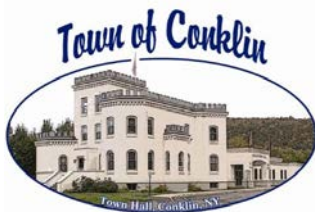


**TOWN OF KIRKWOOD
MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)
STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN
NYSDEC PERMIT No. GP-0-15-003**

SPDES General Permit ID# NYR20A072

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Introduction

This Stormwater Management Program (SWMP) Plan has been developed to comply with Part IV.A. of the New York State Department of Environmental Conservation General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems – Permit No. GP-0-08-002 (updated in April 2010 to Permit No. GP-0-10-002 and subsequently updated in April 2017 to Permit No. GP-0-15-003) for a Traditional Non-Land Use Control. The purpose of this plan is to maintain or improve water quality. The Town of Kirkwood MS4 is a member of the Broome-Tioga Stormwater Coalition (BTSC). The BTSC exists by way of an inter-municipal agreement enacted through municipal resolution by each of the fifteen (15) participating members. A copy of the inter-municipal agreement can be found in the Appendix of this document.

Part IV.A (“Stormwater Management Program Requirements, SWMP Background”) of GP-0-08-002 states:

“Permittees must develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from small MS4s to the maximum extent practicable (“MEP”) in order to protect water quality and to satisfy the appropriate water quality requirements of the [Environmental Conservation Law] and the [Clean Water Act]. Permittees must, by March 9, 2009 (or at the time of a Department audit of the SWMP), prepare a SWMP plan documenting their SWMP.”

This SWMP is based on the Federal Stormwater Phase II rule, issued in 1999, which requires municipal separate storm sewer system (MS4) owners and operators, in U.S. Census-defined urbanized areas as well as in additionally designated areas, to develop a Stormwater Management Program. There are six program elements designed to reduce the discharge of pollutants to the maximum extent practicable (MEP). The program elements, titled Minimum Control Measures (MCMs), include:

1. Public Education and Outreach
2. Public Involvement / Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention / Good Housekeeping for Municipal Operations.

This document describes each MCM and the Best Management Practices (BMPs) that have been implemented to maintain compliance with the NYSDEC Permit No. GP-0-08-002 (updated in April 2010 to Permit No. GP-0-10-002 and subsequently in April 2017 to Permit No. GP-0-15-003). Responsibilities to achieve and sustain compliance are clearly defined for each BMP. Some responsibilities are covered through the collective efforts of the Broome-Tioga Stormwater Coalition (BTSC) members. The remaining work is conducted by the Town of Kirkwood Stormwater Management Program Coordinator.

This SWMP Plan should be reviewed on an annual basis and updated as necessary in order to take into consideration the latest technologies and information to maintain compliance with the NYSDEC Permit No. GP-0-15-003, as well as to account for progress made.

Minimum Control Measure 1: Public Education and Outreach

1. Description of Minimum Control Measure

The Public Education and Outreach MCM consists of BMPs that focus on the development of educational materials, demonstration activities and training sessions designed to inform the public about the impacts that stormwater discharges have on local water bodies. The Public Education and Outreach program and BMPs, in combination, are expected to reach all of the constituents within the MS4's permitted boundary.

2. General Permit Requirements

At a minimum, *all* covered entities must:

- Identify Pollutants of Concern (POCs), waterbodies of concern, geographic areas of concern, target audiences;

Pollutants of Concern: According to the NYSDEC 2009 Susquehanna River Basin Waterbody Inventory and Priority Waterbodies List, “water quality in the Susquehanna River Basin generally ranges from satisfactory to very good.” However for the purposes of the Stormwater Management Program pollutants of concern will include sediment and nutrients. Sources of these pollutants include agricultural activities, stream bank erosion and construction site runoff. The focus of this stormwater management plan will be construction site and earth disturbing activities as it pertains to stormwater runoff from these sites.

Geographic Area of Concern: Polluted stormwater runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams, as a result, water bodies of concern within the Town of Kirkwood include the following classified streams: Park Creek, Stratton Mill Creek, and Acre Creek, and the main branch of the Susquehanna River. In order to address portions of requirements within the MS4 area the Town of Kirkwood has signed an inter-municipal agreement that allows them to coordinate stormwater activities.

Target Audiences: BTSC and the Town of Kirkwood will target contractors, school students, residents, municipal officials and workers, as well as various community groups.

- Implement an ongoing public education and outreach program
- Educational materials may be made available at various accessible locations
- Modify as needed measurable goals
- Select and implement appropriate education and outreach activities and measurable goals to ensure the reduction of all POC's in stormwater discharges to the MEP (Maximum Extent Practicable).

3. Methodology for Compliance with Permit Requirements

Previous permit accomplishments:

- The Broome-Tioga Stormwater Coalition Public Education and Participation Committee has developed and implemented a public outreach campaign including creating a new education logo, television advertisements (played the first time during Super Bowl

XLVIII), and a dedicated website with the new logo/campaign design -

www.waterfromrain.org.

- New printed material using the new educational design/theme has also been created and distributed at various community events.
- BTSC members have demonstrated the Enviroscape stormwater demonstration model at 3 annual events each year.
- Broome County developed, hosted and conducted a land-use training on the Low Impact Development and Green Infrastructure Practices to local officials such as governing board members, planning or zoning board members and code enforcement officers.
- The Broome-Tioga Stormwater Coalition purchased 10,000 permanent drain markers for its 15 municipality members. The Town of Kirkwood installed them on 100 storm drains.

4. Goals

- The Town of Kirkwood will display BTSC brochures, magnets, and posters at municipal offices.
- The Town of Kirkwood will utilize BTSC information containing ways for municipal workers to reduce polluting stormwater runoff and post in municipal offices and the DPW garage.
- The Town of Kirkwood will create a separate stormwater webpage on the Town's website www.townofkirkwood.org and create a link from that page to the Broome-Tioga Stormwater Coalition website www.broometiogastormwater.com.
- The Town of Kirkwood will install 100 permanent storm drain markers on catchbasins and drywells within the MS4 area.

5. Minimum Required Reporting

At a minimum, the covered entity shall report on the following items:

- list education / outreach *activities* performed and provide any results (number of people attended, amount of materials distributed, etc.);
- report on effectiveness of program, *BMP* and *measurable goal* assessment; and
- maintain records of all training activities

These elements are covered in the BTSC/Town of Kirkwood MS4 Annual Stormwater reports. Records on training sessions in the Town of Kirkwood are on file in the Appendix of this Plan.

