

**Albany County MS4 Mapping Project**  
**Contract Number: #DEC01-C00081GG-335000**

NYSDEC WQIP Round 12 Grant  
Albany County  
(Lead Applicant)  
Stormwater Coalition of Albany County

**Quarterly Report #15**  
**January 1, 2020 to March 31, 2020**  
**Actual: January 20, 2020 to March 31, 2020**

**Final Report**  
**May, 2020**

**Narrative & Attachments**

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**Date:**

May 29, 2020

## **Narrative**

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Actual: January 20, 2020 to March 31, 2020**

**Final Report  
May, 2020**

Objective		Quarterly Report 15 & Final Report
<b>1 Project Management</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15, Final Report ~5/31/2020</b>
1 Weekly meetings to coordinate grant implementation with Coalition staff	1 Weekly staff meetings - internal meeting schedule - Due date: ongoing for duration of grant implementation	No staff, therefore no staff meetings.
2 Monthly Working Group meeting to coordinate grant implementation with member MS4s	1 Working Group meeting agendas-grant items noted - Due date: Ongoing for duration of grant implementation	Monthly Working Group meetings ongoing. Agendas attached (January 23, 2020; February 27, 2020; March 26, 2020 (Covid-19 Skype for Business); April 23, 2019 (Covid-19 Skype for Business))
3 Board Mtgs to oversee/approve Coalition/County grant budget items; consultant contracts, hiring	1 Board Meeting agendas (grant items) - Due date: Ongoing, for duration of grant	Quarterly Board meetings: March 18, 2020 Board Meeting (cancelled Covid-19)
4 Hire/train 2 full time staff - Stormwater Program Technician Assistants	1 Advertise job openings - Includes MWBE and County Affirmative Action requirements - Due date: 9/1/2016 Job Posting Flyer	Completed
	2 Interview/select candidates & set up payroll - Due date: 1/1/2017 Paycheck Stubs/1 pay period	Completed
	3 Civil service job specifications - Due date: 9/1/2016 Job Specs	Completed.
	4 Train stormwater program tech assistants, as needed (storm data model, system mapping, MS4 permit, local geography) - Due date: 7/1/2017 (data model); ongoing, as needed	Completed,
5 Secure/set up/maintain workspace for additional grant funded Coalition staff	1 Set up/maintain Coalition office space - Due date: 5/1/2016  Comment: The original grant application assumed that the Coalition office would be based at 112 State Street. Instead, in April, 2016, the office was relocated to the County Health Dept Building, 175 Green Street, Albany, NY, Given grant funding to hire 2 full time staff and provide work space for 2 to 5 University at Albany student interns working intermittently over a 2 year time period, the relocation needed to address these office space needs. It did.	Completed.
6 Secure/manage consultant services as detailed in MWBE Utilization Plan/Process & County Purchasing Policy	1 County executes consultant contract to produce impervious surface/building footprint map layers. - Due dates: 5/1/2018 Executed Contract; 10/1/2019 Payments Completed; Mapping Completed	Weston and Sampson completed 100% of the deliverables named in Contract No. 4526 for 2019 - An Agreement Between the County of Albany and Weston and Sampson, PE, LS, LA, PC for Impervious Cover and Building Footprint Mapping for the Stormwater Coalition of Albany County. The final Weston and Sampson invoice of \$5,288.90 was processed for payment on 4/27/2020.
	2 County executes consultant contract to develop GIS linked field inspection forms - Due dates: 7/1/2017 Executed Contract; 10/1/2018 Payments & Contract Completed  Comment: Consultant with input from MS4s develops forms to inspect outfalls, post construction stormwater practices, municipal facilities, possibly other program items	Dropped.

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	3 Payment method for City of Albany consultant to digitize map records (Patroon/Krumkill) established - Due dates: 9/1/2016 Written agreement; 4/1/2018 Work/Payments Completed  Comment: The original grant application included fund'g to help the City/Albany map their combined sanitary/storm infrastructure. Since receiving the grant award, the City hired consultants to map their combined infrastructure. Money to be spent for that purpose will instead be used to digitize historic map records of sewer separation work completed in the 1930's (Krumkill) & 1970's (Patroon Creek Parson's Brinckerhoff).	Completed, modified for Krumkill.
	4 County executes consultant contract to provide GIS/GPS tech support to assist Coalition staff w/ mapping tasks, as needed - Due dates: 4/1/2017 Executed Contract; 7/1/2019 Payments/Work Completed	Dropped.
7 With U Albany Office of Sustainability secure, manage, and fund student interns to complete 4	1 Prepare/approve contract doc betw/ UAlbany Ofce of Sustainability-Albany Cnty for student svces. - Due date: 1/1/2017 Executed Contract  Comment: U Albany is a member of the Coalition. To avoid multiple steps if hired through County and simplify process of paying students, the Ofce of Sustainability will set up an account to hold/manage grant funds earmarked for part time student wages. The Office of Sustainability will also recruit professors to support/guide mapping projects executed by students. Contract modeled after similar American Farmland Trust contract to have U Albany pay interns.	Completed.
	2 Prepare/distribute description of map projects to professors via UAlbany Ofce of Sustainability - Due date: 1/1/2017 Project Descriptions	Completed.
	3 Monitor student progress with Mapping Project #1 Digitize Albany County Health Dept septic/well data - Start/end date: Variable 9/1/2017 to 6/30/2018, no later than 6/30/2019. Student Progress Reports 2 per semester	Completed.
	4 Monitor student progress with Mapping Project #2 Create GIS layer of County green infrastructure assets/degree of protection - Start/end date: Variable 9/1/2017 to 6/30/2018, no later than 6/30/2019. Student Progress Reports 2 per semester	Completed.
	5 Monitor student progress with Mapping Project #3 Digitize soil boring data from Construction Activity SWPPPs - Start/end date: Variable 9/1/2017 to 6/30/2018, no later than 6/30/2019. Student Progress Reports 2 per semester	Dropped.

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	6 Monitor student progress with Mapping Project #4 Digitize Historic Erie Canal- Cohoes/Wvliet/TCol/Menands/GreenIs/CityAlbany - Start/end date: Variable 9/1/2017 to 6/30/2018, no later than 6/30/2019. Student Progress Reports 2 per semester	Completed.
	7 Monitor payment of student interns as named in UAlbany/County-Coalition contract - Start/end date: Variable 9/1/2017 to 6/30/2018, no later than 6/30/2019.	Completed.
8 Submit quarterly and final grant reports to NYSDEC	1 Quarterly Grant Reports - Due dates: once contract is executed, submit quarterly reports January, March, June, and September 9/1/2016 to 4/30/2020	Grant Quarterly Report #15 covers the time period 1/21/2020 to 5/31/2020. The content doubles as the Final Report.
	2 Final Grant Report to NYSDEC. - Due date: No later than 30 days after 4/30/2020	Final Grant Report submitted May 29, 2020.
9 Submit State Aid vouchers for reimbursement of grant funded activities	1 Prepare/Submit quarterly State Agency vouchers - Due Date: For duration of grant implementation such that all submitted invoices pre-date the contract end date of 4/30/2020.  Comment: The submission of quarterly vouchers will depend on the amount of funds expended within the time period. Once staff is hired that will be a routine expense. Until then, expenses will be incurred as invoices are processed. For some quarters there may be no paid invoices eligible for reimbursement, in which case a voucher will not be submitted.	A final State Aid Voucher for \$63,622.80 was mailed to NYSDEC on May 29, 2020
10 Inter-MS4 meetings to develop content of field inspection forms with assistance from consultants	1 Inter-MS4 Sub-Committee Meeting agendas - Due date: 5/1/2018 Multiple agendas	Completed.
11 Inter MS4 Mtgs to troubleshoot mapping issues as needed (ownership, data model content, shared service arrangements)	1 Inter-MS4 Sub-Committee Meeting agendas - Due date: 1/1/2019 Multiple agendas	Completed.
12 Submit quarterly and final MWBE reports to NYSDEC Office of Affirmative Action	1 Quarterly MWBE-EEO Reports - Due date: once grant contract executed, to be submitted January, March, June, September 9/1/2016 to 4/30/2020	MWBE Quarterly Report #15 which covers the time period 1/1/2020 to 3/31/2020 was submitted May 8, 2020.
	2 Final MWBE Report - Due date: No later than 4/30/2020	The MWBE Final Report was submitted May 29, 2020.

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<b>1 Project Management</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15, Final Report ~5/31/2020</b>
13 Create Coalition-wide Master Field Mapping/Post Processing/Corrections Scheduling Tool - Comment: Purpose of tool is to track what has been mapped and what needs to be mapped, where, when, and by whom. Includes all MS4s and all types of mapping named in work plan.	1 Mapping Scheduling Tool - Due Date: 9/1/2016 Hard Copy of Mapping Scheduling Tool - Blank; 9/1/2018 Hard Copy of Mapping Scheduling Tool - In Use	Completed.
	<b>MODIFICATION:</b> The Scheduling Tool tracks all mapping related activities. These activities now include a wider range of activities than originally imagined, such as: the review and preparation of historic mapping data; initial meetings with municipalities to either secure data or explain data; field check meetings with municipal staff; preparation of metadata; and "Finalization" meetings where the municipalities agree that the mapping effort has been completed to their satisfaction for all named mapping tasks (outfalls, storm system, PC SMPs, and municipal facility - storm system and boundaries). Once "Finalized" the data can be posted on the SwiM Mapper. Simple metadata is written up to explain the mapping effort in their municipality. A hard copy paper calendar tracks these mapping activities (where, by whom, with whom from MS4/municipality, to do what). If Coalition staff assist UAlbany student interns, that is noted on calendar.	
14 Purchase equipment/software for workstations (office); mapping/form equipment (field); support staff - Comment: Purchased equipment & software needs to support mapping work of Coalition technical staff (1 FT Coalition Stormwater Program Technician; 2 FT Stormwater Program Technician Assistants; and 2 to 5 UAlbany student interns working at multiple locations on various mapping projects. Staff will need field gear and may need to be reimbursed for travel expenses (mileage) if using their own vehicle	1 Purchase: Computer Equipment:/Software; Mapping Equipment/Software; Tablets/Internet Access - Due date: 4/1/2017  Comments: This is a labor intensive, short term mapping initiative which requires adequate office and field related equipment and software. Items to purchase: 3 Computer Workstations/Microsoft Office/ESRI ArcGIS for Desktop Standard; 2 Laptops/Microsoft Office/2 ESRI ArcGIS for Desktop Basic; 1 GPS Unit/Software; 10 Field Tablets; 4 1yr MIFI Verizon Wireless Contracts; WinSLAMM Pollutants of Concern Modeling Software 2 Purchase: Support Coalition staff (field gear & mileage reimbursement) - Due date: Field gear at time of hire 1/1/2017; mileage reimbursement (ongoing)	Completed.

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	<p>3 Purchase: Office Supplies (Copier Lease Images; Printer Toner) - Due date: Ongoing for duration of grant</p> <p>Comment: The Coalition budget, independent of grant funds, supports various administrative expenses related to office supplies. Additional expenses due to grant activity are likely, funded with grant funds, as needed.</p>	Completed.
	<p>4 Purchase: 2 color printers (1 large format scanner/plotter; 1 small-tabloid) - Due date: 1/1/2017</p> <p>Comment: Due to the unanticipated relocation of Coalition office (April, 2016) mapping equipment (1 small and 1 large format color printer for maps) previously shared with the County Office of Natural Resources will need to be purchased with grant funds. These items had not been incorporated into the original grant application, but are now necessary.</p>	Completed

Objective		Quarterly Report 15 & Final Report
<b>2 Map outfalls (Required Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Using data from Coalition & MS4s prepare current outfall map and outfall mapping status reports for all MS4s.	1 Prepare Outfall Mapping Status Reports for each Coalition member (12 MS4s) - Due date: 1/1/2017 Outfall Status Reports (DROPPED, reasons explained in Quarterly Report #4 4/1/2017 to 6/30/2017) 2 Prepare Individual MS4 maps - current outfalls prior to grant work (12 MS4s) - Due date: 1/1/2017 Outfall Maps (DROPPED, reasons explained in Quarterly Report #4 4/1/2017 to 6/30/2017)	Dropped.
2 Reconcile historic data sets of mapped outfalls w/current storm system mapping-ID outfalls to drop/add/field check	1 Reconcile outfall maps - Due date: 9/1/2016. [Status of outfall mapping corrections]	Completed.
3. Identify/discuss w/all MS4s outfalls to field check, new outfalls to map (construction, urbanized area)	1 Prep sessions/meetings-outfall mapping needs Due date: 1/1/2017 List of all prep sessions/discussion dates (DROPPED, reasons explained in Quarterly Report #4 4/1/2017 to 6/30/2017)	Completed.
4 Review Coalition-wide Master Field/Post Processing/Corrections Schedule; incorporate outfall mapping into schedule	1 Schedule outfall mapping; revise as needed - Due date: 1/1/2017	Completed.
5 Update Coalition data model to include outfalls; consider ESRI LGIM/attributes/mobile app needs; update data dictionary -	1 Update Coalition data model to include outfall attributes - Due date: 9/1/2016	Completed.
Comment: Regulatory outfalls are a distinct GIS layer previously missing from the storm system data model; updated data model needs to include outfall attributes associated with grant and Coalition Outfall Reconnaissance Inventory (ORI) form Section 1a. ESRI LGIM or Local Government Information Model refers to a data model developed by ESRI which has evolved over time and increasingly is the data structure preferred by municipalities as they develop their GIS mapping program. Using the LGIM is thought to support greater GIS functionality in that various software products are based on the LGIM. This mapping project will consider and address likely evolutions in GIS technology.	2 Update data dictionary for GPS field mapping - Due date: 5/1/2017	Completed.



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<b>2 Map outfalls (Required Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
6 Train grant funded Stormwater Program Technician Assistants in outfall mapping	1 Train grant funded staff - Due date: 5/1/2017 Multiple agendas from training sessions	Completed.
7 Prepare for/execute outfall field mapping with/for MS4s; post process/correct data; prep for display & distribution	1 Text document describing corrected/new outfall data (metadata) - Due date: 1/1/2019 Metadata/text document	Completed.
	2 Document field mapping sessions - Due date: 9/1/2019 List of all field mapping sessions; includes dates/names of mapping team (Coalition and MS4s)	Completed.
8 Display new and corrected outfall data on Coalition mapper; prep/distribute hard copy maps/data to interested MS4s	1 Hard copy outfall maps using Coalition mapper - Due date: 1/1/2019 Outfall Maps (Showcasing 12 MS4s)	Completed.
	2 Hard copy of outfall mapping database - attribute tables - Due date: 1/1/2019 Attribute Tables - All Mapped Outfalls (New/Corrected)	Completed.
	3 Updated Outfall Mapping Status Reports - Due date: 1/1/2019 Status Reports (All MS4s)	Completed (modified).

Objective		Quarterly Report 15 & Final Report
<b>3 Map storm system infrastructure</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report -5/31/2020</b>
1 Discuss/confirm with MS4s areas for storm system mapping	1 Prep sessions/meetings to discuss areas to map - Start: 5/1/2015; ongoing until end of field mapping, estimated end date 6/30/2019. Prep sessions-discussion dates noted	Completed.
2 Update Coalition data model; consider ESRI LGIM/other storm system attributes/mobile app needs; update data dictionary	1 Update Coalition data model - Due date: 1/1/2017 Hard Copy of Updated Data Model; 9/1/2019 Hard Copy of Final Data Model (if changes)	Completed.
	2 Update data dictionary for GPS mapping - Due date: 9/1/2019 Hard Copy Final Data Dictionary	Completed.
3 Review Coalition-wide Master Field Mapping/Post Processing/Corrections Schedule; incorporate system mapping into schedule	1 Schedule storm system mapping, revise as needed (prioritize Krumkill, Patroon, Ann Lee watershed infrastructure) - Due date: 3/1/2017 Initial schedule; routine adjustments until mapping is completed  Comment: Some MS4s have mapped their storm system infrastructure; others have mapped some or none. Given the requirement to map storm sewersheds, MS4 system mapping in those watersheds is a priority. To support mapping accuracy and efficiency, MS4 staff (Public Works/Highway Dept/Other) will assist Coalition Stormwater Program Technicians with field mapping (trucks, flip manhole covers, safety precautions).	Completed.
	2 Train grant funded Stormwater Program Technician Assistants in all aspects of storm system mapping - Due date: 5/1/2017 Multiple agendas from training sessions	Completed.
4 Prepare for/execute storm system mapping with/for MS4s; post process/correct data; prep for display	1 Text document describing storm system data (metadata) - Due date: 7/1/2019 Metadata/text document	Completed.
	2 Document field mapping - Due date: 9/1/2019 List/calendar of field mapping sessions; includes dates/names of mapping team (Coalition and MS4 staff)	Completed.
	MODIFICATION: "Field mapping" includes storm system mapping and outfall, post construction stormwater practices (PC SMP); municipal facility storm system; municipal facility boundary mapping; and all steps associated with finalizing the data for distribution and posting on the Coalition mapper.	
5 Display storm system data on Coalition mapper (old/new); prepare hard copy maps for interested MS4s	1 Hard copy storm system maps using Coalition mapper - Due date: 7/1/2019 Storm System Maps (Print Maps from Mapper-Samples from all MS4s w/posted data)	Completed.
	2 Hard copy of storm system mapping database - attribute tables - Due date: 7/1/2019 Attribute Tables - Representative Spreadsheets	Completed.
6 Prepare/distribute storm system data to interested MS4s	1 Agenda of session where data is distributed; copies of documents distributed which describe data - Due date: 7/1/2019	Completed.
7 Monitor/obtain geodatabase of City Albany consultant digitization of historic Krumkill/Patroon Map Records-Storm System	1 Obtain geodatabase to support field mapping - Due date: 4/1/2018 City of Albany geodatabase - Krumkill/Patroon Creek digitization	Completed (modified).

Objective		Quarterly Report 15 & Final Report
<b>4 Map storm sewersheds (Required Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Assemble/analyze storm system data sets (MS4s with infrastructure in Shaker/Ann Lee watershed)	1 With assistance from MS4s Coalition staff collect & review data sets (T/Colonie; V/Colonie; Albany County) - Due date: 4/1/2017	Completed.
2 Assemble/analyze storm system data sets (MS4s with infrastructure in Patroon Creek watershed)	1 With help from MS4s Coalition staff collect/review maps or data sets (T/V Colonie; City/Cnty Albany; T/Guilderland; UAlbany) - Due date: 4/1/2017	Completed.
3 Assemble/analyze storm system data sets (MS4s with infrastructure in Krumkill watershed)	1 With help from MS4s Coalition staff collect/review maps or data sets (T/Bethlehem; City/Cnty Albany; T/Guilderland; UAlbany) - Due date: 4/1/2017	Completed
4 Identify where new maps/field checks are needed (MS4s in Shaker/Ann Lee watershed)	1 Hard copy inter-MS4 Shaker-Ann Lee watershed map marked up - areas to field check & map - Due date: 7/1/2017 Photo of Shaker-Ann Lee map	Completed.
5 Identify where new maps/field checks are needed (MS4s in Krumkill watershed)	1 Hard copy inter-MS4 Krumkill maps marked up - areas to field check & map - Due date: 7/1/2017 Photo of Krumkill map	Completed.
6 Identify where new maps/field checks are needed (MS4s in Patroon Creek watershed)	1 Hard copy inter-MS4 Patroon Creek map(s) marked up - areas to field check & map - Due date: 7/1/2017 Photo of Patroon Creek map	Completed.
7 Review Coalition-wide Master Field Mapping/Post Processing/Corrections Schedule; incorporate system mapping into schedule	1 Schedule system mapping in Krumkill, Patroon, and Shaker-Ann Lee watersheds/MS4s, as needed - Due date: 7/1/2017	Completed
8 Assemble/prepare storm system data for delineation of storm sewersheds (Ann Lee; Krumkill; Patroon)	1 Data preparation for sewershed delineation - id highest fill points of mapped storm system infrastructure in watersheds - Due date: 1/1/2019 Map	Completed.
9 Decide best method to delineate storm sewersheds (in-house/Coalition staff or GIS consultant)	1 Decide best method for storm sewershed delineation (in-house or consultant) - Due date: 4/1/2017 GIS/GPS Technical Support Consultant (Scope of Services)	Completed.
10 Purchase mapping software (in-house) or GIS consultant services, as needed to complete sewershed delineations - Delineate storm sewershed boundary; display (Coalition web mapper); distribute data set to interested MS4s	1 See Objective 1 Task 14 Purchases PM - Due date: 4/1/2017 Delineation Method Decision or 9/1/2018 Purchase Software For In-House	Completed.
11 Delineate storm sewershed boundary; display (Coalition web mapper); distribute data set to interested MS4s	1 Hard copy map of delineated sewersheds using Coalition mapper (Krumkill; Patroon; Shaker-Ann Lee) - Due date: 7/1/2019 Sewershed Maps	Completed (modified).

Objective		Quarterly Report 15 & Final Report
<b>5 Map post construction stormwater practices (Program Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report -5/31/2020</b>
1 All MS4s provide Coalition staff with current inventory of post construction practices -	1 Collect Post Construction Practice Inventories (12 MS4s) - Due date: 1/1/2017 Inventories (12 MS4s)	Completed.
	Comment: Inventory includes practices discharging to small MS4s installed since March 10, 2003; all practices owned by the MS4; and those practices found to cause or contribute to water quality standards violations. If available, practice information includes: location, type of practice, location of discharge, contributing drainage area, last inspection date.	
2 Coalition staff/MS4s evaluate content of inventory; using available location data preliminary map/attribute table prepared	1 Prepare Preliminary Map - Due date: 4/1/2017 Preliminary Map - Post Construction Stormwater Management Practices (PC SMPs)	Completed.
	2 Attribute Table Spreadsheet - Due date: 4/1/2017 Attribute Table Spreadsheet - Post Construction Stormwater Practices/Preliminary Map	
	MODIFIED Performance Measure 1 and 2 (above). The actual mapping of Post Construction Stormwater Management Practices has been approached in different ways for each municipality. While the starting point is the PC SMP inventory, creating a preliminary map of these PC SMPs for a municipal can be difficult. The address information is often faulty and the actual location of the PC SMP difficult to determine. The inventory information describing the PC SMP also varies. A preliminary map is created, if useful and possible. To figure out what attributes to collect about PC SMPs, we used MS4 Permit language proposed in the draft MS4 Permit (GP-0-17-002); grant requirements; and the maintenance categories described in the, at the time NYSDEC DRAFT Maintenance Guidance Stormwater Management Practices.	
3 Coalition staff w/MS4s decide which, if any additional information should be collected about stormwater practices	1 Inventory Content Decision - Post Construction Stormwater Practices - Due date: 5/1/2017 Discussion Session/Mtg Agenda(s) & List of Inventory Items <b>[DROPPED, see Quarterly Report #4]</b>	
4 Update Coalition data model; consider ESRI LGIM/sw post const practice attributes/mobile app needs; update data dictionary	1 Update Coalition Data Model - Due date: 4/1/2017	Completed.
	2 Update data dictionary for GPS mapping - Due date: 4/1/2017	Completed.
5 Review Coalition-wide Master Field Mapping/Post Processing/Corrections Schedule; incorporate sw practices map'g into schedule	1 Schedule post construction stormwater practices mapping - Due date: 4/1/2017 Schedule Mapping	Completed.
6 Prepare for/execute post const practices mapping with/for MS4s; post process/correct data; prep for display & distribution	1 Document describing post construction stormwater practice data (metadata) - Due date: 7/1/2019	Completed.
	2 Document field mapping - Due date: 7/1/2019 List/calendar of all field mapping sessions; includes dates/names of mapping team (Coalition and MS4	Completed.

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<b>5 Map post construction stormwater practices (Program Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report -5/31/2020</b>
7 Display post construction stormwater practice data on Coalition mapper; prepare hard copy maps for interested MS4s	1 Hard copy post construction sw practices maps using Coalition mapper - Due date: 7/1/2019 Sample Maps from MS4s with posted data	Completed.
	2 Attribute Tables - Post Construction SW Practices Database - Due date: 7/1/2019 Attribute Table Spreadsheets	Completed.
8 Prepare/distribute post construction stormwater practice data to interested MS4s	1 Agenda of session where data is distributed; copies of documents distributed which describe data - Due date: 7/1/2019 Agendas & Data Descriptions	Completed.

Objective		Quarterly Report 15 & Final Report
<b>6 Map municipal facilities (Program Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 MS4s provide Coalition staff with current inventory of municipal owned facilities -	1 Collect Municipal Facility Inventories (12 MS4s) - MS4 Permit MCM 6 - Due date: 1/1/2017 (12 MS4s)  Comment: MS4s provide Coalition staff with most current list of municipal facilities owned by MS4 as hard copy and digital file (Word, Excel, ESRI shapefile, if available). Municipal facility data minimally includes: location, type of facility, name of contact person at site, date of last assessment.	Completed.
2 Coalition staff/MS4s evaluate content of inventory; using available location data preliminary map/attribute table prepared	1 Prepare Preliminary Map - Due date: 4/1/2017 Preliminary Map - Municipal Facilities  2 Attribute Table Spreadsheet - Due date: 4/1/2017 Attribute Table Spreadsheet - Municipal Facilities/Preliminary Map	Completed (modified).
3 Coalition staff w/MS4s decide which, if any additional information should be collected about municipal facilities	1 Inventory Content Decision - Municipal Facilities - Due date: 5/1/2017 Discussion Session/Mtg Agenda & List of Inventory  Comment: For some facilities, along with facility attributes noted in facility audit forms, storm system infrastructure may need to be mapped.  MODIFIED Task 2 Preliminary Map/Attribute Table Performance Measure 1 and 2 and Task 3 Performance Measure 1 Decide content of Inventory (all above). Municipal facility mapping has been approached in different ways for each municipality. While the starting point is the municipal facility inventory, creating a preliminary map of boundaries and/or storm system infrastructure can be difficult. Not all municipal facilities have clear boundaries or storm system infrastructure; some may be outside the urbanized area; multiple municipal operations may reside within one facility each managed by a different department head. These are some of the issues. If it's useful and possible, preliminary maps noting the location of the facility using address information are prepared. We relied on the Coalition Municipal Facility Self Audit Form, grant requirements, and the DRAFT MS4 Permit GP -0-17-002 to determine which attributes to include in the inventory. Several municipal facility inventories were too sparse to be of use.	Dropped.
4 Update Coalition data model; consider ESRI LGIM/municipal fac attributes/mobile app needs; update data dictionary	1 Update Coalition Data Model - Due date: 4/1/2017  2 Update data dictionary for GPS mapping - Due date: 4/1/2017	Completed.  Completed.
5 Review Coalition-wide Master Field Mapping/Post Processing/Corrections Schedule; incorporate into muni faci map'g schedule	1 Schedule Municipal Facilities Mapping - Due date: 4/1/2017	Completed.
6 Prepare for/execute muni facility mapping with/for MS4s; post process/correct data; prep for display & data distribution	1 Document describing municipal facility data (metadata) - Due date: 7/1/2019  2 Document field mapping - Due date: 7/1/2019 List of all field mapping sessions; includes dates/names of mapping team (Coalition & MS4 staff)	Completed  Completed.
7 Display municipal facility data on Coalition mapper; prepared hard copy maps for interested MS4s	1 Hard copy municipal facility maps using Coalition mapper - Due date: 7/1/2019 Sample Maps from MS4s with posted data  2 Attribute Tables - Municipal Facility Database - Due date: 7/1/2019 Attribute Table Spreadsheets	Completed.  Completed.
8 Prepare/distribute municipal facility data to interested MS4s	1 Agenda of session where data is distributed; copies of documents distributed which describe data - Due date: 7/1/2019 Agendas & Data Descriptions	Completed.

Objective		Quarterly Report 15 & Final Report
<b>7 Convert paper forms to tablets; integrate w/map'g databases; combine w/Coalition mapper redesign (Record Keep'g) CONSULTANTS</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Coalition staff coordinate inter-MS4 review of existing paper forms for conversion to tablet format-info used for RFP Scope -	1 Inter-MS4 Committee review paper forms for conversion to mobile app platform; mark up content of interest - Start 5/1/2015; End 1/1/2018 Agendas of Inter-MS4 "Form" Related Mtgs.	Completed (modified).
	2 Inter-MS4 Committee participates in Coalition Mapper Redesign Workshop-collects info about "Form" & GIS Web Mapper technology - Due date: 11/1/2016 Web Mapper Redesign Workshop Agendas (Form Technology Info)	Dropped.
	Comment: Since the submission of the WQIP 12 grant application, the Coalition committed funds to secure consultant services to redesign existing mapper ("AIMS"). Start of redesign (mid-February 2016) to include some discussion of integrating web mapper technology with mobile app technology used for field inspections (construction sites, post construction sw practices, municipal facilities, outfalls). While the conversion of paper forms to tablet format is not dependent on the Coalition web mapper; if form technology is poised for integration with mapper technology, grant funds and consultant services will be considered for this purpose. The mapper redesign will include a re-organization of datasets developed previously and a place for new datasets anticipated as an outcome of this mapping grant.	
2 Coalition staff w/MS4s develop scope of services for consultant services - convert paper forms to tablet technology	1 Inter-MS4 meeting - GIS Consultant RFP/Scope of Services - Due date: 1/1/2017 Inter-MS4 Mtg agenda	Dropped.
	Comment: Interested MS4s will participate in crafting the scope of services for converting paper forms to tablet based, most likely GIS technology. Several MS4s have active GIS "shops" and their interests will help guide how the GIS consultant will deliver the final "Form(s)" product.	
3 Coalition staff secure/manage consultant services for Form conversion and related adjustments to Coalition web mapper, if any	1 See Objective 1 Prog Mgmt; Task 6 Consultant Services; Performance Measure 2 - Due date: 4/1/2017 Executed Contract	Dropped.
4 Minimally 3 types of forms converted (possible forms: MCM3 ORi; MCM4 E/SC Inspections; MCM5 Post Construction; MCM 6 Muni Fac	1 Minimally 3 Mobile App Tablet Forms Created by Consultant - Due date: 7/1/2018 Mobile App Forms (minimum 3)	Completed.
5 Tablet/form technology launched; tablets purchased; MS4 staff trained	1 Tablets/data plan purchased for MS4s (minimally 10 tablets) - Due date: 7/1/2017 Tablets purchased	Completed.
	2 Training session with MS4s-how to use tablet & enter data into form - Due date: 7/1/2018 Training session agenda & attendance sheet	Completed.
6 Final Coalition mapper redesign includes functionality which supports use of tablets and data entry	1 Coalition stormwater web mapper screen shots of functionality - Due date: 7/1/2018 Screen shots of functionality and web mapper data layers used to support data entry	Completed (modified).

