

# Stormwater Management Guidance Manual for Local Officials

*Construction and Post-Construction  
Stormwater Runoff Management*

*September 2004*

The *Stormwater Guidance Manual for Local Officials* was prepared by the New York State Department of Environmental Conservation and New York State Department of State in cooperation with the New York State Association of Regional Councils. This manual is the first in a series of guidance materials to help communities implement the Stormwater Phase II Program in New York State.

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## How to Use this Guidance Manual

This Guidance Manual is designed to help regulated municipalities and publicly-owned institutions develop and implement local control of Construction Site and Post-Construction stormwater runoff, as required under state and federal law.

### *For All New York State Municipalities*

By adopting a Stormwater Management Local Law and following this manual's program recommendations, any municipality or institution can improve its management of construction/post-construction stormwater runoff. The *Stormwater Requirements and Opportunities* table in Chapter 1 points out ways in which localities and institutions can use elements of the state/federal program to strengthen stormwater management, even if they are not required to establish a full, formal stormwater program.

### *For Operators of Regulated Municipal Separate Storm Sewer Systems (MS4s )*

The state/federal stormwater management program requires urbanized municipalities that operate MS4s to adopt local laws or equivalent regulations governing construction and post-construction stormwater runoff. It also requires certain procedures and other measures to implement the local laws. This Guidance Manual will help regulated MS4s to:

- **Identify a strategy for developing a stormwater management local law** that meets the requirements of the state/federal stormwater program and matches an MS4's specific circumstances. (Checklists 1 and 2; Table 3).
- **Develop the language for a Stormwater Management Local Law** (Chapter 3, Appendix 1).
- **Develop procedures and program features** to implement the Stormwater Management Local Law and the local stormwater management program (Chapter 4).
- **Identify existing local programs** that can contribute to and be supported by the local stormwater management program (Checklists 1 and 2).

### **Where to Find Stormwater Management Information**

**Note: MS4s must consult essential stormwater management documents** (listed in Appendix 4) as they design and implement local programs. *Further Information* boxes in this manual highlight relevant documentation and give locations where documents can be found on the Web.

**For complete stormwater information and links**, visit DEC's Web site, <http://www.dec.state.ny.us/website/dow/mainpage.htm>, and the Web site of the US EPA, <http://www.epa.gov/ebtpages/watestormwater.html>.

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Photo courtesy of Don Lake.



## Executive Summary

This manual will help local governments and publicly-owned institutions develop and implement stormwater runoff controls, including local stormwater management laws or regulations as required by state and federal law.

Stormwater that runs off during and after land development (*construction/post-construction runoff*) results in flooding and erosion, as well as significant pollution of lakes, streams, rivers and estuaries.

Control of land use and development rests with local governments. For this reason, state and federal law now require urbanized commu-

*Filter strips are areas of native grass or plants created to trap the pollutants stormwater picks up as it flows across driveways and streets.*

nities and publicly-owned institutions in New York State to establish stormwater management programs, which must be fully functional by January 8, 2008. The goal of these programs is to retain or absorb stormwater on developed sites wherever possible, with the quantity, rate and quality of runoff remaining as they were before the sites were developed.

To protect resources and quality of life, New York State encourages all localities, urban and rural, to manage stormwater through existing land use approval processes. This Guidance Manual includes information that localities need as they develop programs to manage construction site and post-construction stormwater runoff. The *Sample Stormwater Management Local Law* in Appendix 1 includes all of the requirements for stormwater management local laws in regulated New York State municipalities; communities can adjust the language of the law to reflect local needs and conditions.

The State of New York recommends that every community, whether or not it is regulated under the state/federal program, adopt a Stormwater Management Local Law similar to the sample law in Appendix 1 of this manual.

### *Stormwater Management Requirements*

Under delegation from the federal government, New York State is using two Stormwater Management General Permits as the framework for managing stormwater across the state. Regulations require operators of construction sites to obtain coverage under a general permit for construction activity, and operators of regulated Municipal Separate Storm Sewer Systems (MS4s) to obtain coverage under a general permit for MS4s. The size of the disturbed area and the population of the MS4 determine who must obtain permit coverage. See Table 1 for a summary of stormwater management responsibilities under the state/federal program.

## Controlling Construction/Post-Construction Stormwater

MS4s should integrate stormwater management with local land use controls through a stormwater management local law that amends existing subdivision, site plan and/or zoning laws or ordinances. The New York State Department of State recommends that localities adopt a construction/post-construction stormwater regulation as a local law under the Municipal Home Rule Law. The local law must include the requirement that developers prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit it to the local Governing Body with any application for a land use approval; it must also include sanctions for non-compliance.

**Further Stormwater Management Information**  
**New York State stormwater management program**  
<http://www.dec.state.ny.us/website/dow/mainpage.htm>

**Federal stormwater management programs**  
<http://www.epa.gov/ebtpages/watstormwater.html>

## Carrying Out the Local Stormwater Management Program

Once the stormwater management local law has been adopted, the municipality must put it into effect. This is accomplished through: procedures for review of SWPPPs; procedures for site inspections and enforcement; procedures to ensure proper maintenance of post-construction runoff control measures; training in construction/post-construction stormwater management for construction site operators and people who operate and maintain facilities; public education and involvement in stormwater management. This manual includes ideas and recommendations for local stormwater management program implementation; a later volume will develop additional recommendations.

Cooperation among municipalities and publicly-owned institutions will make it easier to develop successful and economical local stormwater management programs. Municipalities and institutions that share the same watershed are encouraged to cooperate in resource assessments, stormwater management training and cost-sharing.

## *Using this Manual to Develop the Local Stormwater Management Program*

Using this manual, local governments can develop stormwater management local laws that match their specific needs.

- The two-part checklist in Chapter 2 is a thumbnail inventory of relevant resources that are already in place in the municipality.
- The *Sample Stormwater Management Local Law* in Appendix 1 contains legislative language that municipalities can adopt as is or adapt as needed to make use of existing local resources or authorize needed program elements. Table 3 contains guidelines for adapting the sample law.

This Guidance Manual does not discuss stormwater management program design for MS4s discharging to waters identified as polluted (watersheds having approved Total Maximum Daily Loads or water bodies listed on DEC's 303(d) list). DEC is currently providing this guidance directly to affected MS4s and developing heightened program criteria to achieve the required pollutant reductions.

## Who Should Use this Guidance Manual

This Guidance Manual contains information useful to local officials involved in stormwater management, whether in a regulated MS4 or in a community or institution that is not subject to the state/federal stormwater management rules. The officials who will find this guidance manual most useful are:

- **Local Government Agencies directly involved in stormwater management**—Building Department; City/County Attorney; Department of Environmental Management; Engineering Department; Fire Department; Health Department; Planning Department; Public Works Department; Water and Sewer Department; County Soil and Water Conservation District.
- **City/County Personnel whose duties include or relate to stormwater management**—Emergency responders; engineers and environmental planners; County Planners; financial officers; enforcement personnel, including zoning, planning and building inspectors; public health officers; public outreach personnel; public works directors; site plan reviewers; treatment works operators.
- **Municipal Governing Boards** and others with roles in initiating and promoting stormwater runoff control—elected officials; community representatives; educators; environmental advocates; Zoning Board of Appeals and Planning Board members.

Officials responsible for publicly owned and operated institutions will find information in this manual to be applicable to meeting their stormwater management obligations.

*Land development disrupts natural stormwater controls. To prevent harm to water resources, state and federal law require many communities and publicly-owned institutions to set up stormwater management programs.*



Photo courtesy of New York Sea Grant, Eileen Keenan.



# Chapter 1

## Stormwater Management Basics

### *Land Development and Stormwater Management*

Stormwater is an important water resource. As rain falls, some water runs off overland and most soaks into the soil, recharging groundwater as it makes its way to lakes and streams.

Numerous features of the natural landscape trap runoff and allow rainwater to filter into the ground. Wetlands and ponds can retain significant volumes of water; forests and grasslands absorb water freely. These natural features remove pollutants and slow the rate of surface runoff.

Land development often eliminates features that moderate stormwater runoff, exposing soil to erosion. Intensified runoff carries soil and other pollutants into streams, lakes, rivers and estuaries. Downstream, bank erosion and flooding increase, and even upstream communities begin to experience road washouts and flooded basements. Instead of a valuable resource, stormwater becomes a costly and sometimes dangerous problem.

Preventing these problems requires precautions during and after land development. Because local governments have the principal responsibility for controlling land use and development, federal and state law require urbanized communities to establish stormwater management programs whose goal is to maintain pre-development runoff conditions. The state/federal stormwater management program is set up to allow flexibility for local governments to manage stormwater in a way that suits their own individual conditions.

To protect resources and quality of life, New York State encourages all localities to employ local land use controls in stormwater management. Ideally, stormwater should be retained or absorbed on-site; the quantity, rate and quality of runoff should not be significantly different from what they were before the site was developed.

### **Using this Guidance Manual in Local Stormwater Management**

This Guidance Manual will help all New York State communities and institutions, including those not currently covered by state and federal regulations, to manage stormwater as a valuable resource. It emphasizes information needed by regulated localities to implement stormwater management laws that meet state/federal requirements and that are appropriate for local conditions.

#### **Further Stormwater Management Information**

##### **Background and technical requirements:**

*New York State Stormwater Management Design Manual*, NYS-DEC, August 2004; <http://www.dec.state.ny.us/website/dow/toolbox/swmanual/index.html>

*New York Standards and Specifications for Erosion and Sediment Control*: NYSDEC, Feb. 2005;

<http://www.dec.state.ny.us/website/dow/toolbox/escstandards/index.html>

##### **Links to program documents:**

[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_toolbox.html](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_toolbox.html)

Photo courtesy of New York State Sea Grant, Eileen Keenan



*Uncontrolled stormwater runoff harms local quality of life, degrading drinking water, swimming or fishing, and damaging aquatic life.*

es local laws and procedures for stormwater management, and includes as Appendix 1 a *Sample Stormwater Management Local Law* that meets the requirements of the state/federal program.

Future volumes will deal in greater detail with recommended procedures for stormwater management and wider nonpoint source considerations involving stormwater.

### *The Need for Stormwater Management*

Recent research by the US Environmental Protection Agency finds stormwater runoff to be the leading source of water quality impairments to estuaries and the third largest source of impairments to lakes. Pollutants from untreated stormwater runoff can harm fish and wildlife, kill native vegetation, taint drinking water supplies and foul recreational areas. Stormwater runoff also increases the volume and rate at which water moves across the land and into lakes and streams, leading to erosion and flooding.

### **The Dynamics of Stormwater**

Stormwater falling on land that has been disturbed for construction flows rapidly off the site to surface waters, carrying large amounts of eroded soil, plus pollutants from vehicles and construction processes. After construction is finished, parts of the site are usually covered by pavement, buildings and other impervious surfaces. Water can no longer be absorbed into these areas, so more stormwater remains on the land surface, to run off quickly overland or through storm drains.

Runoff from developed sites typically carries soil and sediments, road salts, nutrients and pesticides, fluids from motor vehicles and toxic chemicals in amounts that are damaging to natural resources. Generally speaking, damage to resources from development is directly proportional to the amount of impervious surface on the developed site. Studies show that water resources are damaged whenever impervious surface area within a watershed exceeds 25 to 30 percent, and degradation can be detected with as little as 10 percent impervious surface.

### **Protecting Local Quality of Life by Managing Stormwater**

Problems from stormwater vary in severity, depending on soil and surface water conditions and on the way people use land and other resources. But unless stormwater runoff is controlled, it always harms local quality of life, whether through high-visibility occurrences such as floods and washouts, or through subtler and more pervasive

losses, like degradation of drinking water, swimming or fishing, or a general weakening of natural systems, with loss of native species and increase of invasive species.

The state/federal stormwater program provides a framework to help localities manage stormwater effectively and protect quality of life. When stormwater runoff is kept to pre-development amounts and quality, benefits accrue throughout the local community and beyond.

- **Public health** is protected when water is kept clean for drinking, contact recreation and the harvest of fish, shellfish and other edible resources; reducing the physical hazards of flooding, erosion and subsidence also protects public health.
- **The environment** improves when pollution and sedimentation of water bodies are reduced and groundwater recharge is increased. Important biological resources, natural habitats and ecosystems become healthier and more productive.
- **The local economy** reaps numerous benefits, including: protection for property values (by avoiding flooding, erosion and related costs to property owners, and by buffering developed areas from flooding); promotion of sustainable resources; improved tourism attracted by stable beaches and banks, clean swimming areas and successful fishing.
- **Local governance** benefits when the community determines stormwater management goals and oversees construction/post-construction measures, as well as when local citizens participate in stormwater management decisions.

## How Stormwater is Managed

Controlling runoff during and after construction is central to effective stormwater management. To control construction/post-construction stormwater, the state/federal stormwater management laws establish the following obligations:

- **Operators of construction sites** must prepare and abide by Stormwater Pollution Prevention Plans (SWPPPs) that prescribe how stormwater must be managed during construction and post-construction, and must construct any needed stormwater management facilities (such as absorption areas, stormwater ponds or swales).
- **Urbanized municipalities, publicly-funded institutions and other public entities** must establish stormwater management programs to review and enforce Stormwater Pollution Prevention Plans (SWPPPs) and ensure ongoing operation and maintenance of permanent stormwater controls on developed sites.

**Stormwater Plans:** SWPPPs formalize the selection and design of stormwater management measures for each site. The SWPPP includes an erosion and sediment control plan, and, in most cases, a post-construction stormwater control plan.

- **The erosion and sediment control plan**, required for all construction activities disturbing one or more acres of land, lays out the nature, placement and capacity of runoff control measures to be used during construction.

### Further Stormwater Management Information

**Definition of MS4:** *Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program*; NYSDEC, Feb. 2003, rev. August 2003; [http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf) and <http://www.dec.state.ny.us/website/dow/Phasell.html>

**Elements of a SWPPP:** *SPDES General Permit for Stormwater Discharges from Construction Activity [GP-02-01] Part 3D.* [http://www.dec.state.ny.us/website/dow/gen\\_constr.pdf](http://www.dec.state.ny.us/website/dow/gen_constr.pdf)

### Further Stormwater Management Information

#### List of regulated MS4 municipalities in New York State:

Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program, Chapter 2; NYS-DEC, Feb. 2003, rev. Aug. 2003;

[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf) and <http://www.dec.state.ny.us/website/dow/urbanlst.htm>

#### Designing a program around the Minimum Control

**Measures:** *Guidelines for Completing the Notice of Intent Based on SPDES General Permit (GP-02-02) for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems*, NYSDEC, 2003, [http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_guidelines.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_guidelines.pdf)

• **The post-construction stormwater control plan** is prepared whenever permanent controls are necessary to manage stormwater runoff on a developed site. The post-construction plan gives engineering details and construction schedules, and establishes responsibility for operation and maintenance of permanent controls. Post-construction controls are always required when stormwater discharges into 303(d) listed waters or Total Maximum Daily Load (TMDL) watersheds, for all construction disturbing five acres or more, and for commercial or multi-family projects disturbing one acre or more.

Construction and post-construction stormwater controls prescribed in SWPPPs must conform to the technical standards specified in the *New York State Stormwater Management Design Manual* or the *New York Standards and Specifications for Erosion and Sediment Control*, or meet equivalent standards.

**Controlling Pollutants in Stormwater:** Treating stormwater that contains soil and other pollutants requires on-site detention, filtration and processing, usually through a system of vegetative, structural and other measures. Historic water flows indicate where treatment measures should be placed and how much water they need to handle; the activities conducted at the site and the quality of the receiving waters determine which pollutants need to be treated.

**Preventing Erosion, Sedimentation and Flooding:** Managing the rate and amount of stormwater runoff requires measures that slow the water's flow, preventing it from leaving the site too rapidly. Generally, directing runoff so that it infiltrates into the ground on-site is preferable to holding the water for later discharge. Sometimes, the same system of vegetative and structural measures that is used to treat polluted stormwater can be engineered to reduce the rate of runoff. In other cases, water quality controls will be installed in combination with measures to control water quantity.

The SWPPP includes site information, specifications for stormwater pollution control and erosion/sediment control measures to be used during construction, specifications for any permanent controls needed, as well as construction schedules and other information helpful to overseeing plan implementation.

## *State/Federal Stormwater Management Laws, Regulations and Programs*

More than a decade ago, the U.S. government created the federal stormwater management program under the National Pollutant Discharge Elimination System (NPDES). The program's goal is to limit pollution of the nation's lakes, streams, rivers and estuaries by runoff from construction sites and developed areas. It is administered by the US Environmental Protection Agency (EPA).

The New York State Department of Environmental Conservation (DEC) has received delegation from the federal government to carry out the NPDES program, using a system of state permits called SPDES (State Pollutant Discharge Elimination System).

**Phase II Construction/Post-Construction Stormwater Management**

**Table 1—Permittee Requirements and MS4 Opportunities**

*For a full description of all entities' responsibilities, see the General Permits, GP-02-01 and GP-02-02*

Entity	Phase II Requirements	Opportunities for MS4s
<p><b>Construction Site Operators Statewide</b></p> <p><i>See Stormwater General Permit for Construction Activities, GP-02-01</i></p>	<p><b>Obtain permit coverage</b> for construction disturbing one acre or more:  <i>File NOI with DEC before starting</i>  <i>Prepare SWPPP (erosion &amp; sediment controls, post-construction controls)</i>  <i>Implement SWPPP</i>  <i>Practices follow state technical guidance</i>  <i>Control waste on construction site</i></p> <p><b>Submit NOI &amp; SWPPP</b> to local governing body, copy on site and available to public</p>	<p><b>Gain control</b> of the handling of stormwater during and after construction by reviewing and amending SWPPPs.</p> <p><b>Achieve effective performance</b> in handling runoff from construction sites and developed lands through the advanced technical standards of the state/federal program.</p>
<p><b>Regulated MS4s; Publicly Owned and/or Operated Institutions; Other Public Entities</b></p> <p><i>See Stormwater General Permit for MS4s, GP-02-02</i></p>	<p><b>Obtain permit coverage for MS4 discharge</b> under GP-02-02:  <i>Submit NOI (due 3/10/03)</i>  <i>Adopt Stormwater Management Local Law</i>  <i>Require construction site waste mgt.</i>  <i>Comply with water quality standards</i>  <i>Inform and involve the public</i></p> <p><b>Identify stormwater management program</b> goals and activities</p> <p><b>Review SWPPPs</b></p> <p><b>Inspect construction sites; enforce SWPPPs</b></p> <p><b>Require</b> management practices to follow state technical standards</p> <p><b>Assure maintenance</b> of mgt. practices</p> <p><b>Educate construction site operators and O&amp;M personnel</b></p> <p><b>Maintain permit coverage</b> with annual program report, Compliance Cert.</p>	<p><b>Protect natural resources and property values</b> by avoiding floods, pollution</p> <p><b>Reduce property owner and MS4 costs</b> by requiring developers to engineer sites properly</p> <p><b>Enhance effectiveness of MS4 stormwater management practices, infrastructure:</b>  <i>Increase public understanding, support</i>  <i>Provide resources for program support</i>  <i>Strengthen local stormwater law</i>  <i>Improve O&amp;M through training</i></p> <p><b>Enhance effectiveness of local planning and resource assessment</b> by applying them directly to stormwater-related land use and regulatory decisions.</p>
<p><b>All Communities and Institutions</b></p>	<p><b>Non-regulated communities, privately owned/operated institutions:</b></p> <ul style="list-style-type: none"> <li>• No MS4 permitting requirements</li> <li>• Subject to the construction permit requirements above when they disturb one acre or more of land</li> </ul>	<p><b>Join with nearby MS4s</b> for effective stormwater management.</p> <p><b>Review construction site SWPPPs</b>, even if no full local stormwater program in place</p> <p><b>Serve property owners</b> by using local planning and regulatory powers to minimize stormwater problems</p> <p><b>Improve stormwater management at low cost</b> during routine maintenance and operation of municipally-owned facilities</p>

## Phase I Stormwater Management Regulations

In 1990, EPA published rules establishing Phase I of the federal stormwater program. Phase I required operators of MS4s in large urbanized areas (populations of 100,000 or greater) to implement stormwater management programs that would control polluted discharges. In New York State, the Phase I MS4 regulations applied only to New York City. Phase I construction regulations required all operators of construction projects disturbing five acres or more of land to prepare SWPPPs, regardless of whether the projects were sited in a large MS4.

## The Stormwater Phase II Program

The federal *Storm Water Phase II* rule, issued in 1999, expands the stormwater program to cover smaller MS4s and smaller construction disturbances:

- **All operators of construction sites** that disturb one acre or more of land or are part of a larger plan of development must prepare SWPPPs, regardless of whether the construction sites are located within the jurisdiction of a regulated MS4. When a construction site discharges into polluted waters (303(d) listed waters or a Total Maximum Daily Load, or TMDL, watershed), the SWPPP must include erosion and sediment controls during construction and also post-construction controls. Post-construction controls are also required for single-family residential construction disturbing five acres or more, or commercial or multi-family projects disturbing one acre or more, or for any construction disturbing one acre or more on a site that discharges to a polluted waterbody.
- **All MS4s located in “urbanized areas”** as defined by the Bureau of the Census, plus additional MS4s in areas designated by the state, must establish stormwater management programs whose components match a federal standard, integrating review of SWPPPs into local land use regulation. **This Guidance Manual uses the term *regulated MS4s* to mean all MS4s in urban and designated areas.**

Photo courtesy of NYSDEC, Karen Williamson.

