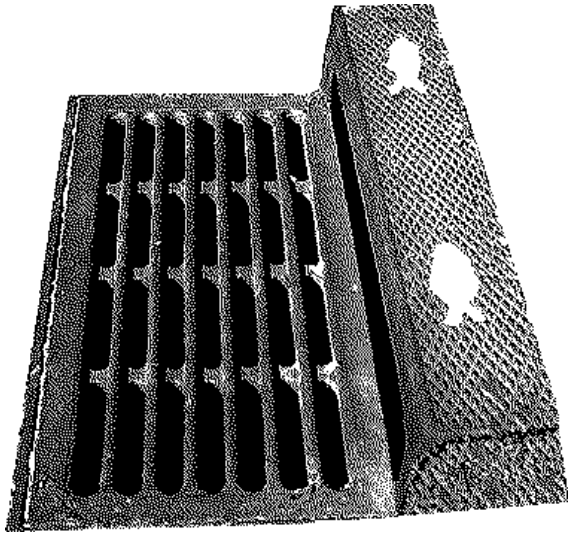
State of Ohio
Environmental Protection Agency

Guidance for Phase II Small Municipal Separate Storm Sewer System (MS4) Operators



May 2002

Why is there a Phase II small MS4 storm water permit program?

The U.S. EPA's storm water program addressed storm water runoff in two phases. Phase I addressed storm water runoff from municipal separate storm sewer systems (MS4s) with a population of 100,000 or more. Phase II addresses storm water runoff of MS4s serving populations less than 100,000, called small MS4s. Phases II addresses MS4s in urbanized areas, areas that are becoming urbanized and those which discharge to surface waters (i.e., tributaries to streams, rivers, etc.) with impaired water quality. Storm water from MS4s in urbanized areas are a concern because of the high concentration of pollutants found in these discharges. Concentrated development in urbanized areas substantially increase impervious areas, such as city streets, driveways, parking lots, and sidewalks, on which pollutants settle and remain until a storm event washes them into storm drains that discharge to surface waters. Common pollutants include pesticides, fertilizers, oils, salt, litter, other debris, and sediment. Another concern is the possible illicit connections of sanitary sewers, which can result in bacteria pollutants entering the storm sewer system. Storm water runoff picks up these and other harmful pollutants then discharges them - untreated - to waterways via storm sewer systems. When left uncontrolled, these discharges can result in fish kills, the destruction of spawning and wildlife habitats, a loss of aesthetic value, and contamination of drinking water supplies and recreational waterways.

What is a Municipal Separate Storm Sewer System (MS4)?

An MS4 is a conveyance or a system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): owned or operated by a public entity that discharges into surface waters and is designed or used for collecting or conveying storm water only.

Which small MS4s are required to be permitted and by when?

Small MS4s located within urbanized areas (UAs) as defined by the U.S. Census Bureau and MS4s outside of UAs designated by Ohio EPA. The definition of a UA is currently being revised but generally speaking it is a geographic area defined by census bureau blocks with a specific gross population and associated density, usually includes larger cities and associated suburban areas.

Ohio EPA is required by U.S. EPA to consider for designation MS4s within municipalities with a population of 10,000 or more and a density of 1,000 per square mile.

MS4s within UAs and those designated by Ohio EPA are required to apply for National Pollutant Discharge Elimination System (NPDES) permit coverage by March 10, 2003.

Ohio EPA is sending this Q&A to MS4 operators within UAs (based on the 1990 Census) and those outside of UAs that may potentially be designated.

When will Ohio EPA designate MS4s outside of UAs and will Ohio EPA notify the MS4s?

Ohio EPA will complete its consideration for designation of MS4s outside of UAs after the small MS4 rules are adopted, anticipated early 2003. Ohio EPA will notify MS4s designated into the program. Ohio EPA will accept applications from those MS4s beyond the Federal deadline of March 10, 2003.

Are there different types of NPDES permitting options?

Yes, the small MS4 rules would allow an operator to apply for an individual or general NPDES permit. However, the general NPDES permit process is much simpler and the option Ohio EPA recommends.

What information will a MS4 operator be required to submit when applying for the small MS4 general permit coverage?