Minimum Control Measure 2: Public Involvement / Participation

1. Description of Minimum Control Measure

The Public Involvement and Participation MCM consists of a set of BMPs that are focused on getting members of the local community involved in the MS4's municipal stormwater management program. Compliance with State and local public notice requirements will be maintained whenever public participation is sought or required. The BMPs include a number of practices designed to seek public input on the SWMP and Annual Report accomplishments in addition to describing specific activities that encourage public participation. The target audiences for the public involvement program are key individuals and groups that may have an interest in the particular BMPs as well as the general public located within the permitted boundary.

2. General Permit Requirements

At a minimum, *all* covered entities must:

- Comply with State and local public notice requirements when implementing a public involvement / participation program:
- Provide the opportunity for the public to participate in the development, implementation, review and revision of the SWMP
- Identify a Local Stormwater Public Contact
- Annual Report Presentation
- Record, periodically assess, and modify measurable goals as needed
- Select and implement appropriate public involvement / participation activities to ensure the reduction of all the POC's stormwater discharges to the MEP.

3. Methodology for Compliance with Permit Requirements

Past accomplishments:

- The Town of Kirkwood and the Broome-Tioga Stormwater Coalition comply with the State Open Meetings Law when planning annual report presentation public meetings. The meeting notice is distributed as a press release within the required timeframe and is also posted along with the annual report on Broome-Tioga Stormwater Coalition's website.
- E-mail contact is always listed on meeting and annual report notices to provide comment. Comments can also be made via e-mail on the BTSC website.
- The BTSC will set their meeting schedule at the beginning of every year and release to the media as well as post on the BTSC website.
- The BTSC Public Education and Participation Committee will set their meeting schedule at the beginning of every year and release to the media as well as post on the BTSC website.
- The Broome-Tioga Stormwater Coalition gives proper notice for the annual report presentation public meeting. The annual report meeting is always open to the public. The meeting notice is distributed as a press release providing the required timeframe and is also posted along with the annual report on the Broome-Tioga Stormwater Coalition's website. Contact information is provided within the press release to make comments or comments can be submitted directly from the BTSC website.

- A Notice of Availability is created and distributed to the media and posted on the BTSC website every year which includes all the required information about the annual report, annual report presentation public meeting, and how and when to comment.
- The Town of Kirkwood SWMP will also be permanently posted on the Town of Kirkwood website, Stormwater webpage. It will be replaced as it is modified. Archival versions will be on file in the Town of Kirkwood Code Enforcement Office.
- The Town of Kirkwood has coordinated efforts with local groups for beautification projects and cleanup days.
- The Town of Kirkwood has developed a “Community Service” program with the Town Court to utilize individuals that have court imposed ‘Community Service Hours’.

4. Goals

- The BTSC Final Annual report remains on the specified websites for the entire reporting year for public inspection. When a new one is finalized for the next reporting year, previous annual reports are archived on the BTSC website.
- The BTSC will continue to hold a public meeting to solicit comment on the annual report and provide sufficient notice. The Town Engineer will report annually to its Town Council Members.
- The Town of Kirkwood will continue to hold the following annual events: stream clean ups and tire collections.
- The Town of Kirkwood will install 40 permanent storm drain markers on catch basins in the MS4 area.
- The Town of Kirkwood will utilize catchbasins that have “No Dumping Drains to River” when replacing existing castings.
- The Town of Kirkwood will post all MCM 1 & 2 educational material on Town website.
- The Town of Kirkwood will provide education materials (fliers, magnets, etc.) at the Town Hall for its residents’
- The Town of Kirkwood Local Stormwater Public Contact information will be posted on the Town website. This information will be moved to a dedicated stormwater webpage when it is created.

5. Minimum Required Reporting

- annual report presentation information (date, time, attendees) or information
- about how the annual report was made available for comment;
- comments received and intended responses (as an attachment); and
- report on effectiveness of program, *BMP* and *measurable goal* assessment

These elements are all covered in the BTSC/Town of Kirkwood MS4 Stormwater Annual Reports.

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

1. Description of Minimum Control Measure

The Illicit Discharge Detection and Elimination minimum control measure consists of Best Management Practices (BMPs) that focus on the detection and elimination of illicit discharges into the MS4. The BMPs describe outfall mapping and updating procedures; the legal authority mechanism that will be used to effectively prohibit illicit discharges; enforcement procedures and actions to ensure that the regulatory mechanism is implemented; the dry weather screening program and procedures for tracing and locating the source of an illicit discharge; procedures for locating priority areas; and procedures for removing the source of the illicit discharge.

2. General Permit Requirements

An MS4 *must*, at a minimum:

- Develop, implement and enforce a program to detect and eliminate illicit discharges into the MS4.
- Develop and maintain a map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls.
- Field verify all outfall locations.
- Conduct an outfall reconnaissance inventory, addressing each outfall at least once every five years, with reasonable progress each year.
- Map new outfalls as they are constructed or newly discovered.
- Prohibit, through ordinance or other regulatory mechanism, illicit discharges into the storm sewer system and implement appropriate enforcement procedures and actions.
- Develop and implement a program to detect and address non-stormwater discharges, including illegal dumping, to the system.
- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
- Address the categories of non-stormwater discharges or flows as necessary.
- Develop, record, periodically assess, and modify as needed, measureable goals.
- Select and implement appropriate IDDE BMPs and measureable goals to ensure the reduction of all POCs in stormwater discharges to the MS4.

3. Methodology for Compliance with Permit Requirements

Past accomplishments:

- On August 7, 2007 the Town of Kirkwood adopted Local Law No.7-2007 to add *Stormwater Management and Erosion and Sediment Control* to the Town Code to meet the requirements of Minimum Control Measures of the SPDES General Permit.
- On August 7, 2007 the Town of Kirkwood enacted Local Law No.8- 2007 to add *Illicit Discharge to Separate Storm Sewer Systems* to the Town Code to meet the requirements of Minimum Control Measures of the SPDES General Permit.
- The Town of Kirkwood has had all the outfalls within the MS4 areas mapped and are in a GIS file format showing the location of each outfall. The Town Engineer and Highway Department currently maintain this map, which categorizes each

outfall with a unique identifier, and will eventually link the outfall to a table of outfall properties that records pertinent information of each outfall.

