



February 2016

NPDES GUIDANCE for MS4s

Creating A Program Plan for Municipal Operations Pollution Prevention and Good Housekeeping



**Prepared by the INAFSM Stormwater Committee
Pollution Prevention and Good Housekeeping Group**

TABLE OF CONTENTS

1.0	GUIDE INTRODUCTION	3
1.1	Purpose & Intended Use of Document	3
1.2	Target Audience	3
1.3	How to Use the Guide	3
1.4	MS4 Common Challenges to P2&GH Program Implementation	3
1.5	Tips for Achieving Consistent, Long-term Program Implementation	4
1.6	Other Programs that Overlap With the P2&GH Program	4
1.7	Other Benefits to Implementing P2&GH	4
2.0	EMPLOYEE TRAINING	5
2.1	Overview	6
2.2	Site Assessment	6
	2.2.1 General Training	6
3.0	STORMWATER INFRASTRUCTURE	8
3.1	Overview	8
3.2	Site Assessment	8
	3.2.1 Infrastructure Mapping	8
	3.2.2 Infrastructure Monitoring, Maintenance and Rehabilitation	9
	3.2.3 Litter Pick-Up	10
	3.2.4 Remediation of Stormwater Outfall Scouring or Deterioration	10
	3.2.5 Maintenance Conducted in the Field	11
4.0	FLOOD MANAGEMENT	13
4.1	Overview	13
4.2	Site Assessment	13
	4.2.1 New Projects	13
	4.2.2 Structural BMP Maintenance	13
5.0	MS4 FACILITY MAINTENANCE	15
5.1	Overview	15
5.2	Site Assessment	15
	5.2.1 Written Documentation for Maintenance Activities at MS4 Facilities	15
	5.2.2 Municipal Facility Stormwater Pollution Prevention Plan (SWPPP) or Pollution Prevention and Good Housekeeping Manual (P2&GHM) or Program Document(s)	15
	5.2.3 Up-to-Date Inventory of Materials Stored and Used On-Site Daily	16
	5.2.4 Management Procedures of Stockpile Storage and Maintenance	17
	5.2.5 Management Procedures for MS4 Owned and Operated Projects	17
6.0	VEHICLE MAINTENANCE AND FUELING	19
6.1	Overview	19
6.2	Site Assessment	19
	6.2.1 Fueling Operations	19
	6.2.2 Vehicle Maintenance	20
	6.2.3 Vehicle Washing	21

7.0	PUBLIC STREETS OPERATION AND MAINTENANCE	22
7.1	Overview	22
7.2	Site Assessment	22
7.2.1	Pavements/Street Sweeping	22
7.2.2	Roadside Shoulder and Ditch Stabilization	23
7.2.3	Planting and Proper Care of Roadside Vegetation	23
7.2.4	Salt and Sand Storage	24
7.2.5	Snow Disposal Area	25
8.0	PESTICIDE, HERBICIDE AND FERTILIZER APPLICATION AND MANAGEMENT.....	27
8.1	Overview	27
8.2	Site Assessment	27
8.2.1	Use of Restricted Chemicals	27
8.2.2	Use of Non-Restricted Chemicals	28
9.0	SPILL PREVENTION, RESPONSE AND DISPOSAL	30
9.1	Overview	30
9.2	Site Assessment	30
9.2.1	Spill Prevention and Response	30
9.2.2	Waste Disposal.....	31
9.2.3	Management Procedures for Composting Locations/Facilities (if applicable)	33
10.0	WORKGROUP/CONTRIBUTING AUTHORS.....	34
11.0	RESOURCES	35
12.0	ACRONYMS AND DEFINITIONS.....	36
12.1	Acronyms	36
12.2	Definitions	36

1.0 GUIDE INTRODUCTION

1.1 Purpose & Intended Use of Document

This document is guidance for developing or enhancing a Pollution Prevention and Good Housekeeping (P2&GH) Program to comply with Indiana's Rule 13 which meets the National Pollutant Discharge Elimination System (NPDES), Municipal Separate Storm Sewer System (MS4), Clean Water Act permitting requirements. It represents the collective work product of the Indiana Association for Floodplain and Stormwater Management's (INAFSM) Stormwater Committee's P2&GH Group. This group has 16 members representing many different Phase II MS4s entities throughout the state of Indiana.

Sections of this document correspond with the requirements of Indiana's Rule 13 (327 IAC 15-13) as of July 2015; however, implementing the procedures described in this document does not constitute compliance with the Rule. Compliance can only be determined by the Indiana Department of Environmental Management (IDEM). Any questions about Rule 13 compliance should be addressed to the IDEM Stormwater Program MS4 Coordinator.

1.2 Target Audience

Although the primary audience for this document is Indiana's regulated MS4 entities, others such as non-regulated Counties, Cities, Towns and consultants, may also benefit from a greater understanding of the P2&GH program.

1.3 How to Use the Guide

When entities are using this guide, it is important to keep in mind that all of the activities and best management practices (BMPs) listed in this document should be scaled appropriately for each MS4 or other entity type and size. Not all entities look exactly alike so programs should not look exactly alike. The MS4 permit is implemented in continual five year cycles so items can be budgeted and completed over the span of a permit cycle. Implementing P2&GH BMPs must involve and engage multiple departments and staff.

Each section is set up in a manner that identifies the requirement and cites the regulation. The general "Implementation BMPs" describe the measures an MS4 should implement to be in compliance with the regulation. The "Programmatic Indicators" identified relate to the items in the regulations that are required to be tracked. The "Possible Measureable Goals" section relays some ideas on what items could be tracked as part of an MS4 program. The "Advanced BMPs" describe practices an MS4 could implement to improve the overall program. "Advanced BMPs" are optional. The "Additional Resources" section identifies documents and websites that provide good information on that section's subject matter. General sources and definitions are provided at the end of this guide.

1.4 MS4 Common Challenges to P2&GH Program Implementation

Common challenges to implementing the P2&GH program throughout the state of Indiana include:

- Lack of communication and/or cooperation between departments.
- Staff lacks an understanding of the program and need training.
- Lack of resources – financial and staffing.
- Departments who have the greatest need for P2&GH implementation are typically very busy with other essential, critical activities such as ice control and snow removal or brush collection.

- Lack of program support from management.
- Lack of program implementation on a consistent basis.

1.5 Tips for Achieving Consistent, Long-term Program Implementation

In order to overcome the challenges listed above, MS4 entities must do their best to make their program work for them on a consistent, long-term basis. Consistent repetitions of implementing program activities can help towards making these activities part of an entity's routine. For example, holding training sessions at a consistent time of day and year, every year, or routinely conducting self-inspections can firmly establish these program items as mandatory items that must be and are expected to be completed.

1.6 Other Programs that Overlap With the P2&GH Program

Even though the Clean Water Act and NPDES programs require P2&GH activities to be implemented, these activities do overlap with other regulatory and non-regulatory programs:

- IDEM Rule 6 – industrial NPDES stormwater permits may be required for certain activities such as Waste Transfer Stations, Small Airports, etc.
- IDEM Land Quality – Solid & Hazardous Waste Management – includes composting, stockpile, and waste stream management; Resource Conservation and Recovery Act (RCRA) governs the management of hazardous wastes.
- Spill Prevention, Control, and Countermeasure (SPCC) Rule – this federal rule applies to bulk petroleum product storage in containers 55 gallons and greater.
- Emergency Planning and Community Right-to-Know (EPCRA) – this rule requires facilities with certain quantities of chemicals to report the chemicals, amounts, and storage practices to the State and local emergency response agencies.
- Indiana Spill Rule – describes the response actions an owner needs to implement in the event of a spill.
- Fire Codes – apply to Flammable and Safety Cabinets and the storage of ignitable, combustible, and explosive materials.
- OSHA – safe workplace standards may be violated if materials are not stored or managed properly and lead to staff work accidents.
- Sanitary and Combined Sewer – source control to avoid substances going to these systems.
- Drinking Water Protection – Ground Water, Surface Water – source control to avoid substances going to these systems.
- Office of the Indiana State Chemist – pesticide and fertilizer storage and application.
- Health Department – vector control issues.
- IDEM Water Quality and Army Corps of Engineers – includes permits for working within drainage ditches, waterways, wetlands, and lakes.
- Indiana DNR Regulatory Programs – Flood Control Act (1-2-3) – includes fill and disturbance within a floodway.

Entities should further investigate the above programs for a better understanding of them including specific requirements for each and how they may or may not apply.

1.7 Other Benefits to Implementing P2&GH

Entities that implement a P2&GH program can derive other benefits besides simply meeting MS4 permitting compliance. For example:

- Increased community awareness – MS4 staff that have an increased awareness of stormwater management and water quality programs also serve as informed public citizens that can positively influence their neighbors.
- Supporting public education and participation programs – MS4 staff can play a large role in helping to support other MS4 public education and participation programs such as participating in clean up events and workshops.
- Setting a good example – MS4 staff that implement successful P2&GH programs are setting a good example for their citizens to “do the right thing” to help our environment.
- Recognized Community Stewardship – according to the Center for Watershed Protection, when all staff in the MS4 area embrace the stormwater management program, the MS4 is in a much better position to influence residential behaviors that can positively impact water quality. Residents do notice the actions of staff when they are on the job in the community.
- Cross-training to support other MS4 programs – knowledgeable staff that have been properly trained and involved in the MS4’s P2&GH program, are more likely to assist with supporting other programs such as helping to identify illicit discharges when they are out working in the community.
- Building Inter-Departmental Relationships – working closely with other departments to implement an MS4’s P2&GH program helps to foster better working relationships which adds to staff “buy-in” or acceptance and support of MS4 programs.
- Reduced Infrastructure Stress – if separate storm inlets and conveyances are properly maintained on a routine basis, then less overall burden and stress is placed on the separate storm system which can help increase the life span of pipes and ditches thereby reducing costs.
- Improved Staff Efficiencies – the use of written procedures that identify the specific stormwater conveyance system maintenance required, along with defined maintenance intervals and zone maps, can lead to a more efficient use of manpower resources and improved time management.
- Resource Management Savings – if material is stored and managed properly, then entities will achieve less product waste.
- Inventory Control – by managing an entity’s inventory, this can reduce costs by minimizing the amount of material used and lost. For example, dating materials based on purchase dates and properly rotating supplies, avoids exceeding shelf life expiration dates.
- Pollutant Source Control – properly managing materials and their associated pollutants at the source, results in tangible cost savings. For example, if materials such as chemicals go to a wastewater treatment plant because they were poorly managed, then the entity has increased costs associated with operating that treatment plant and cleaning up the spilled chemical. If these same chemicals go to a storm drain, then this is a violation of the MS4 permit.
- Water Quality Improvement – the ultimate goal for any Clean Water Act permit program is to help with improving overall water quality in our local, state, and national waterbodies. Once staff understands the important role they play in helping your MS4 entity with working towards this goal, your P2&GH program is more likely to be successful.