The general permit will require a Notice-of-Intent (NOI) form be submitted along with a storm water management plan (SWMP). The NOI will ask for general information about who the MS4 is, where the MS4 is located, and to what surface waters the MS4 discharges. The SWMP describes what best management practices (BMPs) should be selected to address the six minimum control measures of the permit, the timeframes for BMP implementation, and what measurements (measurable goals) will be reported to Ohio EPA regarding their implementation.

What are the six minimum control measures?

The six minimum control measures as required by U.S. EPA:

(1) Public Education and Outreach

(2) Public Participation/ Involvement

(3) Illicit Discharge Detection and Elimination

(4) Construction Site Runoff Control

(5) Post-Construction Runoff Control

(6) Pollution Prevention/Good Housekeeping

How does a MS4 operator select BMPs to address the six minimum control measures?

When reviewing each measurable goal objective, the MS4 operator should consider whether it or another entity in its area is currently conducting an activity that could be considered a BMP. Other entities can implement elements of the program on the behalf of the operator.

(1) Minimum Control Measure: Public Education and Outreach on Storm Water Impacts

Objective: *Implement a public education and outreach program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges and steps the public can take to reduce pollutants in runoff.*

Strategies, BMPs, and measurable goals:

Forming Partnerships

Operators of regulated small MS4s are encouraged to enter into partnerships with other governmental entities to fulfill this minimum control measure's requirements. It is generally more cost effective to use an existing program, or to develop a new regional or statewide educational program, than to have numerous operators developing

their own local programs. Operators also are encouraged to seek assistance from non-governmental organizations (e.g., environmental, civic, and industrial organizations), since many already have educational materials and perform outreach activities.

Using Educational Materials and Strategies

Operators of regulated small MS4s may use storm water educational information provided by their state, U.S. EPA, or environmental, public interest, or trade organizations instead of developing their own materials. Operators should strive to make their materials and activities relevant to local situations and issues, and incorporate a variety of strategies to ensure maximum coverage. Some examples include:

- **Brochures or fact sheets** for the general public and specific audiences;
- **Alternative information sources** such as web sites, bumper stickers, refrigerator magnets, posters for bus stops, and restaurant placemats;
- **Educational programs** for school-age children;
- **Economic incentives** to citizens and businesses (e.g., rebates to homeowners purchasing mulching lawnmowers or biodegradable lawn products); and
- **Tributary signage** to increase public awareness of local water resources.

Reaching Diverse Audiences

The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children. Printing posters and brochures in more than one language or posting large warning signs (e.g., cautioning against fishing or swimming) near storm sewer outfalls are methods that can be used to reach audiences less likely to read standard materials. Directing materials or outreach programs toward specific groups of commercial, industrial, and institutional entities likely to have significant storm water impacts is also recommended. For example, information could be provided to restaurants on the effects of grease clogging storm drains and to auto garages on the effects of dumping used oil into storm drains. An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year	Brochures developed (bilingual if appropriate) and distributed in water utility bills, a storm water hotline in place, volunteer educators trained.
2 years	A web site created, school curricula developed, storm drains stenciled.
3 years	A certain percentage of restaurants no longer dumping grease and other pollutants down storm sewer drains
4 years	A certain percentage reduction in litter or animal waste detected in discharges.

(2) Minimum Control Measure: Public Participation/ Involvement

Objective: *Comply with state and local public notice requirements when implementing a public involvement participation program.*

Strategies, BMPs, and measurable goals:

Operators of regulated small MS4s should include the public in developing, implementing, and reviewing their storm water management programs. The public participation process should make every effort to reach out and engage all economic and ethnic groups. U.S. EPA recognizes that there are challenges associated with public involvement.

Implementation Challenges:

The best way to handle common notification and recruitment challenges is to know the audience and think creatively about how to gain its attention and interest. Since there may be large sectors of the population who do not read the local press, the audience reached may be limited. Therefore, alternative advertising methods should be used whenever possible, including radio or television spots, postings at bus stops, announcements in neighborhood newsletters, announcements at civic organization meetings, distribution of flyers, mass mailings, and multilingual announcements. These efforts, of course, are tied closely to the efforts for public education and outreach. In addition,

advertising and soliciting for help should be targeted at specific population sectors, including ethnic, minority, and low-income communities; academia and educational institutions; neighborhood and community groups; outdoor recreation groups; and business and industry. The goal is to involve a diverse cross-section of people who can offer a multitude of concerns, ideas, and connections during the program development process.

