

**Phase II Stormwater Permit Implementation Project
State Assistance for Municipal Separate Storm Sewer Systems (MS4s)
Environmental Protection Fund**

**Contract #: C303129
(\$258,000 NYS Funds; \$258,000 Local Match)**

FINAL REPORT

I. Project Start and Completion Dates

- a. **Start Date: October 1, 2006**
- b. **Original Completion Date: April 30, 2009**
- c. **Revised Completion Date: October 31, 2010**

II. Municipal Agency and Contact Information

- a. **Municipal Agency:** Albany County
- b. **Municipal Contact**

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IV. Summary of Activity

- a. **Provide a narrative description of work accomplished during the life of the project.**

This was a very multi-faceted project, which included a variety of deliverables all listed in the attached spreadsheet titled, "Final Report- Objectives, Tasks, and Deliverables". The narrative presented here, for the sake of readability describes these activities in more general terms, as follows:

- 1) training provided to MS4 staff, elected officials, and planning board appointees;
- 2) septic system local law provisions, inventory, training, and homeowner education;
- 3) tools purchased and educational material created to help MS4 staff implement MS4 programs;
- 4) low impact development educational programs, publications, and demonstration projects;

- 5) educational programs focusing on long term financing of MS4 Permit compliant stormwater management programs; and the
- 6) formation of the stormwater coalition

Each of these activities is matched to an MS4 Permit Minimum Control Measure and Work Plan Objective, as described in the “Final Report-Objectives, Tasks, and Deliverables” spreadsheet.

An assessment of whether or not the implementation of these objectives provided the environmental benefit described in the Project Summary is beyond the scope of this Final Report. It is, however, a relevant question and one hopes that all of the work accomplished to date has had some effect on water quality.

Finally, to clarify, throughout this narrative, references are made to the Stormwater Coalition of Albany County (“Stormwater Coalition”). This refers to the group of regulated municipalities (“MS4s”) who signed on as grant partners for this particular contract. Over the life of the grant, beginning January 1, 2009 this same group of “MS4s” formed the Stormwater Coalition such that each grant participant became a dues paying member of the Coalition. The 2009 and 2010 Coalition budget paid for all staff time related to grant management and implementation.

Grant participants and members include: City of Albany, Town of Bethlehem, City of Cohoes, Town of Colonie, Village of Colonie, Village of Green Island, Town of Guilderland, Village of Menands, Town of New Scotland, Village of Voorheesville, City of Watervliet, and Albany County. Albany County as both a member and host of the Coalition continued as lead agency throughout the life of this grant, working directly with the Coalition Stormwater Program Coordinator. In July, 2009 SUNY Albany joined the Coalition and as a dues paying member, fully involved with the Coalition, provided additional programmatic support related to MS4 Permit requirements and various grant deliverables.

TRAINING of MS4 Staff, Elected Officials, and Planning Boards

[Work Plan Objectives: MCM 3 Stormwater Pollution Detection and Elimination; MCM 4 Construction Site Runoff Control; MCM 5 Post Construction Stormwater Management]

The awards letter for this grant is dated September 29, 2006 during the Pataki administration. At that point the SPDES MS4 Permit GP-02-02 had been in effect for 3 years and “MS4” staff needed training in how best to conduct an outfall survey, review stormwater pollution prevention plans related to construction, inspect construction sites for erosion and sediment control, and both guide the developer community in potential maintenance issues associated with various stormwater practices and better understand how best to maintain stormwater practices owned by the “MS4”. Low impact development as a stormwater management strategy was also partially understood by many working at the municipal level.

A significant amount of grant money was directed towards these training needs and in general there were two training formats, either a formal classroom setting, where outside speakers presented information (SUNY ESF courses i.e. Erosion and Sediment Control, Better Site Design, SWPPP Review, and IDDE; SUNY Delhi On-Site Training Network-Septic System Programs; Soil and Water Conservation District Municipal Inspector Training; Porous Pavement Workshop; and Capital District Regional Planning Commission Local Government Training Events) or a less formal setting where we relied on local expertise to share information about permit requirements. Several of the Coalition members had expanding expertise in overseeing construction sites and as their skills evolved, they shared what they learned with the group at large, often with training support from NYSDEC Region 4 staff.

