corridor Restoration: Principles, Processes, and Practices.





Photo Credit: RCE

In 2016, Woodbridge Township and RCE began implementation of Phase 1 of the restoration plan, removing ~2 acres of impervious surface, planting 50 native trees, and installing 3 acres of native warm-season meadow. In 2017, the team removed ~5 acres of *Phragmites australis* and restored 8 acres of native woodland through invasive species management and the planting of 1,000 native trees and shrubs. In 2019 over 4,00 native trees and shrubs were installed. In fall 2021 wetland restoration construction begins, nature trail establishment, and interpretive signs.

# Closing Thoughts



**Exploring new approaches to solving old problems**



**Preserve, Restore, & Recreate**



**Filter & absorb floodwaters**



**More readily able to rebound after storm events**



**Protect human life and property**





# Thank You

Thomas C. Flynn, M.P.A., CFM

Environmental Specialist

Floodplain Administrator / CRS Coordinator

Township of Woodbridge, N.J., Division of Engineering

Mayor, John E. McCormac

Email: [Thomas.Flynn@Twp.Woodbridge.NJ.US](mailto:Thomas.Flynn@Twp.Woodbridge.NJ.US)

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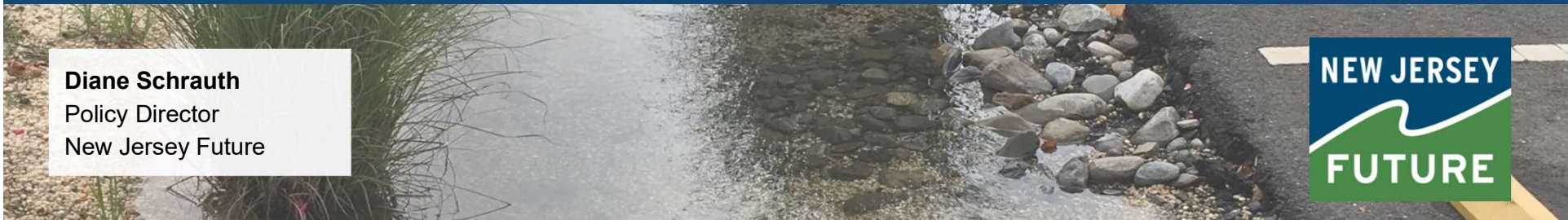


# Take Action With These Stormwater Resources

New Jersey League of Municipalities  
Stormwater: Tools to Help Municipalities Weather the Storm

November 16, 2021

**Diane Schrauth**  
Policy Director  
New Jersey Future







## Agenda

- **Background**
- **Green Infrastructure Municipal Toolkit**
- **Stormwater Utility Resource Center**
- **Questions**



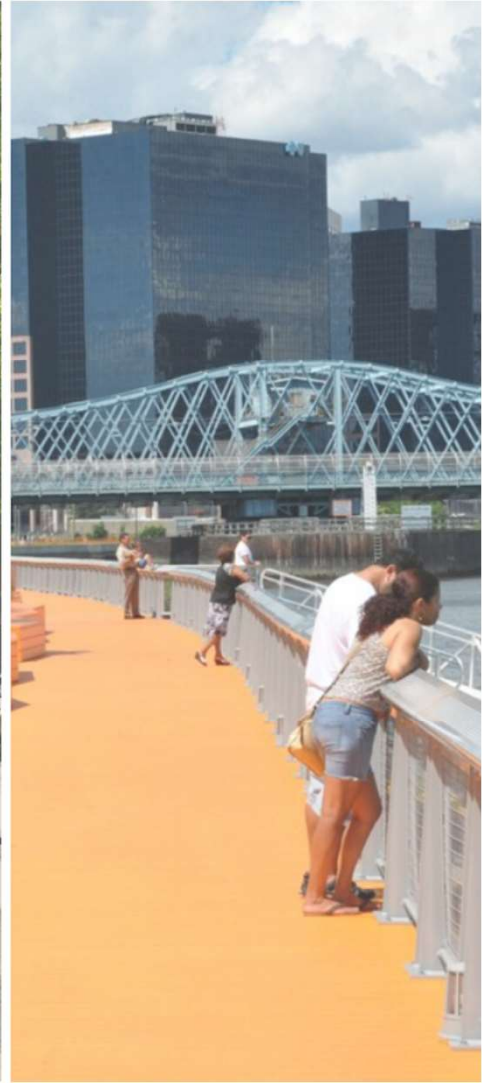
## Agenda

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**NEW JERSEY**  
**FUTURE**







NEW JERSEY  
FUTURE

New Jersey  
Builders' Association





## Agenda

- Background
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# Enhanced Model Stormwater Ordinance