Possible Practices (BMPs):

There are a variety of practices that could be incorporated into a public participation and involvement program, such as:

- **Public meetings/citizen panels** allow citizens to discuss various viewpoints and provide inputs concerning appropriate storm water management policies and BMPs;

- **Volunteer water quality monitoring** gives citizens first-hand knowledge of the quality of local water bodies and provides a cost-effective means of collecting water quality data;

- **Volunteer educators/speakers** can conduct workshops, encourage public participation, and staff special events;

- **Community cleanups** can be held along local waterways, beaches, and around storm drains;

- **"Adopt A Storm Drain" programs** encourage individuals or groups to keep storm drains free of debris and to monitor what is entering local waterways through storm drains.

An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year	Notice of a public meeting in several different print media and bilingual flyers; citizen panel established; volunteers organized to locate outfalls/ illicit discharges and stencil drains.
2 years	Final recommendations of the citizen panel; radio spots promoting program and participation
3 years	A certain percentage of the community participating in community clean-ups.
4 years	Citizen watch groups established in a certain percentage of neighborhoods; outreach to every different population sector completed.

(3) Minimum Control Measure: Illicit Discharge Detection and Elimination

Objective: *Develop, implement, and enforce a program to detect and eliminate illicit discharges. Illicit discharges are defined as: any discharge not entirely composed of storm water and are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-storm water waste. Examples of non-storm water discharges not considered illicit are: potable water source discharges, yard watering, uncontaminated ground water, air conditioner condensate, and NPDES permitted discharges.*

Strategies, BMPs, and measurable goals:

Recognizing the adverse effects illicit discharges can have on receiving waters, the operator of a regulated small MS4 is to develop a program that includes the following:

- A storm sewer system map, showing the location of all outfalls and the names and location of all streams that receive discharges from each outfall.

- Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under state or local law) on non-storm water discharges into the MS4, and appropriate enforcement procedures and actions;

- A plan to detect and address non-storm water discharges, including illegal dumping, into the MS4;

- The education of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste.

Legal Prohibition and Enforcement:

U.S. EPA recognizes that some permittees may have limited authority under state or local law to establish and enforce an ordinance or other regulatory mechanism prohibiting illicit discharges.

The Plan:

The plan to detect and address illicit discharges is the central component of this minimum control measure. U.S. EPA envisions a plan with the four steps outlined below (the steps are suggestions, not requirements):

- **Locate Problem Areas**

U.S. EPA recommends that priority areas be identified for detailed screening of the system based on the likelihood of illicit connections (e.g., areas with older sanitary sewer lines).

- **Find the Source**

Once a problem area or discharge is found, additional efforts usually are necessary to determine the source of the problem.

- **Remove/Correct Illicit Connections:**

Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action.

- **Document Actions Taken:**

As a final step, all actions taken under the plan should be documented. This illustrates that progress is being made to eliminate illicit connections and discharges.

Educational Outreach:

Outreach to public employees, businesses, property owners, the general community, and elected officials regarding ways to detect and eliminate illicit discharges is an integral part of this minimum measure that will help gain support for the permittees storm water program. Suggested educational outreach efforts include:

- developing informative brochures and guidance for specific audiences (e.g., carpet cleaning businesses) and school curricula;
- designing a program to publicize and facilitate public reporting of illicit discharges;
- coordinating volunteers for locating and visually inspecting outfalls or to stencil storm drains; and
- initiating recycling programs for commonly dumped wastes, such as motor oil, antifreeze, and pesticides.

An integrated approach for this minimum measure could include the following measurable goals:

Target Date	**Activity**
1 year	Sewer system map completed; recycling program for household hazardous waste in place.
2 years	Ordinance in place; training for public employees completed; a certain percentage of sources of illicit discharges determined.
3 years	A certain percentage of illicit discharges detected; illicit discharges eliminated; and households participating in quarterly household hazardous waste collection days.
4 years	Most illicit discharge sources detected and eliminated.

