Property owners and municipal officials are increasingly placing an emphasis on maintaining BMPs installed countrywide.

Who’s responsible for best management practices?

By Dan Rafter

Jake Jacobson remembers when things were much worse.

Business owners, homeowners’ associations, developers, and even municipalities would neglect the stormwater best management practices, or BMPs, operating on their land. And this neglect would spread to everything from retention ponds to continuous deflective separation units.

Jacobson saw some filters neglected so severely that they’d be completely clogged with plastic bags, soggy newspapers, and forgotten fast food containers. He’d see retention ponds overgrown with invasive species, trash littering their banks.

In the most extreme of these cases, the BMPs were no longer even moderately filtering the stormwater that ran through them.

Today, though? Things have gotten better, says Jacobson, general manager with Escondido, CA–based Downstream Services, a firm that works with commercial, residential, and municipal clients to clean and maintain stormwater devices.

Associations, business owners, and public works department employees still don’t do a perfect job of maintaining the BMPs on their properties. But they are at least aware that ponds, filters, and other devices need periodic inspections and cleanings, Jacobson notes. And with the increasing threat of heavy fines from federal, state, and local agencies, these owners are becoming far less apt to ignore these devices.

“The developers and builders that have been required to install BMPs as part of their projects are now informing the associations or property owners that they have to maintain these devices or they won’t work properly,” he says. “We are starting to see that property management firms are
becoming better educated that these BMPs exist and are areas of their responsibility. They understand now that they are responsible for maintaining these.”

Jacobson isn’t alone. Other stormwater pros involved in the installing and maintaining of stormwater devices agree that property owners and municipal officials are placing a greater emphasis on maintaining the BMPs installed across the country.

The big problem, though, is that homeowners’ associations, private businesses, and private property owners are often unprepared to maintain their stormwater BMPs. It’s not that they don’t want to keep the devices running well; they just don’t know how. Fortunately, there are independent companies that will perform regular inspections and maintenance duties for these owners. And, in another positive development, more manufacturers of BMPs and municipal stormwater agencies are holding classes and workshops dealing with maintenance issues, giving owners the chance to learn how to properly care for their detention ponds and proprietary stormwater management devices.

This is all a big step forward, and an important one. Engineers and municipalities specify BMPs with the best of intentions, relying on them to filter and clean the stormwater that drains into their bodies of water. But if the entities responsible for the upkeep of these devices don’t do their jobs—if they don’t order regular inspections and cleaning, if they ignore signs of a malfunctioning filter—these bodies of water can be threatened with sediment, chemicals, and other pollutants washed into them after rainfalls.

It’s little surprise that BMPs are not always maintained properly. Cleaning, inspecting, and maintaining stormwater BMPs is far from sexy or glamorous. It’s just essential.

“This really is the unglamorous side of many of these proprietary stormwater products,” says Gordon England, P.E., president of Stormwater Solutions Inc. in Cocoa Beach, FL. “The engineers all like to build these fancy BMPs. But no one thinks about the burden of some lonely public works employee who has to maintain them. That is something that engineers and designers should consider from the start of the design process.”

**A Mixed Bag**

The stormwater professionals interviewed for this story agreed that property owners, associations, and municipal officials today are more committed to maintenance. But they also say that these folks still have plenty of room for improvements.

Some municipalities do an excellent job of taking care of their BMPs, say officials with the companies that specialize in maintaining the devices. Others, though, still devote little to no effort toward maintenance.

The same holds true for other property owners and homeowners’ associations, BMP maintenance companies say: Some do a great job with upkeep. Others don’t.

The attention paid to maintenance also varies across the country. Some states, such as Florida and California, have good reputations when it comes to caring for their stormwater infrastructure and BMPs. Other states do not.
“It all varies so much from city to city across the United States,” England says. “It’s hard to say with any certainty just how much better or worse maintenance of the BMPs has gotten.”

One reason for this is that maintenance usually is handled in two significantly different ways. Often, homeowners’ associations, private businesses, or individual property owners are supposed to handle the upkeep, inspections, and maintenance of the BMPs on their properties. This is the case, for example, for the retention ponds at many housing subdivisions across the country. After the developer leaves, it’s up to the homeowners’ association to pay for the pond’s upkeep. Often, the association hires an outside company to perform the work.

In other instances, cities or municipalities and their public works departments handle the maintenance. This usually occurs with filters, proprietary devices, and retention ponds on public property. There are times, too, when municipalities may take over the maintenance duties on some BMPs located in housing subdivisions and other private lands if municipal officials recognize that the homeowners’ association or business responsible for them is doing a poor job.

That later scenario, though, happens rarely, England says. “In my experience, the majority of cities and counties leave it upon the association, the developers, or the owner of the convenience store to maintain the pipes, the ponds, that sort of thing,” he says.

There are regional differences, though, England adds. He lives and works in Florida, where residents tend to be more concerned about the health of their environment. This concern naturally filters down to the maintenance of BMPs; clean, safe water, after all, is a major concern to Florida and its booming tourist industry.