*Local stormwater management can make the difference between polluted runoff (inset) and clean water returning to local water bodies.*



Phase II includes special requirements for stormwater management programs in MS4s discharging to waters that are already polluted. Phase II requirements apply to redevelopment of previously-developed sites, as well as to new development, and to publicly-owned institutions as well as to municipalities.

***New York State Implementation of Phase II:*** To comply with Phase II, New York State in January, 2003 issued two non-industrial Stormwater Management General Permits under the State Pollutant Discharge Elimination System (SPDES).

State/federal regulations require operators of regulated construction sites and regulated MS4s to obtain coverage under the appropriate general permit.

- ***Under the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-02-01)***, construction site operators must notify the state of any project disturbing one acre or more, prepare a formal written Stormwater Pollution Prevention Plan (SWPPP) and adhere to the provisions of the plan during and after construction.
- ***Under the SPDES General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems, or MS4s (GP-02-02)***, regulated MS4s must establish stormwater management programs that reduce the discharge of pollutants to the *maximum extent practicable*, employing program elements specified by the Phase II rule and embodying certain parts of the program in a local law or other regulatory mechanism.

The term *MS4* includes both municipal and non-municipal systems of underground pipes, and also systems of streets and roads with drainage, catch basins, curbs, gutters, ditches, man-made channels or storm drains, whether or not the system is owned by a municipality. An MS4 may be a city, town or village system, or one serving a large publicly-owned complex such as a military base, hospital, school or prison.

DEC has established a list of municipal MS4s in New York State that are regulated under Phase II. Municipalities that have stormwater transport systems meeting the definition of MS4s, but that are not located within urbanized areas or areas specially designated by DEC, are not subject to MS4 permitting requirements at this time. However, DEC encourages all municipalities to develop stormwater management programs.

In regulated MS4s, Phase II requires stormwater management programs to include the six Minimum Control Measures established by the EPA, or to demonstrate that the program provides at least equivalent protection. **In New York State, stormwater management programs in all regulated MS4s must be fully developed and implemented by January 8, 2008.** In most municipalities in the state, program development is underway.



*Stormwater management practices include wet ponds, which detain runoff on-site, allowing pollutants like sediment to settle out so that the water that finally reaches a lake or stream is clear.*

Table 1 (page 5) gives a broad summary of the responsibilities of all parties under the Phase II rule for construction and post-construction stormwater management (these responsibilities are fully described in the General Permits for Construction Site Operators and MS4s, GP-02-01 and GP-02-02).

This manual does not cover details of the special requirements that affect MS4s discharging to New York water bodies known to be impaired by pollution.

### *Construction/Post-Construction Stormwater Management Opportunities for Communities and Institutions*

In conjunction with its summary of construction and post-construction stormwater management responsibilities, Table 1 highlights stormwater management opportunities for all communities and institutions, whether or not they are regulated under Phase II. All communities and institutions can make use of SWPPPs and other stormwater management techniques to protect and enhance surface waters, land resources and wildlife habitats, and to protect and improve local quality of life.

Among the most promising of the opportunities created by Phase II are:

- **Stormwater Pollution Prevention Plans:** SWPPPs offer a powerful way of increasing municipal oversight of development while maintaining a “level playing field” across the state. Since SWPPPs are required for all construction disturbing one acre or more, all municipalities can review these plans and incorporate them into existing land use controls, without increasing requirements on local developers.
- **Techniques:** Guidance created for managing stormwater includes detailed specifications for many highly effective stormwater management techniques.
- **Local Planning and Facility Operation/Maintenance:** Local stormwater management programs offer excellent opportunities for increasing the effectiveness of local land use planning and of routine operation and maintenance of facilities.

*When developments are not properly engineered to manage stormwater, impervious areas can generate too much runoff for storm drains to handle. The resulting flooding may damage basements and wash out roadways, as it carries pollutants and sediment into lakes, streams or estuaries.*



Photo courtesy of NYSDEC, Scott Cuppert



## Chapter 2: Local Stormwater Management

Although not all of New York's communities and institutions are required to adopt formal stormwater management programs, they all can benefit from controlling stormwater runoff. The program elements and structure required under the Stormwater Phase II program are designed to maximize water resource benefits while retaining local control.

This chapter discusses how communities can determine the best regulatory strategy and program elements for local stormwater management, and recommends ways to tailor the stormwater program to local water quality and natural resource circumstances.

### *Current Municipal Stormwater Management Practice in New York State*

New York's communities already have many programs that are related in purpose and similar in methods to the state/federal stormwater management program.

- To prevent flood damage, most New York communities, urban and rural, have adopted local laws regulating the effects of development on the conveyance of runoff through areas of special flood hazard (as defined on the community's Flood Insurance Rate Map).
- Many urban areas of New York State use stormwater regulation to maintain the integrity of drainage systems.
- A few municipalities are controlling both construction site erosion and stormwater runoff after construction through Erosion and Sediment Control Laws.
- A small number of municipalities require developers to prepare stormwater plans that are reviewed as part of the construction permit application.

The *Sample Stormwater Management Local Law* in Appendix 1 of this Guidance Manual builds on work done by communities and government agencies toward a comprehensive mechanism for protecting local water quality and natural resources from the impacts of construction/post-construction stormwater runoff.

### *Determining Your Community's Approach to Stormwater Management*

The Stormwater Phase II rule requires regulated MS4s to adopt a local law or other regulatory mechanism for controlling construction site erosion and post-construction stormwater runoff. The local law must be at least as stringent as the state *SPDES General Permit for Stormwater Discharges from Construction Activities* (GP-02-01), and should integrate stormwater management with other local land use controls.

#### **Further Stormwater Management Information**

**MS4 Requirements:** *SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s)* [GP-02-02],  
<http://www.dec.state.ny.us/website/dow/MS4Permit.pdf> .

**MS4 stormwater programs must provide protection equivalent to the requirements for construction site operators:** *SPDES General Permit for Stormwater Discharges from Construction Activities* [GP-02-01],  
[http://www.dec.state.ny.us/website/dow/gen\\_constr.pdf](http://www.dec.state.ny.us/website/dow/gen_constr.pdf)

**Construction/Post-Construction Stormwater Management**

## Checklist 1—Land Use Controls and Regulatory Resources

*Use this checklist to assess current local land use controls and related resources. Consult Table 3 (Page 30) for ways to adapt the Sample Stormwater Management Local Law to the local regulatory environment.*

LOCAL LAWS, REGULATIONS AND RESOURCES	Yes	No	Guidance Manual Reference
<b>Does your municipality have a subdivision regulation?</b>			Pages 12, 13; 27-28
Are developers required to submit a Stormwater Pollution Prevention Plan (SWPPP) with a subdivision application?			Pages 9, 18-19, 28
Does your municipality have a planning board?			Page 15
<b>Does your municipality have a site plan regulation?</b>			Pages 12, 27-28
Are developers required to submit a stormwater plan with their site plan application?			Pages 9, 19, 28
<b>Does your municipality have a zoning ordinance?</b>			Pages 12, 27-28
Does the zoning ordinance require submittal of a SWPPP with application for special use permit, variance or zoning change?			Pages 9, 19, 28
<b>Does your municipality issue building permits?</b>			Page 14
Is there a Building Inspector/Code Enforcement Officer?			Pages 15, 29
Are code enforcement officers, ZBA and Planning Board members reviewing stormwater plans or prepared to review them?			Pages 15, 19, 34-35, 37
<b>Does your municipality have a Conservation Advisory Council or other environmental committee?</b>			Page 15
Are environmental committee members trained to review stormwater plans?			Pages 15, 34-35, 37
<b>Does your municipality have an erosion and sediment control or stormwater management law?</b>			Pages 9, 13, 28
<b>Does your municipality have a stormwater drainage district?</b>			Pages 13, 39

### Checklist 1 - What Your Answers Mean

**First three questions in gray boxes** — *Yes* answers to all three questions mean a municipality can adopt the sample local law without modification. Any *No* answer indicates that the sample law must be adapted to fit local circumstances (see Table 3).

**Last four questions in gray boxes** — Any *Yes* answer means a program is in place that can be used to help manage stormwater. Table 3 shows how to integrate some of these programs with the stormwater management program.

**Questions in white boxes** — Any *Yes* answer means that a procedure is in place that can be used for accepting and reviewing stormwater plans. *No* answers indicate areas to address as you develop stormwater management procedures.

**Construction/Post-Construction Stormwater Management**

## **Checklist 2—Programs Supporting Stormwater Management**

*These questions identify local laws, regulations and resources that can contribute to successful stormwater management. References lead to discussions of each topic in this manual.*

<b>LOCAL PROGRAM, STAFF OR INFORMATION RESOURCE</b>	<b>Yes</b>	<b>No</b>	<b>Guidance Manual Reference</b>
<b>Natural Resource Protections (Integrate with Stormwater Program)</b>			
Does your municipality have restrictions on filling and grading?			Page 13
Does your municipality have floodplain or wetlands controls?			Page 14
Does your municipality have watercourse, stream corridor or riparian buffer requirements?			Page 14
Does your municipality have a zoning overlay or other special district?			Page 12
<b>Technical Staff with Important Stormwater Roles</b>			
Does your municipality have Municipal Engineer/Engineering Dept.?			Pgs 16, 34
Does your municipality have a Building Inspector/Building Dept.?			Pgs 15, 29
Does your municipality have a Municipal Attorney/Legal Dept.?			Pgs 16, 26
Does your municipality have a Public Works Department?			Pgs 15, 37-38
Does your municipality have a Municipal Planner/Planning Dept.?			Page 16
<b>Community Resources for Stormwater Management</b>			
Has your municipality prepared a natural resource inventory?			Page 21
Does your municipality have a citizen participation program?			Pgs 31-34
Does your municipality share programs with other jurisdictions?			Page 39
Does your municipality operate any stormwater infrastructure?			Pgs 14, 20, 37, 38
Does your municipality have a Comprehensive Plan or Master Plan?			Page 21; Appendix 2
Does the plan assess and provide for stormwater needs?			Appendix 2

### **Checklist 2- What Your Answers Mean**

**Yes** answers indicate existing programs that support and reinforce stormwater management goals. Take these resources into account in program design and give them a role in implementation.

**No** answers identify approaches that the locality may want to consider adopting, or expertise that an MS4 may need to obtain for successful stormwater management.

Because communities in New York State approach land use regulation in a variety of ways, no single prescription for stormwater management will serve all municipalities in the state. The state/federal program provides flexibility for municipalities to design and implement stormwater management in a way that complements other programs and respects community goals and resources.

### **Integrating Stormwater Management into Existing Municipal Programs**

Municipal stormwater management shares many goals and techniques with other municipal programs, in particular land use controls and environmental conservation programs. To integrate stormwater management with these existing local programs, municipalities should amend local laws or ordinances that regulate subdivision, site plan and/or zoning by means of a local law that requires a SWPPP to be submitted with any application for discretionary land use approvals. The language of the *Sample Stormwater Management Local Law* in Appendix 1 accomplishes this integration.

Establishing a stormwater management program will be easier if a municipality has in place zoning laws, subdivision review and site plan review. Checklists 1 and 2 are “thumbnail” assessment tools that local officials can use to quickly inventory existing laws, programs and staffing as they relate to stormwater management.

- **Checklist 1** inventories critical land use laws and closely-related programs;
- **Checklist 2** inventories other natural resource laws and programs that can contribute to stormwater management.

Based on the information developed in the checklists, Table 3 (page 30) shows how to adapt the *Sample Stormwater Management Local Law* in this manual to various combinations of local laws and ordinances.

### *Municipal Legislative and Enforcement Powers for Stormwater Management*

This section discusses local government powers that municipalities can use to accomplish effective stormwater management. The local stormwater management program should be designed to enhance existing local programs, and to make the best use of local government powers. Municipalities should integrate local review of SWPPPs with existing programs.

State law gives local governments the power to control land use. Adoption of subdivision plats is authorized under General City Law Section 32, Town Law Section 276, and Village Law Section 7-728. Site plan review is authorized under General City Law Section 27-a, Town Law Section 274-a, and Village Law Section 7-725-a. Adoption of zoning laws is enabled under General City Law Section 20, Town Law Section 261, and Village Law Section 7-700.

### **Establishing Special Districts and Uses**

- **Zoning overlay districts and special districts** are allowed under the zoning law enabling legislation. Special Use Permits are allowed under General City Law Section 27-b, Town Law Section 274-b and Village Law Section 7-725-b. Under zon-

ing overlay districts, special zoning districts or special use permits, the municipality may place conditions on certain uses in a sensitive area. (For example, to reduce erosion and sedimentation into a stream during construction, a stream corridor overlay district may restrict land uses within a specified distance from the stream.) The provisions of special districts and uses may be amended to require review of SWPPPs, ensuring that they meet special district conditions.



- **Cluster subdivisions** (enabled under General City Law Section 37, Town Law Section 278 and Village Law Section 7-738) can be used by municipalities that have subdivision regulations in place to reduce the percentage of impervious surface and provide open space and natural areas that are useful for managing stormwater runoff. **Conservation subdivision** is a term similar to, and used to describe, cluster subdivisions.

- **Low-impact development** is a new concept in site planning that may be used to complement other land use tools. The goal of low impact development is to mitigate construction and post-construction impacts to land, water and air. By integrating site design and planning techniques such as narrower streets, rain gardens and bioretention areas, local officials can conserve hydrologic functions and natural systems on a site and reduce stormwater runoff from the site.

- **Stormwater Drainage Districts.** Cities, towns, villages and counties may construct drainage facilities under other sections of law, and General Municipal Law (GML) Article 5-E provides express authorization for the “construction and development of capacity *in excess of its own needs* for the purpose of conveying and disposing of storm waters and other surface or sub-surface waters *collected by another public corporation or improvement district.*”

The practical effect of this provision is to allow construction of intermunicipal drainage facilities. It should be noted that this provision was enacted in 1955, five years before the broad authority in Article 5-G of the GML. The authority given under GML Art. 5-E, is additional authority for intermunicipal drainage construction without the necessity to create a “district,” as illustrated in the Local Law from Elmira, New York (Appendix 3).

*Revegetation prevents erosion of soil exposed during construction. Here, fabric will stabilize the large exposed bank until grass is established. Stormwater Pollution Prevention Plans (SWPPPs) include erosion and sediment control practices to be used during and after construction.*

## Adopting Natural Resource Protection Regulations

**Municipal erosion and sediment control** laws or filling and grading regulations, laws or ordinances usually require some type of erosion and sediment control plan. If a municipality has one of these laws in place, it should be amended to reflect the Stormwater Phase II regulations for construction. Chapter 3 of this Guidance Manual and the *Sample Stormwater Management Local Law* in Appendix 1 provide the information municipalities need to amend these laws.

**Floodplain regulations** and **wetland and watercourse protection laws** are other mechanisms that municipalities can adopt as local laws or ordinances to restrict land uses near streams and wetlands and to control stormwater runoff into water bodies. The sample local law includes language that amends these regulations to require review of SWPPPs.

### **Issuing Building Permits and Certificates of Occupancy**

Building construction in New York State is regulated by the Uniform Fire Prevention and Building Code. Rather than enacting a separate building code, each city, town and village is responsible for administering and enforcing the Uniform Code. Local legislation is necessary to provide for the building permits, construction inspections and certificates of occupancy used in administering the Uniform Code. The functions of code administration and enforcement are typically performed by a municipal officer designated as the Building Inspector or Code Enforcement Officer.

State law does not presently provide for the review of SWPPPs in the building permit process, but a municipality may direct the Building Inspector to require a SWPPP when application is made for another land use permit (site plan, subdivision, zoning change, special use permit). Local law can also require an approved SWPPP before the Building Inspector releases the Certificate of Occupancy.

*Every storm drain discharges into a lake, stream or estuary where people swim and fish. This stencil reminds the public that every drain connects with an important waterbody, and that stormwater is not treated to remove debris, chemicals or dirt.*

### **Operating and Maintaining Stormwater Infrastructure**

Municipalities have ultimate responsibility for constructing and maintaining stormwater drainage facilities along municipally-owned roads and on municipal properties, such as parks and municipal buildings. By operating and maintaining these structures in accordance with best management practices for pollution prevention, the municipality will protect water quality and reduce the quantity of stormwater runoff.

A municipality may also undertake operation and maintenance of stormwater management structures located on privately-constructed properties, by accepting an easement or ownership of the land on which the structures are located. This gives the municipality control over the operation and maintenance of the stormwater facilities and allows it to use a stormwater district to fund facility operation and maintenance. If the municipality does not control operation and maintenance of stormwater management structures on private property, it must ensure that these functions are provided for in the construction operator's SWPPP.

### *Building Effective Municipal Stormwater Management Programs*

The Stormwater Phase II rule requires regulated MS4s to establish municipal stormwater management programs by January 8, 2008. These programs must include six elements (Minimum Control Measures) that EPA has determined will together result in effective stormwater management.



Photo courtesy of Don Lake.

## Stormwater Management-Related Responsibilities of Municipal Officials

Establishing and running a stormwater management program involves a variety of municipal functions and official responsibilities. This section discusses how local officials' responsibilities bear on stormwater management.

***Municipal Governing Board:*** Members of the City Council, Town Board or Village Board of Trustees are responsible for key actions needed to establish and implement local stormwater management. Governing Boards adopt and amend local laws and comprehensive plans, conduct education programs, establish special districts and provide tax incentives or cost share funding. Under federal and state laws, Governing Boards of regulated MS4 municipalities have the overall responsibility for implementing a Stormwater Management Program by January 8, 2008. Governing Boards authorize the actions of other municipal officials to manage stormwater.

***Planning Board:*** Planning Boards, which are responsible for approving subdivision and site plans, will also review any SWPPP submitted with those applications. Some Planning Boards may also be authorized to review Special Use Permits. The Governing Board can give the Planning Board authority to place conditions on approvals reflecting stormwater management goals and the intent of the zoning law and comprehensive plan. Where there is no Planning Board, the Town or Village Board has the responsibility to review SWPPPs.

***Zoning Board of Appeals:*** Zoning Boards of Appeal (ZBAs) are limited by statute to considering variance applications, interpreting the zoning law and approving Special Use Permits when authorized by the Governing Board. When a SWPPP is submitted as part of an application, the ZBA should review the SWPPP for applicability and, if authorized by the Governing Board, has the power to place conditions on approvals to meet stormwater management goals.

***Environmental Review:*** Environmental review under the State Environmental Quality Review Act may be conducted by the Governing Board, the Planning Board or the ZBA, depending on which board has jurisdiction over the permit or funding approval. The local environmental review process should include a requirement for developing SWPPPs, conditioning of project approvals to support mitigation measures identified in environmental review and a role for the Conservation Advisory Council.

***Code Enforcement Officer:*** The Code Enforcement Officer (Building Inspector, CEO) is often a builder's or developer's first official contact with the municipality where a construction site is located. The CEO has an important role in educating developers about municipal land use controls. If authorized, the CEO applies local land use laws, issues building and other permits, and enforces the law. If directed by the municipality, the CEO can make sure that a SWPPP is submitted by the applicant and also inspect construction/post-construction stormwater management practices.

***Public Works Department:*** The municipal Public Works Department installs and maintains the storm drain system and other stormwater management facilities, addresses erosion problems on roads and bridges, and carries out emergency maintenance.

**Further Stormwater Management Information**  
**Meeting the six Minimum Control Measures:** *Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program*, Chapter 3; NYSDEC, Feb. 2003, rev. Aug 2003,  
[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf)

**Powers and responsibilities of local governments:** *New York State Local Government Handbook*, NYS Department of State.  
<http://www.dos.state.ny.us/lgss/pdfs/handbook.pdf>

nance. Training of employees in appropriate practices for stormwater control is an important component of a local stormwater management program; such training may be done in cooperation with other municipalities.

***County Officials:*** A county that is wholly or partially within the EPA-designated urbanized area may be a regulated MS4, with an obligation to implement its own stormwater management program. Many powers and services of county government may come into play as county and municipal stormwater management programs are developed and implemented.

County Legislatures or Boards of Supervisors, in some cases in combination with a County Executive or County Administrator, adopt and amend county laws and collect property taxes. County departments offer technical and educational services related to water, sewer, health, and planning; county highway departments maintain the county road system and provide cost share funding.

County departments and agencies, in particular the county Soil & Water Conservation District, Planning Department and Environmental Management Council, are often excellent sources for natural resource maps and other information that can be crucial in the design and operation of an effective municipal stormwater management program. In addition, County Soil and Water Conservation Districts can provide other forms of technical assistance.

In many counties, a county Water Quality Coordinating Committee coordinates local stormwater management with Regional Planning Councils, watershed groups, coalitions and related local groups. County Water Quality Coordinating Committees include staff of County Soil and Water Conservation Districts, the United States Department of Agriculture Natural Resource Conservation Service, Cornell Cooperative Extension, Regional Planning Councils, County Environmental Management Councils, County Planning Departments, NYS Department of Environmental Conservation, local watershed groups or coalitions and municipal officials.

***Municipal Attorneys, Engineers, Planners and Planning Consultants:*** Municipal attorneys, engineers, planning staff and planning consultants play an important role in the development and implementation of a municipality's stormwater management program. The Municipal Attorney should be involved in developing local laws for stormwater management, to ensure that the local laws relate appropriately to other laws and ordinances in the municipality's code. The Municipal Attorney has an important role in enforcement of the terms of SWPPPs.

