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REGION

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## Chasing water goals Towns install 'natural' filters

By Carolyn Y. Johnson, Globe Staff | November 3, 2005

More than three decades after the federal Clean Water Act was enacted, towns and cities in the southeastern corner of Massachusetts are working toward meeting its second phase -- filtering out the hard-to-pinpoint pollution that slicks off car windshields and splashes under tires.

Dozens of area towns are facing a requirement to implement a storm water management plan by 2008, or risk penalties from regulatory authorities and lawsuits from citizens.

"Towns in the state have not been doing enough on storm water," said Stephen Bobo, a member of Cohasset's Board of Health, with the issue an even bigger problem in Southeastern Massachusetts because of the region's development surge in recent years.

The goal is to keep rainwater -- which picks up pollutants as it flows over parking lots, roads, and roof shingles -- from flowing directly into street catch basins and then into rivers and streams. Better that it fall on soil, which filters out the pollutants naturally before it reaches waterways.

The law's storm water requirements, combined with concern over water quality in areas that have seen rapid development, have led to a local building boom in rain gardens, rainwater retention basins, and new kinds of pavement that allow water to seep through so it can be cleaned as it percolates through the soil, rather than carry pollutants that will eventually lead to closed beaches and algae-choked ponds.

This week in Scituate, construction was slated to begin on a rain garden outside the high school. Across from Town Hall in Plymouth, work is continuing on a bioretention area, a depressed basin that will fill like a pond when it rains, then allow the water to drain through soil and plant roots before it reaches a catch basin and flows away.

Next summer, Pembroke's Town Hall and town landing, and Kingston's Intermediate School will be fitted with rain gardens; porous asphalt; grassy "infiltration" areas that intercept the first, most polluted flush of runoff; and vegetation-covered swales that replace curbs or gutters and help filter out pollution.

Tomorrow, the North and South Rivers Watershed Association's annual meeting will focus on the idea of recycling storm water, as part of a recent effort to help towns, private developers, and homeowners become environmental stewards and meet the standards required by the federal Environmental Protection Agency and state Department of Environmental Protection.

Even relatively small projects going up near streams and beaches across the area will remove thousands of pounds of suspended silt, as well as smaller amounts of phosphorus and nitrogen, which provide fodder for algae blooms and fish kills.

"Typically, we collect storm water in big pipes, route it to a detention basin, and put it into a wetland or stream as fast as we can. What we want to do is mimic the natural hydrology: water stays in the ground . . . trapping the coarser sediments and trash. The soil becomes a living mechanism, helps absorb nutrients and some of the pollution," said Michael Clark, an engineer with Norfolk Ram Group, an environmental engineering firm.

The idea behind the local rain garden project is to provide models in visible public places that educate residents and developers about the problems posed by runoff, and what can be done to solve them.

"It's a new focus on some technologies that have been out there and haven't really been considered. . . .

We're trying to improve the situation and encourage environmentally conscious development," Clark said.

In Cohasset, Clark's company created a prototypical rain garden outside the Water Department in July. The patch of land collects parking lot runoff, which first soaks through a grass filter strip and then reaches the garden, leaving behind 90 percent of the sediment carried in the water, and 65 percent of the phosphorus as it percolates downward. Eventually, about 50 such gardens will be set up to help protect the public drinking water supply, Clark said.

Saeed Kashi, town engineer for Plymouth, cited a handful of similar projects, funded by a combination of state and federal money and local matching grants.

"EPA and DEP are trying to put out grants so they can help municipalities . . . to get the recreational use of these harbors to be in place, to get back the shellfishing areas open," he said, explaining that Plymouth is midway through a five-year schedule to implement a storm water management plan, which includes basics like reminding the public that storm drains flow into the ocean, as well as more street cleanings, and better catch basins.

"We cleaned up the worst actors first," said Bobo, the Cohasset Health Board member, with the town's focus now turning to tackle more diffuse kinds of pollution. "We've spent almost 200 years getting this way with [dirty] storm water conditions, and it's going to take us some time to clean it all up."

The NRSWA's 35th annual meeting is open to the public tomorrow at 7 p.m. at the Cushing Center, Route 123, Norwell. Carolyn Y. Johnson can be reached at [cjohnson@globe.com](mailto:cjohnson@globe.com) ■