“Many of the people here in Florida are environmentally conscious,” England notes. “They are trying to do the right thing. They are bombarded by newspaper stories and radio shows about taking care of our natural resources, our wetlands. There is a big environmental movement here.” England formerly served as an environmental consultant with a county agency in the state. He remembers inspecting hundreds of thousands of BMPs during this time. The vast majority of these had been cared for properly, he says.

And the smaller number of BMPs that weren’t being cleaned or maintained correctly? Most times, intentional neglect wasn’t the issue. Most of the owners responsible for the care weren’t aware of the right way to service the BMP. England estimates that in 80% of these cases, the county was easily able to convince people to do whatever had to be done to maintain the systems.

He can’t vouch for whether this is the case in the majority of the country, though. “In other parts of the country where the environmental movement is not as strong, it does get more difficult to motivate the homeowners’ associations and developers to maintain their ponds and systems,” he says.

**A Budget Issue**

The Lake County Stormwater Management Commission provides a good example of the challenges that stormwater agencies face regarding BMP maintenance. The agency, located in Lake County, IL—which features some of the wealthier suburbs of Chicago—also shows how stormwater commissions can meet those challenges.
The commission does not have a maintenance program. Mike Warner, its executive director, says that the budget afforded to his agency isn’t large enough to support one.

Because of this, the commission, whenever it approves a stormwater BMP for a private or public development, inserts language into the project package spelling out exactly how the BMPs will be maintained and the entity responsible for handling this task.

Before a developer qualifies for a permit, the agreement with the stormwater commission must also point out an adequate source of funding to implement maintenance tasks in perpetuity, Warner says. It may be as simple as spelling out what percentage of homeowners’ association dues will be used for maintenance needs.

“Say we are working on a flood-mitigation project. We ensure up front that a local homeowners’ association or a local unit of government is willing to take on long-term maintenance of the BMP,” Warner explains. “We bring that concept into the project early, as we develop and design it and agree on a project’s scope. The maintenance and upkeep of BMPs is then brought through into a legal arrangement within the agreements we sign.”

Once the commission and the developer agree on a maintenance plan, it is recorded with the subdivision documents. Whenever someone then pulls up the plat of subdivision from the county recorder’s office, he easily can access the maintenance plan.

The commission recently tackled a detention pond retrofit project, installing the BMP in an existing subdivision in the suburb of Lake Zurich, IL. Before agreeing to help install the new pond, the commission and the village reached an agreement on the mowing schedule, on when re-plantings would need to be done, and on how often the association would spray the pond with herbicides to kill off invasive plants.

Like all such agreements, this one includes measures that the commission can take to make sure that the village is maintaining the pond properly. The commission’s employees can perform regular inspections to search for problems. And if they find any? Usually, Warner says, the problems are discussed and the commission and the village, developers, or homeowners’ associations come to a mutually acceptable agreement on what needs to be done to improve maintenance of the BMP or repair it if more serious damage has been done.

Like other stormwater commissions, Lake County’s also emphasizes public education. The commission holds regular workshops for homeowners’ associations that detail exactly how they should be caring for their stormwater BMPs. This year, the commission will hold three such workshops, which include advice from stormwater experts, a look at past case studies, and a summary of resources that are available for homeowners’ associations that are determining the best way to maintain their subdivisions’ BMPs.

Warner says that the workshops have made a significant difference for property owners previously confused on how best to maintain their stormwater devices. And more people across his county—whether they be developers, homeowners, or municipal officials—are aware of how important it is to make sure that BMPs are working properly and doing the job for which they were installed.
“The level of awareness has been increasing,” Warner says. “The number of companies that offer consulting in this area has been rising. The number of landscaping companies that specialize in this area is growing. People now have a better resource pool to pull from. We’ve seen a much better response since the early days when wetland mitigation projects were first being built. The large part of those would end up covered with invasive species or would turn into open-water areas. The functionality of the BMP was lost. We are now seeing a trend toward more knowledgeable and responsible parties. We are seeing better success rates.”

And if the commission does find problems during one of its inspections, it has a system ready for such an occurrence. During an inspection, the commission invites along at least one person who represents the party responsible for the BMP. That way, the inspection becomes a joint inspection process, rather than just the commission levying field judgments on its own. Most times, if the inspection turns up a problem, the commission and the party responsible for the BMP can reach an agreement on a remedy onsite.

Typical problems include clogged inlets or outlets, which are easy to fix, Warner says. A more difficult problem to remedy might be an influx of invasive species. In that case, Warner says, the person responsible for the BMP might choose to hire a landscape-maintenance firm to tackle the problem or may schedule a subdivision cleanup day to remove the unwanted plants.

No matter the problem, the commission has always managed to find an amicable solution, Warner says.

“We’ve been fortunate that we’ve never been to court in one of these situations,” he notes. “We have always figured a way to solve these problems without having to resort to the legal route.”

A Helping Hand
Public works department officials could do a better job maintaining the BMPs in their regions if they didn’t also have to worry so much about handling paperwork, developing stormwater management plans, or answering the phones. It’s this realization that more than two and a half years ago led to the formation of Gloucester County Stormwater Management.