2.0 EMPLOYEE TRAINING

2.1 OVERVIEW

An informed team leads to greater effectiveness in the field. The purpose of this section is to increase awareness of municipal operations staff training requirements including, stormwater plans, pollution prevention, and documentation. Basic requirements and suggested, advanced parameters (optional elements) are included.



Provided by the City of Bloomington Utilities and depicts a group of new summer interns being trained on the emergency shut-off at the pumps.

2.2 SITE ASSESSMENT

2.2.1 General Training

Regulation: 327 IAC 15-13-17 (d) (5)	The program must include the following: Written documentation that appropriate MS4 entity employees have been properly trained, with periodic refresher sessions, on topics such as proper disposal of hazardous wastes, vegetative waste handling, fertilizer and pesticide application, and the function of implemented BMPs.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain a written document that describes the training program and includes schedules and materials. This could be in the form of SOPs, Stormwater Pollution Prevention Plan (SWPPP) or Pollution Prevention and Good Housekeeping Manual (P2&GHMs), or other applicable format. • Ensure the training document is updated with current practices. • Train municipal employees on stormwater information according to their job responsibilities. Training to include: municipal department employees, administrative staff, elected officials, seasonal employees, MS4 Operator and Coordinator, and contractors (if needed). • The training program should review documents for: periodic litter pick up, BMP structure cleaning, pavement sweeping, roadside shoulder and ditch stabilization, planting and proper care of roadside vegetation, remediation of outfall scouring, proper disposal, recycling or reuse of waste materials, vegetative waste handling, and pesticide and fertilizer application. • The training program should review implemented best management practices and controls for reducing or eliminating pollutant discharges. • Maintain training documentation for at least the length of the permit term (in case of enforcement, keep indefinitely).
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Conduct employee training at least annually according to written documentation and available training materials based on the needs of the program.
Documentation	<ul style="list-style-type: none"> • Maintain training documentation including: attendance sheet, certification, agenda, presentation, or materials reviewed. • Maintain training documentation for at least the five year permit term.

<p>Advanced BMPs (optional)</p>	<ul style="list-style-type: none"> • Develop specific training materials for the different levels of job responsibilities (as needed). • Increase employee awareness by performing training quarterly. • Implement quizzes and tests. • Collect and utilize more materials, i.e.: webinars, online training, maps, brochures, handouts, etc. • Maintain electronic training documentation until termination of MS4 permit coverage/program. • Training options for MS4 Operator and Coordinator could include stormwater certifications (CPESC, CMS4S, CPSWQ, etc.). • Maintain training documentation for at least the length of two permit terms.
<p>Additional Resources</p>	<ul style="list-style-type: none"> • Excal Visual - Stormwater videos • Minnesota State Academy for Parks Maintenance, Preservation and Beautification – video for Parks Staff Keep Water Clean • Project Clean Water – video for Pollution Prevention-Good Housekeeping • Tippecanoe County Partnership for Water Quality – various training videos for pollution prevention practices, construction, and other stormwater issues.

3.0 STORMWATER INFRASTRUCTURE

3.1 OVERVIEW

A storm drain system is a network of constructed inlets, underground pipes, drainage channels, and other structures that carry and temporarily hold stormwater to be discharged into streams and waterways. This network is the focus of our section on infrastructure operation and maintenance.

Stormwater infrastructure is designed to move volumes of water from a site typically as quickly as possible. For the purposes of this guide, this section will discuss the maintenance practices associated with stormwater infrastructure within the MS4 boundaries and at municipal operations. This section may overlap with your infrastructure mapping and illicit discharge detection and elimination (IDDE) program.



Photo credit Hendricks County Clean Water.

3.2 SITE ASSESSMENT

3.2.1 Infrastructure Mapping

Regulation 327 IAC 15-13-17 (b)(1)(B)	Written documentation of maintenance activities, schedules, and long term inspection procedures for BMPs to reduce floatable and other pollutants discharged to the storm sewers.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain maps of site BMPs and conveyance systems. Site maps differ from IDDE maps in that they are infrastructure maps for each municipally owned facility (Street Departments, Jail, Wastewater Treatment Plant, etc.), whereas an IDDE map will focus on the entirety of each MS4 jurisdictional boundary (refer to 327 IAC 15-13-14 (b) for IDDE). Use existing infrastructure maps for the municipal facility’s site map as part of its SWPPP or other management plan. • Create and maintain inspection plan/logs for BMPs and conveyance systems. • Identify and mark conveyance structures.
Programmatic Indicator	<ul style="list-style-type: none"> • Number and locations of storm drains marked, segregated by marking method. • Estimated or actual linear feet or percentage of MS4 mapped and indicated on an MS4 area map. • Number and locations of area outfalls mapped. • Number and location of MS4 area outfalls screened for illicit discharges.
Possible Measurable Goals	<ul style="list-style-type: none"> • Number of structures marked as stormwater receiving points. • Number of structures located and mapped utilizing GPS data. • Maintain a structure map as new information becomes available.
Documentation	Record the location of all BMP structures and conveyance systems on an aerial map for each MS4 facility, including the date last updated.

Advanced BMPs (optional)	<ul style="list-style-type: none"> • Posted maps of BMP structures and conveyance systems. • Maps indicating areas needed for repair/maintenance. • Maps indicating structures marked/unmarked. • Utilize GIS systems for mapping and data collection for BMP structures and conveyance systems.
--------------------------	--

3.2.2 Infrastructure Monitoring, Maintenance and Rehabilitation

Regulation 327 IAC 15-13-17 (b)(1)(B)	An MS4 shall develop and implement a program to ensure that existing operations are performed in ways that will reduce contamination of stormwater discharges. Periodic BMP structure cleaning is defined in the MS4's SWQMP.
Implementation BMPs	<ul style="list-style-type: none"> • Locate, identify, and map BMP structure systems, owned and operated by the MS4, including pipes, dry wells, under drains, linings, fill/rip-rap, and outfalls. This information can be obtained from previous mapping efforts. • Create and maintain written documents that describe the frequency of inspection, data collection requirements for maintenance of BMP structures and conveyance systems. This is implemented through the IDDE program.
Programmatic Indicator	<ul style="list-style-type: none"> • Estimated or actual linear feet or percentage and location of MS4 conveyances cleaned and repaired. • Number of structures cleaned. • Number of annual inspections for each BMP or conveyance.
Possible Measurable Goals	<ul style="list-style-type: none"> • Decrease sediment movement through reduction of scouring outfalls. • Reduce sediment introduced to system through pipe repairs. • Linear feet of buried pipe videotaped or televised (if completed). • Conduct inspections according to schedule in the written document. • Track the number of completed work orders or other tracking process for linear feet of pipe videotaped (if possible), number of inspections completed, linear feet of road side shoulders stabilized, and linear feet of berming.
Documentation	<ul style="list-style-type: none"> • Record location and linear feet of pipe or conveyance repaired. • Record location and quantity of material removed from structures cleaned. • Record number of outfalls repaired and quantity of rip-rap used/replaced. • Record and track inspections through an inspection log listing all BMPs and conveyances for the facility.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Introduce infiltration trenches and check dams to existing conveyance systems. • Introduce vegetated filter strips and bio-swales where appropriate. • Implement pervious pavement areas to reduce surface runoff. • Assess self-monitoring inspections for opportunities to implement Advanced BMPs such as, bio-retention, rain gardens, and constructed wetlands to replace failing or ineffective existing measures. • Utilize video or televising for conveyance system evaluation. • Review requirements for Class V injection wells if utilized.
Additional Resources	<ul style="list-style-type: none"> • Iowa Department of Natural Resources – Stormwater Manual • University of Wisconsin Extension – Managing Storm Water Runoff: A Self-Assessment Guide for Wisconsin Businesses • North Carolina Department of Environment and Natural Resources – NPDES Phase I/II Inspection Guidance and Checklists

3.2.3 Litter Pick-Up

Regulation: 327 IAC 15-13-17 (b) (1) (A)	Written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers. Maintenance activities shall include, as appropriate, the following: (A) Periodic litter pick up as defined in the MS4 area SWQMP.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation that describes litter pick-up for the separate storm sewer system. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Include a frequency or schedule for the collection of litter along roadways in the MS4 community and at municipal properties. • Implement employee training for litter collection (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Decrease the amount of trash and litter reaching waterways by: <ul style="list-style-type: none"> • Providing public education on the impacts of litter, and • Tracking the number of trash receptacles available in public spaces. • Estimated or actual amount of litter collected both monthly and annually. • Percent of MS4 area where litter has been collected. • Track the number of public education brochures on litter pick-up distributed. • Number of work orders or other document completed for litter collection. • Identify problem sites and post signs or other devices to deter littering. • Number of recycling and/or heavy trash events and the amounts collected.
Documentation	<ul style="list-style-type: none"> • Document the amount of solid waste materials collected during litter/trash pickups. • Document the number of times litter/trash is picked up along roadways, waterways, and around recycling centers within an MS4 area through work orders, complaints, or other method.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Provide barriers (fences) around recycling centers to prevent materials from being blown away from the recycling center. • Provide trash and recycling receptacles in downtown and other urban areas. • Require commercial areas to have both trash and recycling receptacles available for the public to use. • Require industries to implement source control practices in their waste disposal areas. • Require Special Events and Public Events to provide trash and recycling receptacles and to implement litter pick-up procedures at the end of the event. • Assess the use and value of trash racks on outlet pipes or other devices in streams to reduce the amount of trash reaching local waterways. Implement where and when possible.

