

Section 6

Long-term Maintenance of BMPs

6.1 Introduction

The long-term performance of BMPs hinges on ongoing and proper maintenance. In order for this to occur, detailed maintenance plans are needed that include specific maintenance activities and frequencies for each type of BMP. In addition, these should include indicators for assessing when “as needed” maintenance activities are required. The fact sheets included in this volume contain the basic information needed to develop these maintenance plans, but municipalities and other regulatory agencies also need to identify the responsible party and potentially to address funding requirements. The following discussion is based primarily on data developed by Horner et al. (1994) and information available at <http://www.stormwatercenter.net/>

6.2 Critical Regulatory Components

Critical regulatory components identified by Horner et al. (1994) include:

- Regulations should officially designate a responsible party, frequently the development site owner, to have ultimate responsibility for the continued maintenance of stormwater facilities. This official designation provides the opportunity for appropriate preparation and budgeting prior to actually assuming responsibilities. It also facilitates enforcement or other legal remedies necessary to address compliance or performance problems once the facility has been constructed.
- Regulations should clearly state the inspection and maintenance requirements. Inspection and maintenance requirements should also comply with all applicable statutes and be based on the needs and priorities of the individual measure or facility. A clear presentation will help owners and builders comply, and inspectors enforce requirements.
- Regulations should contain comprehensive requirements for documenting and detailing maintenance. A facility operation and maintenance manual should be prepared containing accurate and comprehensive drawings or plans of the completed facility and detailed descriptions and schedules of inspection and maintenance.
- The regulations should delineate the procedure for maintenance noncompliance. This process should provide informal, discretionary measures to deal with periodic, inadvertent noncompliance and formal and severe measures to address chronic noncompliance or performance problems. In either case, the primary goal of enforcement is to maintain an effective BMP – the enforcement action should not become an end in itself.
- Regulations should also address the possibility of total default by the owner or builder by providing a way to complete construction and continue maintenance. For example, the public might assume maintenance responsibility. If so, the designated public agency must be alerted and possess the necessary staffing, equipment, expertise, and funding to assume this responsibility. Default can be addressed through bonds and other performance

guarantees obtained before the project is approved and construction begins. These bonds can then be used to fund the necessary maintenance activities.

- The regulations must recognize that adequate and secure funding is needed for facility inspection and maintenance, and provide for such funding.

6.3 Enforcement Options

A public agency will sometimes need to compel those responsible for facility construction or maintenance to fulfill their obligations. Therefore, the maintenance program must have enforcement options for quick corrective action. Rather than a single enforcement measure, the program should have a variety of techniques, each with its own degree of formality and legal weight. The inspection program should provide for nonconforming performance and even default, and contain suitable means to address all stages.

Prior to receiving construction approval, the developer or builder can be forced to provide performance guarantees. The public agency overseeing the construction can use these guarantees, usually a performance bond or other surety in an amount equal to some fraction of the facility's construction cost, to fund maintenance activities.

Enforcement of maintenance requirements can be accomplished through a stormwater maintenance agreement, which is a formal contract between a local government and a property owner designed to guarantee that specific maintenance functions are performed in exchange for permission to develop that property (<http://www.stormwatercenter.net/>). Local governments benefit from these agreements in that responsibility for regular maintenance of the BMPs can be placed upon the property owner or other legally recognized party, allowing agency staff more time for plan review and inspection.

6.4 Maintenance Agreements

Maintenance agreements can be an effective tool for ensuring long-term maintenance of on-site BMPs. The most important aspect of creating these maintenance agreements is to clearly define the responsibilities of each party entering into the agreement. Basic language that should be incorporated into an agreement includes the following:

1. Performance of Routine Maintenance

Local governments often find it easier to have a property owner perform all maintenance according to the requirements of a Design Manual. Other communities require that property owners do aesthetic maintenance (i.e., mowing, vegetation removal) and implement pollution prevention plans, but elect to perform structural maintenance and sediment removal themselves.

2. Maintenance Schedules

Maintenance requirements may vary, but usually governments require that all BMP owners perform at least an annual inspection and document the maintenance and repairs performed. An annual report must then be submitted to the government, who may then choose to perform an inspection of the facility.

3. Inspection Requirements

Local governments may obligate themselves to perform an annual inspection of a BMP, or may choose to inspect when deemed necessary instead. Local governments may also wish to include language allowing maintenance requirements to be increased if deemed necessary to ensure proper functioning of the BMP.

4. Access to BMPs

The agreement should grant permission to a local government or its authorized agent to enter onto property to inspect BMPs. If deficiencies are noted, the government should then provide a copy of the inspection report to the property owner and provide a timeline for repair of these deficiencies.