Based in Clarksboro, NJ, and run through the Gloucester County Improvement Authority, the stormwater management program provides assistance, when it makes economic sense, to the 24 municipalities within its boundaries that are working to satisfy the stormwater requirements of the New Jersey Pollutant Discharge Elimination System, or NJPDES. The goal of NJPDES is to make sure that all the waters in New Jersey meet water-quality standards for their specific uses. This requires municipalities to control nonpoint sources of pollution from stormwater runoff.

Gloucester’s central stormwater management program doesn’t tackle the inspection and repair work that its individual municipalities face when dealing with BMPs. But it does handle much of the administrative duties that would otherwise distract municipalities from these more important jobs, says George Strachan, administrator with the Gloucester County Improvement Authority.

For instance, the management program has its own central Web site, www.gcstormwater.com, which provides information to both members of the public and public works officials. The program also has purchased, with the help of a grant from the state, handheld data loggers, which it is
passing out to public works employees to help municipalities take advantage of the still-emerging technology of geographic information systems. With the handheld data loggers, public works pros can enter information electronically about the size, location, and age of their municipalities’ stormwater BMPs. They also can enter, or call up, information about each BMP’s last inspection date.

Gloucester County Stormwater Management also sends out countywide mailings about stormwater issues and provides a central agency to handle citizen phone calls. Perhaps most importantly, the stormwater management program sends its representatives to the various permitting agencies and municipal boards to lobby for specific stormwater management programs and BMPs on behalf of the government bodies they are serving.

“We are helping with the administrative and coordination efforts,” Strachan says. “We couldn’t take over their responsibilities when it came to maintaining these BMPs. But we could do some of the administrative work for them. We can do the work more efficiently in a cost-effective way using economies of scale. The individual public works agencies are not drafting their own stormwater management plans. They are not responsible for going to the planning boards or going in front of the municipalities. That doesn’t sound like a big deal, but if you have a big town, or even a small town without a lot of resources, it is.”

The program also gives municipalities an edge in making sure that the BMPs in their areas still are functioning properly, and that their owners, both private and public, are maintaining them correctly.

Strachan says that it’s gradually gotten easier to convince people of the importance of properly caring for the stormwater devices on their properties.

“It’s really been coming onto the radar screen for municipalities with the greater enforcement of the permits that we’ve seen,” he says. “We set up this program to get ahead of the curve to make sure that these issues were being addressed in a cost-effective manner. As with most states, property taxes here in New Jersey are a big problem. Any dollar we can save at the local level can be used in other areas. And that doesn’t even factor in the cost of the time and energy we are saving for local municipalities.”

**Meeting a Need**

John Moll, chief executive officer of Lawrenceville, GA–based CrystalStream Technologies, knows all about the challenges that businesses, municipalities, and homeowners’ associations face when trying to properly maintain and clean stormwater BMPs. His company not only produces BMPs but also runs its own division dedicated to cleaning and maintaining stormwater devices. The company’s Storm Systems Services division has so far performed about 4,000 cleanings of stormwater BMPs, Moll says.

And though it’s true that municipalities and private entities have grown more familiar with the importance of stormwater devices, it’s equally true that these private and public groups still have much to learn about how to properly maintain them, he says.
“The number-one problem we saw in stormwater quality was that no one was maintaining anything,” Moll notes. “We’d ask people, ‘How do you clean these things?’ And they had nothing. Now, it’s gotten better. But there is still a lot of work to be done.”

One of the problems, Moll says, is that manufacturers do a good job of designing BMPs. They don’t, though, always consider how difficult it may be to clean their devices.

“Many of the manufacturers have never given a thought to cleaning,” he says. “It’s almost impossible to get into some of these devices to clean them properly—is now and always will be.”

Jacobson, from Downstream Services, sees many of the same problems repeated over and over again when his company inspects stormwater devices. Often, developers will overestimate the capabilities of a particular BMP. Perhaps they will install a filter in a housing development and expect it to catch everything. A better solution might be to install those filters but also to put in a clarifier and a CDS unit as a secondary protective measure, Jacobson says, something that he refers to as a tree of protection.

Other times, owners assume they will stay in compliance simply by cleaning the BMPs—or scheduling a cleaning—every year or every six months. Problem is, some BMPs don’t need that much cleaning, depending on the type of stormwater device and its location, Jacobson says, while others may need cleaning much more frequently.

As an example, Jacobson points to filters placed alongside a city greenbelt. City workers mow the greenbelt frequently and are out trimming trees often, too. That BMP is going to require frequent cleanings to handle all the trimmings and grass clippings, with the city perhaps needing to clean it every month. If that same filter, though, were working in an asphalt parking lot with little landscaping surrounding it, it might need to be inspected only once every six months, maybe before and after the region’s wet season.

“I think people are doing a better job maintaining these BMPs than they have in the past,” Jacobson says. “But there is still a need for more public education and outreach. People have to realize that they can’t take a one-size-fits-all approach to this issue. Every BMP, every situation, is unique.”

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