- 1. Redefine the threshold for “major development.”** Reducing the threshold to trigger management of stormwater for major developments will include more development projects, capturing more stormwater. Towns that are more dense may wish to use even smaller thresholds.
- 2. Add a definition and requirements for “minor development.”** This will require additional, smaller sites to use GI. The requirements for minor development are less stringent than the requirements for major development.
- 3. Require stormwater management on existing impervious surfaces, not just new.** To add a requirement for GI in redevelopment projects, municipalities can expand the definition of “regulated impervious surface” to include “all impervious surface within the project area” instead of the “net increase of impervious surface.” Regulating existing impervious surfaces includes redevelopment sites, which will address longstanding runoff issues from existing development. Not taking this step will allow historical polluted runoff to continue to exist.
- 4. Require infiltration of a specific volume of stormwater onsite.** Requiring the infiltration of a specific volume of stormwater will increase the amount of clean stormwater returned to the ground and reduce runoff. Decreased runoff will lower the flood risk from frequent, small storms.
- 5. Reduce “maximum contributory drainage areas.”** Each GI best management practice (BMP), such as a rain garden or pervious pavement, is designed to receive stormwater runoff from a specified area. Reducing the drainage area for each BMP will prevent the BMPs from becoming overloaded and will increase the number of BMPs used in each development.





# NEW JERSEY GREEN INFRASTRUCTURE MUNICIPAL TOOLKIT



FROM STORMWATER  
TO CLEAN WATER

PREVENT  
POLLUTION

REDUCE  
FLOODING

IMPROVE YOUR  
COMMUNITY

INTRODUCING YOUR ONLINE, ONE-STOP  
GREEN INFRASTRUCTURE RESOURCE

**[GIToolkit.NjFuture.org](https://gitoolkit.njfuture.org)**





**Check out our Green Infrastructure  
Toolkit!**



A background image for the main content area showing a pair of hands cupped together, with water dripping from the fingers. The background is a soft-focus natural setting, possibly a stream or forest floor.

# FROM STORMWATER TO CLEAN WATER

**Prevent pollution.  
Reduce flooding.  
Improve your community.**

Stormwater runoff causes flooding and flushes contaminants into waterways. This contributes to 90 percent of New Jersey's rivers, streams and lakes being polluted. As a municipal leader, **you have the power to improve your community's response to water challenges and use green infrastructure to mitigate flooding and reduce water pollution.**

GETTING STARTED →

# Benefits of Green Infrastructure



## Economic

- **Reduced construction costs** and long-term cost savings for public and private development by reducing the quantity of pavement, curbs and gutters
- Less damage and lower cost impacts from localized flooding
- Higher property values through improved community aesthetics

[Read More](#)



## Environmental

- Keeps polluted water out of creeks, lakes, and rivers; improves water quality by filtering pollutants
- Increases groundwater and aquifer recharge
- Improves air quality through reduction in greenhouse gases

[Read More](#)



## Community/Public Health

- Meets the public's growing demand for sustainable communities
- Cooler air: reduced urban heat island effect through evaporation and tree canopy cover
- Dedicated open space provides opportunities for passive and active recreation

[Read More](#)





## What Can You Do?

### Plan

Whether your town is starting from scratch or looking to move to the next level with green infrastructure, smart planning is a must. Chart your course with guidance and tools found here.

[Learn More >](#)

