

Stormwater Management

How to Stay Afloat in New Jersey



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A series of recent storms have put planning for intense weather events on the front burner in towns across New Jersey. Of particular interest are ways to lower the risk of flooding and subsequent property damage. For many New Jersey municipalities, the best way to keep their communities afloat is to address longstanding stormwater issues.

The Role of Infrastructure To enhance municipal flood resilience, municipalities can benefit from inventorying and evaluating the condition of existing infrastructure. In many cases, flooding is the result of poorly maintained infrastructure: such as clogged inlets and outlets in stormwater basins, collapsed pipes, or excessive debris in stormwater catch basins. Identifying the location and condition of existing infrastructure allows municipalities to prioritize rehabilitation activities to remedy flooding problems. All municipal assets, including stormwater infrastructure, must be valued and maintained to ensure their longevity and the safety of residents.

In some cases, flooding can be attributed to a lack of infrastructure. Many of the neighborhoods built prior to 1970 have limited or no stormwater management facilities. Impervious areas associated with this development are directly connected to local waterways. The result is often flash flooding of New Jersey's streams. Identifying opportunities where existing infrastructure could be upgraded or new facilities installed to prevent water from impervious surfaces from flowing directly into local waterways can help prevent or reduce flooding.

Municipal water resources issues are not limited to flooding. Many of the waterways in New Jersey are suffering from poor water quality as a result of nonpoint source pollution. Nonpoint source pollutants carried to local waterways by stormwater runoff can severely impair water quality and negatively impact aquatic organisms. Pollutants tend to accumulate on these surfaces. Therefore, as more of your municipality becomes covered with impervious surfaces, such as concrete, more pollutants are discharged during storms.



Students in Steinert High School's AP Biology class plant native vegetation in a rain garden at their school.

Controlling Costs In areas where stormwater management infrastructure does exist, the cost of maintenance has become a major issue. Mowing detention basins weekly and regularly cleaning their inlets and outlets is a financial burden for municipalities. Comprehensive planning that includes changes to maintenance regimes may help to reduce costs while continuing to ensure infrastructure is functioning properly.

IN MANY CASES, FLOODING IS THE RESULT OF POORLY MAINTAINED INFRASTRUCTURE.

One Community's Approach In spring 2011, Hamilton Township in Mercer County contacted the Rutgers Cooperative Extension (RCE) Water Resources Program requesting assistance in evaluating their water resource issues. The township, like many other communities throughout New Jersey, was struggling to maintain aging infrastructure, address frequent flooding of streets and properties, and better understand the community-wide impacts of stormwater management strategies.

In June 2011, the RCE Water Resources Program partnered with the township to develop recommendations for improving and protecting Hamilton Township's water resources. This partnership resulted in a township-wide evaluation of water resource management needs. The partners set priorities and recommendations for actions to address key hydrologic issues. These



Runoff from impervious surfaces, such as roofs and parking lots, can impair water quality in receiving waters.

actions support a series of goals including:

- engaging the community in water resource protection;
- managing water quality;
- minimizing localized flooding;
- implementing Phase II stormwater controls; and,
- improving stormwater facility maintenance.

In January 2012, the RCE Water Resources Program presented the study findings along with recommended actions. The township has chosen to move forward with a set of recommended actions. In 2012, the partners took the following actions.

- Implemented a community-wide detention basin assessment program.
- Developed a hydrologic modeling tool to better understand flooding potential in the community.

- Continued compiling and improving geographic information system data of the existing stormwater infrastructure network.
- Implemented a rain garden demonstration project and education program.
- Implemented a detention basin maintenance training, inspection, and monitoring program for municipal staff.

With staff and Rutgers students, the RCE Water Resources Program assessed more than 100 stormwater management basins in the township, making recommendations for repairs and changes to maintenance regimes. A demonstration rain garden has been constructed at Steinert High School in Hamilton Township. This rain garden serves as an example of new stormwater management practices that can be implemented throughout the township to cost-effectively reduce flooding and improve water quality.

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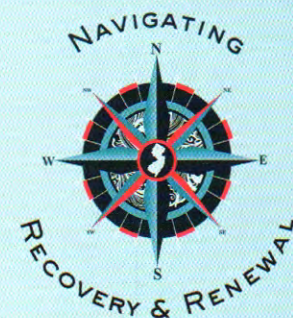
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The next step, hydrologic modeling of the five watersheds within Hamilton Township, has begun. Also in the works is a comprehensive, detailed geographic information system to describe the township's stormwater infrastructure. With ongoing support from the township, these and other recommended actions will continue over the coming years.

As Hamilton Township began work to assess and restore existing stormwater

infrastructure, community leaders also saw the need to plan for potential impacts of new development by ensuring their municipality was thoroughly complying with New Jersey's stormwater regulations.

State Stormwater Regulations New Jersey released stormwater management and permitting regulations in 2004 that were viewed by many as the most comprehensive in the country. The passing of these new regulations

created a strong need for education of those affected and for those who would enforce the regulations. For the past ten years community officials, business administrators, public works directors, and municipal leaders have relied heavily on design professionals and had little training or opportunity to learn what the intent and requirements of these regulations mean for their communities.

THE RCE WATER
RESOURCES PROGRAM
DEVELOPED A MUNICIPAL
OFFICIAL TRAINING
PROGRAM TO EDUCATE
PLANNING BOARD,
ZONING BOARD, AND
ENVIRONMENTAL
COMMISSION MEMBERS
ON THE STORMWATER
REGULATIONS.

Municipal leaders struggle to enforce the stormwater management regulations and many local officials are not fully aware of their role and responsibility. In response to this need, the RCE Water Resources Program developed a municipal official training program to educate planning board, zoning board, and environmental commission members on the stormwater regulations. And, more importantly, the program sought to define the responsibilities of these municipal officials. The training focused on what questions the boards and commissions need to be asking applicants of new development projects to ensure that these projects are in compliance with all aspects of the stormwater management regulations.

Better Water and More Effective Meetings Following NJDEP input and support, the program was piloted in Hamilton Township to members of the planning board, zoning board and environmental commission. The pro-

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gram has helped the municipal officials understand their responsibilities and helped them understand the questions they need to ask applicants to ensure compliance. The training also prompted municipal officials to discuss protocols for review of development applications and the need to streamline the approval process. An effort was also made to increase the efficiency of board meetings and make long board meetings, filled with opposing experts arguing over the validity of stormwater management strategies, less frequent.

Through Hamilton Township's partnership with the RCE Water Resources Program, the community has been able to better plan for infrastructure repairs and maintenance, implement cost-effective strategies to reduce flooding and protect water resources, as well as engage community leaders, residents and youth in taking steps needed to ensure clean and healthy waterways. To learn more about this approach and the ongoing programs visit: www.water.rutgers.edu or www.hamiltonnj.com. ▲



Clogged detention basin outlets lose their ability to dissipate flood waters and prevent the flooding of local properties.

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