



# SECTION 1. INTRODUCTION

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## 1.1 Purpose

The Clean Water Act (CWA) was passed in 1972 to help protect and restore the waters in our Nation's streams, rivers, and lakes. In the early 1990s, Phase I of the National Pollutant Discharge Elimination System (NPDES), under authority of the CWA, was passed to regulate stormwater management in large urban areas. Phase II regulations were developed and passed near the turn of the century requiring medium size cities meeting a certain population density and other criteria to develop stormwater initiatives to address pollution associated with urban runoff. In March of 2003, the City of Bowling Green, and numerous other "Phase II Cities and Counties" submitted permit applications to the Kentucky Division of Water outlining a 5 year plan for addressing the Phase II requirements.

The thought behind the Phase II program is that urban runoff is a chief cause of stream impairment, and that urban runoff can be managed in large part by effectively addressing a few key areas; educating and involving the public on the impacts of urban runoff and how the public can help, managing the storm sewer infrastructure and addressing illicit discharges (discharge of pollution / polluted runoff), implementation of local regulatory authority, development of best management practices (BMPs) for construction and post-construction, and environmentally sensitive and responsible municipal operations. This BMP manual was developed to support Phase II efforts in addressing Construction Site Runoff and Post Construction Runoff as required by the Phase II permit for Bowling Green and numerous other Phase II communities. Additionally, a number of the BMPs address municipal operations, and residential issues and can be used for sharing information with the public.

The KY Division of Water issued the statewide construction stormwater general permit, KYR10, in August 2009 that will be in effect until July 31, 2014. This permit regulates stormwater discharges from construction sites that disturb an acre or more or less than an acre if part of a larger common plan of development. The City's stormwater management program incorporates the requirements of KYR10.

This manual presents a brief introduction to stormwater Best Management Practices (BMPs). The following types of BMPs are addressed: Site Planning and Design Practices (SPD); Erosion Prevention Practices (EPP); Sediment Management Practices (SMP); Good Housekeeping Practices (GHP); BMPs for Residential and Homeowners (RHP), Stormwater Pollution Prevention Practices (SPP) , and Stormwater Pollution Treatment Practices (PTP). The manual describes how BMPs can be selected, and contains a series of fact sheets for each type of BMP to be used in the area. The intent of the Stormwater Best Management



Practices Manual is to provide guidance on BMP selection, design, and implementation to plan submitters, reviewers, construction site operators, and site inspectors. There are also guidance materials for activities at commercial and industrial facilities.

The fact sheets are categorized, focused, and concise so that they may be used as quick references for design, inspection, and maintenance guidance. In this way, the fact sheets are designed to be stand-alone documents that may be distributed to facilitate discussion about design and/or implementation of the management practice. Many of the practices are considered structural practices in that they involve construction. However, several of the BMPs cover non-structural practices where normal activities are performed in a different manner with stormwater quality in mind. An example site design is used throughout the PTP fact sheets to demonstrate their design.

## 1.2 Goals of the Program

In support of the information provided in City Code Section 21-2 goals of the post-construction runoff management program are:

1. Improve the Quality of Bowling Green and Warren County's water resources by:
  - Implementing of minimum control measure
  - Providing education to citizens
2. Provide protection of the short-term and long-term public health, safety, and general welfare by:
  - Providing for regulation and management of Bowling Green's stormwater system, including public and private facilities in Bowling Green service area.
  - Protecting, and preserving stormwater quality and fish and wildlife habitat within Bowling Green.
  - Protecting those downstream from stormwater quality impairment.
3. Comply with state and federal stormwater regulations developed pursuant to the Clean Water Act Amendments of 1987 and subsequent amendments.
  - Managing the quality of stormwater discharged to the MS4 by controlling the contribution of pollutants associated with development and redevelopment activity.
  - Controlling stormwater pollution caused by the suspension and transport of soils and other sediments.
  - Facilitating the use of the public and private stormwater management systems that will not result in excessive maintenance costs.







- Encouraging the use of natural and aesthetically-pleasing designs that optimize the preservation of natural areas.
  - Guiding the construction of stormwater management facilities by developing comprehensive master plans and guidance that address stormwater quantity and quality.
4. Sustain Development of the area in an environmentally conscience manner by:
- Development of regulation protecting the environment.
  - Providing training and guidance material to the development community.
  - Enforcement of regulations.
5. Preserve Natural features in the Bowling Green and Warren County area by:
- Using environmentally friendly practices.
  - Providing buffering around natural features.
  - Encouraging the preservation of floodplains, floodways and open spaces to protect and benefit the community's quality of life and natural resources.

### **1.3 How to Use This Manual**

This manual is laid out in sections to aid the designer and site manager in finding pertinent information. Section 1 contains requirements, policies, and procedures. Section 2 contains construction site management techniques and tools. Section 3 contains fact sheets, such as the one below, on different BMPs that can be used on construction sites to manage stormwater and reduce pollutant discharges from construction sites and developed properties. The appendices contain design information, examples, inspection report forms, and BMP operation and maintenance guidance for your use.



<p><b>1</b></p> 	<p><b>Bowling Green, Kentucky Stormwater Best Management Practices (BMPs) Sediment Management Practices (SMPs)</b></p>	<p><b>3</b></p> <p><b>SMP-01</b></p>	<p><b>Legend</b></p> <ol style="list-style-type: none"> <li>Logo of City or Agency</li> <li>BMP Activity Title</li> <li>BMP Activity Number</li> <li>Planning Considerations: <ul style="list-style-type: none"> <li>Design Life – a quantitative measurement of the BMP's effective life given that proper maintenance procedures are followed</li> <li>Estimated Unit Cost – general costs are categorized by Low, Medium, High</li> <li>Monthly Maintenance – approximate frequency of maintenance</li> </ul> </li> <li>Typical Photo – photos are included as examples only, and are not meant for use in structural design</li> <li>Suggested BMP symbol to place on ESPC drawings or design plans</li> <li>Suggested BMP planning symbol to place on conceptual drawings or illustrations</li> <li>Target Pollutants Table – likely pollutants to be removed by BMP practice</li> </ol>
<p><b>4</b></p> <p>PLANNING CONSIDERATIONS:</p> <p>Design Life:</p> <p>Acreeage Needed:</p> <p>Minimal</p>	 <p><b>6</b></p>  <p><b>7</b></p>  <p><b>8</b></p> <p>Target Pollutants</p> <p>Significant ♦      Partial ♦      Low or Unknown ♦</p> <p>Sediment ♦    Heavy Metals ♦    Nutrients ♦    Oxygen Demanding Substances ♦    Toxic Materials ♦</p>		
<p><b>Description</b></p> <p><b>Suitable Applications</b></p> <p><b>Approach</b></p> <p><b>Installation Procedures</b></p> <p><b>Maintenance</b></p>	<p>This section provides a general overview of the BMP activity and introduces common niches where it can be applied.</p> <p>Suitable applications direct the user to the general design limitations and site compatibility for the BMP. This section targets situations where the BMP will be most effective, and points out situations where the BMP should not be implemented.</p> <p>This section contains a suggested plan of action for implementing the BMP. It includes planning considerations respective to the type of materials, construction planning, and suggests BMPs to install in series in order to maximize benefits.</p> <p>This section provides guidance for consideration in the design specific to constructing the BMP and often references the BMP drawing.</p> <p>Although maintenance is often needed after a significant rain event, this section gives detailed guidance to users for the frequency of maintenance specific to each BMP design. Here, the user can find recommended maintenance techniques, frequency of in-active inspection checks, and key areas to maintain in order to maximize the design life of the BMP.</p>		