### Implement

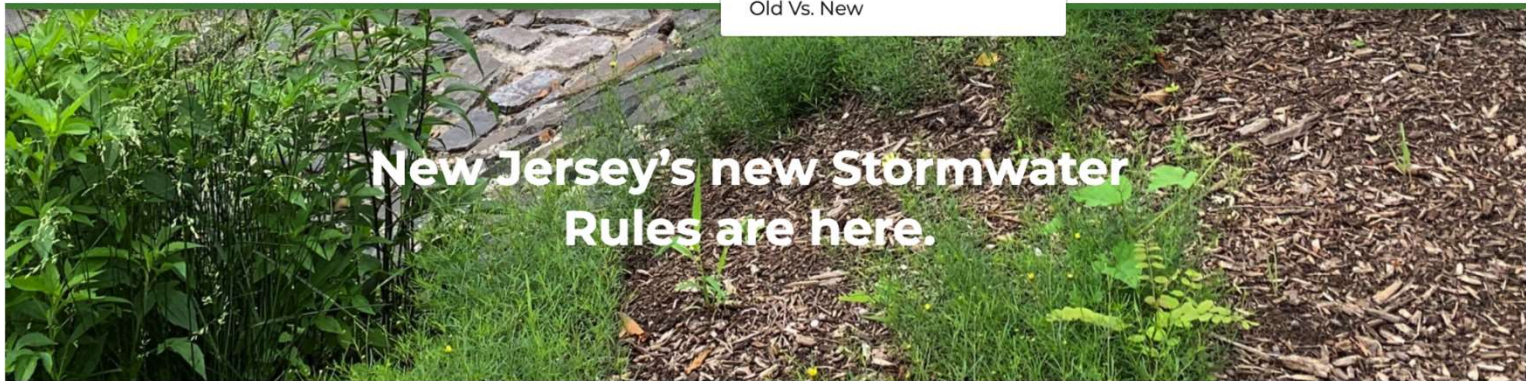
Green infrastructure isn't rocket science, but proper design, construction and maintenance – all essential to long-term success – requires a different approach. This section of the toolkit provides the tools needed and practical applications of implementing green infrastructure within your municipality.

[Learn More >](#)

### Sustain

Like all infrastructure, green infrastructure requires monitoring and maintenance in order to function properly over the long term. This section of the toolkit will provide operations, maintenance, and monitoring guidance, as well as ways to alert and engage your community about the benefits of green infrastructure.

[Learn More >](#)



**Green Infrastructure is now a requirement. What do municipalities need to know about NJ's amended stormwater rules?**



# Enhanced Model Stormwater Ordinance

The background image shows a city street that is completely flooded with water. In the distance, a large steel truss bridge spans across the street. The water is murky and reflects the surrounding environment. There are trees and buildings visible on the sides of the street, but they are somewhat obscured by the water and the overall hazy atmosphere.

- **Redefine the threshold for “major development.”**
- **Add a definition and requirements for “minor development.”**
- **Require stormwater management on redevelopment projects, not just new development.**
- **Require infiltration of a specific volume of stormwater onsite.**
- **Reduce “maximum contributory drainage areas.”**



**Enhanced Model  
Stormwater Ordinance**



# Funding

There are many programs and opportunities listed below, ranging from \$10,000 to \$5 million, that can help fund green infrastructure projects. Sorting by project type, funding type or eligible activities will narrow your search and make it easier to see and digest what's available.

**Project Type/Phase:** All Types ▾

- All Types
- Construction
- Planning
- Design
- Maintenance
- Other
- Implementation

**Funding Type:** All Types ▾

**Eligible Activities:** All Activities ▾

Showing **49** results

**U** **Environmental Protection Agency** **Project Type:** Construction  
**U** **Small Grants** **Funding Type:** Federal

**Fu** .....0,000.

**Eligible Applicant and Activities**  
Eligible applicants include: Local & state governments, higher education institutions, public or private organization acting in

**Website:**  
<https://www.epa.gov/urbanwaters/urban-waters-small-grants>



# Funding

There are many programs and opportunities listed below, ranging from \$10,000 to \$5 million, that can help fund green infrastructure projects. Sorting by project type, funding type or eligible activities will narrow your search and make it easier to see and digest what's available.

**Project Type/Phase:** All Types ▾

**Funding Type:** All Types ▾

- All Types
- Federal
- State
- Private

**Eligible Activities:** All Activities ▾

Showing **49** results

**United States Environmental Protection Agency**

**Urban Waters Small Grants**

**Funding Amount:** Up to \$60,000.

**Eligible Applicant and Activities**  
Eligible applicants include: Local & state governments, higher education institutions, public or private organization acting in

**Website:**  
<https://www.epa.gov/urbanwaters/urban-waters-small-grants>

**Project Type:** Construction  
**Funding Type:** Federal



# Funding

There are many programs and opportunities listed below, ranging from \$10,000 to \$5 million, that can help fund green infrastructure projects. Sorting by project type, funding type or eligible activities will narrow your search and make it easier to see and digest what's available.