The educational outreach measurable goals for this minimum control measure could be combined with the measurable goals for the public education and outreach.

(4) Minimum Control Measure: Construction Site Runoff Control

Objective: *Develop, implement, and enforce a program to reduce pollutants in storm water runoff to the small MS4 from construction activities that result in a land disturbance of one or more acres.*

Strategies, BMPs, and measurable goals:

The small MS4 operator is required to:

- have an ordinance or other regulatory mechanism requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites;
- have procedures for site plan review of construction plans that consider potential water quality impacts;
- have procedures for site inspection and enforcement of control measures;
- have sanctions to ensure compliance (established in the ordinance or other regulatory mechanism); and
- establish procedures for the receipt and consideration of information submitted by the public.

Regulatory Mechanism:

Through the development of an ordinance or other regulatory mechanism, the small MS4 operator must establish a construction program that controls polluted runoff from construction sites. Because there may be limitations on regulatory legal authority, the small MS4 operator is required to satisfy this minimum control measure only to the maximum extent practicable and allowable under state or local law.

Site Plan Review:

The small MS4 operator must include requirements in its construction program for the implementation of appropriate BMPs on construction sites to control erosion and sediment and other waste at the site. To determine if a construction site is in compliance with such provisions, the small MS4 operator should review the site plans submitted by the construction site operator before ground is broken. Site plan review aids in compliance and enforcement efforts since it alerts the small MS4 operator early in the process to the planned use or non-use of proper BMPs by the contractor and provides a way to track new construction activities.

Inspections and Penalties:

Once construction commences, the contractor's BMPs should be in place and the small operator's enforcement activities should begin. To ensure that the BMPs are properly installed, the small MS4 operator is required to develop procedures for site inspection and enforcement of control measures to deter infractions. Inspections give the MS4 operator an opportunity to provide additional guidance and education, issue warnings, or assess penalties.

Information Submitted by the Public:

A final requirement of the small MS4 program for construction activity is the development of procedures for the receipt and consideration of public inquiries, concerns, and information submitted about local construction activities. This provision is intended to further reinforce the public participation component of the regulated small MS4 storm water program and to recognize the crucial role that the public can play in identifying instances of noncompliance. The small MS4 operator is required to consider the information submitted, and may not need to followup and respond to every complaint or concern. Although some form of enforcement action or reply is not required, the small MS4 operator is obligated to demonstrate acknowledgment and consideration of the information submitted. This could be a simple tracking process that records public inquiries, both written and verbal, and provide copies to the construction site inspector for possible followup.

An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year	Ordinance or other regulatory mechanism in place; procedures for information submitted by the public in place.
2 years	Procedures for site inspections implemented; a certain percentage of compliance achieved by construction operators.
3 years	Maximum compliance with ordinance; improved clarity and reduced sedimentation of local waterbodies.
4 years	Increased number of sensitive aquatic organisms in local waterbodies (fishes, mollusk, etc.)

(5) Minimum Control Measure: Post-Construction Runoff Control:

Objective: *Develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb one or more acres of land.*

Strategies, BMPs, and Measurable Goals:

The small MS4 operator is required to:

- develop and implement strategies that include a combination of structural and/or non-structural BMPs;
- have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls to the extent allowable under state or local law; and
- ensure adequate long-term operation and maintenance of controls.

The term ‘‘redevelopment’’ refers to alterations of a property that change the ‘‘footprint’’ of a site or building in such a way that there is a disturbance of one or more acres of land. The term does not include activities such as exterior remodeling. Because redevelopment projects may have site constraints not found on new development sites, the rule provides flexibility for implementing post-construction controls on redevelopment sites that consider these constraints.

Because the requirements of this measure are closely tied to the requirements of the construction site runoff control minimum measure, U.S. EPA recommends that small MS4 operators develop and implement these two measures in tandem. Sample BMPs follow:

Non-Structural BMPs

- **Planning and Procedures:** Runoff problems can be addressed efficiently with sound planning procedures. Master plans, comprehensive plans, and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth (industrial, for example) to areas that can support it without compromising water quality.

- **Site-Based Local Controls:** These controls can include buffer strip and riparian zone preservation, minimization of disturbance and imperviousness, and maximization of open space.