5. Failure to Maintain

In the maintenance agreement, the government should repeat the steps available for addressing a failure to maintain situation. Language allowing access to BMPs cited as not properly maintained is essential, along with the right to charge any costs for repairs back to the property owner. The government may wish to include deadlines for repayment of maintenance costs, and provide for liens against property up to the cost of the maintenance plus interest.

6. Recording Of The Maintenance Agreement

An important aspect to the recording of the maintenance agreement is that the agreement be recorded into local deed records. This helps ensure that the maintenance agreement is bound to the property in perpetuity.

Finally, some communities elect to include easement requirements into their maintenance agreements. While easement agreements are often secured through a separate legal agreement, recording public access easements for maintenance in a maintenance agreement reinforces a local government's right to enter and inspect a BMP.

Examples of maintenance agreements include several available on the web at <http://www.stormwatercenter.net/>

6.5 Public Funding Sources

If local agencies are willing to assume responsibility for stormwater BMPs, it is essential to identify the long-term funding sources. Several of these are described below:

General Tax Revenues

Tax revenues are an obvious source of funding, particularly for the long-term inspection and maintenance of existing runoff and drainage facilities. The benefits and protection to the public from continued safe and effective operation of the facility justifies using revenues from general funds.

To use tax revenues, particularly from a general fund, the inspection and maintenance program must annually compete with all other programs included in the government's annual operating budget. This inconsistent and unreliable funding makes securing a long-term financial

commitment to inspection and maintenance difficult and subject to political pressures. Nevertheless, tax revenues remain a popular funding source because the collection and disbursement system is already in place and familiar.

Utility Charges

Using utility charges to fund inspection and maintenance is a somewhat recent application of an already established financing technique. In addition, several municipalities and counties throughout the country have runoff management, drainage, and flood control authorities or districts to provide residents with runoff related services.

Using utility charge financing has several advantages. By addressing only runoff needs and benefits, utility funding avoids competing with other programs and needs. Utility funding also demonstrates a direct link between the funding and the services it provides. This approach can require an entirely new operating system and organization that needs legal authorization to exist, operate, and assess charges. The effort required to create such an entity can deter many, although the continued success of established authorities and growth of new ones have done much to allay concerns over the effort required.

In a runoff utility, the user charges are often based on the need for services rather than the benefits derived from them. While charges are based on actual costs to inspect and maintain runoff facilities and measures within the service area, the assessed rate structure should relate to site characteristics. These include property area size, extent of impervious coverage, and other factors with a direct and demonstrable effect on runoff. To be fair, the rate structure should also remain simple and understandable to the ratepayer.

To finance the stormwater utility in Prince William County, Virginia, residential and nonresidential owners of developed property pay based on the amount of impervious area (rooftops, paved areas, etc.) on their property. Residents pay \$10.38 billed twice a year (\$20.76 total annual fee) for detached single-family homes. Town home and condominium owners will pay \$7.785 billed twice a year (\$15.57 total annual fee). Nonresidential property owners pay \$0.84 per 1,000 ft² of impervious area per month. Fee adjustments or credits may be available if a stormwater management system is already in place. The fee will be on the real estate bills.

Fees for the stormwater utility in Austin, Texas are higher with residential users billed \$5.79/mo, while commercial users pay \$94.62/mo/acre of impervious cover. These fees cover not only maintenance of existing BMPs, but also capital improvement projects related to the drainage infrastructure.

Permit Fees

Collecting permit fees to finance runoff inspection and maintenance is a long standing funding procedure. Most governmental entities, local, county, and state, can establish and collect fees and other charges to obtain operating funds for programs and services. Many inspection services, most notably the construction inspection of both ESC measures and permanent drainage and runoff management facilities, are financed at least in part through fees collected by permitting agencies. Unlike taxes or some utility charges, inspection costs are borne by those who need them.

The permit fee collection program should have a demonstrable link to the runoff management or drainage systems. The public agency should demonstrate a direct link between the permit fees collected and the permitted project. One method is using dedicated accounts for individual projects and facilities. Finally, the rate structure should reflect site characteristics such as area size or imperviousness that directly relate to the measure or facility by affecting runoff or erosion.

Dedicated Contributions

Public agencies at times have used developer contributions to fund long-term facility maintenance. This approach is particularly appropriate in single-family residential subdivisions, where numerous individual property owners served by a single runoff facility can result in confusion over who has maintenance responsibility.

The exact funding technique depends on many factors, including community attitude and knowledge, economic and political viability, and program needs and costs. Some techniques, including permit fees and dedicated contributions, may be more appropriate for short-term activities, such as construction inspection. Other utility charges and specialized tax revenues may apply to all phases of an inspection and maintenance program but require considerable effort and special legal authorization to operate.