<b>Project Type/Phase:</b> All Types ▾	<b>Funding Type:</b> All Types ▾	<b>Eligible Activities:</b> All Activities ▾ <ul style="list-style-type: none"><li>All Activities</li><li>Bicycle and Pedestrian Projects</li><li>Capacity Building</li><li>Capital Needs</li><li>Coastal resiliency</li><li>Community Priorities</li><li>Conservation</li><li>Construction</li><li>Education</li></ul>
<b>United States Environmental Protection Agency</b>		
<b>Urban Waters Small Grants</b>		
<b>Funding Amount:</b> Up to \$60,000.		
<b>Eligible Applicant and Activities</b> Eligible applicants include: Local & state governments, higher education institutions, public or private organization acting in	<b>Website:</b> <a href="https://www.epa.gov/urbanwaters/urban-waters-small-grants">https://www.epa.gov/urbanwaters/urban-waters-small-grants</a>	



**NEW JERSEY  
GREEN INFRASTRUCTURE  
MUNICIPAL TOOLKIT**

[Home](#) [NJ Stormwater Rules](#) [Plan](#) [Implement](#) [Sustain](#) [Resources](#)

[About](#) [Stay Informed](#)

Let us know how to reach you with new information and updates.  
All feedback welcome!

## Contact Us

**New Jersey Future**  
16 W. Lafayette St.  
Trenton, NJ 08608

[njfuture@njfuture.org](mailto:njfuture@njfuture.org)  
(609) 393-0008

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Phone Number

Ideas or Feedback





## Agenda

- Background
- Green Infrastructure Municipal Toolkit
- **Stormwater Utility Resource Center**
- Questions



[Home](#) [About](#) [Why Stormwater Matters](#) [Why a Stormwater Utility?](#) [Establish a Stormwater Utility](#) [Stay Informed](#) [Resources](#)

Protect Public Health.  
Safeguard Your Community.  
Rest Easier When It Rains.



Why Stormwater Matters  
[Learn More >](#)



Why a Stormwater Utility?  
[Learn More >](#)



Establish a Stormwater Utility  
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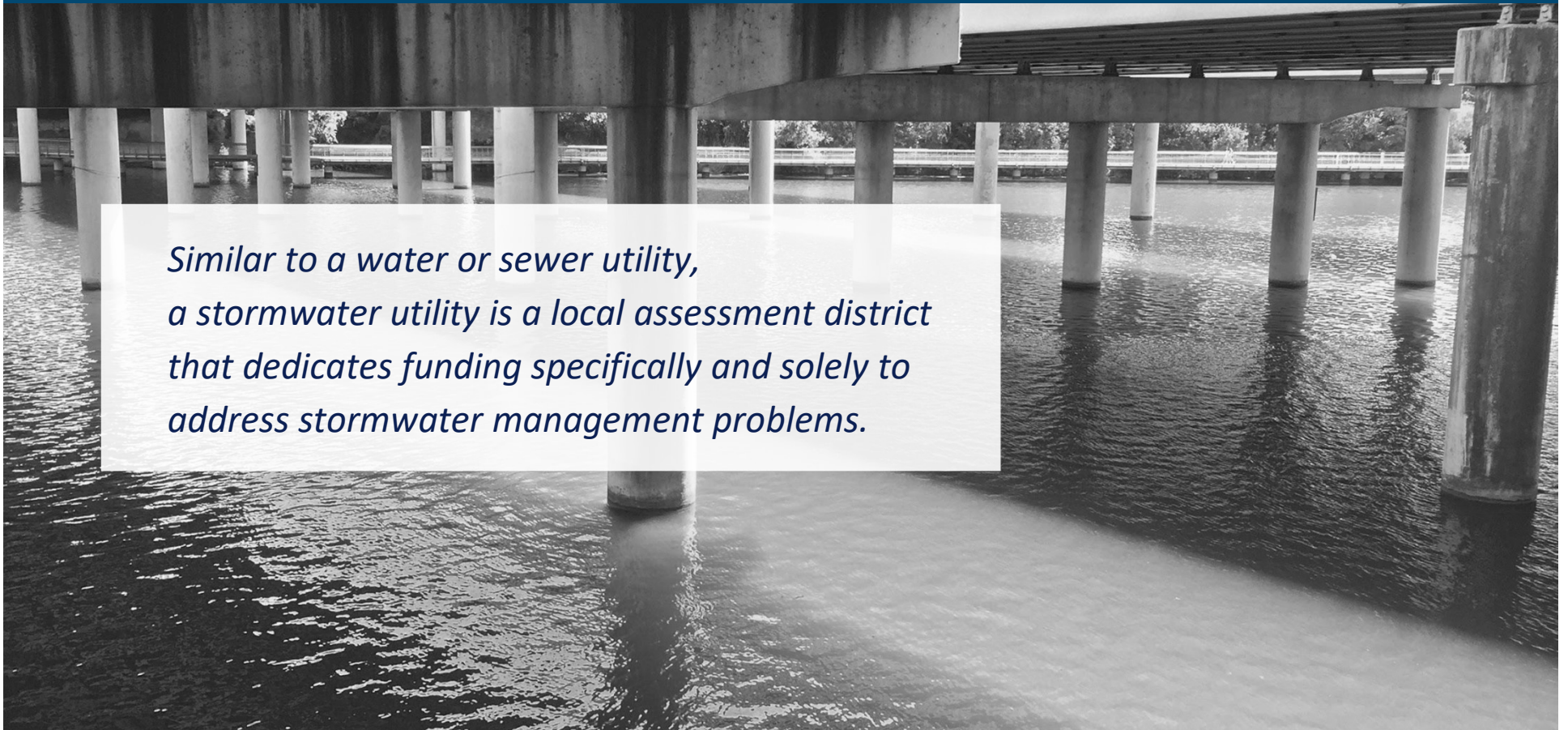




