

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

**Contract #: C304384
(\$165,000 NYS Funds; \$55,000 Local Match)
Start Date: December 1, 2010
Completion Date: December 31, 2014**

**Quarterly Reports #11 and #12
Final Report**

As approved by Region 4 NYSDEC staff, this report covers the time period from July 1, 2013 to December 15, 2013 (Quarterly Report #11 and Quarterly Report #12). All grant deliverables, to the extent possible, have been completed and this is the final report to be submitted to NYSDEC.

For the Green Infrastructure Model Local Law and Storm System Mapping Projects, a separate report of each project was prepared summarizing all activities. These are included in this report, along with various deliverables. The attached "Status of Tasks" spreadsheets describe where these deliverables are located (summary report, appendices, CD ROM, packet); see the "Deliverables" column.

Below is a list of all documents submitted with this report.

Green Infrastructure Model Local Law Project

1. Stormwater Coalition of Albany County Green Infrastructure Model Local Law Project Summary Report: Process, Findings, and Implementation
 - A. Prepared by the consultant, Barton and Loguidice
 - B. Individual MS4 information is provided separately and includes the following documents
 1. Individual MS4 Stormwater Coalition Scorecards-Corrected and Final
 2. Individual MS4 Green Infrastructure Model Local Law Decision Matrix Forms-Filled In
2. Documentation of Project Meetings Packet: Green Infrastructure Local Law Advisory Committee (GILLAC); Consultant, and GILLAC Sub-Committee Meetings
-Agendas, Attendance Sheet, Meeting Notes
3. Documentation of Green Infrastructure Workshops: Flyers, Agendas, Attendance List, Other Material

January 31, 2012 Applied Green Infrastructure Design

The Crossings at Colonie; NE SW Training Center; John Dunkle

June 20, 2012 Planning Board Review for Green Infrastructure-Mock Role Play

Capital District Regional Planning Commission Local Government Planning and Zoning Workshop
Hudson Valley Community College, Troy, NY

September 24, 2013 Green Infrastructure Tour

Village of Colonie Cook Park

Multiple Sites and Practices

-Rain Garden, Green Roof, Porous Asphalt, Downspout Disconnect, Stream Restoration

Storm System Mapping Project

- 1. Stormwater Coalition of Albany County Storm System Mapping Project Final Report
 - A. Prepared by Nancy Heinzen
 - B. Many of the appendices were prepared by the GIS Technician, Christina Chiappetta

- 2. Documentation of Project Meetings Packet: Agendas, Attendance, Meeting Notes
 - A. GIS Advisory Committee Meetings
 - B. Working Group Meetings
 - C. Training Sessions (GPS Training)
 - D. List of Meeting Dates
 - Extensive meeting notes were taken throughout this project and they are available upon request

- 3. Map Products
 - A. CD ROM (PDF Files)
 - 1. Storm Sewershed and Storm System Map Books (8.5 x 11 format)
 - 2. Storm Sewershed and Storm System Maps (Ansi E, 44" x 34" large format)
 - 3. Stormwater Coalition of Albany County Storm System Mapping Project Final Report

 - B. Hard Copy Large Format Maps (44" x 34" Ansi E)
 - 1. Dry River Storm Sewershed
 - (a) Storm infrastructure and sewershed boundary (grid reference Map Book pages)
 - (b) Storm sewershed and watershed boundary

 - 2. Salt Kill storm sewershed
 - (a) Storm infrastructure and sewershed boundary (grid reference Map Book pages)
 - (b) Storm sewershed and watershed boundary

 - 3. Kromma Kill storm sewershed
 - (a) Storm infrastructure and sewershed boundary (grid reference Map Book pages)
 - (b) Storm sewershed and watershed boundary

 - 4. Vly Creek Storm sewershed
 - (a) Storm infrastructure and sewershed boundary (grid reference Map Book pages)
 - (b) Storm sewershed and watershed boundary

 - 5. City of Watervliet storm system infrastructure (Dry River and Salt Kill)
 - (a) Storm infrastructure and sewershed boundary (grid reference Map Book pages)

 - 6. Village of Green Island (Salt Kill)
 - (a) Storm infrastructure and sewershed boundary (grid reference Map Book pages)

QUARTERLY REPORT(S)

I. Quarterly Report Date:

- July 1, 2013 to September 30, 2013 (QR #11)
- October 1, 2013 to End of Project December 1, 2013 (partial QR #12)

II. Municipal Agency and Contact Information

a. **Municipal Agency:** Albany County (Host of the Stormwater Coalition of Albany County)

b. **Municipal Contact**

Daniel M. McCoy, County Executive
112 State Street
Albany, New York 12207
Phone: (518) 447-7040
Fax: (518) 447-5589

III. Report Preparer's Name and Contact Info

Nancy Heinzen, Stormwater Program Coordinator
Stormwater Coalition of Albany County
112 State Street, Room 720
Albany, New York 12207
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IV. Progress Activity

a. **Narrative Description of Progress Toward Project Completion**

MCM 3 Storm System Mapping Project

- **Establish an MS4 GIS Advisory Team**
Completed.
- **Research Existing Stormwater Conveyance System Maps**
Completed.
- **Develop a Coalition-Wide Storm System Data Model**
Completed.
- **Hire a GIS Tech**
Completed.
- **Set Up a Computer Work Station for the GIS Tech**
Completed.

