RUTGERS
New Jersey Agricultural Experiment Station

Water Resources Program

Hamilton Township, Mercer County, NJ

Hydrologic Evaluation and Water Resources Recommendations For Planning and Implementation

Rutgers Cooperative Extension Water Resources Program

January 26, 2012

Presented to the Planning Board and Environmental Commission

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Who are We?

Rutgers Cooperative Extension

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New Jersey Agricultural Experiment Station

Rutgers Cooperative Extension (RCE) helps the diverse population of New Jersey adapt to a rapidly changing society and improves their lives through an educational process that uses science-based knowledge.

Who are We?

Water Resources Program

The Water Resources Program is one of many specialty programs under Rutgers Cooperative Extension. The goal of the Program is to provide solutions for many of the water quality and quantity issues that New Jersey faces today. This is accomplished through research, education, and outreach.

What have we done?

Rutgers Cooperative Extension Water Resources Program has worked with Hamilton Township to evaluate existing stormwater infrastructure, localized flooding issues, watershed drainage, and stormwater management strategies. The Rutgers team has reviewed the Township's maintenance practices and responsibilities for stormwater management facilities. A series of recommended actions and strategies have been developed and proposed that will improve and protect water resources in Hamilton Township helping the community maintain compliance with Phase II Stormwater Regulations.

