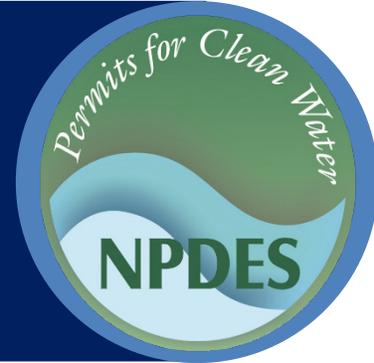




Stormwater Best Management Practice

Ordinances for Post-Construction Stormwater Control



Minimum Measure: Post Construction Stormwater Management in New Development and Redevelopment
Subcategory: Municipal Program Elements

Description

A vital step in controlling the harmful effects of development on urban water quality is establishing design requirements to ensure that land development activities manage post-construction stormwater discharges. Land development creates roads, sidewalks, parking lots, rooftops and other impervious surfaces that can increase stormwater discharges. Stormwater discharges from impervious areas can contain sediment, nutrients, deicing materials, heavy metals, bacteria, petroleum hydrocarbons and other pollutants that can decrease water quality. Additionally, the potential for flooding and infrastructure damage increases as discharge volumes increase from the construction of impervious surfaces.

An ordinance protects public welfare by guiding, regulating and controlling the design, construction, use and maintenance of any development project or other earth-disturbing activity. A post-construction stormwater management ordinance typically requires designs that implement stormwater management to limit surface discharge volumes and reduce pollutant loadings.

Applicability

Post-construction stormwater management ordinances apply to new development and redevelopment projects that discharge stormwater to the municipal separate storm sewer system. Municipal staff should tailor and structure the ordinance to support each community's goals and compliance requirements. For example, if the community has specific watershed goals, the ordinance could include provisions and requirements to reflect those goals. Additionally, municipal staff can write ordinances to support other documents that are part of the overall stormwater management program; these may include post-construction stormwater management design manuals, standards or other technical criteria for protecting sensitive waterways.

If municipal staff properly develop, implement and enforce the ordinance, a community can:



A paved walkway in an urban park after a rain.

- Reduce flooding and impacts to community waterways by minimizing excess stormwater discharges from development and redevelopment activities.
- Protect community waterways from pollution by installing and properly maintaining post-construction stormwater controls.
- Address development and redevelopment projects of varying sizes.

EPA provides a [post-construction model ordinance](#) Web site with example language and programs that communities are currently implementing (U.S. EPA, 2015). Post-construction ordinances typically include general provisions, definitions, permit procedures, and requirements; waivers to stormwater management requirements; general performance criteria; basic stormwater management design criteria; requirements for stormwater management plan approval; inspections; maintenance requirements; and enforcement procedures. The following subsection outlines each of these elements.

Ordinance Content Considerations

Post-construction stormwater control ordinances establish stormwater management requirements and controls to protect and safeguard the general health,

safety and welfare of the public. An ordinance can include the sections below.

General Provisions

This section should identify the ordinance's purpose, objectives, applicability, compatibility with other requirements and severability, as well as the development of a stormwater manual and/or stormwater design manual. A stormwater manual typically includes a list of acceptable stormwater controls, while a stormwater design manual includes specific design criteria and operation and maintenance requirements for each stormwater control. In addition, local communities should select the minimum water quality performance standards they will require for stormwater controls and include them in the design manual.

Definitions

It is important to define the terms and associated acronyms in the ordinance to help the reader and prevent misinterpretation.

Permit Procedures and Requirements

This section should identify activities that are subject to permit requirements; application requirements, procedures, and fees; and the permit duration. The permit's intent is to ensure that earth-disturbing activities comply with the ordinance. Communities can issue a specific stormwater management permit distinct from any other required land development permits, or they can tie the issuing of construction permits to the approval of a final stormwater plan. Additionally, this section of the ordinance should outline the requirements for developing and submitting any other plans that the post-construction program will implement, such as plans for stormwater pollution prevention, maintenance and landscaping.