- **Create Digital Storm System Map-Select Watersheds**

General comments:

Completed.

Mapping Progress:

1) KROMMA KILL WATERSHED

Includes: T/Colonie; V/Menands; Albany County; Others MS4s (NYSDOT-Broadway)

Progress: Individual MS4/Municipal Storm System Maps

a. Village of Menands

Completed

b. Town of Colonie

Completed

c. Albany County

Completed.

d. New York State Department of Transportation (NYSDOT)

Not a grant deliverable.

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map

Completed.

2) DRY RIVER WATERSHED

Includes: T/Colonie; C/Watervliet; Other MS4s (NYDOT or NYS Thruway Authority (I-90 and I-787))

Progress: Individual MS4/Municipal Storm System Maps

a. City of Watervliet

Completed.

b. Town of Colonie

Completed.

c. Other MS4s

No data used or available.

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map

Completed.

3) PATROON CREEK WATERSHED

Includes: T/Colonie; C/Albany; V/Colonie; Albany County; SUNY Albany; T/Guilderland, Other MS4s (NYDOT or NYS Thruway Authority (I-90 and I-87))

Progress: Individual MS4/Municipal Storm System Maps

a. Town of Colonie

Already mapped by municipality.

b. City of Albany

Partially mapped; data not corrected.

c. Village of Colonie

Partially mapped; data not corrected.

d. Albany County

No mapping.

e. SUNY Albany

Campus is mapped. Does not match Stormwater Coalition data model.

f. T/Guilderland

No mapping.

g. NYSDOT and Thruway Authority (I-87 and/or I-90?)

Not a grant deliverable.

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map

None.

4) KRUMKILL WATERSHED

Includes: T/Guilderland; T/Bethlehem; C/Albany; SUNY Albany; Albany County;
Other MS4s (I-87, I-90?)

Progress: Individual MS4/Municipal Storm System Maps

Dropped. .

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map

Dropped

5) VLY CREEK WATERSHED

Includes: V/Voorheesville; T/New Scotland; T/Guilderland; Albany County roads

Progress: Individual MS4/Municipal Storm System Maps

a. Town of Guilderland

Completed.

b. Village of Voorheesville

Completed.

c. Town of New Scotland

Completed.

d. Albany County

Completed.

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map
Completed.

6) SALT CREEK

Includes: T/Colonie; C/Cohoes; V/Green Island; NYSDOT (I-787, Route 32, Route 7)

Progress: Individual MS4/Municipal Storm System Maps

a. C/Cohoes
Completed.

b. T/Colonie
Completed.

c. Village of Green Island
Completed.

d. City of Watervliet
Completed.

e. NYSDOT (I-787, Route 32, Route 7)
Not a grant deliverable

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map
Completed.

CITY of WATERVLIET and VILLAGE OF GREEN ISLAND

Progress: Individual MS4/Municipal Storm System Maps

a. City of Watervliet
Partially completed.

b. Village of Green Island
Partially completed.

Progress: Integration of Individual MS4 Maps/ Intermunicipal Storm System Map
Not applicable. These are individual MS4 maps.

- **Consultant Services**

GPS
Completed.

GIS
Completed.

MM5 Green Infrastructure Local Law Project

- **Establish a Green Infrastructure Local Law Advisory Committee (GILLAC)**
Completed

- **Green Infrastructure Local Laws (Educate land use decision makers)**
 - **Design and Implement a Green Infrastructure Awareness Survey-ID Knowledge Gaps**
Completed.

 - **Conduct Training Workshops**
Completed final workshop (Green Infrastructure)
 - #1 Bus Tour of Existing Green Infrastructure Practices**
Progress: Completed September 24, 2013. 99 attendees, 12 presenters, included tour of a stream restoration site (Albany Pine Bush Preserve)

 - #2 NYSDEC Design Manual Training-Green Infrastructure**
Progress: Completed

 - #3 Mock Application Role Play of Project with Green Infrastructure Practices**
Progress: Completed

 - #4 Green Infrastructure Issues—Discussion**
Progress: Dropped

 - #5 Stream Daylighting—Drainage Structures**
Progress: Dropped. Instead the September 24 Green Infrastructure Tour included a stream restoration site.

- **Inventory Existing Comprehensive Plans and Local Laws (GI Strategies and Smart Growth Principles)**
 - **Select GI Assessment Tool(s) (Stormwater Coalition Scorecard)**
Completed

 - **Conduct Inventory (Stormwater Coalition Scorecard)**
Completed. (missing Town of Guilderland)

- **Green Infrastructure Local Laws**
 - **Secure Technical Support (Legal/Engineering)**
Completed.

 - **Analyze and Identify Gaps**
Completed.

 - **Research Green Infrastructure Local Laws**
Completed.