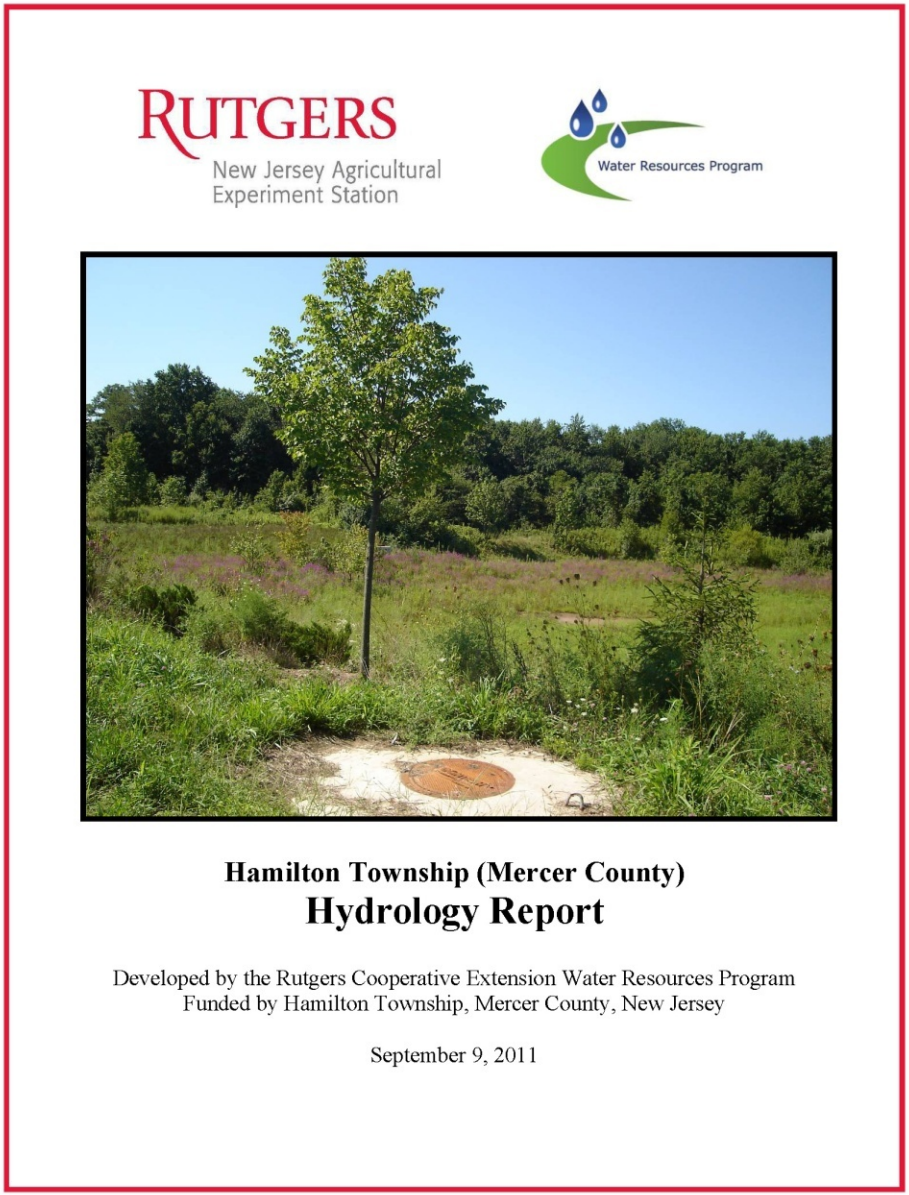
The Stormwater Problem

1. Localized flooding (*QUANTITY*)
2. Aging infrastructure
3. Increased maintenance costs
4. Nutrients and sediment (*QUALITY*)
5. Failing systems & property damage
6. Mosquitoes
7. Resident waterfowl (*QUALITY*)

The current estimate to repair the wastewater infrastructure throughout the State of NJ is $15 billion.
- Fiscal 2008 Budget in Brief. NJ State Office of Management and Budget, Chapter 2, pg 42, Feb 22, 2007, http://www.state.nj.us/treasury/omb

Task 1: Inventory and Review

- Compile existing data
  - Stormwater infrastructure, including; inlets, outlets, detention basins, piping, etc.
  - Water resources overlays, including; rivers, streams, and ponds, flood plain, hydric soils, groundwater recharge areas, wellhead protection areas, riparian corridors, wetlands, etc.
  - Surface water quality sampling results
- Review current policies and plans
- Develop mapping
- Prepare evaluation



Task 1: Summary and Conclusions

- Stormwater problems facing Hamilton Township are related to the increase in developed areas and the associated impervious cover that accompanies it
- New development areas will only exacerbate water quality problems by increasing the frequency and intensity of storm flows and flooding, while also increasing pollution

Task 1: Recommendations

- Reduce the amount of impervious cover on new developments through green building techniques
- Disconnect existing impervious areas through rain gardens, rain barrels, or pervious pavements
- Educate residents of the municipality on their role in improving runoff water quality
- Retrofit existing detention basins, replace and disconnect existing impervious areas, and maintain natural lands (forests and wetlands) as open spaces

Task 2: Implementation Plan

- Township Water Resources Goals
  - Engage the community in water resource protection
  - Manage water quality
  - Minimize localized flooding
  - Implement Phase II stormwater controls
  - Improve stormwater facility maintenance
- Site surveys and investigations
  - Conduct evaluation of representative detention basin facilities for function and water quality retrofits
  - Provide preliminary recommendations for corrective actions, maintenance, and enhancements
- Outline actions and opportunities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Hamilton Township (Mercer County)
Watershed and Stormwater Management Implementation Plan (Final Draft)

Developed by the Rutgers Cooperative Extension Water Resources Program
Funded by Hamilton Township, Mercer County, New Jersey

December 20, 2011

Goal 1: Engage the community in water resource protection

ACTION

- Conduct riparian area investigations
- Conduct vernal pool habitat surveys and certification