The Municipal Engineer and/or Planner, whether on staff or on retainer, will review SWPPPs and provide comments to the Planning Board, Zoning Board or municipal Governing Board. These professional staff or consultants are often trained in environmental planning and can help facilitate volunteer boards' and elected officials' understanding of the technical elements of stormwater pollution prevention plans. Local officials should not attempt to review SWPPPs without professional assistance. For full SWPPPs, which include design of post-construction measures as well as erosion and sediment control measures, reviewers should have training and experience in hydrology.

### **Stormwater Management Program Elements**

This section briefly reviews the six Stormwater Phase II Minimum Control Measures, which must be included in every MS4 stormwater management program. A



program that makes use of the Minimum Measures will improve local conditions, reduce erosion and protect water bodies from pollution and sedimentation.

- **Unregulated communities** should use the Minimum Control Measures as a framework for stormwater management, to provide maximum protection for their natural resources.
- **Regulated MS4s** are required by law to include all six Minimum Measures in their programs. For each Minimum Measure, they must set goals and select activities that will reduce pollution to the maximum extent practicable, must make special provisions to protect water bodies already impaired by pollution, and must report annually to DEC. Table 2 (page 22) gives examples of measurable goals for the Minimum Measures, along with typical stormwater management activities used by communities.

The federal requirement that regulated MS4s determine measurable goals and appropriate methods and program activities for each Minimum Control Measure is a significant source of local stormwater management flexibility, allowing localities to integrate the elements of stormwater management with their existing structure of goals, programs and local laws in response to local needs and conditions.

DEC recommends that municipalities and public institutions consider developing elements of their stormwater management programs in cooperation with neighboring jurisdictions, especially those in the same watershed. Working with the county Soil and Water Conservation District, Regional Planning Councils, watershed groups and local coalitions through the County Water Quality Coordinating Committee (WQCC) can open opportunities to network and share resources.

The following brief survey of the six Minimum Control Measures emphasizes Measures 4 and 5, which address construction and post-construction runoff.

**Minimum Control Measure 1—Public Education and Outreach:** Informing citizens about the water quality impacts of polluted stormwater discharge is key to building support for and compliance with municipal stormwater management programs. Minimum Measure 1 requires a regulated MS4 to conduct ongoing public education and outreach about the impacts of stormwater on local waterbodies, the pollutants of concern and the steps that can be taken to reduce stormwater pollution.

**Minimum Control Measure 2—Public Involvement/Participation:** Regulated MS4s should include the public in developing, implementing, and evaluating stormwater management programs. This public participation process should reach out to engage all economic and ethnic groups. MS4s must comply with State, Tribal, and local public notice requirements and with any applicable public participation and involvement provisions of the federal Clean Water Act.

The stormwater management public involvement/participation program must: identify key individuals and groups affected by the stormwater program; identify the type of input sought and the participation methods the MS4 will employ; identify the name of a contact person for the stormwater management program, and present the draft annual program report at a meeting that is open to the public, accepting public comment on the content of the report.

#### Further Stormwater Management Information

##### Measurable Goals guidance for Small MS4s

<http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm>

##### Sample measurable goals

*Guidelines for Completing the Notice of Intent, Selecting Management Practices, Setting Measurable Goals for SPDES General Permit [GP-02-02] for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems, Chapter 4* NYSDEC, 2003,

[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_guidelines.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_guidelines.pdf)



*This infiltration basin handles the stormwater from a large parking lot, catching pollutants as the water seeps into the soil. This practice replenishes local groundwater, rather than allowing stormwater to be lost. Integrated into the landscaping, the basin adds to the appeal of the property.*

### ***Minimum Control Measure 3—Illicit Discharge Detection and Elimination:***

Regulated MS4s must establish plans to detect and eliminate illicit discharges (discharges not composed entirely of stormwater) to the storm sewer system. They must map all outfalls from the storm sewer system to surface waters (not only from pipes, but also from road ditches, swales and other stormwater carriers), and must inform public employees and the community about the hazards of illegal discharges and improper waste disposal. Illicit discharges to the storm sewer system must be prohibited by ordinance or regulation, and the prohibition must be enforced.

An Illicit Discharge Detection and Elimination Plan must address all non-stormwater discharge flows found to be substantial contributors of pollutants,

such as flows from water line flushing, irrigation, lawn watering, swimming pool discharge, street washing and foundation drains.

### ***Minimum Control Measure 4—Construction Site Stormwater Runoff***

***Control:*** To comply with the MS4 General Permit (GP-02-02), operators of regulated MS4s are required to adopt a new local law, amend existing local laws and ordinances, or establish an equivalent regulatory mechanism to reduce pollutants in stormwater runoff from construction activities that disturb one or more acres of land or are part of a larger plan of development. (This requirement applies to redevelopment, as well as to new development.)

Regulated MS4s must demonstrate that the protection provided by local regulation is at least equivalent to that provided by the General Permit for Construction (GP-02-01). To comply with Minimum Measure 4, local law(s) must:

- **Require construction site operators to prepare SWPPPs** for controlling construction site pollution or erosion/sedimentation, and to implement the controls specified in the SWPPPs.
- **Provide for review of SWPPPs** prepared by construction site operators.
- **Require stormwater controls consistent with technical standards** found in the *New York State Stormwater Management Design Manual* and the *New York Standards and Specifications for Sediment and Erosion Control*.
- **Specify inspections, sanctions and enforcement** to ensure compliance with the stormwater plans.
- **Establish procedures** to ensure that the law is carried out.

New York State recommends that MS4s incorporate review of SWPPPs into local permitting reviews (building code, site plan, subdivision, zoning), preferably with specific procedures for considering potential water quality impacts. Procedures should be established for SWPPP review, for site inspections and enforcement and for accepting and considering information from the public. Training should be provided for construction site operators on local stormwater management requirements, and for local government officials responsible for SWPPP review on procedures and requirements.

***Minimum Control Measure 5—Post-Construction Stormwater Management:*** Either separately or in combination with Minimum Measure 4, MS4 municipalities must adopt new local laws, amend existing local laws and ordinances, or establish equivalent regulatory mechanisms to reduce discharge of pollutants in stormwater runoff after completion of construction. Post-construction stormwater controls are required in SWPPPs for commercial and multi-family residential projects disturbing one acre or more; for single-family residential projects disturbing 5 acres or more, and for any project discharging to 303(d)/TMDL waters that disturbs one acre or more.

The stormwater management program uses the term *post-construction* to designate runoff from a site with impermeable surfaces, such as buildings, roads and parking lots, that remain after construction ends. Often, to reduce pollutants in post-construction stormwater runoff, construction site operators will need to build permanent stormwater management practices (structural measures) and/or establish other (non-structural) measures during land development or re-development.

Local laws adopted by regulated MS4 municipalities must:

- **Require review of post-construction stormwater management measures** in SWPPPs.
- **Require for post-construction stormwater control a combination of stormwater management practices consistent with technical standards** in the *New York State Stormwater Management Design Manual*.
- **Establish responsibility for and ensure ongoing maintenance** of structural or non-structural management measures needed to control post-construction stormwater.
- **Include inspection** of stormwater management measures and practices, compliance and enforcement.

Post-construction stormwater management is an ongoing responsibility that should receive adequate support and funding from every MS4. For sensitive water bodies, water quality monitoring may be needed to evaluate the effectiveness of post-construction stormwater management structures or other measures.

Achieving sound SWPPPs and ensuring ongoing implementation of the plans' provisions (Minimum Measures 4 and 5), lie at the heart of effective municipal stormwater management. Using the sample local law language and legislative strategies in this Guidance Manual, regulated MS4s can meet the construction/post-construction stormwater management requirements of Phase II, and unregulated localities can develop Stormwater Management Local Laws tailored to a variety of circumstances.

***Minimum Control Measure 6—Pollution Prevention/Good Housekeeping:***

Municipalities and other operators of MS4s engage in numerous construction, operation and maintenance activities. Phase II requires operators of regulated MS4s to develop operation and maintenance schedules, to select appropriate practices to ensure reduction of all pollutants of concern, and to design operation and maintenance procedures that follow the practices identified in the *New York State Management Practices Catalogue for Nonpoint Source Pollution Prevention* or other equivalent guidance. Regulated MS4s are required to provide their employees with training in correct operation and maintenance procedures.

Routine operation and maintenance of local facilities offer many opportunities to improve stormwater management with minimum cost, such as restoration/protection of stream buffers and wetlands through grants; retrofitting storm sewer systems and other runoff control measures (as budget allows or through grants); employing environmentally friendly local road construction techniques (information about these techniques can be found in the *Great Lakes Better Backroads Guidebook*, published by the Great Lakes Commission).

***Setting Measurable Construction/Post-Construction Stormwater***

***Management Goals:*** Each Minimum Control Measure must be accompanied by at least one goal that is quantifiable in some way, so that progress can be reported in the MS4's Stormwater Management Program Annual Report. Below are examples of measurable goals for Minimum Measures 4 and 5:

***Stormwater Management Program Development***

- Adopt a Stormwater Management Local Law with requirements for construction/post-construction stormwater control.
- Establish procedures for receiving information from the public about construction/post-construction stormwater concerns and for investigating complaints.
- Establish procedures for construction site plan review and site inspections.
- Establish procedures for enforcing the provisions of SWPPPs.

***Stormwater Management Program Implementation***

- Assure training for (specify percent) of construction site operators active in the MS4.
- Establish procedure for delivering training as needed for new construction operators.
- Review SWPPPs for all projects that disturb one acre or more of land.
- Inspect all projects of one acre or more for preconstruction ES&C controls.
- Inspect all projects of one acre or more at least once during site development.
- Inspect all projects of one acre or more at site stabilization.
- Investigate stormwater-related complaints.

Table 2 summarizes requirements, suggested activities and sample measurable goals for the six Minimum Control Measures. County Soil and Water Conservation Districts can help MS4s identify and select appropriate activities. EPA offers guidance for developing measurable goals at <http://cfpub.epa.gov/npdes/stormwater/measurablegoals/part2.cfm>.

### ***Accommodating Water Quality Requirements in Stormwater Management:***

Regulated MS4s that discharge stormwater to 303(d) listed streams or TMDL watersheds are required to meet the standard of “no increase of listed pollutants of concern,” and to document that their stormwater management programs will cause stormwater discharges to meet that standard. Construction sites in areas discharging to impacted stream reaches or watersheds are also subject to more stringent requirements under the *General Permit for Construction Activities* (GP-02-01).

DEC’s website gives the latest list of waterbodies of concern in New York State, called the *Section 303(d) List of Impaired Waters* (available at <http://www.dec.state.ny.us/website/dow/303dcalm.html>). Federally required *Total Maximum Daily Load (TMDL)* assessments are developed from this list. Regulated MS4s that discharge directly to a 303(d) stream segment or to a TMDL watershed must meet the no increase standard and conform to any TMDL plan. A full SWPPP with post-construction controls must be prepared for any disturbance affecting one or more acres whose runoff discharges to a 303(d) listed stream segment or a TMDL watershed that is impaired by stormwater.

Ensuring no increase of pollutants of concern may require monitoring, modeling or other measures. A regulated MS4 discharging to a TMDL water is required to ensure improvement in water quality (GP-02-02 III B2). Stormwater management programs in MS4s that discharge to 303(d) listed waters must ensure no increase in the listed pollutants of concern to the listed water.

### **Assessing the Community’s Stormwater Problems and Needs**

The most effective stormwater management programs are tailored to protect the community’s assets while solving its problems and meeting its particular needs. Designing a program that fits a community’s specific circumstances requires gathering information about existing stormwater problems, as well as identifying natural resources that are valuable and potentially vulnerable to damage from stormwater.

As municipalities plan and implement stormwater management, they should consult planning experts and revisit their community’s Comprehensive Plan (Master Plan). Appendix 2, *Land Use Planning and Stormwater Management*, discusses the relationship between planning and local stormwater management.

Communities should base stormwater management program design on data about natural resources. Numerous information resources and assessment tools are available for the use of New York communities; many are downloadable over the Internet at no cost.

The Bureau of Water Assessment and Management is compiling a list of tools and references (such as aerial photographs, floodplain and agricultural district maps, hydrologic soils data and training), with contact information and internet links. To obtain a copy of this resource, contact the Nonpoint Source Section at (518) 402-8179.

*Post-construction stormwater management may involve re-establishing wetlands near developed areas. Benefits of this practice include stormwater detention, flood mitigation and wildlife habitat.*



Photo courtesy of Monroe County

## Table 2—Stormwater Management Program Design

*Minimum Control Measure Requirements, Sample Practices and Sample Measurable Goals*

*For each Minimum Measure, MS4s are required to develop measurable goals and select appropriate activities to ensure reduction of all pollutants of concern in stormwater discharges to the Maximum Extent Practicable*

Required Elements	Sample Activities/Practices	Sample Measurable Goals
<b>Minimum Control Measure 1: Public Outreach and Education on Stormwater Impacts and Program</b>		
<p><b>Plan and conduct an ongoing public education and outreach program</b> that describes the impacts of stormwater discharges on waterbodies, the pollutants of concern and their sources, and the steps to reduce the pollutants</p>	<ul style="list-style-type: none"> <li>• Send speakers to community groups &amp; schools (suggested subjects: proper lawn &amp; garden care, proper disposal of household hazardous waste, low impact development)</li> <li>• Distribute posters</li> <li>• Promote pet waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Priority Waterbodies List (DEC) &amp; other information on local water quality collected, reviewed</li> <li>• Pollutants of concern identified</li> <li>• Public education and outreach plan drafted</li> <li>• Printed materials completed</li> <li>• ___ # pet waste or no-littering signs installed</li> </ul>
<b>Minimum Control Measure 2: Public Involvement / Participation in Stormwater Program</b>		
<p><b>Name Stormwater Management Contact Person</b></p>	<ul style="list-style-type: none"> <li>• Work with town employees, boards and agencies to identify the most qualified person</li> </ul>	<ul style="list-style-type: none"> <li>• Stormwater contact person identified &amp; published</li> </ul>
<p><b>Provide public notice and access to stormwater management documents and information,</b> including program plans and SWPPPs</p>	<ul style="list-style-type: none"> <li>• Seek out, list stakeholders to be apprised of milestones and give input to decisions</li> <li>• Make SWPPPs submitted with land use applications publicly available</li> </ul>	<ul style="list-style-type: none"> <li>• Key interested parties identified</li> <li>• Mailing list developed</li> <li>• Procedure for document availability set</li> </ul>
<p><b>Present Stormwater Management Program (SWMP) plan &amp; annual reports to the public</b></p>	<ul style="list-style-type: none"> <li>• Conduct public meetings on the SWMP and annual program reports; compile comments</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholders meeting held for ___ # attendees</li> <li>• Presentation given on SWMP, annual report</li> </ul>
<p><b>Design and conduct a stormwater management public involvement / participation program</b></p>	<ul style="list-style-type: none"> <li>• Form advisory committee, within municipality and in cooperation with other MS4s</li> <li>• Sponsor volunteer stream monitoring; sponsor stream, roadway cleanup days</li> </ul>	<ul style="list-style-type: none"> <li>• Advisory committee established</li> <li>• Public involvement needs &amp; messages identified</li> <li>• Public involvement plan complete</li> <li>• ___ # cleanup days held, results achieved</li> </ul>

Required Elements	Sample Activities/Practices	Sample Measurable Goals
<b>Minimum Control Measure 3: Illicit Discharge Detection and Elimination</b>		
Identify and map stormwater outfalls	<ul style="list-style-type: none"> <li>• Inspect and map outfalls/storm sewers</li> </ul>	<ul style="list-style-type: none"> <li>• Outfall and/or sewer system map completed</li> </ul>
Identify illicit discharges (e.g. illegal dumping; industry/business or wastewater connections to storm drain system)	<ul style="list-style-type: none"> <li>• Conduct shoreline surveys</li> <li>• Conduct dye testing to target failing septic systems</li> </ul>	<ul style="list-style-type: none"> <li>• ___% of sewer drainage area assessed for sources of illicit discharges</li> </ul>
Prohibit illicit discharges through an ordinance, local law or other regulatory mechanisms	<ul style="list-style-type: none"> <li>• Develop ordinance or local law</li> </ul>	<ul style="list-style-type: none"> <li>• Ordinance/local law in place</li> </ul>
Inform public, employees, local businesses about hazards from illegal discharges	<ul style="list-style-type: none"> <li>• Establish citizen watch groups</li> <li>• Develop information brochures for specific audiences</li> </ul>	<ul style="list-style-type: none"> <li>• Training for ___# public employees completed</li> </ul>
<b>Minimum Control Measure 4: Construction Site Stormwater Runoff Control</b>		
Require erosion and sedimentation controls through a local law or other regulatory mechanism (one acre or more of disturbance)	<ul style="list-style-type: none"> <li>• Develop local law including recommended strategies (such as stabilized construction entrances, dust control, permanent seeding, silt fence properly installed/maintained, preserving natural vegetation, grass lined channels)</li> </ul>	<ul style="list-style-type: none"> <li>• Local law or other regulatory mechanism in place</li> <li>• ___% compliance achieved by real estate development firms and construction contractors</li> <li>• Maximum compliance with local law</li> </ul>
Provide stormwater background information and opportunity for the public to review SWPPPs and report observations	<ul style="list-style-type: none"> <li>• Establish a procedure to receive and consider information from the public</li> </ul>	<ul style="list-style-type: none"> <li>• Procedure for accepting and reviewing information from the public in place</li> <li>• All complaints from the public about stormwater investigated</li> </ul>
Require MS4 review of Stormwater Pollution Prevention Plans (SWPPPs)	<ul style="list-style-type: none"> <li>• Establish a procedure for SWPPP review</li> <li>• Conduct SWPPP reviews</li> </ul>	<ul style="list-style-type: none"> <li>• Procedure for construction site plan review in place</li> <li>• SWPPPs submitted, reviewed for all projects disturbing one acre or more</li> </ul>
Require construction site waste management	<ul style="list-style-type: none"> <li>• Include site waste management in local law</li> </ul>	<ul style="list-style-type: none"> <li>• ___% compliance by construction contractors</li> </ul>
Perform site inspections and enforce regulations	<ul style="list-style-type: none"> <li>• Establish procedures for site inspection, enforcement</li> <li>• Inspect construction sites for compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Procedures for site inspections/enforcement implemented</li> <li>• All projects disturbing one acre or more inspected for compliance with SWPPP</li> </ul>
Assure education and training of construction site operators	<ul style="list-style-type: none"> <li>• Sponsor training for construction site operators about regulatory requirements, technical standards</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate training developed or identified</li> <li>• Training for ___% site operators completed</li> </ul>

Required Elements	Sample Activities/Practices	Sample Measurable Goals
<b>Minimum Control Measure 5: Post-Construction Stormwater Management</b>		
<p>Assess existing conditions throughout the MS4 and identify management practices that will be effective in reducing pollutant discharges</p>	<ul style="list-style-type: none"> <li>Collect Priority Waterbodies List (DEC) &amp; other information on water quality; identify pollutants of concern identified</li> <li>Develop, implement appropriate post-construction strategies for new development and redevelopment (to include structural and/or non-structural management practices such as buffer zones, stormwater wetlands, stormwater ponds, eliminating curbs and gutters, open space design)</li> </ul>	<ul style="list-style-type: none"> <li>Preliminary inventory of water quality problems/pollutants of concern completed</li> <li>MS4 discharges contributing to water quality problems/pollutants of concern identified</li> <li>Strategies developed to address water quality problems from existing, new and redevelopment</li> <li>Technical standards adopted and provided to construction site operators</li> </ul>
<p>Regulate post-construction runoff from development through a local law or other regulatory mechanism (one acre or more of disturbance)</p>	<ul style="list-style-type: none"> <li>Amend zoning, site plan and subdivision laws and ordinances with recommended local law to require review of Stormwater Pollution Prevention Plans; or use other regulatory mechanisms (see Table 3, page 30)</li> </ul>	<ul style="list-style-type: none"> <li>Local law or other regulatory mechanism adopted</li> <li># stormwater management practices installed in compliance with Design Manual</li> <li># new developments using open space design</li> </ul>
<p>Develop management practice inspection and maintenance program</p>	<ul style="list-style-type: none"> <li>Establish criteria for Stormwater Management Practices O&amp;M plans</li> <li>Require O&amp;M at completed Stormwater Management Practices</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance plans for structural and nonstructural management practices for existing development are developed and implemented</li> </ul>
<b>Minimum Control Measure 6: Pollution Prevention/Good Housekeeping for Municipal Operations</b>		
<p>Prevent discharge of pollutants from municipal operations</p>	<ul style="list-style-type: none"> <li>Examine municipal operations and alter actions to achieve pollution prevention</li> </ul>	<ul style="list-style-type: none"> <li>Pollution prevention plan (new BMPs and procedures) completed</li> </ul>
<p>Follow DEC NPS Management Practices Catalog or equivalent</p>	<ul style="list-style-type: none"> <li>Protect hazardous material storage areas</li> <li>Develop procedures for proper waste disposal and transfer</li> </ul>	<ul style="list-style-type: none"> <li>Procedures in place for periodic and routine catch basin cleaning and regular street sweeping</li> <li># catch basins cleaned per month (or per year)</li> </ul>
<p>Train employees in pollution prevention/good housekeeping</p>	<ul style="list-style-type: none"> <li>Initiate employee training program</li> </ul>	<ul style="list-style-type: none"> <li>Employee training materials gathered or developed</li> <li>Employee training sessions held</li> </ul>



Information about local resources and stormwater conditions will help to accomplish several critical stormwater management tasks:

- **Defining the community's goals** for construction/post-construction stormwater management.
- **Providing findings of fact** to tailor the purposes of the Stormwater Management Local Law and direct the program to meet local needs.
- **Supporting land use planning and individual land use decisions**, with the goal of helping local decision makers to best manage stormwater runoff in developing and developed areas.
- **Providing an information base for reviewing SWPPPs**, for evaluating the appropriateness of proposed control measures and for developing conditions that will make local land use permits more effective for managing stormwater.
- **Identifying current and potential stormwater problem areas** where the stormwater management program should provide special protections.