- **Present Model Local Law Options**
Completed
- **Present Local Law Options to Decision Makers**
 - **Report Prepared and Distributed**
Completed and included with Final Report documents (grant deliverables)
 - **Presentations, Feedback and Revisions**
Completed. Final presentation by consultant on October 22, 2013.
 - **Decisions by Coalition leadership re: Green Infrastructure Local Law Recommendations**
Completed. See Decision Matrix forms for each Coalition member (missing Village of Voorheesville)

b. Status of Each Task; Percent Completed; Percent Spent for Each Task

See attached “Status of Tasks” spreadsheets.

Note:

- 1) In the field labeled “Deliverables” the location of various deliverables is noted.
- 2) The % Spent for Each Task has been broken out to describe the percentage spent using State Funds or Local Share. The Local Share was met previously, therefore where relevant the spreadsheet will always note that 100% of the Local Share has been spent.
- 3) For the Status of Each Task spreadsheet, where it reads, “Completed By Whom?” the two GILLAC Co-Chairs are the Stormwater Coalition Coordinator, Nancy Heinzen, and Senior Planner for the Albany County Planning Board, Leslie Lombardo.

c. Identify any approved changes to approved plan and specifications

Approved, Adaptations, and Proposed Changes to the plan:

Green Infrastructure Local Law project

In September, 2013 the Village of Voorheesville decided to drop out of the Stormwater Coalition, effective 12/31/2013. While technically they are still a member of the Coalition, they decided to not fill out the Decision Matrix form. They did, however, evaluate their existing land use laws in 2011 and completed the Coalition Scorecard.

The Town of Guilderland, a municipality which dropped out of the Coalition in 2011, did not complete the Stormwater Coalition Scorecard, but did re-join the Coalition and submitted the Decision Matrix Form.

Green Infrastructure Workshops

The Green Infrastructure Tour took place on September 24, 2013. Lots of work, but many helped.

Storm System Mapping

It has been slow going preparing all the documentation associated with this project. While the named deliverables were completed mid-August, preparing the final report proved to be more complicated than expected.

V. Problems encountered during quarter and how problems were resolved

While there were numerous obstacles, none were sufficiently troublesome to prevent the completion of items named in the grant work plan. As with any project, what one imagines will happen and the time it takes to complete various tasks is often different. For both projects, sheer perseverance by many prevailed, and considerable insight gained regarding the implementation of green infrastructure practices and the day-to-day minutia of storm system mapping.

VI. Financial Status

a. Expenditure and Reimbursement Report Form

No voucher will be submitted with this report. Several checks still need to clear and once that data is available, the final voucher will be submitted as soon as possible, perhaps by the end of the year.

b. Other Expenditure Documentation

None.

VII. Revised Project Schedule

No. All projects have been completed as revised and approved previously by NYSDEC staff.

Objectives	Activity	Tasks	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.5.a. v. Green Infrastructure-Training Low Impact Development, Better Site Design, and Green Infrastructure Applications (MCM 5 Post Construction Stormwater Management)	To guide green infrastructure local law project, establish the Green Infrastructure Local Law Advisory Committee (GILLAC)	Identify GILLAC participants. Meet as needed to discuss issues and implement tasks.	Attendance lists; Agendas [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; MS4/Coalition Planners; Other Coalition Members	90%	100% of Local Share	GILLAC & Co-Chairs
	To identify knowledge gaps regarding green infrastructure within MS4s, design and administer a green infrastructure awareness survey	Design survey	Survey [See Project Summary Report Appendix A Training Needs Survey]	GILLAC; County Planner; SW Coalition Coordinator	100%	100% of Local Share	GILLAC & Co-Chairs
		Develop respondent list (Land use decision makers? MS4 staff? Elected officials? Others?)	List of Respondants	GILLAC; County Planner	100%	100% of Local Share	
		Administer survey at PB/ZBA/CAC Mtgs and elsewhere	Administration Schedule	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	100%	100% of Local Share	
		Analyze Results-ID training needs	Survey Results; List of Training Recommendations [See Project Summary Report Appendix A Training Needs Survey]	Albany County Planner; GILLAC; SW Coalition Coordinator	100%	100% of Local Share	
	Organize Training Workshops	Workshop # 1 (School Bus Tour of MS4 Communities and Green Infrastructure Projects--WG Members; Planners; TDEs; Others)	Agenda, Attendance List [See Documentation of Workshops Packet]	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	100%	100% of Local Share; 15% of State Funds	GILLAC & Co-Chairs. Sites Set Up, Buses
		Workshop #2 (SW Training Center: Green Infrastructure course-Lake, Dunkle, Kendall). (For Planners, WG Members, TDEs, Chair Plannign Bd, MS4 officials)	Agenda, Attendance List [See Documentation of Workshops Packet]	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	100%	100% of State Funds Allocated for this Wkshop	
		Workshop #3 (Topic based on Survey Results--Planning Bd, ZBA, Muni Staff) [MOCK GI APPLICATION]	Agenda, Attendance List [See Documentation of Workshops Packet]	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	100%	100 % of Local Share; 0% of State Funds allocated for this Workshop	
		Workshop #4 (Topic based on Survey Results--Planning Bd, ZBA, Muni Staff) [STREAM DAYLIGHTING-DRAINAGE]	Agenda, Attendance List [See Documentation of Workshops Packet]	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	65%	100% of Local Share; 15% of State Funds	
		Workshop #5 (Topic based on Survey Results--Planning Bd, ZBA, Muni Staff) [GREEN INFRASTRUCTURE ISSUES]	Agenda, Attendance List	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	5%	15% (Dropped as stand-alone Wkshop)	