3.2.4 Remediation of Stormwater Outfall Scouring or Deterioration

Regulation: 327 IAC 15-13-17 (b) (1) (F)	Written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers. Maintenance activities shall include, as appropriate, the following: (F) Remediation of outfall scouring conditions.
--	---

Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation that describes how to address outfall scouring or deterioration. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Document the condition of an outfall during outfall mapping for future reference. • Implement employee training for outfall scouring (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	<ul style="list-style-type: none"> • Number and location of stormwater outfall areas remediated from scouring conditions.
Possible Measurable Goals	<ul style="list-style-type: none"> • Initiate the permit process to replace outfalls identified to have scouring or deterioration issues within two (2) months of discovery. Permits could include disturbance in a waterway from IDEM or Army Corps of Engineers or fill within a floodway from the Department of Natural Resources. • Fix identified outfalls within one (1) year of receiving applicable permits. • Track the number of completed work orders or other documentation of repairs of outfall scouring.
Documentation	<ul style="list-style-type: none"> • Retain documentation of new projects that are installed which reduce outfall scouring and stream bank erosion. • GPS the location of the outfall (if it is not already from previous mapping projects) and provide information to the MS4's GIS specialist in order for information to be updated/added to the MS4's stormwater outfall layer. • Retain copies of all applicable permits.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Put in place measures that will prevent scouring or pipe deterioration from occurring during construction or after the fact if needed. • Require both public and private projects to install measures to reduce the velocity of stormwater runoff. • Inspect all outfalls at least once every five years. • When possible, document the remediation process by taking pictures of the before and after conditions of the outfall. • Assess if the project is required to obtain other state or federal permits.
Additional Resources	<ul style="list-style-type: none"> • IDEM OWQ - Waterways Permitting Handbook • IDEM OWQ - Indiana Wetlands, Lakes, and Streams Regulation • Indiana DNR Regulatory Programs – Flood Control Act (1-2-3) • Indiana DNR - Construction in a Floodway Permit • USACE – How to Obtain a Permit

3.2.5 Maintenance Conducted in the Field

Regulation: 327 IAC 15-13-17 (b) (1)	<p>Written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers.</p> <p>Examples of maintenance activities include: highway/road repairs, bridge maintenance, pothole patching, erosion repairs, infrastructure repair or replacement, roadside stabilization/maintenance, the application of coal tar or other sealants, etc.</p>
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation for maintenance work conducted in the field. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Provide annual reminders on the importance and necessity of documenting maintenance activities to employees who work in the field (refer to Section 2.0 for more information on training requirements). • Review the forms of documentation once every two years to ensure accurate and relevant information is being retained. • Review maintenance schedules annually.

<p>Programmatic Indicator</p>	<ul style="list-style-type: none"> • Type of inspection and number of inspections conducted annually. • Number of BMPs inspected. • Number of BMPs receiving maintenance.
<p>Possible Measurable Goals</p>	<ul style="list-style-type: none"> • Maintenance reports, work orders or other documentation will be filled out each time a maintenance activity occurs and contain detailed information about activities observed and completed in the field. • Track the number of completed work orders or other documentation for maintenance in the field. • Track the number of inspections completed. • Track the amount of material collected by vacuum drains. • Track the number of potholes filled and amount of material used. • Track the number of miles paved and type of material. • Amount of pollutants prevented from discharging from separate storm sewer systems.
<p>Documentation</p>	<ul style="list-style-type: none"> • Examples of activities where in-field inspections need to be documented are: <ul style="list-style-type: none"> • Street maintenance/repair and street sweeping • Storm drain maintenance • Maintenance of stormwater quality measures owned and operated by the MS4 including: detention/retention basins, green infrastructure practices, and stormwater treatment structures. • Responses to spills, leaks, illicit discharge incidents, etc. • Stabilization of disturbed soils due to MS4 activities or natural erosion. • Retain all maintenance reports, work orders, and/or other forms of documentation. Documentation needs to be well organized so a person unfamiliar with the facility and the MS4's activities can follow what has been completed.
<p>Advanced BMPs (optional)</p>	<ul style="list-style-type: none"> • Inspections of activities at an MS4 Facility may include a check box indicating work orders were reviewed. • Implement an electronic reporting system that can be completed in the field on a digital device. • Provide documentation reports for other MS4 field activities such as construction or land disturbing projects. • Provide example inspection report or documentation templates.

4.0 FLOOD MANAGEMENT

4.1 OVERVIEW

Flood management covers maintenance and management of publicly owned or operated water quality structures and the requirements for projects or areas being assessed for flood management improvements. Projects are also evaluated to determine feasibility of adding water quality structures that will reduce pollutants.



"Wetland plantings at F-Lake Regional (stormwater quantity (detention) and quality control) Basin, Lafayette, IN" used by permission of the Tippecanoe County Surveyor's Office.

4.2 SITE ASSESSMENT

4.2.1 New Flood Management Projects

Regulation: 327 IAC 15-13-17(4)	Written documentation that publicly owned or operated flood management projects are assessed for their impacts on water quality.
Implementation BMPs	<ul style="list-style-type: none"> When an MS4 is evaluating publicly owned or operated flood management projects (such as basins), the MS4 is required to consider and evaluate the impact the design has on water quality. The directive to the MS4 is to reduce the discharge of pollutants to the maximum extent practicable (MEP). That directive extends to the design of flood management structures; whereby, structures should not negatively impact water quality. Maintain documentation that the project was reviewed for water quality.
Programmatic Indicator	Number, type, and location of structural BMPs installed.
Possible Measurable Goals	<ul style="list-style-type: none"> Document the number of publicly owned or operated detention or retention basins. Maintain documentation of engineering feasibility evaluations, environmental, social, economic impacts, or public input. Number of BMPs implemented, or improvement in the reduction of discharge of pollutants (specific to the MS4's pollutants of concern), and water quality impact evaluation. Decrease stormwater pollution by inspecting structural, publicly owned and operated BMPs at least annually. Review new publicly owned or operated projects for stormwater quantity and quality management.
Documentation	Documentation of evaluation process and number of water quality controls implemented.
Advanced BMPs (optional)	Develop an overall stormwater master plan for community.

4.2.2 Existing Flood Management Projects & Structural BMP Maintenance

Regulation: 327 IAC 15-13-17(4)	Written documentation that existing flood management projects are examined for incorporation of additional water quality protection devices or practices.
------------------------------------	---

Implementation BMPs	<ul style="list-style-type: none"> • Assess existing flood management projects to determine if stormwater quality protection devices or practices can be incorporated. • MS4 should inspect all public flood management structures and features at a frequency that meets the requirements of maintaining the particular structure or device (i.e. retention or detention ponds every year or devices per the manufacturers recommend instructions). • Develop a maintenance program for structural stormwater quality controls by creating and maintaining written documentation/procedures and include a frequency or schedule for inspections. • List or identify each public structural BMP. • Create a form to document the structural BMP inspections.
Programmatic Indicator	<ul style="list-style-type: none"> • Number, type, and location of structural BMPs inspected. • Number, type, and location of structural BMPs maintained or improved to function properly.
Possible Measurable Goals	<ul style="list-style-type: none"> • MS4 will inspect the public basins and water quality devices, compare inspection findings to the design performance standards, and provide necessary maintenance on a yearly basis. • Decrease stormwater pollution by inspecting publicly owned or operated structural BMPs at least annually and correcting any issues.
Documentation	Maintain copies of assessments, inspection forms and maintenance records for at least the length of the permit term or longer if enforcement actions have been implemented.
Advanced BMPs (optional)	Identify additional projects or locations that the municipality operates.
Additional Resources	USEPA Stormwater BMPs - Measurable Goals Guidance for Phase II Small MS4

5.0 MS4 FACILITY MAINTENANCE

5.1 OVERVIEW

Daily activities at MS4 owned and operated facilities and projects, and throughout the MS4 community as a whole, have the potential for pollutants to come into contact with stormwater. Therefore, it is very important to implement a number of measures to minimize the potential for stormwater to come into contact with these potential sources of pollution. This section will help new and established MS4 communities develop and/or strengthen their maintenance program for operations at their facilities and on MS4 projects.



Provided by the City of Goshen Stormwater Department. The picture shows chemicals stored in an organized manner with containment to prevent spills from entering a

5.2 SITE ASSESSMENT

5.2.1 Written Documentation for Maintenance Activities at MS4 Facilities

Regulation: 327 IAC 15-13-17 (b) (2) (general)	Controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations. Maintenance is defined as any activities done to maintain equipment, the building, infrastructure, or materials stored on-site requiring maintenance such as dumpsters, material stockpiles, etc.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation for maintenance activities. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Review each written document annually with municipal employees and update as needed. • New employees are to receive training on written documents during orientation. • Written documents are to be placed in a location that is easily accessible to all employees.
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Number of written documents updated annually or the date of the last update. • Decrease the amount of spills occurring at MS4 owned facilities and at offsite locations where MS4 employees are working. • Monitor spill prevention and clean-up practices and implement additional measures as needed.
Documentation	<ul style="list-style-type: none"> • Document installation of spill prevention measures. • Document the type, size, and time required to clean-up a spill.
Advanced BMPs (optional)	None.
Additional Resources	Partners for a Clean Environment (PACE), Colorado – Municipal Stormwater Operations

5.2.2 Municipal Facility Stormwater Pollution Prevention Plan (SWPPP) or Pollution Prevention and Good Housekeeping Manual (P2&GHM) or Program Document(s)

Regulation: 327 IAC 15-13-17 (a)	An MS4 operator shall develop an SWQMP that includes a commitment to develop and implement a program to prevent or reduce pollutant runoff from municipal operations.
--	---

