



The New Illinois MS4 Stormwater General Permit: *Is Your Municipality Thinking Outside the Pipe?*

Briefing Paper on
Adopting Green Infrastructure as Preferred Stormwater Management Strategies
By Hal Sprague, Senior Policy Associate

Contents

	Page
Executive Summary	1
Introduction	2
Who is Covered by the MS4 Permit?	2
New Green Infrastructure Requirements in the Revised ILR40	2
Conclusion	5

Executive Summary

This paper summarizes and evaluates for Illinois MS4 communities the significant changes to the Illinois MS4 Permit (ILR40) that require or encourage the use of green infrastructure in their stormwater management programs. Suggestions are made to help these communities comply with the new requirements.

Each state is required to review and revise its MS4 permit every five years, and the Illinois EPA took advantage of this opportunity in 2009 to add several provisions to its permit requiring or encouraging the use of green infrastructure. The new requirements focus on (a) the training of municipal employees and contractors in green infrastructure strategies and techniques and (b) addressing stormwater runoff from municipal surfaces (roads, parking lots, sidewalks) and existing developed property.

Key Web Links

Illinois EPA website on the MS4 General Permit

<http://www.epa.state.il.us/water/permits/storm-water/ms4.html>

MS4 Permit showing changes from earlier version (CNT website):

<http://www.cnt.org/news/media/NPDES-permit.pdf>

U.S. Environmental Protection Agency website for Green Infrastructure:

http://cfpub.epa.gov/npdes/home.cfm?program_id=298

Introduction

On February 20, 2009, the Illinois Environmental Protection Agency (IEPA) issued a revised stormwater general permit for small municipal separate storm sewer systems, Permit ILR40, also known as the Illinois “MS4 Permit.” Among other revisions, the new permit requires or encourages permittees to adopt “green infrastructure” stormwater management strategies and techniques as part of their programs. Green infrastructure (GI) strategies favor natural soil infiltration, plant uptake and harvesting of stormwater. In comparison to conventional “hardscape” stormwater management systems, GI can be less expensive to implement and has many benefits, including improved water quality, increased natural recharge of groundwater and streams, reduced stream bank erosion and flooding, reduced stormwater volume entering municipal storm sewer systems, reduced sewer system maintenance, energy savings, conservation of potable water, increased wildlife habitat and recreational space and increased property values. This briefing paper describes major revisions to the MS4 Permit that incorporate GI concepts and makes some recommendations on compliance strategies.

Who is Covered by the MS4 Permit?

The Clean Water Act Amendments of 1987 expanded the National Pollution Discharge Elimination System (NPDES) permit program for “point source discharges” to include certain urban and industrial stormwater discharges.¹ The first phase of this new program covered discharges from a variety of new sources, including large and medium size municipal separate storm sewer systems (“MS4s”) and several categories of industrial activity, including construction sites that disturb five or more acres of land. On December 8, 1999,² the program was expanded to cover construction sites that disturb between one and five acres of land and “**small municipal separate storm sewer systems**” or “**MS4s**”, which the Illinois EPA defines generally as municipalities serving fewer than 100,000 people in an urbanized area.³ In accordance with federal regulations, IEPA has waived permit coverage for most systems serving fewer than 10,000 people. The resulting list of permittees in Illinois contains about 435 municipalities and townships that are subject to Permit ILR40.⁴

New Green Infrastructure Requirements in the Revised ILR40

The most significant new GI requirements are contained in Part IV.B. of the Permit, which sets forth the following “Minimum Control Measures” for stormwater management programs:

1. Public education and outreach on stormwater impacts
2. Public Involvement/Participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations

¹ P.L. 100-4, Section 405 (1987).

² 64 Fed. Reg. 68721-68851.

³ An urbanized area as delineated by the Bureau of Census is defined as a central place or places and the adjacent densely settled surrounding area that together have a residential population of at least 50,000 people and an overall population density of at least 500 people per square miles. (See IEPA’s website explanation at <http://www.epa.state.il.us/water/permits/storm-water/ms4.html>.)