Objectives	Activity	Tasks	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.5.a.iv. Green Infrastructure Practices-Local Laws Procedures (MCM 5 Post Construction Stormwater Management)	Using an existing Green Infrastructure assessment tool, inventory MS4 Comprehensive Plans and Local Laws relative to Green Infrastructure and Smart Growth principles	Select a Green Infrastructure Assessment Tool (NYS State Smart Growth Principles; NY Code Ordinance Worksheet; LEED for Ngbhd Dev; EPA Mng Grn Inf Muni Handbk-WQ Scorecard?)	Assessment Tool [See Project Summary Report Appendix B Stormwater Coalition Scorecard]	GILLAC; County Planner; MS4/Coalition Partners; SW Coalition Coordinator	100%	100 % of Local Share	GILLAC & Co-Chairs
		Secure support for inventory effort, as needed (Interns? Other staff? Necessary expertise?)	NA	SW Coalition Coordinator	100%	100 % of Local Share	
		Conduct inventory	[See Project Summary Report Appendix C Completed Scorecard Sample and Packet of Individual MS4 Information-Scorecards Corrected and Final]	Albany County Planner; GILLAC; MS4/Coalition Partners; SW Coalition Staff (Interns)	100%	100 % of Local Share	
		Summarize and analyze inventory information. Present results to Coalition Working Group.	Summary of Inventory Results [See Project Summary Report, multiple Appendices]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	
Secure Legal Services and Green Infrastructure Design Assistance		Write Request For Proposal (RFP); Develop vendor list; GILLAC input and/or approval; submit to County purchasing	NA	SW Coalition Coordinator; GILLAC; County Purchasing	100%	100% of Local Share	GILLAC & Co-Chairs
		Wait for bids; select vendor; execute contract	RFP Consultant Information-Contact Info; Other [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; GILLAC; County Purchasing	100%	100% of Local Share	

Objectives	Activity	Tasks	Deliverables	Responsible Party	% Completed	% Spent (\$) for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.5.a.iv. Green Infrastructure Practices-Local Laws (MCM 5 Post Construction Stormwater Management) cont'd	Consultant analyzes gaps and green infrastructure implementation issues. Researches green infrastructure local laws	Identify from inventory, legal gaps (all scales of GI) relative to assessment tools, Design Manual, and water quality issues	Assessment Results [See Project Summary Report Appendix K Sorted Final Gap Identification]	SW Coalition Coordinator; Consultant	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Consultant & GILLAC Co-Chairs
		Conduct sessions with stormwater design engineers and TDEs. Discuss Design Manual requirements, legal obstacles, relevant issues, local law needs	Agendas [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; Consultant	100%	100% State Funds (For Local Law Consultant); 100% Local Share	GILLAC/Others
		Consultant researches local laws and possible tweaks to existing codes	[See Project Summary Report]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Consultant, GILLAC Co-Chairs
	Consultant presents local law related recommendations to relevant parties, adjusted as needed	Consultant presents to GILLAC best guess re: laws of interest; topics of interest.	Agenda; Meeting Notes [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (Consultant)	Consultant
		GILLAC and consultant develop strategy re: end product	Agenda; Meeting Notes [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Consultants \$ GILLAC Co-Chairs
		Consultant presents mutually agreed local law and/or "tweak" recommendations. Could be general or specific to MS4.	Agenda; Meeting Notes [See Project Summary Report Appendix Q and Documentation of Project Meetings Packet]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	GILLAC Co-Chairs review available tweaks.
		Local law recommendations presented to stormwater designers; municipal attorneys; Working Group members; elected officials and other interested parties (Roundtable).	Agenda; Meeting Notes [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	GILLAC & Others. Comments to consultant.
		Recommendations adjusted and prioritized to reflect "Roundtable" input	Agenda; Meeting Notes [See Project Summary Report Appendix Q List of Project Meetings and Documentation of Project Meetings Packet]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Consultants and GILLAC Co-Chairs