Implementation BMPs	<ul style="list-style-type: none"> • A SWPPP, P2&GHM, or Program Document(s) should be created for each MS4 owned facility where the potential for pollutants to runoff exists. Program Documents can include SOPs, handbooks, written policies, etc. • Implement employee training on pollution prevention and good housekeeping (refer to Section 2.0 for more information on training requirements). • Additional employee training is to be conducted after each update. This can be as simple as a memo to all employees in the facility with the updated SWPPP, P2&GHM, or Program Document(s) or a hands-on/in person training.
Programmatic Indicator	None.
Possible Measurable Goals	Track the number of SWPPP, P2&GHM or other program documents updated annually or the date of the last update.
Documentation	<ul style="list-style-type: none"> • Number of MS4 owned facility SWPPPs, P2&GHMs, or Program Document(s) updated annually. • The SWPPP, P2&GHM, or Program Document(s) is to be placed in a visible and easily accessible location. • A SWPPP, P2&GHM, or Program Document(s) will be updated as inspections are conducted, spill events occur, changes in employees that are part of a Pollution Prevention Team, stormwater BMPs are updated or changed, etc.
Advanced BMPs (optional)	None.
Additional Resources	<ul style="list-style-type: none"> • USEPA - Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators, EPA 833-B-09-002 • Berkeley County (CA) Stormwater Management Program - Pollution Prevention/Good Housekeeping Manual • Washington Department of Ecology - City of Kent (WA) Public Works Operations Facility & Vector Solids Facility SWPPP - • Toledo Metropolitan Area Council of Governments – Pollution Prevention and Good Housekeeping Practice for Municipal Operations • Riverside County Flood Control and Water Conservation District – Appendix J: Template Pollution Prevention Plan for Municipal Facilities

5.2.3 Up-to-Date Inventory of Materials Stored and Used On-Site Daily

Regulation: 327 IAC 15-13-17 (b) (2)	Controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documents/procedures for chemical storage practices. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Review each procedure annually with municipal employees and update as needed. • New employees are to receive training on procedures during orientation. • Procedures are to be filed in a location that is easily accessible to all employees. • Implement employee training on stored materials (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	None.

Possible Measurable Goals	<ul style="list-style-type: none"> • Maintain a chemical list of containers 5 gallons and greater. • Maintain a list of all chemicals and materials on site. • Number of SOPs updated annually.
Documentation	Document installation of spill prevention measures.
Advanced BMPs (optional)	None.

5.2.4 Management Procedures of Stockpile Storage and Maintenance

Regulation: 327 IAC 15-13-15 (k) (4) and 327 IAC 15-13-17 (b) (2)	<p>In addition to the requirements of 327 IAC 15-5-6.5(a)(7), the MS4-operated project stormwater pollution prevention plan must address the following areas:</p> <p>(4) Temporary staging and material stockpile areas</p> <p>Controls for reducing or eliminating the discharge of pollutants from operational areas, such as, storage stockpiles (soil, gravel, rock, sand etc.).</p>
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documents/procedures for material stockpiles at MS4 owned facilities and at MS4 owned projects. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Review the procedures annually with municipal employees and update as procedures are revised. • Temporary material stockpiles need to have perimeter protection measures installed to prevent runoff from coming into contact with stormwater. • Permanent material stockpiles need to be placed in a contained area that prevents runoff from coming into contact with stormwater. • If indicated from inspections, implement erosion and sediment control measures for soil stockpiles. • Implement employee training on storage of stockpiles (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Number and location of stockpiles at an MS4 facility or MS4 project. • Type and number of protection measures implemented to keep material stockpiles from coming into contact with stormwater. • Number of material stockpiles contained.
Documentation	Documentation of the BMPs used to prevent stormwater from coming into contact with material stockpiles or runoff from material stockpiles.
Advanced BMPs (optional)	Place permanent material stockpiles under cover.

5.2.5 Management Procedures for MS4 Owned and Operated Projects

Regulation: 327 IAC 15-5-6.5 327 IAC 15-13-15 (i), (j), and (k)	<p>Stormwater Runoff Associated with Construction Activity:</p> <p>(i) For those construction activities operated by the MS4 operator or MS4 municipalities within the MS4 area, construction plans must be submitted to the local SWCD, IDEM, or other entity designated by the department for review and approval. If the MS4 operator does not receive either a notice of deficiency or an approval within thirty-five (35) days of the submittal, the plan will be considered adequate.</p> <p>(j) In addition to the requirements of 327 IAC 15-5-6.5, the MS4-operated project construction plans must include a traffic phasing plan for those projects that have the potential to alter vehicular traffic routes.</p> <p>(k) In addition to the requirements of 327 IAC 15-5-6.5(a)(7), the MS4-operated project stormwater pollution prevention plan must address the</p>
---	--

	<p>following areas outside of right-of-ways:</p> <ol style="list-style-type: none"> (1) Utility relocation areas. (2) Material hauling and transportation routes/roads. (3) Borrow pits. (4) Temporary staging and material stockpile areas. (5) Temporary disposal areas for waste materials.
Implementation BMPs	<ul style="list-style-type: none"> • Create a SWPPP or equivalent plan for all MS4 owned and operated projects disturbing one acre or more of land or are part of a larger common plan of development or sale. • Implement employee training on stored materials (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Number of MS4 owned and operated projects with a SWPPP. • Date the SWPPP was last reviewed or revised.
Documentation	Each project's SWPPP is one form of documentation. Additionally, inspection reports are to be filled out weekly and within one business day of a 0.5 inch rain event.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Create a SWPPP or equivalent for all MS4 owned and operated projects. • Include a discussion about erosion and sediment control measures at each project pre-construction meeting.
Additional Resources	<ul style="list-style-type: none"> • IDEM - Construction/Land Disturbance Stormwater Permitting (327 IAC 15-5, Rule 5) • 327 IAC Water Pollution Control Division – NPDES General Permit Rule Program (Rule 5 Permit)

6.0 VEHICLE MAINTENANCE AND FUELING

6.1 OVERVIEW

Traditional and non-traditional MS4s have vehicle maintenance and fueling operations to support their department of public works or agency operations. Chemicals used for maintenance could include large volumes of fuels such as gasoline, diesel, hydraulic fluids, various oils, grease, and other petroleum products. During the life cycle of a new product to becoming a used waste; the use of these products and their associated operations are required to be managed in such a way to prevent discharges.



Provided by the Muncie Sanitary District.

6.2 SITE ASSESSMENT

6.2.1 Fueling Operations

Regulation: 327 IAC 15-13-17 (b) (2) (D)	Controls for reducing or eliminating the discharge of pollutants from operational areas, including appropriate controls for (D) Standard operating procedures for spill prevention and cleanup during fueling operations.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documents/procedures for fueling operations. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Provide and maintain procedures for fueling operations at specific locations. • Provide list of petroleum, oils, and lubricants at each specific location. This could be included in the facility SWPPP, P2&GHM or other written document. • Provide a facility map with the location and type of fueling operations. • Documentation of all drain locations and types (sanitary and storm) at each fueling area. • Implement employee training on fueling operations (refer to Section 2.0 for more information on training requirements). • Outdoor aboveground storage tanks are required to have secondary containment. • Provide sufficient spill materials to properly cleanup a spill. • A SWPPP is to be placed in a visible and easily accessible location.
Programmatic Indicator	<ul style="list-style-type: none"> • Number and location of new municipal fueling areas. • Number and location of municipal refueling areas that replaced existing tank systems that have installed stormwater BMPs.
Possible Measurable Goals	<ul style="list-style-type: none"> • Minimizing or eliminating contact of hazardous materials with stormwater can significantly reduce pollution of downstream waters. • Inspect fuel tanks, containment or area, and loading and unloading operations at least annually.
Documentation	Maintain documentation for spills and facility inspections.

Advanced BMPs (optional)	<ul style="list-style-type: none"> • Fuel vehicles only in designated areas that are covered. • Maintain documentation for fuel usage. • Avoid topping off fuel tanks to prevent spills from overfilling. • Prevent run-on of stormwater into fueling areas using diversion dikes, berms, curbing, surface grading, or other measures. • Use catch basin inserts to prevent discharge into storm drains. • Provide barriers around fuel pumps to prevent collisions with vehicles. • Use fueling hoses with check valves to prevent hose drainage after filling. • Use drip pans, drain boards, and drying racks to direct drips back to a fluid holding tank for reuse or proper disposal. • Do not pour liquid waste into sinks, floor drains, outdoor storm drain inlets, or other storm drains or sewer connections.
Additional Resources	Minnesota Pollution Control Agency – Stormwater Program for MS4s

6.2.2 Vehicle Maintenance

Regulation: 327 IAC 15-13-17 (b) (2) (E)	Controls for reducing or eliminating the discharge of pollutants from operational areas, including appropriate controls for (E) BMPs for vehicular maintenance activities.
Implementation BMPs	<ul style="list-style-type: none"> • Provide a sufficient amount of spill materials to cleanup a spill. • A SWPPP, P2&GHM or other documents is to be placed in a visible and easily accessible location. • Perform routine maintenance on vehicles and equipment to prevent spills and leaks. • Provide a list of petroleum, oils, and lubricants at each specific location. This could be included in the facility SWPPP, P2&GHM, or other written document. • Provide a facility map with the location and type of storage facilities for each maintenance location. • Documentation of all drain locations and types (sanitary and storm) at each maintenance location. • Do not pour liquid waste into sinks, floor drains, outdoor storm drain inlets or other storm drains or sewer connections. • Implement employee training on vehicle maintenance (refer to Section 2.0 for more information on training requirements). • Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers per state and federal requirements (refer to Section 9).
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Minimizing or eliminating contact of hazardous materials with stormwater can significantly reduce pollution of downstream waters. • Maintain an inventory of all raw and waste materials to identify leakage and order new materials only when needed. • Inspect maintenance areas annually to ensure BMPs are implemented. • Document through vehicle maintenance reports, work orders, or other documents for the maintenance performed on vehicles and equipment recording oil change, date and time, tires air pressure checked, rotated, and condition, fluids checked – coolant, window shield cleaner, etc.
Documentation	<ul style="list-style-type: none"> • Document maintenance activities on vehicles and equipment on work orders or by other means as applicable. • Document facility inspections.