⁴ For the Illinois Environmental Protection Agency’s list of municipalities and townships currently holding MS4 permits, see <http://www.epa.state.il.us/water/permits/storm-water/ms4-status-report.pdf>.

Section IV.B.1. – Public education and outreach on stormwater impacts

The revised subsection IV.B.1. requires that each permittee:

- a) **...should incorporate into its education materials information about green infrastructure strategies such as green roofs, rain gardens, rain barrels, bioswales, permeable piping, dry wells and permeable pavement, that mimic natural processes and direct stormwater to areas where it can be infiltrated, evapotranspired or reused, discuss the benefits and costs of such strategies and provide guidance to the public on how to implement them....**

Recommendation: the following are helpful resources for developing and implementing a GI public education program:

1. The U.S. Environmental Protection Agency (USEPA) website for developing measurable goals under the MS4 program:
<http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm>.
2. Stormwater Manager's Resource Center website, maintained by the Center for Watershed Protection: <http://www.stormwatercenter.net/>. Under the "Library" link, click on "The Practice of Watershed Protection", which provides access to articles on public education about watershed management, for a fee.
3. The USEPA maintains a general website, "Managing Wet Weather with Green Infrastructure", http://cfpub.epa.gov/npdes/home.cfm?program_id=298, that provides a wealth of information for any municipality hoping to learn about green infrastructure and incorporate it into local policies and regulations.

Section IV.B.5.a. and b. – Post-Construction stormwater management in new development and redevelopment

Subsection B.5.a. contains the following new language: **"...each permittee should adopt strategies that incorporate stormwater infiltration, reuse and evapotranspiration of stormwater into the project to the maximum extent practicable."** While the word "should" does not have the same legal weight as "shall", IEPA has indicated that it will strongly encourage municipalities to require the incorporation of GI practices in all development design. The USEPA is already proposing effluent limitation guidelines for construction activities, and it is likely that federal requirements for post-construction stormwater management in the MS4 permit will eventually include effluent limits or other performance standards.

Subsection B.5.b. now provides a more definite structure for incorporating GI into site design. Permittees must:

- a. develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for all projects within your community for all new development and redevelopment that will reduce the discharge of pollutants, the volume and velocity of stormwater flow to the maximum extent practical. **When selecting BMPs to comply with requirements contained in this Part, the permittee should adopt one or more of the following general strategies, in order of preference. Proposal of a strategy should include a rationale for not selecting an approach from among those with a higher preference. When approving a plan for development, redevelopment, highway construction, maintenance, replacement or repair on existing developed sites or other land disturbing activity covered under this Part, the**

permittee should require the person responsible for that activity to adopt one or more of these strategies, in order of preference, or provide a rationale for selecting a more preferred strategy.

- i. preservation of the natural features of development sites, including natural storage and infiltration characteristics;
- ii. preservation of existing natural streams, channels, and drainage ways;
- iii. minimization of new impervious surfaces;
- iv. conveyance of stormwater in open vegetated channels;
- v. construction of structures that provide both quality and quantity control, with structures serving multiple sites being preferable to those serving individual sites; and
- vi. construction of structures that provide only quantity control, with structures serving multiple sites being preferable to those serving individual sites.

Recommendation: For guidance on implementing similar provisions, see the Lake County, Illinois Watershed Management Ordinance⁵ and the City of Philadelphia Stormwater Management Guidance Manual⁶, Section 4 “Integrated Site Design.”

Section IV.B.5.c. – Post-Construction stormwater management in new development and redevelopment

Local stormwater ordinances typically apply only to *new development* and *redevelopment*. The new ILR40 expands the applicability of stormwater management provisions to include municipal development and redevelopment activities, requiring permittees to:

- b. develop and implement a program to minimize the volume of stormwater runoff and pollutants from public highways, streets, roads, parking lots and sidewalks (public surfaces) through the use of BMPs that alone or in combination result in physical, chemical or biological pollutant load reduction, increased infiltration, evapotranspiration and reuse of stormwater.