The more formal training courses were attended by municipal staff and they registered for those classes thought to be useful to them personally or to others in their municipality. Who attended which courses was left to the discretion of the municipality and the value of these courses varied depending on the skill level of the attendee. In some cases the courses were a good match for the attendee, in other cases they were either repetitive or too advanced. Matching the right individual, given the needs of the municipality, and schedule of the individual attending the course proved to be difficult.

Also, as the SUNY ESF courses provided credits for engineers, municipal engineers often signed up for these courses, received the credits, and then frequently left the municipality. Consequently, their expertise, of potential value to the creation of a successful stormwater program and informed SWPPP reviews was lost. A popular, well attended course was the SUNY ESF course titled, Better Site Design.

The informal courses were free, hands on and usually attended by relevant MS4 staff. Particular training events included instruction by the Albany County Sewer District staff in how to use the outfall reconnaissance inventory test kits and at the time of distributing “Construction Site Enforcement Kit” materials, a series of on-site construction site training sessions with NYSDEC staff and local municipal/MS4 inspectors.

SEPTIC SYSTEMS-Training, Education, and System Estimate

[Work Plan Objectives: MCM 3 Stormwater Pollution Detection and Elimination]

Early in the permit cycle NYSDEC provided municipalities with an illicit discharge model local law which included language specific to septic systems. This generated many questions for the Albany County Department of Health and “MS4s” intending to adopt the model law. To address these questions, the stormwater program coordinator organized several meetings with municipal attorneys and relevant County Department staff. The purpose of these meetings was to sort out the intent of the suggested language and to have each municipality adopt a local law consistent with the existing responsibilities of the Albany County Department of Health. Grant money funded staff time related to the preparation and facilitation of these meetings.

Recognizing that failing septic systems are a serious water quality issue, other grant expenditures specific to this problem included a desktop GIS analysis to estimate the number of septic systems in the urbanized areas of Albany County (~7543); a 2-day septic system training targeting those municipal and County officials likely to be contacted about septic system related problems; and the purchase and distribution of educational material for septic system owners.

TOOLS-Kits, Web Applications, General Maintenance Cards, SWPPP Forms

[Work Plan Objectives: MCM 3 Stormwater Pollution Detection and Elimination; MCM 4 Construction Site Runoff Control; MCM 5 Post Construction Stormwater Management]

Kits-Outfall Reconnaissance Inventory and Construction Site Inspections

Materials were purchased to stock two sets of kits, one used to conduct outfall surveys, as required in Minimum Control Measure 3, the other to conduct construction site inspections, as required in Minimum Control Measure 4. The six outfall survey kits are currently shared among all of the Coalition members, with lab support and kit management services provided the by the Albany County Sewer District, paid for using Coalition funds. Each Coalition member received a Construction Site Inspection Kit.

Web Mapper and MS4 Permit Manager

With extensive input from all of the grant partners, Fountains Spatial, a local GIS firm designed a web based mapper, accessible to all grant partners. Known as AIMS (Albany Internet Mapping System), the web mapper posts a variety of map layers critical to stormwater management (outfalls, culverts, drainage areas, aerial images, contour intervals, hydrological soil groups, municipal boundaries, demographic info, stream lines, 303d water body segments, zoning maps, among others).

The second web application, purchased in part with grant funds is a pre-packaged system developed by CBI, called MS4 Permit Manager. This system allows users to develop a Storm Water Management Program Plan, such that measureable goals and progress towards completion can be tracked electronically. Outfall inspections and maintenance of stormwater structures can also be monitored using Permit Manager.

Typically MS4 Permit Manager is integrated with a web-based ESRI application, however having invested in AIMS and not wanting to purchase two duplicate web mapper applications, Fountains Spatial was hired to program a link between the two systems, focusing on outfall location information. Funded in part with grant money, this integrated system is now operational. Standardized Storm Water Management Program Plan (SWMP Plan) Best Management Practices (BMPs) and associated Measureable Goals will be uploaded into MS4 Permit Manager over the next several months. At that point, Coalition members will upload information specific to their municipality.