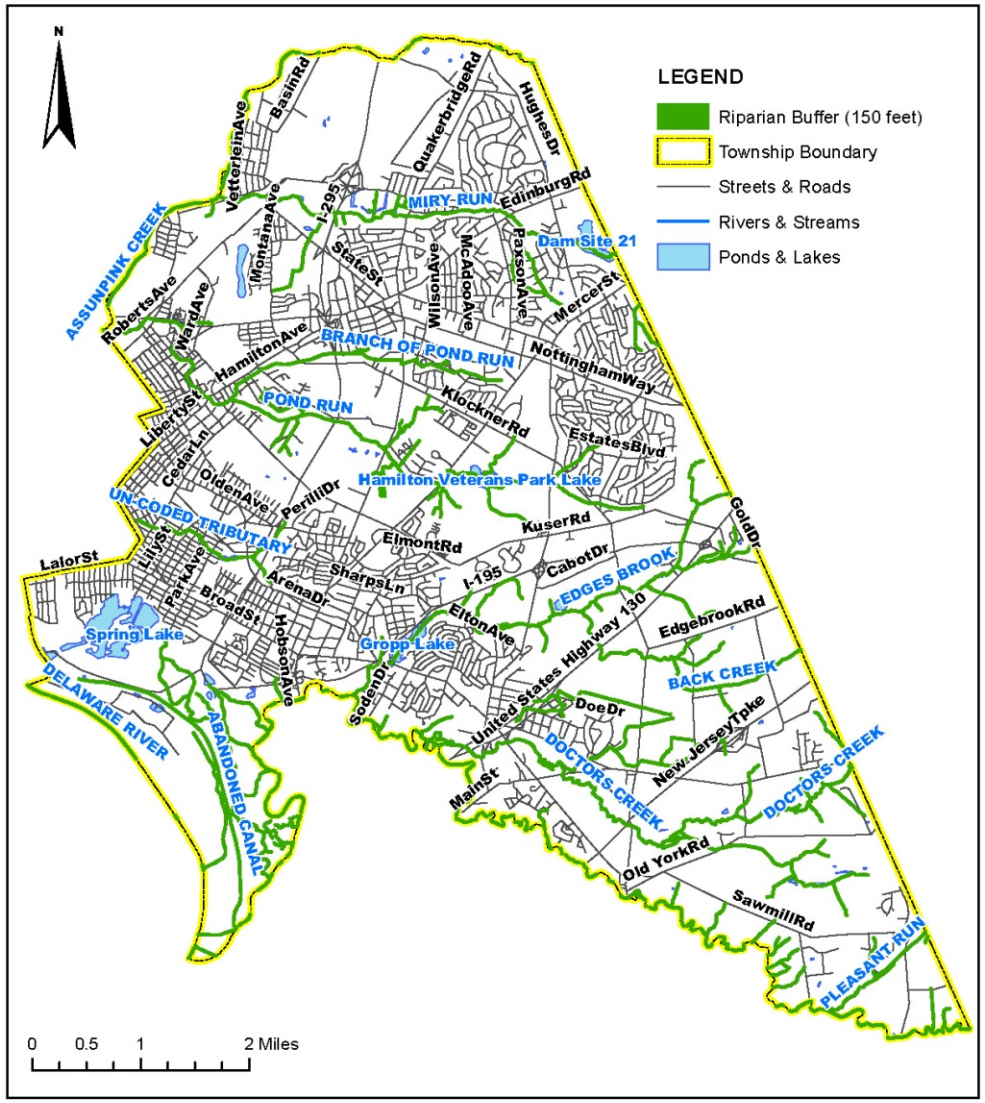

Figure 17: Riparian corridors in Hamilton Township (Mercer County).

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Goal 1: Engage the community in water resource protection

ACTION

- Implement property owner education programs
- Implement rain garden and downspout disconnection demonstration projects

Goal 2: Manage water quality

ACTION

- Develop and implement a water quality monitoring program for lakes and impoundments.

SOURCE: flickr.com by HeronThere

SOURCE: flickr.com by HeronThere

Goal 3: Minimize localized flooding

ACTION

- Develop a hydrologic model for Hamilton Township

SOURCE: trentonian.com September 2011

Goal 4: Implement Phase II stormwater controls

ACTION

- Complete impervious cover analysis and develop a community disconnection program
- Develop a ‘site suitability’ map for advanced stormwater management facilities