4. Goals

- Using the existing outfall mapping, the Town of Kirkwood will conduct an outfall reconnaissance inventory during routine maintenance visits, addressing each outfall at least once every five years, with reasonable progress each year.
- Maintain a prioritized list of outfalls for inspection, ranked on a 5-tier priority basis as follows:
 - Priority 1: (Highest Priority): Outfalls in which previous inspections indicated evidence of illicit discharge such as dry weather discharge, color, odor, etc. or outfalls in areas where repeated complaints were received.
 - Priority 2: Outfalls in heavy industrial or commercial areas or construction sites or Outfalls in environmentally sensitive areas or Outfalls to areas of impaired waters in which ambient water quality sampling indicated high levels of particular contaminants.
 - Priority 3: Outfalls in which previous inspections indicated structural deficiencies.
 - Priority 4: Outfalls in older areas of the municipality.
 - Priority 5: (Lowest Priority): None of the above.
- The Town of Kirkwood Stormwater Management Officer will ensure that outfalls are being inspected; and the inspections are documented, and will update outfall mapping forms for all outfalls that have been altered since mapping was established.
- The Town of Kirkwood Stormwater Management Officer will periodically review the ordinance and adjust as necessary to maintain compliance with NYSDEC standards and requirements.
- The Town of Kirkwood will update its current inspection plan to detect illicit discharges by conducting routine visual inspections of every mapped outfall. The plan will set criteria for the inspection process.
- If possible, define the drainage areas about each outfall. Having the drainage areas defined is helpful in tracking down illicit discharge sources. This task can only be accomplished if grants or other funding become available to accomplish this task.
- The Town of Kirkwood Stormwater Management Officer will investigate and confirm the source of pollutants when water quality issues arise due to public complaints or by scheduled inspection of outfalls and implement enforcement action per the Local Law to prohibit illicit discharges, activities and connections to separate storm sewer system. This goal will be aided through utilization of a GIS application.
- The Town of Kirkwood Stormwater Management Officer will annually update non-stormwater discharge list as necessary such that no exempt stormwater discharge is a substantial contribution of pollutants.
 - Waterline flushing
 - Landscape irrigation
 - Diverted stream flows
 - Rising ground waters
 - Uncontaminated ground water infiltration
 - Uncontaminated pumped ground water
 - Discharges from potable water sources
 - Foundation and footing drains

- Air conditioning condensate
 - Irrigation water
 - Springs
 - Water from crawl space and basement sump pumps
 - Lawn watering runoff
 - Water from individual residential car washing
 - Flows from riparian habitats and wetlands
 - De-chlorinated swimming pool and water reservoir discharges
 - Residual street wash water
 - Discharges or flows from fire fighting activities
 - Any SPDES permitted discharge
- The Broome Tioga Stormwater Coalition (BTSC) has purchased storm drain markers to be installed on existing catch basins. The Town of Kirkwood will be purchasing 100 storm drain markers for catchbasins in its 2013 FY.
 - The Town of Kirkwood will continue to develop a spreadsheet containing catchbasin locations and maintenance history.
 - The Town of Kirkwood will continue to inspect and clean approximately 100 catch basins on a rotating basis.
 - Through the minimum reporting requirements the Town of Kirkwood will document its progress in implementation of BMPs and measureable goals.

5. Minimum Required Reporting

- Number and percent of outfalls mapped;
- Number of illicit discharges detected and eliminated;
- Percent of outfalls for which an outfall reconnaissance inventory has been performed;
- Status of system mapping;
- Activities in and results from informing public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste;
- Regulatory mechanism status – certification that law is equivalent to the State’s model IDDE law (if not already completed and submitted with an earlier annual report); and
- Report on effectiveness of program, BMP and measureable goal assessment.

These required elements are all covered in the BTSC MS4 Stormwater Annual Report

Minimum Control Measure 4: Construction Site Stormwater Runoff Control

Polluted stormwater runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Of the pollutants listed in the box to the right, sediment is usually the main pollutant of concern. Sources of sedimentation include agriculture, urban runoff, construction, and forestry. Sediment runoff rates from construction sites however are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams that can be deposited naturally during several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to our waters.

Pollutants Commonly Discharged From *Construction Sites*

- Sediment
- Solid and Sanitary Wastes
- Phosphorous (fertilizer)
- Nitrogen (fertilizers)
 - Pesticides
- Oil and Grease
- Concrete truck washout
- Construction Chemicals
- Construction Debris

1. Description of Minimum Control Measure

The Construction Site Runoff MCM consists of BMPs that focus on the reduction of pollutants to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activities disturbing less than one acre will be considered if it is part of a larger common plan of development or sale that would disturb one acre or more. The BMPs describe legal authority mechanism that will be used to require erosion and sediment controls, enforcement procedures and actions to ensure compliance, requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site, procedures for site plan review which incorporate the consideration of water quality impacts, procedures for receipt and consideration of information submitted by the public, and procedures for site inspection and enforcement of control measures.

The stormwater regulations for Construction Site Runoff Control apply to privately-owned and management projects, and MS4-owned and managed projects. Therefore, the goals described in this section have application to both types of projects.

2. General Permit Requirements

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in stormwater runoff to their MS4. The MS4 operator is required at a minimum to:

- Have an ordinance or other regulatory mechanism equivalent to the NYS SPDES General Permit for Stormwater Discharges from Construction Sites, requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites;

- Address stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre, and those construction activities that are part of a larger common plan of development or sale that would disturb one acre or more;
- Include a law, ordinance to require a SWPPP for each applicable land disturbing activity that includes erosion and sediment controls that meet the State's most current technical standards;
- Have procedures for site plan review of SWPPPs that consider potential water quality impacts and consistency with State and local sediment and erosion control requirements; MS4 must also have trained individuals performing the reviews, all sites of one acre or greater must be reviewed and an MS4 Acceptance Form must be completed;
- Have procedures of site inspection and enforcement of control measures;
- Have sanctions to ensure compliance (established in ordinance or other regulatory mechanism);
- Establish procedures for the receipt and consideration of information submitted by the public (i.e. Complaints); and
- Describe procedures for site inspections and enforcement of erosion and sediment control measures including steps to identify priority sites for inspection and enforcement based on the nature of construction activity, topography, and the characteristics of the receiving waters;
- Educate construction site owner/operators, design engineers, municipal staff and other individuals to whom these regulations apply about the municipality's stormwater construction requirements
- Ensure that construction site operators have received erosion and sediment control training before they do work within the MS4 and maintain records of that training.
- Establish and maintain an inventory of active construction sites, including the location of the site, owner/operator contact information;
- Develop, record, periodically assess and modify as needed measurable goals; and
- Determine the appropriate BMPs and measurable goals for this minimum control measure to ensure the reduction of all Pollutants of Concern (POCs) in stormwater discharges to the Maximum Extent Practicable. Suggested BMPs (i.e. the program actions/activities) and measurable goals are presented below.