Objectives	Activity	Tasks	Deliverables	Responsible Party	% Completed	% Spent (\$) for Each Task	Comments
Implement MS4 Permit GP-0-10-002. Part VII.A.5.a.iv. Green Infrastructure Practices-Local Laws (MCM 5 Post Construction Stormwater Management) cont'd	Local law recommendations presented to decision makers	Consultant prepares Report, which includes Model Local Law(s); Recommendations and Supporting Documents (Assessment Tool Used for Local Law Inventory; Summary of Inventory Results; Green Infrastructure Awareness Survey Results)	Consultant Report [See Project Summary Report]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Consultant and GILLAC Co-Chairs
		Report distributed to Elected Officials, Planning/ZBA/IDA Board; Interested Others. Presentation by consultant to 2 Groups Selected by GILLAC (One, two, several MS4s? CEG? Chamber of Commerce? NYCOM? Assoc of Towns? NYSAC? NYSDEC? NYSDOS?)	Agenda and List of Groups [See Project Summary Report Appendix O Final Presentation]	SW Coalitton Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Work plan changed. Final Report to be presented to one group. Second presentation at County/SUNY Mtg
		Compile feedback and decisions from Coalition member leadership (re: adoption status of model local law(s) and other recommendations)	Summary Of MS4 Decision re: Changing Local Law [See Project Summary Report Appendix P Implementation Questionnaire and Packet of Individual MS4 Information-Decision Matrix Forms Filled In]	SW Coalition Coordinator; Consultant; County Planner	100%	100% State Funds (For Local Law Consultant); 100% Local Share	Individual MS4 staff as indicated on Decision Matrix Form
Manage Grant	Coordinate Grant Activities	Manage Work Flow, MS4 GIS Team activities, GIS Tech Responsibilities; SW Coalition/MS4 participation	Submission of Deliverables	SW Coalition Coordinator	100%	100% of Local Share	SW Coal Coord
	Quarterly Reports	Coordinate timesheets; Implement Project; Submit Reimbursement Voucher	Quarterly Reports	SW Coalition Coordinator	95%	100% of Local Share	SW Coal Coord. Voucher 4 (Final Voucher) to be submitted.
	Final Repot	Write and submit Final Report	Final Report	SW Coalition Coordinator	100%	100% of Local Share	SW Coal Coord and Consultant

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Storm System Mapping (Illicit Discharge Detection and Elimination)	To guide mapping of storm system infrastructure across "MS4" boundaries, establish an MS4 GIS Advisory Team consisting of Stormwater Coalition members with expertise in GIS technology, data models, data management, and infrastructure mapping.	Identify MS4 GIS Advisory Team participants. Meet as needed to discuss technical issues and coordinate activities	Attendance Lists, Agendas [See Storm System Mapping Project Final Report and Documentation of Project Meetings Packet]	SW Coalition staff and MS4 Coalition members with GIS expertise (T/Colonie; T/Bethlehem; City of Albany; Albany County; Other MS4s and their consulting engineers)	100%	100% of Local Share; 100% of State Funds (GIS Tech)	Coalition SW Coor; MS4 GIS Advisory Team (Ind MS4 staff) Coalition GIS Tech
	Research Existing Stormwater Conveyance System Maps	Inventory what kind of storm system maps exist within each MS4 (AutoCAD, GIS, Paper, Electronic, Scanned)	Spreadsheet: Characteristics of Existing Storm System Maps [See Storm System Mapping Project Final Report Appendix E Inventory of Existing Storm System Maps]	SW Coalition coordinator	100%	100% of Local Share; 100% of State Funds (GIS Tech)	Coalition SW Coor; Ind MS4 Staff; Coalition GIS Tech
		Analyze GIS, AUTOCAD, and paper maps for storm feature types, other attribute information, and associated data models.	NA	SW Coalition coordinator	100%	100% of State Funds (GIS Tech)	Coalition GIS Tech
		Identify which MS4 maps, within which watersheds should be converted to GIS layer(s). ID best approach (Digitize? GPS? Both?)	NA		100%	100% of State Funds (GIS Tech)	Coalition GIS Tech
		Prioritize conversion activities based on needs of all MS4s, pollution issues, priority watersheds, time frame, available funding, and technical capacity.	NA		100%	100% of State Funds (GIS Tech)	Coalition SW Coor & GIS Tech; GIS Consultant

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Storm System Mapping (Illicit Discharge Detection and Elimination)	Develop a Coalition Storm System Data Model. Incorporate the Data Model into routine GIS operations.	Using the T/Colonie Storm System Data Model (City Works), the MS4 GIS Advisory Team compares that data model to existing storm system map layers. Common field names and attributes are identified. The most critical features and relationships are identified, guided in part by the Stormwater Systems Uniform Mapping Protocol (SSUMP) developed by Herkimer-Oneida County. These features and data base relationships are incorporated into the Coalition Storm System Data Model. The data model includes a unique id naming system of stormwater features inclusive of all Coalition members.	Hard copy: Coalition Data Model (Storm System Field Names, Attributes, Database Relationships, Unique ID protocol). [See Storm System Mapping Project Final Report and Appendix F Storm System Data Model]	SW Coalition coordinator and MS4 GIS Advisory Team	100%	100% of Local Share; 100% of State Funds (GIS Tech)	Coalition SW Coor; MS4 GIS Advisory Team (Ind MS4 staff); Coalition GIS Tech; GIS consultant
		Incorporate Coalition Data Model into GPS data dictionary for field work (Trimble Units-Coalition; T/Guilderland; Other)	Hard copy: GPS Data Dictionary [See Storm System Mapping Project Final Report, Appendix I Storm Infrastructure Attributes and Drop Down Lists]	SW Coalition coordinator and MS4 GIS Advisory Team	100%	100% of State Funds (GIS Tech)	Coalition GIS Tech; Consultants (GIS & GPS).
		Incorporate Coalition Data Model Into Heads Up Digitizing Process	Hard copy: Metadata of a Digitized Map	SW Coaliton staff and MS4 GIS Advisory Team	100%	100% of State Funds (GIS Tech)	SW Coalition GIS Tech.
		Share/Explain Data Model and Geodatabase to Working Group representatives and others involved with mapping	Print copy: Working Group Meeting Agenda item [See Storm System Mapping Project Final Report and Documentation of Project Meetings Packet]	Stormwater Coalition coordinator and MS4 GIS Advisory Team	100%	100% of Lcoal Share; 100% of State Funds (GIS Tech)	Ind MS4s; SW Coalition GIS Tech. Explanations included in Project Final Report.