Advanced BMPs (optional)	<ul style="list-style-type: none"> • Provide weekly log for vehicles and types of maintenance. • Use drip pans under leaking vehicles and equipment.
Additional Resources	Minnesota Pollution Control Agency – Stormwater Program for MS4s

6.2.3 Vehicle Washing

Regulation: 327 IAC 15-13-17 (b) (2) (F)	Controls for reducing or eliminating the discharge of pollutants from operational areas, including appropriate controls for (F) Prohibition of equipment or vehicle wash waters and concrete or asphalt hydrodemolition waste waters into stormwater run-off except under the allowance of an appropriate NPDES wastewater permit.
Implementation BMPs	<ul style="list-style-type: none"> • Provide and maintain written documents/procedures for vehicle washing. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Establish a designated wash/rinse area onsite or at an offsite location. • Establish if vehicles/equipment will be washed or rinsed in each established area. • Implement employee training on vehicle washing (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Maintain a water and detergent usage log. • Inspect vehicle washing areas annually to ensure BMPs are implemented. • Document through vehicle maintenance reports, work orders or other documents of when vehicles and equipment were washed, the date and time.
Documentation	<ul style="list-style-type: none"> • Maintain procedures.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Clean equipment and vehicles regularly to remove accumulated dust and residue. • Perform all cleaning operations indoors or under cover when possible. • Water used for cleaning and decontamination shall not be allowed to enter storm drains or watercourses and shall be collected and disposed of in accordance with state and federal regulations (refer to Section 9). • Install covered wash racks that discharge wash water to the sanitary sewer, or contract the services of commercial car washes. • Route washing area drains to oil/water separators or the sanitary sewer. • Avoid detergents whenever possible. If detergents are necessary, a phosphate-free, non-toxic, biodegradable soap is recommended. Detergents should be avoided if an oil/water separator is used for pretreatment prior to discharge to the sanitary sewer.
Additional Resources	<ul style="list-style-type: none"> • USEPA – Municipal Vehicle and Equipment Washing • Minnesota Pollution Control Agency – Stormwater Program for MS4s

7.0 PUBLIC STREETS OPERATION AND MAINTENANCE

7.1 OVERVIEW

This section describes how the practices typically performed by a Street or Highway department are managed and documented. The activities may include snow plowing, salt application, repairs of roadside vegetation, street sweeping, chemical storage and other roadway or building maintenance practices conducted at these facilities.



Provided by the Muncie Sanitary District.

7.2 SITE ASSESSMENT

7.2.1 Pavements/Street Sweeping

Regulation: 327 IAC 15-13-17 (b) (1) (C)	Written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers. Maintenance activities shall include, as appropriate, the following: (C) Periodic pavement sweeping as defined in the MS4 area SWQMP.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures describing the activity. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Include a frequency or schedule for street sweeping in the procedure. • Perform routine maintenance on street sweeping vehicles to prevent spills and leaks. • Implement employee training on street sweeping operations (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	Estimated or actual amount of material by weight collected from street sweeping.
Possible Measurable Goals	<ul style="list-style-type: none"> • Decrease pollutants to the storm sewer system by sweeping streets and municipally-owned paved areas. • Sweep all streets several times per year (MS4 to decide frequency of sweeping). • Track the amount of streets swept.
Disposal	Describe in the procedure the disposal process and temporary storage method for street sweeping material. Materials must be: <ul style="list-style-type: none"> • Stored for less than six months at the municipality before disposal at a permitted landfill unless the MS4 can prove long-term storage is not intended. • Stored in 1) a covered container; or 2) on an impervious surface, covered and the runoff/run-on contained. • Stored in an area where the material will not wash into a waterway or wetland. • Refer to Section 9.2.2 for disposal measures.
Documentation	Record the amounts of debris collected on tracking logs, work orders or other means; or if the material is segregated from other debris, maintain disposal invoices with tonnage.

Advanced BMPs (optional)	<ul style="list-style-type: none"> • Designate a wash out area for the street sweeping vehicle where wash water is discharged to a sanitary sewer. • Implement a screening and reuse program for street sweeping materials. • Schedule street sweeping activities during spring snowmelt to reduce deicing pollutants to the storm sewer. • Prioritize sweeping for areas based on high-traffic areas, curb/no curb areas, observations, complaints, and proximity to waterways. • Store sweeping materials in a drying bed at the wastewater plant before disposal so runoff/run-on flows to the sanitary sewer. • Store sweeping materials under roof to prevent contact with precipitation.
Additional Resources	USEPA Stormwater BMPs – Parking Lot and Street Cleaning

7.2.2 Roadside Shoulder and Ditch Stabilization

Regulation: 327 IAC 15-13-17 (b) (1) (D)	Written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers. Maintenance activities shall include, as appropriate, the following: (D) Roadside shoulder and ditch stabilization.
Implementation BMPs:	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures for the activity. • Include a frequency or schedule for inspecting shoulders and ditches in the procedure. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Implement employee training on stabilization operations (refer to Section 2.0 for more information on training requirements). • Refer to Section 9.2.2 for disposal measures.
Programmatic Indicator:	Estimate or actual linear feet or percentage and location of roadside shoulders and ditches stabilized.
Possible Measurable Goals	<ul style="list-style-type: none"> • Decrease erosion and sedimentation potential through the stabilization of ditches and shoulders that have been damaged or eroded. • Increase the linear feet of stabilized roadside shoulders or ditches. • Increase the total area vegetated.
Documentation	Record the location and linear feet of ditch or shoulder stabilized or repaired with tracking logs, work orders or other means.
Advanced BMPs (optional):	<ul style="list-style-type: none"> • Minimize areas of exposed soil on side slopes and ditches. • Remove ridges of road material or vegetation from the road shoulder so not to block runoff. • Install stone aprons at culvert outlets where erosion is occurring.
Additional Resources:	Maine Department of Environmental Protection – Maine Erosion and Sediment Control BMPs Road Construction and Stabilization

7.2.3 Planting and Proper Care of Roadside Vegetation

Regulation: 327 IAC 15-13-17 (b) (1) (E)	Written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the separate storm sewers. Maintenance activities shall include, as appropriate, the following: (E) Planting and proper care of roadside vegetation.
--	--

Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures for the activity. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Include a frequency or schedule for inspecting roadside vegetation in the procedure. • Implement employee training on roadside vegetation (refer to Section 2.0 for more information on training requirements). • Refer to Section 9.2.2 for disposal measures.
Programmatic Indicator	Estimated or actual linear feet or percentage and location of vegetated swales and ditches that have an appropriately sized vegetated filter strip.
Possible Measurable Goals	<ul style="list-style-type: none"> • Decrease pollutants to waterways by providing a vegetative buffer along roadways. • Track the amount square feet of areas seeded, mulched, or netting used.
Documentation	Document the locations and linear feet of unvegetated swales or ditches with an appropriately sized vegetative strip with tracking logs, work orders or other means.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Plant native grasses and wildflowers that require less maintenance (mowing and chemical applications). • Plant salt tolerant species. • Plant native trees in a manner that will not interfere with storm sewer systems and drainage. Track or measure the number of trees planted or canopy created. Implementation tools may include i-Tree, National Tree Benefit Calculator, or Urban Tree Canopy.

7.2.4 Salt and Sand Storage

Regulation: 327 IAC 15-13-17 (b) (2) (A)	<p>Controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations. Appropriate controls shall include the following:</p> <p>(A) Covering or otherwise reducing the potential for polluted stormwater run-off from deicing salt or sand storage piles.</p>
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures for the activity. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Cover or reduce the potential for stormwater contacting deicing salt or sand storage piles (i.e. enclosed building, storage shed or tarp). • Provide containment of any accidental losses of concentrated solutions, salts and other polluting materials (i.e. sweep back or collect salt that has escaped the covered area). • Implement employee training on salt storage operations (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	<ul style="list-style-type: none"> • Number and location of deicing salt and sand storage areas covered or otherwise improved to minimize stormwater exposure. • Estimated or actual amount (tons) of salt and sand used for snow and ice control.
Possible Measurable Goals	<ul style="list-style-type: none"> • Investigate alternate road deicing measures. Alternatives to road salt may include: calcium magnesium acetate (CMA), calcium chloride, urea, sand, natural brines, potassium chloride, magnesium chloride (Freeze Guard), sodium formate and regular salt such as Quik Salt, and CG-90 (sodium chloride). • Calibrate salt spreaders routinely.
Documentation	<ul style="list-style-type: none"> • Document the deicing chemical storage locations in procedures or other documents. • Document the amount of deicing chemicals (salt, sand, brine, etc.) used or purchased with tracking logs, work orders, invoices or other means.