3. Methodology for Compliance with Permit Requirements:

The Town of Kirkwood has adopted the NYS Sample Local Law for Stormwater Management and Erosion and Sediment Control. This ordinance authorizes the Town to enforce a program that reduces pollutant runoff from construction sites. The Town is responsible for:

- Reviewing SWPPPs
- Inspecting Construction Sites
- Enforcing permit requirements on developers/owners/operators that do not comply with regulations.

The BTSC will also provide training to developers, contractors, and design engineers in order to inform them of the regulations. Training will also be provided by the BTSC to each participating MS4 personnel that will be responsible for inspecting the construction sites and enforcing permit requirements.

Previous Permit Accomplishments:

- The Town of Kirkwood has adopted a local stormwater ordinance that establishes minimum stormwater management requirements. The ordinance addresses issues relating to the following;
 - Erosion & Sediment Control;
 - Stormwater Management Design Requirements;
 - Construction Requirements; and
 - SWPPP reviews, inspections and maintenance.
- A checklist developed by NYSDEC Division of Water Region 7 is utilized by the Town of Kirkwood to complete SWPPP reviews and is available to contractors, developers, engineers or the owner of the project.

4. Goals

Construction Plan Review Goals:

- Amend the stormwater ordinance as necessary to maintain the NYS stormwater standards and requirements as defined by the current or any future permits pertaining to stormwater management activities.
- Develop and implement a set of criteria that the member MS4 can use to verify construction plan compliance with local, state, and/or federal stormwater regulations.
- Develop and implement procedures for the public to request information, and to relay concerns to the representative of the municipality.
- Develop & implement an internal tracking and plan review procedures to cover the following issues:
 - Conformance to local stormwater regulations
 - Appropriate use of temporary erosion controls
 - Inclusion of any required local, state, and/or federal stormwater permit documents
- Provide training for any town representatives that will be completing the construction plan reviews for the town, including planning and zoning boards.
- Conduct SWPPP review for all sites within the Town of Kirkwood where disturbance is one acre or greater to ensure consistency with State and local sediment and erosion control requirements and complete the SWPPP Acceptance Form.
- Educate the local construction community on the construction plans review process.
- Provide notice to the public that a project will be open for review and comment. For example the Planning Board posts the property of the proposed project for one week prior to the public meeting.
- Notify owners/operators of local construction sites who are in violation of the standards as defined by the General Construction Permit.
- Maintain records of plans reviewed and approved under this program.

Construction Inspection Procedures and Certification Program Goals:

- Develop and implement inspection forms and procedures based on the adopted local laws regulating construction sites within the Town of Kirkwood that disturb one acre of land or more. The inspection forms and procedures must keep track of, but are not limited to the following stormwater management procedures:
 - Use of temporary erosion controls.

- Control of other construction related wastes;
 - Operational and general prohibitions;
 - Site closure and stabilization requirements;
 - On-site documentation and records; and
 - Enforcement action and on-site communication issues.
- Conduct and report on inspection procedures and educational efforts to familiarize town staff and the local construction community with local stormwater regulations relating to construction activities.
 - As of May 1, 2010 all construction site operators must verify at least one employee on site has received the required four hours of erosion and sediment control training within the last 3 years before they do work within the Town of Kirkwood.
 - Develop and implement internal procedures for tracking new and on-going construction activities.
 - Take action against owners and/or operators of local construction sites that are in violation of local construction stormwater regulations using the enforcement regulation outlined in the adopted local laws.
 - Maintain records of construction site inspections, enforcement actions, and corrective actions performed by local construction site owners and operators
 - Educate municipal staff and the local construction community with regards to local inspection procedures; and
 - Ensure that all appropriate municipal staff and members of the local construction community have been trained by May 1, 2011.
 - Inspect and maintain records of all construction sites where one acre of land or more is being disturbed using appropriate inspection procedures and forms to ensure compliance with local stormwater regulations;

5. Minimum Required Reporting

At a minimum, the permittee shall report on the items below:

- Number of SWPPPS reviewed
- Number and Type of Enforcement Action
- Percent of active construction sites inspected once
- Percent of active construction sites inspected more than once
- Number of Construction sites authorized for disturbance activities of one acre or more
- Report of effectiveness of program, BMP and measurable goal assessment.

These elements are covered in the BTSC/Town of Kirkwood MS4 Annual Stormwater Reports.

Minimum Control Measure 5: Post-Construction Stormwater Management

Post construction stormwater management in areas undergoing new development or redevelopment is necessary because of runoff from these areas has been shown to significantly affect receiving water bodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction stormwater discharges is the most cost-effective approach to stormwater quality management.

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in the type and quantity of pollutants in stormwater runoff. As runoff flows over areas altered by development it picks up harmful sediment and chemical such as oil and grease, pesticides, heavy metals, and nutrients. These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second kind of post-construction runoff impact occurs by increasing the quantity of water delivered to the water body during storms. Increased impervious surfaces (i.e. Parking lots, driveways, and rooftops) interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank erosion and downstream flooding, which often lead to a loss of aquatic life and damage to property.

1. Description of Minimum Control Measure

The Post Construction Stormwater Management MCM consists of goals that focus on the prevention or minimization of water quality impacts from both new and re-development projects that disturb one acre or more. This includes projects less than one acre that are part of a larger common plan of development, or sale that discharge into the MS4. The BMPs describe structural and/or non structural practices, the legal authority mechanism that will be used to address post construction runoff from new development and redevelopment projects, and procedures to ensure long term operation and maintenance of BMPs.

2. General Permit Requirements

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in stormwater runoff to their MS4. The MS4 operator is required at a minimum to:

- Provide equivalent protection to the NYS SPDES General Permit for Stormwater Dischargers from Construction Activities
- Address post-construction runoff to their MS4 from new development and redevelopment projects that result in the land disturbance activities of greater than or equal to one acre or part of a larger common plan of development;
- Have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls to the extent allowable under State, or Local law and meets the State's most current technical standards;

- Develop an implement strategies which include a combination of structural and/or non-structural best management practices, this includes considering Low Impact Development (LID), Better Site Design (BSD) and other Green Infrastructure, as well as smart growth principles, natural resource protection, impervious area reduction, riparian buffers or set back distances for protection of environmentally sensitive areas such as streams, wetlands and erodible soils when developing watershed plans, municipal comprehensive plans, land use regulations, etc
- Have procedures for site plan review of SWPPPs that consider potential water quality impacts and consistency with State and local sediment and erosion control requirements; MS4 must also have trained individuals performing the reviews, all sites of one acre or greater must be reviewed and an MS4 Acceptance Form must be completed;
- Ensure adequate long term operation and maintenance of post-construction stormwater management practices within the covered entities jurisdiction. Inventory to include location of practice, type of practice, maintenance needed per practice, SWPPP, dates and type of maintenance performed;
- Provide adequate resources for a program to inspect development and re-development sites by trained staff and to enforce and penalize violators;
- Record, annually assess and modify as needed measurable goals;
- Determine the appropriate best management practices and measurable goals for this minimum control measure.