All municipalities should make it an ongoing practice to seek information from the public about stormwater conditions and local natural resources. A discussion of recommended public involvement approaches appears in Chapter 4, *Implementing Construction/Post-Construction Stormwater Management*.

### **Successful Stormwater Management**

The success of a local stormwater management program can be seen not only in water quality improvement and storm damage reduction, but also in the communities consciousness of stormwater issues and needs. *Doing the Best Job of Stormwater Management* on page 40 summarizes visible signs of a successful community stormwater management program.

### Further Stormwater Management Information

Requirement to develop local law: SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) [GP-02-02], Part IV C 4&5 <http://www.dec.state.ny.us/website/dow/MS4Permit.pdf>

## Chapter 3: Developing Stormwater Management Local Laws

This chapter discusses the *Sample Stormwater Management Local Law* (Appendix 1) and legislative strategies for MS4s. (Table 3 on page 30 summarizes these legislative strategies).

### *Why Local Laws are Needed*

Municipalities in New York State have power and responsibility for decisions that determine how the community uses not only its land, but also its water and other natural resources. Local land use decisions directly determine whether the community's resources will support a good quality of life.

The Stormwater Phase II program requires regulated MS4s to incorporate stormwater management into the local code. This requirement ensures that local stormwater management programs meet the community's objectives for protecting public health and welfare, and take into account the individual locality's natural resources.

It gives local boards direct input into landscaping, placement of structures, long-term maintenance, enforcement and other issues that are best determined locally.

The State of New York recommends that every community, whether or not it is regulated under Phase II, adopt a Stormwater Management Local Law. By adopting the language recommended in Appendix 1, regulated MS4 communities will meet the Phase II requirement for "an ordinance or other regulatory mechanism" to carry out Minimum Control Measures 4 and 5 for construction site and post-construction runoff.

### *Developing Local Laws for Stormwater Management*

This section discusses features of local law development that may enhance the effectiveness of a community's Stormwater Management Local Law.

#### **Home Rule Authority (Local Law vs. Ordinance)**

The New York State Department of State recommends adopting a regulation for stormwater management as a local law under the Municipal Home Rule Law, rather than as an ordinance under New York General City Law, Town Law, and Village Law.

New York State Municipal Home Rule Law (Article 2, Section 10) provides the guidelines and procedure for adopting and amending local laws for a broad range of activities, including "protection and enhancement of the physical and visual environment." When adopted under the Municipal Home Rule Law, a local law has the same status as an act of the New York State Legislature. The local law must be filed with the Secretary of State, and it can be made effective immediately. Municipalities should consult with their legal counsel regarding the form of enactment, but enactment by local law has the benefit of constitutional and home rule authority.



Photo courtesy of New York Sea Grant, Eileen Keenan

*Sediment from a construction site without erosion and sediment controls has eroded onto a nearby walkway. State and federal laws now require developers to prevent erosion during construction.*

## **Recognizing the Cooperative Nature of Stormwater Management**

Many different boards, agencies and personnel within the municipal government have roles in stormwater management. The best way to establish an effective stormwater management local law is for the local legislative body to create an inter-agency Stormwater Local Law Review Team that reflects these diverse roles and responsibilities. The team should include representatives from the Governing Board, Building Department, Planning Board, Zoning Board of Appeals, Conservation Advisory Council or Environmental Conservation Commission, Municipal Attorney, Municipal Engineer, Municipal Clerk, and Municipal Planning Department or consultant.

The Stormwater Local Law Review Team should review and comment on the draft local law and also should help create and recommend opportunities for public involvement, both in developing and implementing the local law and in carrying out the broader stormwater management program.

It should be noted that due to the land use implications and potential inter-municipal nature of stormwater regulation, any amendments to zoning, subdivision, site plan or similar land use regulations relative to stormwater review require the referral of proposed Local Law amendments to the County Planning Board pursuant to Section 239 l and m of General Municipal Law.

## **Designing a Legislative Strategy to Meet Phase II Requirements**

Local land use law is the framework for carrying out the Phase II construction/post-construction stormwater management program. Authorization for local officials to make decisions on construction projects is found in the municipality's Zoning, Subdivision and Site Plan Laws.

Because stormwater management is a necessary part of all land development projects, the most straightforward way to establish local control of stormwater impacts during and after construction is to amend the existing laws and ordinances that govern zoning, subdivision and site plan review. By making use of existing local land use controls, the *Sample Stormwater Management Local Law* avoids creating a new permit for stormwater management.

***Selecting Local Laws to be Amended or Supplemented:*** Using *Checklist 1* on page 10, municipal officials, staff or volunteer board members can inventory the municipality's current base of laws that can be amended for stormwater management. Municipalities can use Table 3 as a guide to select from the *Sample Stormwater Management Local Law* the provisions needed to bring their land use controls into line with the Phase II requirements.

- **Municipalities that have one or more of the three basic land use laws** (zoning, subdivision and site plan approval, or a zoning law that incorporates site plan and/or subdivision approval) can meet all the requirements of Phase II by adopting sections of the *Sample Stormwater Management Local Law* as shown in Table 3.
- **Municipalities that do not have any of the three basic land use laws** can adopt the *Sample Stormwater Management Local Law* as a stand-alone regulation.

***The Sample Stormwater Management Local Law – Adopt or Adapt?*** The *Sample Stormwater Management Local Law* in Appendix 1 includes all of the requirements for regulated MS4 municipalities to meet Phase II Minimum Control Measures 4 and 5 (Construction Site Runoff Control and Post-Construction Runoff Control). Any local government in New York State, whether or not it is regulated under Phase II, can use the sample local law to manage the impact of stormwater on natural resources, revising the language of the sample local law to reflect local

needs.

MS4s discharging to 303(d)/TMDL waters that are impaired by stormwater discharges may need slightly different legislative language to comply with federal law. These municipalities are currently receiving individual guidance from DEC to help establish their local laws.

Fundamental to stormwater management is the Stormwater Pollution Prevention Plan (SWPPP) prepared by construction site operators, which prescribes steps to control runoff from the site during (and, if needed, after) construction. The language in the sample local law incorporates the SWPPP as part of the applicant's package for a local land use approval. The information below on legislative strategies for local governments with different combinations of existing local laws is summarized in Table 3.

- **Article 1 (General Provisions) and Article 2 (Stormwater Control)** of the sample local law must be adopted, to establish the stormwater management program and SWPPP requirements. Article 1 will be adopted as part of the body of the new stormwater management local law. Article 2 will be adopted as an amendment to the Zoning Law; if the municipality does not have zoning, Article 2 may be adopted as part of the local law itself or as an amendment to the Subdivision or Site Plan Review Law.
- **Article 3 (Subdivision Law Amendment)** should be adopted along with Articles 1 and 2 by all municipalities that have a Subdivision Law.
- **Article 4 (Site Plan Review Law Amendment)** should be adopted along with Articles 1 and 2 by all municipalities that have a Site Plan Law.
- **Article 5 (E&SC or Stormwater Management Law Update)** contains language to be used by municipalities that have previously adopted an Erosion & Sediment Control Law or a Stormwater Management Law, to replace the existing law with language that meets the updated requirements for controlling construction site runoff. Because Erosion and Sediment Control Laws do not address post-construction runoff control, municipalities that take this approach should also adopt Articles 1, 2, 3 and 4. These four articles provide for review and approval of stormwater pollution prevention plans, when these are needed to cover post-construction runoff control.
- **Article 6 (Administration and Enforcement)** contains enforcement-related provisions that are required by Phase II, but that may already exist in a municipality's local code. Regular inspection, enforcement of stormwater provisions, sanctions to ensure compliance, and performance guarantees are required under Minimum Measures 4 and 5. The Municipal Attorney should evaluate the adequacy of existing requirements for inspection, enforcement and performance guarantees to achieve the purposes of the stormwater management local law. The municipality may wish to revise or amend its local regulations to incorporate some or all of the language in Article 6.

***Terminology in the Sample Local Law:*** The *Sample Stormwater Management Local Law* uses terms that are the basis of the stormwater program. The terms are defined in Article 2 of the sample local law. Several key terms important for implementing a municipal stormwater management program are also explained here.

***Design Manual*** and ***Erosion Control Manual*** are short names for two publications, the *New York State Stormwater Management Design Manual* and the *New York Standards and Specifications for Erosion and Sediment Control* (for availability, see

References, Appendix 4). The language of the sample local law incorporates these manuals as the technical standard for controlling erosion and sedimentation on construction sites and for installing stormwater management practices appropriate for New York State soils and climate. MS4s are required to use these documents as the technical standard in stormwater management local laws. These manuals contain up-to-date practices, as well as easy-to-use checklists and community implementation tools.

**Land development activity** encompasses construction and post-construction activities that are regulated by the stormwater management local law. Construction activity includes clearing, grading, excavating, soil disturbance or placement of fill that results in land disturbance of equal to or greater than one acre, or activities disturbing less than one acre of total land area that is part of a larger common plan of development or sale, even though multiple separate and distinct land development activities may take place at different times on different schedules.

While the sample local law regulates any disturbance of one acre or more (as required by the Phase II regulations), **local governments have the option to regulate disturbances smaller than one acre.** Municipalities that already regulate disturbances of one acre or less can incorporate their existing minimum into the Stormwater Management Local Law. Municipalities that wish to introduce a more stringent limit can do so by changing the language of the sample local law.

**Stormwater Management Officer** is used to designate a municipal employee or officer who will accept and review SWPPPs and forward the plans to the Planning Board, Zoning Board or Town Board (depending on the local approval needed). The Governing Board will probably designate the Code Enforcement Officer, Building Inspector or another official in the municipality's Building Department to serve as Stormwater Management Officer. The Stormwater Management Officer may also conduct inspections of erosion control measures on construction sites and stormwater management practices; alternatively, this function may be delegated to the Municipal Engineer or a planning consultant. (Note: A consultant cannot be appointed as Stormwater Management Officer.)

**Larger Common Plan of Development or Sale** means a situation in which multiple construction activities are occurring, or will occur, on a contiguous area. Permit coverage is needed if disturbance of one or more acres is occurring or is anticipated to occur in conjunction with the initial disturbance. For discrete construction projects located within a larger common plan of development or sale that are at least one-quarter mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently disturbed.

**Legislative Findings and Purposes:** The nine findings and six purposes in the *Sample Stormwater Management Local Law* reflect the basic Phase II regulatory requirements for stormwater management-related objectives of the local law. These findings and purposes may be valuable in proving validity if the local law is challenged.

Ideally, the legislative findings should also reflect the individual community's natural resources and its capacity for carrying out a stormwater management program. A natural resource assessment is an excellent basis for developing legislative goals, and findings that will support an effective stormwater management local law and program.

**Table 3—Stormwater Management Legislative Strategy**

*Based on your community's local land use controls (Checklist 1), use this table to determine which provisions of the Sample Stormwater Management Local Law to adopt and which existing local laws/regulations to examine for possible updating.*

LOCAL LAND USE CONTROLS IN PLACE	STORMWATER MANAGEMENT SAMPLE LOCAL LAW PROVISIONS						
	Enacting Clause	Article 1 <i>General Provisions</i>	Article 2 <i>Amend Zoning</i>	Article 3 <i>Amend Subdivision Law</i>	Article 4 <i>Amend Site Plan Law</i>	Article 5 <i>Amend E&amp;SC Law</i>	Article 6 <i>Administration</i>
Zoning, Subdivision, & Site Plan Review Laws	Adopt	Adopt	Adopt	Adopt	Adopt		Update Existing Provisions If Needed
Zoning & Subdivision Laws	Adopt	Adopt	Adopt	Adopt			Update Existing Provisions If Needed
Zoning & Site Plan Laws	Adopt	Adopt	Adopt		Adopt		Update Existing Provisions If Needed
Subdivision & Site Plan Laws	Adopt	Adopt	Adopt as part of Article 1 or 3	Adopt	Adopt		Update Existing Provisions If Needed
Subdivision Review Law Only	Adopt	Adopt	Adopt as part of Article 1 or 3	Adopt			Update Existing Provisions If Needed
Site Plan Review Law Only	Adopt	Adopt	Adopt as part of Article 1 or 4		Adopt		Update Existing Provisions If Needed
E&SC Law (With or Without Other Laws)	Adopt	Adopt	Adopt if Zoning Law in Place	Adopt if Subdivision Law in Place	Adopt if Site Plan Law in Place	Adopt	Update Existing Provisions If Needed
Construction Inspection	Adopt	Adopt					Update Existing Provisions If Needed
Performance Guarantees	Adopt	Adopt					Update Existing Provisions If Needed
Code Enforcement	Adopt	Adopt					Update Existing Provisions If Needed

# Chapter 4: Implementing Construction/Post- Construction Stormwater Management

Adopting the local stormwater management law is the first step toward effective implementation of a local construction/post construction stormwater management program.

- **Regulated MS4s** not only must implement all the terms of their stormwater management laws, but also must put in place other program elements prescribed by Minimum Control Measures 4 and 5.
- **Non-regulated communities** can use the implementation steps listed in this section to promote effective management of construction/post-construction stormwater.

## *Involving the Public in Local Stormwater Management*

Stormwater management public information/public involvement must begin during program development and continue for the life of the MS4's permit coverage under GP-02-02. This discussion lays out education and involvement requirements and recommendations for construction and post-construction stormwater management; the requirements and recommendations will satisfy Minimum Measures 1 and 2 for the construction/post-construction aspect of local stormwater management.

### **Target Audiences for Outreach and Involvement**

Broadly speaking, successful management of construction/post-construction stormwater runoff in a municipality requires actions by three groups:

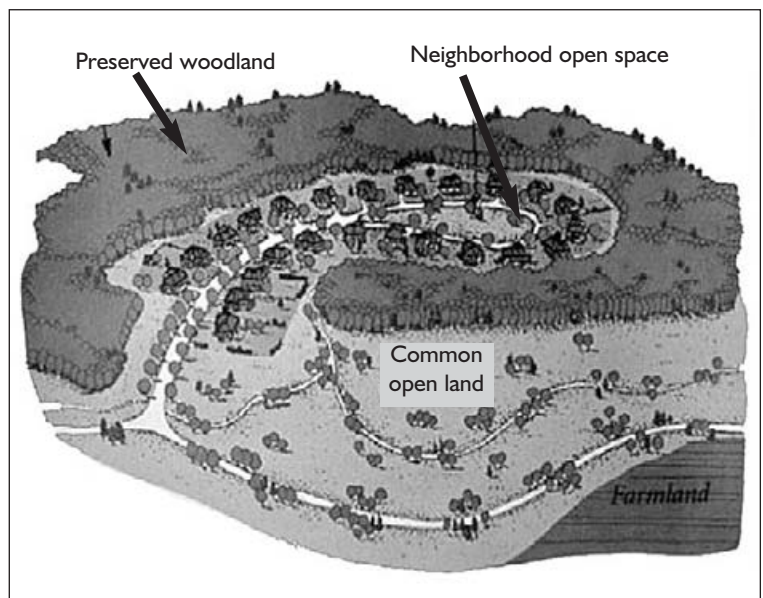
- **Construction site operators**, who must develop, submit and follow SWPPPs.
- **Owners/operators of properties with post-construction stormwater management facilities**, who must follow pollution prevention practices during operation and maintenance. (This group includes municipal government and private sector employees who operate and maintain stormwater systems.)
- **Citizens** who may observe stormwater problems. The support and actions of residents and property owners are needed to ensure the effectiveness of local stormwater management.

#### **Further Stormwater Management Information**

**Implementing the Minimum Measures:** *Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program*, Chapter 3 NYSDEC, February 2003, rev. August 2003, [http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf)

**MS4 Stormwater Management Programs in different municipal situations:** *Guidelines for Completing the Notice of Intent, Selecting Management Practices, Setting Measurable Goals Based on SPDES General Permit (GP-02-02) for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems*, Chapter 4; NYSDEC, February 2003 rev. August 2003, [http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_guidelines.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_guidelines.pdf)

*Local control of land development means that municipalities can encourage conservation subdivisions and other development approaches that preserve vegetated areas, maximizing storm water absorption .*



Courtesy of Center for Watershed Protection

The identities and viewpoints of the people in each of these three groups vary from community to community. Each municipality must identify the best ways to reach local target audience(s), what the audience(s) need to know about stormwater, and the actions needed from each group for successful stormwater management. Ongoing involvement of these groups in stormwater management is a key contributor to the success of the local program.

### **Requirements/Recommendations for Education and Involvement**

Public education and involvement in construction/post-construction stormwater management should begin with the MS4's Notice of Intent and local law development and continue as long as the MS4 permit remains in force. Informed and involved citizens can help ensure that appropriate construction and post-construction runoff controls are installed and maintained on all regulated construction sites.

**Public Education and Outreach:** Phase II requires a regulated MS4 to keep stormwater management continually before the public. Because routine activities are the source of many stormwater problems, education and outreach should also remain active on a routine basis. Table 2 (page 22) summarizes the Phase II public education and outreach requirements.

**Requirements:** Under Phase II, the regulated MS4 must:

- **Conduct an ongoing public education and outreach program** that covers topics specific to construction/post-construction stormwater management, such as: how stormwater behaves on construction sites and on developed lands that have impervious cover; the need for and nature of stormwater management facilities and practices during and after construction within that specific municipality; how to spot a failure in a stormwater management practice or facility.
- **Develop measurable public education/outreach goals and select appropriate activities** to ensure that construction/post-construction stormwater management achieves control of all pollutants of concern in stormwater discharges to the maximum extent practicable, and of runoff volume and rate.

**Recommendations:** Public education activities for construction/post-construction stormwater management might include:

- **Offer information to the public** about stormwater dynamics and resource conditions within the municipality.
- **Make presentations** to community and professional groups (stakeholders and the Local Law Review Team can identify appropriate audiences).
- **Solicit newspaper** and broadcast coverage.
- **Display posters and sponsor events** featuring stormwater management.
- **Provide information and training** for construction site operators and municipal employees.

*Construction site inspection is key to effective local stormwater management.*

Photo courtesy of NYSDEC, Karen Williamson.





**Public Participation and Involvement:** Regulated MS4s must include the public in developing, implementing, and evaluating their stormwater management programs. Public participation activities for the construction/post-construction stormwater management program should emphasize involvement in the development of the local law and should encourage citizens to report stormwater-related problems observed within the municipality.

**Requirements:** Phase II stipulates certain broad obligations for regulated MS4 construction/post-construction stormwater management programs:

- **Design and conduct a public involvement/participation program** that identifies key individuals and groups who are interested in or affected by construction/post-construction stormwater management, identifies the type of input sought and describes activities to provide program access and gather input.
- **Involve the public in developing stormwater management goals.**
- **Establish and publish the name of a stormwater management contact person.** This contact person should be responsible for involving the public in local law development, for following up citizen complaints about stormwater problems and for seeing to it that the information provided by citizens is incorporated into the stormwater management program. The stormwater management contact can be, but is not required to be, the same person as the Stormwater Management Officer (see Article 1, Section 4 of the *Sample Stormwater Management Local Law*).
- **Comply with state and local public notice rules** for local law development and other decisions regarding stormwater, and, where the federal law applies, with federal Clean Water Act public participation and involvement provisions. Details of the rules for public notice can be found in the *Conducting Public Meetings and Public Hearings*, published by the New York State Department of State and available online at <http://www.dos.state.ny.us/lgss/pdfs/public.pdf>.
- **Conduct public hearings as stipulated by law before adopting the Stormwater Management Local Law.** Ideally, interested parties should be invited to participate in drafting or reviewing the local law. The *New York State Local Government Handbook* gives detailed information on public hearing requirements of New York State municipalities. The handbook is available online at: <http://www.dos.state.ny.us/lgss/pdfs/handbook.pdf>.
- **Conduct a public review of the Stormwater Management Annual Report.**
- **Develop measurable public involvement/participation goals and select appropriate activities.**

**Recommendations:** Include the public as the construction/post-construction stormwater management program proceeds.

- **Encourage citizens to report their observations** of conditions in the local watersheds and water bodies, as well as of flooding, washouts, standing water, natural resource damage and other effects of stormwater runoff. This adds to the municipality's data about its local resources and stormwater problems and helps keep the public actively involved in managing stormwater runoff.
- **Sponsor volunteer activities**, such as beach cleanups, storm drain stenciling, stream monitoring and field surveys, which promote citizen involvement and help to inform the public about local conditions and stormwater management needs.

- **Form a Stormwater Management Advisory Committee.**
- **Seek out stakeholders with a special interest** in participating in stormwater management decisions.