Waivers to Stormwater Management Requirements

This section should discuss the process for requesting a waiver, identify who may use waivers and include alternatives—such as fees, offsite stormwater management, or other provisions for those requesting a waiver. Communities should give careful consideration when granting waivers since they would create little to no environmental benefits.

General Performance Criteria for Stormwater Management

This section should include performance criteria that apply to new and redevelopment projects, such as the following examples:

- Sites must retain a prescribed volume of stormwater.
- Sites must establish stormwater controls to control the peak flow rates of stormwater discharges from specified design storms and to reduce the generation of stormwater.
- Areas of new development may not discharge untreated stormwater directly into a jurisdictional wetland or local waterbody without adequate treatment.
- Site designs must maintain annual groundwater recharge rates through structural and non-structural methods that promote infiltration.
- Structural stormwater controls must remove a certain percentage of the average annual post-development pollutant loading.
- Stormwater control designs must meet applicable channel protection criteria.
- Stormwater discharges to critical areas with sensitive resources (e.g., cold water fisheries, shellfish beds, swimming beaches) may be subject to additional performance criteria or may require the use or restriction of certain stormwater controls.
- Stormwater discharges from land uses or activities with higher potential pollutant loadings may require the use of specific structural stormwater treatment and pollution prevention practices.
- Before design, applicants must consult with the stormwater control authority to determine if they are subject to additional stormwater design requirements.
- Design engineers must use the calculations for peak flow, as identified in the stormwater design manual, to size all structural stormwater controls.

Basic Stormwater Management Design Criteria

Separate stormwater design manuals often contain specific design criteria. The ordinance can then require site development applicants to consult the current stormwater design manual for the exact design criteria appropriate for their site. Topics in the manual can include minimum control requirements, site design

feasibility, conveyance issues, pretreatment requirements, treatment/geometry conditions, landscaping plans, maintenance agreements and non-structural stormwater controls.

Common Terms

Pretreatment plays an important role in stormwater treatment. Pretreatment structures, installed immediately upgradient to a stormwater control, reduce flow rates and remove sediment and debris before stormwater enters the stormwater control. This helps to improve the stormwater control's pollutant removal efficiency and reduces maintenance requirements.

Requirements for Stormwater Plan Approval

This section should address who must develop the stormwater plan and the plan's required elements. Developers may find a submittal checklist in the stormwater design manual helpful. A checklist is also particularly beneficial for communities because they can change submittal requirements without revising the original ordinance. Additionally, this section may describe the process for submitting revised or final stormwater plans and obtaining performance bonds, as well as the requirement for a performance bond/security (as necessary).

Construction Inspection

This section should describe the notice of construction commencement, as-built plans, and landscaping and stabilization requirements. Post-construction stormwater control inspections may occur during installation or after construction of these stormwater controls to ensure that construction staff adequately conduct required maintenance.

Maintenance and Repair of Stormwater Controls

This section should describe maintenance agreements, maintenance covenants, maintenance easements, inspection processes, right-of-entry for inspection, records of installation and maintenance activities, and actions for failure to maintain stormwater controls. A post-construction stormwater management ordinance's operation and maintenance language can ensure that designs facilitate easy maintenance and that construction staff complete and track regular maintenance activities.

Enforcement and Penalties

This section should include information on violations, notices of violation, stop work orders, civil and criminal penalties, restoration of lands and holds on occupancy permits. As applicable, it should also include the process for hearing and appeals related to enforcement activities.

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's [National Menu of Best Management Practices \(BMPs\) for Stormwater website](#)

References

U.S. Environmental Protection Agency (U.S. EPA). (2015). *Model post-construction stormwater runoff control ordinance*. Washington, DC: U.S. Environmental Protection Agency.

Disclaimer

This fact sheet is intended to be used for informational purposes only. These examples and references are not intended to be comprehensive and do not preclude the use of other technically sound practices. State or local requirements may apply.