Objective		Quarterly Report 15 & Final Report
<b>8 Map/characterize pollutants of concern using tax parcel data/WinSLAMM (Other Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Obtain tax parcel data set; query/sort/display tax parcel data set by property classification land use type	1 Obtain & query most current Albany County tax parcel dataset (ORPS & boundaries) - Due date: 1/1/2017 County Tax Parcel data set	Completed.
2 Assign likely pollutants of concern to property tax code land use types; organize/distribute analysis by MS4 and watersheds	1 Create hard copy maps/data sets organized by pollutants of concern and MS4/watershed boundaries - Due date: 4/1/2017 Hard Copy Maps-POCs/Property Tax Code Analysis-3 MS4s & 3 Watersheds Maps	Completed (modified).
	2 Create/explain/distribute/post geodatabase of pollutants of concern by tax parcel code - Due date: 4/1/2017 Geodatabase created (POCs/Property Tax Code-Clipped by MS4/by watershed; metadata/methodology explained (document); distributed to interested MS4s; posted on Coalition mapper	Completed (modified).
3 Purchase and pilot WinSLAMM software to characterize pollutants of concern/loading for 1 small catchment area -	1 Purchase WinSLAMM Polutant Loading modeling software - Due date: 1/1/2018 Purchase WinSLAMM	Completed.
	Comment: WinSLAMM is modeling software which describes pollutants and pollutant loading associated with small flows. It is based on analyzing land use in a given catchment area and could prove to be a useful program tool for MS4s. It is a reasonably intuitive program to use and the purpose here is to have grant funded Coalition staff pilot using the software for a small catchment area and test it's value to MS4s.	
4 Explain and share results of WinSLAMM pilot project to Coalition members	1 Distribute/explain results of WinSLAMM modeling pilot project to MS4 staff/interested others - Due date: 7/1/2019 Explain WinSLAMM pilot project results.	Completed.



Objective		Quarterly Report 15 & Final Report
<b>9 Map/characterize areas of water quality concern - septic/wells (Other Mapping) UALBANY STUDENTS Project #1</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Locate/analyze County Health Dept data -	1 Locate/analyze data - Start 9/1/2017; due date 1/1/2018 Locate/analyze County Dept of Health data-well & septic system  Comments: Student interns, Coalition staff, and possibly professors will need to consult with County Health Department staff about the location, quality, and best methods for digitizing both current and historic well and septic system data (County Hall of Records)	Completed as described in the 5/14/2018 FINAL Report (Powerpoint).
2 Develop protocol for digitizing Health Dept data	1 Written protocol for digitizing County Health Dept data - Due date: 1/1/2018	Completed as described in the 5/14/2018 FINAL Report (Powerpoint).
3 Digitize and analyze County Health Dept data (well & septic systems)	1 Digitize and analyze County Health Dept data (create preliminary maps) - Due date: 12/31/2018	Completed as described in the 5/14/2018 FINAL Report (Powerpoint).
4 Write FINAL Report; organize/describe data; characterize water quality based on data if possible	1 Write FINAL Report; deliver to Coalition members & County Health Dept - Due date: 7/1/2018, no later than 7/1/2019	Completed as described in the 5/14/2018 FINAL Report (Powerpoint).
5 Prepare hard copy maps/prepare data for distribution	1 Distribute hard copy maps and data to Coalition, post on Coalition mapper, if appropriate - Due date: 7/1/2018, no later than 7/1/2019	Completed. 5/14/2018 FINAL Report (Powerpoint) posted on Coalition website (see Plan and Program Tab > BMP 2-8 Student Water Quality Projects)

Objective		Quarterly Report 15 & Final Report
<b>10 Map/characterize green infrastructure assets (Other Mapping) UALBANY STUDENTS Project #2</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Research how land is protected within MS4s; ways land disturbance is restricted	1 Develop comprehensive list of MS4 tools to protect land/restrict disturbance (actual/possible) - Start 9/1/2017; Due Date, 1/1/2018	Completed to the extent possible as noted in 5/14/2018 FINAL Report (Powerpoint).
2 Develop coding system for GIS purposes which describes land protection approaches	1 Develop code (attribute table options) which describe land protection approaches - Due date: 1/1/2018	Modified; no attribute tables, instead interviewed a Town planner as noted in 5/14/2018 FINAL Report (Powerpoint).
3 Identify/characterize quality of green infrastructure assets within Albany County, priority MS4 areas	1 Develop/describe method for ranking green infrastructure assets using imagery and/or other GIS data - Due date: 1/1/2018	Completed as noted in 5/14/2018 FINAL Report (Powerpoint).
	2 Analyze imagery and other Albany County mapping data; assign ranking to identified green infrastructure assets - Due date: 4/1/2018	Completed as noted in 5/14/2018 FINAL Report (Powerpoint).
4 Assign to identified GI assets, type/degree of land protection in place for those assets	1 Spreadsheet (attribute table) of green infrastructure assets w/ protection status - Due date: 12/31/2018	Completed to the extent possible as noted in 5/14/2018 FINAL Report (Powerpoint). Demo of small area in Town of New Scotland.
5 Create maps (hard copy) of green infrastructure assets by protection status	1 Map of green infrastructure assets/protection status - MS4 wide - Due date: 7/1/2018, no later than 7/1/2019	Completed/modified and noted in 5/14/2018 FINAL Report (Powerpoint). Demo of small area in Town of New Scotland.
	2 Map of green infrastructure assets/protection status-inter MS4s and/or watersheds - Due date: 7/1/2017, no later than 7/1/2019 (minimum 3 inter-MS4 maps & 3 watershed maps)	Completed/modified and noted in 5/14/2018 FINAL Report (Powerpoint). Watershed data (% impervious) used to prioritize green infrastructure assets.
6 Write FINAL Report; organize/describe data; describe method/results/problems	1 Write FINAL Report; deliver to Coalition members - Due date: 7/1/2018, no later than 7/1/2019	Completed. 5/14/2018 FINAL Report (Powerpoint).
7 Prepare data for distribution; post on Coalition mapper, if appropriate	1 Distribute data to Coalition - Due date: 7/1/2018	Completed. 5/14/2018 FINAL Report (Powerpoint) posted on Coalition website (see Plan and Program Tab > BMP 2-8 Student Water Quality Projects)

Objective		Quarterly Report 15 & Final Report
<b>11 Map/characterize historic properties using Construction Activity Permit criteria (Other Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Obtain/analyze most current tax parcel data from Albany County	1 Obtain/analyze most current Albany County tax parcel data (ORPS/includes age of structure data/other age data) - Due date: 7/1/2017	Completed. DEC Region 4 staff stated in email that this Objective has been met by the CRIS site.
2 Obtain State Historic preservation data for Albany County MS4s (SHPA & Local Historic Districts)	1 Obtain State Historic Preservation Act data and local MS4 Historic Preservation sites/boundary data - Due date: 4/1/2017	See above.
3 Create historic resources map targeting data relevant to Construction Activity Permit SHPA requirements	1 Create Historic Resources-hard copy map; prepare data set (emphasis SWPPP Review Procedures) - Due date: 4/1/2017	See above.
4 Distribute historic resources data to interested MS4s and/or post on Coalition mapper	1 Post SWPPP Review relevant Historic Resources data on Coalition mapper - Due date: 4/1/2017	See above.

Objective		Quarterly Report 15 & Final Report
<b>12 Update maps/improve display of Clean Water Act map layers on Coalition mapper (Other Mapping)</b>		<b>Narrative</b>
Tasks	Performance Measures	1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020
1 Update maps/improve display of stream/natural features-for SWPPP Review/IDDE	1 Update/post on Coalition mapper SWPPP Review related data (depth to gw; depth to bedrock; karst; other soil) - Due date: 1/1/2017	Completed (modified).
	2 Post/better display Classified stream/WIPWL/303d/NHD/Wetland water body data on Coalition mapper - Due date: 1/1/2017	Completed.

Objective		Quarterly Report 15 & Final Report
<b>13 Map soil boring data from Construction Activity Permit SWPPPs (Other Mapping) UALBANY STUDENTS Project #3</b>		<b>Narrative</b>
Tasks	Performance Measures	1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020
1 Obtain from MS4s SWPPPs with soil boring data	1 Obtain from a minimum of 4 MS4 SWPPPs with soil boring data (reports/other data) - Start 9/1/2017; Due Date 1/1/2018	Dropped.
2 Research content, purpose, and soil boring techniques	1 Prepare short report describing soil boring techniques/purpose given SWPPP review/design needs - Due date: 1/1/2018	Dropped.
3 Develop/describe protocol for digitizing soil boring data	1 Written protocol for digitizing soil boring data - Due date: 1/1/2018	Dropped.
4 Digitize/analyze soil boring data from SWPPPs	1 Create maps of digitized soil boring data; analyze available data from attribute tables - Due date: 4/1/2018	Dropped.
5 Write FINAL Report; organize/describe/analyze data; explain problems encountered	1 Write FINAL Report; deliver to Coalition - Due date: 7/1/2018, no later than 7/1/2019	Dropped.
6 Prepare data for distribution; post on Coalition mapper, if appropriate	1 Distribute data to interested MS4s - Due date: 7/1/2018	Dropped.

Objective		Quarterly Report 15 & Final Report
<b>14 Map combined sanitary-storm infrastructure (Other Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Identify CSO areas for storm/sanitary mapping field work	1 Establish w/City of Cohoes- areas to map, potential issues, available support - Due date: 4/1/2017	Completed
	2 Establish w/City of Watervliet areas to map, potential issues, available support - Due date: 4/1/2017	Completed
2 Update Coalition data model (system/program mapping) to include combined sanitary/storm infrastructure	1 Updated Coalition data model-includes combined sanitary/storm features & attributes - Due date: 4/1/2017	Completed
3 Review Master mapping schedule; schedule combined sanitary/storm field mapping	1 Schedule combined sanitary/storm field mapping, revise as needed - Due date: 10/1/2017	Completed
4 Prepare/execute field mapping/office work w/Coalition and MS4 staff	1 Complete field mapping/office work (post processing & QA/QC) for City of Cohoes - Due date: 7/1/2019	Completed
	2 Complete field mapping/office work (post processing & QA/QC) for City of Watervliet - Due date: 7/1/2019	Completed
5 Prepare/distribute data to Watervliet & Cohoes; post data on Coalition mapper	1 Distribute combined sanitary/storm infrastructure mapping data to City of Cohoes; post on Coalition mapper - Due date: 7/1/2019	Completed
	2 Distribute combined sanitary/storm infrastructure mapping data to City of Watervliet; post on Coalition mapper - Due date: 7/1/2019	Completed
	3 Distribute combined sanitary/storm infrastructure mapping data to Village of Green Island; post on Coalition mapper - Due date: 7/1/2019	Completed.

Objective		Quarterly Report 15 & Final Report
<b>15 Map impervious area &amp; building footprints within Albany County (Other Mapping) CONSULTANTS</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report -5/31/2020</b>
1 Coalition/Interested MS4 staff review purpose of impervious/building footprint data set; identify deliverables	1 Develop list of consultant deliverables for impervious area/building footprint maps - Due date: 10/1/2017. See MODIFIED.	Completed.
2 Distribute digital files to interested MS4s; post on Coalition mapper	1 Distribute impervious area/building footprint data to interested MS4s/others - Due date: 7/1/2019.	Completed.
3 Coalition staff w/County Purchasing finalize Scope of Services/RFP; secure consultant services	1 Execute contract with consultant charged with mapping impervious area-building footprints - Due date: 4/1/2018	Completed.
	2 Receive County-wide map of impervious areas & building footprints - Due date: 7/1/2019	Completed.
	<b>MODIFIED:</b> With the decision to have grant funded Coalition staff rather than a consultant develop electronic forms, funds are available to expand the map imperviousness objective. As approved by NYSDEC, consultant services can be used to estimate potential revenue generated from an imperviousness based user fee as well as estimate stormwater management costs. The purpose is to provide interested MS4s with better estimates of all stormwater related expenses, along with an understanding of how a storm utility district user fee might generate revenue to cover these costs. Three MS4s expressed an interest in these estimates and the RFP Scope of Services will include this work. Depending on the bids received and the impact consultant proposals may have on municipal staff time, these additional and optional services may or may not be implemented. The impervious/building foot maps will be completed as they are named in the grant work plan.	<b>Completed:</b> Stormwater Imperviousness Based Revenue Estimates for the Town of New Scotland, Town of Colonie, and Village of Menands (Phase 2). <b>Completed:</b> Stormwater Program Cost Estimates for the Town of New Scotland, Town of Colonie, and Village of Menands (Phase 3). This work was completed by Weston and Sampson, with support from Stormwater Coalition and municipal staff. Listed below are the deliverables named in the Weston and Sampson contract. Where possible these documents are attached to this report.
		1. Stormwater program cost estimates based on interviews, known current costs, an analysis of potential costs associated with the NYSDEC DRAFT 2016 MS4 Permit, and research of national program data. <i>File name: Ph2 3 Memos_Stormwater Program Cost Memos_TNewScot_TCol_VMenands.pdf</i>
		2. Estimates of revenue potentially generated from stormwater user fees linked to impervious cover. Estimates are provided for each participating municipality and compared to their respective stormwater program costs. The average imperviousness of residential lots is calculated using the impervious surface dataset created by Weston and Sampson previously. <i>File name: 2_ExploringDevOfSWUtility_RateStructureOptions_MS4MuniAlbCntyNY_20200421.FINAL.docx.</i>
		3. A summary report which explores the stormwater utility concept and explains in greater detail cost/revenue estimates for each municipality. <i>File name: 1_ExploringDevOfSWUtility_Report_3MS4MuniAlbCntyNY_April2020_FINAL</i>
		4. A power point presentation of the summary report. <i>File name: 1_ExploringDevOfSWUtility_Presentation_3MS4MuniAlbCntyNY_20200421_FINAL.pptx</i>
		5. A spreadsheet 'calculator' which shows how stormwater fees were calculated using the ERU method. The calculator includes a summary table which allows the user to change the dollar amount assigned to each ERU. Revenue estimates are automatically recalculated. The tool is intended to help interested municipalities find a price point acceptable to property owners. <i>File name: 4_ERU Analysis_FINAL_rec24April2020.xls. This file is 37MB, available upon request and/or posted on Dropbox. .</i>
		6. A spreadsheet 'calculator' which shows how stormwater fees were calculated using the Intensity of Development method. The calculator includes a summary table which allows the user to change the dollar amount of % imperviousness land use categories. Revenue estimates are automatically recalculated. The tool is intended to help interested municipalities find a price point acceptable to property owners. Both calculators, when use together serve to highlight the pros and cons of the two different methodologies. <i>File name: 4_Intensity of Development Analysis_FINAL_rec24April2020.xlsx</i> This file is 33MB, available upon request and/or posted on Dropbox.

Objective		Quarterly Report 15 & Final Report
<b>16 Research and create digital map of historic Erie Canal within MS4s (Other Mapping)</b>		<b>Narrative</b>
<b>Tasks</b>	<b>Performance Measures</b>	<b>1/21/2020 to 3/31/2020 QR15. Final Report ~5/31/2020</b>
1 Locate/research status of existing Erie Canal maps (paper, digital maps)	1 Contact MS4s; Canal Corporation; Museums-Locate Erie Canal Maps - Start 9/1/2017; Due Date 1/1/2018	Completed.
	2 Analyze quality of existing maps (where? possible to georeferenced? locating landmarks-who can help?) - Due date: 4/1/2018	Completed.
2 Georeference maps; digitize as needed	1 Identify key/useful maps; georeferenced & digitize as needed - Due date: 4/1/2018	Completed.
3 With help (municipal staff; historians) ground truth georeferenced maps; correct digitization as needed	1 Field check/ground truth georeferenced maps - Due date: 4/1/2018	Completed.
4 Prepare sequence of Erie Canal maps over time; current/historic municipal boundaries referenced	1 Prepare set of Erie Canal maps over time; symbolized to assist MS4s with SWPPPs/planning - Due date: 7/1/2018	Completed (modified).
5 Write FINAL Report; organize/describe map data and techniques	1 Write FINAL Report; deliver to Coalition and interested others (municipal staff, historians) - Due date: 7/1/2018, no later than 7/1/2019	Completed. 5/14/2018 FINAL Report (Powerpoint)
6 Prepare Erie Canal mapping data, post on Coalition mapper, if appropriate	1 Distribute Erie Canal mapping data to interested MS4s - Due date: 7/1/2018	Completed. 5/14/2018 FINAL Report (Powerpoint) posted on Coalition website (see Plan and Program Tab > BMP 2-8 Student Water Quality Projects). Erie Canal data was posted on SwIM (June, 2019).



## **Attachments**

**Quarterly Report #15**  
**January 1, 2020 to March 31, 2020**  
**Actual: January 20, 2020 to March 31, 2020**

**Final Report**  
**May, 2020**

## **Table of Contents** *(Items in italics)*

### **Objective 1 Project Management**

Tasks 1, 2, and 3 Meetings (Staff, Working Group, and Board of Directors)

Performance Measures (attached):

*Working Group Agendas*  
*(January 23, February 27, March 26, and April 23, 2020)*

*Board Meeting Agenda – canceled (Covid-19)*  
*(March 18, 2020)*

### **Objective 15 Map Impervious Area and Building Footprints**

Task 2 (MODIFICATION)

In addition to County-wide impervious and building footprint mapping, for interested MS4s:

1. Use impervious mapping data to estimate potential revenue generated from an imperviousness based user fee; and
2. Estimate stormwater management costs.

Performance Measures (attached):

1. *Three memos from Weston and Sampson describing stormwater management cost estimates over five years, one for each participating municipality (Town of New Scotland, Town of Colonie, Village of Menands)*
2. *For each municipality, estimates of how much revenue could be generated using impervious cover fee structures*
3. *A summary report which explores the stormwater utility concept and explains in greater detail cost/revenue estimates for each municipality*
4. *A power point presentation of the summary report.*
5. *Document files names and organization - for reference*

*Documents – not attached, available upon request (large files)*

*6. A spreadsheet 'calculator' which shows how stormwater fees were calculated using the ERU method. The calculator includes a summary table which allows the user to change the dollar amount assigned to each ERU. Revenue estimates are automatically recalculated. File: 36.9MB*

*7. A spreadsheet 'calculator' which shows how stormwater fees were calculated using the Intensity of Development method. The calculator includes a summary table which allows the user to change the dollar amount of % imperviousness land use categories. Revenue estimates are automatically recalculated. File: 33.3MB*

**AGENDA**  
**Stormwater Coalition of Albany County**  
**WORKING GROUP**  
**Thursday, January 23, 2020, 9:00am – 11:00**  
**Town of Bethlehem, Town Hall, 445 Delaware Ave, Delmar**

**I. SWMP Implementation: Reports, Updates, Reminders, Coordination**

**MCM 1:** Website – Meticulosity upgrade – photos, suggestions?

**MCM 2:** WAVE 2019 Results

**MCM 3:** ORI Form – Recap and Clarifications – Survey123 ORI form content & assumptions

**MCM 3/4/5:** Illicit discharges? Enforcement updates

**Mapping:** Voorheesville Mapping Data

**MCM 8 Training:** DVDs/Coalition Training Blitz (below); 1/21 Capital District Conservation Roundtable; Training Options/Decisions (CWP Membership, NYS SWT Regional Training 2020 Courses, WQ Symposium, Other)

**MCM 7 SW Coalition Mgmt:** Board Mtg Highlights (2020 Budget - Verizon Wireless Lines; Updated 2020 Work Plan); Dues Received – Update; Job Classifications/Civil Service/Hiring Progress

**MCM 7 Reg Realities:** NYSFSMA Stormwater Sub-Committee – 1/21 Mtg - SW Utility District Enabling Legislation

**II. Other News**

**NYSDEC:** Making Waves Highlights – 12/20 REDC 2019 Awards; 1/10 SPDES Compliance Report FY 2018/2019; Hudson River Estuary Program Grants Awarded; DEC Turns 50;

**EPA:**

**Local/Publications:** WEF Stormwater Report Highlights; TU 1/17 T/Colonie Cyber Attack

**III. Discussion/Updates**

**A. The Grant – Wrapping It Up**

- Quarterly Report #14 (End Date 1/20/2020)
- ArcGIS Online Account Purchases – Creator
- Weston and Sampson – Ph3 SW Program Costs – Ph 2 Revenue

**B. The Stormwater Training Blitz**

- SignUpGenius – How many? Where? Problems? FEB 4 T/Col Training Date - Start
- Track 1 PPT Content – Priority DVDs, if limited time? Coalition Website Member Content/Org Charts, Photo?
- Track 2 PPT Content – Proudest Accomplishments – “Quotes” Wording To Date

**C. The SWMP Plan – Annual Review –*The February Plan – waiting for the guests to arrive***

- Spreadsheet Content – Past Activities (Goals); Future Goals? DEC Role?

**IV. Upcoming Meeting Dates**

**Working Group Mtg:** Th, February 27, 2019, 9 – 11am; Town of Colonie; Public Operations Center

**V. Vacation - Heinzen 1/23, 1pm to 1/31/2020**

*FUN! January 16, 2020, Wolff's Biergarten, January 16, 2020 FUN!*

**AGENDA**  
**Stormwater Coalition of Albany County**  
**WORKING GROUP**  
**Thursday, February 27, 9:00am – 11:00**  
**Town of Colonie, Public Operations Center, 347 Old Niskayuna Rd**

**I. SWMP Implementation: Reports, Updates, Reminders, Coordination**

**MCM 1:** Website – Update

**MCM 2:** Public Participation – “CACs” and the Conservation Roundtable Participant List

**MCM 3:** ORI Kit Supplies?

**MCM 3/4/5:** Illicit discharges? Enforcement updates; GetFoods FODS Tracking System

**Mapping:** Voorheesville Mapping Data; Saratoga and Rockland County AGOL/Svy123 Info Sharing; ESRI AGOL Issues; NYS Office of Info Technology-NYS Ranking

**MCM 8 Training:** DVDs/Coalition Training Blitz (sign in sheets, remaining Track 1 and Track 2 trainings); Coalition Training Registrations/Purchases; 4/1 4hr E/SC Contractor Training Brunswick 2/26 HREP Stormwater Management Conservation and Land Use 101 Webinar; 3/13 HRWA Road Salt: Impacts on Water Quality; CWP Webcasts 2020 (member purchase update); 3/20 Mohawk Hudson Watershed Symposium

**MCM 7 SW Coalition Mgmt:** Job Classification/Hiring Update-Reality; Dues Received

**MCM 7 Reg Realities:** NYSFSMA Stormwater Sub-Committee –SW Utility District Enabling Legislation Statement

**II. Other News**

**NYSDEC:** Making Waves Highlights - NYSDEC Construction Activity Permit; SPDES Priority Ranking List; Plastic Bag Ban – March 1; 3/1 Trees for Tribes grant; Region 4 Clarifications- Emergency Discharges Water Main Break De-Watering and NOI submissions.

**EPA:** Remains committed to restoring Chesapeake Bay-News Release – Press Coverage and Issues

**HRWA/HREP:**

**Local/Publications/Misc:** Stormwater Report – Atlas 14; NOAA Environmental Info Disaster Data; 3/11 Albany Roundtable-Reimagining I-787

**III. Discussion/Updates**

**A. The Grant – Wrapping It Up**

- Weston and Sampson – Ph3 SW Program Costs – T/Colonie Ph 2 Revenue

**B. Joint Annual Report- The SWMP Plan – Annual Review Sessions**

- DRAFT SWMP Annual Evaluation Template – Explained, Suggestions
- Picking Out Your 2019/2020 Priority Activities – Need Help Today (Highlight)
- Joint Annual Report & Joint SWMP? Decision
- Annual Evaluation/Annual Report – April Sessions

**IV. Upcoming Meeting Dates**

**Board Meeting:** Friday, March 20, 8:30am-10:00am, Town of Colonie, Public Op Center

**Working Group Mtg:** Th, March 26, 2020, 9 – 11am; University at Albany

**AGENDA**  
**Stormwater Coalition of Albany County**  
**WORKING GROUP**  
**Thursday, March 26, 2020 9:00am – 10:30**  
**Skype for Business – invite from SW Coalition Host (Heinzen)**

**I. Local Stormwater Program Implementation – Covid-19 Update (Individual MS4s & Coalition)**

**Status of Individual MS4 Stormwater Staff** – Critical? At home, computer? Internet? Email? phone #'s?

**Stormwater Implementation** – Any? What kind?

**Coalition Administration:** Cancelled Board of Director's Meeting – Skype/Re-Schedule (?); Status of County In-Kind Support (DPW/HR/Aff Action/Purchasing/Payroll); Hiring

**NYSDEC:** Saratoga Cnty Letter to NYSDEC to postpone AR due date of 6/1/2020; Other Stormwater Coalition letters

**Municipal/Local Responses** – Other and noteworthy? NYSGIS Listserve Covid19 Web Mappers

**II. SWMP Implementation: Reports, Updates, Reminders, Coordination**

**MCM 1:** Coalition Website – Updates and Relevant Content

**MCM 2:** Joint Annual Report – SWMP Document – see Discussion

**MCM 3:** ORI Testing Support – ACWPD Staffing Situation

**Mapping:** SwIM – still going strong. Canceled: Saratoga and Rockland County AGOL/Svy123 Info Sharing

**MCM 8 Training/Conferences:** DVDs/Coalition Training Blitz (Track 1 and Track 2 – Final Sign In Sheets)

Cancellations: NE SWT Trainings 3/31 and 4/23 – Blue Neil and NYSFSMA Flood Plain Conference May. April 14 to 16  
CWP National Stormwater and Watershed Conference – Internet Format (??)

**MCM 7 SW Coalition Mgmt:** Vz Wireless Data Plans – lines suspended, to suspend? Coalition Job Postings – Recruitment Text (GIS Coordinator & Coalition SW Prog Tech) Input; Contact List Update: 2021 Budgets (County deadline; Coalition – Dues and Vz Wireless Fees?). BOD Meeting-when?

**II. Other News**

**NYSDEC:** ENB 3/4/2020 Modified MSGP Stormwater Permit

**EPA:**

**HRWA/HREP:** Take a walk alone!

**Local/Publications/Other:** Reading material and free webcasts

**III. Discussion/Updates**

**A. The Grant – Wrapping It Up**

- Weston and Sampson – March 31, 2020 deadline – Final Report

**B. Joint Annual Report- The SWMP Plan – Annual Review Sessions**

- Annual Report content –Individual MS4 data? Coalition data? Obstacles? Status?
- SWMP Annual Evaluation/Annual Report Goals – Content; April Sessions (Skype)?
- DRAFT Joint AR Posting – Due Dates – Submissions? DEC information

**C. Stormwater and Covid-19 – What might Coalition members want or need? Plausible, too**

**IV. Upcoming Meeting Dates**

**Working Group Mtg:** Th, April 23, 2020, 9 – 11am

Th, May 21, 2020, 9-11am

Th, June 25, 2020, 9-11am

**Board Meetings:** March reschedule (?) and June 19, 2020 Meeting (?)

**AGENDA**  
**Stormwater Coalition of Albany County**  
**WORKING GROUP**  
**Thursday, April 23, 2020, 9:00am – 10:30am**  
**Skype for Business – invite from SW Coalition Host (Heinzen)**

**I. SWMP Implementation: Reports, Updates, Reminders, Coordination**

**MCM 1:** Coalition Website – Updates, Links

**MCM 2:** Joint Annual Report – SWMP Document – see Discussion

**MCM 3:** ORI Kit – Test Strip Order

**MCM 8 Training/Conferences:** SWT Courses –Rescheduling and Cancellations; CWP Membership – Access to Archived webcasts and publications; Watershed Hacks for the Home – Chesapeake SW Network; Weston & Sampson SW Utility District Powerpoint Presentation – WG Mtg?

**MCM 7 SW Coalition Mgmt:** Grant wrap up – Weston and Samson Final Billing, Final Report, State Aid Voucher – Phase 2 Content (Rating Options Analysis-Spreadsheet Calculator for ERU Rates – SW Utility District PowerPoint T/Col - T/New Scot- V/Menands data); 2021 Coalition Budget (County Budget submission deadlines- Coalition Board Meeting – May 21? June 19?); 2020 Work Plan (Adjustments and Covid 19 Observations – NH time?)

**II. Covid-19 Update (Individual MS4s & Coalition)**

**Active Construction Sites:** NYSDEC, Blue weighs in Executive Orders, Dept of State – Code Enforcement

**WG/Municipal Impact:** Who's Doing What Where With What? (Stormwater, Highway, Planning, Code Enf)

**Social distancing in the field:** How?

**MCM 3/4/5: Enforcement Construction General Permit? IDDE?** (Who's in the field now?)

**III. Other News**

**NYSDEC:** ENB and Making Waves Highlights; 2020 Mother Nature Bond Act – Assemblyperson McDonald

**EPA:**

**Local/Publications/Other:** WEF National Stormwater Survey; T/Guild Costco; T/Guild New Yorker Supervisor Barber article; Drinking Water glasses - Art

**IV. Discussion/Updates**

**A. Joint Annual Report and SWMP Plan Update – Due Dates**

- SWMP Annual Evaluations–Layout and Content Status of Final Approvals – No comments? Final OK?
- AR2020 Annual Report – Due Dates, Public Comment Form. Submissions by April 24 COB? Later?

**V. Upcoming Meeting Dates**

**Working Group Mtg:** Th, May 21, 2020, 9-11am

Th, June 25, 2020, 9-11am

**Board Meetings:** Th, May 21, 2020, 9-11am and/or June 19, 2020 Meeting (?)

***Stormwater Coalition of Albany County  
Board of Directors***

**~~—AGENDA~~**

**~~Friday, March 20, 2020~~**

**~~Town of Colonie~~**

**~~Public Operations Center~~**

**~~347 Old Niskayuna Rd~~**

**~~8:30 am to 10:00 am~~ CANCELED – due to Covid 19 social distancing mandate**

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**I. Approval of January 17, 2020 Minutes**

**II. Reports**

**A. Coalition Administration**

1. 2019 Budget Report
2. 2020 Budget Report
3. 2021 Budget (Cnty Leg Proposal – 9/1 Cnty Exec Budget due, 5/31 Dept Budget due. Options? Critical Info now?)
4. VHB SwIM /County Contract #5119 of 2019 (End Date 6/30/2020) – GIS Coordinator Hire?
5. Stormwater Policy Subcommittee Report (NYS Floodplain and Stormwater Mgrs Assoc)

**B. NYSDEC**

1. WQIP Round 12 Grant – The Home Stretch (Contract Ends 4/30/2020)  
Weston-Sampson Contract –Ph 2 (Stormwater Revenue Calculations & Ph 3 (Stormwater Cost Estimates)  
Final Payment to W&S; Final State Aid Voucher; Final Report(s)
2. Stormwater Permits (Construction Activity Permit 1/29/20 – 1/28/2023; Status of MS4 Permit; MSGP Modifications)

**III. Coalition 2020 Work Plan Update**

- A. Coalition Stormwater Training Blitz (Feb/March, 2020);
- B. SWMP Plan – Annual Review & Joint Annual Report (April/May, 2020)
- C. Coalition Website Update

**VI. Discussion/Decisions**

**A. Job Posting Info & Job Classification Content**

1. Geographic Information Services (GIS) Coordinator
2. Coalition Stormwater Program Technician (V/Men; T/NS; C/Wvliet; C/Cohoes)
3. Coalition Stormwater Outreach Specialist (MCM1 and MCM2)

**B. Sketching Out – Hiring Time Frame**

1. Best Case/Worst Case
2. Participation & Suggestions

**NEXT BOARD MEETING: Friday, June 19, 2020, 8:30am – 10:00am**

**Town of Colonie Public Operations Center, 347 Old Niskayuna Road**

**WORKING GROUP MEETING: Thursday, March 26, 2020, 9:00am – 11:00am**

**University at Albany – SUNY Service Bldg A (Covid-19?)**

# *M E M O R A N D U M*

**TO:** Jeremy Cramer, Building Inspector, Town of New Scotland; Nancy Heinzen, Program Coordinator/Coalition Director, Stormwater Coalition of Albany County

**FROM:** Jaurice A. Schwartz, PE, Project Manager, Weston & Sampson; Steven Roy, LEED® AP, Senior Technical Leader, Weston & Sampson

**DATE:** March 31, 2020

**SUBJECT:** Analysis and Development of Stormwater Program Costs for New Scotland, NY to Support Potential Implementation of a Stormwater Utility

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## Introduction

Under the United States Environmental Protection Agency (USEPA's) Phase II Stormwater Rule (EPA 2005), small municipal separate stormwater sewer systems (MS4s) are required to develop a stormwater management program that reduces the amount of pollutants carried by stormwater during storm events to waterbodies to the "maximum extent practicable." The goal of the program is to improve water quality and recreational use of waterways. MS4 stormwater programs have six elements called minimum control measures (MCM) that when implemented together, are expected to result in pollutant load reductions. These goals are achievable through ongoing assessment and effective operation and maintenance of drainage infrastructure and associated waterways to protect flood-prone areas, providing adequate stormwater drainage and improving water quality. However, many communities are impeded by a lack of a clear fundable plan to prioritize improvements and effectively maintain their drainage infrastructure. While many communities have capital improvement plans and funding sources in place for their water and wastewater systems, adequate time and resources have not been allocated to operating and maintaining stormwater drainage system assets. With the extensive requirements of the State Pollutant Discharge Elimination System (SPDES) General Permit for stormwater discharges from the Municipal Separate Storm Sewer System (MS4 Permit), the value of having such a plan in place, as well as a funding source, has become even more apparent in recent years.