NEW JERSEY  
**STORMWATER  
UTILITY**  
RESOURCE CENTER

# What is a Stormwater Utility?

*Similar to a water or sewer utility, a stormwater utility is a local assessment district that dedicates funding specifically and solely to address stormwater management problems.*







# What is the purpose of the resource center?



To provide municipal and county officials and utilities with the tools to help them determine if a stormwater utility is right for their community.



## What is the purpose of the resource center?



To provide municipal and county officials and utilities with the tools to help them determine if a stormwater utility is right for their community.



To educate the public on stormwater utility basics.





# What is the purpose of the resource center?



To provide municipal and county officials and utilities with the tools to help them determine if a stormwater utility is right for their community.



To educate the public on stormwater utility basics.



To provide an ongoing repository for the latest information on stormwater utilities.



# Stormwater Utility Advisory Council

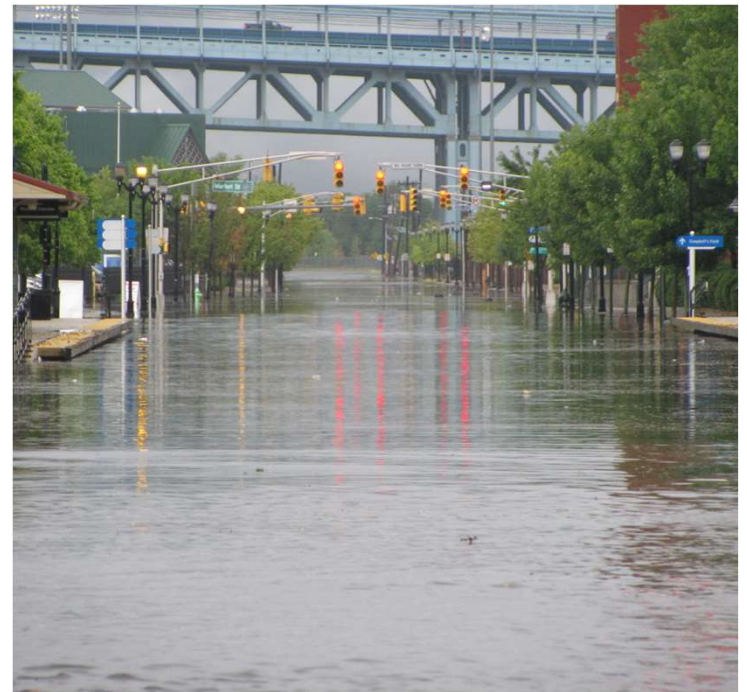
- Municipal Engineers
- Financial and Engineering Consultants
- Regional Authority Executive
- County Planner
- Borough Administrator
- Attorney
- Environmental Advocates
- NJDEP