Advanced BMPs (optional)	<ul style="list-style-type: none"> • Implement alternate deicing chemicals, such as, beet juice, brine or other materials. • Annually calibrate the salt spreaders. • Use brine to accelerate the melting of ice. • Provide an area with secondary containment and impervious surface for storage of chemical deicing containers. • Segregate stormwater runoff from salt piles to use as a base for salt brine. • Inform salt applicators of sensitive areas, such as public water supplies, lakes, and ponds. Consider de-icing alternatives in sensitive areas. • Store salt on an impermeable pad, not on the ground. Asphalt is the most widely used material for pads, since salt has little effect on it. However, concrete is sometimes used. Concrete must be high quality, air-entrained and treated with linseed oil or asphalt-type coatings to reduce chloride penetration, and prevent scaling or spalling (i.e. flaking). • Do not store salt in sensitive areas (i.e. zone of influence of water supply wells, significant recharge areas, lakes and wetlands) or within the 100-year floodplain to reduce water contamination
Additional Resources:	<ul style="list-style-type: none"> • Indiana Local Technical Assistance Program (LTAP) – Snow and ice control training, publications and salt application calibration • University of New Hampshire Technology Transfer Center – Salt Reduction BMPs • New Hampshire Department of Environmental Services – Road Salt Reduction • Tahoe Regional Planning Agency BMP Handbook – Snow Storage • USEPA Stormwater BMPs – Road Salt Application and Storage

7.2.5 Snow Disposal Area

Regulation: 327 IAC 15-13-17 (b) (2) (B)	<p>Controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations. Appropriate controls shall include the following:</p> <p>(B) Establishing designated snow disposal areas that have minimal potential for pollutant run-off impact on MS4 area receiving waters.</p>
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures for area. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Designate a snow disposal area for excessive snow falls. The snow disposal location should not be placed directly in or immediately adjacent to surface waters (including wetlands), nor in the vicinity of a wellhead protection area. • Implement employee training on snow disposal operations (refer to Section 2.0 for more information on training requirements).
Programmatic Indicator	<ul style="list-style-type: none"> • Ensure that snow is only deposited in the designated location and not placed on an impervious surface. • Train and/or inform personnel annually of the location for snow disposal.
Possible Measurable Goals	Reduce the potential for road salt entering stormwater through the use of grass covered snow disposal areas located away from the receiving waters.
Documentation	Document the snow disposal locations in procedures or other documents.

<p>Advanced BMPs (optional)</p>	<ul style="list-style-type: none"> • Direct snow piles to detention basins so that the soil and other debris attached to the snow can settle out before the water is discharged to surface waters. • After the snow melts, collect litter to prevent it from entering the stormwater system. • When storing snow in landscaped areas, plant with native and adapted species tolerant of snow storage (perennials that die back annually and shrubs/trees that can bend with weight, but not break). • Employ concave landscaped areas rather than mounded landscapes for snow storage. • Locate snow storage areas to maximize solar exposure and away from primary roadways to the greatest extent feasible
-------------------------------------	---

8.0 PESTICIDE, HERBICIDE AND FERTILIZER APPLICATION AND MANAGEMENT

8.1 OVERVIEW

This section pertains to the use of pesticides, herbicides, and fertilizer application and management. This would be chemicals that are stored or used at an MS4 facility by employees of the facility or under their supervision. This section explains how to determine if the chemical is restricted, training that should be completed, application, storing, and necessary documentation.



Provided by the Hancock County Surveyor.

8.2 SITE ASSESSMENT

8.2.1 Use of Restricted Chemicals

<p>Regulation: 327 IAC 15-13-17 (b) (2) (G)</p>	<p>Minimization of pesticide and fertilizer use. Pesticides shall be used, applied, handled, stored, mixed, loaded, transported, and disposed of via the Office of the Indiana State Chemist’s (OISC) guidance requirements.</p>
<p>Implementation BMPs</p>	<ul style="list-style-type: none"> • Restricted chemicals cannot be applied without a license. • Create and maintain written documentation /procedures. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Identify restricted pesticides, herbicides, fertilizer, etc. used at municipal facilities. • Refer to Section 9.2.2 for disposal measures. • Identify personnel appropriately licensed with the OISC to apply chemicals. Only licensed personnel may apply restricted chemicals. Departments that apply chemicals may include: highway or street, parks, water & sanitary, health, Sherriff or police, and surveyor. • Identify locations where restricted chemicals are applied. Areas could include: road right-of-ways, culverts, bridges, parks, golf courses, open ditches, manholes, shooting range, fairgrounds, cemeteries, lawns around buildings, and sidewalks. • Identify contractors used to apply restricted chemicals (if applicable). • Implement appropriate secondary containment for restricted pesticides as identified in 355 IAC 5-2 if the stored amount exceeds 55 gallons. Otherwise, follow recommended storage practices as described on the container label (i.e. containment, heating/cooling conditions) • Implement stormwater general training for chemical application contractors (refer to Section 2.0 for more information on training requirements). Content should include: stormwater basics, litter collection, proper storage of chemicals, spill notification, and waste disposal. • Licensed employees are to follow the OISC requirements for continuing education for chemical application.
<p>Programmatic Indicator</p>	<p>Estimated or actual acreage or square footage, amount, and location where restricted pesticides and fertilizers are applied by a regulated MS4 entity to places where stormwater can be exposed with in the MS4 area.</p>

Possible Measurable Goals	<ul style="list-style-type: none"> Track the amount of restricted chemicals applied, chemical name and the locations. Track the number of sites treated. Document the locations where restricted chemicals are stored.
Documentation	<ul style="list-style-type: none"> Document chemical application according to OISC requirements and the regulations (355 IAC 4-4-1 or 1.5) that includes, but is not limited to, dates, applicator name and license number, location, chemical name and amount. Document fertilizer application according to OISC requirements and the regulations (355 IAC 8-5-2) that includes, but is not limited to, dates, applicator name and license number, location, chemical name and amount. Maintain a copy of each employee's valid OISC license.
Advanced BMPs (optional)	<ul style="list-style-type: none"> Store pesticides in drums or smaller containers and store indoors to prevent contact with stormwater. Store restricted chemicals in a secured/locked area. Provide training for golf course ground crews. Educate employees on proper application. Restrict application of herbicides in drainage ditches to promote natural vegetation that filters stormwater.
Additional Resources:	<ul style="list-style-type: none"> Office of Indiana State Chemist – information on training and licenses USEPA - Restricted Use Products Report (identifies restricted chemicals) Pesticide Use and Application (355 IAC 4) Fertilizer Material Use (355 IAC 8) Storage and Secondary Containment of Pesticides (355 IAC 5) Natural Resources Conservation Service - Pest Management IDEM - Integrated Pest Management

8.2.2 Use of Non-Restricted Chemicals

Regulation:	Chemicals purchased at a retail, hardware, or home improvement store are non-restricted use pesticides, herbicides and fertilizers. Non-restricted chemicals can be applied without a license.
Implementation BMPs	<ul style="list-style-type: none"> Implement employee training for non-restricted chemical application and handling (refer to Section 2.0 for more information on training requirements). Training should include: reading, understanding, and following the chemical label, not applying before a storm or in high winds, waste disposal, and spill/chemical handling. Refer to Section 9.2.2 for disposal measures. Identify non-restricted pesticides, herbicides, fertilizer, etc. used at municipal facilities. Identify personnel/departments that apply non-restricted chemicals. Identify general locations where non-restricted chemicals are applied. Areas could include: road right-of-ways, culverts, bridges, parks, golf courses, open ditches, manholes, shooting range, fairgrounds, cemeteries, lawns around buildings, and sidewalks.
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> Track the amount of non-restricted chemicals applied, chemical name and the locations. Track the number of sites treated. Document the locations where non-restricted chemicals are stored.

Documentation	<ul style="list-style-type: none"> • Track the amount of non-restricted chemicals purchased through log sheets or receipts/invoices. • Record and track amounts applied and location of application.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Educate the community on how to apply and when to apply, including: not to applying in certain weather conditions, only using the amount needed for an area, disposal of unused chemicals, safety concerns, etc. • Educate the community on the effects of over using pesticides and fertilizer. • Promote non-chemical pest control options to the community. • Prevent or restrict chemical application around waterways. • Train employees specifically on pesticide, herbicide, or fertilizer application.
Additional Resources:	<ul style="list-style-type: none"> • USEPA Pesticides - http://www.epa.gov/pesticides/health/safely.htm • USEPA Using Pesticides Safely - http://www.epa.gov/pesticides/health/safely.htm • USEPA Citizen’s Guide to Pesticide Control and Safety - http://www.epa.gov/oppfead1/Publications/Cit_Guide/

9.0 SPILL PREVENTION, RESPONSE AND DISPOSAL

9.1 Overview

This section reviews the appropriate spill prevention practices employees should implement, describes response measures in the event of an emergency, and identifies disposal requirements for recyclable or waste materials.



Provided by the Muncie Sanitary District.

9.2 Site Assessment

9.2.1 Spill Prevention and Response

<p>Regulation: 327 IAC 15-13-17 (b) (2) (C)</p>	<p>Controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations. Appropriate controls shall include the following:</p> <p>(C) Providing facilities for containment of any accidental losses of concentrated solutions, acids, alkalis, salts, oils, or other polluting materials.</p>
<p>Implementation BMPs</p>	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures. This could be in the form of SOPs, SWPPPs, P2&GHMs, or other applicable format. • Identify chemical storage areas and structural containment, containment equipment and spill equipment at municipal facilities and describe in the procedures or other documents. • Implement storage measures to prevent a spill or leak from exiting the building or entering a storm conveyance (secondary containment, spill equipment, etc.) • Inspect chemical storage areas, containment systems, and spill equipment for issues or concerns. • Describe employee emergency spill response and notification procedures in procedures or other documents. • Provide sufficient spill materials for cleanup of a spill. • Secondary containment is to be provided for containers/tanks storing oils or petroleum products in accordance with the Fire Prevention Code and the Water Quality Standards (327 IAC 2-10). • Implement spill response measures according to the Indiana Spill Rule (327 IAC 2-6.1) and other federal regulations including 40 CFR 110 & 112 (SPCC Rule) and EPCRA Emergency Release Notifications (40 CFR 302). • Implement employee training on spill prevention and response (refer to Section 2.0 for more information on training requirements).
<p>Programmatic Indicator</p>	<ul style="list-style-type: none"> • Number and location of municipal facilities that have containment for accidental releases of stored materials that could be a potential pollutant. • Number and location of municipal refueling areas that replace existing tank systems that have installed stormwater BMPs.