The Stormwater Coalition of Albany County hired Weston & Sampson to analyze the Town of New Scotland's existing and future stormwater program costs as the Town anticipates release of the next iteration of the MS4 Permit. Much of the Town of New Scotland's existing stormwater program is currently funded through property taxes paid into the Town's General Fund and comes out of the Highway Department Budget. As the Town's stormwater costs will increase going forward, the Town recognizes that a dedicated stormwater funding source may be needed to comply with the requirements of the new MS4 Permit and to maintain the Town's drainage infrastructure. As part of a comprehensive stormwater needs assessment, Weston & Sampson reviewed the Town's existing stormwater program, including past and current stormwater practices, as well as future stormwater activities. Weston & Sampson examined



the Town's ongoing compliance with the MS4 Permit GP-0-15-003 (2015 MS4 Permit) and planned efforts to comply with the 2016 Draft MS4 General Permit. In May 2019, the New York State Department of Environmental Conservation highlighted and presented to the public some additional anticipated changes to the 2016 Draft MS4 Permit. These anticipated changes were taken into consideration in analyzing the anticipated future costs for the Town to comply with the Draft MS4 Permit.

Weston & Sampson examined ongoing and future municipal activities related to system operation and maintenance, and planned capital improvement projects, to gain a full understanding of the current program and anticipated annual costs to implement the Town's stormwater program going forward. Non-capital costs, which also reflect staffing and equipment needs, as they relate to MS4 Permit compliance, were also examined.

## Demographics and Drainage System Overview

The Town of New Scotland has a total area of 55.87 square miles, excluding land area associated with the Village of Voorheesville, which lies within the Town of New Scotland. New Scotland has a total population of 5,859 excluding the population associated with the Village of Voorheesville.

Based on GIS mapping, available as of 2018, the Town's stormwater infrastructure within the MS4 urbanized area consists of 57 catch basins (265 catch basins town-wide), 9 outfalls regulated under the MS4 Permit, and 1 municipally owned facility. Approximately 6% of the Town is located within the MS4 regulated area, until the next census which could add adjacent construction areas to the urbanized area. This would have a major impact on budget calculations.

## Review of Historical Data

In developing a comprehensive stormwater budget, Weston & Sampson met with the Town on April 5, 2019 and reviewed documents provided by the Town to gain a full understanding of and provide an overview of the Town's anticipated future stormwater needs. Weston & Sampson received from the Town and reviewed the following documents:

- Catch Basin Clean-Out Plan: This report details the Town's current procedures and future planning for catch basin maintenance and cleaning.
- Itemized Stormwater Services Report (2019): This report includes some of the Town's stormwater related costs for 2019 and projected costs for 2020.
- Town of New Scotland Highway Garage Floor Drains Engineering Report (2019): This document outlines proposed drainage improvements at the Town's Highway Garage.

These documents include information regarding the Town's current and future stormwater related practices and their respective costs. Some of the Town's stormwater initiatives already in place will help them to comply with requirements of the Draft 2016 MS4 Permit. However, the Draft 2016 MS4 Permit is much more prescriptive and extensive than the 2015 MS4 Permit and will, therefore, require the Town to enhance and expand upon their existing stormwater management practices. These documents

provided insight regarding proposed requirements under the new permit that the Town does not currently address, and allowed for accounting of those additional costs going forward.

## Stormwater Budget

Using the information provided, Weston & Sampson developed a five-year comprehensive stormwater management budget that captures the Town's stormwater needs including both capital projects, and non-capital items related to MS4 compliance, such as operation and maintenance of the drainage system, and associated staffing. This budget includes, but goes beyond, the MS4 Permit compliance budget, which is captured in the Non-Capital Costs item highlighted in Table 1. This budget, presented in more detail in **Attachment A, Five-Year Stormwater Budget**, and summarized in Table 1 reflects estimated annual planning level costs. These are preliminary estimated costs that warrant further future refinement as additional information is obtained. These costs incorporate the costs for MS4 Permit compliance presented separately in Attachment B and discussed in more detail in the next section.

**Table 1: Non-Capital and Capital Stormwater-Related Costs by Permit Year**

Stormwater Items	Stormwater Costs by Permit Year				
	Permit Year 1 - 2020	Permit Year 2 - 2021	Permit Year 3 - 2022	Permit Year 4 - 2023	Permit Year 5 - 2024
Non-Capital Items (MS4 Compliance, including associated O&M, staffing)	\$47,500	\$61,135	\$62,225	\$54,340	\$56,955
Capital Projects	\$124,600	\$59,200	\$60,400	\$61,600	\$62,800
<b>Total Stormwater Expenditures</b>	<b>\$172,100</b>	<b>\$120,335</b>	<b>\$122,625</b>	<b>\$115,940</b>	<b>\$119,755</b>

To date, the Town's Building Inspector has been the lead person responsible for implementing MS4 Permit requirements along with support that the Town has received from the Stormwater Coalition of Albany County. As the requirements of the new permit are more extensive, the Town will need to rely on continued Coalition support or may need to expand their existing staffing resources. It is anticipated that the Town may need to dedicate an estimated 10 staff hours on a weekly basis to meet MS4 Permit requirements and to operate and maintain their drainage system going forward. Hiring additional staff dedicated to stormwater management would provide the Town with the opportunity to perform more stormwater operation and maintenance-related items in-house at a potential cost savings to the Town. In addition, the use of Town staff to perform operation and maintenance activities also allows for Town staff to gain institutional system knowledge that provides many added benefits as the Town works to operate and maintain their drainage system. In some instances, the use of private sector, consulting and/or Coalition support may result in cost savings through lower overhead/fringe benefit costs. Outsourcing of specific stormwater program elements could be handled under contract arrangements especially for those tasks that are infrequent or require specialized skill sets that may be expensive for the Town to maintain on a full-time basis. Historically, the Town's involvement with the Coalition has allowed

the Town to meet critical MS4 Permit requirements including mapping of town-drainage infrastructure through use of GIS staff support provided by the Coalition.

In addition to potential needed increases in staff to support MS4 Permit requirements going forward, the Town is also actively evaluating equipment needs. the Town of New Scotland and adjacent Town of Bethlehem have submitted a grant application to the New York State Department of Environmental Conservation for funds to purchase a vacuum truck. The addition of this shared vacuum truck will be utilized to clean catch basins in both communities. A shared services agreement between the towns will be implemented and the Towns already have a Highway Department Shared Services Agreement. The Town has not budgeted any additional funds for the purchase of other stormwater related equipment at this time. Currently, the Town cleans out catch basins with a 5-gallon bucket and a shovel. As the Town works to optimize cleaning of catch basins under the new permit, it is anticipated that catch basin cleaning frequency may need to increase, which would make a vacuum truck valuable to the Town. New Scotland will be able to clean catch basins at a faster rate, without having to consider contracting out the work, especially if the urbanized area were to expand into the construction areas adjacent to current urbanized areas.

As reported by the Albany County Multi-Jurisdictional Multi-Hazard Mitigation Plan (2018), Albany County and its jurisdictions have experienced various types of flooding in recent years due to higher frequency and intensity of rainfall events. Although Albany County is not located along the Atlantic Coast shoreline subjected to hurricane or catastrophic surge events, the county does lie within a part of the Hudson River that is tidally influenced. Although only 4% of the Town of New Scotland is in the high-risk flood area, Albany County has experienced flooding on many of its roadways, and at many of its parks, sewer treatment facilities, and pump stations.

Due to recent flooding from heavy rainfall events, impacted residents of Albany County (not including Town of New Scotland) filed lawsuits against their local governments, claiming that the local authorities had failed to maintain the sewer systems, and to operate, repair, and maintain the collection pipes and collection structures effectively. Considering the effects of the changing climate pattern and the increased frequency of heavy rainfall events, in general, the Town of New Scotland may also want to consider including infrastructure maintenance potential related costs in the Town's stormwater budget going forward to account for new climate projection related expenses.

## MS4 Compliance

Based on a review of the stormwater documents previously identified and meetings with Town staff and the Stormwater Coalition of Albany County, Weston & Sampson identified specific needs for New Scotland in order to comply with the 2016 Draft MS4 Permit and anticipated updates to be reflected in the 2019 Draft MS4 Permit. These needs are presented in a series of tables included in **Attachment B, MS4 Permit Compliance Tables**, that summarize the requirements of the MS4 Permit by general stormwater permit requirements and specific minimum control measures. There is a comprehensive table that represents full compliance with the permit, which is based upon on all items named in the 2016 Draft MS4 Permit Appendix C Compliance Schedule. Individual tables describe these same requirements based on what is required in the first year (Yr. 1), the second year (Yr. 2), etc. over a five-year period (generally). In addition,

information is presented regarding New Scotland's specific needs and the work that the Town will need to complete over the five-year permit term. Tasks that the town has historically completed in-house and could complete in-house going forward are designated as being completed by Town forces. Tasks where the Town may require assistance from an outside contractor or consultant are differentiated in that they have a dollar value assigned to them in the attached tables. Dollar values are estimated based on known MS4 compliance costs in other regions and have been adjusted for New Scotland.

The MS4 Permit costs highlighted in Attachment A and detailed in Attachment B do not assume Coalition support. Instead, costs reflected in Attachment B assume hiring of a part-time Stormwater Technician to assist with MS4 Permit compliance. There are several permit requirements included in Attachment B where the Town has historically taken the lead on implementation, and it is assumed that the Town would continue to provide many of those services using in-house staff. However, the Town does anticipate receiving assistance with some of the permit requirements from the Coalition, which could reduce MS4-related commitments from in-house staff, as well as the need for outside consulting support. The extent of the Coalition's support has not been solidified, but items shaded in green in the MS4 Cost Compliance tables included in Attachment B reflect areas where the Coalition could potentially provide support going forward at a cost savings to the Town.

Table 2 describes the total MS4 Permit planning level costs over five years based on current regulated infrastructure owned by the Town (# of outfalls and catch basins). It then summarizes potential savings if the Town were to receive support from the Coalition. This summary is based on estimating how much of the total planning level costs could instead be implemented with outside consulting assistance or the Coalition as an alternative, then adding to that the cost of additional part-time staff responsible for MS4 Permit compliance, potentially a staffing cost assumed by the Coalition. These costs are then offset by actual Coalition dues anticipated for 2020, which are estimated to increase by 2%.

**Table 2: Anticipated Annual Cost Savings Due to Coalition Support**

Stormwater Items		Stormwater Costs by Permit Year				
		Permit Year 1 - 2020	Permit Year 2 - 2021	Permit Year 3 - 2022	Permit Year 4 - 2023	Permit Year 5 - 2024
Total MS4 Permit Compliance Planning Level Costs		\$16,000	\$19,000	\$19,500	\$11,000	\$13,000
Potential Cost Savings Through Coalition Support						
Cost Savings Calculation	MS4 Permit Compliance Tasks where Outside Consulting Assistance is Anticipated & Coalition Could Provide Support as an Alternative	+\$13,000	+\$14,000	+\$15,500	+\$9,500	+\$11,500
	Additional Staffing Costs (Part-Time Stormwater Technician)	+\$8,750	+\$8,925	+\$9,105	+\$9,290	+\$9,475
	Coalition Dues Offset (Assume 2% Annual Increase)	-\$6,984	-\$7,124	-\$7,266	-\$7,411	-\$7,559
Total Cost Savings		\$14,766	\$15,801	\$17,339	\$11,379	\$13,416

## In Conclusion

Given that only 6% of the Town falls within the regulated MS4 area and stormwater expenditures are nominal, and the fact that the Town would need to develop the administrative mechanism to collect and manage stormwater fees, it is not recommended at this time that New Scotland proceed with developing a dedicated stormwater fee. A dedicated and sustainable funding source for stormwater infrastructure management and MS4 permit compliance would be desirable but appears to be unnecessary given the current and future expenditures. Capital costs appear to be manageable and staffing is appropriate, but could require additional limited supplements in the future to meet MS4 compliance costs.

To summarize, major findings from review of the Town's existing stormwater budget and future needs assessment include:

- Non-capital costs, including MS4 Permit Compliance, as well as associated operation and maintenance, staffing and equipment needs is expected to cost the Town between \$47,500 and

\$61,135 annually over the next five years. These costs include MS4 permit compliance, and operation and maintenance of stormwater infrastructure.

- Over the next five years, apart from next year where costs are higher due to an isolated project, the Town anticipates spending on average \$60,000 on stormwater capital projects. These costs include culvert replacements and other drainage infrastructure improvements.
- In order to comply with the MS4 Permit requirements, new part-time staff will be necessary if the Town plans to complete more of the required work under the permit in-house going forward.
- The Town will not have the resources to perform all work in-house, and it may not be cost-effective to hire certain staff with the expertise needed if their services ultimately will not be needed on a consistent basis. Some funding will be necessary for Coalition/consultant/contractor support for those tasks that are infrequent or require specialized skill sets that may be expensive for the Town to maintain on a full-time basis.
- There are still some unknowns going forward, especially with respect to MS4 Permit compliance, which may result in increased costs for compliance going forward.
- If the vacuum truck grant does not come through, Town of New Scotland staff will need to consider carefully the timeline for implementing potentially new catch basin inspection/clean out requirements and cost effectiveness of the current bucket and shovel method. Options will need to be considered.
- To fully realize potential cost savings as part of Coalition membership, there needs to be a clear demarcation of tasks to be completed by the Coalition, tasks to be completed by a dedicated part-time Coalition staff person working on behalf of the Town, and a transparent accounting of tasks to be completed. The draft 2016 MS4 Permit Appendix C Compliance Schedule and the corresponding Attachment B Year 1, Year 2, Year 3, Year 4, and Year 5 MS4 Permit Compliance tables provide a valuable itemization of these tasks.

Attachment A

Five-Year Stormwater Budget

**Stormwater Budget - 5-Year Projection**  
**New Scotland, NY**

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Estimated Project Cost	Funding Source
<b>Permit Year 1 - 2020</b>						
<b>MS4 Permit Compliance</b>	<b>MS4 General Permit Compliance - Year 1 of Permit - 2020</b>	Includes filing of the TOWn's NOI, updates to the SWMP, public education, public participation, required training, mapping updates, SWPPP reviews, construction inspections, inspection of post-construction SMPs, and filing of the TOWn's Annual Report to NYDEC.	The Town is preparing for an increase in stormwater management efforts and associated costs to comply with the requirements of the Draft MS4 Permit. Back-up for Year 1 requirements and associated costs is included in a separate spreadsheet, which assumes no coalition support. The Town anticipates 15 to 20 staff hours per week for stormwater compliance. If this effort cannot be absorbed by the Town's building inspector, an additional person may need to be hired on a part-time basis in the event that the Town does not end up receiving support from the coalition.	NC	\$ 16,000	General Fund
<b>Culvert</b>	<b>Highway Department Culvert Replacements</b>	Replace failing culverts.	The Town generally replaces about 10 culverts annually. This is an average cost per year, assuming ten culverts are replaced. Project costs may vary year to year. Assume 2% increase in cost each year.	C	\$ 58,000	Highway Budget
<b>Drainage</b>	<b>Highway Garage Oil/Water Separator</b>	Install oil/water separator in highway garage to comply with discharge requirements.	The Town does not have a set schedule for this project, but has received a preliminary quote for design and construction.	C	\$ 66,600	General Fund
<b>Operation &amp; Maintenance</b>	<b>Catch Basin Cleaning</b>	Document and implement a plan such that catch basins are cleaned as needed.	The Town has approximately 265 catch basins town-wide. There are 57 catch basins located in the urbanized area. The Town anticipates inspecting 50 catch basins annually, and has historically cleaned 25-30 basins each year. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment.	NC	\$ 5,480	Highway Budget
<b>Operation &amp; Maintenance</b>	<b>Street Sweeping</b>	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris a second time in the fall.	The Town has approximately 140 lane-miles of streets that they sweep in house. The Town contracts out approximately 24 lane-miles in the spring. The Town sweeps all street at least once per year.	NC	\$ 11,630	Highway Budget
<b>Operation &amp; Maintenance</b>	<b>Inspect &amp; Maintain Municipally-Owned Detention Basins</b>	Inspect and maintain all detention/retention basins, swales, etc.	The Town currently mows detention/retention ponds and swales 1 to 2 times per year, usually during the growing season.	NC	\$ 1,910	General Fund



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Estimated Project Cost	Funding Source
Operation & Maintenance	Current Staffing Needs	Stormwater management operations	The Town's building inspector has a portion of his salary allocated to stormwater management operations (\$3,230). It is assumed that additional part-time staff will be needed going forward to assist with MS4 requirements if there is no coalition support going forward. Assume hiring of a part-time Stormwater Technician at \$35,000/yr x 0.25 = \$8,750.	NC	\$ 11,980	General Fund
Operation & Maintenance	Contractual Itemization	Mileage, Misc. Expenses	Miscellaneous Stormwater Expenditures - printing, etc.	NC	\$ 500	General Fund
<b>2020 Total Non-Capital Project Costs =</b>					<b>\$ 47,500</b>	
<b>2020 Total Capital Project Costs =</b>					<b>\$ 124,600</b>	
<b>2020 Total All Project Costs =</b>					<b>\$ 172,100</b>	
<b>Permit Year 2 - 2021</b>						
MS4 Permit Compliance	MS4 General Permit Compliance - Year 2 of Permit = 2021	Includes updates to the SWMP, public education, public participation, regulatory review and update, required training, mapping updates, SWPPP reviews, construction inspections, inspection of post-construction SMPs, development of O&M procedures and filing of the Town's Annual Report to NYDEC.	The Town is preparing for an increase in stormwater management efforts and associated costs to comply with the requirements of the Draft MS4 Permit. Back-up for Year 2 requirements and associated costs is included in a separate spreadsheet, which assumes no coalition support. The Town anticipates 15 to 20 staff hours per week for stormwater compliance. If this effort cannot be absorbed by the Town's building inspector, an additional person may need to be hired on a part-time basis in the event that the Town does not end up receiving support from the coalition.	NC	\$ 19,000	General Fund
Culvert	Highway Department Culvert Replacements	Replace failing culverts.	The Town generally replaces about 10 culvert pipes annually. This is an average cost per year, assuming ten culverts are replaced. Project costs may vary year to year. Assume 2% increase in cost each year.	C	\$ 59,200	Highway Budget
Operation & Maintenance	Oil/Water Separator Maintenance	Annual bond repayment, tank clean out fees, and sampling and lab/reporting costs.	The Town has not began construction or proposed a schedule for this project, but the Town Board has approved the project.	NC	\$ 10,040	General Fund
Operation & Maintenance	Catch Basin Cleaning	Document and implement a plan such that catch basins are cleaned as needed.	The Town has approximately 264 catch basins town-wide. There are 57 catch basins located in the urbanized area. The Town anticipates inspecting 50 catch basins annually, and has historically cleaned 25-30 basins each year. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment.	NC	\$ 5,590	Highway Budget
Operation & Maintenance	Street Sweeping	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris a second time in the fall.	The Town has approximately 140 lane-miles of streets that they sweep in house. The Town contracts out approximately 24 lane-miles in the spring. The Town sweeps all street at least once per year.	NC	\$ 11,870	Highway Budget

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Estimated Project Cost	Funding Source
Operation & Maintenance	Inspect & Maintain Municipally-Owned Detention Basins	Inspect and maintain all detention basins.	The Town currently mows detention/retention ponds and swales 1 to 2 times per year, usually during the growing season.	NC	\$ 1,910	General Fund
Operation & Maintenance	Current Staffing Needs	Stormwater management operations	The Town's building inspector has a portion of his salary allocated to stormwater management operations (\$3,300). It is assumed that additional part-time staff will be needed going forward to assist with MS4 requirements if there is no coalition support going forward. Assume hiring of a part-time Stormwater Technician at \$35,700/yr x 0.25 = \$8,925 (Assume 2% annual increase).	NC	\$ 12,225	General Fund
Operation & Maintenance	Contractual Itemization	Mileage, Misc. Expenses	Miscellaneous Stormwater Expenditures - printing, etc.	NC	\$ 500	General Fund
<b>2021 Total Non-Capital Project Costs =</b>					<b>\$ 61,135</b>	
<b>2021 Total Capital Project Costs =</b>					<b>\$ 59,200</b>	
<b>2021 Total All Project Costs =</b>					<b>\$ 120,335</b>	
<b>Permit Year 3 - 2022</b>						
MS4 Permit Compliance	MS4 General Permit Compliance - Year 3 of Permit = 2022	Includes updates to the SWMP, public education, public participation, regulatory review and update, required training, mapping updates, SWPPP reviews, construction inspections, inspection of post-construction SMPs, development of O&M procedures and filing of the Town's Annual Report to NYDEC.	The Town is preparing for an increase in stormwater management efforts and associated costs to comply with the requirements of the Draft MS4 Permit. Back-up for Year 3 requirements and associated costs is included in a separate spreadsheet, which assumes no coalition support. The Town anticipates 15 to 20 staff hours per week for stormwater compliance. If this effort cannot be absorbed by the Town's building inspector, an additional person may need to be hired on a part-time basis in the event that the Town does not end up receiving support from the coalition.	NC	\$ 19,500	General Fund
Culvert	Highway Department Culvert Replacements	Replace failing culverts.	The Town generally replaces about 10 culvert pipes annually. This is an average cost per year, assuming ten culverts are replaced. Project costs may vary year to year. Assume 2% increase in cost each year.	C	\$ 60,400	Highway Budget
Operation & Maintenance	Oil/Water Separator Maintenance	Annual bond repayment, tank clean out fees, and sampling and lab/reporting costs.	The Town has not began construction or proposed a schedule for this project, but the Town Board has approved the project.	NC	\$ 10,040	General Fund
Operation & Maintenance	Catch Basin Cleaning	Document and implement a plan such that catch basins are cleaned as needed.	The Town has approximately 264 catch basins town-wide. There are 57 catch basins located in the urbanized area. The Town anticipates inspecting 50 catch basins annually, and has historically cleaned 25-30 basins each year. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment.	NC	\$ 5,710	Highway Budget

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Estimated Project Cost	Funding Source
Operation & Maintenance	Street Sweeping	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris a second time in the fall.	The Town has approximately 140 lane-miles of streets that they sweep in house. The Town contracts out approximately 24 lane-miles in the spring. The Town sweeps all street at least once per year.	NC	\$ 12,100	Highway Budget
Operation & Maintenance	Inspect & Maintain Municipally-Owned Detention Basins	Inspect and maintain all detention basins.	The Town currently mows detention/retention ponds and swales 1 to 2 times per year, usually during the growing season.	NC	\$ 1,910	General Fund
Operation & Maintenance	Current Staffing Needs	Stormwater management operations	The Town's building inspector has a portion of his salary allocated to stormwater management operations (\$3,360). It is assumed that additional part-time staff will be needed going forward to assist with MS4 requirements if there is no coalition support going forward. Assume hiring of a part-time Stormwater Technician at \$36,414/yr x 0.25 = \$9,105 (Assume 2% annual increase).	NC	\$ 12,465	General Fund
Operation & Maintenance	Contractual Itemization	Mileage, Misc. Expenses	Miscellaneous Stormwater Expenditures - printing, etc.	NC	\$ 500	General Fund
<b>2022 Total Non-Capital Project Costs =</b>					<b>\$ 62,225</b>	
<b>2022 Total Capital Project Costs =</b>					<b>\$ 60,400</b>	
<b>2022 Total All Project Costs =</b>					<b>\$ 122,625</b>	
<b>Permit Year 4 - 2023</b>						
MS4 Permit Compliance	MS4 General Permit Compliance - Year 4 of Permit = 2023	Includes updates to the SWMP, public education, public participation, regulatory review and update, required training, mapping updates, SWPPP reviews, construction inspections, inspection of post-construction SMPs, and filing of the Town's Annual Report to NYDEC.	The Town is preparing for an increase in stormwater management efforts and associated costs to comply with the requirements of the Draft MS4 Permit. Back-up for Year 4 requirements and associated costs is included in a separate spreadsheet, which assumes no coalition support. The Town anticipates 15 to 20 staff hours per week for stormwater compliance. If this effort cannot be absorbed by the Town's building inspector, an additional person may need to be hired on a part-time basis in the event that the Town does not end up receiving support from the coalition.	NC	\$ 11,000	General Fund
Culvert	Highway Department Culvert Replacements	Replace failing culverts.	The Town generally replaces about 10 culvert pipes annually. This is an average cost per year, assuming ten culverts are replaced. Project costs may vary year to year. Assume 2% increase in cost each year.	C	\$ 61,600	Highway Budget
Operation & Maintenance	Oil/Water Separator Maintenance	Annual bond repayment, tank clean out fees, and sampling and lab/reporting costs.	The Town has not began construction or proposed a schedule for this project, but the Town Board has approved the project.	NC	\$ 10,040	General Fund

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Estimated Project Cost	Funding Source
Operation & Maintenance	Catch Basin Cleaning	Document and implement a plan such that catch basins are cleaned as needed.	The Town has approximately 264 catch basins town-wide. There are 57 catch basins located in the urbanized area. The Town anticipates inspecting 50 catch basins annually, and has historically cleaned 25-30 basins each year. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment.	NC	\$ 5,820	Highway Budget
Operation & Maintenance	Street Sweeping	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris a second time in the fall.	The Town has approximately 140 lane-miles of streets that they sweep in house. The Town contracts out approximately 24 lane-miles in the spring. The Town sweeps all street at least once per year.	NC	\$ 12,350	Highway Budget
Operation & Maintenance	Inspect & Maintain Municipally-Owned Detention Basins	Inspect and maintain all detention basins.	The Town currently mows detention/retention ponds and swales 1 to 2 times per year, usually during the growing season.	NC	\$ 1,910	General Fund
Operation & Maintenance	Current Staffing Needs	Stormwater management operations	The Town's building inspector has a portion of his salary allocated to stormwater management operations (\$3,430). It is assumed that additional part-time staff will be needed going forward to assist with MS4 requirements if there is no coalition support going forward. Assume hiring of a part-time Stormwater Technician at \$37,145/yr x 0.25 = \$9,290 (Assume 2% annual increase).	NC	\$ 12,720	General Fund
Operation & Maintenance	Contractual Itemization	Mileage, Misc. Expenses	Miscellaneous Stormwater Expenditures - printing, etc.	NC	\$ 500	General Fund
2023 Total Non-Capital Project Costs =					\$ 54,340	
2023 Total Capital Project Costs =					\$ 61,600	
2023 Total All Project Costs =					\$ 115,940	
Permit Year 5 - 2024						
MS4 Permit Compliance	MS4 General Permit Compliance - Year 5 of Permit = 2023	Includes updates to the SWMP, public education, public participation, regulatory review and update, required training, mapping updates, SWPPP reviews, construction inspections, inspection of post-construction SMPs, and filing of the Town's Annual Report to NYDEC.	The Town is preparing for an increase in stormwater management efforts and associated costs to comply with the requirements of the Draft MS4 Permit. Back-up for Year 5 requirements and associated costs is included in a separate spreadsheet, which assumes no coalition support. The Town anticipates 15 to 20 staff hours per week for stormwater compliance. If this effort cannot be absorbed by the Town's building inspector, an additional person may need to be hired on a part-time basis in the event that the Town does not end up receiving support from the coalition.	NC	\$ 13,000	General Fund
Culvert	Highway Department Culvert Replacements	Replace failing culverts.	The Town generally replaces about 10 culvert pipes annually. This is an average cost per year, assuming ten culverts are replaced. Project costs may vary year to year. Assume 2% increase in cost each year.	C	\$ 62,800	Highway Budget

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Estimated Project Cost	Funding Source
Operation & Maintenance	Oil/Water Separator Maintenance	Annual bond repayment, tank clean out fees, and sampling and lab/reporting costs.	The Town has not began construction or proposed a schedule for this project, but the Town Board has approved the project.	NC	\$ 10,040	General Fund
Operation & Maintenance	Catch Basin Cleaning	Document and implement a plan such that catch basins are cleaned as needed.	The Town has approximately 264 catch basins town-wide. There are 57 catch basins located in the urbanized area. The Town anticipates inspecting 50 catch basins annually, and has historically cleaned 25-30 basins each year. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete.	NC	\$ 5,940	Highway Budget
Operation & Maintenance	Street Sweeping	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris a second time in the fall.	The Town has approximately 140 lane-miles of streets that they sweep in house. The Town contracts out approximately 24 lane-miles in the spring. The Town sweeps all street at least once per year.	NC	\$ 12,590	Highway Budget
Operation & Maintenance	Inspect & Maintain Municipally-Owned Detention Basins	Inspect and maintain all detention basins.	The Town currently mows detention/retention ponds and swales 1 to 2 times per year, usually during the growing season.	NC	\$ 1,910	General Fund
Operation & Maintenance	Current Staffing Needs	Stormwater management operations	The Town's building inspector has a portion of his salary allocated to stormwater management operations (\$3,500). It is assumed that additional part-time staff will be needed going forward to assist with MS4 requirements if there is no coalition support going forward. Assume hiring of a part-time Stormwater Technician at \$37,890/yr x 0.25 = \$9,475 (Assume 2% annual increase).	NC	\$ 12,975	General Fund
Operation & Maintenance	Contractual Itemization	Mileage, Misc. Expenses	Miscellaneous Stormwater Expenditures - printing, etc.	NC	\$ 500	General Fund
<b>2024 Total Non-Capital Project Costs =</b>				<b>\$</b>	<b>56,955</b>	
<b>2024 Total Capital Project Costs =</b>				<b>\$</b>	<b>62,800</b>	
<b>2024 Total All Project Costs =</b>				<b>\$</b>	<b>119,755</b>	

Projects currently included in Town's 5-Year Capital Improvement Plan  
 C Capital Project  
 NC Non-Capital Project

