# Town Employs Green Technologies to Reduce Stormwater Impact

*By John Ouellette and Mitch Evich*

Franklin is roughly forty miles by car from downtown Boston, but the distance is much longer if you're traveling the meandering path taken by water. The town is near the far reaches of the Charles River's watershed, which encompasses thirty-five cities and towns ranging, south to north, from Wrentham to Lincoln and Lexington. All thirty-five communities have an impact on the health of the eighty-mile-long Charles, which has been in tough shape for more than a century. Until recently, bacterial pollution—numerous leaks of untreated sewage—was the primary reason the river was unsafe for swimming and boating, but a massive cleanup effort begun in the mid-1990s has now reduced bacteria counts to safe levels (most of the time). The primary culprit these days is stormwater runoff, which carries a variety of trash, toxins and chemicals into the river. The abundance of "impervious surfaces" in the densely populated watershed—mainly pavement and roofs—is a major contributor to the problem. Rather than being able to soak into the ground, rainwater gets diverted to storm drains, carrying pollution with it. Discharges of phosphorus, in particular, "have caused dramatic plant and algae growth in the river, including large blooms of toxic algae," according to a U.S. Environmental Protection Agency report in 2008. Phosphorus—from dust and dirt, decaying organic matter, engine exhaust, and pet waste—"tends to collect on impervious surfaces."

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MITCH EVICH PHOTO

*Milford Pond, which abuts the town's commercial district, is close to the headwaters of the Charles River. In 2008, Milford, Franklin and Bellingham were chosen for a pilot project to reduce stormwater runoff that drains into the Charles River watershed.*

In an effort to comply with state and federal regulations—and with an eye toward increasingly stringent standards that are forthcoming—the town of Franklin several years ago embarked on a program to mitigate the flow of stormwater into the Charles. With technical assistance from the Charles River Watershed Association, the town embarked on a program, dubbed Soak It Up Franklin, that focuses on a range of small-scale, localized projects rather than a centralized, capital-intensive solution. "Stormwater … is best managed by directing it to seep into the ground (recharge), rather than allowing it to run off," states the town's Stormwater Matters public education website. "A new development approach called low-impact development, or LID, uses design techniques that help increase recharge and reduce stormwater pollution."

Many of the techniques are considered sustainable "green technologies." Stormwater runoff from large parking lots and some roads is being diverted into newly created "rain gardens," which are

planted areas designed to capture runoff and filter it, removing 80 percent of pollutants. Tree wells are also being constructed to act as natural filters. New, deeper catch basins, which are better able to trap sediment that would slip through conventional catch basins, are being installed. And the town has pulled up acres of impervious surface by narrowing some roads and removing selected sidewalks. The goal, according to an article in the spring 2013 issue of *Watershed Science Bulletin*, "is to identify techniques and management approaches to re-engineer the built environment to make it function more like the natural environment."

For new development, "Franklin has some of the strictest recharge requirements in the state," says Public Works Director Robert "Brutus" Cantoreggi. "If a developer is coming to town, they're going to have to put in some kind of pollution abatement for stormwater and also a recharge. Basically, any rain that falls on a property within a twenty-four-hour period has to be captured and kept on that property, or at least be recharged."

The town recently launched a project that connects homeowners with resources to build their own rain gardens around driveways and roofs, further reducing stormwater runoff that might otherwise go to neighborhood storm drains. The town also created a website (www.soakitupfranklinma.org) and a Stormwater Matters project to educate the public about the importance of stormwater mitigation efforts and provide updates on the town's various projects.

In addition to reducing the flow of stormwater runoff that eventually reaches the Charles River, the town's efforts have the added benefit of protecting its water supply, which comes entirely from aquifers within its borders.

In the past couple of years, the town has been widely recognized for its stormwater programs. It has won grants from the DEP and the EPA, and Cantoreggi has been asked to speak at events held by the EPA, National League of Cities, American Public Works Association, and New England Water Environmental Association, among others. "Franklin … is committed to the long-term stewardship of its natural resources and is actively seeking sustainable approaches to managing its natural resources," states a 2011 report from the Charles River Watershed Association, which presented its Rita Barron Award for an Outstanding Public Official to Cantoreggi in 2012.

In 2008, the EPA's Region 1 office, located not far from where the Charles spills into Boston's Inner Harbor, announced its intent to require permits for almost all sites with two or more acres of impervious surface—both public and privately owned—located in Franklin as well as Bellingham and Milford. The three towns were chosen for a pilot project, not yet underway, that would grant them "residual designation authority" to enforce the regulations. Federal regulators zeroed in on the towns because they are close to the headwaters of the Charles River, making it easier to monitor the effectiveness of the new program. The proposed permit requires a series of stormwater controls, mostly in the form of "best management practices" designed to reduce phosphorus that makes its way to the river. Milford is expected to reduce phosphorus discharge by 57 percent, Franklin and Bellingham by roughly 52 percent.

Of course the first concern of such a mandate is cost. A 2011 report by the environmental consulting firm Horsley Witten estimated the overall cost to the three towns and their businesses at $180 million. The cost to town-owned properties that contribute to stormwater runoff in Franklin has been estimated at $65 million, with another $10 million being charged to businesses in the town. And, as Cantoreggi points out, those figures do not include the cost of Franklin administering the program. Cantoreggi is also concerned that the requirements would make it too costly for businesses to stay or establish themselves in the three towns. "We basically said [to the EPA] that if you give us thirty years, we'll make it happen," he says. "A couple million dollars a year is probably palatable." The hope is that the town's head start on the requirements will pay dividends once the pilot program begins.

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*– Report from Charles River Watershed Association*

Thelma Murphy, chief of the Stormwater Control Department in the EPA's New England office, says the EPA can't finance projects, but it might be able to extend the period over which the project is supposed to be paid off. Murphy notes, however, that the change would have to be realized through a town's Municipal Separate Storm Sewer System permit, commonly known as MS4. And cities and towns throughout the state are still awaiting the new versions of their MS4s, which have not been updated in more than a decade. Not knowing what will be in the new permits, local officials note, makes stormwater-management planning difficult.