3. Methodology for Compliance with Permit Requirements

The Town of Kirkwood has adopted the NYS Sample Local Law for Stormwater Management and Erosion & Sediment Control which includes provisions to enforce a program that reduces pollutant runoff from both newly and re-developed sites. The Town of Kirkwood is responsible for inspecting the sites for proper operation and maintenance and enforcing the permit requirements and for properties that are not in compliance. In this manner, the Town can ensure adequate long-term management practices for both public and private facilities.

Previous Permit Accomplishments:

- The Town of Kirkwood has adopted a post-construction stormwater management ordinance. This ordinance establishes minimum stormwater management requirements and controls. The ordinance addresses issues relating to the following:
 - Permanent Erosion & Sediment Controls;
 - Stormwater Management Design Requirements; and
 - Fee Structure for municipal services relating to SWPPP reviews, inspections and maintenance.

4. Goals

- Develop and implement the fee schedule as needed and amend the stormwater ordinance as necessary to maintain the NYS stormwater standards and requirements as defined by the current or any future permits pertaining to stormwater management activities. (The fee structure should be referenced in Local Law but should be done in a way to update without having to revise the Local Law as a whole).
- Amend stormwater ordinance, as necessary, to maintain compliance with NYS stormwater standards and requirements as defined by the current or any future permits pertaining to stormwater management activities.

Inspection Program for Newly and Re-Developed Sites:

- Develop an inspection program for newly developed and re-developed sites for compliance with post construction regulations. This program must include a form and procedures that includes a list of items that municipal personnel and/or members of the local building community can use to guide their operations. This list can include, but is not limited to the following items:
 - Construction of controls according to approved development plans and specifications;
 - Adherence to any legal commitment to operate and maintain permanent stormwater quality structures;
 - Conformance to open space and landscaping requirements; and
 - Conformance to local development standards.
- Train inspection personnel and/or members of the local construction community on local post-construction runoff regulations and final inspection procedures.
- Perform inspections on qualifying project sites using adopted inspection forms and procedures to ensure conformance with local post-construction runoff regulations.
- Issue enforcement measures to owners and/or operators of local development projects that are in violation of local post-construction runoff regulations.
- Develop internal tracking procedures to keep tabs on development projects that are under construction, those that have been completed and any corrective/enforcement measure that were taken.
- Develop and maintain an inventory of projects under local post-construction runoff regulations in accordance with the General Permit.
- Inspect project sites using inspection forms and procedures to ensure conformance with local post-construction runoff regulations in accordance with the General Permit;

5. Minimum Required Reporting

At a minimum, the permittee shall report on the items below:

- Number of SWPPPS reviewed
- Number and Type of Enforcement Action
- Number and Type of Post Construction Stormwater Management Practices inventoried;
- Number and Type of Post Construction Stormwater Management Practices inspected;
- Number and Type of Post Construction Stormwater Management Practices maintained;
- Regulatory mechanism status – certification that regulatory mechanism is equivalent to one of the “NYSDEC Sample Local Laws for Stormwater Management and Erosion and Sediment Control” and
- Report on effectiveness of program, BMP and Measurable Goal Assessment.

These elements are covered under the BTSC/Town of Kirkwood MS4 Annual Stormwater Reports.

Minimum Control Measure 6: Pollution Prevention / Good Housekeeping for Municipal Operations

1. Description of Minimum Control Measure

The Pollution Prevention / Good Housekeeping (PP/GH) minimum control measure consists of Best Management Practices (BMPs) that focus on training and the prevention or reduction of pollutant runoff from municipal operations. The BMPs describe the training program; specific municipal operations that are impacted by the proposed operation and maintenance programs (Standard Operating Procedures, or SOPs); maintenance, activities, schedules, and long term inspection procedures for controls to reduce floatables and other pollutants; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations; and procedures for the proper disposal of waste removed from the MS4 and municipal operations, including dredge spoil, accumulated sediments, floatables and other debris.

2. General Permit Requirements

An MS4 *must*, at a minimum:

- Develop and implement a pollution prevention/good housekeeping plan for municipal operations and facilities that:
 - Addresses municipal operations and facilities;
 - Includes a self-assessment of all municipal operations;
 - Determines management practices that will be developed and implemented;
 - Priorities pollution prevention and good housekeeping efforts;
 - Addresses pollution prevention and good housekeeping priorities;
 - Includes an employee training program and ensures staff receives training;
 - Requires third party entities to make required certification;
 - Monitoring and record keeping by municipal operations in accordance with MSGP;
 - Incorporate cost effective runoff reduction techniques and green infrastructure;
- Develop measureable goals.
- Select and implement appropriate BMPs and measureable goals to ensure the reduction of POCs in stormwater discharges to the MS4.
- Adopt techniques to reduce use of fertilizers, pesticides, and herbicides.

3. Methodology for Compliance with Permit Requirements

Past Accomplishments:

- The Town of Kirkwood has a continuing documented program of street sweeping, ditch cleaning and catchbasin cleaning.
- The Town of Kirkwood *does not* utilize fertilizers as part of the green space maintenance at Town Parks.
- All used oils are disposed of in a waste oil barrel which is picked up and disposed of by a licensed hauler.
- In 2007 the Town of Kirkwood Highway Department reduced the use of sand during ice and snow removal to decrease the amount of silt and sediment from entering the storm drain system.

- The Town of Kirkwood Stormwater Management Officer has and will continue to facilitate training to the DPW municipal personnel. These personnel will be responsible for implementing the BMPs in their everyday activities.
- The Town accepts yard-waste and transports it to a landscape facility that turns it into mulch / compost material.
- The Town has an annual tire collection and drop-off in May.
- The Town participates in the Broome County Environmental Management Council annual river bank clean-up.
- The Town has coordinated efforts with local groups for beautification projects and cleanup days.
- The Town has developed a “Community Service” program with the Town Court to utilize individuals that have court imposed ‘Community Service Hours’.

4. Goals

Training

- Provide training to each member of the Town whose work may potentially impact stormwater. For the Town of Kirkwood this includes the Public Works, Parks, and Water/Sewer Departments.
- The Stormwater Management Officer will annually provide refresher training for employees and provide training to new employees when hired.