## *Establishing Procedures and Practices for Construction/Post-Construction Stormwater Management*

Once the stormwater management local law has been adopted, the municipality must put it into effect. This is done through:

- **Procedures for review of SWPPPs**, and for receipt and consideration of information submitted by the public.
- **Procedures for site inspections** and enforcement of control measures.
- **Ongoing training** in construction/post-construction stormwater management for construction site operators and people responsible for operating and maintaining stormwater management facilities and practices.

The procedures established by the regulated MS4, in particular by MS4s that are municipalities, will determine the long-term effectiveness of stormwater management. Regulated MS4s must address each provision of the local law and GP-02-02 with procedures that ensure that the provision is carried out.

### **Review of Stormwater Pollution Prevention Plans**

It is the responsibility of applicants for local land use permits to prepare a SWPPP and submit the SWPPP for local government review. Effective local review of stormwater plans is critical to the success of stormwater management.

**Requirements:** The sample local law does not introduce a new permit or review process for municipal government. The SWPPP should be submitted and reviewed as part of the application for a subdivision, site plan, special use permit, erosion control permit, or other local approval for a land development project. Procedures for stormwater plan review that are not established in the Stormwater Management Local Law must be set forth separately by the Governing Body. It is the Governing Body's responsibility to provide adequate funding for stormwater plan review.

Engineering expertise is required for stormwater plan review—municipalities should plan either to assign reviews to municipal engineers or to contract for engineering review. Local officials should not review stormwater plans without proper training, technical qualifications or technical assistance.

**Recommendations:** Stormwater Plan review procedures should establish a review sequence for the plan documents, and ensure timely circulation of plan documents to all responsible officials. Designating a Stormwater Management Officer as suggested in the *Sample Stormwater Management Local Law* will clarify responsibility for coordinating SWPPP reviews. The municipality's Stormwater Management Officer will forward the SWPPP to the appropriate municipal board, who will then include the SWPPP in its public review processes already prescribed in zoning, subdivision and/or site plan law. Providing an opportunity for public comment on SWPPPs at public hearings for land use permits or State Environmental Quality Review (SEQR) helps to meet the requirement to involve the public in SWPPP review.

To ensure that the review takes into account all necessary elements, localities may adopt the checklist for SWPPP preparation and review in the *New York State Stormwater Design Manual*, Appendix E.

### ***Reviewing Stormwater Plans for Water Quality Impacts:***

**Requirement:** For regulated MS4s discharging to 303(d) water bodies and TMDL watersheds, reviewers of SWPPPs must assure themselves that the stormwater management practices proposed meet the standard of no increase of the listed pollutant(s) of concern to these waters. For development projects disturbing five acres or more, and for commercial and multi-family residential construction disturbing one acre or more, meeting the no increase standard requires post-construction stormwater controls.

**Recommendation:** Data from water quality monitoring, modeling or other measurements may be needed to determine whether the stormwater management measures and practices proposed in the SWPPP will enable the discharge to meet the permit requirements. Reviewers should coordinate with watershed groups or county agencies that operate water quality monitoring programs to ensure that stormwater controls are based on the most reliable and accurate data available.

### ***Public Access to SWPPPs:***

**Requirements:** Regulated MS4s are required to ensure that SWPPPs submitted as part of land use applications are readily available for public review. No special comment process is required for SWPPPs—public review will be accomplished through land use permit and State Environmental Quality Review Act (SEQRA) hearings and comment.

**Recommendation:** Public review of SWPPPs will be most productive if educational materials are available explaining the program requirements, local water quality status, construction/post-construction management practices and stormwater plan terminology.

### ***Coordination of State and Local Reviews of Stormwater Plans:***

**Requirement:** Under Phase II, construction site operators must notify DEC of intent to obtain coverage under GP-02-01 by submitting a Notice of Intent (NOI) before construction begins. State law requires every developer or permittee to prepare a SWPPP and

#### **Further Stormwater Management information**

**Checklist for reviewing SWPPPs:** *New York State Stormwater Design Manual*, NYSDEC, October 2001, Appendix E; <http://www.dec.state.ny.us/website/dow/toolbox/swmanual/index.html>

**DOS Training Courses for Municipal Officials, including Stormwater Control for Project Review Boards:** <http://www.dos.state.ny.us/lgss/landuse.htm/#hotbutton> (scroll down)

Photo courtesy of NYSDEC, Scott Cuppett



*Specially designed raingardens landscaped or planted with native plants provide attractive natural places for rainwater to collect and soak into the ground. Rain from rooftops and paved areas can be diverted into raingardens.*



*A silt fence is an effective practice for controlling construction site erosion/sedimentation if properly installed and maintained.*

NOI, and to send the SWPPP and NOI to the local governing authority. DEC can decide to review any SWPPP; developers must make plan documents available to the department for review upon request. The department will require the applicant to revise any SWPPP that does not conform with state standards. DEC's review power provides a backstop for local reviewers, with the ability to impose greater penalties.

**Recommendation:** Adopt the *Sample Stormwater Management Local Law* in Appendix 1, with the language needed to require conformance with state standards.

### Site Inspections and Enforcement

**Requirements:** Regulated MS4s are required to establish and implement procedures for inspections and enforcement of construction and post-construction stormwater management practices, and must allocate

adequate resources for effective inspections of development and redevelopment sites and enforcement of SWPPPs. MS4s are required to periodically revisit post-construction facilities and measures to check condition, operation and maintenance.

Inspection procedures and enforcement standards can be established in the local law, as given in Article 2, Section 4 of the *Sample Stormwater Management Local Law*. The sample local law also contains language that would require establishment of maintenance easements for inspection and repair of post-construction stormwater controls. Provisions for construction inspection, performance guarantees and bonds, and enforcement (such as those given in Article 6 of the sample local law) are important to include in a stormwater control program if they do not already exist in local law.

The state permit for construction sites, GP-02-01, requires that each SWPPP “provide a maintenance schedule to ensure continuous and effective operation of each post-construction stormwater control practice.” When operators apply for termination of permit coverage, they are required to report who has responsibility for long-term maintenance of these practices and what maintenance will be needed. This information forms the basis for the MS4's ongoing oversight of post-construction stormwater management practices, and identifies the responsible party against whom the MS4 should enforce if controls fail.

**Recommendations:** MS4 inspection and enforcement procedures should include steps to identify priority sites for inspection and enforcement based on the nature of the construction or post-construction activities, topography and characteristics of soils and receiving waters. The site inspection checklists in Appendix F of the *New York State Stormwater Design Manual* are examples of procedures for inspecting stormwater management practices.

To take advantage of economy of scale, several communities can enter into an intermunicipal agreement to share the cost of a “dedicated” inspector, who will conduct the inspections and perform enforcement duties.

## **Training in Construction/Post-Construction Stormwater Management Requirements and Practices**

**Requirement:** Regulated MS4s must assure formal training in stormwater management practices and the requirements of the Phase II program for operators of construction sites and for municipal employees who have operation or maintenance responsibility for municipally-owned stormwater management practices, roads and other facilities that generate runoff.

**Recommendations for Training Construction Site Operators:** The local Stormwater Management Officer has an important role in training, as does the municipal stormwater management contact person. The MS4 should provide educational materials for construction site operators discussing the requirements of the local stormwater management program and the rationale for the municipality's approach to stormwater management. To prevent contamination of stormwater by construction wastes, educational materials should emphasize construction site waste management.

**Recommendations for Training Municipal Officials and Employees:** Initial training of municipal employees should be conducted in a group setting, and periodic refreshers should be offered. MS4s may find it effective to specify stormwater management duties in work programs and evaluations. Stormwater management practice operation and maintenance should also be included in municipal work plans and protocols.

To help with local training needs, the NYS Department of State (DOS) offers a 1½-hour course titled *Storm Water Control for Local Elected Officials*, which presents information on the implementation of local storm water control programs. Trainers will identify local and regional sources of technical assistance and review appropriate regulatory mechanisms. Also discussed will be comprehensive planning to identify critical development areas. Long-term implications of stormwater regulation will be covered, including ongoing costs, maintenance, enforcement issues. Application of regulations to specific sites will be illustrated.

DOS also offers a 2 ½ hour course titled *Storm Water Control for Project Review Boards*. This session targets local review boards as they strive to implement local storm water programs and meet their obligations under state and federal regulations. Trainers will explain the potential environmental and economic impacts of stormwater, look at the importance of land use planning in developing local water protection strategies, and examine the regulatory tools for carrying out these strategies. This session will apply the principles and practices of stormwater management to the review of development projects. Information about these DOS courses can be found by scrolling down at at <http://www.dos.state.ny.us/lgss/landuse.html#hotbutton>.

In addition, county Soil and Water Conservation Districts can help provide and coordinate training opportunities on a county or watershed basis.

**Recommendations for Training Operation and Maintenance Personnel:** It is in the MS4's best interest to offer training to operation and maintenance personnel working within the municipality who have ongoing responsibility for post-construction stormwater measures and practices on both government-owned and private-sector sites. Training sessions and educational materials offered to municipal employees could also be made available to operation and maintenance personnel in the private sector.

## *Funding Construction/Post-Construction Stormwater Management*

Effective stormwater management will have many economic benefits, and could help avoid significant local expenditures for washouts, flooding and erosion. Still, MS4s will need to budget for: program development and creation of the local law; technical services for stormwater plan review; the Stormwater Management Officer and Contact Person, and site inspections and enforcement.

Possible sources of funding for these functions include:

- **Grants.** To help cover basic costs of starting the regulated MS4 program, the state has earmarked some Environmental Protection Fund (EPF) funding for regulated MS4s implementing the Stormwater Phase II General Permit. DEC anticipates that additional assistance will be available in future years as regulated MS4s move to full implementation of their stormwater management programs.
- **Stormwater management authorities or districts.** Stormwater management authorities or districts could charge back management costs based on the amount of impervious area on the property. Stormwater districts can also be used to fund operation and maintenance on stormwater facilities that the municipality has accepted from a private developer.
- **Other sources of funds.** Some municipalities are considering increased permit fees to support review of stormwater management plans and other program functions. Article 6 of the *Sample Stormwater Management Local Law* contains language authorizing such fees.
- **Municipal ownership and maintenance of facilities.** Cities, towns, villages and counties may construct and develop drainage facilities, and may levy charges for conveyance and disposal of stormwater, as provided under General Municipal Law Article 5-E.

## *Maintaining Facilities, Practices and Measures*

**Requirement:** Phase II requires regulated MS4s to assure completion and ongoing operation and maintenance of any stormwater management facilities, practices and measures during and, where needed, after all construction projects.

**Recommendations:** The *Sample Stormwater Management Local Law* includes provisions establishing financial performance guarantees for completion of construction and for maintenance of stormwater management facilities, practices and measures. Schedule B of the sample local law contains a sample Stormwater Control Facility Maintenance Agreement that localities may wish to use to ensure long term maintenance of post-construction stormwater controls. Periodic inspections of sites with permanent post-construction stormwater controls should be made part of the municipal stormwater management program, with sanctions imposed for failure to perform. Training of operation and maintenance personnel will increase the efficacy of the inspection program.

## Intermunicipal Cooperation

Intermunicipal cooperation could play an important role in the success of local stormwater management, both in program effectiveness and in cost saving. DEC recommends that municipalities and institutions consider sharing elements of their stormwater management programs with neighboring jurisdictions in the same watershed. Working through the County Water Quality Coordinating Committee can open opportunities to network and share resources.

Intermunicipal agreements are allowed under General Municipal Law Article 5-G, which states that two or more municipalities may enter into an agreement to undertake any activity that is allowed for individual municipalities under general or special laws.

***Sharing Costs Through Stormwater Drainage Districts:*** Two or more municipalities may enter into an intermunicipal agreement to create a drainage district, sharing costs and services, as authorized by General Municipal Law, Article 5-E. An example is a project presently being considered by the Long Island Sound Watershed Intermunicipal Council in Westchester County to use a Stormwater District to manage stormwater on a regional basis. The Stormwater District would be governed by a District Board. Fees would be allocated based on impervious area and other factors, with credits given for installing pollution prevention devices. A watershed-based stormwater district provides a long-term management tool with a dedicated funding mechanism for managing water resources and protecting public health, safety and welfare.

***Sharing Training:*** Projects to provide stormwater management training are among the most promising opportunities for intermunicipal cooperation in stormwater management. Most New York communities will find themselves employing stormwater management programs and techniques that are very similar to those used by neighboring communities. These common threads of stormwater management can be embodied in generic training courses and materials, with costs shared among neighboring communities, leaving only elements that are specific to an individual community to be developed by that community.

***Sharing Resource Assessment and Planning:*** Communities that share a watershed can work together to prepare watershed assessments and plans. This approach would be particularly fruitful in the case of a TMDL watershed, where close study of conditions, possibly even including local water quality monitoring and testing, is necessary to meet no-increase requirements.

***Shared Inspectors for Construction Sites and Post-Construction Measures:*** To take advantage of economy of scale, several communities can enter into an intermunicipal agreement to share the cost of a “dedicated” inspector, who will conduct the inspections and perform enforcement duties.

*All storm drains are not created equal. Instead of carrying the stormwater that falls on this large parking lot to a distant lake or stream, this drain moves it to an infiltration basin, where it replenishes the local groundwater.*



Photo courtesy of NYSDEC, Karen Williamson.

# Doing the Best Job of Stormwater Management

*A vision of life in a community where stormwater management is working*

## Public Outreach and Involvement

**Citizens understand the harm done by stormwater runoff, what pollutants damage resources and how to prevent pollution.** They know how to recognize stormwater-related problems.

**Citizens understand their community's stormwater management program.** They encourage developers to manage construction sites and post-construction stormwater, and support partnerships among citizens, government and business to help manage stormwater.

**It is easy for citizens to obtain and review SWPPPs and annual reports.** All economic and ethnic groups can participate in decisions involving stormwater, which receive full legal notice.

**The public contributes information about stormwater problems; the municipality follows up** on complaints and adds information from the public to its data about local conditions

**Citizens hold municipal officials and property owners accountable** for ongoing good performance of stormwater management facilities and practices.

## Illicit Discharge Detection and Elimination

**No harmful substances reach surface waters through storm sewers;** dischargers comply with the illegal discharge elimination plan and statutory prohibition. Maps showing discharge points to the storm sewer system are publicly available.

## Construction/Post-Construction Runoff Control

**Under a stormwater management local law, erosion and sediment controls are functioning during every regulated construction project.** Environmentally sound land use practices minimize stormwater runoff.

**Effective control of runoff from construction sites is accomplished** through SWPPPS prepared by construction site operators and reviewed during local permitting. Inspections ensure that erosion and sediment controls are in place and functioning during and, where necessary, after construction.

**Construction site operators** routinely implement stormwater plans. Architects, engineers and designers follow state technical standards for stormwater control measures. Permanent controls remain on the site as needed after construction.

## Pollution Prevention/Good Housekeeping

**Activities like road construction and maintenance do not contribute polluted stormwater or excess runoff.** The municipality or public institution maintains its own stormwater management facilities/practices, improving stormwater systems when the opportunity arises.

**Municipal and institutional employees use good housekeeping and pollution prevention.** Training, plus good housekeeping standards in project plans and employee evaluations, keep stormwater at the forefront of awareness.

**Environmentally friendly road construction, plus restoration/protection of stream buffers and wetlands, make management of stormwater runoff easier,** and provide models of best management practices for developers to follow.

## Program Management

**Resource assessment** provides continually-updated information for stormwater management, and local planning takes stormwater runoff into account.

**Stormwater program management** is characterized by efficient integration and coordination within municipal government and by intermunicipal watershed management and program cooperation.



# Appendices

Appendix 1 - Sample Stormwater Management Local Law

Appendix 2 - Land Use Planning and Stormwater Management

Appendix 3 - Local Law for Utilization of the Beecher Creek  
Detention Facility, Town of Elmira

Appendix 4 - Stormwater Management Resources

Appendix 5 - Glossary of Stormwater Management Terms



# Sample Local Law for Stormwater Management and Erosion & Sediment Control

A local law to amend the (**Zoning Law/Subdivision Law/Site Plan Review Law/Erosion and Sediment Control Law**) of the ((**City/Town/Village**) of \_\_\_\_\_), Local law Number \_\_\_\_\_ of the Year \_\_\_\_\_.

*☞Article 1 and Article 2 must be adopted for proper implementation. The municipality and its legal counsel, after reviewing their local codes and this model language, should pick additional provisions from Articles 3, 4, 5 and 6 to ensure review and enforcement of stormwater pollution prevention plans at the local level.*

Be it enacted by the (**City Council/Town Board/Village Board of Trustees**) of the ((**City/Town/Village**) of \_\_\_\_\_) as follows:

## **Article 1. General Provisions**

### **Section 1. Findings of Fact**

It is hereby determined that:

- 1.1 Land development activities and associated increases in site impervious cover often alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, or sediment transport and deposition;
- 1.2 This stormwater runoff contributes to increased quantities of water-borne pollutants, including siltation of aquatic habitat for fish and other desirable species;
- 1.3 Clearing and grading during construction tends to increase soil erosion and add to the loss of native vegetation necessary for terrestrial and aquatic habitat;
- 1.4 Improper design and construction of stormwater management practices can increase the velocity of stormwater runoff thereby increasing stream bank erosion and sedimentation;
- 1.5 Impervious surfaces allow less water to percolate into the soil, thereby decreasing groundwater recharge and stream baseflow;
- 1.6 Substantial economic losses can result from these adverse impacts on the waters of the municipality;
- 1.7 Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from land development activities;
- 1.8 The regulation of stormwater runoff discharges from land development activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will minimize threats to public health and safety.
- 1.9 Regulation of land development activities by means of performance standards governing stormwater management and site design will produce development compatible with the natural functions of a particular site or an entire watershed and thereby mitigate the adverse effects of erosion and sedimentation from development.

## Sample Local Law for Stormwater Management and Erosion & Sediment Control

### Introduction

This model local law is intended to be a guidance tool for communities that are subject to the Municipal Separate Storm Sewer System (MS4) Phase II stormwater management requirements of the National Pollutant Discharge Elimination System (NPDES) regulations, administered by New York State through the State Pollutant Discharge Elimination System (SPDES) regulations. The goal of providing this model law is to assist communities in amending existing laws and ordinances and/or adopting new provisions of local law to meet the new federal and state guidelines for stormwater control. In designing a model stormwater law for a New York State audience, we include suggestions for standard language and concepts that we believe a good stormwater management program should contain. This local law should not be construed as an exhaustive listing of all the language needed for a local law, but represents a good base that communities can build upon and customize to be consistent with the local conditions and staff resources available in their municipality.

Throughout the local law, there are sections in which you must insert the name of your municipality and the agency that you have given regulatory power over stormwater management issues. These sections are denoted by **bold** text placed in brackets. By using this document and customizing these sections, you can create a viable local law with minimal editing. Municipalities should work with their municipal attorney throughout the process.

Italicized text with this symbol ☞ should be interpreted as comments, instructions, or information to assist the local law writer. This text *should not appear* in your final local law.

### Local Law Contents

<b>Local Law title and enacting clause</b>	<b>1</b>
<b>Article 1 - General Provisions</b>	<b>1</b>
<b>Article 2 - Amendment to Zoning Law</b>	<b>4</b>
<b>Article 3 - Amendment to Subdivision Law</b>	<b>11</b>
<b>Article 4 - Amendment to Site Plan Review Law</b>	<b>12</b>
<b>Article 5 - Amendment to Erosion &amp; Sediment Control Law</b>	<b>12</b>
<b>Article 6 - Administration and Enforcement</b>	<b>12</b>
<b>Schedule A - Stormwater Management Practices Acceptable for Water Quality</b>	<b>17</b>
<b>Schedule B - Sample Stormwater Control Facility Maintenance Agreement</b>	<b>18</b>

## Section 2. Purpose

The purpose of this local law is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing within this jurisdiction and to address the findings of fact in Section 1 hereof. This local law seeks to meet those purposes by achieving the following objectives:

- 2.1 Meet the requirements of minimum measures 4 and 5 of the SPDES General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s), Permit no. GP-02-02 or as amended or revised;
- 2.2 Require land development activities to conform to the substantive requirements of the NYS Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities GP-02-01 or as amended or revised;
- 2.3 Minimize increases in stormwater runoff from land development activities in order to reduce flooding, siltation, increases in stream temperature, and streambank erosion and maintain the integrity of stream channels;
- 2.4 Minimize increases in pollution caused by stormwater runoff from land development activities which would otherwise degrade local water quality;
- 2.5 Minimize the total annual volume of stormwater runoff which flows from any specific site during and following development to the maximum extent practicable; and
- 2.6 Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management practices and to ensure that these management practices are properly maintained and eliminate threats to public safety.