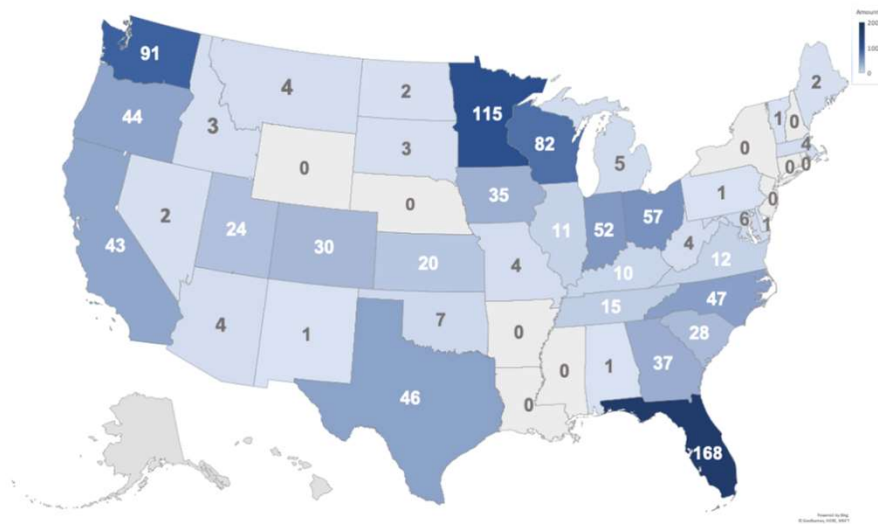


# Clean Stormwater & Flood Reduction Act

- New Jersey's law allows, but does not require, local governments to establish stormwater utilities.
- If established, stormwater utilities must collect fees based on the amount of stormwater a property generates.
- Utilities can be established by municipalities, counties, groups of municipalities, and sewerage and improvement authorities.
- Funds generated from the fees are dedicated solely to stormwater management and cannot be used for any other purposes.



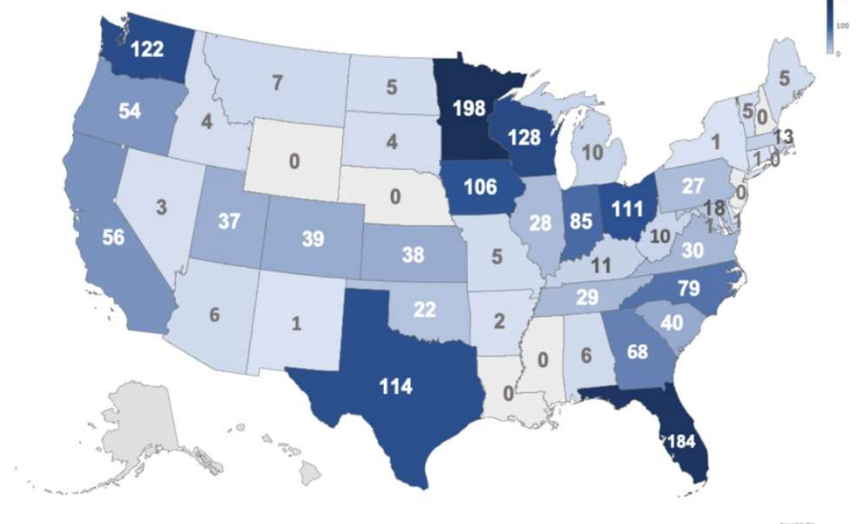
### Number of Stormwater Utilities by State 2009



As of 2009, 1,022 stormwater utilities had formed in the United States.

(Source: Western Kentucky University 2009 Stormwater Utility Survey)

### Number of Stormwater Utilities by State 2019



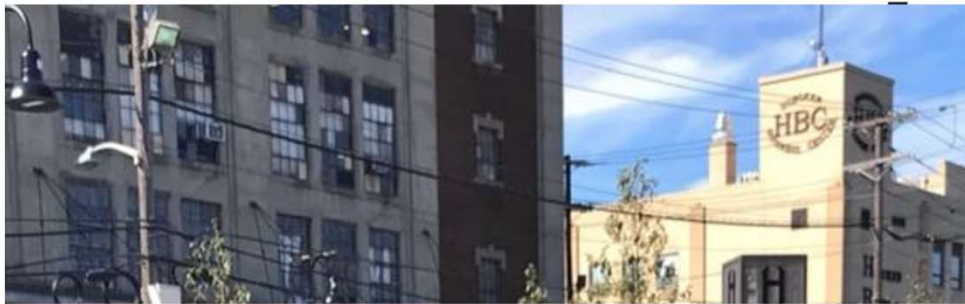
As of 2019, 1,716 stormwater utilities had formed in the United States.