Recommendation: to comply with this requirement, permittees will have to amend policies, procedures, ordinances and specifications that apply to the upkeep of public infrastructure. See, for example, the U.S. EPA’s Municipal Handbook “Managing Wet Weather with Green Infrastructure – Green Streets” at http://www.epa.gov/npdes/pubs/gi_munichandbook_green_streets.pdf.

New Training Requirement: the new Section IV.B.5.c. states:

The program shall include, but not be limited to the following elements:

- i. appropriate training for all MS4 employees who manage or are directly involved in (or who retain others who manage or are directly involved in) the routine maintenance, repair or replacement of public surfaces in current green infrastructure or low impact design techniques applicable to such projects.
- ii. Appropriate training for all contractors retained to manage or carry out routine maintenance, repair or replacement of public surfaces in current green infrastructure or low impact design techniques applicable to such projects. Contractors may provide training to their employees for projects which include green infrastructure or low impact design techniques.

⁵ See <http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/WDO%2011-18-08.pdf>.

⁶ See <http://www.phillyriverinfo.org/programs/SubProgramMain.aspx?Id=StormwaterManual>.

Recommendation: Although the permit does define “appropriate training”, there are numerous courses, seminars, workshops, webcasts, websites and other resources available for municipal employees to meet this requirement. As an example, the Department of Biological and Agricultural Engineering at North Carolina State University, in Raleigh, has developed a training and certification program for stormwater managers that focuses on low impact development techniques (http://www.bae.ncsu.edu/training_and_credit/.) In addition, the U.S. EPA website on Green Infrastructure has a page with information on green infrastructure workshops and webcasts and access to videos, pictures presentations and other relevant publications at <http://cfpub.epa.gov/npdes/greeninfrastructure/gitrainings.cfm>.

Section IV.B.5.d. – Post-Construction stormwater management in new development and redevelopment

The new subsection IV.B.5.d. expands stormwater management provisions to cover previously improved property. Each permittee must:

- c. **develop and implement a program to minimize the volume of stormwater runoff and pollutants from existing privately owned developed property that contributes stormwater to the MS4 within the MS4 jurisdictional control.**

Recommendation: Municipalities now have an obligation to oversee stormwater management practices on “existing privately owned developed property,” without imposing any specific performance requirements. The USEPA’s “Municipal Handbook – Green Infrastructure Retrofit Policies”, at its website: http://www.epa.gov/npdes/pubs/gi_munichandbook_retrofits.pdf offers a number of strategies to reduce runoff from such developed property.

Conclusion

The Illinois EPA’s incorporation of GI requirements into the MS4 general permit is a major change. To comply with the revised permit, municipal permittees will have to educate themselves and their communities on GI practices. CNT strongly recommends that municipal staff review the federal and state websites referenced in this briefing paper. In addition, they should consider contacting municipalities identified as having gained experience with GI and inquire about the resulting benefits and costs. GI has been shown to be effective in all soil types if designed, installed and maintained properly.

These permit changes are intended to move green infrastructure toward the mainstream of municipal stormwater management, a shift which will probably take some time to complete. It will require creativity and flexibility on the part of landowners and municipal staff. The benefits of GI are unmistakable, however, and the sooner a municipality begins to incorporate green infrastructure into its program the sooner it will reap those benefits. CNT recommends that municipalities immediately begin a careful process of education and incremental implementation that will help them realize those benefits while at the same time achieving compliance with the new MS4 permit.

About CNT

The Center for Neighborhood Technology (CNT) is an award-winning innovations laboratory for urban sustainability. Since 1978, CNT has been working to make urban communities more livable, affordable, and sustainable. CNT researches, promotes, and implements solutions to improve the economy and the environment; make good use of existing resources and community assets; restore the health of natural systems and increase the wealth and well-being of people—now and in the future. Our Natural Resources Program focuses on demonstrating and capturing the multiple economic and social benefits of green infrastructure, utilizing natural systems to restore the value of rainwater from a waste to a resource in Illinois and elsewhere. CNT is a recipient of the 2009 MacArthur Award for Creative and Effective Institutions.