Post Construction Stormwater Practices-General Maintenance Cards

Early in the MS4 Permit cycle, it was clear that the design of stormwater practices strongly influenced how well these systems could be maintained and that once built individuals needed explicit directions regarding maintenance.

Borrowing the idea from the Staten Island Bluebelt program, the Coalition contracted with Hazen and Sawyer, to develop General Maintenance Cards for 12 practices listed in the NYSDEC Stormwater Design Manual. Hard copies of these highly visual and informative cards were distributed to Coalition members, for distribution to owner operators of construction sites, their design engineers, homeowner associations responsible for maintenance, and other interested parties.

Feedback regarding the cards has been positive; however their overall effect on maintenance remains to be seen.

SWPPP Review Forms

To help streamline the SWPPP review process and standardize SWPPP related paperwork across municipal boundaries, forms were created by a local engineering firm. These forms were originally presented as enhanced design details for certain stormwater practices, but evolved into a set of paperwork management documents and a spreadsheet based tool to analyze the accuracy of calculations used to design stormwater practices.

The specific deliverable, enhanced design details and forms, was requested by the Town of Bethlehem, such that the Town suggested the concept and supervised the work of the consulting firm. Each grant partner received the forms, and either inserted their own municipal letterhead or that of the Stormwater Coalition of Albany County.

Since the creation of these forms there have been two updates to the Construction Activity permit and an update to the NYSDEC Stormwater Management Design Manual (August, 2010). The current status of the forms is unclear; in particular whether or not they have been updated.

LOW IMPACT DEVELOPMENT-Rain Gardens, Downspout Disconnection, Pervious Pavement [Work Plan Objectives: MCM 5 Post Construction Stormwater Management]

Rain Gardens

Capitalizing on a shared programmatic interest, and a serendipitous convergence of assets, members of the Stormwater Coalition; Cornell Cooperative Extension of Albany County-Master Gardeners; and Albany County Soil and Water Conservation District cooperatively built six demonstration rain gardens such that each garden has an informative, educational sign and access to publications which describe how to build a rain garden.

While the original grant deliverable listed building three rain gardens, due to cost savings and a high level of cooperation, six demonstration gardens were built, with two more gardens planned for 2012 (Village of Colonie at Cook Park and Town of Colonie Public Operations Center). These additional gardens will use vegetation purchased with grant money, currently in storage.

Existing garden locations include:

- 1) Town of Bethlehem-Elm Avenue Park;
- 2) City of Cohoes-Veterans Park;
- 3) Shaker Heritage Society property near Ann Lee Pond-Albany County staff facilitated construction and garden is located in the Town of Colonie;
- 4) Town of Guilderland-Tawasentha Park;
- 5) Cooperative Extension/Soil and Water Conservation District office-24 Martin Rd;
- 6) SUNY at Albany-Alumni House-Uptown Campus (joined Coalition in July, 2009)

Coalition members provided a location to build the rain garden and helped prepare the garden for planting (digging equipment, repositioning or installation of rain gutters and downspouts); the City of Albany, as part of their in-kind match to the grant, designed and constructed all of the rain garden signs; Cornell Master Gardeners provided site assessments, rain garden designs, planting maps, and volunteers; and ACSWCD staff ordered and picked up vegetation from vendors, delivered it to the site, provided staff to help plant the site, and developed an informational brochure about rain gardens. This grant paid for vegetation.

Overall coordination of the rain garden project was a cooperative effort implemented by relevant staff from ACSWCD, Master Gardeners, and the Stormwater Coalition. Future maintenance of the gardens will be or has been turned over to the municipalities and/or volunteers designated by the municipality.

Porous Pavement Workshop

In June, 2010 the Stormwater Coalition organized a porous pavement workshop. This day-long event included three tours of local porous pavement applications, a presentation by a local design engineer responsible for several porous pavement applications, and presentations from representatives of the porous asphalt, porous concrete, and paver industry. Seventy-five individuals registered for this program, seventy individuals showed up. Lunch was provided.

Downspout Disconnection-Guidance Manual for Homeowners

The original deliverable involved contracting with an engineering firm to develop generic design details for disconnecting downspouts from flat roofs. On closer examination, given the likely complexity of individual flat roof drainage systems, such generic details seemed like a potentially misleading product, therefore the deliverable was revised.