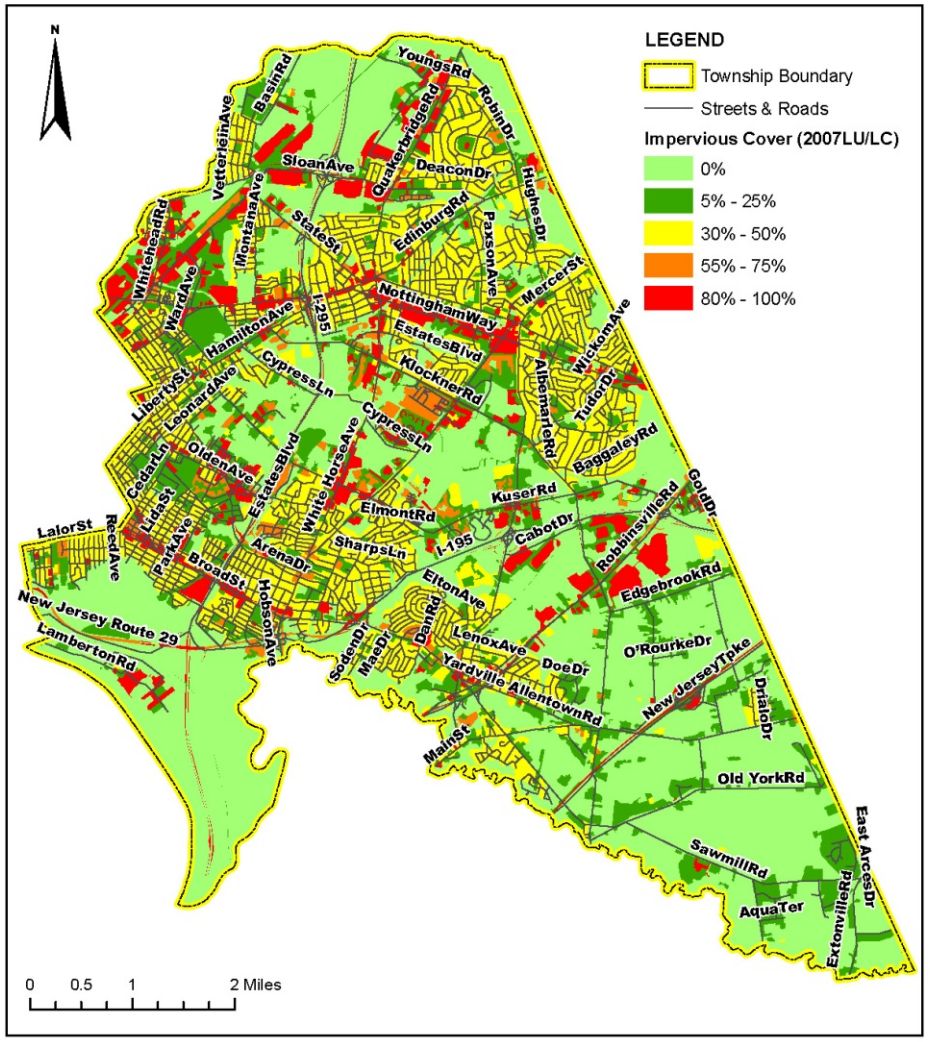

Figure 10: Percent impervious cover in Hamilton Township (Mercer County).

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Goal 5: Improve stormwater facility maintenance

ACTION

- Conduct complete inventory and assessment of stormwater management basins in Hamilton Township
- Prepare a comprehensive GIS database of stormwater infrastructure
- Implement detention basin maintenance training, inspection, and monitoring program
- Execute detention basin repair, rehabilitation, and enhancement projects

Task 3: Public Presentation

- Conduct public presentation to present findings and inform the community
- Deliver all work products in digital format suitable for distribution through online media and municipal website

http://water.rutgers.edu/Projects/Hamilton/Hamilton.html

Next Steps

- Finalize Scope of Work and Budget for 2012

- Begin efforts to implement Priority Action Items
  - Develop Hydrologic Model for Hamilton Township
  - Conduct Inventory and Assessment of Stormwater Management Basins
  - Prepare Comprehensive GIS Database of Stormwater Infrastructure
  - Implement Rain Garden Demonstration Project
  - Implement Detention Basin Maintenance Training, Inspection, and Monitoring Program

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