Landscaping & Lawn Care

- Reduce the discharge of landscaping and lawn care waste from Town owned facilities through better mowing and landscaping maintenance practices. Report annually on the activities conducted under this program.
- Maintain an inventory of landscaping and lawn care areas that are owned by the Town of Kirkwood.
- Evaluate current landscaping and lawn care activities in order to identify opportunities to reduce the discharge of the following:
 - 1) Fertilizers
 - 2) Leaf litter and tree trimmings
 - 3) Litter and floatable materials
 - 4) Equipment fluids
- Ensure that proper litter collection is scheduled prior to any mowing activities.
- Train employees in the proper application of lawn care products.
- Use all herbicides, pesticides, and fertilizers in accordance with manufacturers' instructions for application rates and quantities. (**Note:** The Town *does not* utilize these materials.)
- Purchase only enough lawn care products necessary for one year – store properly to avoid waste generation (spills, leaks).
- Evaluate methods for containing and/or composting trimmings and grass clippings.
- Develop zero input/low input lawns that require minimal or no herbicide/pesticide application.

- Consider alternative landscape techniques (i.e. naturescaping – landscaping with native plants to reduce water, energy, and chemical usage; xeriscaping – landscaping with native and drought resistant plants to reduce irrigation needs).
- Plant trees away from sewer lines or other underground utilities.
- Establish monitoring program to promptly identify problems with vegetation.
- Establish a maintenance program to accomplish the following:
 - 1) Minimize/eliminate fertilizer application.
 - 2) Leave grass clippings on lawn.
 - 3) Water lawns no more than 1 inch per week.
 - 4) Mow with sharpened blades set at or higher than 3 inches.
 - 5) Water plants before 10 am.
- Rinse grass from lawn care equipment on permeable (grassed) areas.
- The Town of Kirkwood Parks Manager will annually review monitoring and maintenance program and revise as necessary.

Vehicle/Equipment Maintenance

- Maintain vehicles owned by Town of Kirkwood according to manufacturer's specifications and identify and eliminate significant vehicle fluid leaks.
 - Conduct routine maintenance on all vehicles according to manufacturer's specifications.
 - 1) During routine maintenance of Town owned vehicles, inspect vehicles for the presence of fluid leaks.
 - 2) Schedule repairs for vehicles determined to have significant fluid leaks.
 - 3) Maintain vehicle maintenance records and document fluid leak repair activities.
 - Conduct maintenance indoors whenever possible.
 - For maintenance performed outside, guard against spillage of materials that could discharge to storm receivers.
 - If possible, seal floor drains that discharge directly to the environment. If not possible, obtain wastewater discharge permits from regulatory agency.
 - Initiate single purpose use of vehicle bays – dedicate one (or more) bays that have no (or sealed) floor drains for repairs/maintenance.
 - Clean up spilled materials immediately, using “dry” methods.
 - Install pretreatment systems (oil/water separators) where necessary in sewer lines to capture contaminants (oil, grit), and maintain as needed.
 - Use non-hazardous cleaners. Use non-chlorinated solvents instead of chlorinated solvents. Use steam cleaning / pressure washing instead of solvents for parts cleaning.
 - Store batteries in leak proof, compatible (i.e. non-reactive) containers.
- Standard Operating Procedure:
- 1) Maintain an inventory of municipal owned vehicles.
 - 2) Require municipal vehicle operators to conduct daily inspections of vehicles to check for fluid leaks.
 - 3) Review vehicle inspection and maintenance records to evaluate conformance to vehicle manufacturer service specifications and local stormwater program requirements.

Vehicle/Equipment Washing

- Town of Kirkwood owned vehicles and equipment are washed in a manner to prevent discharge of pollutants to the municipal storm sewer system or local water bodies.
- Maintain an inventory of Town owned vehicles and equipment. Inspect floor drain systems regularly – use only those that discharge to a sanitary sewer or those that are permitted by the regulatory agency. Identify the need for cleaning of catch basins, oil/water separators.
- Initiate single purpose use of vehicle bays - dedicate only one bay for washing (with floor drain system).
- Perform cleaning with pressurized cold water, without the use of soaps, if wastewater will flow to a storm sewer system.
- Use minimal amounts of biodegradable soap only if wastewaters will discharge to a sanitary sewer system.
- Rinse with hoses that are equipped with automatic shutoff devices and spray nozzles.
- Steam clean (without soap) where wastes can be captured for proper disposal (i.e. oil/water separator).
- Map storm drain locations accurately to avoid illegal discharges.

Building Maintenance

- Conduct building maintenance activities such that they do not impact the stormwater systems and local water bodies.
- Maintain a list of the maintenance activities required inside and outside of each municipal building, and identify which activities have an impact on stormwater.
- Implement mitigation measures for each activity that impacts stormwater.
- Annually review the mitigation measures for each activity and revise as necessary.

Hazardous and Waste Materials Management

- Prevent the discharge of hazardous (lube oils, coatings and their components, anti-freeze, cleaning agents and fuels) and waste materials from impacting municipal stormwater systems and local water bodies.
- **The Town of Kirkwood Highway Superintendent and Parks Manager will:**
 - Maintain an inventory of existing hazardous and waste materials and their storage locations.
 - Plan for proper storage of hazardous and waste materials that are not currently stored properly.
 - Implement plan for proper storage of all hazardous and waste materials.
 - Repair or replace any leaking/defective containers, and replace labels as necessary.
 - Maintain caps and/or covers on containers.
 - Maintain aisle space for inspection of products/wastes.
 - Ensure that all materials are stored in closed, labeled containers – if stored outside, drums should be placed on pallets, away from storm receivers – inside storage areas should be located away from floor drains.
 - Eliminate floor drain systems that discharge to storm drains, if possible.
 - Use a pretreatment system to remove contaminants prior to discharge.
 - Reduce stock of materials “on hand” – use “first in/first out” management technique.
 - Use the least toxic material (i.e. non hazardous) to perform the work.

- Install/use secondary containment devices where appropriate.
- Eliminate wastes by reincorporating coating/solvent mixtures into the original coating material for reuse.
- Recycle materials if possible, or ensure proper disposal of wastes.
- Annually inspect material storage areas (inside and outside).
- Annually inspect cleaning of oil/water separators by qualified contractor.
- Annually inspect stormwater discharge locations (for contaminants, soil staining, plugged discharge lines).