Instead, adapted from materials created elsewhere (primarily from Portland, Oregon; Philadelphia, Pennsylvania; and Cooperative Extension-Albany County) a document titled, “A Guidance Manual for Homeowners-Managing Stormwater Runoff Using Green Infrastructure-How to Disconnect a Downspout; Install a Rain Barrel; and Build A Rain Garden” was created in-house. Using grant money, 7000 manuals were printed up, to be distributed with the municipalities. While the deliverable originally focused exclusively on downspout disconnection, the content of this manual is more varied, and it draws on practical, local experience building rain gardens and installing rain barrels.

It also dovetails with more recent EPA and NYSDEC regulatory requirements regarding green infrastructure and source control.

FINANCING STORMWATER

[Work Plan Objectives: None listed, however in practice, Financing a Stormwater Program address all MCMs]

In 2007 a Financing Stormwater program was organized which brought back speakers who had presented information the previous year about New York stormwater financing options (Robert Feller, attorney from Bond, Schoeneck, and King) and stormwater utility districts (AMEC staff, Andrew Reese in 2006 and Marlou Gregory and Elizabeth Treadway in 2007). Both programs (2006 and 2007) were co-sponsored with the Saratoga Intermunicipal Stormwater Program and this 2007 program was intended to describe in greater detail options and obstacles related to funding. By 2007, 4 years into implementing the MS4 Permit, municipalities had a better understanding of program needs and costs, thus the program was thought to be relevant.

Although informative, based on the material presented in 2007, and still true in 2010, enabling legislation is needed to address inconsistencies within NYS General Municipal Law regarding how counties, towns, cities, and villages can fund a comprehensive stormwater management program, which addresses all minimum control measures.

The Stormwater Coalition, although one way to address funding needs, as detailed in the inter-municipal agreement, is limited in what it can do. Furthermore, state and municipal budgets are severely strained right now, and continued funding of the Coalition, an annual decision made by each Coalition member, is always uncertain, thus not the most reliable way to develop a sustained, effective stormwater program.

STORMWATER COALITION

[Work Plan Objectives: MCM 3 Stormwater Pollution Detection and Elimination and overall Program Management]

Robert Feller, an attorney with Bond Schoeneck and King was hired to both draft an intermunicipal agreement and guide the process of developing such an agreement. Coalition formation activities began in early 2008 and a series of group and individual meetings eventually resulted in a firm consensus regarding the purpose of the Coalition, governing structure, relationship of the host “municipality” Albany County to the Coalition, staffing arrangements, and membership fee schedule.

A fully executed agreement was signed by all parties in late fall and the official start date of the Coalition was October 15, 2008, the first meeting of the Coalition Board of Directors. Beginning in January 1, 2009, the Coalition budget and work plan adopted by the Board of Director’s went into effect.

This was a complicated and demanding process which required many meetings and a significant commitment of staff time to implement. Although legal services did come in under budget, the in-kind services were significant, with Albany County bearing a large part of that burden. The support of the County Executive's office was critical, as the host relationship was difficult to tangle out and involved multiple discussions with multiple departments. The host relationship between the County and the Coalition has become clearer over the years (2009 and 2010), but remains an occasional source of confusion.

County government by charter includes multiple checks and balances, and each jurisdictional interest within County government often has to comply with various other state or federal mandates. Together these multiple requirements impact the capacity to implement program objectives. Consequently, the Coalition as an inter-municipal entity with its own bylaws and procedures has had to work closely with multiple partners within County government to figure out how best to implement Coalition objectives. This has been time consuming process, one unanticipated, and a reason to extend the contract end date.

Should there be the will and inclination to seriously consider one MS4 permit for all of the Coalition members, as is allowed in the most recent MS4 Permit (SPDES Permit No. GP-0-10-002), creating a viable organizational structure, given existing General Municipal Law will be a challenge. Minimally, the Coalition, as a functioning entity which genuinely shares services has been an interesting test of our collective ability to work cooperatively, to the mutual benefit of all.