☞ *The above list is a general set of objectives to reduce the impact of stormwater on receiving waters. Section 2.1 applies to regulated MS4s; a municipality not currently under this program may wish to leave this objective out, although the community may become regulated in the future. The advantage to adopting a local law for all municipalities is that the local government then has control over review and approval of Stormwater Pollution Prevention Plans (SWPPPs) during subdivision and site plan review. The local government may also wish to set some more specific objectives, based on priority water quality (refer to New York State 303 (d) list of priority waters at [www.dec.state.ny.us/website/dow/303dcalm.html](http://www.dec.state.ny.us/website/dow/303dcalm.html)) and habitat problems (e.g., to reduce phosphorus loads being delivered to recreational lakes, to sustain a Class TS trout fishery).*

## Section 3. Statutory Authority

In accordance with Article 10 of the Municipal Home Rule Law of the State of New York, the **(City Council/Town Board/Village Board of Trustees of \_\_\_\_\_)** has the authority to enact local laws and amend local laws and for the purpose of promoting the health, safety or general welfare of the **((City/Town/Village) of \_\_\_\_\_)** and for the protection and enhancement of its physical environment. The **(City Council/Town Board/Village Board of Trustees of \_\_\_\_\_)** may include in any such local law provisions for the appointment of any municipal officer, employees, or independent contractor to effectuate, administer and enforce such local law.

## Section 4. Applicability

- 4.1 This local law shall be applicable to all land development activities as defined in this local law, Article 2, Section 1.
- 4.2 The municipality shall designate a Stormwater Management Officer who shall accept and review all

stormwater pollution prevention plans and forward such plans to the applicable municipal board. The Stormwater Management Officer may (1) review the plans, (2) upon approval by the ((City Council/Town Board/Village Board of Trustees) of the (Town/Village/City) of \_\_\_\_\_), engage the services of a registered professional engineer to review the plans, specifications and related documents at a cost not to exceed a fee schedule established by said governing board, or (3) accept the certification of a licensed professional that the plans conform to the requirements of this law.

- 4.3 All land development activities subject to review and approval by the **(applicable board of the (City/Town Village) of \_\_\_\_\_)** under **(subdivision, site plan, and/or special permit)** regulations shall be reviewed subject to the standards contained in this local law
- 4.4 All land development activities not subject to review as stated in section 4.3 shall be required to submit a Stormwater Pollution Prevention Plan (SWPPP) to the Stormwater Management Officer who shall approve the SWPPP if it complies with the requirements of this law.

## **Section 5. Exemptions**

The following activities may be exempt from review under this law.

☞ *The municipality may elect to include some or all of the exemptions in Section 5.*

- 5.1 Agricultural activity as defined in this local law.
- 5.2 Silvicultural activity except that landing areas and log haul roads are subject to this law.
- 5.3 Routine maintenance activities that disturb less than five acres and are performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility.
- 5.4 Repairs to any stormwater management practice or facility deemed necessary by the Stormwater Management Officer.
- 5.5 Any part of a subdivision if a plat for the subdivision has been approved by the **((City/Town/Village) of \_\_\_\_\_)** on or before the effective date of this law.
- 5.6 Land development activities for which a building permit has been approved on or before the effective date of this law.
- 5.7 Cemetery graves.
- 5.8 Installation of fence, sign, telephone, and electric poles and other kinds of posts or poles.
- 5.9 Emergency activity immediately necessary to protect life, property or natural resources.
- 5.10 Activities of an individual engaging in home gardening by growing flowers, vegetable and other plants primarily for use by that person and his or her family.
- 5.11 Landscaping and horticultural activities in connection with an existing structure.

## **Article 2. Zoning Law Amendment: Stormwater Control**

☞ *Municipalities that do not have zoning should add the language in Article 2 to Article 3 (Subdivision Regulation Amendment) or Article 4 (Site Plan Review Law Amendment) as applicable for their municipality.*

The Zoning Law is hereby amended to include Article \_\_\_\_, a new supplemental regulation titled Stormwater Control.

## Section 1. Definitions

The terms used in this local law or in documents prepared or reviewed under this local law shall have the meaning as set forth in this section.

*☞ Definitions should be incorporated into the appropriate section of the municipality's zoning law which contains definitions.*

**Agricultural Activity** - the activity of an active farm including grazing and watering livestock, irrigating crops, harvesting crops, using land for growing agricultural products, and cutting timber for sale, but shall not include the operation of a dude ranch or similar operation, or the construction of new structures associated with agricultural activities.

**Applicant** - a property owner or agent of a property owner who has filed an application for a land development activity.

**Building** - any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.

**Channel** - a natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

**Clearing** - any activity that removes the vegetative surface cover.

**Dedication** - the deliberate appropriation of property by its owner for general public use.

**Department** - the New York State Department of Environmental Conservation

**Design Manual** - the *New York State Stormwater Management Design Manual*, most recent version including applicable updates, that serves as the official guide for stormwater management principles, methods and practices.

**Developer** - a person who undertakes land development activities.

**Erosion Control Manual** - the most recent version of the "New York Standards and Specifications for Erosion and Sediment Control" manual, commonly known as the "Blue Book".

**Grading** - excavation or fill of material, including the resulting conditions thereof.

**Impervious Cover** - those surfaces, improvements and structures that cannot effectively infiltrate rainfall, snow melt and water (e.g., building rooftops, pavement, sidewalks, driveways, etc).

**Industrial Stormwater Permit** - a State Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

**Infiltration** - the process of percolating stormwater into the subsoil.

**Jurisdictional Wetland** - an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

**Land Development Activity** - construction activity including clearing, grading, excavating, soil disturbance or placement of fill that results in land disturbance of equal to or greater than one acre (*see Note*), or activities disturbing less than one acre of total land area that is part of a larger common plan of development or sale, even though multiple separate and distinct land development activities may take place at different times on different schedules.

*☞ A community should review their local site plan, subdivision, zoning and erosion & sediment control laws and ordinances to see if there are minimum land disturbance requirements already specified in those laws. To meet the SPDES guidelines under GP-02-02, the municipality must require SWPPPs for construction activities that result in land disturbance equal to or greater than one acre, or activities disturbing less than one acre if they are part of a larger common plan of development or sale or in a specified watershed. The municipality may wish to reduce this threshold to a lesser amount of disturbance to conform to local standards which may be stricter than the standards set forth in the state regulations. Many communities regulate land disturbance activities of more than 5000 square feet (1/8 acre), with an exemption if the amount of impervious cover created does not exceed 1000 square feet.*

**Landowner** - the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

**Maintenance Agreement** - a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of stormwater management practices.

**Nonpoint Source Pollution** - pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

**Phasing** - clearing a parcel of land in distinct pieces or parts, with the stabilization of each piece completed before the clearing of the next.

**Pollutant of Concern** - sediment or a water quality measurement that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the land development activity.

**Project** - land development activity

**Recharge** - the replenishment of underground water reserves.

**Sediment Control** - measures that prevent eroded sediment from leaving the site.

**Sensitive Areas** - cold water fisheries, shellfish beds, swimming beaches, groundwater recharge areas, water supply reservoirs, habitats for threatened, endangered or special concern species.

**SPDES General Permit for Construction Activities GP-02-01** - A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to developers of construction activities to regulate disturbance of one or more acres of land.

**SPDES General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems GP-02-02** - A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to municipalities to regulate discharges from municipal separate storm sewers for compliance with EPA established water quality standards and/or to specify stormwater control standards

**Stabilization** - the use of practices that prevent exposed soil from eroding.

**Stop Work Order** - an order issued which requires that all construction activity on a site be stopped.

**Stormwater** - rainwater, surface runoff, snowmelt and drainage

**Stormwater Hotspot** - a land use or activity that generates higher concentrations of hydrocarbons, trace metals or toxicants than are found in typical stormwater runoff, based on monitoring studies.

**Stormwater Management** - the use of structural or non-structural practices that are designed to reduce stormwater runoff and mitigate its adverse impacts on property, natural resources and the environment.

**Stormwater Management Facility** - one or a series of stormwater management practices installed, stabilized and operating for the purpose of controlling stormwater runoff.

**Stormwater Management Officer** - an employee or officer designated by the municipality to accept and review stormwater pollution prevention plans, forward the plans to the applicable municipal board and inspect stormwater management practices.

*☞The Stormwater Management Officer would likely be the Code Enforcement Officer or his/her staff. A consultant cannot be appointed as Stormwater Management Officer. Plan reviews and site inspections may be delegated to a consultant paid for through the applicant's escrow account, however the final approval must be made by a municipal employee or board member.*

**Stormwater Management Practices (SMPs)** - measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing flood damage and preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

**Stormwater Pollution Prevention Plan (SWPPP)** - a plan for controlling stormwater runoff and pollutants from a site during and after construction activities.

**Stormwater Runoff** - flow on the surface of the ground, resulting from precipitation

**Surface Waters of the State of New York** - lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

Storm sewers and waste treatment systems, including treatment ponds or lagoons which also meet the criteria of this definition are not waters of the state. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the state (such as a disposal area in wetlands) nor resulted from impoundment of waters of the state.

**Watercourse** - a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

**Waterway** - a channel that directs surface runoff to a watercourse or to the public storm drain.



## **Section 2. Stormwater Pollution Prevention Plans**

### **2.1. Stormwater Pollution Prevention Plan Requirement**

No application for approval of a land development activity shall be reviewed until the appropriate board has received a Stormwater Pollution Prevention Plan (SWPPP) prepared in accordance with the specifications in this local law.

### **2.2 Contents of Stormwater Pollution Prevention Plans**

- 2.2.1 All SWPPPs shall provide the following background information and erosion and sediment controls:
1. Background information about the scope of the project, including location, type and size of project.
  2. Site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharges(s);  
*↻ Site map should be at a scale no smaller than 1"=100' (e.g. 1"=500" is smaller than 1"=100")*
  3. Description of the soil(s) present at the site;
  4. Construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Standards and Specifications for Erosion and Sediment Control (Erosion Control Manual), not more than five (5) acres shall be disturbed at any one time unless pursuant to an approved SWPPP.  
*↻ A municipality may choose to reduce the amount of land that may be exposed at any one time.*
  5. Description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in stormwater runoff;
  6. Description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;
  7. Temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land clearing and grubbing to project close-out;
  8. A site map/construction drawing(s) specifying the location(s), size(s) and length(s) of each erosion and sediment control practice;
  9. Dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;
  10. Temporary practices that will be converted to permanent control measures;
  11. Implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and duration that each practice should remain in place;
  12. Maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practice;
  13. Name(s) of the receiving water(s);
  14. Delineation of SWPPP implementation responsibilities for each part of the site;

15. Description of structural practices designed to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

16. Any existing data that describes the stormwater runoff at the site.

2.2.2 Land development activities as defined in Section 1 of this Article and meeting Condition “A”, “B” or “C” below shall also include water quantity and water quality controls (post-construction stormwater runoff controls) as set forth in Section 2.2.3 below as applicable:

**Condition A** - Stormwater runoff from land development activities discharging a pollutant of concern to either an impaired water identified on the Department’s 303(d) list of impaired waters or a Total Maximum Daily Load (TMDL) designated watershed for which pollutants in stormwater have been identified as a source of the impairment.

**Condition B** - Stormwater runoff from land development activities disturbing five (5) or more acres.

**Condition C** - Stormwater runoff from land development activity disturbing between one (1) and five (5) acres of land during the course of the project, exclusive of the construction of single family residences and construction activities at agricultural properties.

2.2.3 SWPPP Requirements for Condition A, B and C:

1. All information in Section 2.2 .1 of this local law
2. Description of each post-construction stormwater management practice;
3. Site map/construction drawing(s) showing the specific location(s) and size(s) of each post-construction stormwater management practice;
4. Hydrologic and hydraulic analysis for all structural components of the stormwater management system for the applicable design storms
5. Comparison of post-development stormwater runoff conditions with pre-development conditions
6. Dimensions, material specifications and installation details for each post-construction stormwater management practice;
7. Maintenance schedule to ensure continuous and effective operation of each post-construction stormwater management practice.
8. Maintenance easements to ensure access to all stormwater management practices at the site for the purpose of inspection and repair. Easements shall be recorded on the plan and shall remain in effect with transfer of title to the property.
9. Inspection and maintenance agreement binding on all subsequent landowners served by the on-site stormwater management measures in accordance with Article 2, Section 4 of this local law.

### **2.3 Plan Certification**

The SWPPP shall be prepared by a landscape architect, certified professional or professional engineer and must be signed by the professional preparing the plan, who shall certify that the design of all stormwater management practices meet the requirements in this local law.

### **2.4 Other Environmental Permits**

The applicant shall assure that all other applicable environmental permits have been or will be acquired for the land development activity prior to approval of the final stormwater design plan.

## 2.5 Contractor Certification

- 2.5.1 Each contractor and subcontractor identified in the SWPPP who will be involved in soil disturbance and/or stormwater management practice installation shall sign and date a copy of the following certification statement before undertaking any land development activity : “I certify under penalty of law that I understand and agree to comply with the terms and conditions of the Stormwater Pollution Prevention Plan. I also understand that it is unlawful for any person to cause or contribute to a violation of water quality standards.”
  - 2.5.2 The certification must include the name and title of the person providing the signature, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.
  - 2.5.3 The certification statement(s) shall become part of the SWPPP for the land development activity.
- 2.6 A copy of the SWPPP shall be retained at the site of the land development activity during construction from the date of initiation of construction activities to the date of final stabilization.

## Section 3. Performance and Design Criteria for Stormwater Management and Erosion and Sediment Control

All land development activities shall be subject to the following performance and design criteria:

### 3.1 Technical Standards

For the purpose of this local law, the following documents shall serve as the official guides and specifications for stormwater management. Stormwater management practices that are designed and constructed in accordance with these technical documents shall be presumed to meet the standards imposed by this law:

- 3.1.1 The New York State Stormwater Management Design Manual (New York State Department of Environmental Conservation, most current version or its successor, hereafter referred to as the Design Manual)
- 3.1.2 New York Standards and Specifications for Erosion and Sediment Control, (Empire State Chapter of the Soil and Water Conservation Society, 2004, most current version or its successor, hereafter referred to as the Erosion Control Manual).

### 3.2 Water Quality Standards

- 3.2.1 Any land development activity shall not cause an increase in turbidity that will result in substantial visible contrast to natural conditions in surface waters of the state of New York.  
☞ *The New York State technical guidance documents may be ordered from The Department. An order form as well as downloadable versions of the Manuals are available on the Internet at: <http://www.dec.state.ny.us/website/dow/toolbox/escstandards/index.html>*

## Section 4. Maintenance and Repair of Stormwater Facilities

### 4.1 Maintenance During Construction

- 4.1.1 The applicant or developer of the land development activity shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the applicant or developer to achieve compliance with the conditions of this local law. Sediment shall be removed from sediment traps or sediment ponds whenever their design capacity has been reduced by fifty (50) percent.
- 4.1.2 The applicant or developer or their representative shall be on site at all times when construction or

grading activity takes place and shall inspect and document the effectiveness of all erosion and sediment control practices. Inspection reports shall be completed every 7 days and within 24 hours of any storm event producing 0.5 inches of precipitation or more. The reports shall be delivered to the Stormwater Management Officer and also copied to the site log book.

#### **4.2 Maintenance Easement(s)**

Prior to the issuance of any approval that has a stormwater management facility as one of the requirements, the applicant or developer must execute a maintenance easement agreement that shall be binding on all subsequent landowners served by the stormwater management facility. The easement shall provide for access to the facility at reasonable times for periodic inspection by the ((City/Town/Village) of \_\_\_\_\_) to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this local law. The easement shall be recorded by the grantor in the office of the County Clerk after approval by the counsel for the ((City/Town/Village) of \_\_\_\_\_).

#### **4.3 Maintenance after Construction**

The owner or operator of permanent stormwater management practices installed in accordance with this law shall be operated and maintained to achieve the goals of this law. Proper operation and maintenance also includes as a minimum, the following:

- 4.3.1 A preventive/corrective maintenance program for all critical facilities and systems of treatment and control (or related appurtenances) which are installed or used by the owner or operator to achieve the goals of this law.
- 4.3.2 Written procedures for operation and maintenance and training new maintenance personnel.
- 4.3.3 Discharges from the SMPs shall not exceed design criteria or cause or contribute to water quality standard violations in accordance with Article 2, section 3.2.

#### **4.4 Maintenance Agreements**

The ((City/Town/Village) of \_\_\_\_\_) shall approve a formal maintenance agreement for stormwater management facilities binding on all subsequent landowners and recorded in the office of the County Clerk as a deed restriction on the property prior to final plan approval. The maintenance agreement shall be consistent with the terms and conditions of Schedule B of this local law entitled Sample Stormwater Control Facility Maintenance Agreement. The ((City/Town/Village) of \_\_\_\_\_), in lieu of a maintenance agreement, at its sole discretion may accept dedication of any existing or future stormwater management facility, provided such facility meets all the requirements of this local law and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

### **Section 5. Severability and Effective Date**

#### **5.1 Severability**

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this local law shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this local law.

#### **5.2 Effective Date**

This Local Law shall be effective upon filing with the office of the Secretary of State.  
Approved by: \_\_\_\_\_ Date \_\_\_\_\_

### **Article 3. Subdivision Regulation Amendment**

Sections \_\_\_ and \_\_\_ of the Subdivision Regulations of the ((City/Town/Village) of \_\_\_\_\_) are hereby amended by adding the following to the information requirements:

A. For Preliminary Subdivision Plat add: Stormwater Pollution Prevention Plan: A Stormwater Pollution Prevention Plan (SWPPP) consistent with the requirements of Article 1 and 2 of this local law shall be required for Preliminary Subdivision Plat approval. The SWPPP shall meet the performance and design criteria and standards in Article 2 of this local law. The approved Preliminary Subdivision Plat shall be consistent with the provisions of this local law.

B. For Final Subdivision Plat approval add: Stormwater Pollution Prevention Plan: A Stormwater Pollution Prevention Plan consistent with the requirements of Article 1 and 2 of this local law and with the terms of preliminary plan approval shall be required for Final Subdivision Plat approval. The SWPPP shall meet the performance and design criteria and standards in Article 2 of this local law. The approved Final Subdivision Plat shall be consistent with the provisions of this local law.

➤ *If the municipality has only one requirement for a final plan (no preliminary) then use Paragraph A language only.*

### **Article 4. Site Plan Review Regulation Amendment**

Sections \_\_\_ and \_\_\_ of the Site Plan Review regulations of the ((City/Town/Village) of \_\_\_\_\_) are hereby amended by adding the following to the information requirements:

***For Site Plan Approval add:*** Stormwater Pollution Prevention Plan: A Stormwater Pollution Prevention Plan consistent with the requirements of Article 1 and 2 of this local law shall be required for Site Plan Approval. The SWPPP shall meet the performance and design criteria and standards in Article 2 of this local law. The approved Site Plan shall be consistent with the provisions of this local law.

### **Article 5. Erosion & Sediment Control Law Amendment**

The Erosion & Sediment Control Law of the ((City/Town/Village) of \_\_\_\_\_) is hereby repealed and replaced with the New York State Model Erosion and Sediment Control Ordinance, March 2003.

➤ *The New York State Model Erosion and Sediment Control Law should be tailored to the municipality by inserting municipality name where appropriate and removing comment lines.*

***OR***

Section \_\_\_\_\_ of the Erosion & Sediment Control Law of the ((City/Town/Village) of \_\_\_\_\_) is hereby amended by adding the following clause: Stormwater Pollution Prevention Plan: A Stormwater Pollution Prevention Plan consistent with the requirements of Article 1 and 2 of this local law shall be required. The SWPPP shall meet the performance and design criteria and standards in Article 2 of this local law. The approved erosion control permit shall be consistent with the provisions of this local law.

➤ *For both options in Article 5, the municipality must also adopt Articles 1, 2, 3 and 4 (as applicable for their municipality) in order to address post-construction stormwater runoff control in stormwater pollution prevention plans.*

## **Article 6. Administration and Enforcement**

*∴The following provisions for construction inspection, performance guarantees and bonds, and enforcement are important to include in a stormwater control program, but may already exist in local law. Therefore the municipality and its counsel should review their existing provisions for these activities, compare them with the following provisions, and consider whether revisions or amendments are necessary to achieve the purposes of this local law.*

### **Section 1. Construction Inspection**

#### **1.1 Erosion and Sediment Control Inspection**

The ((City/Town/Village) of \_\_\_\_\_) Stormwater Management Officer may require such inspections as necessary to determine compliance with this law and may either approve that portion of the work completed or notify the applicant wherein the work fails to comply with the requirements of this law and the stormwater pollution prevention plan (SWPPP) as approved. To obtain inspections, the applicant shall notify the ((City/Town/Village) of \_\_\_\_\_) enforcement official at least 48 hours before any of the following as required by the Stormwater Management Officer:

- 1.1.1 Start of construction
- 1.1.2 Installation of sediment and erosion control measures
- 1.1.3 Completion of site clearing
- 1.1.4 Completion of rough grading
- 1.1.5 Completion of final grading
- 1.1.6 Close of the construction season
- 1.1.7 Completion of final landscaping
- 1.1.8 Successful establishment of landscaping in public areas.

If any violations are found, the applicant and developer shall be notified in writing of the nature of the violation and the required corrective actions. No further work shall be conducted except for site stabilization until any violations are corrected and all work previously completed has received approval by the Stormwater Management Officer.

#### **1.2 Stormwater Management Practice Inspections**

The ((City/Town/Village) of \_\_\_\_\_) Stormwater Management Officer, is responsible for conducting inspections of stormwater management practices (SMPs). All applicants are required to submit “as built” plans for any stormwater management practices located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer.

#### **1.3 Inspection of Stormwater Facilities After Project Completion**

Inspection programs shall be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the SPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other stormwater management practices.