Operational By Products/Wastes

- Prevent the potential for leaching of toxic and biological contaminants from dump areas from reaching the municipal stormwater system or local water bodies.
- **The Highway Superintendent will:**
 - Post “no dumping” signs where needed.
 - Illuminate area if possible.
 - Prevent access – erect barriers where needed.
 - Identify the by-products/wastes that should be recycled (i.e. paper, cardboard) or can be legally disposed of on municipal lands (i.e. deer carcasses) by referencing NYSDEC regulations (6NYCRR PART 360).
 - Store mulch and leaves on high ground to mitigate contact with stormwater.
 - Clean up and dispose of “illegally dumped” materials, trash/debris in accordance with environmental regulations.
 - Cut and remove vegetation from dump areas.
 - Regularly schedule inspections for areas of maintenance concerns.
 - Coordinate with police for unscheduled patrolling of dump areas.

Roadway and Bridge Maintenance

- Assess roadway and bridge maintenance activities and modify procedures to reduce stormwater quality impacts.
- **The Highway Department will:**
 - Pave in dry weather only.
 - Stage road operations and maintenance activity (patching, potholes) to reduce spillage. Cover catch basins and manholes during this activity.
 - Clean up fluid leaks or spills from paving equipment/materials immediately.
 - Restrict the use of herbicides/pesticide application to roadside vegetation.
 - Sweep and vacuum paved roads and shoulders as necessary to remove debris and particulate matter.
 - Maintain roadside vegetation; select vegetation with a high tolerance to road salt.
 - Identify “alternative” maintenance practices that would reduce the discharge of road-materials during construction or maintenance activities (e.g. repairing leaking/defective containers or equipment on paving equipment).
 - Revise roadway maintenance specifications according to identified alternative practices.
 - Maintain records of road maintenance activities and the use of alternative maintenance practices.
 - Incorporate preventive maintenance in planning for regular operations & maintenance activities.
 - Control particulate wastes from bridge sandblasting operations.
 - Clean out bridge scuppers and catch basins regularly.

- Mechanically remove (i.e. sweep) debris from bridge deck and structure prior to washing.
- Install catch basins in place of bridge scuppers.
- Use tarps, booms, and vacuums during painting or blasting activities to control/capture particulate matter.
- Inspect roads and bridges for implementation of applicable BMPs.
- Evaluate roadway maintenance program annually and revise roadway maintenance specifications according to identified alternative practices.

Road Salt Storage and Application

- Provide proper storage and application of road salt to reduce the impact of salt on plants, aquatic life, and the local water bodies.
- **The Highway Superintendent will:**
 - Train operators on environmental hazards of over-salting roads.
 - Identify areas particularly susceptible to contamination in the MS4 area.
 - Use covered facility for salt storage (prevents lumping and run-off loss), sized properly for seasonal needs.
 - Store salt on highest ground elevation to mitigate contact with stormwater.
 - Calibrate salt spreaders as necessary.
 - Consider alternative deicing materials (i.e. calcium chloride, magnesium chloride).
 - If possible, use a wetting agent with salt to minimize “bouncing” during application.
 - Unload salt deliveries directly into storage facility, or if not possible, move inside immediately.
 - Inspect salt storage shed for leaks, other problems. Repair as needed.
 - Inspect salt piles for proper coverage.
 - Inspect salt application equipment.
 - Inspect salt regularly for lumping or water contamination.
 - Inspect surface areas for evidence of runoff – salt stains on ground near and around the salt shelter, loading area, or down slope.
 - Inspect for excessive amounts of salt on roads.
 - Inspect equipment to verify proper operation. Service trucks and calibrate spreaders regularly to ensure accurate, efficient distribution of salt.

Catch Basin and Storm Drain System Cleaning

- Reduce sediment and floatable material discharges by routinely cleaning municipal catch basins and stormwater inlet structures.
- **The Highway Superintendent will:**
 - Identify areas where catch basins, surface inlets, and/or storm sewer manholes should be periodically cleaned to reduce discharge of floatable materials, sediment, and other materials.
 - Prioritize storm drain systems and catch basins (e.g. catch basins on steep grades may need more frequent cleaning).
 - Develop a schedule for inspection and cleaning of inlet structures, catch basins, and manholes.
 - Inspect catch basins, (below grade) storm sewer systems, and open ditches for need of maintenance or cleaning.
 - Clean catch basins when depth of deposits is $> 1/3$ to bottom of pipe.
 - Storm event inspection – identify pollution problems (i.e. sediments).
 - Post storm event inspection – identify problems (i.e. blockage).

- Evaluate the catch basin cleaning schedule on an annual basis.
 - Increase frequency of cleaning as necessary.
- Catch basins and floor drain systems inside of buildings should be either:
 - Sealed to prevent discharge
 - Permitted by NYSDEC
 - Discharged to sanitary sewers
- Repair/replace storm drain receiver and catch basin receiver grates as necessary.
- Maintain slope of drainage ditches.
- Maintain vegetation in drainage ditches by cutting (to capture sediment).
- Remove obstacles/ debris from drainage ditches.
- After excavation /ditch scraping, reseed ditch.

New Construction and Land Disturbance

- Comply with the Town's construction and post-construction minimum control measures.
- **The Highway Superintendent will:**
 - Provide education material and training opportunities to the municipal work crews to inform them of the local, state, and/or federal regulations that will impact their projects.
 - Plan the construction and/or land clearing activities so that soil is not exposed for long periods of time.
 - Minimize compaction of soils.
 - Minimize impervious cover.
 - Maximize opportunities for infiltration.
 - Install sediment control devices before disturbing soil.
 - Limit grading to small areas.
 - Stabilize site to protect against sediment runoff.
 - Protect against sediment flowing into storm drains.
 - Maintain native vegetation (especially near waterways).
 - Install sediment barriers on slopes or divert stormwater.
 - Inspect erosion and sediment controls (ES&C) devices.
 - Inspect ES&C devices during storm or snow melt events.

Hydrologic Habitat Modification

- Develop requirements for the town work crews to abide by during hydrologic habitat modification such as stream and ditch cleaning, and wetland disturbance. Provide training to the local municipal work crews regarding the requirements associated with any habitat modification.
- **The Highway Superintendent will:**
 - Comply with all requirements of the NYSDEC and USACOE permits for work within freshwater wetlands and streams.
 - Comply with the construction and post-construction requirements within the stormwater regulations.
 - Provide the NYSDEC and USACOE with the required information in the Joint Application for Permit to obtain their approval prior to proceeding.
 - The Town of Kirkwood & Broome County Soil and Water Conservation District will annually provide additional training as necessary to the municipal work crews.