Attachment B

MS4 Permit Compliance Cost Tables

MS4 Permit Compliance for Full Permit Term

## NEW SCOTLAND, NY

## MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT

Breakdown of Permit Requirements &amp; Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART II - OBTAINING PERMIT COVERAGE</b>				
II	Submit NOI to Continue Coverage	30 days from permit effective date	Submit NOI to NYS DEC	\$2,500
<b>PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS</b>				
IV.A	Update written Stormwater Management Program (SWMP)	As Necessary	Continue to fully implement existing SWMP developed under the 2003 MS4 Permit. Update the SWMP annually as new requirements are met in accordance with the timeframes set forth in Appendix C.	\$3,500 Annually
IV.A.1	Maintain copy of SWMP, make available to the public	1 year from effective date	Make SWMP readily available to Town staff responsible for implementation, as well as DEC and EPA. Make copies of the SWMP available to the public at Town Hall and/or on Town website. SWMP is currently available on Albany County Stormwater Coalition Website. Keep SWMP current and include outreach and public participation materials.	Town Forces
IV.B	Designate a Stormwater Management Plan Coordinator	30 days from effective date	Designate in writing a SWMP coordinator to oversee coordination and implementation of the SWMP. Jeremy Cramer is the Town's current Stormwater Management Officer.	Town Forces
IV.B	Provide SWMP Coordinator with 4 hours of Department endorsed training in stormwater management and the permit requirements.	1 year from effective date	Ensure stormwater coordinator receives proper training	Budget \$500 for Stormwater Coordinator to attend training session.
IV.B	Update agreements with 3rd party contractors, coalitions or other entities where resources are shared.	1 year from effective date	Document any agreement made with 3rd party contractors, other MS4 operators, coalition of MS4 operators, or other public entities assisting with the SWMP.	Renew Agreement with Albany County Stormwater Coalition
IV.B	Develop staffing plan/organizational chart	6 months from effective date	Develop written staffing plan that identifies individuals and their roles and responsibilities	To be developed by Town Forces
IV.C	Develop and maintain a map showing MS4 features to use as planning tool for prioritization of efforts and facilitate management decisions - implement Phase 1 mapping requirements	3 years from effective date	Update map to show location of entire small MS4 system within regulated areas. The Town has a fairly comprehensive map in place, which will require some updating during the permit term. Phase 1 mapping requirements include mapping of outfalls, areas of concern, municipally-owned post construction stormwater management practices, and municipal facilities.	Budget \$1,000 - Based on work completed to date with coalition assistance, existing mapping of drainage in the urbanized area is fairly extensive. Assume only minimal mapping updates needed.
IV.C	Implement Phase 2 mapping requirements	5 years from effective date	Phase 2 mapping requirements include MS4 infrastructure including closed pipe and open drainage; catch basins, drop inlets and manholes along with structure description; and privately-owned post-construction stormwater management practices which drain to the MS4.	Budget \$1,000 - Based on work completed to date with coalition assistance, existing mapping of drainage in the urbanized area is fairly extensive. Assume only minimal mapping updates needed.
IV.C	Implement Phase 3 mapping requirements	8 years from effective date	Phase 3 mapping requirements include land area draining to the MS4 by overland flow (sewersheds) and location of interconnections.	Budget \$1,000 - Based on work completed to date with coalition assistance, existing mapping of drainage in the urbanized area is fairly extensive. Assume only minimal mapping updates needed.
IV.C	Update MS4 Features Map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Assume \$500 per year for any other needed mapping updates to reflect new construction within the Town's urbanized area.
IV.E	Update or develop adequate legal authority to control pollutants into and from the small MS4	1.5 years from effective date	Ensure adequate legal authority to control pollutants into and from the small MS4 in the Stormwater Management Local Law 3	Budget \$3,500 for regulatory review and update as needed.
IV.F	Develop Enforcement Response Plan	3 years from effective date	Develop Enforcement Response Plan which describes actions to be taken for violations of local laws for illicit discharge, construction and post-construction.	\$2,500
IV.F	Develop system to track instances of non-compliance	1 year from effective date	Develop system to track enforcement in accordance with the Enforcement Response Plan. Minimum requirements for tracking of non-compliance can be found in Part IV.F.2.	\$1,500



NEW SCOTLAND, NY

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Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART V - PROGRAM EVALUATION, RECORDKEEPING, REPORTING AND CERTIFICATION</b>				
V.A	Evaluate compliance with terms of the permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	Cost included in item V.C
V.B	MS4 must keep records for >5yrs	Continuous	Maintain annual MS4 stormwater reports	Town Forces
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period, Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	\$2,500/yr
<b>PART VI - MCM1 PUBLIC EDUCATION &amp; OUTREACH</b>				
VI.A	Public Education Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VI.A.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	Allocate \$500/yr to meet MS4 public education requirements.
VI.A.2	Deliver educational message to each of the target audiences listed in Part VI.A.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media.	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	Cost included under VI.A.
<b>PART VI - MCM2 PUBLIC INVOLVEMENT &amp; PARTICIPATION</b>				
VI.B.1.a	Provide at least one of the opportunities identified in Part VI.B.1.a to involve the public in the review, development and implementation of the SWMP.	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	Allocate \$500 per year to meet public involvement requirements.
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media.	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Town to identify local point of contact.
V.I.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to the public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Town Forces
VI.B.2.b	Provide public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Town Forces
<b>PART VI - MCM3 ILLICIT DISCHARGE DETECTION &amp; ELIMINATION</b>				
VI.C.1	Adopt regulatory mechanism providing legal authority to prohibit/investigate/eliminate illicit discharges	Should have been completed under 2003 permit.	"Illicit Discharge 2007 Local Law 4" establishes legal authority to prohibit/investigate/eliminate illicit discharges.	-
VI.C.2	Provide public education on illicit discharges.	1 year from effective date	Educate employees, businesses, and public on illicit discharges.	Budget \$500 to assist with training efforts. Assume Town's Stormwater Management Officer would coordinate and provide training/public education through various means.
VI.C.3	Establish a hotline & system to track complaints on illicit discharges	6 months from effective date	Create hotline and publish on Town website.	Town to implement using Town staff
VI.C.4	Develop system for tracking outfall inspections and analyzing data	1.5 years from effective date	Develop system for collecting, organizing and analyzing outfall inspection data.	Budget \$500.
VI.C.4	Develop outfall inspection procedures (identify individuals responsible for inspections, procedures for recording information as part of outfall inspections, procedures for sampling flowing outfalls, re-inspection of outfalls)	3 years from effective date	Develop outfall inspection procedures for employees to follow.	Budget \$1,500.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.C.4	Create a priority list of outfalls and update annually. Identify High and Low Priority Outfalls.	3 years from effective date	Develop inventory of outfalls and prioritize based on inspections. Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high quality waters, or complaint driven.	Town Forces
VI.C.4.b	Ensure that responsible staff are trained on performing outfall inspections.	1.5 years from effective date	Train employees about the IDDE Program including how to recognize illicit discharges and how to conduct outfall inspections.	Town Forces - In conjunction with Item VI.C.2.
VI.C.4.b	Dry-weather High Priority outfall screening & sampling (inspect twice a permit term)	5 years from effective date	Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high quality waters, or complaint driven. Inspect twice per permit term, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls per year)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	Within 30 days	Re-inspect outfalls and sample as needed	Town Forces
VI.C.5	Develop track down procedures (identifying individuals responsible for track down, procedures to meet Chapter 13 of IDDE Guidance, time frames to act, referral for elimination)	2 years from effective date	Develop written track down procedures for illicit discharges	Cost included under Item VI.C.4.
VI.C.6	Update procedures for elimination (identifying individuals responsible for contacting responsible party, time frames to act, escalating enforcement, confirm corrective action, tracking progress)	2 years from effective date	Develop and implement written Illicit Discharge Elimination Program procedures specifying the requirements in Part VI.C.6	Cost included under Item VI.C.4.
VI.C.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	The Town only has 9 regulated outfalls. Assuming evidence of illicit discharges, track down procedures would have to be initiated on a case by case basis.
VI.C.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
VI.D.2	Update or develop adequate legal authority to ensure that applicable construction activities are effectively controlled.	1.5 years from effective date	Stormwater Management 2007 Local Law 3 Section 2.2.3 currently requires erosion and sediment controls during construction. Review existing regulatory requirements and update as needed to ensure full compliance with permit conditions outlined in Section VI.D.2.a.	Cost included under IV.E. for regulatory review.
VI.D.3	Educate all municipal staff involved in the review of SWPPPs, inspections and related enforcement.	1 year from effective date	Provide Construction Program education and outreach.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.D.4	Update construction site inventory to track new data elements	3 years from effective date, Update as needed	Develop and maintain written inventory of all projects with construction activities discharging into the MS4	Assume Town Forces would continue to track and collect data needed.
VI.D.5	Prioritize construction sites	1 year from effective date	Assess risks of water quality impacts and identify high priority construction sites for inspection using Table 4 in Part VI.D.5	Town Forces
VI.D.6	Update SWPPP review procedures (utilize form for new projects) for erosion sediment control and post-construction review	1 year from effective date	Update SWPPP review procedures	Assume Town Forces to update existing SWPPP procedures.
VI.D.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VI.D.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form.	Budget \$1,000 per year for outside assistance with reviews as needed. Assume most reviews will be performed in-house with limited outside assistance from third parties as needed.

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MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT

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Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.D.6	Train SWPPP reviewers in four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District or other endorsed entity	1.5 years from effective date	Ensure training for individuals responsible for SWPPP review to include 2 hours of Department endorsed SWPPP review training and 4 hours of Department endorsed training in proper erosion and sediment control principles.	Budget \$500 for required training.
VI.D.7	Establish procedures for pre-construction inspection/meeting	6 months from effective date	Establish procedures to ensure compliance with section VI.D.7 of permit	Town Forces
VI.D.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Town Forces
VI.D.8	Update construction inspection procedures (identify individual(s) responsible for inspections, inspection frequencies, documentation, close out)	1 year from effective date	Update written construction inspection procedures	Town Forces
VI.D.8	Train construction site inspectors	1.5 years from effective date	Ensure MS4 inspectors receive required training	Assume Town's Stormwater Management Officer would coordinate and provide training to in-house staff.
VI.D.8	Inspect all sites with construction activity at the frequencies stated in Part VI.D.8.b	As Necessary	Conduct and document inspections of construction sites	Dependent on the number of construction sites designated as high and low priority within a given year. Budget \$1,500 per year for outside assistance with inspections. Town generally performs all construction inspections in-house. For larger sites over 5 acres, Town may obtain assistance from a 3rd party. Town may need additional assistance due to increased inspection frequency required by the permit.
VI.D.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Cost included in Item VI.D.8.
VI.D.10	Update tracking system for inspections and complaints	6 months from effective date	Receive, follow up, and track complaints regarding construction site stormwater runoff.	Town Forces
<b>PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT</b>				
VI.E.2	Update the local law and certify that it is equivalent to the new model law	1.5 years from effective date	Stormwater Management 2007 Local Law 3 Section 2.2.3 provides requirements for post-construction SMPs. Review existing regulatory requirements and update as needed to ensure full compliance with Section VI.E.2 of the Permit.	Cost included under IV.E. for regulatory review.
VI.E.3	Update Post Construction SMP inventory to track all required elements (identify frequency for inspection based on the O&M manual or DEC design manual)	3 years from effective date, Update as needed	Develop and maintain written inventory of post construction SMPs that include type of stormwater management practice, date of installation, reason for the stormwater management practice, and location of discharge.	To Be Implemented and Maintained by Town Forces
VI.E.4	Incorporate items included under Section VI.E.4. as part of SWPPP review procedures developed under VI.D.6.	1 year from effective date	Incorporate items listed which pertain to review of post-construction SMPs.	Cost included under VI.D.6.
VI.E.5	Train individuals responsible for inspection and maintenance	1.5 years from effective date	Ensure training for individuals responsible for inspection and maintenance	Assume Town's Stormwater Management Officer would coordinate and provide training to in-house staff with use of DEC training modules.
VI.E.5	Update procedures to inspect and maintain post construction SMPs (identifying individuals, utilize inspection form, conduct follow up inspections, referral to higher level inspection)	2 years from effective date	Update/develop procedures to inspect and maintain post construction SMPs to include date of inspection, inspection results, corrective actions and dates, date of next inspection if MS4 operator-owned, and corrective actions and dates if privately-owned.	Assume Town will develop procedures in written format to meet permit conditions.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP. Document inspections.	Town currently performs their own inspections and completes their own inspection reports. Include allowance for outside assistance as needed - budget \$1,000/yr.
<b>PART VI - MCM6 POLLUTION PREVENTION &amp; GOOD HOUSEKEEPING</b>				
VI.F.1	Assess all municipal facilities and operations within the regulated area and update/develop written procedures or develop SWPPPs where required for facilities with high priority activities	3 years from effective date	Use Municipal Facility/Operation Assessment form to document the assessments of all municipal facilities	Only one municipal facility is located within the regulated area. Both the Highway Garage and Transfer Station are located outside the regulated area. Assume no SWPPPs are needed. Budget \$3,500 to inspect and assess municipal facility and operations within the regulated area and develop any needed written operation & maintenance procedures for municipal activities and facilities.
VI.F.2	Document and Implement required BMPs in VI.F.2. to minimize pollutants from municipal operations and facilities.	3 years from effective date	Minimize exposure of materials to rain, snow, snowmelt, and runoff; implement a preventative maintenance program; spill prevention and response; stabilize exposed soils; maintain vegetated areas; minimize exposure of deicing materials; eliminate non-stormwater discharges; ensure that waste is not discharged to the MS4; minimize generation of dust; require third parties to comply.	Cost included in VI.F.1
VI.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	Assume Town Forces to complete required inspections and maintenance.
VI.F.2	Update employee training program on proper procedures, specific control measures and documentation requirements.	1.5 years from effective date, annually after	Provide training to all employees who work in areas exposed to stormwater and all employees responsible for activities necessary to meet conditions of the permit. Ensure all requirements in sections a to q are being fulfilled.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.F.3.a	Develop inventory of municipal facilities.	1 year from effective date	Develop inventory of all municipal facilities.	Town to develop inventory of municipal facilities. Only one facility located within the regulated area.
VI.F.3.a	Review inventory of municipal facilities and update as necessary	Annually	Review inventory and update as necessary	Town Forces
VI.F.3.c	Develop facility specific SWPPPs for facilities classified as high priority based on activities occurring at the site.	3 years from effective date	Develop SWPPPs for high priority facilities located in regulated areas as required based on activities occurring at the site. Document BMP information identified in Part VI.F.3.d in each facility SWPPP.	Cost Included Under VI.F.1
VI.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part VI.F.3.e	The Town does not appear to have any High Priority Facilities within the regulated area.
VI.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part VI.F.e.i for required outfalls	Need to assess whether there are outfalls discharging stormwater from these potential pollutant generating areas within the Town's regulated area. Assume number of outfalls would be minimal, if any, and that Town Forces would take the lead with screening and sampling.
VI.F.3.f	Develop procedures for Low Priority Facilities (identify individual(s) responsible, identify activities occurring, identify applicable BMPs for activities conducted, assessment)	1 year from effective date	Develop written procedures outlining BMPs for low priority facilities based on activities at the site.	Cost included in Item VI.F.1.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.F.4	Train individual(s) responsible for catch basin clean out	1 year from effective date	Ensure individuals responsible for catch basin clean out are trained on proper handling and disposal procedures for materials removed and signs/evidence of suspect illicit discharges.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.F.4.a.i	Develop procedures for catch basin inspection/maintenance (identify priority areas, establish frequency, log, disposal practices, evaluation of results)	2 years from effective date	Document and implement a plan so catch basins are cleaned when necessary and the required information is documented when cleaning. Develop a priority assessment for catch basin maintenance. The Town has already begun development of required procedures.	Budget \$3,500 to obtain outside assistance in developing required municipal operation and maintenance procedures.
VI.F.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned and total mass or volume of debris removed with the annual report.	Annually	The Town currently inspects 50 catch basins per year and cleans about 25-30 catch basins a year. The permit requires initial inspection of all catch basins within regulated areas within 3 years of permit effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	\$5,480 (Reflects 2020 budget.) Assume 2% annual increase in catch basin cleaning costs. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.i	Develop street sweeping procedures	2 years from effective date	Develop and implement procedures for sweeping and/or cleaning municipal streets, parking lots, or other paved areas at municipal facilities.	Cost included in VI.F.4.a.i.
VI.F.4.b.i	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VI.F.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and therefore must be swept at least twice per year. Report number of lane miles cleaned or volume or mass of material removed annually to DEC.	\$11,630 (Reflects 2020 budget - some sweeping is contracted out, and other sweeping is performed in-house.) Assume 2% annual increase in street sweeping costs. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.ii	Develop and implments BMPs for road and right of way maintenance and repairs	2 years from effective date	Implement BMPs for road and parking lot maintenance including pothole repairs, pavement marking, sealing, and re-paving	Cost included in VI.F.4.a.i.
VI.F.4.b.iii	Develop and implement BMPs for winter road maintenance	2 years from effective date	Implement specific winter road maintenance BMPS in Part VI.F.4.iii	Cost included in VI.F.4.a.i.
VI.F.4.b.iv	Develop and implement procedures for bridge maintenance and repairs	2 years from effective date	Implement procedures for bridge maintainence specified in Part VI.F.4.iv	Cost included in VI.F.4.a.i.
VI.F.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance during construction	Cost included under VI.D.6, VI.D.7 and VI.D.8.

Notes: Assuming continued participation by New Scotland in the Albany County Stormwater Coalition, items highlighted in green include those areas where the Town could potentially receive coalition support.

Planning Level Estimate for 5-Year Permit Compliance: **\$78,500**

Planning Level Estimate for Year 1: **\$16,000**  
 Planning Level Estimate for Year 2: **\$19,000**  
 Planning Level Estimate for Year 3: **\$19,500**  
 Planning Level Estimate for Year 4: **\$11,000**  
 Planning Level Estimate for Year 5: **\$13,000**

Year 1 MS4 Permit Compliance

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 1 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART II - OBTAINING PERMIT COVERAGE</b>				
II	Submit NOI to Continue Coverage	30 days from permit effective date	Submit NOI to NYS DEC	\$2,500
<b>PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS</b>				
IV.A	Update written Stormwater Management Program (SWMP)	As Necessary	Continue to fully implement existing SWMP developed under the 2003 MS4 Permit. Update the SWMP annually as new requirements are met in accordance with the timeframes set forth in Appendix C.	\$3,500 Annually
IV.A.1	Maintain copy of SWMP, make available to the public	1 year from effective date	Make SWMP readily available to Town staff responsible for implementation, as well as DEC and EPA. Make copies of the SWMP available to the public at Town Hall and/or on Town website. SWMP is currently available on Albany County Stormwater Coalition Website. Keep SWMP current and include outreach and public participation materials.	Town Forces
IV.B	Designate a Stormwater Management Plan Coordinator	30 days from effective date	Designate in writing a SWMP coordinator to oversee coordination and implementation of the SWMP. Jeremy Cramer is the Town's current Stormwater Management Officer.	Town Forces
IV.B	Provide SWMP Coordinator with 4 hours of Department endorsed training in stormwater management and the permit requirements.	1 year from effective date	Ensure stormwater coordinator receives proper training	Budget \$500 for Stormwater Coordinator to attend training session.
IV.B	Update agreements with 3rd party contractors, coalitions or other entities where resources are shared.	1 year from effective date	Document any agreement made with 3rd party contractors, other MS4 operators, coalition of MS4 operators, or other public entities assisting with the SWMP.	Renew Agreement with Albany County Stormwater Coalition
IV.B	Develop staffing plan/organizational chart	6 months from effective date	Develop written staffing plan that identifies individuals and their roles and responsibilities	To be developed by Town Forces
IV.C	Update MS4 Features Map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Assume \$500 per year for any other needed mapping updates to reflect new construction within the Town's urbanized area.
IV.F	Develop system to track instances of non-compliance	1 year from effective date	Develop system to track enforcement in accordance with the Enforcement Response Plan. Minimum requirements for tracking of non-compliance can be found in Part IV.F.2.	\$1,500
<b>PART V - PROGRAM EVALUATION, RECORDKEEPING, REPORTING AND CERTIFICATION</b>				
V.A	Evaluate compliance with terms of the permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	Cost included in item V.C
V.B	MS4 must keep records for >5yrs	Continuous	Maintain annual MS4 stormwater reports	Town Forces
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period, Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	\$2,500/yr
<b>PART VI - MCM1 PUBLIC EDUCATION &amp; OUTREACH</b>				
VI.A	Public Education Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VI.A.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	Allocate \$500/yr to meet MS4 public education requirements.
VI.A.2	Deliver educational message to each of the target audiences listed in Part VI.A.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media.	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	Cost included under VI.A.
<b>PART VI - MCM2 PUBLIC INVOLVEMENT &amp; PARTICIPATION</b>				
VI.B.1.a	Provide at least one of the opportunities identified in Part VI.B.1.a to involve the public in the review, development and implementation of the SWMP.	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	Allocate \$500 per year to meet public involvement requirements.
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media.	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 1 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Town to identify local point of contact.
V.I.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to the public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Town Forces
VI.B.2.b	Provide public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Town Forces
PART VI - MCM3 ILLICIT DISCHARGE DETECTION & ELIMINATION				
VI.C.1	Adopt regulatory mechanism providing legal authority to prohibit/investigate/eliminate illicit discharges	Should have been completed under 2003 permit.	"Illicit Discharge 2007 Local Law 4" establishes legal authority to prohibit/investigate/eliminate illicit discharges.	-
VI.C.2	Provide public education on illicit discharges.	1 year from effective date	Educate employees, businesses, and public on illicit discharges.	Budget \$500 to assist with training efforts. Assume Town's Stormwater Management Officer would coordinate and provide training/public education through various means.
VI.C.3	Establish a hotline & system to track complaints on illicit discharges	6 months from effective date	Create hotline and publish on Town website.	Town to implement using Town staff
VI.C.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls per year)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	Within 30 days	Re-inspect outfalls and sample as needed	Town Forces
VI.C.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	The Town only has 9 regulated outfalls. Assuming evidence of illicit discharges, track down procedures would have to be initiated on a case by case basis.
VI.C.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
VI.D.3	Educate all municipal staff involved in the review of SWPPPs, inspections and related enforcement.	1 year from effective date	Provide Construction Program education and outreach.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.D.5	Prioritize construction sites	1 year from effective date	Assess risks of water quality impacts and identify high priority construction sites for inspection using Table 4 in Part VI.D.5	Town Forces
VI.D.6	Update SWPPP review procedures (utilize form for new projects) for erosion sediment control and post-construction review	1 year from effective date	Update SWPPP review procedures	Assume Town Forces to update existing SWPPP procedures.
VI.D.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VI.D.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form.	Budget \$1,000 per year for outside assistance with reviews as needed. Assume most reviews will be performed in-house with limited outside assistance from third parties as needed.
VI.D.7	Establish procedures for pre-construction inspection/meeting	6 months from effective date	Establish procedures to ensure compliance with section VI.D.7 of permit	Town Forces



NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 1 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.D.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Town Forces
VI.D.8	Update construction inspection procedures (identify individual(s) responsible for inspections, inspection frequencies, documentation, close out)	1 year from effective date	Update written construction inspection procedures	Town Forces
VI.D.8	Inspect all sites with construction activity at the frequencies stated in Part VI.D.8.b	As Necessary	Conduct and document inspections of construction sites	Dependent on the number of construction sites designated as high and low priority within a given year. Budget \$1,500 per year for outside assistance with inspections. Town generally performs all construction inspections in-house. For larger sites over 5 acres, Town may obtain assistance from a 3rd party. Town may need additional assistance due to increased inspection frequency required by the permit.
VI.D.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Cost included in Item VI.D.8.
VI.D.10	Update tracking system for inspections and complaints	6 months from effective date	Receive, follow up, and track complaints regarding construction site stormwater runoff.	Town Forces
<b>PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT</b>				
VI.E.4	Incorporate items included under Section VI.E.4. as part of SWPPP review procedures developed under VI.D.6.	1 year from effective date	Incorporate items listed which pertain to review of post-construction SMPs.	Cost included under VI.D.6.
VI.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP. Document inspections.	Town currently performs their own inspections and completes their own inspection reports. Include allowance for outside assistance as needed - budget \$1,000/yr.
<b>PART VI - MCM6 POLLUTION PREVENTION &amp; GOOD HOUSEKEEPING</b>				
VI.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	Assume Town Forces to complete required inspections and maintenance.
VI.F.3.a	Develop inventory of municipal facilities.	1 year from effective date	Develop inventory of all municipal facilities.	Town to develop inventory of municipal facilities. Only one facility located within the regulated area.
VI.F.3.a	Review inventory of municipal facilities and update as necessary	Annually	Review inventory and update as necessary	Town Forces
VI.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part VI.F.3.e	The Town does not appear to have any High Priority Facilities within the regulated area.
VI.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part VI.F.3.e for required outfalls	Need to assess whether there are outfalls discharging stormwater from these potential pollutant generating areas within the Town's regulated area. Assume number of outfalls would be minimal, if any, and that Town Forces would take the lead with screening and sampling.
VI.F.3.f	Develop procedures for Low Priority Facilities (identify individual(s) responsible, identify activities occurring, identify applicable BMPs for activities conducted, assessment)	1 year from effective date	Develop written procedures outlining BMPs for low priority facilities based on activities at the site.	Cost included in Item VI.F.1.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 1 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.F.4	Train individual(s) responsible for catch basin clean out	1 year from effective date	Ensure individuals responsible for catch basin clean out are trained on proper handling and disposal procedures for materials removed and signs/evidence of suspect illicit discharges.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.F.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned and total mass or volume of debris removed with the annual report.	Annually	The Town currently inspects 50 catch basins per year and cleans about 25-30 catch basins a year. The permit requires initial inspection of all catch basins within regulated areas within 3 years of permit effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	\$5,480 (Reflects 2020 budget.) Assume 2% annual increase in catch basin cleaning costs. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vactor truck, assume any additional cleaning can be performed using in-house staff and equipment. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.i	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VI.F.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and therefore must be swept at least twice per year. Report number of lane miles cleaned or volume or mass of material removed annually to DEC.	\$11,630 (Reflects 2020 budget - some sweeping is contracted out, and other sweeping is performed in-house.) Assume 2% annual increase in street sweeping costs. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance during construction	Cost included under VI.D.6, VI.D.7 and VI.D.8.

Notes: Assuming continued participation by New Scotland in the Albany County Stormwater Coalition, items highlighted in green include those areas where the Town could potentially receive coalition support.

Planning Level Estimate for Year 1 Permit Compliance: **\$16,000**

## Year 2 MS4 Permit Compliance

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 2 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS</b>				
IV.A	Update written Stormwater Management Program (SWMP)	As Necessary	Continue to fully implement existing SWMP developed under the 2003 MS4 Permit. Update the SWMP annually as new requirements are met in accordance with the timeframes set forth in Appendix C.	\$3,500 Annually
IV.C	Update MS4 Features Map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Assume \$500 per year for any other needed mapping updates to reflect new construction within the Town's urbanized area.
IV.E	Update or develop adequate legal authority to control pollutants into and from the small MS4	1.5 years from effective date	Ensure adequate legal authority to control pollutants into and from the small MS4 in the Stormwater Management Local Law 3	Budget \$3,500 for regulatory review and update as needed.
<b>PART V - PROGRAM EVALUATION, RECORDKEEPING, REPORTING AND CERTIFICATION</b>				
V.A	Evaluate compliance with terms of the permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	Cost included in item V.C
V.B	MS4 must keep records for >5yrs	Continuous	Maintain annual MS4 stormwater reports	Town Forces
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period, Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	\$2,500/yr
<b>PART VI - MCM1 PUBLIC EDUCATION &amp; OUTREACH</b>				
VI.A	Public Education Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VI.A.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	Allocate \$500/yr to meet MS4 public education requirements.
VI.A.2	Deliver educational message to each of the target audiences listed in Part VI.A.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media.	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	Cost included under VI.A.
<b>PART VI - MCM2 PUBLIC INVOLVEMENT &amp; PARTICIPATION</b>				
VI.B.1.a	Provide at least one of the opportunities identified in Part VI.B.1.a to involve the public in the review, development and implementation of the SWMP.	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	Allocate \$500 per year to meet public involvement requirements.
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media.	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Town to identify local point of contact.
VI.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to the public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Town Forces
VI.B.2.b	Provide public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Town Forces
<b>PART VI - MCM3 ILLICIT DISCHARGE DETECTION &amp; ELIMINATION</b>				
VI.C.4	Develop system for tracking outfall inspections and analyzing data	1.5 years from effective date	Develop system for collecting, organizing and analyzing outfall inspection data.	Budget \$500.
VI.C.4.b	Ensure that responsible staff are trained on performing outfall inspections.	1.5 years from effective date	Train employees about the IDDE Program including how to recognize illicit discharges and how to conduct outfall inspections.	Town Forces - In conjunction with Item VI.C.2.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 2 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.C.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls per year)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	Within 30 days	Re-inspect outfalls and sample as needed	Town Forces
VI.C.5	Develop track down procedures (identifying individuals responsible for track down, procedures to meet Chapter 13 of IDDE Guidance, time frames to act, referral for elimination)	2 years from effective date	Develop written track down procedures for illicit discharges	Cost included under Item VI.C.4.
VI.C.6	Update procedures for elimination (identifying individuals responsible for contacting responsible party, time frames to act, escalating enforcement, confirm corrective action, tracking progress)	2 years from effective date	Develop and implement written Illicit Discharge Elimination Program procedures specifying the requirements in Part VI.C.6	Cost included under Item VI.C.4.
VI.C.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	The Town only has 9 regulated outfalls. Assuming evidence of illicit discharges, track down procedures would have to be initiated on a case by case basis.
VI.C.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
VI.D.2	Update or develop adequate legal authority to ensure that applicable construction activities are effectively controlled.	1.5 years from effective date	Stormwater Management 2007 Local Law 3 Section 2.2.3 currently requires erosion and sediment controls during construction. Review existing regulatory requirements and update as needed to ensure full compliance with permit conditions outlined in Section VI.D.2.a.	Cost included under IV.E. for regulatory review.
VI.D.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VI.D.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form.	Budget \$1,000 per year for outside assistance with reviews as needed. Assume most reviews will be performed in-house with limited outside assistance from third parties as needed.
VI.D.6	Train SWPPP reviewers in four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District or other endorsed entity	1.5 years from effective date	Ensure training for individuals responsible for SWPPP review to include 2 hours of Department endorsed SWPPP review training and 4 hours of Department endorsed training in proper erosion and sediment control principles.	Budget \$500 for required training.
VI.D.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Town Forces
VI.D.8	Train construction site inspectors	1.5 years from effective date	Ensure MS4 inspectors receive required training	Assume Town's Stormwater Management Officer would coordinate and provide training to in-house staff.
VI.D.8	Inspect all sites with construction activity at the frequencies stated in Part VI.D.8.b	As Necessary	Conduct and document inspections of construction sites	Dependent on the number of construction sites designated as high and low priority within a given year. Budget \$1,500 per year for outside assistance with inspections. Town generally performs all construction inspections in-house. For larger sites over 5 acres, Town may obtain assistance from a 3rd party. Town may need additional assistance due to increased inspection frequency required by the permit.
VI.D.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Cost included in Item VI.D.8.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 2 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT</b>				
VI.E.2	Update the local law and certify that it is equivalent to the new model law	1.5 years from effective date	Stormwater Management 2007 Local Law 3 Section 2.2.3 provides requirements for post-construction SMPs. Review existing regulatory requirements and update as needed to ensure full compliance with Section VI.E.2 of the Permit.	Cost included under IV.E. for regulatory review.
VI.E.5	Train individuals responsible for inspection and maintenance	1.5 years from effective date	Ensure training for individuals responsible for inspection and maintenance	Assume Town's Stormwater Management Officer would coordinate and provide training to in-house staff with use of DEC training modules.
VI.E.5	Update procedures to inspect and maintain post construction SMPs (identifying individuals, utilize inspection form, conduct follow up inspections, referral to higher level inspection)	2 years from effective date	Update/develop procedures to inspect and maintain post construction SMPs to include date of inspection, inspection results, corrective actions and dates, date of next inspection if MS4 operator-owned, and corrective actions and dates if privately-owned.	Assume Town will develop procedures in written format to meet permit conditions.
VI.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP. Document inspections.	Town currently performs their own inspections and completes their own inspection reports. Include allowance for outside assistance as needed - budget \$1,000/yr.
<b>PART VI - MCM6 POLLUTION PREVENTION &amp; GOOD HOUSEKEEPING</b>				
VI.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	Assume Town Forces to complete required inspections and maintenance.
VI.F.2	Update employee training program on proper procedures, specific control measures and documentation requirements.	1.5 years from effective date, annually after	Provide training to all employees who work in areas exposed to stormwater and all employees responsible for activities necessary to meet conditions of the permit. Ensure all requirements in sections a to q are being fulfilled.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.F.3.a	Review inventory of municipal facilities and update as necessary	Annually	Review inventory and update as necessary	Town Forces
VI.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part VI.F.3.e	The Town does not appear to have any High Priority Facilities within the regulated area.
VI.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part VI.F.e.i for required outfalls	Need to assess whether there are outfalls discharging stormwater from these potential pollutant generating areas within the Town's regulated area. Assume number of outfalls would be minimal, if any, and that Town Forces would take the lead with screening and sampling.
VI.F.4.a.i	Develop procedures for catch basin inspection/maintenance (identify priority areas, establish frequency, log, disposal practices, evaluation of results)	2 years from effective date	Document and implement a plan so catch basins are cleaned when necessary and the required information is documented when cleaning. Develop a priority assessment for catch basin maintenance. The Town has already begun development of required procedures.	Budget \$3,500 to obtain outside assistance in developing required municipal operation and maintenance procedures.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 2 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.F.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned and total mass or volume of debris removed with the annual report.	Annually	The Town currently inspects 50 catch basins per year and cleans about 25-30 catch basins a year. The permit requires initial inspection of all catch basins within regulated areas within 3 years of permit effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	\$5,480 (Reflects 2020 budget.) Assume 2% annual increase in catch basin cleaning costs. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.i	Develop street sweeping procedures	2 years from effective date	Develop and implement procedures for sweeping and/or cleaning municipal streets, parking lots, or other paved areas at municipal facilities.	Cost included in VI.F.4.a.i.
VI.F.4.b.i	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VI.F.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and therefore must be swept at least twice per year. Report number of lane miles cleaned or volume or mass of material removed annually to DEC.	\$11,630 (Reflects 2020 budget - some sweeping is contracted out, and other sweeping is performed in-house.) Assume 2% annual increase in street sweeping costs. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.ii	Develop and implements BMPs for road and right of way maintenance and repairs	2 years from effective date	Implement BMPs for road and parking lot maintenance including pothole repairs, pavement marking, sealing, and re-paving	Cost included in VI.F.4.a.i.
VI.F.4.b.iii	Develop and implement BMPs for winter road maintenance	2 years from effective date	Implement specific winter road maintenance BMPS in Part VI.F.4.iii	Cost included in VI.F.4.a.i.
VI.F.4.b.iv	Develop and implement procedures for bridge maintenance and repairs	2 years from effective date	Implement procedures for bridge maintenance specified in Part VI.F.4.iv	Cost included in VI.F.4.a.i.
VI.F.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance during construction	Cost included under VI.D.6, VI.D.7 and VI.D.8.