(Source: Western Kentucky University 2009 Stormwater Utility Survey)





Home About Why Stormwater Matters Why a Stormwater Utility? Establish a Stormwater Utility Stay Informed **Resources**



## Stormwater Resources for Your Community

### Overviews

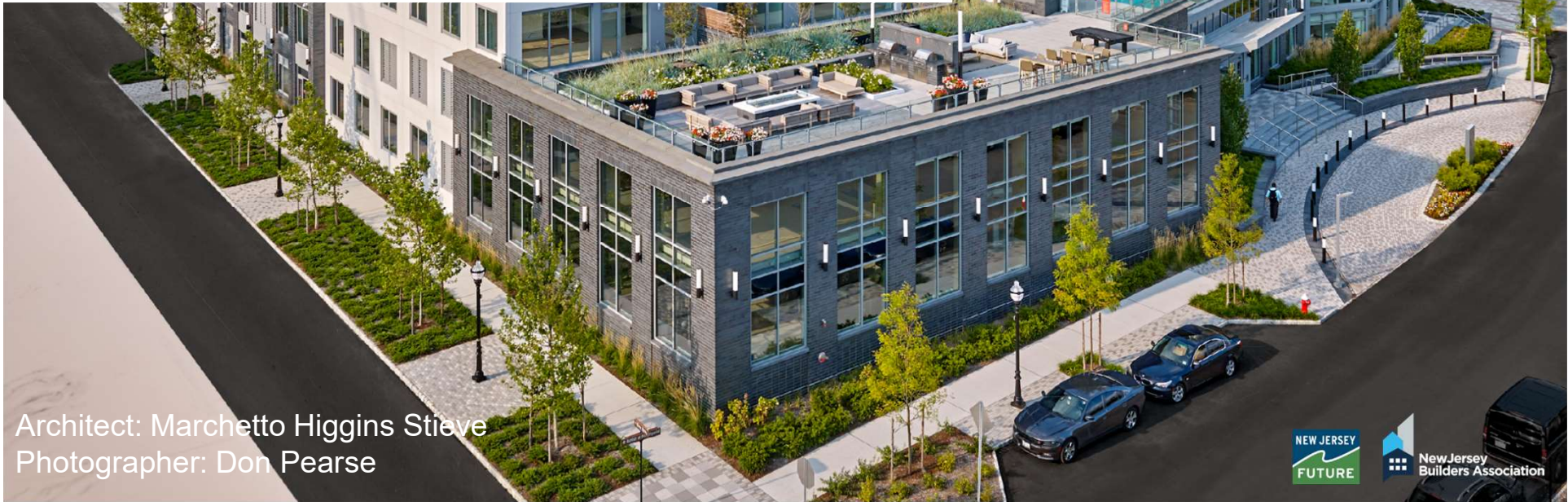
- ◆ New Jersey Future - Stormwater Utilities at a Glance
- ◆ New Jersey Future - Stormwater Utilities Fact Sheet
- ◆ New Jersey Future - Stormwater Utilities Steps For Local Implementation
- ◆ 2018 Stormwater Utility Survey, Black & Veatch Management Consulting, LLC
- ◆ New Jersey Department of Environmental Protection (NJDEP) Stormwater Utilities Guidance
- ◆ Western Kentucky University 2019 Stormwater Utilities Survey

# Resources

- Overviews
- Legal
- Financial
- Public Outreach
- Case Studies
- Mapping/Impervious Cover
- Climate/Flooding
- Water Environment Federation (WEF) Tables



NEW JERSEY  
**DEVELOPERS**  
Green Infrastructure  
GUIDE 2.0



Architect: Marchetto Higgins Stieve  
Photographer: Don Pearse







**JERSEY WATERWORKS**  
**CONFERENCE** 2021

DECEMBER 8-10, 2021 | COMING TOGETHER VIRTUALLY

*Water infrastructure for every  
community*

*Seizing this once-in-a-generation opportunity.*

**THANK YOU!**

**Diane Schrauth**

Policy Director

[dschrauth@njfuture.org](mailto:dschrauth@njfuture.org)

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16 W. Lafayette St.

Trenton, NJ 08608

[www.njfuture.org](http://www.njfuture.org)





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