*∴Inspections may be performed by local government staff or the local government may designate an inspector required to have a Professional Engineer’s (PE) license or Certified Professional in Erosion and Sediment Control (CPESC) certificate, as long as the designated inspector is required to submit a report.*

#### **1.4 Submission of Reports**

The ((City/Town/Village) of \_\_\_\_\_) Stormwater Management Officer may require monitoring and reporting from entities subject to this law as are necessary to determine compliance with this law.

#### **1.5 Right-of-Entry for Inspection**

When any new stormwater management facility is installed on private property or when any new connection is made between private property and the public storm water system, the landowner shall grant to the ((City/Town/Village) of \_\_\_\_\_) the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection as specified in paragraph 1.3.

### **Section 2. Performance Guarantee**

#### **2.1 Construction Completion Guarantee**

In order to ensure the full and faithful completion of all land development activities related to compliance with all conditions set forth by the ((City/Town/Village) of \_\_\_\_\_) in its approval of the Stormwater Pollution Prevention Plan, the ((City/Town/Village) of \_\_\_\_\_) may require the applicant or developer to provide, prior to construction, a performance bond, cash escrow, or irrevocable letter of credit from an appropriate financial or surety institution which guarantees satisfactory completion of the project and names the ((City/Town/Village) of \_\_\_\_\_) as the beneficiary. The security shall be in an amount to be determined by the ((City/Town/Village) of \_\_\_\_\_) based on submission of final design plans, with reference to actual construction and landscaping costs. The performance guarantee shall remain in force until the surety is released from liability by the ((City/Town/Village) of \_\_\_\_\_), provided that such period shall not be less than one year from the date of final acceptance or such other certification that the facility(ies) have been constructed in accordance with the approved plans and specifications and that a one year inspection has been conducted and the facilities have been found to be acceptable to the ((City/Town/Village) of \_\_\_\_\_). Per annum interest on cash escrow deposits shall be reinvested in the account until the surety is released from liability.

#### **2.2 Maintenance Guarantee**

Where stormwater management and erosion and sediment control facilities are to be operated and maintained by the developer or by a corporation that owns or manages a commercial or industrial facility, the developer, prior to construction, may be required to provide the ((City/Town/Village) of \_\_\_\_\_) with an irrevocable letter of credit from an approved financial institution or surety to ensure proper operation and maintenance of all stormwater management and erosion control facilities both during and after construction, and until the facilities are removed from operation. If the developer or landowner fails to properly operate and maintain stormwater management and erosion and sediment control facilities, the ((City/Town/Village) of \_\_\_\_\_) may draw upon the account to cover the costs of proper operation and maintenance, including engineering and inspection costs.

#### **2.3 Record keeping**

The ((City/Town/Village) of \_\_\_\_\_) may require entities subject to this law to maintain records demonstrating compliance with this law.

### **Section 3. Enforcement and Penalties**

#### **3.1 Notice of Violation.**

When the ((City/Town/Village) of \_\_\_\_\_) determines that a land development activity is not being carried out in accordance with the requirements of this local law, it may issue a written notice of violation to the landowner. The notice of violation shall contain :

- 3.1.1 the name and address of the landowner, developer or applicant;

- 3.1.2 the address when available or a description of the building, structure or land upon which the violation is occurring;
- 3.1.3 a statement specifying the nature of the violation;
- 3.1.4 a description of the remedial measures necessary to bring the land development activity into compliance with this local law and a time schedule for the completion of such remedial action;
- 3.1.5 a statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;
- 3.1.6 a statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within fifteen (15) days of service of notice of violation.

### **3.2 Stop Work Orders**

The ((City/Town/Village) of \_\_\_\_\_ ) may issue a stop work order for violations of this law. Persons receiving a stop work order shall be required to halt all land development activities, except those activities that address the violations leading to the stop work order. The stop work order shall be in effect until the ((City/Town/Village) of \_\_\_\_\_ ) confirms that the land development activity is in compliance and the violation has been satisfactorily addressed. Failure to address a stop work order in a timely manner may result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this local law.

### **3.3 Violations**

Any land development activity that is commenced or is conducted contrary to this local law, may be restrained by injunction or otherwise abated in a manner provided by law.

### **3.4 Penalties**

In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this local law shall be guilty of a violation punishable by a fine not exceeding three hundred fifty dollars (\$350) or imprisonment for a period not to exceed six months, or both for conviction of a first offense; for conviction of a second offense both of which were committed within a period of five years, punishable by a fine not less than three hundred fifty dollars nor more than seven hundred dollars (\$700) or imprisonment for a period not to exceed six months, or both; and upon conviction for a third or subsequent offense all of which were committed within a period of five years, punishable by a fine not less than seven hundred dollars nor more than one thousand dollars (\$1000) or imprisonment for a period not to exceed six months, or both. However, for the purposes of conferring jurisdiction upon courts and judicial officers generally, violations of this local law shall be deemed misdemeanors and for such purpose only all provisions of law relating to misdemeanors shall apply to such violations. Each week's continued violation shall constitute a separate additional violation.

### **3.5 Withholding of Certificate of Occupancy**

If any building or land development activity is installed or conducted in violation of this local law the Stormwater Management Officer may prevent the occupancy of said building or land.

### **3.6 Restoration of lands**

Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the ((City/Town/Village) of \_\_\_\_\_ ) may take necessary corrective action, the cost of which shall become a lien upon the property until paid.

## **Section 4. Fees for Services**

The ((City/Town/Village) of \_\_\_\_\_ ) may require any person undertaking land development activities regulated by this law to pay reasonable costs at prevailing rates for review of SWPPPs, inspections, or SMP maintenance performed by the ((City/Town/Village) of \_\_\_\_\_ ) or performed by a third party for the ((City/Town/Village) of \_\_\_\_\_ ) .



## Schedule A

<b>Stormwater Management Practices Acceptable for Water Quality</b> <i>(From: New York State Stormwater Management Design Manual, Table 5.1)</i>		
<b>Group</b>	<b>Practice</b>	<b>Description</b>
<b>Pond</b>	Micropool Extended Detention Pond (P-1)	Pond that treats the majority of the water quality volume through extended detention, and incorporates a micropool at the outlet of the pond to prevent sediment resuspension.
	Wet Pond (P-2)	Pond that provides storage for the entire water quality volume in the permanent pool.
	Wet Extended Detention Pond (P-3)	Pond that treats a portion of the water quality volume by detaining storm flows above a permanent pool for a specified minimum detention time.
	Multiple Pond System (P-4)	A group of ponds that collectively treat the water quality volume.
	Pocket Pond (P-5)	A stormwater wetland design adapted for the treatment of runoff from small drainage areas that has little or no baseflow available to maintain water elevations and relies on groundwater to maintain a permanent pool.
<b>Wetland</b>	Shallow Wetland (W-1)	A wetland that provides water quality treatment entirely in a shallow marsh.
	Extended Detention Wetland (W-2)	A wetland system that provides some fraction of the water quality volume by detaining storm flows above the marsh surface.
	Pond/Wetland System (W-3)	A wetland system that provides a portion of the water quality volume in the permanent pool of a wet pond that precedes the marsh for a specified minimum detention time.
	Pocket Wetland (W-4)	A shallow wetland design adapted for the treatment of runoff from small drainage areas that has variable water levels and relies on groundwater for its permanent pool.
<b>Infiltration</b>	Infiltration Trench (I-1)	An infiltration practice that stores the water quality volume in the void spaces of a gravel trench before it is infiltrated into the ground.
	Infiltration Basin (I-2)	An infiltration practice that stores the water quality volume in a shallow depression before it is infiltrated into the ground.
	Dry Well (I-3)	An infiltration practice similar in design to the infiltration trench, and best suited for treatment of rooftop runoff.
<b>Filtering Practices</b>	Surface Sand Filter (F-1)	A filtering practice that treats stormwater by settling out larger particles in a sediment chamber, and then filtering stormwater through a sand matrix.
	Underground Sand Filter (F-2)	A filtering practice that treats stormwater as it flows through underground settling and filtering chambers.
	Perimeter Sand Filter (F-3)	A filter that incorporates a sediment chamber and filter bed as parallel vaults adjacent to a parking lot.
	Organic Filter (F-4)	A filtering practice that uses an organic medium such as compost in the filter in place of sand.
	Bioretention (F-5)	A shallow depression that treats stormwater as it flows through a soil matrix, and is returned to the storm drain system.
<b>Open Channels</b>	Dry Swale (O-1)	An open drainage channel or depression explicitly designed to detain and promote the filtration of stormwater runoff into the soil media.
	Wet Swale (O-2)	An open drainage channel or depression designed to retain water or intercept groundwater for water quality treatment.

**Schedule B**

**SAMPLE STORMWATER CONTROL FACILITY  
MAINTENANCE AGREEMENT**

Whereas, the Municipality of \_\_\_\_\_ ("Municipality") and the \_\_\_\_\_ ("facility owner") want to enter into an agreement to provide for the long term maintenance and continuation of stormwater control measures approved by the Municipality for the below named project, and

Whereas, the Municipality and the facility owner desire that the stormwater control measures be built in accordance with the approved project plans and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components. Therefore, the Municipality and the facility owner agree as follows:

1. This agreement binds the Municipality and the facility owner, its successors and assigns, to the maintenance provisions depicted in the approved project plans which are attached as Schedule A of this agreement.
2. The facility owner shall maintain, clean, repair, replace and continue the stormwater control measures depicted in Schedule A as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: drainage ditches, swales, dry wells, infiltrators, drop inlets, pipes, culverts, soil absorption devices and retention ponds.
3. The facility owner shall be responsible for all expenses related to the maintenance of the stormwater control measures and shall establish a means for the collection and distribution of expenses among parties for any commonly owned facilities.
4. The facility owner shall provide for the periodic inspection of the stormwater control measures, not less than once in every five year period, to determine the condition and integrity of the measures. Such inspection shall be performed by a Professional Engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Municipality within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures.
5. The facility owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Municipality.
6. The facility owner shall undertake necessary repairs and replacement of the stormwater control measures at the direction of the Municipality or in accordance with the recommendations of the inspecting engineer.
7. The facility owner shall provide to the Municipality within 30 days of the date of this agreement, a security for the maintenance and continuation of the stormwater control measures in the form of ( a Bond, letter of credit or escrow account).
8. This agreement shall be recorded in the Office of the County Clerk, County of \_\_\_\_\_ together with the deed for the common property and shall be included in the offering plan and/or prospectus approved pursuant to \_\_\_\_\_.
9. If ever the Municipality determines that the facility owner has failed to construct or maintain the stormwater control measures in accordance with the project plan or has failed to undertake corrective action specified by the Municipality or by the inspecting engineer, the Municipality is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and to affix the expenses thereof as a lien against the property.
10. This agreement is effective \_\_\_\_\_ .

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*From: Lake George Park Commission Model Stormwater Management Ordinance, Schedule E*

## **Land Use Planning and Stormwater Management**

### **Comprehensive Planning**

The Comprehensive Plan serves three key functions:

- **Expression of a community's desires:** Concerned with values and methods.
- **Guide to Decision-makers:** Implementation strategies adopted based on the plan's recommendations.
- **Legal Document:** Provides evidence of coordinated effort and rationale for adoption of specified actions.

### **Steps in Comprehensive Planning**

There are five primary steps or phases in the comprehensive planning process:

1. **Research** - Includes study and analysis; issue identification; assessment of existing characteristics/present state of events and probable future trends/directions; analysis of environmental and economic constraints/potential problems.
2. **Community Goals and Objectives** - Determine the municipality's basic goals, or the balances the community wants/needs to achieve; base goals on values and statutory requirements. Planning goals should not be contradictory and should have a reasonable chance of actually coming to pass.
3. **Plan/Policy Preparation and Formulation** - Assess the options available to achieve defined goals and objectives and consider their respective costs and merits. Assess direct and indirect costs, risks/benefits associated with different options.
4. **Plan Implementation** - Identify the tools available to carry out the plans, including: zoning ordinances; land subdivision regulations; capital improvements programs, and general guidelines for private development and public investment. Within each of these general options, there are a range of tools in the toolbox for the community's consideration and adoption.
5. **Review and Updating** - Conduct a periodic review of problems and progress, which includes evaluation to determine if goals are realistic, if the pattern of development is occurring as anticipated, whether unforeseen occurrences are taking shape. Goals may change as realities both inside and outside the municipality change. Planning activity and responsibility is dynamic and ongoing and not static.

It is important to understand that planning is not just a series of orderly steps; rather; it is constantly interwoven into a continuous process that requires oversight and management.

### **Citizen Education and Involvement**

An important component of the planning process is to educate and involve citizens in identifying the challenges the community faces and the resources available to achieve the desired goals and objectives. Citizen participation and input should occur throughout each phase of the planning process. The data collected should be communicated to the stakeholders and their ideas considered.

The process of setting goals and objectives should be an open one that includes citizens and groups who have a stake in the outcome. Stakeholders should also be included in the assessment of options and in evaluating the types of regulations and other actions the locality plans to initiate. This involvement secures community support and avoids future litigation.

**Planning for Productive Local Reviews.** Successful comprehensive plan development requires blend, balance and understanding of the inter-relationships among issues, avoiding specialization and segregation and stressing the interdependence and diversity of issues encountered during the planning process. Review

processes should be “horizontal,” rather than the traditional “vertical” review approach.

An example of the need to balance the diverse viewpoints represented in a typical local government review process is the question of pavement widths to be used in municipal projects. Fire safety officials support wider pavements, while environmental boards may propose reducing the area of impervious surfaces to facilitate stormwater management. Establishing an understanding of these issues and policies during comprehensive planning allows for a coordinated response during the project review phase to determine the best actions. The planning process allows the community to address an issue before it becomes a problem rather than managing a problem that could have been avoided.

## **How Municipalities Shape Land Use**

There are two broad categories of direct actions by which a municipality can shape its land use pattern: public capital investments and land use controls.

### **Public Capital Investments**

Public capital investments, from roads to water and sewer lines to schools, create very powerful economic forces that shape development. Accessibility is an important determinant of land value and the availability of public water and sewer can remove significant environmental constraints and permit a much higher density of development. Unlike land use controls, public investments are not easily altered. A decision to build a roadway or extend water and sewer lines is there to stay for many decades. Public acquisition of land can also be important, because by permanently rendering that land undevelopable, it diverts and channels the flow of development.

Planning is important in helping the community to avoid conflicting goals or implementation strategies. For instance if there is a recommendation to minimize development in a particular part of town, then that policy should not be contradicted by a recommendation that public water and sewer services be extended to that same area.

### **Land Use Control Measures**

Although land use control measures are not quite so powerful at shaping land use as is public investment, they are still extremely important. There are three primary types of regulations: subdivision, zoning and site plan review. Within these general categories, there is a range of other tools available to encourage land development and conservation. The comprehensive plan can be implemented by adopting an appropriate combination of regulatory and non-regulatory land development strategies. By combining these techniques in creative ways, local governments can encourage both land development and resource conservation in conformance to the comprehensive plan.

State law does not require the adoption of a comprehensive plan. However, if a community has an adopted plan, all local land use regulations must be consistent with the community’s comprehensive plan. State statutes do not outline required components of a comprehensive plan; rather, they specify what may be included in a comprehensive plan.

Though public hearings are required prior to the plan’s adoption, the state law does not explain how to undertake the process or whom to engage during the plan’s preparation. The comprehensive plan must be subjected to environmental review, must be consistent with any agricultural district in the community and must be submitted to the county or regional planning board for review and comment. The Plan must also be adopted by the local legislature and upon its adoption, filed in accordance with the law. Where localities have a recently adopted comprehensive plan and conform their regulations to the plan, the regulations are insulated from attack and a successful court challenge<sup>1</sup>.

New York is a strong home rule state, which means that each city, town, and village is delegated the responsibility to enact land use regulations. Though authorized, local governments are not required to adopt land use regulations. If a community adopts land use regulations, it may create a planning board and other special boards to serve in an advisory capacity or as a final review authority for specified actions. Planning

boards must be formed if a subdivision law is adopted, but are not required for site plan review. However, if the local legislature adopts a zoning ordinance, it must create a zoning board of appeals to review appeals of administrative opinions and requests for variances. When the zoning board of appeals hears appeals or grants variances, it is acting in a quasi-judicial capacity. Appeals of their decision go directly to the Courts through an Article 78 proceeding and not to the elected legislative body.

## **Tools for Achieving a Balanced Land Development Pattern**

There are three basic types of control measures and any number of tools and techniques that can be adopted to achieve a balanced land development pattern and to protect the natural resources within a community: The three primary regulatory measures are Zoning, Subdivision Review and Site Plan review.

Generally speaking, there are two parts to the zoning ordinance. The first part is the map that divides the community into a number of zones. The second part is the text, which specifies in detail what uses are permitted in each zone, requirements for structural characteristics, site layout requirements and procedural matters. In New York State, all of the cities, 88 percent of the villages, and 69 percent of the towns have adopted zoning laws<sup>2</sup>.

Subdivision regulations control the manner in which land may be converted into building lots. Before building lots can be sold or improvements made, the municipality must approve a plat map of the property that shows, at a minimum, lot lines, streets, and utility easements. Subdivision regulations also stipulate the specification requirements for the improvements to meet community standards. In New York State, 92 percent of the cities, 71 percent of the towns, and 66 percent of the villages have adopted subdivision regulations<sup>3</sup>.

Site plan review typically applies to developments over a certain size. It provides the community an opportunity to review site characterizes such as internal circulation, adequacy of parking, stormwater management, and buffering from adjacent land uses prior to the issuance of a building permit. Site plan review does not supersede zoning. Rather, it is another layer of review primarily applied to commercial and multi-family development proposals.

Many other measures are available to protect a community's resources and to balance development and conservation. An excellent resource document is the publication entitled *Well Grounded; Using Local Land Use Authority to Achieve Smart Growth* by John Nolon, Professor of Law and Director of the land Use Center at the Pace University School of Law.

## **Stormwater Management and the Municipal Comprehensive/Master Plan**

### **Amending the Comprehensive Plan to Reflect Stormwater Management**

The Comprehensive Plan (also known as the Master Plan) adopted by a municipality is the basis for land use planning in the community. While not required, adoption of a Comprehensive Plan is encouraged in General City Law Section 28-a, Town Law Section 272-a and Village Law Section 7-722. Since New York State law requires that local land use regulations reflect the Comprehensive plan, it is recommended that municipalities that are considering adopting a local law also adopt a short amendment to these plans to reflect the need for stormwater management regulations. If the Comprehensive Plan that is in place already mentions the need to protect the health and welfare of its citizens and natural resources from the impacts of stormwater runoff from development, this would not be necessary.

The following is draft language that localities can use for amending the Comprehensive Plan:

## Draft Comprehensive Plan Amendment

### Stormwater Management

Proper stormwater practices reduce potential damage to properties due to flooding and erosion and can significantly affect stream quality, wildlife habitat and groundwater recharge. The provisions for stormwater management are contained in the \_\_\_\_\_ (**Subdivision, Site Plan, Zoning and/or Erosion & Sediment Control**) regulations and were recently updated to emphasize the use of Best Management Practices.

Existing neighborhoods should be examined for stormwater management problems and steps should be taken to rectify any problems. New development should be strictly scrutinized to incorporate well planned stormwater systems to reduce the impacts of runoff and promote groundwater recharge through the most applicable techniques. All proposed developments should be consistent with the recently updated provisions of the \_\_\_\_\_ (**Subdivision, Site Plan, Zoning and/or Erosion & Sediment Control**) regulations.