Notes: Assuming continued participation by New Scotland in the Albany County Stormwater Coalition, items highlighted in green include those areas where the Town could potentially receive coalition support.

Planning Level Estimate for Year 2 Permit Compliance: **\$19,000**

## Year 3 MS4 Permit Compliance



NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 3 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS</b>				
IV.A	Update written Stormwater Management Program (SWMP)	As Necessary	Continue to fully implement existing SWMP developed under the 2003 MS4 Permit. Update the SWMP annually as new requirements are met in accordance with the timeframes set forth in Appendix C.	\$3,500 Annually
IV.C	Develop and maintain a map showing MS4 features to use as planning tool for prioritization of efforts and facilitate management decisions - implement Phase 1 mapping requirements	3 years from effective date	Update map to show location of entire small MS4 system within regulated areas. The Town has a fairly comprehensive map in place, which will require some updating during the permit term. Phase 1 mapping requirements include mapping of outfalls, areas of concern, municipally-owned post construction stormwater management practices, and municipal facilities.	Budget \$1,000 - Based on work completed to date with coalition assistance, existing mapping of drainage in the urbanized area is fairly extensive. Assume only minimal mapping updates needed.
IV.C	Update MS4 Features Map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Assume \$500 per year for any other needed mapping updates to reflect new construction within the Town's urbanized area.
IV.F	Develop Enforcement Response Plan	3 years from effective date	Develop Enforcement Response Plan which describes actions to be taken for violations of local laws for illicit discharge, construction and post-construction.	\$2,500
<b>PART V - PROGRAM EVALUATION, RECORDKEEPING, REPORTING AND CERTIFICATION</b>				
V.A	Evaluate compliance with terms of the permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	Cost included in item V.C
V.B	MS4 must keep records for >5yrs	Continuous	Maintain annual MS4 stormwater reports	Town Forces
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period, Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	\$2,500/yr
<b>PART VI - MCM1 PUBLIC EDUCATION &amp; OUTREACH</b>				
VI.A	Public Education Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VI.A.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	Allocate \$500/yr to meet MS4 public education requirements.
VI.A.2	Deliver educational message to each of the target audiences listed in Part VI.A.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media.	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	Cost included under VI.A.
<b>PART VI - MCM2 PUBLIC INVOLVEMENT &amp; PARTICIPATION</b>				
VI.B.1.a	Provide at least one of the opportunities identified in Part VI.B.1.a to involve the public in the review, development and implementation of the SWMP.	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	Allocate \$500 per year to meet public involvement requirements.
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media.	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Town to identify local point of contact.
V.I.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to the public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Town Forces
VI.B.2.b	Provide public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Town Forces

## NEW SCOTLAND, NY

## MS4 GENERAL PERMIT REVIEW - YEAR 3 PERMIT REQUIREMENTS

Breakdown of Permit Requirements &amp; Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
PART VI - MCM3 ILLICIT DISCHARGE DETECTION & ELIMINATION				
VI.C.4	Develop outfall inspection procedures (identify individuals responsible for inspections, procedures for recording information as part of outfall inspections, procedures for sampling flowing outfalls, re-inspection of outfalls)	3 years from effective date	Develop outfall inspection procedures for employees to follow.	Budget \$1,500.
VI.C.4	Create a priority list of outfalls and update annually. Identify High and Low Priority Outfalls.	3 years from effective date	Develop inventory of outfalls and prioritize based on inspections. Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high quality waters, or complaint driven.	Town Forces
VI.C.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls per year)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	Within 30 days	Re-inspect outfalls and sample as needed	Town Forces
VI.C.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	The Town only has 9 regulated outfalls. Assuming evidence of illicit discharges, track down procedures would have to be initiated on a case by case basis.
VI.C.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
VI.D.4	Update construction site inventory to track new data elements	3 years from effective date, Update as needed	Develop and maintain written inventory of all projects with construction activities discharging into the MS4	Assume Town Forces would continue to track and collect data needed.
VI.D.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VI.D.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form.	Budget \$1,000 per year for outside assistance with reviews as needed. Assume most reviews will be performed in-house with limited outside assistance from third parties as needed.
VI.D.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Town Forces
VI.D.8	Inspect all sites with construction activity at the frequencies stated in Part VI.D.8.b	As Necessary	Conduct and document inspections of construction sites	Dependent on the number of construction sites designated as high and low priority within a given year. Budget \$1,500 per year for outside assistance with inspections. Town generally performs all construction inspections in-house. For larger sites over 5 acres, Town may obtain assistance from a 3rd party. Town may need additional assistance due to increased inspection frequency required by the permit.
VI.D.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Cost included in Item VI.D.8.
PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT				
VI.E.3	Update Post Construction SMP inventory to track all required elements (identify frequency for inspection based on the O&M manual or DEC design manual)	3 years from effective date, Update as needed	Develop and maintain written inventory of post construction SMPs that include type of stormwater management practice, date of installation, reason for the stormwater management practice, and location of discharge.	To Be Implemented and Maintained by Town Forces

## NEW SCOTLAND, NY

## MS4 GENERAL PERMIT REVIEW - YEAR 3 PERMIT REQUIREMENTS

Breakdown of Permit Requirements &amp; Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP. Document inspections.	Town currently performs their own inspections and completes their own inspection reports. Include allowance for outside assistance as needed - budget \$1,000/yr.
<b>PART VI - MCM6 POLLUTION PREVENTION &amp; GOOD HOUSEKEEPING</b>				
VI.F.1	Assess all municipal facilities and operations within the regulated area and update/develop written procedures or develop SWPPPs where required for facilities with high priority activities	3 years from effective date	Use Municipal Facility/Operation Assessment form to document the assessments of all municipal facilities	Only one municipal facility is located within the regulated area. Both the Highway Garage and Transfer Station are located outside the regulated area. Assume no SWPPPs are needed. Budget \$3,500 to inspect and assess municipal facility and operations within the regulated area and develop any needed written operation & maintenance procedures for municipal activities and facilities.
VI.F.2	Document and Implement required BMPs in VI.F.2. to minimize pollutants from municipal operations and facilities.	3 years from effective date	Minimize exposure of materials to rain, snow, snowmelt, and runoff; implement a preventative maintenance program; spill prevention and response; stabilize exposed soils; maintain vegetated areas; minimize exposure of deicing materials; eliminate non-stormwater discharges; ensure that waste is not discharged to the MS4; minimize generation of dust; require third parties to comply.	Cost included in VI.F.1 to develop procedures. Town to implement BMPs.
VI.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	Assume Town Forces to complete required inspections and maintenance.
VI.F.2	Update employee training program on proper procedures, specific control measures and documentation requirements.	1.5 years from effective date, annually after	Provide training to all employees who work in areas exposed to stormwater and all employees responsible for activities necessary to meet conditions of the permit. Ensure all requirements in sections a to q are being fulfilled.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.F.3.a	Develop inventory of municipal facilities.	1 year from effective date	Develop inventory of all municipal facilities.	Town to develop inventory of municipal facilities. Only one facility located within the regulated area.
VI.F.3.a	Review inventory of municipal facilities and update as necessary	Annually	Review inventory and update as necessary	Town Forces
VI.F.3.c	Develop facility specific SWPPPs for facilities classified as high priority based on activities occurring at the site.	3 years from effective date	Develop SWPPPs for high priority facilities located in regulated areas as required based on activities occurring at the site. Document BMP information identified in Part VI.F.3.d in each facility SWPPP.	Cost Included Under VI.F.1
VI.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part VI.F.3.e	The Town does not appear to have any High Priority Facilities within the regulated area.
VI.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part VI.F.e.i for required outfalls	Need to assess whether there are outfalls discharging stormwater from these potential pollutant generating areas within the Town's regulated area. Assume number of outfalls would be minimal, if any, and that Town Forces would take the lead with screening and sampling.
VI.F.3.f	Develop procedures for Low Priority Facilities (identify individual(s) responsible, identify activities occurring, identify applicable BMPs for activities conducted, assessment)	1 year from effective date	Develop written procedures outlining BMPs for low priority facilities based on activities at the site.	Cost included in Item VI.F.1.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 3 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.F.4	Train individual(s) responsible for catch basin clean out	1 year from effective date	Ensure individuals responsible for catch basin clean out are trained on proper handling and disposal procedures for materials removed and signs/evidence of suspect illicit discharges.	Assume Town's Stormwater Management Officer would coordinate and provide training to staff.
VI.F.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned and total mass or volume of debris removed with the annual report.	Annually	The Town currently inspects 50 catch basins per year and cleans about 25-30 catch basins a year. The permit requires initial inspection of all catch basins within regulated areas within 3 years of permit effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	\$5,480 (Reflects 2020 budget.) Assume 2% annual increase in catch basin cleaning costs. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.i	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VI.F.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and therefore must be swept at least twice per year. Report number of lane miles cleaned or volume or mass of material removed annually to DEC.	\$11,630 (Reflects 2020 budget - some sweeping is contracted out, and other sweeping is performed in-house.) Assume 2% annual increase in street sweeping costs. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance during construction	Cost included under VI.D.6, VI.D.7 and VI.D.8.

Notes: Assuming continued participation by New Scotland in the Albany County Stormwater Coalition, items highlighted in green include those areas where the Town could potentially receive coalition support.

Planning Level Estimate for Year 3 Permit Compliance: **\$19,500**

## Year 4 MS4 Permit Compliance

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 4 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS</b>				
IV.A	Update written Stormwater Management Program (SWMP)	As Necessary	Continue to fully implement existing SWMP developed under the 2003 MS4 Permit. Update the SWMP annually as new requirements are met in accordance with the timeframes set forth in Appendix C.	\$3,500 Annually
IV.C	Update MS4 Features Map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Assume \$500 per year for any other needed mapping updates to reflect new construction within the Town's urbanized area.
<b>PART V - PROGRAM EVALUATION, RECORDKEEPING, REPORTING AND CERTIFICATION</b>				
V.A	Evaluate compliance with terms of the permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	Cost included in item V.C
V.B	MS4 must keep records for >5yrs	Continuous	Maintain annual MS4 stormwater reports	Town Forces
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period, Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	\$2,500/yr
<b>PART VI - MCM1 PUBLIC EDUCATION &amp; OUTREACH</b>				
VI.A	Public Education Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VI.A.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	Allocate \$500/yr to meet MS4 public education requirements.
VI.A.2	Deliver educational message to each of the target audiences listed in Part VI.A.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media.	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	Cost included under VI.A.
<b>PART VI - MCM2 PUBLIC INVOLVEMENT &amp; PARTICIPATION</b>				
VI.B.1.a	Provide at least one of the opportunities identified in Part VI.B.1.a to involve the public in the review, development and implementation of the SWMP.	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	Allocate \$500 per year to meet public involvement requirements.
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media.	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Town to identify local point of contact.
VI.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to the public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Town Forces
VI.B.2.b	Provide public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Town Forces
<b>PART VI - MCM3 ILLICIT DISCHARGE DETECTION &amp; ELIMINATION</b>				
VI.C.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls per year)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	Within 30 days	Re-inspect outfalls and sample as needed	Town Forces

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 4 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.C.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	The Town only has 9 regulated outfalls. Assuming evidence of illicit discharges, track down procedures would have to be initiated on a case by case basis.
VI.C.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
VI.D.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VI.D.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form.	Budget \$1,000 per year for outside assistance with reviews as needed. Assume most reviews will be performed in-house with limited outside assistance from third parties as needed.
VI.D.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Town Forces
VI.D.8	Inspect all sites with construction activity at the frequencies stated in Part VI.D.8.b	As Necessary	Conduct and document inspections of construction sites	Dependent on the number of construction sites designated as high and low priority within a given year. Budget \$1,500 per year for outside assistance with inspections. Town generally performs all construction inspections in-house. For larger sites over 5 acres, Town may obtain assistance from a 3rd party. Town may need additional assistance due to increased inspection frequency required by the permit.
VI.D.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Cost included in Item VI.D.8.
PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT				
VI.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP. Document inspections.	Town currently performs their own inspections and completes their own inspection reports. Include allowance for outside assistance as needed - budget \$1,000/yr.
PART VI - MCM6 POLLUTION PREVENTION & GOOD HOUSEKEEPING				
VI.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	Assume Town Forces to complete required inspections and maintenance.
VI.F.3.a	Review inventory of municipal facilities and update as necessary	Annually	Review inventory and update as necessary	Town Forces
VI.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part VI.F.3.e	The Town does not appear to have any High Priority Facilities within the regulated area.
VI.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part VI.F.e.i for required outfalls	Need to assess whether there are outfalls discharging stormwater from these potential pollutant generating areas within the Town's regulated area. Assume number of outfalls would be minimal, if any, and that Town Forces would take the lead with screening and sampling.

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 4 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.F.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned and total mass or volume of debris removed with the annual report.	Annually	The Town currently inspects 50 catch basins per year and cleans about 25-30 catch basins a year. The permit requires initial inspection of all catch basins within regulated areas within 3 years of permit effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	\$5,480 (Reflects 2020 budget.) Assume 2% annual increase in catch basin cleaning costs. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.i	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VI.F.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and therefore must be swept at least twice per year. Report number of lane miles cleaned or volume or mass of material removed annually to DEC.	\$11,630 (Reflects 2020 budget - some sweeping is contracted out, and other sweeping is performed in-house.) Assume 2% annual increase in street sweeping costs. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance during construction	Cost included under VI.D.6, VI.D.7 and VI.D.8.

Notes: Assuming continued participation by New Scotland in the Albany County Stormwater Coalition, items highlighted in green include those areas where the Town could potentially receive coalition support.

Planning Level Estimate for Year 4 Permit Compliance: **\$11,000**



## Year 5 MS4 Permit Compliance

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 5 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
<b>PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS</b>				
IV.A	Update written Stormwater Management Program (SWMP)	As Necessary	Continue to fully implement existing SWMP developed under the 2003 MS4 Permit. Update the SWMP annually as new requirements are met in accordance with the timeframes set forth in Appendix C.	\$3,500 Annually
IV.C	Implement Phase 2 mapping requirements	5 years from effective date	Phase 2 mapping requirements include MS4 infrastructure including closed pipe and open drainage; catch basins, drop inlets and manholes along with structure description; and privately-owned post-construction stormwater management practices which drain to the MS4.	Budget \$1,000 - Based on work completed to date with coalition assistance, existing mapping of drainage in the urbanized area is fairly extensive. Assume only minimal mapping updates needed.
IV.C	Implement Phase 3 mapping requirements	8 years from effective date	Phase 3 mapping requirements include land area draining to the MS4 by overland flow (sewersheds) and location of interconnections.	Budget \$1,000 - Based on work completed to date with coalition assistance, existing mapping of drainage in the urbanized area is fairly extensive. Assume only minimal mapping updates needed.
IV.C	Update MS4 Features Map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Assume \$500 per year for any other needed mapping updates to reflect new construction within the Town's urbanized area.
<b>PART V - PROGRAM EVALUATION, RECORDKEEPING, REPORTING AND CERTIFICATION</b>				
V.A	Evaluate compliance with terms of the permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	Cost included in item V.C
V.B	MS4 must keep records for >5yrs	Continuous	Maintain annual MS4 stormwater reports	Town Forces
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period, Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	\$2,500/yr
<b>PART VI - MCM1 PUBLIC EDUCATION &amp; OUTREACH</b>				
VI.A	Public Education Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VI.A.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	Allocate \$500/yr to meet MS4 public education requirements.
VI.A.2	Deliver educational message to each of the target audiences listed in Part VI.A.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media.	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	Cost included under VI.A.
<b>PART VI - MCM2 PUBLIC INVOLVEMENT &amp; PARTICIPATION</b>				
VI.B.1.a	Provide at least one of the opportunities identified in Part VI.B.1.a to involve the public in the review, development and implementation of the SWMP.	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	Allocate \$500 per year to meet public involvement requirements.
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media.	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Town to identify local point of contact.
VI.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to the public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Town Forces
VI.B.2.b	Provide public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Town Forces

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 5 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
PART VI - MCM3 ILLICIT DISCHARGE DETECTION & ELIMINATION				
VI.C.4.b	Dry-weather High Priority outfall screening & sampling (inspect twice a permit term)	5 years from effective date	Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high quality waters, or complaint driven. Inspect twice per permit term, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls per year)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	The Town only also has 9 regulated outfalls. Priority status and likelihood of illicit discharge has not been determined. Due to minimal time commitment, assume inspections would be completed using in-house staff.
VI.C.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	Within 30 days	Re-inspect outfalls and sample as needed	Town Forces
VI.C.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	The Town only has 9 regulated outfalls. Assuming evidence of illicit discharges, track down procedures would have to be initiated on a case by case basis.
VI.C.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
VI.D.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VI.D.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form.	Budget \$1,000 per year for outside assistance with reviews as needed. Assume most reviews will be performed in-house with limited outside assistance from third parties as needed.
VI.D.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Town Forces
VI.D.8	Inspect all sites with construction activity at the frequencies stated in Part VI.D.8.b	As Necessary	Conduct and document inspections of construction sites	Dependent on the number of construction sites designated as high and low priority within a given year. Budget \$1,500 per year for outside assistance with inspections. Town generally performs all construction inspections in-house. For larger sites over 5 acres, Town may obtain assistance from a 3rd party. Town may need additional assistance due to increased inspection frequency required by the permit.
VI.D.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Cost included in Item VI.D.8.
PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT				
VI.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP. Document inspections.	Town currently performs their own inspections and completes their own inspection reports. Include allowance for outside assistance as needed - budget \$1,000/yr.
PART VI - MCM6 POLLUTION PREVENTION & GOOD HOUSEKEEPING				
VI.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	Assume Town Forces to complete required inspections and maintenance.
VI.F.3.a	Review inventory of municipal facilities and update as necessary	Annually	Review inventory and update as necessary	Town Forces

NEW SCOTLAND, NY

MS4 GENERAL PERMIT REVIEW - YEAR 5 PERMIT REQUIREMENTS

Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft NYDEC MS4 General Permit - with 2019 anticipated updates based on May 29, 2019 NYDEC MS4 General Permit Update Meeting)

Item No.	Requirement	Deadline	Needs Specific to New Scotland	Estimated Cost to Comply
VI.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part VI.F.3.e	The Town does not appear to have any High Priority Facilities within the regulated area.
VI.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part VI.F.e.i for required outfalls	Need to assess whether there are outfalls discharging stormwater from these potential pollutant generating areas within the Town's regulated area. Assume number of outfalls would be minimal, if any, and that Town Forces would take the lead with screening and sampling.
VI.F.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned and total mass or volume of debris removed with the annual report.	Annually	The Town currently inspects 50 catch basins per year and cleans about 25-30 catch basins a year. The permit requires initial inspection of all catch basins within regulated areas within 3 years of permit effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	\$5,480 (Reflects 2020 budget.) Assume 2% annual increase in catch basin cleaning costs. Any added costs associated with a potential increase in catch basin cleaning frequency will not be known until optimization planning is complete. If Town receives vector truck, assume any additional cleaning can be performed using in-house staff and equipment. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.b.i	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VI.F.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and therefore must be swept at least twice per year. Report number of lane miles cleaned or volume or mass of material removed annually to DEC.	\$11,630 (Reflects 2020 budget - some sweeping is contracted out, and other sweeping is performed in-house.) Assume 2% annual increase in street sweeping costs. These costs are not included in the MS4 Budget, and instead are included as part of the separate O&M cost under the 5-year stormwater budget projection.
VI.F.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance during construction	Cost included under VI.D.6, VI.D.7 and VI.D.8.

Notes: Assuming continued participation by New Scotland in the Albany County Stormwater Coalition, items highlighted in green include those areas where the Town could potentially receive coalition support.

Planning Level Estimate for Year 5 Permit Compliance: **\$13,000**

## REFERENCES

**Barton & LoGiudice, D.P.C (2018).** Albany County Multi-Jurisdictional Multi-Hazard Mitigation Plan ([http://app.albanycounty.com/docs/dpw/hmp/Hazard\\_Mitigation\\_Plan.pdf](http://app.albanycounty.com/docs/dpw/hmp/Hazard_Mitigation_Plan.pdf)).

**EPA (2005).** Stormwater Phase II Final Rule (<https://www3.epa.gov/npdes/pubs/fact1-0.pdf>)

New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) Permit No. Gp-0-17-002. ([https://www.dec.ny.gov/docs/water\\_pdf/draftms4genpmt2016.pdf](https://www.dec.ny.gov/docs/water_pdf/draftms4genpmt2016.pdf))

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**To:** John Dzialo, Senior Public Works Operations Technician/Town Designated Stormwater Coordinator, Town of Colonie; Nancy Heinzen, Program Coordinator/Coalition Director, Stormwater Coalition of Albany County

**From:** Boomi Environmental LLC; Weston & Sampson Engineers, Inc.

**Date:** March 31, 2020

**Subject:** Analysis and Development of Stormwater Program Costs for Colonie, NY to Support Potential Implementation of a Stormwater Utility

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## Introduction

Under the United States Environmental Protection Agency (USEPA's) Phase II Stormwater Rule (EPA 2005), small municipal separate stormwater sewer systems (MS4s) are required to develop a stormwater management program that reduces the amount of pollutants carried by stormwater during storm events to waterbodies to the "maximum extent practicable." The goal of the program is to improve water quality and recreational use of waterways. MS4 stormwater programs have six elements called minimum control measures (MCM) that when implemented together, are expected to result in pollutant load reductions. These goals are achievable through ongoing implementation of permit requirements, routine assessment of stormwater infrastructure needs, and the effective operation and maintenance of drainage infrastructure. In this way, flood prone areas are protected, there is adequate stormwater drainage, and water quality concerns are addressed.

Often communities are impeded by a lack of a clear fundable plan to address these needs. While many communities have capital improvement plans and funding sources in place for their water and wastewater systems, adequate time and resources have not been allocated to operating and maintaining stormwater drainage system assets. Nor is there funding in place to address extensive requirements named in the State Pollutant Discharge Elimination System (SPDES) General Permit for stormwater discharges from the Municipal Separate Storm Sewer System (MS4 Permit). For this reason, the value of having such a plan in place, as well as a funding source, has become even more apparent in recent years.

The purpose of this technical memorandum is to summarize the methodology and the information collected to support development of the Town of Colonie's 5-year stormwater budget projection. To this end, a literature review was conducted to identify general stormwater utility cost components across the U.S. Specifically, documents from US EPA (NAFSMA, 2006), routine stormwater utility surveys (Black & Veatch, 2018) and annual stormwater costs or budgets available publicly from similarly sized municipalities across the U.S. were reviewed. In addition, several cost documents were reviewed regarding operation and maintenance of stormwater technologies, illicit discharge detection and elimination (IDDE) program establishment (Brown et al., 2004), watershed protection plans, public education and training, and dry and wet weather sample collection. In instances where past national-level cost data was utilized, the Consumer Price Index (CPI) inflation calculator from the Bureau of Labor Statistics (BLS, 2019) was used to project the data to current or future costs.

Much of the Town of Colonie's existing stormwater program is currently funded through property taxes paid into the Town's General Fund. As the Town's stormwater costs are expected to rise going forward, there is a recognition that a reliable stormwater funding source may be needed to comply with the requirements of the MS4 Permit and to effectively operate and maintain the Town's drainage infrastructure. The Stormwater Coalition of Albany County retained Weston & Sampson to provide a stormwater needs assessment. Boomi, as subcontractor to Weston & Sampson, reviewed the Town's existing stormwater program, including past and current stormwater practices, as well as future stormwater programming needs. They also examined the Town's past compliance with the 2015 MS4 Permit and planned efforts to comply with the 2016 Draft MS4 General Permit (NYSDEC 2016).

In May 2019, the New York State Department of Environmental Conservation highlighted and presented to the public some additional anticipated changes to the 2016 Draft MS4 Permit. These anticipated changes were taken into consideration in analyzing the anticipated future costs for the Town to comply with the Draft MS4 Permit.

## Demographics and Drainage System Overview

The Town of Colonie has a total area of 51.14 square miles, excluding land area associated with the Village of Menands and the Village of Colonie, both of which lie within the Town of Colonie (Figure 1). Colonie has a total population of 69,812 excluding the populations associated with the Village of Menands and the Village of Colonie. Approximately 97% of the Town is located within the MS4 regulated area, but the Town extends implementation of the MS4 Permit requirements to the remaining 3% as well. Based on GIS mapping, available as of 2018, the Town's stormwater infrastructure consists of 15,296 catch basins, 665 outfalls regulated under the MS4 Permit, and 38 municipally owned facilities. Of these 38 municipally owned facilities (i.e. garages, office buildings, parks, fire stations, police stations, golf course, storage buildings),

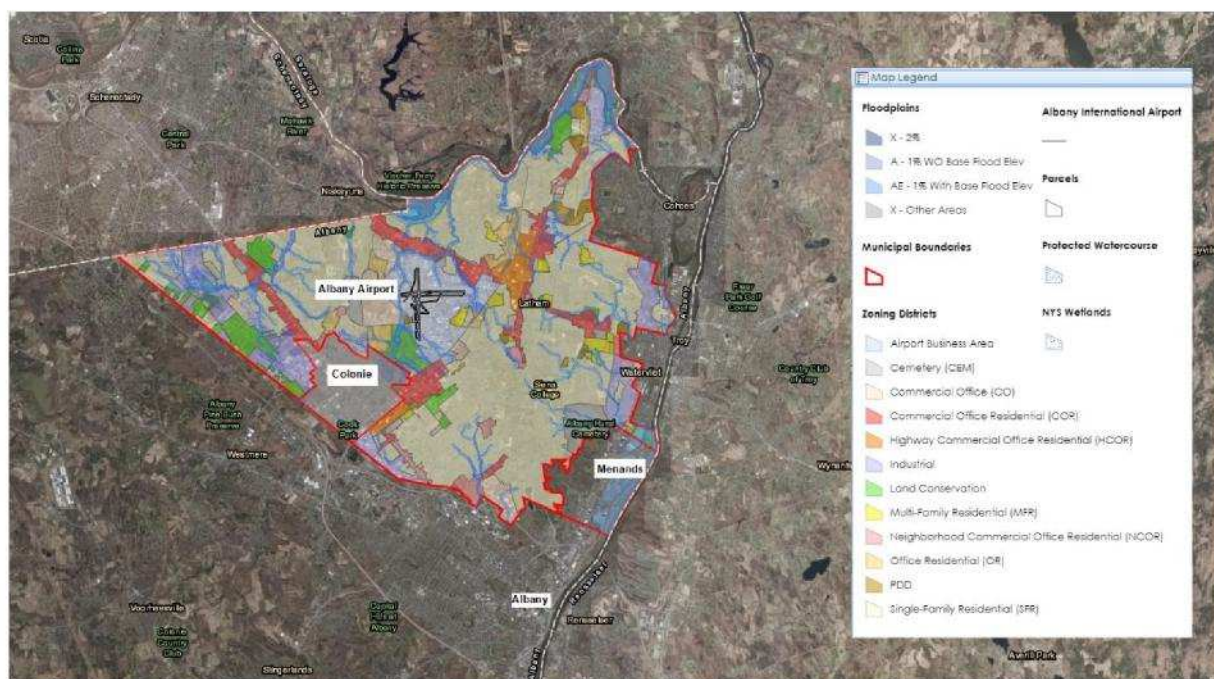


Figure 1. Location of Town of Colonie and its Geographical Features



approximately three (3) facilities, according to the Draft 2016 MS4 Permit definitions, may be categorized as high priority facilities. The remaining 35 facilities are low priority facilities. In addition to municipally owned facilities, the Town has some level of responsibility for 379 post construction stormwater management practices (i.e. storage basins, ponds, continuous deflective separation (CDS) units, porous asphalt, surface sand filters, infiltration basins, etc.). Of these, 152 post construction stormwater management practices are publicly owned and maintained by the Town. The remaining 227 practices are privately-owned and maintained, but require some oversight by Town staff as described in the MS4 Permit (i.e. map, monitor maintenance by private owners, and track down and enforcement related to failed practices). (See Attachment 4, Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate)

The Town also owns one facility regulated under the NYSDEC General Permit for Stormwater Discharges from Multi-Sector Industrial Activities. While this industrial permit is currently managed by an outside contractor, from time to time inspections have been the responsibility of Town stormwater staff.