Possible Measurable Goals	<ul style="list-style-type: none"> • Store chemical containers with a capacity of 55-gallons and greater within secondary containment. • Provide all aboveground storage tanks and chemical containers with secondary containment. • Conduct regular inspections and perform good housekeeping as inspection results indicate. • Record the amount (in gallons or pounds) of chemicals stored at an MS4 owned facility annually. • Provide spill equipment near chemical storage areas. • Provide annual training to employees on spill prevention and response.
Documentation	<ul style="list-style-type: none"> • Document the chemical storage locations in procedures or other documents. • Document the types of containment or spill equipment provided in procedures, SWPPPs or other documentation. • Document routine facility inspections. • Document spills and response activities according to the Indiana Spill Rule (327 IAC 2-6.1) and other federal requirements. • Update spill prevention procedures and/or plans after a spill or when facility operations change.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Verify monthly that spill control and clean up materials are located near material storage, unloading, and use areas. • Replace or upgrade single-walled tanks with double-walled tanks that are equipped with leak detection gauges and liquid level devices. • Delegate the responsibility for management of hazardous materials to personnel trained and experienced in hazardous substance management. • Provide secondary containment for chemical containers 55 gallons and greater. • Provide a form of secondary containment for chemical containers five gallons and greater. • Seal or disconnect all floor drains within garages and maintenance areas. • Connect floor drains to a collection system or oil/water separator and the sanitary sewer and not the storm sewer. • Ensure sufficient aisle space to provide access for inspections and to improve the ease of material transport. • Store materials away from high-traffic areas to reduce the likelihood of accidents that might cause spills or damage to drums, bags, or containers. • Stack containers in accordance with the manufacturers' directions to avoid damaging the container or the product. • Only store on-site the amount of material or product needed to complete a job. • Schedule more frequent deliveries of materials and products to reduce the amount stored on-site at an MS4 owned facility. • Annually assess the amount of petroleum products stored on-site for possible regulation under the SPCC Rule (40 CFR 112).

9.2.2 Waste Disposal

Regulation: 327 IAC 15-13-17 (b) (3)	<p>Written procedures for the proper disposal of waste or materials removed from separate storm sewer systems and operation areas. All materials removed from separate storm sewer systems and operational areas, including dredge spoil, accumulated sediments, floatables, and debris, must be:</p> <ul style="list-style-type: none"> (A) reused or recycled; or (B) disposed of in accordance with applicable solid waste disposal regulations.
--	---

<p>Implementation BMPs</p>	<ul style="list-style-type: none"> • Dispose of wastes according to state and federal regulations. • Identify wastes generated and complete a waste determination. Wastes could include: street sweeping debris, catch basin debris, vehicle wash waters, used oil, used absorbent, used antifreeze, used oil filters, waste fuels, parts washer liquids, flammable liquids, waste aerosol cans, empty drum/containers, used tires, scrap metal, trash, general recyclables, electronic waste (computers, phones, televisions, etc.), universal waste (bulbs, batteries, mercury containing devices and pesticides), polychlorinated biphenyls (PCB) transformers and waste, and other hazardous wastes. • Determine proper waste disposal methods or recycling options. Used oils and electronic/universal waste should be recycled. Collected vegetation (leaves, limbs, etc.) cannot be placed in a landfill. Catch basin and street sweeping debris cannot be stored in a floodway and should be disposed of at least every 6 months (typically in a landfill). • Determine appropriate waste storage practices, especially, if waste is stored outdoors (i.e. dumpsters, stockpiles, tanks). • Create and maintain written documentation /procedures. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Label all waste containers. • Implement employee training for waste disposal (refer to Section 2.0 for more information on training requirements).
<p>Programmatic Indicator</p>	<p>None.</p>
<p>Possible Measurable Goals</p>	<ul style="list-style-type: none"> • Decrease the amount of pollution to stormwater by properly disposing of or recycling waste materials. • Increase awareness of appropriate items to recycle. • Track the amount of materials reused. • Track the amount of materials disposed of at a landfill. • Track the amount of materials recycled including tires, electronic waste, universal waste (bulbs and batteries), used oil, scrap metal, etc.
<p>Documentation</p>	<p>Track the amount and type of materials disposed of or recycled. This can be through vendor invoices, shipping documents, or a tracking form.</p>
<p>Advanced BMPs (optional)</p>	<ul style="list-style-type: none"> • Identify all hazardous and nonhazardous substances present at a facility. This can be accomplished by reviewing all purchase orders for the facility and walking through the facility itself. Compile a list of all chemicals present at a facility and obtain a Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) for each one. • Label all containers with the name of the chemical, unit number, expiration date, handling instructions, and health or environmental hazards. Much of this information will be found on the MSDS or SDS. Often, insufficient labeling leads to improper handling or disposal of hazardous substances. • Make special note on the inventory of hazardous chemicals that require special handling, storage, or disposal. • Replace toxic chemicals with less toxic or environmentally friendly chemicals.
<p>Additional Resources:</p>	<ul style="list-style-type: none"> • IDEM Fact Sheet: Street Sweeping Debris Disposal and Management • IDEM Office of Land Quality: Permit Guide • IDEM Hazardous Waste • IDEM Universal Waste • IDEM Electronic Waste • IDEM Used Oil Rule

9.2.3 Management Procedures for Composting Locations/Facilities (if applicable)

Regulation: 327 IAC 15-13-17 (b) (2)	Controls for reducing or eliminating the discharge of pollutants from operational areas, such as, compost and vegetative matter piles.
Implementation BMPs	<ul style="list-style-type: none"> • Create and maintain written documentation/procedures for composting locations/facilities. This could be SOPs, SWPPPs, P2&GHMs, or other applicable format. • Review each procedure annually with municipal employees and update as needed. • Prevent runoff from composting areas from contacting stormwater. • Develop containment areas for composting locations so runoff is properly contained and treated. • Implement employee training on storage of stockpiles (refer to Section 2.0 for more information on training requirements). • Follow the Indiana Code 13-20-10-8 for requirements for composting facilities.
Programmatic Indicator	None.
Possible Measurable Goals	<ul style="list-style-type: none"> • Composting locations/facilities are open to the public at convenient hours. • Composting locations/facilities are adequately handling all compostable materials on a monthly basis.
Documentation	Registered composting facilities must submit an annual report by January 31 of each year to IDEM.
Advanced BMPs (optional)	<ul style="list-style-type: none"> • Record the amount of compostable materials dropped off by the public. • Record the amount of compostable materials dropped off by the MS4. • Record the amount of compostable materials products purchased or used by the public and MS4.
Additional Resources:	<ul style="list-style-type: none"> • IDEM Composting • IDEM Registered Composting Facility Annual Report • IDEM Guidance for the Design and Operation of Yard Waste Composting Facilities

10.0 WORKGROUP/CONTRIBUTING AUTHORS

Many individuals provided important content for this document.

Special acknowledgement goes to Amy Harvell for helping coordinate the compilation effort and serving as editor.

Other key contributors include:

Alicia Barber, Water Manager, Town of New Chicago

Susan Bodkin, Surveyor, Hancock County

Richard Budziak, MS4 Coordinator, Lake County

Toni Cecil, Stormwater Compliance Inspector, Delaware County

Kerry Daily, Consultant, Christopher B. Burke Engineering, LLC.

Lori Gates, Senior Project Manager, Christopher B. Burke Engineering, LLC.

Amy Harvell, Environmental Services Project Manager, Wessler Engineering

Arber Himaj, District Engineer, Michigan City

Jason Kauffman, Stormwater Coordinator, City of Goshen

Rajeanne Korthals, MS4 Program Coordinator, Indiana Department of Environmental Management

Greg Lake, Stormwater District Administrator, Howard County

Kriste Lindberg, Stormwater Education Specialist, City of Bloomington Utilities Department

Michael Mang, Vice President Information Services, Butler, Fairman and Seufert, Inc.

James Mardis, Director, Hendricks County Regional Sewer District

Theresa Sailor, Urban Water Resources

Leslie Schick, Environmental Compliance, Indiana National Guard

Mark Sullivan, Project Engineer, Midwestern Engineers, Inc.

11.0 RESOURCES

- American Association of State Highway and Transportation Officials (ASHTO) www.transportation.org
- Center for Watershed Protection Manual #9 – “Municipal Pollution Prevention/Good Housekeeping Practices”
- Environmental Protection Agency (EPA) - <http://www.epa.gov/>
 - EPA “MS4 Program Evaluation Guidance” EPA-833-R-07-003
 - EPA National BMP Tool Box – MCM 6 Example BMPs
<http://water.epa.gov/polwaste/npdes/swbmp/Pollution-Prevention-Good-Housekeeping-for-Municipal-Operatators.cfm>
- IAC 327 IAC 2-6.1 – Spills Reporting, Containment, and Response - www.in.gov/legislative/iac/T03270/A00020.PDF
- Indiana Annual MS4 Meeting, <http://indianams4.org/>
- Indiana Department of Environmental Management (IDEM) - <http://www.in.gov/idem/>
 - 304 Reporting - <http://www.in.gov/idem/landquality/2360.htm>
 - Emergency Response website - www.in.gov/idem/landquality/2347.htm
- Indiana Local Technical Assistance Program (LTAP), <http://rebar.ecn.purdue.edu/LTAP1/Home/>
- Excal Visual Stormwater videos (<http://excalvisual.com/products.pl?ProductID=58>)
- Indiana Small Business Guide to Environmental, Safety, and Health Regulations - <https://secure.in.gov/idem/5556.htm>
- Indiana AFSM (INAFSM) - <http://www.inafsm.net/>
 - Stormwater Committee website & videos - www.inafsm.net
- Indiana DNR Regulatory Programs – Flood Control Act (1-2-3) www.in.gov/dnr/water/4963.htm#3
- Indiana Local Technical Assistance Program (LTAP) - rebar.ecn.purdue.edu/ltap1/Home
- Indiana Department of Transportation (INDOT) website
- International Erosion Control Association (IECA) - www.ieca.org
- Other State Programs
 - North Central Texas Council of Governments - <http://www.nctcog.org/>
 - North Carolina State University - <https://www.ncsu.edu/>
- Reportable quantities for spill reporting – 40 CFR 117, 40 CFR 302 or the List of Lists <http://www2.epa.gov/epcra/epcracerclacaa-ss112r-consolidated-list-lists-march-2015-version>
- US Army Corps of Engineers – How to Obtain a Permit - <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/ObtainPermit.aspx>
- Waterways Permitting Handbook - www.in.gov/idem/wetlands/files/waterways_permitting_handbook.pdf
- For information on how MS4 communities in Indiana have developed their municipal pollution prevention and good housekeeping programs contact these following communities:
 - Town of Merrillville
 - Tippecanoe County Partnership for Water Quality
 - Muncie Sanitary District Stormwater Management
 - Southern Indiana Stormwater Advisory Committee (SWAC)