*(This amendment was adapted from the North Coventry, Pennsylvania Comprehensive Plan Amendment)*

#### **Other Tools for Natural Resource Protection**

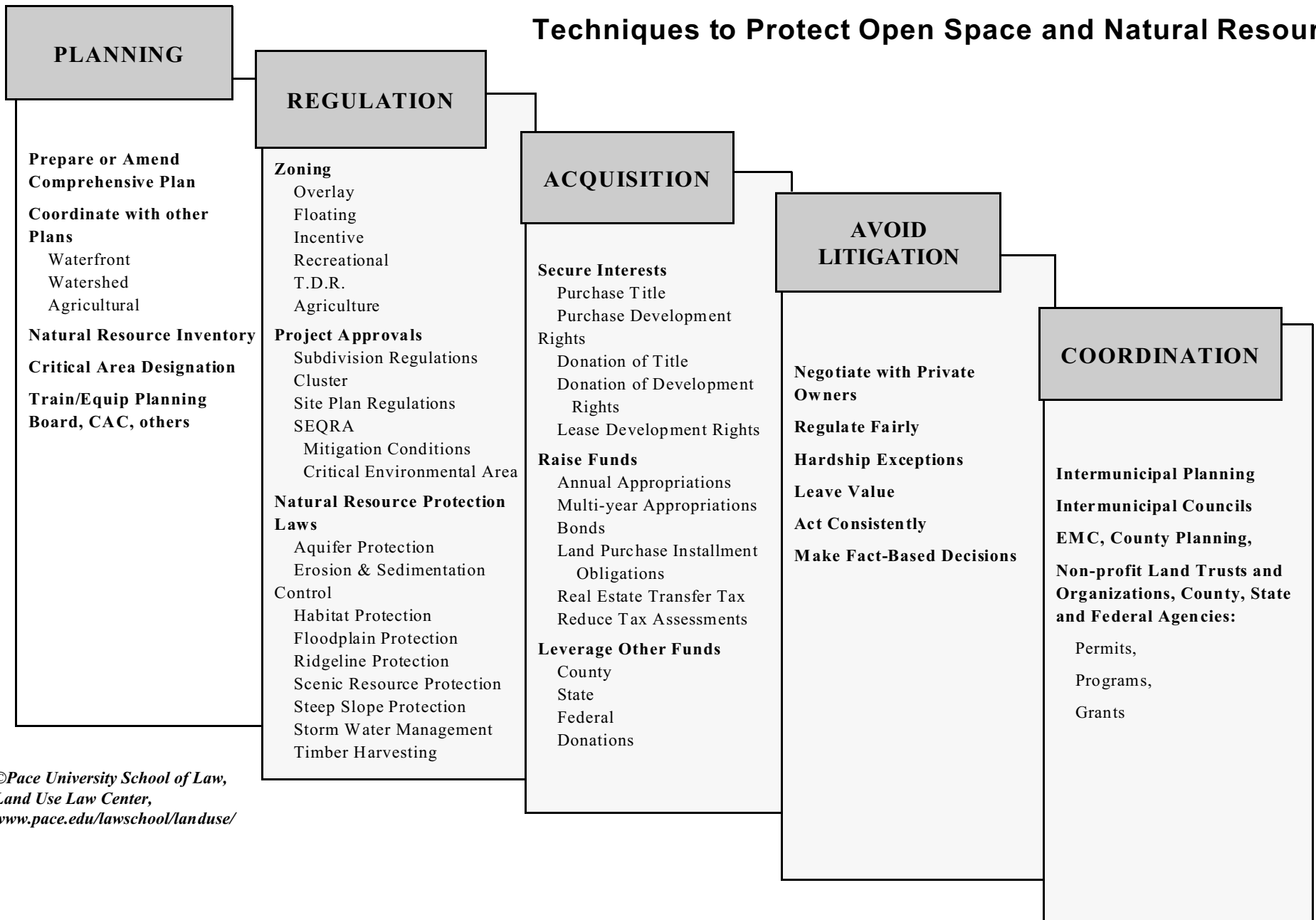
Protecting natural resources is an ongoing task best done by employing as many as possible of the tools available to local governments. The tools listed in the following chart, prepared by Pace University Land Use Law Center, are effective for managing stormwater, as well as for protecting open space.

#### **Footnotes:**

1, 2 and 3

Nolan, John R.: *Well Grounded; Using Local Land Use Authority to Achieve Smart Growth*

# Techniques to Protect Open Space and Natural Resources



## **Appendix 3**

### **Local Law for Utilization of Beecher Creek Detention Facility, Town of Elmira**

#### **SECTION 1: SHORT TITLE**

This Local Law shall be known as the "Local Law for Utilization of the Beecher Creek Detention Facility."

#### **SECTION 2: FINDINGS**

The Town of Elmira regulates stormwater runoff from developing areas in order to minimize the adverse effects that may result from changes in the land cover and grade. Policies have been adopted by the Town of Elmira for the expressed purpose of protecting public and private property from damages that may result from flooding, erosion, and water quality impairment. The management of stormwater runoff is the responsibility of the developer, who assumes the cost of implementing all necessary measures at the time of development.

The Town of Elmira has constructed the Beecher Creek Detention Facility on property owned by the Elmira Country Club. This facility was designed to protect existing development located downstream of the project from flood damages. The volume of water that can be contained by the Beecher Creek Detention Facility exceeds the volume necessary to provide downstream protection. This EXCESS CAPACITY can be utilized to detain increased stormwater discharges from upstream development sites.

#### **SECTION 3: STATEMENT OF PURPOSE**

The purpose of this Local Law is to provide a mechanism by which developers of property located upstream of the Beecher Creek Detention Facility can utilize the EXCESS CAPACITY of this facility to manage the increased stormwater runoff that results from their development activities. Permission to utilize the Beecher Creek Detention Facility will be granted by the Town of Elmira to developers who pay a UTILIZATION FEE to the Town, as specified in this Local Law. Participating developers will retain responsibility for preparing a stormwater management plan meeting stormwater quality standards, implementing interior drainage, and managing stormwater flow into the Beecher Creek Detention Facility. Developers who chose not to utilize the EXCESS CAPACITY of the Beecher Creek Detention Facility will be responsible for managing stormwater runoff in some other manner, as required by Town of Elmira Zoning Ordinance, Subdivision Regulations, and Local Laws.

The anticipated benefits to upstream developers include: (1) reduced costs for the design of stormwater management systems, (2) reduced costs for construction of stormwater management structures, (3) increased ability to utilize property since space need not be preserved for on-site retention/detention of stormwater, and (4) reduced maintenance responsibilities since the Town of Elmira has assumed responsibility for maintenance of the Beecher Creek Detention Facility.

#### **SECTION 4: DEFINITIONS**

**CONSTRUCTED CAPACITY:** The actual volume of stormwater that can be contained by the Beecher Creek Detention Facility during the 100-year, 24-hour storm. The initial CONSTRUCTED CAPACITY is 17.16 acre-feet or 747,490 cubic feet. This may be increased subsequent to project completion by expansion of the facility.

**DESIGN CAPACITY:** The volume of stormwater that the Beecher Creek Detention Facility is designed to contain during the 100-year, 24-hour storm to avoid exceeding the design outflow volume of the facility. This is based on the land uses and runoff characteristics that exist at the time of project design.

**EXCESS CAPACITY:** The difference in volume between the CONSTRUCTED CAPACITY and the DESIGN CAPACITY of the Beecher Creek Detention Facility.

**IMPERVIOUS AREA:** Impermeable surfaces, such as pavement or rooftops, that prevent the percolation of water into the soil.



**INCREASED STORMWATER VOLUME:** The calculated volume of additional stormwater runoff (in excess of the pre-development stormwater runoff) that will be released into the Beecher Creek Detention Facility during the 100-year, 24-hour design storm as a result of a development project.

**MINOR DEVELOPMENT:** Minor construction activities for which hydrologic computation of surface runoff volumes is not needed to insure compliance with the stormwater management requirements of the Town of Elmira Zoning Ordinance, Town of Elmira Subdivision Regulations, Town of Elmira Local Laws, or New York State Regulations (State Pollutant Discharge Elimination System, SPDES).

**TOWN ENGINEER:** The person licensed as a professional engineer by the State of New York who is duly authorized by the Town of Elmira Town Board to act in the capacity specified in this Local Law.

**UTILIZATION FEE:** A fee that will be paid to the Town of Elmira for utilization of the Beecher Creek Detention Facility to manage the INCREASED STORMWATER VOLUME resulting from a development project.

## **SECTION 5: LANDS TO WHICH THIS LOCAL LAW APPLIES**

This Local Law applies to properties within the upper portions of the Beecher Creek Watershed from which surface runoff naturally drains into Beecher Creek upstream of the dam for the Beecher Creek Detention Facility. The tax parcel identification numbers (as identified on the date of this Law) for parcels located partially or completely within this area are:

88.00-1-6.2	88.00-1-12.24	88.00-1-15	88.00-1-12.11	88.00-1-12.25	88.00-1-16
88.00-1-12.12	88.00-1-12.26	88.00-1-17.1	88.00-1-12.2	88.00-1-13.2	88.00-1-31.1
88.00-1-12.22	88.00-1-13.3	88.00-1-32	88.00-1-12.23	88.00-1-14	

## **SECTION 6: BASIS FOR DETERMINING THE AMOUNT OF EXCESS CAPACITY AVAILABLE FOR UTILIZATION**

The *As-Built Drawings for the Beecher Creek Detention Facility* indicate that the initial EXCESS CAPACITY of this facility is 1.4 acre-feet, which is equivalent to 60,984 cubic feet. The total utilization of the Beecher Creek Detention Facility for stormwater detention shall not exceed this EXCESS CAPACITY unless the facility is expanded. The Town of Elmira will retain records pertaining to the design and construction of the Beecher Creek Detention Facility and all subsequent increases in the stormwater discharge into this facility.

In the event that upstream development utilizes all of the EXCESS CAPACITY of the Beecher Creek Detention Facility and additional capacity is desired for further development, the Town of Elmira may choose to expand the facility. The increased capacity provided by such an expansion would be added to the EXCESS CAPACITY of the facility and would become available for utilization by upstream developers in accordance with the provisions of this Local Law.

## **SECTION 7: BASIS FOR DETERMINING THE INCREASED STORMWATER VOLUME FOR A DEVELOPMENT PROJECT**

Any developer who chooses to utilize the Beecher Creek Detention Facility for stormwater management must first determine the volume of increased stormwater that will be directed to this facility as a result of the proposed development. The design storm for these stormwater calculations will be the 100-year, 24-hour rainfall event. The developer may select either of the following procedures for calculating the INCREASED STORMWATER VOLUME that will be released into the Beecher Creek Detention Facility:

- 1) An estimate of the INCREASED STORMWATER VOLUME may be computed using the following formula. It is anticipated that this procedure will be used for MINOR DEVELOPMENT projects to avoid the expense of hydrologic modeling.

**INCREASED STORMWATER VOLUME (ft<sup>3</sup>) = Increased impervious area (ft<sup>2</sup>) x 100-yr, 24-hr Precipitation (ft)** where,  
Increased Impervious Area = the increase in IMPERVIOUS AREA resulting from the development project; and 100-year, 24-hour Precipitation = 0.458 feet (5.5 inches).

- 2) The USDA-NRCS-TR-55 runoff curve number procedure can be used to calculate the INCREASED STORMWATER VOLUME that will be directed to the Beecher Creek Detention Facility as a result of the 100-year,

24-hour precipitation event (post-development runoff minus pre-development runoff). This calculation will be a part of the stormwater management plan for the proposed development and is the developer's responsibility.

The TOWN ENGINEER will review the calculation of INCREASED STORMWATER VOLUME for accuracy and to insure that the volume of stormwater that is proposed to enter the Beecher Creek Detention Facility does not exceed the available EXCESS CAPACITY of the facility. The TOWN ENGINEER may also utilize hydrologic modeling to evaluate the structure's response to the INCREASED STORMWATER VOLUME. The TOWN ENGINEER will provide the Town of Elmira Code Enforcement Officer and Town of Elmira Town Board with recommendations concerning the acceptability of the proposed stormwater management plan. All costs incurred by the Town of Elmira for review shall be reimbursed to the Town by the developer before any building permit is issued.

## **SECTION 8: BASIS FOR ESTABLISHING THE UTILIZATION FEE**

The Town of Elmira will collect a UTILIZATION FEE from any developer whose stormwater management plan for a development project utilizes the Beecher Creek Detention Facility to manage increased stormwater runoff. This fee will be paid prior to issuance of a building permit by the Town.

The amount of the UTILIZATION FEE for the Beecher Creek Detention Facility prior to any expansion is \$25,641 per acre-foot or \$0.59 per cubic foot of INCREASED STORMWATER VOLUME.

If the Beecher Creek Detention Facility is expanded, the UTILIZATION FEE will be determined using the following formula:

$$\text{UTILIZATION FEE} = \frac{\text{Cost of Facility X INCREASED STORMWATER VOLUME}}{\text{CONSTRUCTED CAPACITY}}$$

where,

**Cost of Facility** = The cost of the Beecher Creek Detention Project. This includes design, construction, and expansion of the Beecher Creek Detention Facility. This cost is \$440,000 for initial design and construction of the facility plus the cost of any subsequent expansion.

**INCREASED STORMWATER VOLUME** = The storage capacity that will be utilized by the development project, determined using one of the procedures specified in Section 7 of this Local Law.

**CONSTRUCTED CAPACITY** = The initial CONSTRUCTED CAPACITY of the Beecher Creek Detention Facility of 17.16 acre-feet or 747,490 cubic feet (as specified in the As- Built Drawings for the Beecher Creek Detention Facility) plus the additional capacity enabled by any subsequent expansion of the facility.

## **SECTION 9: ENFORCEMENT**

This Local Law shall be enforced by the Town of Elmira Code Enforcement Officer, in consultation with the TOWN ENGINEER. Decisions made by the Code Enforcement Officer can be appealed to the Town of Elmira Town Board, which shall hear and decide any appeals.

## **SECTION 10: VALIDITY**

If any section, paragraph, subdivision or provision of this Local Law is declared invalid, such invalidity shall apply only to the section, paragraph, subdivision or provision adjudged invalid and the rest of this Local Law shall remain valid and effective.

## **SECTION 11: EFFECTIVE DATE**

This Local Law shall take effect immediately upon filing in the office of the Secretary of State of the State of New York.

**For Additional Information:** TOWN OF ELMIRA CONTACTS, Paul Kingsbury, Drainage Officer (607) 732-7698; Gary Pateiunas, Code Enf. Officer (607) 734-1486; Southern Tier Central Planning Board Janet Thigpen, Flood Mitigation (607) 737-5271

## Appendix 4

# Stormwater Management Resources

## New York State Department of Environmental Conservation Publications

*Printed copies of the publications listed below are available from the New York State Department of Environmental Conservation, Division of Water, 625 Broadway, Albany, NY 12233. All publications needed for Stormwater permit compliance are available on DEC's Web site, through the menu displayed on <http://www.dec.state.ny.us/website/dow/mainpage.htm>.*

### SPDES Stormwater General Permits

*SPDES General Permit for Stormwater Discharges from Construction Activity* [GP-02-01]

*SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s)* [GP-02-02]

Both General Permits are available at <http://www.dec.state.ny.us/website/dow/PhaseII.html>

### Regulatory Guidance

*Guidelines for Completing the Notice of Intent, Selecting Management Practices, Setting Measurable Goals for SPDES General Permit (GP-02-02) for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems*; NYSDEC; February 2003, revised August 2003;  
[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_guidelines.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_guidelines.pdf)

*Instruction Manual for Stormwater Construction Permit: How to Prepare a Notice of Intent (NOI) for Stormwater Discharges from Construction Activities in New York; Basic Stormwater Pollution Prevention Plan; Notice of Termination (NOT) to Cancel Construction Permit*; NYSDEC February 2003, revised August 2003; [http://www.dec.state.ny.us/website/dow/toolbox/instr\\_man.pdf](http://www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf)

*Overview of the Municipal Separate Storm Sewer Systems (MS4) Phase II Stormwater Permit Program: A Summary of MS4 Phase II Permit Requirements*; February 2003, revised August 2003;  
[http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4\\_overview.pdf](http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4_overview.pdf)

*New York State Phase II Stormwater Program, Frequently Asked Questions, Municipal Separate Storm Sewer Systems (MS4s) Covered by SPDES General Permit GP-02-02*; July, 2003;  
<http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/ms4faqjuly.pdf>

*Frequently Asked Questions About Permit Requirements Discharges from Construction Activity that Results in a Disturbance of One Acre or More Covered by SPDES General Permit, GP-02-01*;  
<http://www.dec.state.ny.us/website/dow/toolbox/constrfaq.pdf>

### Technical Standards and Guidance

*New York State Stormwater Management Design Manual*, October, 2001;  
<http://www.dec.state.ny.us/website/dow/toolbox/swmanual/index.html>

*New York Standards and Specifications for Erosion and Sediment Control*, Feb. 2005;  
<http://www.dec.state.ny.us/website/dow/toolbox/escstandards/index.html>

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*New York State Management Practices Catalogue for Nonpoint Source Pollution Prevention*, includes management practices for Hydrologic and Habitat Modification, Resource Extraction, Silviculture, Agriculture, On-Site Wastewater Treatment Systems, Leaks, Spills and Accidents, Urban/Stormwater Runoff, Construction, Road and Right-of-Way Maintenance, Marina Operations for Existing Facilities; printed copies available from the Division of Water, Bureau of Watershed Management, 518-402-8243; **not available on-line.**

*Frequently Asked Questions About Technical Requirements of the SPDES General Permit (GP-02-01) for Stormwater Discharges from Construction Activities*, Version 1.0; June 20, 2003;  
<http://www.dec.state.ny.us/website/dow/toolbox/techfaq.pdf>

## **New York State Department of State Publications**

*New York State Local Government Handbook*, NYS DOS; available on-line at <http://www.dos.state.ny.us/lgss/pdfs/handbook.pdf>

*Conducting Public Meetings and Public Hearings*, NYS DOS; available on-line at <http://www.dos.state.ny.us/lgss/pdfs/public.pdf>

## **Other Publications**

*Great Lakes Better Backroads Guidebook*, Huron Pines Resource Conservation & Development Area, 501 Norway Street, Grayling, MI 49738; downloadable at <http://www.huronpines.org/Programs/backroads.htm>

## **Related Web Sites**

<http://www.dos.state.ny.us/lgss/> Local Government Website of the New York State Department of State, with information about programs, publications and training available to municipalities.

[http://www.epa.gov/npdes/pubs/sw\\_resource\\_list.pdf](http://www.epa.gov/npdes/pubs/sw_resource_list.pdf) US EPA's list of stormwater-related pages, publications and Web sites.

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm> EPA's National Menu of Best Management Practices for Storm Water Phase II, intended to provide guidance to regulated small MS4s as to the types of practices they could use to develop and implement their storm water management programs.

<http://www.stormwatercenter.net> Created and maintained by the Center for Watershed Protection, the Stormwater Manager's Resource Center is designed for stormwater practitioners, local government officials and others needing technical assistance on stormwater management issues.

<http://www.lowimpactdevelopment.org> Website of the Low Impact Development (LID) Center, a nonprofit group promoting low impact development.

## Glossary of Stormwater Management Terms

**Best Management Practice (BMP):** A structural or non-structural device designed to temporarily store or treat urban stormwater runoff in order to mitigate flooding, reduce pollution and provide other amenities. (Also called Stormwater Practice.)

**Building:** Any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal or property, and occupying more than 100 square feet of area.

**Channel:** A natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

**Clearing:** Any activity that removes the vegetative surface cover

**Conservation Advisory Committee (CAC):** A committee formed by the local legislative body under NYS General Municipal Law Article 12-F, section 239-x that prepares a natural resource inventory of the municipality and advises other local boards on environmental issues.

**Cluster or Open Space Development:** The use of designs that incorporate open space into a development site. These areas can be used for either passive or active recreational activity or preserved as naturally vegetated land.

**Construction site operator:** the person, persons or legal entity that owns or leases the property on which the construction activity is occurring.

**Developer:** A person who undertakes land development activities.

**Drainage Area (Watershed):** All land and water area from which runoff may run to a common (design) point.

**Grading:** Excavation or fill of material, including the resulting conditions thereof.

**Impervious Cover:** Those surfaces, improvements and structures that cannot effectively infiltrate rainfall, snow melt and water (e.g. building rooftops, pavement, sidewalks, driveways, etc.).

**Land Development Activity:** Construction activity including clearing, grading, excavating, soil disturbance or placement of fill that results in land disturbance of equal to or greater than one acre, or activities disturbing less than one acre of total land area that is part of a larger common plan of development or sale, even though multiple separate and distinct land development activities may take place at different times on different schedules.

**Larger Plan of Development or Sale:** a situation in which multiple construction activities are occurring, or will occur, on a contiguous area. Permit coverage is needed if disturbance of one or more acres is occurring or is anticipated to occur in conjunction with the initial disturbance. For discrete construction projects that are located within a larger common plan of development or sale that are at least one-quarter mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently disturbed.

**Maintenance Agreement:** A legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of stormwater management practices.

**Outfall:** The point where water flows from a conduit, stream, or drain.

**New York State 303(d) list:** DEC prepares this list under Section 303(d) of the federal Clean Water Act. It identifies waters where designated uses are not fully supported by existing water quality. These “303(d) waters” are listed with the pollutant that is the cause of the water quality problem. If stormwater discharges to a 303(d) listed water, the stormwater management program must ensure no increase in the listed pollutant of concern to the water. The 303(d) list is updated every two years and is available on the DEC web site at [www.dec.state.ny.us/website/dow/303dcalm.pdf](http://www.dec.state.ny.us/website/dow/303dcalm.pdf)

**Nonstructural Stormwater Practices:** Stormwater runoff treatment techniques that use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or that promote pollutant reduction by eliminating the pollutant source.

**Stormwater:** Rainwater, surface runoff, snowmelt and drainage.

**Stormwater Management:** The use of structural or non-structural practices that are designed to reduce stormwater runoff and mitigate its adverse impacts on property, natural resources and the environment.

**Stormwater Management Facility:** One or a series of stormwater management practices installed, stabilized and operating for the purpose of controlling stormwater runoff

**Stormwater Management Officer:** An employee or officer designated by the municipality to accept and review stormwater pollution prevention plans, forward the plans to the applicable municipal board and inspect stormwater management practices.

**Stormwater Management Practices (SMPs):** Measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing flood damage and preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

**Stormwater Pollution Prevention Plan (SWPPP):** A plan for controlling stormwater runoff and pollutants from a site during and after construction activities.

**Structural Stormwater Practices:** Devices that are constructed to provide short-term storage and treatment of stormwater runoff.

**Total Maximum Daily Load (TMDL):** A numerical limit on the amount of a particular contaminant that can be discharged to a waterbody from all sources. If a TMDL requiring reduction of a pollutant associated with stormwater is approved by the US EPA for any waterbody or watershed into which the MS4 discharges, the stormwater management program (six minimum measures) must ensure reduction of the pollutant of concern specified in the TMDL.

**Urbanized area:** An area is automatically designated as urbanized for purposes of Phase II coverage if the population is at least 50,000 and there is an overall population density of at least 1,000 people per square mile, based on the 2000 US Census.