There is one *Impaired Water Without an Approved TMDL* within a small area of Town. The impairment is phosphorus and the waterbody is Ann Lee (Shakers) Pond. The Draft MS4 Permit includes various impairment related requirements, such as targeting sources of phosphorus within the watershed through enhanced public education as it relates to lawn care and yard waste disposal, pet waste management, and septic system maintenance; GIS updates to identify areas with potential to contribute phosphorus based on land use characteristics; supplemental IDDE investigation requirements; enhanced catch basin cleaning and street sweeping; and retrofit of the existing drainage system with green infrastructure in conjunction with planned municipal improvement projects.

## Town of Colonie Stormwater Budget Projection

Utilizing information collected during the literature and data review a comprehensive set of questions were prepared and submitted to the Stormwater Coalition of Albany County/Town of Colonie. The questions were reviewed in detail during an April 4, 2019 interview conducted with Nancy Heinzen, Program Coordinator/Coalition Director for the Stormwater Coalition of Albany County; John Dzialo, Senior Public Works Operations Technician/Town Designated Stormwater Coordinator for the Town of Colonie; and Adam Wands, Stormwater Management Inspector for the Town of Colonie. Any missing information identified during the interview and available was subsequently provided to Weston and Sampson. Information was also provided by William Neeley, former Public Works Operations Supervisor for the Town of Colonie, as part of a separate phone interview.

The Town's existing planned 2019 budget of \$334,519, which includes a 30% increase added to staff salaries to account for fringe benefits (see Attachment 1) shows that most of the stormwater related tasks are performed by municipal staff, including stormwater management technicians/inspectors. Much of the current allocated budget (around 77%) is used for staff salaries or non-capital programs. Approximately 12% is allocated for contractual expenses including equipment rental and engineering fees, and the remaining 11% of the budget is used for minor equipment, training and fees.

Utilizing the collected data, literature values, and a close look at MS4 Permit requirements detailed in the NYSDEC 2016 DRAFT MS4 Permit, two different budget scenarios were developed, one with Coalition support,



and one without Coalition support. A summary of the Town’s estimated 5-year stormwater budget under these two scenarios is presented in Table 1 and Table 2.

The following assumptions and related methods were used when developing these estimates:

**Table 1. Breakdown of 5-Year Stormwater Budget for Town of Colonie with Coalition Support**

<b>Items</b>	<b>Permit Year 1 (2020)</b>	<b>Permit Year 2 (2021)</b>	<b>Permit Year 3 (2022)</b>	<b>Permit Year 4 (2023)</b>	<b>Permit Year 5 (2024)</b>
<b>Non-Capital Project Costs</b>	\$1,103,209 (54%)	\$1,117,293 (44%)	\$1,136,799 (43%)	\$1,147,735 (38%)	\$1,173,110 (34%)
<b>Capital Project Costs</b>	\$950,000 (46%)	\$1,437,500 (56%)	\$1,484,375 (57%)	\$1,855,469 (62%)	\$2,319,336 (66%)
<b>All Project Costs</b>	<b>\$2,053,209</b>	<b>\$2,554,793</b>	<b>\$2,621,174</b>	<b>\$3,003,204</b>	<b>\$3,492,446</b>

**Table 2. Breakdown of 5-Year Stormwater Budget for Town of Colonie without Coalition Support**

<b>Items</b>	<b>Permit Year 1 (2020)</b>	<b>Permit Year 2 (2021)</b>	<b>Permit Year 3 (2022)</b>	<b>Permit Year 4 (2023)</b>	<b>Permit Year 5 (2024)</b>
<b>Non-Capital Project Costs</b>	\$1,111,359 (54%)	\$1,124,443 (44%)	\$1,141,699 (43%)	\$1,152,635 (38%)	\$1,176,510 (34%)
<b>Capital Project Costs</b>	\$950,000 (46%)	\$1,437,500 (56%)	\$1,484,375 (57%)	\$1,855,469 (62%)	\$2,319,336 (66%)
<b>All Project Costs</b>	<b>\$2,061,359</b>	<b>\$2,561,943</b>	<b>\$2,626,074</b>	<b>\$3,008,104</b>	<b>\$3,495,846</b>

1. MS4 Permit cost projections were based on a collective “best guess” regarding the likely content of the anticipated MS4 Permit. Using the 2016 DRAFT MS4 Permit Appendix C Compliance Schedule and 2019 updates, it was assumed that for each listed requirement there was an associated cost and completion time frame.

2. These costs are described in Attachment 3 “Breakdown of DRAFT MS4 Permit Requirements and Estimated Costs”. Some costs include a dollar amount, allocated to a particular year depending on the Compliance Schedule, while others reference a budget category itemized in the 5-Year Budget Projections. Regardless of how cost estimates are tracked, all expenses are included in the 5-Year Budget Projections where Attachment 2-1 includes annual budget projections over a five-year period with Coalition support and Attachment 2-2 is without Coalition support.

3. Assigning a dollar value to Coalition support proved to be difficult. Relying on past experience and language embedded in the Coalition Inter-municipal Agreement, Attachment 3 notes which of the listed MS4 Permit requirements is considered a Basic Service and covered by member dues, which are \$29,000 annually and unlikely to increase.

Should the Town leave the Coalition, the cost to pay for these same requirements is itemized in Attachment 3 and captured in the budget category, “MS4 Permit Compliance: Planning & Analysis, Public Education, and Training” (see Attachment 2-1 and Attachment 2-2). While Basic Services are well understood, the cost of leaving the Coalition is less clear, but explained in Attachment 3.

4. Some stormwater expenses pertain to drainage system infrastructure. These are itemized as well in the 5-Year Budget Projections, along with MS4 Permit compliance related expenses.

5. All expenses are categorized as either a Capital or Non-Capital expense.

6. With the exception of the “Culvert and Drainage: Drainage System Improvement Project” category, which is 25% for reasons explained below, there is a 2% annual increase built into each projection for all other budget categories.

Many helped develop cost estimates and additional information is provided here regarding specific budget categories.

#### **MS4 Permit Compliance – Planning & Analysis, Public Education, and Training**

This budget category describes Basic Services provided by the Coalition and expenses associated with leaving the Coalition. Planning & Analysis refers to the Coalition role of preparing a joint Stormwater Management Program Plan document and Annual Report. The Coalition also provides public education materials, organizes volunteer activities, provides water testing services, and training support. Extensive storm system mapping and the development and implementation of internet-based inspection forms will allow members to pool GIS based data necessary for analyzing and prioritizing MS4 Permit activities.

#### **Operations & Maintenance – Current Staffing Needs - Highway (Stormwater office)**

The costs here describe the base salary of current staffing, as well as fringe benefits in the amount of 30% of each base salary, which includes 1 full time Stormwater Program Coordinator and 2 full time Stormwater Inspectors. MS4 Permit tasks to be completed by staff are listed in Attachment 3.

#### **Operations & Maintenance – Additional Staffing – Highway (Stormwater office)**

To implement Draft MS4 Permit requirements, an additional Stormwater Inspector is needed. The base salary of that position is itemized here, along with fringe benefits in the amount of 30% of the base salary. This is necessary given the number of outfalls, catch basins, active construction sites, post construction stormwater management practices, and municipal facilities (low and high priority) identified for ongoing inspections and follow-up.

#### **Operations & Maintenance – Current Staffing – Other Town Departments**

Municipal attorneys may need to update the Town local law regarding Construction Activity Permit oversight. There is a new model local law in the DRAFT MS4 Permit. That time/labor hours are allocated here.

#### **Operations & Maintenance – Outside Engineering Assistance**

Outside consultant support may be needed to develop, implement and enforce an erosion and sediment control program for construction activities. While the preference is to perform these tasks in-house, some funds were allocated for this purpose. Consultant funds are also allocated to complete three (3) high priority municipal facility SWPPPs as required by the DRAFT 2016 MS4 Permit.

#### **Operations & Maintenance – Catch Basin Cleaning**

According to anticipated permit revisions, the MS4 Permit will require catch basins to be cleaned when necessary. For catch basin cleaning, a 50%-time allocation was considered for a highway maintenance

supervisor (HMS); and 40%-time allocation for an equipment operator (EO), two highway maintenance workers (HMW) and a foreman. Also, a 30% fringe benefit was considered along with an inflation rate of 2% per year for future cost estimation.

#### **Operations & Maintenance – Street Sweeping**

One of the revised requirements anticipated in the updated draft permit, includes a reduction in the street sweeping requirement in commercial areas with high volumes of trash and debris from monthly to twice per year from April 1<sup>st</sup> through October 31<sup>st</sup>. For street sweeping, a 25%-time allocation was utilized for an HMW with similar fringe benefit and inflation rates for future cost estimation.

#### **Operations & Maintenance – Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)**

In the event that the Town is unable to perform maintenance of Town-owned post-construction stormwater management practices in-house, a cost estimate was provided to secure use in part of an outside contractor to assist. Attachment 4, Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate, provides a breakdown of both privately-owned and maintained, and municipally owned and maintained post-construction stormwater management practices. Annual maintenance and inspection costs were provided for municipally owned and maintained post-construction stormwater management practices. The total estimate of \$80,900 for maintenance of 152 publicly maintained stormwater management practices includes all types of stormwater management practices, such as storage basins/detention basins, porous pavement, pocket ponds, micro pool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs vary based on SMP size and condition. Initial costs for maintenance of SMPs not previously maintained are expected to be higher. Once SMPs are maintained regularly, costs will decrease. Current costs reflect an average cost of \$500 for SMP, which is more reflective of SMPs that have been maintained over time. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually), the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.

#### **Operations & Maintenance – BMPs for Municipal Facilities and Operations**

These are costs associated with implementing stormwater pollution prevention BMPs at three facilities (Public Operations Facility, Public Safety, and the Golf Course).

#### **Mapping – Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept)**

Additional staff time will need to focus on updating existing field maps. While this is a routine activity of current GIS Tech staff, existing procedures will need to expand to include additional MS4 Permit requirements. Historically, the Town has always relied on their own staff to complete field mapping, not Coalition staff. Coalition staff may process and rework the Town data, but they do not field map.

## **Culvert and Drainage – Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects/Capital Projects**

For capital costs associated with the drainage and culvert improvements, the Town has an annual stormwater maintenance contract with a private contractor who can assist as needed and perform work that the Town cannot handle in-house. The cost of this contract varies annually. On average, \$600,000 in assistance is provided annually, which is equivalent to the stormwater capital project portion of the budget that is not performed in-house. This budget only includes the labor costs. For improvements performed in-house and by outside contractors, the annual costs for materials such as pipes, manholes, catch basins, fences around detention basins, jute mat, etc., were estimated at \$350,000.

As reported by the Albany County Multi-Jurisdictional Multi-Hazard Mitigation Plan (2018), Albany County and its jurisdictions have experienced various types of flooding in recent years due to higher frequency and intensity of rainfall events. Although Albany County is not located along the Atlantic Coast shoreline subjected to hurricane or catastrophic surge events, the county does lie within a part of the Hudson River that is tidally influenced. Although only 7% of the Town of Colonie is in the high-risk flood area, Albany County has experienced flooding on many of its roadways, and at many of its parks, sewer treatment facilities, and pump stations.

Due to recent flooding from heavy rainfall events, impacted residents of Albany County (not including Town of Colonie) filed lawsuits against their local governments, claiming that the local authorities had failed to maintain the sewer systems, and to operate, repair, and maintain the collection pipes and collection structures effectively. Considering the effects of the changing climate pattern and the increased frequency of heavy rainfall events, in general, it is recommended that these additional potential related costs be reflected in the Town's stormwater budget by escalating the \$950,000 for infrastructure maintenance by a total of 20% in 2021 for new climate projection related expenses. A 5% cost escalation factor should also be included in 2021 and going forward. Overall, this is 25% cost escalation per year.

Since the Town's vacuum sweeper is at the end of its useful life, the cost of a replacement (\$250,000) was considered in the 2<sup>nd</sup> year of the budget.

## **Observations**

The following observations have been made based on the data provided by the Town and follow-up discussions with the Town and Coalition staff:

- Currently, a majority of stormwater related work is performed by in-house staff.
- There is a need for additional staffing and budget allocation for the Town to be able to comply with the requirements of the new MS4 Permit.
- The Town requires additional external funding for capital projects including culvert and drainage improvements which are the major components of the budget.
- There is a need in the short-term to replace the existing vacuum sweeper, which is at the end of its useful life.

## Discussion

As presented in Attachment 1, the current stormwater budget for 2019, which covers staffing and certain contractual expenses, is \$334,519. That budget describes well the staffing needs and costs associated with implementing the current MS4 program. There are however a variety of other stormwater program and drainage management costs, some known and some anticipated which involve other Town departments, their staff, and equipment. The methods described here provide a thorough analysis of all stormwater costs consolidated into a holistic stormwater budget. As such, using the methods described herein, the 2019 stormwater budget increases significantly in 2020, specifically to \$2,053,209 with Coalition support and \$2,061,359 without Coalition support.

These costs are further broken out into capital and non-capital costs. Both [Table 1](#) and [Table 2](#) indicate that the percentage of the proposed budget allocated to non-capital costs beginning in Year 1 decreases from approximately 54% in Year 1 to 34% by Year 5. This is largely a result of the fact that capital costs are increasing substantially. Starting in Year 1, capital costs increase from 46% in Year 1 to 66% by Year 5 with the Coalition and 46% to 66% without the Coalition. Capital costs are unaffected by Coalition support since the Coalition will not be assisting with any capital projects.

Although the percentage of non-capital cost shows a downward trend in the next five years compared to the increasing percentage of capital project costs, non-capital costs do increase over time with membership in the Coalition helping to defray those costs.

Also, by employing new staff, the Town of Colonie will be able to conduct most of its stormwater and permit required tasks utilizing in-house staff. On the other hand, capital costs associated with the operation and maintenance of the existing stormwater infrastructure will increase. It is anticipated that the increase in budget would be supported through highway funds, and continued help from the Coalition with stormwater MS4 Permit tasks.

While the Coalition has enabled the Town to receive shared grant funding, obtaining grants from state agencies is highly competitive and their value must be clear and significant going forward. The effort to manage grants is considerable and while attractive they can be time consuming and not always honed to priority needs. Due to the extensive costs associated with operating and maintaining a drainage system as vast as the Town of Colonie's system, while also complying with the requirements of the MS4 Permit, the development of a stormwater funding mechanism could be invaluable in helping the Town to meet all stormwater needs going forward.

As stated in the Coalition 2020 Work Plan, there is an initiative by Coalition members and/or others to research how to develop a long-term sustainable funding mechanism and conduct local case studies with other interested entities regarding this challenging topic. Since the 2015 MS4 Permit became effective, the Town has taken a very proactive town-wide approach to stormwater management exceeding the requirements of the 2015 MS4 Permit and already putting into effect measures that foster compliance with the 2016 Draft MS4 Permit. A stable funding source would allow the Town to further expand their staffing resources and ensure the effective operation and maintenance of their drainage system over the long-term.

## **Attachment 1: Town of Colonie 2019 Stormwater Budget**

	<b>Identifying Code</b>	<b>2017*</b>	<b>2018*</b>	<b>2018*</b>	<b>2019*</b>
<b>Stormwater Management</b>		Actual	Approved Budget	Modified Budget	Preliminary Budget
<b>Personnel Services</b>					
<b>Senior Public Works Operation Tech</b>			\$105,343	\$105,343	\$108,139
<b>Stormwater Management Inspector (2)</b>			\$145,613	\$145,613	\$149,430
<b>Subtotal</b>	03-4E-E42-5116-110	\$250,474	\$250,956	\$250,956	\$257,569
<b>Overtime</b>	03-4E-E42-5116-130	\$8	\$600	\$600	\$600
<b>Subtotal</b>		\$250,482	\$251,556	\$251,556	\$258,169
<b>Contractual Expenses</b>					
<b>Equipment Rental</b>	03-4E-E42-5116-441	\$49	\$250	\$250	\$250
<b>Engineering Fees</b>	03-4E-E42-5116-452	\$7,222	\$10,000	\$10,000	\$10,000
<b>Other Fees</b>	03-4E-E42-5116-453	\$29,064	\$31,000	\$31,000	\$31,000
<b>Stormwater Management- Continued</b>					
<b>Contractual Expenses - Continued</b>					
<b>Minor Equipment</b>	03-4E-E42-5116-441	\$104,941	\$35,000	\$35,000	\$35,000
<b>Certification/Training Fees</b>	03-4E-E42-5116-452	-	\$100	\$100	\$100
<b>Meal/Boot Allowance</b>	03-4E-E42-5116-453	\$56			
<b>Subtotal</b>		\$141,332	\$76,350	\$76,350	\$76,350
<b>Department Total</b>		\$391,814	\$327,906	\$327,906	\$334,519

\*30% increase added to all salaries to account for fringe benefits.

**Attachment 2-1: Detailed 5-year Stormwater Budget with Coalition Support**

Stormwater Budget with Coalition Support - Year 1  
Town of Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coalition, these same requirements would need to be met by either Town staff or a consultant. The without Coalition support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since its inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coalition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 29,000
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 262,720
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permit requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 76,209
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,000
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirements named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000)	NC	General Fund	\$ 6,500
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwater practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3	NC	General Fund	\$ 17,000
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 154,050
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 286,000

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually), the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 124,100
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in thd DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,680
Mapping	Phase 1, Phase 2, Phase 3, Iimpaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with exisitng Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition.	NC	General Fund	\$ 6,500
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 450
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,000
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 78,000
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 50,000



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 950,000
with Coalition support Yr1 2020 Total Non-Capital Project Costs =						\$ 1,103,209
with Coalition support Yr1 2020 Total Capital Project Costs =						\$ 950,000
with Coalition support Yr1 2020 Total All Project Costs =						\$ 2,053,209

Stormwater Budget with Coalition Support - Year 2  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 2 (2021)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coailtion, these same requirements would need to be met by either Town staff or a consultant. The without Coaliiiton support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coaition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 29,000
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 267,975
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 77,733
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,080
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	\$ 3,500

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwater practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 17,200
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 157,131
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 291,720
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually), the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 126,582
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in the DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,754

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Mapping	Phase 1, Phase 2, Phase 3, Impaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with existing Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ 2,500
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 459
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,100
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive than proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 79,560
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 51,000
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered – pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 1,187,500
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Since the Town's vacuum sweeper is at the end of its useful life, the cost of a replacement (\$250,000) was considered in the 2nd year of the budget.	C	General Fund	\$ 250,000
with Coalition support Yr2 2021 Total Non-Capital Project Costs =						\$ 1,117,293
with Coalition support Yr2 2021 Total Capital Project Costs =						\$ 1,437,500
with Coalition support Yr2 2021 Total All Project Costs =						\$ 2,554,793

Stormwater Budget with Coalition Support - Year 3  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 3 (2022)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coalition, these same requirements would need to be met by either Town staff or a consultant. The without Coalition support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since its inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coalition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 29,000

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 273,334
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 79,287
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,162
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	\$ 1,000
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwaer practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 17,404
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 160,274
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 297,554

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect detention basins at least once per year to ensure that they are operating as intended. Remove sediment from the basin as necessary, and at least once every 10 years or when the basin is 50% full.. Maintain other post consruction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually) , the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 129,114
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in thd DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,829
Mapping	Phase 1, Phase 2, Phase 3, Iimpaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with exisitng Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ 3,000
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway’s City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 468
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,202
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 81,151

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 52,020
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 1,484,375
with Coalition support Yr3 2022 Total Non-Capital Project Costs =						\$ 1,136,799
with Coalition support Yr3 2022 Total Capital Project Costs =						\$ 1,484,375
with Coalition support Yr3 2022 Total All Project Costs =						\$ 2,621,174

Stormwater Budget with Coalition Support - Year 4  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 4 (2023)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coailtion, these same requirements would need to be met by either Town staff or a consultant. The without Coaliiton support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority faciilties, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coailtion. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 29,000
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 278,801
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 80,873
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,245
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Actvity Permit oversight (SWPPP reviews, active site inspections, stormwaer practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 10,612



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 163,479
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 303,505
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect detention basins at least once per year to ensure that they are operating as intended. Remove sediment from the basin as necessary, and at least once every 10 years or when the basin is 50% full.. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually), the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 131,696
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in the DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,905
Mapping	Phase 1, Phase 2, Phase 3, Impaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with existing Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewer sheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ -
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 478

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,306
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 82,774
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 53,060
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 1,855,469
with Coalition support Yr4 2023 Total Non-Capital Project Costs =						\$ 1,147,735
with Coalition support Yr4 2023 Total Capital Project Costs =						\$ 1,855,469
with Coalition support Yr4 2023 Total All Project Costs =						\$ 3,003,204

Stormwater Budget with Coalition Support - Year 5  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 5 (2024)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coailtion, these same requirements would need to be met by either Town staff or a consultant. The without Coaliiton support costs are inlcuded within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coaition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensiive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 29,000
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 284,377
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 82,491



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,330
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Actvity Pemrit oversight (SWPPP reviews, active site inspections, stormwaer practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 10,824
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 166,749
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 309,576
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect detention basins at least once per year to ensure that they are operating as intended. Remove sediment from the basin as necessary, and at least once every 10 years or when the basin is 50% full.. Maintain other post consruction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually) , the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 134,330

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in thd DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,983
Mapping	Phase 1, Phase 2, Phase 3, Iimpaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with exisitng Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ 3,000
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 487
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,412
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 84,430
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 54,122
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 2,319,336
with Coalition support Yr5 2024 Total Non-Capital Project Costs =						\$ 1,173,110
with Coalition support Yr5 2024 Total Capital Project Costs =						\$ 2,319,336
with Coalition support Yr5 2024 Total All Project Costs =						\$ 3,492,446

**Attachment 2-2: Detailed 5-year Stormwater Budget without Coalition Support**

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coalition, these same requirements would need to be met by either Town staff or a consultant. The without Coalition support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since its inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coalition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 37,150
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 262,720
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permit requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 76,209
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,000
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirements named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000)	NC	General Fund	\$ 6,500
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwater practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3	NC	General Fund	\$ 17,000
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 154,050

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 286,000
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually) , the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 124,100
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in thd DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,680
Mapping	Phase 1, Phase 2, Phase 3, Iimpaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with exisitng Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition.	NC	General Fund	\$ 6,500
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 450

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televisue storm drain lines as needed.	NC	General Fund	\$ 5,000
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televisue all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 78,000
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 50,000
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 950,000
without Coalition Yr1 2020 Total Non-Capital Project Costs =						\$ 1,111,359
without Coalition Yr1 2020 Total Capital Project Costs =						\$ 950,000
without Coalition Yr1 2020 Total All Project Costs =						\$ 2,061,359

Stormwater Budget without Coalition Support - Year 2  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 2 (2021)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coailtion, these same requirements would need to be met by either Town staff or a consultant. The without Coaliiiton support costs are inlcuded within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coailtion. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensiive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 36,150

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 267,975
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 77,733
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,080
Operation & Maintenance	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). <b>Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.</b>	NC	General Fund	\$ 3,500
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwaer practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. <b>There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.</b>	NC	General Fund	\$ 17,200
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 157,131
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 291,720



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually) , the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 126,582
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in thd DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator =\$30/hr. x 2hr. = \$60; Foreman =\$34/hr. x 2hr. = \$68; Vac Truck =\$125/hr. x 2hr. = \$250; Sweeper =\$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails =\$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,754
Mapping	Phase 1, Phase 2, Phase 3, Iimpaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with exisitng Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - <b>Other Department (GIS tech).</b> <b>Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000.</b> The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ 2,500
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 459

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,100
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 79,560
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 51,000
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 1,187,500
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Since the Town’s vacuum sweeper is at the end of its useful life, the cost of a replacement (\$250,000) was considered in the 2nd year of the budget.	C	General Fund	\$ 250,000
without Coalition Yr2 2021 Total Non-Capital Project Costs =						\$ 1,124,443
without Coalition Yr2 2021 Total Capital Project Costs =						\$ 1,437,500
without Coalition Yr2 2021 Total All Project Costs =						\$ 2,561,943

Stormwater Budget without Coalition Support - Year 3  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 3 (2022)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coalition, these same requirements would need to be met by either Town staff or a consultant. The without Coalition support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coalition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 33,900



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 273,334
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 79,287
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,162
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	\$ 1,000
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Actvity Permt oversight (SWPPP reviews, active site inspections, stormwaer practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 17,404
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 160,274
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 297,554

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually) , the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 129,114
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in thd DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,829
Mapping	Phase 1, Phase 2, Phase 3, Impaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with existing Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewer sheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ 3,000
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 468
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,202

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 81,151
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 52,020
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 1,484,375
without Coalition Yr3 2022 Total Non-Capital Project Costs =						\$ 1,141,699
without Coalition Yr3 2022 Total Capital Project Costs =						\$ 1,484,375
without Coalition Yr3 2022 Total All Project Costs =						\$ 2,626,074

Stormwater Budget without Coalition Support - Year 4  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 4 (2023)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coailtion, these same requirements would need to be met by either Town staff or a consultant. The without Coaliton support costs are inlcuded within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coailtion. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 33,900
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 278,801

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permti requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 80,873
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,245
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirments named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1 \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	\$ -
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwaer practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 10,612
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 163,479
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 303,505

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent. In performing detention basin maintenance to date, the Town has historically mowed each basin at least one annually, and utilized 4 Highway Maintenance Workers for a time period of 4 hours each to maintain each basin with required equipment annually. The 152 publicly maintained stormwater management practices include approximately 108 ponds or storage basins to maintain. Assuming 16 hours of maintenance per basin, this equates to 1,728 maintenance hours. At a cost of \$25 per staff hour (based on a salary of \$40,000 annually plus 30% in fringe benefits, which equals \$52,000 annually), the Town expends approximately \$43,200 annually on staff maintaining these basins. This cost was factored in and used to supplement the costs for maintenance by an outside contractor to ensure that adequate resources are available. These numbers should be further refined going forward as more information is obtained regarding the condition of each SMP and SMPs are maintained on a more regular basis.	NC	Highway Fund	\$ 131,696
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in the DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,905
Mapping	Phase 1, Phase 2, Phase 3, Impaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with existing Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewersheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ -
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 478
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,306

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive then proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 82,774
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 53,060
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town the cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered– pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 1,855,469
without Coalition Yr4 2023 Total Non-Capital Project Costs =						\$ 1,152,635
without Coalition Yr4 2023 Total Capital Project Costs =						\$ 1,855,469
without Coalition Yr4 2023 Total All Project Costs =						\$ 3,008,104

Stormwater Budget without Coalition Support - Year 5  
Colonie, NY

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 5 (2024)
MS4 Permit Compliance	Planning & Analysis, Public Education, and Training	These are MS4 Permit requirements which the Coalition has historically provided for and implemented collaboratively with members as allowed in the MS4 Permit or by choice of Coalition members. They are listed as Basic Services in the Coalition IMA-MOU. Town dues pay for these Basic Services. If the Town leaves the Coalition, these same requirements would need to be met by either Town staff or a consultant. The without Coalition support costs are included within this category.	The Town has been an active member of the Stormwater Coalition since it's inception (2009). Town dues are based on a formula embedded in the Intermunicipal Agreement. Each community pays a base fee, and then a surcharge based on population and geographic size. Colonie pays the largest fee due to its population and geographic size. (\$23,000 in beginning to \$29,000 annually today). Fees have gone up, but not tremendously. There is however a recognized ceiling of \$29,000 per year regarding Town dues. For the no Coalition scenario, estimates are based on what it would cost the Town to implement services or functions now provided by the Coalition, or conceivably provided by the Coalition over the next five years. Some costs, such as lab fees for outfall inspections at flowing outfalls, high priority facilities, or within the impaired waterbody are unclear. Testing for industrial discharges is expensive and for estimation purposes this is a cost the Town would assume if they leave the Coalition. Currently Coalition dues pay for water testing, but for limited parameters. Whether or not the current dues structure could continue to pay for more expensive water testing is unclear. The assumption is that it would continue to be a Basic Service.	NC	General Fund	\$ 32,400
Operation & Maintenance.	Current Staffing - Highway (Stormwater office)	To operate the current stormwater program (NYSDEC MS4 General Permit GP-0-15-001)	Stormwater budget is a subset of the Highway Budget. Salaries funded under the Stormwater Budget currently include: Stormwater Coordinator = \$108,139/yr. (based on 2019 budget - includes 30% for fringe benefits), Stormwater Inspectors (2) = \$149,430 total for two inspectors (based on 2019 budget - includes 30% for fringe benefits). ~\$74,715 per salary with 30% included for fringe benefits. Average annual percent increase = 2%. The Stormwater Coordinator and 2 Inspectors are involved with all aspects of the MS4 Stormwater Program (MCM 1-MCM 6). Specific tasks include: ORI, construction, post construction, municipal facility inspections, CGP SWPPP review, enforcement of local laws (IDDE and SW E/SC and Mgmt), record keeping, reports; training; public education; procedures development and implementation.	NC	General Fund	\$ 284,377
Operation & Maintenance	Additional Staffing - Highway (Stormwater office)	To assist current staff with implementing additional MS4 Permit requirements named in the 2016 DRAFT MS4 Permit.	This is the salary line to hire a 3rd Stormwater Inspector and includes 30% additional for fringe benefits. The Stormwater Inspector would help existing stormwater staff implement current and future MS4 Permit requirements named in the DRAFT MS4 Permit. Attachment 3 breaks out DRAFT MS4 Permit tasks.	NC	General Fund	\$ 82,491

Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Operation & Maintenance	Technology Requirement	Computer system purchase and improvements, cameras, and other equipment	Stormwater Coordinator and Stormwater Inspectors have digital cameras that they bring everywhere to take photos during site inspections. Computer and camera per staff – Assume \$1,000 per staff for equipment needs annually (current and additional stormwater staff - 4 FT)	NC	General Fund	\$ 4,330
Operation & Maintenance.	Current Staffing - Other Town Departments	To implement additional MS4 Permit requirements named in the 2016 DRAFT MS4 Permit, other Town staff may need to provide specific services. These services are detailed in Attachment 3, short term, and summary totals included here.	Current staff to implement additional MS4 Permit requirements (Town attorney to update Construction Activity Permit local laws, enforcement response plans and procedures). Total Budget \$11,000 (Yr1: \$6500; Yr2 \$3500; Yr3 \$1000). No built in 2% increase annually.	NC	General Fund	\$ -
Operation & Maintenance	Outside Engineering Assistance	Allowance annually for outside engineering assistance related to Construction Activity Permit oversight (SWPPP reviews, active site inspections, stormwater practice inspections.	Have \$10,000 allowance annually for outside engineering assistance as needed in Stormwater Budget, emphasis Construction Activity permit. Add to that cost to develop SWPPPs for High Priority Facilities. There are an estimated 3 High Priority Facilities at \$7000 per facility, to be completed by Year 3, so \$7000 per year. Yr1: \$7000. Yr2: \$7000. Yr3 \$7000. Add \$10,000 to SWPPP costs for Yr1, Yr2, and Yr3. 2% increase for \$10,000 allowance.	NC	General Fund	\$ 10,824
Operation & Maintenance	Catch Basin Cleaning	Catch basins cleaned when necessary. Information is documented including date of inspection, level of trash debris captured, date of clean-out, sump depth and catch basin type	A Foreman (\$60,000), Equipment Operator (\$50,000) and 1 to 3 Highway Maintenance Workers (\$40,000) at any given time are dedicated to this task (primarily from July to November, i.e. 40% of year). Highway Maintenance Supervisor (\$85,000) directs BMP maintenance and other stormwater related work. It is estimated that 50% of his time is allocated to stormwater. One crew cleans 20 catch basins per day – Town cleans 200 to 300 catch basins per year. Estimate that 300 cubic yards of material is removed annually. Material is stockpiled at maintenance yard, and then used as fill. One sweeper is a vac truck. Highway Division also has a large vac truck – used to clean out outlet control structures, catch basins, and for high-pressure jetting of storm drains.	NC	General Fund/ Highway Fund	\$ 166,749
Operation & Maintenance	Street Sweeping	Only those in the commercial areas with high volumes of trash and debris sweeping twice per year from April 1 through October 31	Town has 5 street sweepers (one sweep is a Vac Truck also used to clean catch basins) that operate from April to end of June to sweep all streets – Sweepers out 90% of the time during that period – could round to 100%. They go out from July to November on an isolated basis as long as the weather holds – all sweepers operated by one Highway Maintenance Worker. Sweep all streets every year once – 330 center line miles of Town-owned roads. Estimate that 800 cubic yards of material removed annually. (Town sweeps all streets regardless of whether they are uncurbed.) To meet the enhanced street sweeping requirements, 3 additional maintenance workers will need to be hired.	NC	General Fund	\$ 309,576
Operation & Maintenance	Town owned Detention Basins and Other Post Construction Stormwater Management Practices (SMPs)	Inspect post construction stormwater management practices, including detention basins, at least once per year to ensure that they are operating as intended. Remove sediment as necessary, and at least once every 10 years or when the basin is 50% full. Maintain other post construction stormwater practices.	The Town maintains 152 post-construction stormwater management practices. Town only takes over maintenance of residential, not commercial stormwater best management practices. From April through November, the Town cleans out forebays and all basins are mowed at least once annually. For maintenance costs for all Post Construction Stormwater Management Practices, see Attachment 4, "Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate". The total estimate of \$80,900 includes all types of practices including storage basins /detention basins, porous pavement, pocket ponds, micropool extended detention ponds, wet swales, dry swales, infiltration basins, and ponds. Costs presented account for supplemental maintenance of the 152 municipally maintained post-construction stormwater management practices on an as-needed basis, assuming the Town will continue to provide maintenance of practices utilizing in-house staff and resources at least to a certain extent.	NC	Highway Fund	\$ 134,330
Operation & Maintenance	BMPs for all Municipal Facilities and Operations	Develop and implement stormwater Best Management Practices (BMPs) named in the DRAFT Permit	This was referenced in Attachment #3, see MCM 6 Part VI.F.2. Town owned BMPs are assumed to include Post Construction Stormwater Management Practices (above) and BMPs associated more generally with Town municipal facilities (parks, buildings, fire stations, etc) and highway/public works operations. These municipal facility BMP costs are itemized here and represent estimates for three key facilities: Public Operations, Public Safety, and Golf Course, Detail of Public Operation Facility Costs: BMPs-sweep all paved areas including all equipment/truck garages, catch basin cleaning, clean oil water separators, spill kits/catch basin filters, stabilize construction material stockpiles. At these prevailing rates: Hwy Maintenance. Worker = \$26/hr. x 2hr. = \$52;; Operator = \$30/hr. x 2hr. = \$60; Foreman = \$34/hr. x 2hr. = \$68; Vac Truck = \$125/hr. x 2hr. = \$250; Sweeper = \$75/hr. x 2hr. = \$150; Hay/Straw = \$5/bail/20 bails = \$100 Two times annually = \$680 x 2 = \$1,360 (Public Operations Facility). Detail of Public Safety Facility and Golf Course Costs: BMPs-sweep all paved areas, catch basin cleaning, clean oil water separator, spill kit/catch basin filter. Two times annually based on the same rates would be \$580 x 2 = \$1,160 per facility. For Public Safety and Golf Course = \$2,320. Facility). Total annual cost for all three facilities: \$3680/yr.	NC	Highway Fund	\$ 3,983



Project Type	Project	Project Scope	Project Description / Justification	Project Budget	Funding Source	Estimated Project Cost
						Permit Year 1 (2020)
Mapping	Phase 1, Phase 2, Phase 3, Impaired Waters - DRAFT MS4 Permit Mapping (GIS Dept)	Field mapping, data management, integration with existing Town GIS stormwater data, accessible to Town ESRI users.	Update existing town-wide drainage map to meet Phase 1, Phase 2 and Phase 3 mapping requirements including municipal facilities; municipal and privately-owned post-construction stormwater management practices; areas of concern; location of confirmed or suspected illicit discharges; sewer sheds; and interconnections where not previously mapped. Also, with respect to impaired waters, areas with the potential to contribute phosphorus are also required to be mapped. There is an impaired water body – Ann Lee (Shakers) Pond for phosphorus. May/may not be completed by current Town staff - Other Department (GIS tech). Budget Total \$15,000 : YR1 \$6500. YR2 \$2500 YR3 \$3000 YR4 \$0 YR5 \$3000. The cost to develop an online, field mapper and inspection data collection tool using existing Town infrastructure mapping now in a GIS is itemized as an additional expense to the Town if they leave the Coalition. No 2% increase annually.	NC	General Fund	\$ 3,000
Mapping	Maintenance Tracking System (GIS Dept)	IT Improvement	\$3,000 per year for Highway's City works license. Allocate 15% of that to stormwater. IT trains and assists town staff as needed – very minimal.	NC	General Fund	\$ 487
Operation & Maintenance	Equipment Allocation	To renovate the equipment	Track mounted skid steer dedicated to Stormwater Division (purchased in 2017, see \$104,841 allocation in stormwater budget for minor equipment). 15-year life span for most equipment – maintained by Fleet Maintenance Division. Add number for Fleet. Vacuum Sweeper needs to be replaced - \$250,000 – include in 5-year budget in Year 2. Maintenance – allocate \$5,000 annually for staff to maintain equipment utilized for stormwater operations by Highway Division. Sewer Division has TV inspection truck and Stormwater Division uses their services to televise storm drain lines as needed.	NC	General Fund	\$ 5,412
Drainage System Assessment	Condition Inspections/ Recommendations	To perform a condition assessment of existing drainage infrastructure and make recommendations for future repair or replacement.	Town works on more of a reactive than proactive approach when it comes to televising drainage infrastructure. Would never try to televise all drainage in town due to size and associated cost. Any planned improvements included in capital projects.	NC	General Fund	\$ 84,430
Drainage System Improvement Projects/Capital Projects	Stream channel erosion protection and restoration	Assessment and implementation of streambank erosion due to degraded streams. Stream daylighting projects returning the riparian environment of a stream to more natural state.	Depending on scale, work could be completed in-house, or might need to be designed using an outside consultant and publicly bid. Estimate \$50,000 annually.	NC	General Fund	\$ 54,122
Culvert and Drainage	Drainage System Improvement Projects/Culvert Design/Repair/Replacement Projects Capital Projects/	To improve the network hydraulic performance	Current capital project expenditures are listed under the 2019 project list provided by the Town. Town has annual stormwater maintenance contract with a private contractor that can provide assistance as needed and performs work that the Town cannot handle in-house. This number varies annually. On average, \$600,000 in assistance is provided annually – this basically is the stormwater capital project piece of the budget that is not performed in-house. This is labor only though. No materials. For improvements done in-house and by an outside contractor- material costs must also be considered – pipe, manholes, catch basins, fences around detention basins, jute mat, etc. Assume \$350,000 annually for materials for work completed by an outside contractor and for work performed in-house.	C	General Fund	\$ 2,319,336
without Coalition Yr5 2024 Total Non-Capital Project Costs =						\$ 1,176,510
without Coalition Yr5 2024 Total Capital Project Costs =						\$ 2,319,336
without Coalition Yr5 2024 Total All Project Costs =						\$ 3,495,846



Colonie, NY  
MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT  
Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft New York MS4 General Permit - with 2019 updates)

Attachment 3: Breakdown of DRAFT MS4 Permit Requirements and Estimated Costs

Item No.	Requirement	Deadline	Needs Specific to Colonie	Stormwater Budget - Cost Type Project Type: Project (Attachments 2-1 & 2-2)	Estimated Cost to Comply - with Coalition					Estimated Cost to Comply - without Coalition				
					Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)
PART II - OBTAINING PERMIT COVERAGE														
II	Submit NOI to Continue Coverage	30 days from effective date	Submit NOI to NYS DEC	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
PART IV - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS														
	Develop written Stormwater Management Program (SWMP)	1 year from effective date	Update existing plan outlining activities and measures to be implemented to meet the conditions of the permit. The SWMP will be updated as required by this permit. Required contents of the SWMP are outlined in Appendix A of the Draft 2016 NY MS4 General Permit.	MS4 Compliance: Planning & Analysis, Public Education, Training	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
IV.A	Update written SWMP	As Necessary	Update the SWMP as activities are modified, changed or updated to meet permit conditions	MS4 Compliance - Planning & Analysis, Public Education, Training	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
IV.A.1	Maintain copy of SWMP, make available to public	1 year from effective date	Make SWMP readily available to Town staff responsible for implementation, as well as DEC and EPA. Make copies of the SWMP available to the public at Town Hall and/or on Town website. SWMP is currently available on Albany County Stormwater Coalition Website. Keep SWMP current and include outreach and public participation materials.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
IV.B	Designate a Stormwater Management Plan Coordinator	30 days from effective date	Designate in writing SWMP coordinator to oversee coordination and implementation of SWMP. John Dzialo is currently the Town Designated Stormwater Coordinator.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
IV.B	SWMP Coordinator receives 4 hours stormwater management training of Department endorsed training in stormwater management and the requirements of this permit.	1 year from effective date	Ensure stormwater coordinator receives proper training.	MS4 Compliance: Planning & Analysis, Public Education, Training	Basic Svce (Dues)			Basic Service (Dues)		\$1,500			\$1,500	
IV.B	Update agreements with 3rd party contractors, coalitions or other entities where resources are shared.	1 year from effective date	Document any agreement made with 3rd party contractors, other MS4 operators, coalition of MS4 operators, or other public entities assisting with the SWMP	MS4 Compliance: Planning & Analysis, Public Education, Training AND Operations & Maintenance: Current Staff - Highway (Stormwater Office)	Basic Svce (Dues)									
IV.B	Develop staffing plan/organizational chart	6 months from effective date	Develop written staffing plan that identifies individuals and their roles and responsibilities	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
IV.C	Develop and maintain a map showing MS4 features to use as planning tool for prioritization of efforts and facilitate management decisions - implement Phase 1 mapping requirements	3 years from effective date	Update map to show location of entire small MS4 system within regulated areas. The Town has a fairly comprehensive map in place, which will require some updating during the permit term. Phase 1 mapping requirements include mapping of outfalls, areas of concern, municipally owned post construction stormwater management practices, and municipal facilities.	MS4 Compliance: Planning & Analysis, Public Education, Training. If no Coalition, cost to complete highlighted here. The cost would be incorporated into the Mapping: Phase 1, Phase 2, Phase 3, Impaired (GIS Dept)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)			\$1,000	\$1,000	\$1,000		
IV.C	Implement Phase 2 mapping requirements	5 years from effective date	Phase 2 mapping requirements include MS4 infrastructure including closed pipe and open drainage; catch basins, drop inlets and manholes along with structure description; and privately-owned post-construction stormwater management practices which drain to the MS4.	Mapping: Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept) and Operations & Maintenance: Current Staff - Highway (Stormwater Office) Budget: \$3000. (Yr1 \$1000, Yr3 \$1,000, Yr5 \$1000)										
IV.C	Implement Phase 3 mapping requirements	8 years from effective date	Phase 3 mapping requirements include land area draining to the MS4 by overland flow (sewer sheds) and location of interconnections.	Mapping: Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept) and Operations & Maintenance: Current Staff - Highway (Stormwater Office). Budget: \$3000. (Yr1 \$1000, Yr3 \$1,000, Yr5 \$1000)										
IV.C	Update MS4 features map	Annually	Update map to reflect newly discovered information and required corrections or modification, and revised prioritization as new information becomes available.	Mapping: Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept) and Operations & Maintenance: Current Staff - Highway (Stormwater Office) Budget: \$3000. (Yr1 \$1000, Yr3 \$1,000, Yr5 \$1000)										
IV.E	Update or develop adequate legal authority to control pollutants into and from the small MS4	1.5 years from effective date	Ensure adequate legal authority to control pollutants into and from the small MS4 in the Stormwater Management	Operations & Maintenance: Current Staff - Highway (Stormwater Office) and Operations & Maintenance: Other Town Departments. Budget \$5,000.										
IV.F	Develop Enforcement Response Plan	3 years from effective date	Develop Enforcement Response Plan which describes actions to be taken for violations of local laws for illicit discharge, construction and post-construction.	Operations & Maintenance: Current Staff - Highway (Stormwater Office) and Operations & Maintenance: Other Town Departments. Budget \$3,500 to develop Enforcement Response Plan.										
IV.F	Develop system to track instances of non-compliance	1 year from effective date	Develop system to track enforcement with accordance to the enforcement response plan. Minimum requirements for tracking of non-compliance can be seen in Part IV.F.2	Operations & Maintenance: Current Staff - Highway (Stormwater Office) and Operations & Maintenance: Other Town Departments. Budget \$2,500 to develop enforcement response tracking system.										
PART V - PROGRAM EVALUATION, RECORD KEEPING, REPORTING AND CERTIFICATION														
V.A	Evaluate compliance with terms of this permit	Annually	Evaluate compliance and report in annual MS4 stormwater report	MS4 Compliance - Planning & Analysis, Public Education, Training	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$300	\$300	\$300	\$300	\$300
V.B	MS4 must keep records for >5 yrs	Continuous	Maintain annual MS4 stormwater reports	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
V.C	Submit Annual MS4 Stormwater Report	June 1st following end of March 10th to March 9th reporting period. Annually	Report progress in Annual MS4 Stormwater Report and submit to NYS DEC	MS4 Compliance: Planning & Analysis, Public Education, Training Annual Report compilation & submission \$3,500/yr.	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500
PART VI - MCM1 PUBLIC EDUCATION & OUTREACH														
VIA	Program Development and Implementation	1 year from effective date	Develop and implement program to educate public about significant stormwater issues that are relevant to the MS4. See VIA.1 for defined education goals and target audiences. Town must identify areas where pollutant generating activities are occurring to target based on guidelines provided in permit.	MS4 Compliance: Planning & Analysis, Public Education, Training. Allocate \$1,500/yr to meet MS4 public education requirements. (\$40/hr x 120 hrs - develop educational materials, distribute, id audience, message)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800
VIA.2	Deliver educational message to each of the target audiences listed in Part VIA.1.c using one of the following methods: Printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, social media	Annually	Determine method of distribution; implement method. An annual education message shall be delivered to each target audience.	MS4 Compliance: Planning & Analysis, Public Education, Training Cost included under VIA.										

Attachment 3: Breakdown of DRAFT MS4 Permit Requirements and Estimated Costs

Colonie, NY  
MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT  
Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft New York MS4 General Permit - with 2019 updates)

Item No.	Requirement	Deadline	Needs Specific to Colonie	Stormwater Budget - Cost Type Project Type: Project (Attachments 2-1 & 2-2)	Estimated Cost to Comply - with Coalition					Estimated Cost to Comply - without Coalition				
					Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)
PART VI- MCM2 PUBLIC INVOLVEMENT & PARTICIPATION														
VI.B.1.a	Provide at least one of the opportunities for public involvement/participation on development of SWMP identified in Part VI.B.1.a	6 months from effective date	Develop citizen advisory group, hold public hearings or meetings, engage citizen volunteers, or involve public in stewardship activities, etc.	MS4 Compliance: Planning & Analysis, Public Education, Training. Allocate \$1,500 per year to meet public involvement requirements. (\$40/hr x 120 hrs - develop & implement volunteer event)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800
VI.B.1.b	Inform public and staff of involvement opportunities using at least one of the following methods: public notice, website postings, newsletters, announcements posted within the community, advertisements, social media	6 months from effective date	Determine method of distribution; implement method.	Cost included in VI.B.1.a	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)					
VI.B.1.c	Identify local point of contact to receive and respond to public concerns regarding stormwater management. Name or title of this contact and telephone number must be published in public outreach and public participation materials.	6 months from effective date	Select a contact for public stormwater concerns and publish information for the public.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
VI.B.2.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to public	Continuous	Make SWMP and annual MS4 stormwater reports available to public at Town Hall and/or on the Town's website.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)					
VI.B.2.b	Public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of Town website, a stormwater advisory committee, or annual presentation at regular meeting of an existing board.	Cost included in VI.B.1.a	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)					
VI.B.2.c	Summarize comments received from general public and describe how the SWMP development or implementation was influenced.	Annually	Report public comments on SWMP and any changes made based on these comments.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)					
PART VI- MCM3 ILLICIT DISCHARGE DETECTION & ELIMINATION														
VIC.1	Adopt regulatory mechanism providing legal authority to prohibit/investigate/eliminate illicit discharges	Should have been completed under 2003 permit.	<a href="http://www.stormwateralbanycounty.org/wp-content/uploads/2011/12/ColonieTown_IDDE_IL-200701122011015114000.pdf">"Illicit Discharge 2007 Local Law "CHAPTER 120" establishes legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with law. (http://www.stormwateralbanycounty.org/wp-content/uploads/2011/12/ColonieTown_IDDE_IL-200701122011015114000.pdf)</a>	Completed. No updates planned.										
VIC.2	Provide public education on illicit discharges.	1 year from effective date	Educate employees, businesses, and public on illicit discharges.	MS4 Compliance - Planning & Analysis, Public Education, Training. Allocate \$1,500/yr to meet MS4 public education requirements.	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
VIC.3	Establish a hotline & system to track complaints on illicit discharges	6 months from effective date	Create hotline and publish on Town website.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
VIC.4	Develop system for tracking outfall inspections and analyzing data	1.5 years from effective date	Develop system for collecting, organizing and analyzing outfall inspection data.	MS4 Compliance - Planning & Analysis, Public Education, Training. Budget \$1,500.	Basic Svce (Dues)	Basic Svce (Dues)				\$750	\$750			
VIC.4	Develop outfall inspection procedures (identify individuals responsible for inspections, procedures for recording information as part of outfall inspections, procedures for sampling flowing outfalls, re-inspection of outfalls)	3 years from effective date	Develop outfall inspection procedures for employees to follow	Operations & Maintenance: Current Staff - Highway (Stormwater Office) Budget \$1,500.	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)			\$500	\$500	\$500		
VIC.4	Create a priority list of outfalls and update annually. Identify High and Low Priority Outfalls.	3 years from effective date	Develop inventory of outfalls and prioritize based on inspections. Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high quality waters, or complaint driven.	Mapping: Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept) and Operations & Maintenance: Current Staff - Highway (Stormwater Office). Budget \$1,000 (Yr 2: \$1000)										
VIC.4.a	Identify areas with high discharge potential	6 months from effective date	Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high quality waters, or complaint driven.	Mapping: Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept) and Operations & Maintenance: Current Staff - Highway (Stormwater Office). Budget \$2,000 (Yr 1: \$2000)										
VIC.4.b	Ensure that responsible staff are trained on performing outfall inspections.	1.5 years from effective date	Train employees about the IDDE Program including how to recognize illicit discharges and how to conduct outfall inspections.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)	Basic Svce (Dues)									
VIC.4.b	Dry-weather High Priority outfall screening & sampling (inspect twice a permit term)	5 years from effective date	Identify high priority outfalls as outfalls discharging to impaired waters, discharging to sensitive or high-quality waters, or complaint driven. Inspect twice per permit term, and sample flowing outfalls with physical indicators of an illicit discharge.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). If no Coalition, Current Town staff (GIS Techs) develop & implement Survey 123 Forms using AGOL (80 hrs & \$40/hr)	Basic Svce (Dues). AGOL Svy123 Forms support					\$3,200	\$3,200	\$3,200	\$3,200	\$3,200
VIC.4.b	Dry-weather Low Priority outfall screening & sampling (inspect 20% of outfalls)	Annually	Annually inspect 20% of low priority outfalls, and sample flowing outfalls with physical indicators of an illicit discharge.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). Town has 665 regulated outfalls and Town does the outfall screening and sampling. If extensive lab testing (industrial discharges) add lab testing fees (\$2750/yr); Svy123 Form development and monitoring included in Part VIC.4.b.	Basic Svce (Dues). AGOL Svy123 Forms support. Lab testing fees.					\$2,750	\$2,750	\$2,750	\$2,750	\$2,750
VIC.4.b	Re-inspect outfalls with physical indicators of an illicit discharge not related to flow	As Necessary	Re-inspect outfalls and sample as needed	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). Lab and Svy123 costs - see above Part VIC.4.b.										
VIC.5	Develop track down procedures (identifying individuals responsible for track down, procedures to meet Chapter 13 of IDDE Guidance, timeframes to act, referral for elimination)	2 years from effective date	Develop written track down procedures for illicit discharges	Operations & Maintenance: Current Staff - Highway (Stormwater Office)										
VIC.6	Update procedures for elimination (identifying individuals responsible for contacting responsible party, timeframes to act, escalating enforcement, confirm corrective action, tracking progress)	2 years from effective date	Develop and implement written Illicit Discharge Elimination Program procedures specifying the requirements in Part VIC.6	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).										
VIC.6.a	Initiate track down and elimination procedures for discharges that pose a significant human threat.	24 hours of awareness	Implement track down and elimination procedures for discharges immediately but no later than 24 hours from discovery.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).										
VIC.6.a	Initiate elimination and track down procedures for all other illicit discharges	5 days of awareness	Implement track down and elimination procedures for discharge. If elimination within 60 days is not possible, provide advanced written notice to Regional Water Engineer within 30 days of becoming aware of illicit discharge.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).										

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					Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	
PART VI - MCM4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL															
VLD.2	Update or develop adequate legal authority to ensure that applicable construction activities are effectively controlled.	1.5 years from effective date	<a href="http://www.stormwateralbanycountyny.org/wp-content/uploads/2011/12/Col-T-LOCAL-LAW-Adopted2007-Amended-2011.pdf">Review existing regulatory (http://www.stormwateralbanycountyny.org/wp-content/uploads/2011/12/Col-T-LOCAL-LAW-Adopted2007-Amended-2011.pdf) requirements and update as needed to ensure full compliance with permit conditions.</a>	Cost included under IV.E for regulatory review.											
VLD.3	Educate all municipal staff involved in the review of SWPPPs, inspections and related enforcement.	1 year from effective date	Provide Construction Program education and outreach.	Operations & Maintenance: Current Staff - Highway (Stormwater Office)											
VLD.4	Update construction site inventory to track new data elements	3 years from effective date, Update as needed	Develop and maintain written inventory of all projects with construction activities discharging into the MS4	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office)											
VLD.5	Prioritize construction sites	1 year from effective date	Assess risks of water quality impacts and identify high priority construction sites for inspection using Table 4 in Part VLD.5	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office)											
VLD.6	Update SWPPP review procedures (utilize form for new projects) for erosion sediment control and post construction review	1 year from effective date	Update SWPPP review procedures	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office) and Current Staffing - Other Departments											
VLD.6	Review SWPPPs for applicable construction sites in accordance with permit conditions included under Part VLD.6.	As Necessary	Review and notify site owner/operators that SWPPP has been accepted. Use MS4 SWPPP Acceptance Form	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). Operations & Maintenance: Outside Engineering Assistance - Budget \$10,000.											
VLD.6	Train SWPPP reviewers in four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District or other endorsed entity	1.5 years from effective date	Ensure training for individuals responsible for SWPPP review to include 2 hours of Department endorsed SWPPP review training and 4 hours of Department endorsed training in proper erosion and sediment control principles.	MS4 Compliance - Planning & Analysis, Public Education, Training Budget \$1,500.	Basic Svce (Dues)						\$300	\$300	\$300	\$300	\$300
VLD.7	Establish procedures for pre-construction inspection/meeting	6 months from effective date	Establish procedures to ensure compliance with section VLD.7 of permit	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office)											
VLD.7	Conduct and document pre-construction inspection/meeting with owner/operator of the construction activity	As Necessary	Conduct and document pre-construction meeting	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office)											
VLD.8	Update construction inspection procedures (identify individual(s) responsible for inspections, inspection frequencies, documentation, closeout)	1 year from effective date	Update written construction inspection procedures	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office)											
VLD.8	Train construction site inspectors	1.5 years from effective date	Ensure MS4 inspectors receive required training	Operations & Maintenance: Current Staff - Highway (Stormwater Office)	Basic Svce (Dues)										
VLD.8	Inspect all sites with construction activity at the frequencies stated in Part VLD.8.b	As Necessary	Conduct and document inspections of construction sites	1. MS4 Compliance - Planning & Analysis, Public Education, Training; 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). As of 2020, there are an estimated ~48 active construction sites in the Town. 3. Operations & Maintenance: Outside Engineering Assistance, as needed. Use of GIS ArcGIS online technology and Survey123 Construction Site Inspection forms evolving as Coalition Basic Service. If no Coalition, cost of Town to take over developmnet, updates, and management of Cosntruction Site Inspection data estimated here.	Basic Svce (Dues). AGOL Swy123 Forms support	Basic Svce (Dues). AGOL Swy123 Forms support	Basic Svce (Dues). AGOL Swy123 Forms support	Basic Svce (Dues). AGOL Swy123 Forms support	Basic Svce (Dues). AGOL Swy123 Forms support	\$750	\$750	\$750	\$750	\$750	
VLD.9	Perform final site inspection or accept the construction site owner/operators qualified inspector final inspection	As Necessary	Conduct or approve final site inspection for construction sites	Current and Additional Staff - Highway (Stormwater Office).											
VLD.10	Update tracking system for inspections and complaints	6 months from effective date	Receive, follow up, and track complaints regarding construction site stormwater runoff.	Current and Additional Staff - Highway (Stormwater Office).											
PART VI - MCM5 POST-CONSTRUCTION STORMWATER MANAGEMENT															
VLE.2	Update the local law and certify that it is equivalent to the new model law	1.5 years from effective date	<a href="http://www.stormwateralbanycountyny.org/wp-content/uploads/2011/12/Col-T-LOCAL-LAW-Adopted2007-Amended-2011.pdf">Review existing regulatory requirements (http://www.stormwateralbanycountyny.org/wp-content/uploads/2011/12/Col-T-LOCAL-LAW-Adopted2007-Amended-2011.pdf) and update as needed to ensure full compliance with permit conditions.</a>	Cost included under IV.E for regulatory review											
VLE.3	Update Post Construction SMP inventory to track all required elements (identify frequency for inspection based on the O&M manual or DEC design manual)	3 years from effective date, Update as needed	Develop and maintain written inventory of post construction SMPs that include type of stormwater management practice, date of installation, reason for the stormwater management practice, and location of discharge.	Current and Additional Staff - Highway (Stormwater Office).											
VLE.4	Incorporate items included under Section VLE.4. as part of SWPPP review procedures developed under VLD.6.	1 year from effective date	Incorporate items listed which pertain to review of post construction SMPs.	Current and Additional Staff - Highway (Stormwater Office).											
VLE.5	Train individuals responsible for inspection and maintenance	1.5 years from effective date	Ensure training for individuals responsible for inspection and maintenance	MS4 Compliance - Planning & Analysis, Public Education, Training and Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).	Basic Svce (Dues)										
VLE.5	Update procedures to inspect and maintain post construction SMPs (identifying individuals, utilize inspection form, conduct follow up inspections, referral to higher level inspection)	2 years from effective date	Update/develop procedures to inspect and maintain post construction SMPs to include date of inspection, inspection results, corrective actions and dates, date of next inspection if MS4 operator-owned, and corrective actions and dates if privately-owned.	Current and Additional Staff - Highway (Stormwater Office).											