12.0 ACRONYMS AND DEFINITIONS

12.1 ACRONYMS

ACE	Army Corps of Engineers
BMPs	Best Management Practices
CMS4S	Certified MS4 Specialist
CPESC	Certified Professional in Erosion and Sediment Control
CPSWQ	Certified Professional in Stormwater Quality
CWA	Clean Water Act
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
GIS	Geographical Information System
GPS	Global Positioning System
HHW	Household Hazardous Waste
IAC	Indiana Administrative Code
IC	Indiana Code
IDDE	Illicit Discharge Detection and Elimination
IDEM	Indiana Department of Environmental Management
IDEM OWQ	Indiana Department of Environmental Management – Office of Water Quality
IDNR	Indiana Department of Natural Resources
INAFSM	Indiana Association for Floodplain and Stormwater Management
MCMS	Minimum Control Measures
MS4	Municipal Separate Storm Sewer System
MSDS	Material Safety Data Sheet
NPDES	National Pollutant Discharge Elimination System
OISC	Office of the Indiana State Chemist
O&M	Operational and Maintenance
OSHA	Occupational Safety and Health Administration
P2&GH	Pollution Prevention and Good Housekeeping
P2&GHM	Pollution Prevention and Good Housekeeping Manual
RCRA	Resource Conservation and Recovery Act
SDS	Safety Data Sheet

SOPs	Standard Operating Procedures
SPCC	Spill Prevention, Control, and Countermeasure Plan
SWCD	Soil and Water Conservation District
SWMD	Solid Waste Management District
SWPPP	Stormwater Pollution Prevention Plan
SWQMP	Stormwater Quality Management Plan

12.2 DEFINITIONS

Best Management Practices. Any structural or nonstructural control measure utilized to improve the quality and, as appropriate, reduce the quantity of stormwater runoff. The term includes schedules of activities, prohibitions of practice, treatment requirements, operation and maintenance procedures, use of containment facilities, land-use planning, policy techniques, and other management practices.

Catch Basin. A chamber usually built at the curb line of a street for the admission of surface water to a storm sewer or subdrain, having at its base a sediment sump designed to retain grit and detritus below the point of overflow.

Comprehensive Stormwater Management Program. A comprehensive stormwater program for effective management of stormwater quantity and quality throughout the community.

Conveyance. Any structural method for transferring stormwater between at least two points.

Culvert. A closed conduit used for the conveyance of surface drainage water under a roadway, railroad, canal, or other impediment.

Detention. Managing stormwater runoff by temporary holding with a controlled release.

Discharge. Usually the rate of water flow. A volume of fluid passing a point per unit time commonly expressed as cubic feet per second, cubic meters per second, gallons per minute, or millions of gallons per day.

Ditch. A man-made, open drainage way in or into which excess surface water or groundwater drained from land, stormwater runoff, or floodwaters flow either continuously or intermittently.

Drain. A buried slotted or perforated pipe or other conduit (subsurface drain) or a ditch (open drain) for carrying off surplus groundwater or surface water.

Drainage. The removal of excess surface water or groundwater from land by means of ditches or subsurface drains.

Dry Well. A type of infiltration practice that allows stormwater runoff to flow directly into the ground via a bored or other excavated opening in the ground surface.

Erosion. The wearing away of the land surface by water, wind, ice, gravity, or other geological agents. The following terms are used to describe different types of water erosion:

- *Accelerated erosion*--Erosion much more rapid than normal or geologic erosion, primarily as a result of the activities of man.
- *Channel erosion*--An erosion process whereby the volume and velocity of flow wears away the bed and/or banks of a well-defined channel.

- **Gully erosion**--An erosion process whereby runoff water accumulates in narrow channels and, over relatively short periods, removes the soil to considerable depths, ranging from 1-2 ft. to as much as 75-100 ft.
- **Rill erosion**--An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently disturbed and exposed soils (see Rill).
- **Splash erosion**--The spattering of small soil particles caused by the impact of raindrops on wet soils; the loosened and spattered particles may or may not be subsequently removed by surface runoff.
- **Sheet erosion**--The gradual removal of a fairly uniform layer of soil from the land surface by runoff water.

Geographical Information System (GIS). A computer system capable of assembling, storing, manipulation, and displaying geographically referenced information. This technology can be used for resource management and development planning.

Global Positioning System (GPS). A system that provides specially coded satellite signals that is processed by a receiver, which determines position, velocity, and time. The system is funded and controlled by the U.S. Department of Defense.

Household Hazardous Waste (HHW). Solid waste generated by households that is ignitable, toxic, reactive, corrosive, or otherwise poses a threat to human health or the environment.

Illicit Discharge. Any discharge to an MS4 conveyance that is not composed entirely of stormwater.

Impervious. Not allowing infiltration.

Infiltration. Passage or movement of water into the soil.

Minimum Control Measure (MCM). Minimum measures required by the NPDES Phase II program. The six (6) MCMs are: Public education and outreach, Public participation and involvement, Illicit discharge detection and elimination, Construction site runoff control, Post-construction runoff control, and Pollution prevention and good housekeeping.

MS4 Operator. The person responsible for development, implementation, or enforcement of the MCMs for a designated MS4 area.

Municipal Separate Storm Sewers. An MS4: (1) is a conveyance or system of conveyances owned by the state, county, city, town, or other public entity; (2) discharges to waters of the U.S.; (3) is designed or used for collecting or conveying stormwater; (4) is not a combined sewer; and, (5) is not part of a Publicly Owned Treatment Works (POTWs).

National Pollutant Discharge Elimination System (NPDES). A permit developed by the U.S. EPA through the Clean Water Act. In Indiana, the permitting process has been delegated to IDEM. This permit covers aspects of municipal stormwater quality.

Outfall. The point, location, or structure where wastewater or drainage discharges from a pipe or open drain to a receiving body of water.

Outlet. The point of water disposal from a stream, river, lake, tidewater, or artificial drain.

Pesticides. Chemical compounds used for the control of undesirable plants, animals, or insects. The term includes insecticides, herbicides, algaecides, rodenticides, nematicides, fungicides, and growth regulators.

Phosphorus (available). Inorganic phosphorus that is readily available for plant growth.

Point Source. Any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged (P.L. 92-500, Section 502[14]).

Programmatic Indicator. Any data collected by an MS4 entity that is used to indicate implementation of one (1) or more minimum control measures.

Publically Owned Treatment Works (POTW). A municipal operation that breaks down and removes contaminants in the wastewater prior to discharging to a stream through primary and/or secondary treatment systems.

Receiving Stream. The body of water into which runoff or effluent is discharged.

Redevelopment. Alterations of a property that change a site or building in such a way that there is disturbances of one (1) acre or more of land.

Regulated Drain. A drain, either open channel or closed tile/sewer, subject to the provisions of the Indiana Drainage Code, I.C.-36-9-27.

Retention. The storage of stormwater to prevent it from leaving the development site. May be temporary or permanent.

Runoff. That portion of precipitation that flows from a drainage area on the land surface, in open channels, or in stormwater conveyance systems.

Sediment. Solid material (both mineral and organic) that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface.

Sedimentation. The process that deposits soils, debris, and other materials either on the ground surfaces or in bodies of water or watercourses.

Sensitive Water. A water body in need of protection or remediation base on its: providing habitat for threatened or endangered species, usage as a public water supply intake, relevant community value, or exception use classification.

Silt Fence. A fence constructed of wood or steel supports and either natural (e.g. burlap) or synthetic fabric stretched across an area of non-concentrated flow during site development to trap and retain on-site sediment due to rainfall runoff.

Soil. The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

Soil and Water Conservation District (SWCD). A public organization created under state law as a special-purpose district to develop and carry out a program of soil, water, and related resource conservation, use, and development within its boundaries. A subdivision of state government with a local governing body.

Solid Waste. Any garbage, refuse, debris, or other discarded material.

Stormwater. Water resulting from rain, melting or melted snow, hail, or sleet.

Stormwater Runoff. The water derived from rains falling within a tributary basin, flowing over the surface of the ground or collected in channels or conduits.

Stormwater Quality Management Plan (SWQMP). A comprehensive written document that addresses stormwater runoff quality within an MS4 area. The SWQMP is divided into three (3)

submittal parts: Part A – Initial Application, Part B – Baseline Characterization and On-going Monitoring Plan, and Part C – Program Implementation.

Storm Sewer. A sewer that carries stormwater, surface drainage, street wash, and other wash waters but excludes sewage and industrial wastes. Also called a storm drain.

Surface Runoff. Precipitation that flows onto the surfaces of roofs, streets, the ground, etc., and is not absorbed or retained by that surface but collects and runs off.

Swale. An elongated depression in the land surface that is at least seasonally wet, is usually heavily vegetated, and is normally without flowing water. Swales conduct stormwater into primary drainage channels and may provide some groundwater recharge.

Urbanized Area. A land area comprising one (1) or more places that together have a residential population of at least fifty thousand (50,000) and an overall population density of at least five hundred (500) people per square mile.

Vegetative Stabilization. Protection of erodible or sediment producing areas with: permanent seeding (producing long-term vegetative cover), short-term seeding (producing temporary vegetative cover), or sodding (producing areas covered with a turf of perennial sod-forming grass).

Water body. Any accumulation of water, surface, or underground, natural or artificial. The term does not include any storage or treatment structures.

Water Quality. A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

Water Resources. The supply of groundwater and surface water in a given area.

Watercourse. Any river, stream, creek, brook, branch, natural or man-made drainage way in or into which stormwater runoff or floodwaters flow either continuously or intermittently.

Watershed. The region drained by or contributing water to a specific point that could be along a stream, lake or other stormwater facilities. Watersheds are often broken down into subareas for the purpose of hydrologic modeling.

Watershed Area. All land and water within the confines of a drainage divide. See also Watershed.