Street Cleaning and Maintenance

- Develop requirements for the sweeping of streets and roadways in order to reduce the amount of sediment and associated pollutants discharged to the MS4 from roadways.
- **The Highway Superintendent will:**
 - Identify the type of roadways that should be swept to remove sediment and other pollutants.
 - Perform operations such as paving in dry weather only.
 - Maintain records of streets that have been cleaned.
 - Adjust sweeping schedules according to program needs.
 - Prior to road reconstruction, consider/evaluate the use of “shouldered roads” instead of “curbed roads”.
 - Maintain roadside vegetation; select plants/trees that can withstand the action of road salt and direct runoff to these areas.

5. Minimum Required Reporting

Program Development:

Identification of municipal operations and facilities that will be considered for inclusion in the program;

- Description of PP/GH program priorities;
- Description of management practices and policies to be developed;
- Identification of staff and equipment available;
- Description of employee PP/GH training program, begin training, report on number of staff trained;
- Description of development management practices.

Program Implementation:

- Commence implementation reporting after three year development permit.
Implementation reporting can begin earlier if implementation begins during development period.
- Indicate the municipal operations and facilities that the pollution prevention and good housekeeping program assessed;
- Describe the management practices, policies and procedures that have been developed and report on the following items:
 - Acres of parking lot swept;
 - Miles of street swept;
 - Number of catch basins inspected and cleaned (where necessary);
 - Post-construction control stormwater management practices inspected and cleaned (where necessary);
- Staff training events and number of staff trained; and
- Report on effectiveness of program

STORMWATER MANAGEMENT PROGRAM PLAN: Implementation Schedule

MCM	Description of Activity	Who is Responsible?	Expected Annual Accomplishment				
			Year 1	Year 2	Year 3	Year 4	Year 5
MCM 1	Demonstrate stormwater model	Broome-Tioga Stormwater Coalition and Town of Kirkwood	Contact schools within Broome County	Establish classrooms for demos	2 classroom demos	2 classroom demos	2 classroom demos
	Develop brochures	Broome-Tioga Stormwater Coalition	Determine subjects and design brochure formats	Develop and distribute brochure 1	Develop and distribute brochure 2	Develop and distribute brochure 3	Develop and distribute brochure 4
	Develop TV PSA campaign	Broome-Tioga Stormwater Coalition	Outreach to TV stations and consultants	Develop campaigns	Rollout Campaign 1	Rollout Campaign 2	Rollout Campaign 3
	Webpage / Create links to BTSC website	Town of Kirkwood Clerk	Design web page and create link to BTSC site	Design web page and create link to BTSC site	Update as needed	Update as needed	Update as needed
MCM 2	Purchase & install 40 Storm Drain Markers	Town of Kirkwood Highway Department	Town of Vestal bid markers, Broome County Soil & Water administers NYS grant	Purchase 40 Markers and install 20	Install 20 storm drain markers	Repair or replace damaged or missing storm drain markers	Repair or replace damaged or missing storm drain markers
	River Bank Clean-up, Tire Drop Off, Coordinate w/ Public projects	Broome County Environmental Management Council & Town of Kirkwood Highway Department	Conduct public outreach for continued volunteer participation	Continue participation	Continue participation	Continue participation	Continue participation
MCM 3	Outfall reconnaissance inventory	Town of Kirkwood Highway Department	Inventoried all 18 outfalls in 2004	Utilize NYSDEC supplied forms	Continue annual inspections	Continue annual inspections	Continue annual inspections

MCM	Description of Activity	Who is Responsible?	Expected Annual Accomplishment				
			Year 1	Year 2	Year 3	Year 4	Year 5
				for annual inspections			
3 cont.	Develop Catchbasin inventory	Town of Kirkwood Highway Department /Engineer	Began listing and identifying CBs in a data base	Continue development of the data base	Continue development of the data base	Continue development of the data base	Continue development of the data base
	Map catch basins within the MS4	Town of Kirkwood Highway Department /Engineer	Storm system was mapped using hand held GPS Unit	Update as needed	Update as needed	Update as needed	Update as needed
	Catch Basin and storm drain system inspection and cleaning	Town of Kirkwood Highway Department	Continue with current level of inspection and cleaning of CBs,ditches and outlets	Continue with current effort	Continue with current effort	Continue with current effort	Continue with current effort
	Develop public service information	BTSC/ Town of Kirkwood Code Enforcement Office					
MCM 4	Site Plan and Project Review	Planning Board and Town of Kirkwood Code Enforcement Office/Planning Board	Continue current requirement to review plans for conformance with NYSDEC and Town stormwater requirements	Continue plan review.	Continue plan review.	Continue plan review.	Continue plan review.
MCM 5	Inspection of stormwater	Town of Kirkwood Code Enforcement Office and	Develop a form and inspect	Continue facility	Continue facility	Continue facility	Continue facility

MCM	Description of Activity	Who is Responsible?	Expected Annual Accomplishment				
			Year 1	Year 2	Year 3	Year 4	Year 5
	facilities	Highway Department /Engineer	installed stormwater facilities	inspections	inspections	inspections	inspections
MCM 6	Training	BTSC / Town of Kirkwood Engineer	Provide training to each member of the municipality whose work may impact stormwater	Refresher training	Refresher training	Refresher training	Refresher training
	Street Sweeping, ditch and catchbasin cleaning	Town of Kirkwood Highway Department	Continue current efforts of cleaning and documenting	Continue current efforts of cleaning and documenting	Continue current efforts of cleaning and documenting	Continue current efforts of cleaning and documenting	Continue current efforts of cleaning and documenting
	Vehicle/ Equipment Maintenance	Town of Kirkwood Highway Department	Purchased fire proof cabinet for storage of vehicle repair fluids	Continue proper storage of fluids	Continue proper storage of fluids	Continue proper storage of fluids	Continue proper storage of fluids
	Yardwaste Collection	Town of Kirkwood Highway Department	Continue collection of yardwaste with disposal at a landscape business for compost and mulch material	Continue collection of yardwaste	Continue collection of yardwaste	Continue collection of yardwaste	Continue collection of yardwaste
	Riverbank Cleanup	Broome County Environmental Management Council &	Continue to participate in the annual Riverbank	Continue to participate in the annual	Continue to participate in the annual	Continue to participate in the annual	Continue to participate in the annual

MCM	Description of Activity	Who is Responsible?	Expected Annual Accomplishment				
			Year 1	Year 2	Year 3	Year 4	Year 5
		Town of Kirkwood Highway Department	Cleanup Program	Riverbank Cleanup Program	Riverbank Cleanup Program	Riverbank Cleanup Program	Riverbank Cleanup Program