Whether or not the Coalition as is or some version of it will survive into the future is a significant unknown. The current inter-municipal agreement ends in 2012, and that alone will force Coalition members to seriously consider the strengths and weaknesses of the intermunicipal Coalition model for implementing stormwater requirements. The experience to date will inform that discussion.

b. Identify any changes made to the Project Work Plan during the life of the project.

Objectives	Original Task	Revision
MCM 3 Stormwater Pollution-Detection and Elimination	Outfall Reconnaissance Inventory: Training session to review ORI techniques, learn how to use equipment from grant purchased kits. Possible presenter-Andy Sansone from Monroe County	Albany County Sewer District staff provided training related to ORI techniques. In-house. No cost. Approved by NYSDEC Region 4 staff.
	Cooperation and Program Implementation: Develop and implement an MS4-wide Internet Mapping System which centralizes GIS information related to MS4 Permit requirements (location of outfalls, outfall discharge inventory); water quality protection generally	Added purchase of CBI MS4 Permit Manager software package and integration of MS4 Permit Manager with Albany Internet Mapping System. Approved by NYSDEC Region 4 staff.
	Program Implementation: MS4s critique with Albany County Dept of Health OTN materials related to inspection	Dropped development of onsite inspection program. Instead purchased homeowner folder with extensive info about septic system maintenance.
MCM 4 Construction Site Runoff Control	CEO/SMO Enforcement Training: Videotape erosion and sediment control inspections and properly/improperly constructed practices. Present and share with MS4 CEO/SMOs and municipal others.	Dropped creation of training videos using camcorder. Not enough Coalition staff or time before contract end date of 10/31/2010 to implement. Revision approved by NYSDEC staff on 10/4/2010 (e-mail).
MCM 5 Post Construction Stormwater Management	SW Practice Maintenance Training: Organize SW Practices Workshop -SI Bluebelt (Speakers, Food, Printing, Travel)	Maintenance workshop with Staten Island Bluebelt staff dropped. Insufficient interest among Coalition members and benefit unclear given time involved to organize the event. Revision approved by NYSDEC Region 4 staff on 10/4/2010 (e-mail).
	Quality Construction: Develop/Describe/Distribute to all MS4s Post-Construction SW Practices Enhanced Design Details-From NYS DEC Design Manual	Dropped enhanced design details, instead spreadsheet created which allows reviewer to critique SWPPP calculations and compare to Design Manual requirements. Included as a form with other forms created to help streamline and standardize SWPPP review process. Approved by NYSDEC Region 4 staff.
	Low Impact Development: Develop, print, and distribute downspout disconnect handout-flat roof leaders-why/how to (Handout Design: \$5,000; Print: \$2,500)	Design details dropped; instead generic guidance manual created in-house for homeowners which includes info about green infrastructure, site assessments, how to disconnect a downspout, install a rain barrel, and build a rain garden. Approved by NYSDEC Region 4 staff.
Financing Stormwater (All MCMs)	Establishing Funding Mechanisms: Analyze at the municipal level the stormwater utility district concept and legislation; share insight with others (analyze proposed legislation-attorney fees)	Dropped. No enabling legislation for Stormwater Utility District; no point in visiting utility districts in Vermont and Massachusetts, if can't do it in New York State. Approved by NYSDEC Region 4 staff.
	Establishing Funding Mechanisms: Tour nearby SW Utility District (S. Burlington, Vt)	Dropped, see above.

V. Major problems encountered during the life of the project and how problems were resolved.

This was a time consuming and complicated grant to implement. The task of coordinating the work of 12 grant partners, while implementing grant deliverables, while contending with ever changing MS4 Permit updates and Annual Report revisions, while coping with diverse County requirements, while complying with grant contract requirements was a constant challenge.

Once created, the Coalition was an added responsibility, requiring another set of budgets and work plans, all related to the administrative requirements now embedded in the Coalition inter-municipal agreement. As a group we did manage to implement, one way or another, the various grant deliverables, with the end result that a variety of implementation “tools” were purchased which should serve us well into the future. We also have an administrative structure (Stormwater Coalition), although fragile, to continue to work together collaboratively into the future. Whether or not this collaboration is strong enough to address complicated program requirements and budgetary problems across all sectors of government is an unknown. We did, however, get this far, which is a start.

VI. Expenditures-use the Expenditure and Reimbursement Report Form

Attached