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Storm System Mapping (Illicit Discharge Detection and Elimination)	Hire GIS Tech for 2 years, if possible	For hiring create/use existing Civil Service job description (County Civil Service assist with this); advertise job opening; select candidate	GIS tech Civil Service job description [See Storm System Mapping Project Final Report Appendix A Civil Service Job Specification-Technical/Administrative GIS/GPS Technician]	SW Coalition coordinator	100%	100% of Local Share	SW Coalition Coor
		Provide GIS/GPS training support for GIS tech and others, as needed (possible topics: scan, georegister, digitize, GPS, data models, other ESRI tools)	Training agendas [See Storm System Mapping Project Final Report, multiple appendices]	SW Coalition coordinator	100%	100% of State Funds (GIS Consultant-Various Tasks); 100% of State Funds (GPS Training)	Consultants: GIS Mapping & GPS Set Up & Training. GIS Tech then trains MS4/municipal staff.
	Set Up Computer Work Station for GIS Tech	Acquire computer equipment and software	Photo: computer work station [See Storm System Mapping Project Final Report Appendix C GIS Workstation and Mapping Equipment]	SW Coalition coordinator	100%	100% of Local Share Allocated for Eqpmt	County IT, County Dept of Planning, and GIS Tech
		Purchase mapping equipment as advised by MS4 GIS Advisory Team (Field laptop? Scanner? GPS? Camera?)	Photo: mapping equipment [See Storm System Mapping Project Final Report Appendix C GIS Workstation and Mapping Equipment]	SW Coalition coordinator	100%	68% of State Funds Allocated for Eqpmt	Coalition Coordinator
Scan, Geo-reference, and Digitize Storm System Maps-Use Data Model		Heads Up Digitize V/Menands; C/Watervliet; V/Green Island Paper Storm System Maps	Hard copy: Menands and Watervliet map; attribute table (ex. one storm system feature) [See Hard Copy Large Format map and CD ROM Map Book for Krommkill]	SW Coalition staff and V/Menands, V/Green Island, C/Watervliet	Dropped	NA	GIS Tech corrected existing V/Menands map; dropped using paper map of Wvliet, GIS Tech and C/WVliet staff GPS'd ~80% storm structures-new map.
		Heads Up Digitize V/Colonie Paper Storm System Map	Hard copy: Village of Colonie map; attribute table (ex. one storm system feature)	SW Coalition staff and V/Colonie	Dropped	NA	Dropped editing existing map. Instead GIS Tech and V/Col staff GPS'd ~65% of structures in Patroon.
		Heads Up Digitize V/Voorheesville Paper Storm System Map	Hard copy: Village of Voorheesville map; attribute table (ex. one storm system feature) [See Hard Copy Large Format map and CD ROM Map Book for Vly Creek]	SW Coalition staff and V/Voorheesville	Dropped	NA	Paper map didn't exist. Instead GIS Tech and Voor staff GPS'd 100% of storm structures in Village. Created new map.

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Storm System Mapping (Illicit Discharge Detection and Elimination)	Incorporate Coalition Data Model Into Existing GIS ESRI Storm System maps	Albany County. Adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: Albany County map; attribute table (ex. one storm system feature from data model). [See Hard Copy Large Format map and CD ROM Map Book for Vly Creek and Krommakill]	SW Coalition staff and Albany County	100%	100% of Local Share; 100 % of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff GPS'd structures in Krommakill using data model. Appended existing data from Vly. Both used Coalition Data Model.
		City of Albany. Adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: City of Albany map; attribute table (ex. one storm system feature from data model)	SW Coalition and City of Albany staff	100%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech, Individual MS4 staff GPS'd ~40% of Patroon Crk storm structure using data model.
		T/Bethlehem. Adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: Town of Bethlehem; attribute table (ex. one storm system feature from data model).	Stormwater Coalition staff and Town of Bethlehem	15%	100% of Local Share; 100 % of State Funds (GIS Tech)	Staff changes in T-Beth; mapping coordination limited. GIS Tech funding ended.
		C/Cohoes. If possible , adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy:: City of Cohoes; attribute table (ex. one storm system feature from data model). Optional. [See Hard Copy Large Format map and CD ROM Map Book for Salt Kill]	SW Coalition and City of Cohoes staff	100%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff. GPS'd 100% of storm structures in Salt Kill, created new map. Did not use old data.
		T/Colonie. Adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: Town of Colonie; attribute table (ex. one storm system feature from data model) [See Hard Copy Large Format map and CD ROM Map Book for Salt Kill, Krommakill, and Dry River]	SW Coalition staff and Town of Colonie	100%	100% of Local Share; 100% of State Funds (GIS Tech)	SW Coalition GIS Tech corrected T/Col storm data in Krommakill, Salt, and Dry River. Added some fields from Coalition data model. T/Col data remained as is.

