

How we can combat flooding

By Qizhong Guo, *The Record, Opinion*, Monday, April 30, 2007

When we witness the devastating floods caused by recent heavy rains, it's easy to assume that New Jersey has done little to mitigate the effects of stormwater runoff. While much needs to be done to correct problems in older, heavily settled areas of the state that have been vulnerable to flooding, it is important to note that New Jersey is perhaps the most progressive state in mandating adequate stormwater management for new development.

In 2004, the state implemented a three-pronged stormwater management strategy for areas of new development.

The prime requirement is that peak outflow rates from a development have to be lower, not merely the same, than if no development had taken place.

The rules also mandate a quality level for runoff water—80 percent of solids, such as soil and debris, have to be removed before runoff enters established streams.

Finally, the state set groundwater recharge standards to ensure that an equivalent amount of water that was blocked from soaking into the ground by building roofs and pavement had a chance to get back into the soil rather than flowing straight into streams and rivers.

These requirements are typically met using appropriately designed retention basins. Such basins hold rapid inflows of water from heavy rains and release the water slowly, while at the same time allowing silt and debris to settle to the basin floor and absorbing some of the water into the ground.

Reviewing plans

While these requirements are indeed progressive and necessary to stave off additional flooding, they may be somewhat incomplete in truly achieving that goal.

One issue is whether the municipality or the state adequately reviews the stormwater management plans that developers submit for approval.

More often than not, the municipality or the state doesn't have the resources to thoroughly review and verify the design of a collection and retention system.

Another issue is whether the system is built according to the design specifications. Additional governmental oversight would reassure everyone that the job is being done right.

Perhaps a more glaring hole in the process is that the state does not really look at the overall effect of many new developments on a watershed.

It's assumed that if developers do their part in implementing the regulations, then the status quo will be maintained.

A more scientific approach of watershed modeling would go a long way toward reassuring all affected that these individual implementations are in fact delivering the desired effect.

By creating a digital watershed model that the state or a state research university would maintain, consulting engineers could enter the specifications of their plans, then development boards and regulatory agencies could gauge the overall result of all proposed developments.

The problem with earlier developments

While the state's approach to new development is commendable, there's still the issue of developments before 2004 that didn't account for runoff water quality or groundwater recharge, and developments before the early 1980s that didn't account for water runoff rates.

The state and municipalities should consider ways to retroactively account for these shortcomings.

For example, the concept of rainwater harvesting—collecting roof runoff into holding tanks on homeowners' properties for later use, such as lawn watering—could be explored.

Older developments typically no longer have land where new retention basins could be built, but there may be other ways to temporarily hold and gradually release runoff.

It might be reasonable to flood open space lands near developments, which would take flooding pressure off the developed areas and the streams that eventually collect the runoff.

Open spaces further down a stream may also be pressed into such use. Depending on the kind of soil in these lands, it might also contribute to groundwater recharge.

On the drawing boards

To be sure, the state will continue to face problems dealing with the urban flooding that has once again occurred in places like Bound Brook and Wayne.

Effective flood control projects have long been on the drawing boards for such areas, but the needed federal money has not been forthcoming to implement or complete them.

The state needs to redouble its efforts to press the federal government for the needed funds to move ahead with these projects. Only when action is taken on all these fronts will New Jersey see true progress in flood control.

Qizhong Guo is an associate professor of civil and environmental engineering at Rutgers University in Piscataway.

MONDAY, APRIL 30, 2007

OPINION

OTHER VIEWS

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Another issue is whether the system is built according to the design specifications. Additional governmental oversight would reassure everyone that the job is being done right.

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Chris Stephan of Grey Rock Avenue in Little Falls, led by his Labrador Cricket and accomplices, followed heavy rains earlier this month.

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The state and municipalities should consider ways to retroactively account for these shortcomings.

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OTHER VIEWS



JIM ANNEX / THE RECORD

of Grey Rock Avenue in Little Falls, led by his Labrador Cricket and accompanied by a passenger, navigating flooded streets in his neighborhood after heavy rains earlier this month.

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