Structural BMPs

- **Storage Practices:** Storage or detention BMPs control storm water by gathering runoff in wet ponds, dry basins, or multi-chamber catch basins and slowly releasing it to receiving streams or drainage systems. These practices both control storm water volume and settle out particulates for pollutant removal.

- **Infiltration Practices:** Examples include infiltration basins/trenches, dry wells, and porous pavement.

- **Vegetative Practices:** Examples include grassy swales, filter strips, artificial wetlands, and rain gardens.

An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year	Strategies developed that include structural and/or non-structural BMPs.
2 years	Strategies codified by use of ordinance or other regulatory mechanism.
3 years	Reduced percent of new impervious surfaces associated with new development projects.
4 years	Improved clarity and reduced sedimentation of local waterbodies.

(6) Minimum Control Measure: Pollution Prevention/ Good Housekeeping:

Objective: *Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing pollutant runoff from municipal operations.*

Strategies, BMPs, and Measurable Goals:

The small MS4 operator is required to include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

U.S. EPA encourages the small MS4 operator to consider the following components when developing a program for this measure:

- **Maintenance activities, maintenance schedules, and long-term inspection procedures** for structural and non-structural controls to reduce floatables and other pollutants discharges from the separate storm sewers;

- **Controls for reducing or eliminating the discharge of pollutants** from areas such as roads and parking lots, maintenance and storage yards (including salt and sand storage and snow disposal areas), and waste transfer stations. These controls could include programs that promote recycling (to reduce litter), minimize pesticide use, and ensure the proper disposal of animal waste;

- **Procedures for the proper disposal of waste** from separate storm sewer systems and areas listed in the bullet above, including dredge spoil, accumulated sediments, floatables, and other debris; and

- **Ways to ensure that new flood management projects assess the impacts on water quality** and examine existing projects for incorporation of additional water quality protection devices or practices.

An integrated approach for this minimum measure could include the following measurable goals:

Target Date	Activity
1 year	Pollution prevention plan (the new BMPs and revised procedures) completed; employee training materials gathered or developed; procedures in place for catch basin cleaning after each storm and regular street sweeping.
2 years	Training for appropriate employees completed; recycling program fully implemented.
3 years	Some pollution prevention BMPs incorporated into master plan; a certain percentage reduction in pesticide and sand/salt use; maintenance schedule for BMPs established.
4 years	A certain percentage compliance rate with maintenance schedules for BMPs; controls in place for all areas of concern.

Does an MS4 operator have to select all the BMPs previously mentioned for each minimum measure?

No, there is no minimum number of BMPs required. It is up to each MS4 operator to decide which BMPs it wishes to use to achieve the objective and meet the requirements of each measure given its circumstances. Additional BMPs are available for consideration at U.S. EPA's web site:

http://www.epa.gov/npdes/menuofbmps/menu.htm

If you do not have internet access, Ohio EPA will provide you a paper copy upon request. Also, MS4s may develop their own BMPs.

What if the MS4 operator does not believe it has the legal authority or resources to implement some or all of its BMPs?

When the storm water management plan (SWMP) is submitted to Ohio EPA, the MS4 operator should list its selected BMPs for each minimum measure, and if appropriate, identify it as not being feasible due to a lack of legal authority or resources. Ohio EPA intends to review all of the submitted SWMPs over the five year term of the permit and will provide guidance to those operators whom indicate that they lack authority and/or resources.

Does Ohio EPA have or can it direct MS4 operators to any funding that could be used to assist with the implementation of the minimum measures?

Grant monies are available from Ohio EPA's Ohio Environmental Education Fund (OEEF) and low-interest loans from the Water Pollution Control Loan Fund (WPCLF) administered by Ohio EPA's Division of Environmental and Financial Assistance (DEFA). The Web site for each respectively is *www.epa.state.oh.us/other/oeef/oeemain.html* and *www.epa.state.oh.us/defa/defamain.html*.

Additional Stormwater finance information can be found at: *http://stormwaterfinance.urbancenter.iupui.edu*

If I have more questions, whom do I contact?

Contact the following Ohio EPA, DSW, Storm Water Program members:

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