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Storm System Mapping (Illicit Discharge Detection and Elimination)		T/New Scotland. If possible , adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: Town of New Scotland map; attribute table (ex. one storm system feature from data model). [See Hard Copy Large Format map and CD ROM Map Book for Vly Creek]	SW Coalition staff and Town of New Scotland	100%	100% of Local Share; 100% of State Funds (GIS Tech)	SW Coalition GIS Tech & New Scotland Highway staff mapped 100% of storm structures in T/New Scot, includes Vly Creek.
		SUNY Albany. If possible , adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: SUNY Albany map; attribute table (ex. one storm system feature from data model)	SW Coalition staff and Albany County	10%	100% of Local Share; 87.5 % of State Funds (GIS Tech)	UAlbany has existing comprehensive GIS of storm infrastructure. Unclear how to proceed.
		T/Guilderland. If possible , adapt existing GIS map to Coalition Storm System Data Model and Unique ID protocol	Hard copy: Town of Guilderland map; attribute table (ex. one storm system feature from data model). [See Hard Copy Large Format map and CD ROM Map Book for Vly Creek]	SW Coalition staff and Albany County	100%	100% of Local Share; 100 % of State Funds (GIS Tech)	SW Coalition GIS Tech & Guilderland staff mapped 100% of storm infrastructure in Vly Creek.
Blend MS4 Maps for Select Watersheds. Identify areas to field check, areas for new mapping. Use Coalition-Wide Data Model. MS4 Advisory Team critiques and advises.		Kromma Kill Watershed (T/Colonie; Menand). NOTE: Add Albany County	Hard copy: Preliminary storm system map of Krommakill Watershed. [See Hard Copy Large Format map for Krommakill]	SW Coalition staff and MS4 GIS Advisory Team	100%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff (complete)
		Dry River Watershed (T/Colonie; Albany County; C/Watervliet). NOTE: Drop Albany County	Hard copy: Preliminary storm system map of Dry River Watershed. [See Hard Copy Large Format map for Dry River]	SW Coalition staff	100%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff (complete)
		Patroon Creek Watershed (T/Col; C/Albany; V/Col; Albany County; SUNY Albany; T/Guild?)	Hard copy: Preliminary storm system map of Patroon Creek Watershed.	SW Coalition staff	40%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff (partial)
		Krumkill Watershed (T/Guild; T/Beth; SUNY Albany; T/Beth; SUNY Albany; DOT?; State Campus?).	Hard copy: Preliminary storm system map of Krum Kill Watershed.	SW Coalition staff	5%	100% of Local Share; 100% of State Funds (GIS Tech)	Dropped
		Vly Creek Watershed (T/Guild; V/Voorheesville; T/New Scot) NOTE: Add Albany County	Hard copy: Preliminary MS4 storm system map of Vly Creek Watershed. [See Hard Copy Large Format map for Vly Creek]	SW Coalition staff	100%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff (complete)

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Storm System Mapping (Illicit Discharge Detection and Elimination)	Blend MS4 Maps for Select Watersheds. Identify areas to field check, areas for new mapping. Use Coalition-Wide Data Model. MS4 Advisory Team critiques and advises. (cont'd)	Salt Creek-Other?Watershed (T/Col; C/Cohoes)	Hard copy: Preliminary storm system map of Salt Kill Watershed. [See Hard Copy Large Format map for Salt Kill]	SW Coalition staff	100%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff (complete)
		C/Watervliet and V/Green Island MS4 Storm Maps	Hard copy: Preliminary storm system map of City of Watervliet and Village of Green Island. [See Hard Copy Large Format map for Watervliet and Green Island]	SW Coalition staff	80%	100% of Local Share; 100% of State Funds (GIS Tech)	GIS Tech and Individual MS4 staff. partially completed (Salt Kill and Dry River)
	Field Check Existing Maps and/or Create New Maps	With guidance from MS4 GIS Advisory Team, establish fieldwork protocol (GPS mapping)	Hard copy: Written protocol [See Storm System Mapping Project Final Report Appendix H Data Processing Protocol and Appendix L How To Use Your GPS Unit]	SW Coalition staff and MS4 GIS Advisory Team	100%	100% of Local Share; 100% of State Funds (GIS Tech)	SW Coal GIS Tech with help from GPS consultant
		Analyze Blended MS4/Watershed Maps and Prioritize Field Work.	Hard copy: Field work schedule [See Storm System Mapping Project Final Report]	SW Coalition staff and MS4 GIS Advisory Team	100%	100% of Local Share; 100% of State Funds (GIS Tech)	SW Coal GIS Tech; Ind MS4 Staff.
		Establish written procedures for updating system maps and sharing info with other MS4s.	Hard copy: Procedures [See Storm System Mapping Project Final Report and multiple appedices]	SW Coalition staff and MS4 GIS Advisory Team	100%	100% of State Funds (GIS Tech)	SW Coal GIS Tech. Procedures included in Final Report
		Conduct Field Work-Coaliton Staff AND MS4 Partners from DPW, Highway, GIS Dept w/Infrastructure Knowledge	Hard copy: Final storm system map in GIS, of watershed MS4s. [See hard copy large format maps and other map products]	SW Coalition staff; MS4/Coaliton members; MS4 GIS Advisory Team	100%	100% of Local Share; 100% of State Funds (GIS Tech)	SW Coal GIS Tech; Ind MS4 Staff in Kromma Kill, Dry River, Salt, Vly Creek, and Patroon Creek.
		Field Work-No Coalition Staff Support-MS4 Only (GPS, Post Processing, Photos, Using Coalition-wide Data Model and Field Work Protocol) Which MS4s?	Hard copy: Final storm system map in GIS, of watershed MS4s.	MS4/Coalition Members	NA	NA	SW Coal GIS Tech; Ind MS4 Staff. For quality control, all new field work included GIS Tech. Albany County DPW trained for solo work. T/Col GIS already completed.
		incorporate GPS info into existing GIS layers of Storm System features. Make corrections. Update Storm System maps for Prioritized Areas/Watersheds.	Hard copy: Final storm system map in GIS, of watershed MS4s. [See hard copy large format maps and other map products]	SW Coalition staff	100%	100% of State Funds (GIS Tech)	GIS Tech. Krommakill; Salt Kill; Dry River, Vly Creek.

Objectives	Activity	Task	Deliverables	Responsible Party	% Completed	% Spent for Each Task	Completed By Whom?
Implement MS4 Permit GP-0-10-002. Part VII.A.3.b Sewershed Delineations (Illicit Discharge Detection and Elimination)	Storm System Maps and Preliminary Sewershed Delineations	Organize GIS storm system layers by watershed, by MS4. Create comprehensive geodatabase of stormwater system features and related .mxd files. Make copies (CD-ROM); Distribute to all MS4s.	CD ROM: Geodatabase of Storm System layers, with ESRI .mxd files by Watershed and be MS4 [See Storm System Mapping Project Final Report Appendix P Individual MS4/Municipal Data]	SW Coalition staff	100%	100% of State Funds (GIS Tech)	GIS Tech. CD-ROMS to MS4s (archival, new, corrected, incomplete data), GDB of data model and data dictionary.
		Using LiDAR data, Spatial Analyst and 3D Analyst delineate preliminary sewershed boundaries of prioritized watersheds (Dry River; Krommakill; Patroon Creek; and Krumkill). Include preliminary delineation in geodatabase.	CD ROM: Geodatabase of Storm System delineations of 3 watersheds [See Storm System Mapping Project Final Report Appendix M Albany County Storm Sewershed Analysis]	SW Coalition staff	100%	100% of State Funds (GIS Tech); 17% of 100% GIS Consultant Fees	Using data from GIS Tech, GIS Consultant developed procedures and delineated storm sewershed of 4 watersheds
		Post storm system maps and possibly sewershed delineations on AIMS. (Minimum 3 watersheds)	Hard copy: Screen shot of AIMS with storm system maps posted [See Storm System Mapping Project Final Report]	SW Coalition staff	100%	100% of State Funds (GIS Tech); 17% GIS Consultant Fees	Storm system maps of Krom, Salt, Dry, and Vly and sewersheds posted on AIMS by consultant. Includes data from 9 MS4s.
		Post system map layers info in ArcReader for Interested MS4s (minimum 2 MS4s)	Hard copy: Screen shot of Arc Reader with storm system maps. [No ArcReader, instead provided Map Books, all completed and corrected data layers posted on AIMS.]	SW Coalition staff	0%	0%	Arc Reader is an outdated technology. Dropped.
Manage Grant	Coordinate Grant Activities	Manage Work Flow, MS4 GIS Team activities, GIS Tech Responsibilities; SW Coalition/MS4 participation	Submission of Deliverables	SW Coalition Coordinator	100%	100% of Local Share	SW Coal Coord
	Quarterly Reports	Coordinate timesheets; Implement Project; Submit Reimbursement Voucher	Quarterly Reports	SW Coalition Coordinator	100%	100% of Local Share	SW Coal Coord
	Final Repot	Write and submit Final Report	Final Report	SW Coalition Coordinator	100%	100% of Local Share	SW Coal Coord