					Estimated Cost to Comply - with Coalition					Estimated Cost to Comply - without Coalition				
Item No.	Requirement	Deadline	Needs Specific to Colonie	Stormwater Budget - Cost Type Project Type: Project (Attachments 2-1 & 2-2)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)
V.I.E.5	Inspect post construction SMPs	As Necessary	Inspect each post construction SMP at the frequency required in the O&M plan contained in the approved SWPPP.	1. MS4 Compliance - Planning & Analysis, Public Education, Training; 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). As of 2020, there are an estimated 379 Post Construction SMP to monitor. Of these 152 are owned by the Town and need to be inspected, the remaining 227 private practices may need to be inspected. 3. Operations & Maintenance: Outside Engineering Assistance, as needed. Use of ArcGIS online technology and Survey123 Post Construction Stormwater Management Practice forms evolving as Coalition Basic Service. If no Coalition, cost of Town to take over development, updates, and management of PC SMP Survey123 Inspection Forms estimated here (80 hrs & \$40/hr) for 152 public and 227 private PCSMPs.	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	\$3,200	\$3,200	\$3,200	\$3,200	\$3,200
PART VI - MCM6 POLLUTION PREVENTION & GOOD HOUSEKEEPING														
V.I.F.1	Assess all municipal facilities and operations within the regulated area and update/develop written procedures or develop SWPPPs where required for facilities with high priority activities	3 years from effective date	Use Municipal Facility/Operation Assessment form to document the assessments of all municipal facilities	1. MS4 Compliance - Planning & Analysis, Public Education, Training; 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). There are 38 municipally owned Town facilities to inspect using Assessment Form. Use of GIS ArcGIS online technology and a Survey123 Municipal Facility & Operations Inspection form is evolving as a Coalition Basic Service. If no Coalition, cost of Town to take over development, updates, and management of Muni Op/Facility Svy123 Inspection Forms estimated here.	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	\$300	\$300	\$300	\$300	\$300
V.I.F.2	Document and Implement required BMPs in V.I.F.2. to minimize pollutants from municipal operations and facilities.	3 years from effective date	Minimize exposure of materials to rain, snow, snow melt, and runoff; implement a preventative maintenance program; spill prevention and response; stabilize exposed soils; maintain vegetated areas; minimize exposure of deicing materials; eliminate non-stormwater discharges; ensure that waste is not discharged to the MS4; minimize generation of dust; require third parties to comply.	Operations & Maintenance BMPs for all Municipal Facilities and Operations. There are 38 municipal owned Town facilities for which these BMPs may apply.										
V.I.F.2	Inspect and maintain BMPs	Annually	All municipal non-structural and structural BMPs must be maintained in effective operating condition. Track and document inspections, including any deficiencies noted using the Municipal Facility/Operation Assessment Form.	1. Operations & Maintenance: BMPs for all Municipal Facilities and Operations. There are 38 municipal owned Town facilities for which these BMPs may apply. See costs assigned to 2. Operations & Maintenance: Town owned Post Construction Stormwater Management Practices (PC SMPs). There are 152 PCSMPs owned by the Town, which require inspection and maintenance by the Town.										
V.I.F.2	Update employee training program on proper procedures, specific control measures and documentation requirements.	1.5 years from effective date, annually after	Provide training to all employees who work in areas exposed to stormwater and all employees responsible for activities necessary to meet conditions of the permit. Ensure all requirements in sections a to q are being fulfilled.	1. MS4 Compliance - Planning & Analysis, Public Education, Training; 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).	Basic Svce (Dues)		Basic Svce (Dues)		Basic Svce (Dues)					
V.I.F.3.a	Develop inventory of municipal facilities.	1 year from effective date	Develop inventory of all municipal facilities.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).										
V.I.F.3.a	Review inventory of municipal facilities and update as necessary	Review inventory and update as necessary	Review inventory and update as necessary	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).										
V.I.F.3.c	Develop facility specific SWPPPs for facilities classified as high priority based on activities occurring at the site.	3 years from effective date	Develop SWPPPs for high priority facilities located in regulated areas as required based on activities occurring at the site. Document BMP information identified in Part V.I.F.3.d in each facility SWPPP.	Operations & Maintenance: Outside Engineering Assistance. There are 38 municipal facilities. Based on 2016 DRAFT MS4 Permit criteria, of these 3 may be high priority facilities needing a SWPPP. Budget: \$21,000 (\$7000 per SWPPP)										
V.I.F.3.e	Annual dry weather monitoring and comprehensive inspections of required outfalls at High Priority Facilities	Annually	Identify and conduct sampling and inspections using the Municipal Facility/Operation Assessment Form in accordance to Part V.I.F.3.e	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). Use of GIS ArcGIS online technology and Survey123 Dry Weather Outfall Inspection Forms and Muni Op/Facility Forms is evolving as a Coalition Basic Service. If no Coalition, estimates to support use of AGOL and Svy123 Forms is estimated in V.I.C.4.b and V.I.F.1	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support	Basic Svce (Dues). AGOL Svy123 Forms support					
V.I.F.3.e	Visually inspect and collect samples from outfalls discharging stormwater from fueling areas, storage areas, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant generating areas	Every 3 months	Identify and conduct sampling according to Part I.e. for required outfalls	1. MS4 Compliance - Planning & Analysis, Public Education, Training. 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). If testing includes industrial discharge parameters (ammonia, chlorine, conductivity, color, pH, potassium, turbidity, and surfactants) need to budget for lab services. Budget: \$20,000 (\$4,000/yr)	Basic Svce (Dues) Water testing ACWPD some parameters	Basic Svce (Dues) Water testing ACWPD some parameters	Basic Svce (Dues) Water testing ACWPD some parameters	Basic Svce (Dues) Water testing ACWPD some parameters	Basic Svce (Dues) Water testing ACWPD some parameters	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000

					Estimated Cost to Comply - with Coalition					Estimated Cost to Comply - without Coalition				
Item No.	Requirement	Deadline	Needs Specific to Colonie	Stormwater Budget - Cost Type Project Type: Project (Attachments 2-1 & 2-2)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)
VLF.3.f	Develop procedures for Low Priority Facilities (identify individual(s) responsible, identify activities occurring, identify applicable BMPs for activities conducted, assessment)	1 year from effective date	Develop written procedures outlining BMPs for low priority facilities based on activities at the site.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). The Town has 34 low Priority Facilities within the regulated area. Procedures may apply to multiple sites and operations.										
VLF.4	Train individual(s) responsible for catch basin clean out	1 year from effective date	Ensure individuals responsible for catch basin clean out are trained on proper handling and disposal procedures for materials removed and signs/evidence of suspect illicit discharges.	1. MS4 Compliance - Planning & Analysis, Public Education, Training. 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office).	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)	Basic Svce (Dues)					
VLF.4.a.i	Develop procedures for catch basin inspection/maintenance (identify priority areas, establish frequency, log disposal practices, evaluation of results)	2 years from effective date	Document and implement a plan so catch basins are cleaned when necessary and the required information is documented when cleaning. Develop a priority assessment for catch basin maintenance.	Operations & Maintenance: Current Staff - Highway (Stormwater Office), with support from Highway staff	Basic Svce (Dues). Share procedures									
VLF.4.a.i	Clean catch basins as needed and report the number of catch basins inspected, number cleaned, and total mass or volume of debris removed with the annual report.	Annually	Town cleans 200 to 300 catch basins per year. The permit requires initial inspection of all catch basins within 3 years of effective date. If inspection records are not available, ensure that all catch basins are inspected by the required deadline.	Operations & Maintenance: Catch Basin Cleaning. (Attachment 2-1 and 2-2) Yr1-\$154,050; Yr2-\$157,131; Yr3-\$160,274; Yr4-\$163,479; Yr5-\$166,749										
VLF.4.b.i	Develop street sweeping procedures	2 years from effective date	Develop and implement procedures for sweeping and/or cleaning municipal streets, parking lots, or other paved areas at municipal facilities.	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office), with support from Highway staff	Basic Svce (Dues). Share procedures									
VLF.4	Sweep all streets and parking lots except rural uncurbed roads with no catch basins or high-speed limited access highways annually in the spring. Sweep some streets a second time in the fall to meet permit requirements listed in VLF.4.b	Annually	Town already sweeps all streets once per year. Identify Streets in business districts, commercially zoned areas and any other area where catch basin inspections identify high volumes of trash and debris and sweep at least twice per year.	Operations & Maintenance: Street Sweeping. (Attachment 2-1 and 2-2) Yr1-\$286,000; Yr2-\$291,720; Yr3-\$297,554; Yr4-\$303,505; Yr5-\$309,576										
VLF.4.b.iii	Develop and implement BMPs for road and right of way maintenance and repairs	2 years from effective date	Implement BMPs for road and parking lot maintenance including pothole repairs, pavement marking, sealing, and re-paving	Operations & Maintenance: Current Staff - Highway (Stormwater Office), with support from Highway staff										
VLF.4.b.iii	Develop and maintain BMPs for winter road maintenance	2 years from effective date	Implement specific winter road maintenance BMPs in Part VLF.4.iii	Operations & Maintenance: Current Staff - Highway (Stormwater Office), with support from Highway staff										
VLF.4.b.iv	Develop and implement procedures for bridge maintenance and repairs	2 years from effective date	Implement procedures for bridge maintenance specified in Part VLF.4.iv	Operations & Maintenance: Current Staff - Highway (Stormwater Office), with support from Highway staff	Basic Svce (Dues). Share procedures									
VLF.4.c	Develop and implement procedures to ensure municipal projects comply with the SPDES General Permit for Construction Activity	Not Specified	Ensure SWPPP review and oversight of contractors to ensure compliance of construction activity	Operations & Maintenance: Current Staff - Highway (Stormwater Office), with support from Highway staff	Basic Svce (Dues). Share procedures									
PART VIII – ENHANCED REQUIREMENTS FOR IMPAIRED WATERS WITHOUT AN APPROVED TMDL – POLLUTANT SPECIFIC BMPs FOR PHOSPHORUS (ANN LEE (SHAKERS) POND)														
Part VIII.A.1	Public Education and Outreach on Sources of Phosphorus	2 years from effective date	Distribute specific messages in the spring, summer and fall aimed at target audiences regarding lawn care, fertilizer use, pet waste management, disposal of wash waters, leaf litter collection, septic system maintenance, dumpster maintenance, and grease storage.	1. MS4 Compliance - Planning & Analysis, Public Education, Training; 2. Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office). Allocate \$2,500/yr to meet MS4 public education requirements.	Basic Svce (Dues)	Basic Svce (Dues)				\$1,000	\$1,500			
Part VIII.A.2	Mapping	2 years from effective date	Update map to include areas with potential to contribute phosphorus; post-construction stormwater management practices; municipal facilities and location and type of conveyance.	Mapping: Phase 1, Phase 2, Phase 3, Impaired Waters (GIS Dept) and Operations & Maintenance: Current Staff - Highway (Stormwater Office) Budget \$3,000. (Yr1 \$1500, Yr2 \$1,500)										
Part VIII.A.3	Illicit Discharge Detection and Elimination Ann-Lee (Shaker)	3 years from permit effective date	Inspect commercial areas and businesses for illicit discharges and improper storage practices. Make MS4 outfalls discharging to Ann Lee Pond high priority and inspect annually.	Costs included under Part VI.C.4.b. Dry Weather Screening and Inspections										
Part VIII.A.4	Construction Site Stormwater Runoff Control	1 year from effective date	Prioritize and conduct monthly inspections of construction activities in tributary sewer sheds	Costs included under Part VI.D.8 Construction Site Inspections										

Attachment 3: Breakdown of DRAFT MS4 Permit Requirements and Estimated Costs

Colonie, NY  
MS4 GENERAL PERMIT REVIEW - ENTIRE PERMIT  
Breakdown of Permit Requirements & Estimated Costs (Based on 2016 Draft New York MS4 General Permit - with 2019 updates)

Item No.	Requirement	Deadline	Needs Specific to Colonie	Stormwater Budget - Cost Type Project Type: Project (Attachments 2-1 & 2-2)	Estimated Cost to Comply - with Coalition					Estimated Cost to Comply - without Coalition				
					Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2025)
Part VIII.A.5	Good Housekeeping/Pollution Prevention for Municipal Operations & Facilities	1 year from effective date for outfall protection; 2 years from effective date for sweeping; 3 years from effective date for catch basins	Inspect catch basins in early spring and late fall; clean catch basins exceeding 50% sump capacity within 30 days and evaluate inspection findings for trends. Sweep streets monthly. Repair outfall protection and/or bank stability problems within 30 days of inspection.	Costs included under Part VI.F.4.a.i Catch Basin Inspection and Clearing and Part VI.F.4 Street Sweeping										
Part VIII.A.6	Planned upgrades to municipal properties in sewer sheds to impaired waters	Annually As Opportunities Present	Incorporate cost-effective runoff reduction techniques and green infrastructure during planned municipal upgrades	Operations & Maintenance: Current and Additional Staff - Highway (Stormwater Office)										
					\$29,000	\$29,000	\$29,000	\$29,000	\$29,000	\$37,150	\$36,150	\$33,900	\$33,900	\$32,400

	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 1 (2020): (Coalition dues) Scenario: with Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 2 (2021): (Coalition dues) Scenario: with Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 3 (2022): (Coalition dues) Scenario: with Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 4 (2023): (Coalition dues) Scenario: with Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 5 (2024): (Coalition dues) Scenario: with Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 1 (2020): Scenario: without Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 2 (2021): Scenario: without Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 3 (2022): Scenario: without Coalition support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 4 (2023): Scenario: without Coalition Support
	MS4 Compliance: Planning & Analysis, Public Education, Training - Estimate for Year 5 (2024): Scenario: without Coalition Support

\$29,000  
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\$37,150  
\$36,150  
\$33,900  
\$33,900  
\$32,400

#### Attachment 4: Town of Colonie Post Construction Stormwater Management Practices Annual Maintenance Cost Estimate

No	FID	Technology Type	Address	Owner	Public or Private	SMP Practice	Comment	Maintenance Cost
1		Storage Basin	2 Wade Road	Windsor Development	Private	-----	CDS/Hydrodynamics/Underground storage	N/A
2		Storage Basin	1075 Troy Schenectady Road	Alkin LLC	Private	-----		N/A
3		Infiltration	49 Railroad Ave	P & L 49 LLC	Private	I-1		N/A
4		Storage Basin	400 Old Loudon Road	Add development and management	Private	-----	CDS/Underground Storage	N/A
5		Chamber	243 Wolf Road	TJ Wolf Development	Private	-----	CDS Unit	N/A
6		Open channel	1210 Kings Road	Insurance Auto Auctions	Private	O-2	Wet Swale around whole property	N/A
7		Filtering practice	2116 Central Ave	Billon Realty LTD	Private	F-1		N/A
8		Pond	650 Troy Schenectady Road	Wilton Plaza (Thomas Burke)	Private	P-5		N/A
9		Storage Basin	531 Troy Schenectady Road	Pioneer Saving Bank	Private	-----		N/A
10		Infiltration	90-92 Maxwell Road	Edwin William III	Private	I-3		N/A
11		Infiltration	1187 Troy Schenectady Road	1179 Troy Schenectady Road LLC	Private	I-2		N/A
12		Chamber	482 Albany Shaker Road	RED KAP Sales	Private	-----		N/A
13		Infiltration	399 Albany Shaker road	Loudon Square	Private	-----	Underground infiltration with CDS unit	N/A
14		Chamber	626 Loudon Road	Little Tree Properties, LLC	Private	-----		N/A
15		Infiltration	4047 Albany Street	Rosewood Home Builders	Private	I-3		N/A
16		Chamber	664 Loudon Road	Shaker Loudon Associates	Private	-----		N/A
17		Filtering practice	515 Loudon Road	Siena College	Private	F-1		N/A
18		Chamber	1839 Central Ave	1839 Wood LLC	Private	-----	Underground detention, CDS units and Dry wells	N/A
19		Filtering practice	21 Lansing Road N	The North American Islamic Trust, INC.	Private	F-1	Sand Filter	N/A
20		Pond	14 Plaza Dr	First Columbia LLC	Private	P-1		N/A
21		Filtering practice	151 Wade RD	MKR Associates II, LLC	Private	F-1		N/A
22		Infiltration	24 Maywood Ave	Paul & Lauren Ciullo	Private	I-1		N/A
23		Infiltration	20 Maywood Ave	Quanzhi Hou & Haiyan Jiang	Private	I-1		N/A
24		Infiltration	993 Troy Schenectady Road	Route 7 Donuts, INC.	Private	I-1		N/A
25		Green Infrastructure	98 Wolf RD	Windsor Wolf Road Properties, LLC	Private	-----	Porous Pavement	N/A
26		Infiltration	626 Loudon Road	Aviza Norgrove Realty, LLC	Private	I-1		N/A
27		Green Infrastructure	1 Penny LN	Gilda's Club Cap Region NY INC	Private	-----	Porous Pavement	N/A
28		Chamber	22 Arcadia Ave	Timothy & Denise Cusack	Private	-----	Storm Tech system	N/A
29		Chamber	1218 Troy Schenectady Road	K3 Holdings, LLC	Private	-----	Underground storage	N/A
30		Infiltration	1900 Central Ave	Colonie Plaza Owner	Private	I-1		N/A
31		Infiltration	22 Warehouse Row	JMDH Real Estate of Alb, LLC	Private	I-2	Filter Strip	N/A
32		Green Infrastructure	641 Loudon RD	Saint Plaza, LLC	Private	-----	Porous Pavement & Underground storage	N/A
33		Green Infrastructure	1 Apollo DR	1 Apollo LLC	Private	-----		N/A
34		Green Infrastructure	408 WVLT Shaker RD	Reginald L Daigle	Private	-----	Raingarden	N/A
35		Green Infrastructure	1 South Family DR	Funeral Director Support Service	Private	-----	Porous Pavement	N/A
36		Infiltration	851 Old Albany Shaker RD	Hertz Corporation	Private	I-2		N/A
37		Infiltration	59A Bonner Ave	Ahmed H Saleh	Private	I-2		N/A
38		Storage Basin	116 VLY Road	John Corbett	Private	-----	Storm Tech system/ Underground storage	N/A
39		Filtering practice	388 Old Niskayuna Road	Huntington Associate of Latham	Private	F-2	Stormwater Planters as well???	N/A
40		Green Infrastructure	105 Wolf Road	Thomas Burke	Private	-----	Porous Pavement/CDS Unit/ Underground Storage	N/A
41		Pond	6 Frances PL	Donald & Sally Rice	Private	-----		N/A
42		Filtering practice	204 Wade RD Ext	Stewarts Shop Corp	Private	F-1		N/A
43		Green Infrastructure	615 Boght RD	615 Boght RD, LLC	Private	-----	Raingarden	N/A
44		Green Infrastructure	56 Old Loudon RD	Brian Gorman	Private	-----	Raingarden	N/A
45		Pond	5 & 6 Sound PL	Shelter Cove Living, LLC	Private	P-1	??????	N/A
46		Green Infrastructure	29 Bacon LN	Gregory R. Zeh JR	Private	-----	Raingarden	N/A
47		Green Infrastructure	298 Albany Shaker RD	Levine Realty Associates, LLC	Private	-----	Porous Pavement/Dry well	N/A
48		Green Infrastructure	622 Loudon RD	New Loudon RD Associates	Private	-----	Porous Pavement	N/A
49		Green Infrastructure	2116 Central Ave	BillJON Realty, LTD	Private	F-2	Porous Pavement	N/A
50		Infiltration	11 Goodrich Ave	Arvind Goswami	Private	I-3	Dry Well	N/A
51		Green Infrastructure	1 Mill Road	Hudson Montana One, LLC	Private	-----		N/A
52		Infiltration	475 Albany Shaker RD	Kimberly Partners of Albany LP	Private	I-1	Hydrodynamic	N/A
53		Infiltration	47 Waterman Ave	Michael/Anna Mae Frankenbeck	Private	I-2		N/A
54		Pond	14 Dunsbach Ferry RD	Paul & Terrilynn Jennings	Private	-----	Straight detention with a restrictor	N/A
55		Green Infrastructure	4 Winners Circle	Cap Com Federal Credit Union	Private	-----	Porous Pavement	N/A
56		Filtering practice	860 Loudon RD	860 Loudon RD, LLC	Private	F-2	Holding Tank/Subsurface Sand Filter	N/A
57		Green Infrastructure	44 Shepard Ave	Christopher Leavitt	Private	-----	Raingarden	N/A
58		Green Infrastructure	42 Shepard Ave	Rose Gorman & Antony Zoda III	Private	-----	Raingarden	N/A
59		Infiltration	71 Dunsbach Ferry RD	Davide & Melissa Marioriello	Private	I-3		N/A



No	FID	Technology Type	Address	Owner	Public or Private	SMP Practice	Comment	Maintenance Cost
60		Pond	322 Troy Schenectady Road	Muslim Community of Troy, INC.	Private	P-1		N/A
61		Filtering practice	48 Rensselaer Ave	Strollo Development Latham	Private	F-1	F-1/O-1	N/A
62		Infiltration	22 Turner LN	Steven & Lisa Marini	Private	I-2		N/A
63		Infiltration	39 Wolf RD	Turf Colonie, LLC	Private	I-2		N/A
64		Pond	191 Watervliet Shaker RD	191 W/S LLC	Private	-----	Straight detention	N/A
65		Green Infrastructure	23 Catherine PL	Jeffery P & Allison Abdelnour	Private	-----	Raingarden	N/A
66		Infiltration	146 Railroad Ave	KJ Albany, LLC	Private	I-2		N/A
67		Infiltration	223 Maxwell RD	Vetlan, INC	Private	I-1	Raingarden	N/A
68		Infiltration	61 Old Niskayuna RD	Jeffery S Gordon	Private	I-3		N/A
69		Infiltration	7 Kendale Ave	Misty D Robinson & Lyndsey L Stammel	Private	I-3		N/A
70		Chamber	545 Troy Schenectady Road	CAM-DAS Associates, LLC	Private	-----	CDS Unit/Underground	N/A
71		Infiltration	3 Michael DR	Michael J Lyons	Private	I-2		N/A
72		Infiltration	782 Troy Schenectady Road	782 TSR, LLC	Private	-----	Underground Infiltration System	N/A
73		Filtering practice	800 Loudon RD	Twenty-First Latham Owner, LLC	Private	F-5	Underground Detention/CDS Units	N/A
74		Infiltration	1 Michael DR	Corey & Diana Wright	Private	I-2		N/A
75		Infiltration	10 Metro Park RD	Crosswinds Metro Develop, LLC	Private	I-1		N/A
76		Chamber	393 Consaul RD	Marissa Poletto	Private	-----	Storm Tech System	N/A
77		Chamber	395 Consaul RD	Frank & Jennifer Poletto	Private	-----	Storm Tech System (Cultec)	N/A
78		Infiltration	1207 Troy Schenectady Road	FCA Group, LLC	Private	I-2	Modified I-2	N/A
79		Green Infrastructure	190 Troy Schenectady Road	Salvation Army	Private	P-2	Porous Pavement/P-1 Wet Vault	N/A
80		Storage Basin	6 Cedarview LN	Cedarview Lane, LLC	Private	-----	Pipe Storage with a Restrictor	N/A
81		Storage Basin	291 Wolf RD	Wolf Road 291 LLC	Private	-----	Undergrounds storage/Infiltration no discharge	N/A
82		Pond	298 Troy Schenectady Road	HB of Latham, LLC	Private	-----	Pond with Restrictor	N/A
83		Filtering practice	40 Century Hill DR	First Columbia Century-40, LLC	Private	F-5		N/A
84		Filtering practice	152 Sparrowbush RD	Upstate Specialty Prop, LLC	Private	F-5		N/A
85		Filtering practice	5 Forts Ferry RD	Buffalo Colonie, LLC	Private	W-4		N/A
86		Infiltration	5 Michael DR	Timothy & Doreen Reilly	Private	-----		N/A
87		Infiltration	30 Rondack DR	Mark Myers	Private	-----		N/A
88		Infiltration	7 Henkes LN	John & Brianna Duro	Private	-----	Infiltration Swale	N/A
89		Green Infrastructure	64 Santanoni DR	Schermerhorn Develop Corp	Private	-----	Raingardens	N/A
90		Infiltration	1111 Troy Schenectady Road	Alkin LLC	Private	I-2		N/A
91		Green Infrastructure	9 Henkes LN	Ashok Sehgal	Private	-----	Infiltration Swale	N/A
92		Chamber	20 Swatling RD	Deepa Raghuraman	Private	-----	Storm Tech System Underground Storage	N/A
93		Infiltration	12 Airline DR	LA Salle Albany, INC	Private	I-2		N/A
94		Infiltration	1881 Central ave	Jak 1981 Central, LLC	Private	I-2		N/A
95		Pond	1095 Loudon RD	Boght Corners, INC	Private	P-5		N/A
96		Infiltration	1000 Kings RD	Danny & Rhonda King	Private	I-2		N/A
97		Storage Basin	4020 Albany St	James & Dionne Cardany	Private	-----	Detention	N/A
98		Infiltration	9 Michael DR	Tammy & Luis Lopez	Private	-----		N/A
99		Infiltration	9 Winthrop St	QI WU Weng Ying Mei Chen	Private	-----		N/A
100		Open channel	32 Aviation RD	Crossing Land Stan Two, LLC	Private	O-1	O-1/I-4/I-3	N/A
101		Open channel	40 Aviation RD	Crossing Land Stan One, LLC	Private	O-1	O-1/I-4/I-3	N/A
102		Storage Basin	7 Lansing RD	Michael Mulligan & Jennifer Pale	Private	-----	Detention	N/A
103		Chamber	886 Loudon RD	Gaffers Realty INC	Private	-----	First Defense Water Quality Unit	N/A
104		Infiltration	62 Fuller RD	IPEK Properties, LLC	Private	-----	Infiltration	N/A
105		Open channel	227 Wolf RD	Wolf Pioneer LLC	Private	O-1	O-1/I-4/F-5/F-2/F-4	N/A
106		Infiltration	7 Michael RD	Timothy Trier	Private	-----		N/A
107		Storage Basin	9 Grapevine PL	David Silverstrim & Melissa Smith	Private	-----	Level spreader/Detection	N/A
108		Infiltration	239 OLD Maxwell RD	Peter Rossi	Private	-----		N/A
109		Infiltration	687 Watervliet Shaker RD	Life Covenant Church, INC	Private	-----		N/A
110		Green Infrastructure	1A Michael DR	Roman Ponomarjov	Private	-----	I-2/Porous Pavement	N/A
111		Chamber	18 Swatling RD	William Friske	Private	-----	Storm Tech System & Underground storage	N/A
112		Pond	1956 Central Ave	Midway Fire Dist	Private	P-5		N/A
113		Storage Basin	17A Ferrera Ave	Luke & Andrea Dygert	Private	-----	Detention	N/A
114		Infiltration	4278 Albany St	Ulderic Boisvert	Private	-----	Infiltration System	N/A
115		Filtering practice	181 Troy Schenectady Road	Warren Family Funeral Homes	Private	F-2		N/A
116		Infiltration	922 Troy Schenectady Road	Twelve Acre Realty, LLC	Private	-----		N/A
117		Storage Basin	622 Watervliet Shaker RD	Indra Holdings, LLC	Private	-----	Detention with a Restrictor	N/A
118		Green Infrastructure	182 Dunbach Ferry RD	Yury & Yulia Cheban	Private	-----	Raingarden	N/A
119		Storage Basin	407 Albany Shaker RD	Loudon Square Developers, LLC	Private	-----	Storm Tech System & Underground storage	N/A
120		Storage Basin	654 Watervliet Shaker RD	HB Enterprises of Albany, LLC	Private	-----	Storm Tech System & Underground storage/Swales Around	N/A
121		Filtering practice	976 Loudon RD	BFJ Affiliated Prop II, LLC	Private	F-1		N/A
122		Green Infrastructure	723 Loudon RD	Car AAM NY Alb Toy AUD LLC	Private	-----		N/A



No	FID	Technology Type	Address	Owner	Public or Private	SMP Practice	Comment	Maintenance Cost
123		Infiltration	48 Winthrop St	F & D Builders LLC	Private	I-3	3 Drywells	N/A
124		Infiltration	14 Turner LN	Jordan & Jenny Lisella	Private	I-2		N/A
125		Infiltration	1935 Central Ave	Primax Properties, LLC	Private	I-2		N/A
126		Infiltration	17 Elks LN	Colonie Senior Service CTRS	Private	I-2	Porous Pavement/Infiltration Basin	N/A
127		Infiltration	3 Gaffers CT	Shaker Development Group LLC	Private	I-2		N/A
128		Green Infrastructure	150 Wade RD	299 Old Niskayuna RD, LLC	Private	-----	Porous Pavement	N/A
129		Infiltration	4259 Albany St	4259 Albany Street LLC	Private	I-2		N/A
130		Storage Basin	667 Boght RD	Javier & Danielle Cuevas	Private	-----	Detention	N/A
131		Green Infrastructure	34 Johnson RD	Sukhdev & Satwinder Singh	Private	-----	Raingarden	N/A
132		Filtering practice	1159 Troy Schenectady Road	Cumberland Farms INC.	Private	F-5	Bioretention/Organic SF/Infiltration Trench	N/A
133		Filtering practice	211 Troy Schenectady Road	Cumberland Farms INC.	Private	-----	Bioretention/Organic SF/Infiltration Trench	N/A
134		Infiltration	5 South Family DR	Colonie NY Senior Care Property	Private	I-2	Infiltration Trench/ Porous Pavement	N/A
135		Storage Basin	2020 Central Ave	GWJC, LLC	Private	-----	Straight Detention	N/A
136		Green Infrastructure	71 Mary Hadge DR		Private	-----	Vegetated Swale	N/A
137		Green Infrastructure	72 Mary Hadge DR		Private	-----	Vegetated Swale	N/A
138		Storage Basin	40 Fullerton Ave	Yuin Zhang	Private	-----	Detention	N/A
139		Filtering practice	207 Troy Schenectady Road	Colonie Real Estate Holdings, LLC	Private	F-5	Bioretention/Underground Storage	N/A
140		Infiltration	250 Old Loudon RD	Fortress Partners, LLC	Private	I-2	I-2/CUL Tech Unit	N/A
141		Infiltration	220 VLY RD	William & B Kelly O'Toole	Private	I-1		N/A
142		Infiltration	29 Hastings DR	Meadowdale Estates, LLC	Private	I-2	I-2/Storm Tech System	N/A
143		Storage Basin	1210 Troy Schenectady Road	1210 Troy Schenectady Road	Private	-----	Straight Detention	N/A
144		Chamber	24 Swaling RD	Robert K. Warland Builders, LLC	Private	-----	Storm Tech System	N/A
145		Infiltration	1 Turner LN	Steven Valente & Michael Aviza	Private	-----	Detention/Infiltration	N/A
146		Chamber	3 Launfal St	William Constant	Private	-----	Storm Tech System	N/A
147		Chamber	2 Barthol St	Stephen & Christina Chase	Private	-----	Storm Tech Unit	N/A
148		Chamber	21 Maywood Ave	Todd Stephanie Snyder	Private	-----	Storm Tech System	N/A
149		Chamber	6 Schuyler RD	Loudon House, LLC	Private	-----	CDS Unit & Cultec Storage	N/A
150		Infiltration	104 Everett RD	Attilio & Joseph Crisafulli	Private	I-2	I-2 & Storage Tech System	N/A
151		Chamber	3 Nautical Way	Mohawk River Estate	Private	-----	Hydrodynamic Unit	N/A
152		Infiltration	4049 Albany St	DIAZ	Private	I-3	Drywell	N/A
153		Infiltration	4051 Albany St	Lewis	Private	I-3	Dry well	N/A
154		Green Infrastructure	317 Boght RD	PTL Properties	Private	-----	RR-6 Raingarden	N/A
155		Green Infrastructure	215 Boght RD	PTI	Private	-----	RR-6 Raingarden	N/A
156		Green Infrastructure	313A Boght RD	PTL Properties	Private	-----	RR-6 Raingarden	N/A
157		Green Infrastructure	587 Boght RD	Nagle	Private	-----	RR-6 Raingarden	N/A
158		Green Infrastructure	587 Boght RD	Nagle	Private	-----	RR-6 Raingarden	N/A
159		Chamber	1157 Central Ave	Cumberland Farms INC.	Private	-----	CDS Unit	N/A
160		Filtering practice	15 Crabapple LN	9 Crabapple LLC	Private	F-1	Surface sand filter	N/A
161		Chamber	82 Fiddlers LN	James Verseput	Private	-----	Underground Storage Cultech Unit	N/A
162		Storage Basin	86 Fiddlers LN	Masakatsu Yokoyama	Private	-----	Storage Basin	N/A
163		Chamber	88 Fiddlers LN	Frederick Luciano	Private	-----	Storage Chamber	N/A
164		Infiltration	83 Karner RD	Cornerstone Exclusive LLC	Private	-----	Infiltration	N/A
165		Filtering practice	581 Loudon RD	581 New Loudon RD Partners LP	Private	I-2		N/A
166		Chamber	723 Loudon RD	Car AAM NY Alb Toy AUD LLC	Private	-----	CDS Chamber	N/A
167		Chamber	723 Loudon RD	Car AAM NY Alb Toy AUD LLC	Private	-----	Chamber	N/A
168		Chamber	736 Loudon RD	Q. Gondal Enterprise LLC	Private	-----	Chamber	N/A
169		Infiltration	1019 Loudon RD	CMBH MED LLC	Private	I-2		N/A
170		Green Infrastructure	26 Mill RD	David Cerriglia	Private	-----	RR-6 Raingarden	N/A
171		Chamber	340 New Karner RD	Casale New Karner LLC	Private	-----	CDS Uni/ Infiltration	N/A
172		Infiltration	26 Oliver St	Rosetti Acquisitions LLC	Private	I-2		N/A
173		Chamber	27 Tennessee Ave	Peter Coumbes	Private	-----	Cultec Unit	N/A
174		Pond	175 Troy Schenectady RD	Halfmoon Materials Group LLC	Private	P-5		N/A
175		Infiltration	669 Watervliet Shaker RD	Frank Audino	Private	-----	Infiltration	N/A
176		Infiltration	671 Watervliet Shaker RD	Frank Audino	Private	-----	Infiltration	N/A
177		Filtering practice	969 Watervliet Shaker RD	Afrim Realty Company LLC	Private	F-5		N/A
178		Infiltration	969 Watervliet Shaker RD	Afrim Realty Company LLC	Private	I-2		N/A
179		Filtering practice	969 Watervliet Shaker RD	Afrim Realty Company LLC	Private	F-5		N/A
180		Green Infrastructure	105 Wolf Road	Thomas Burke	Private	-----	RR-9 Porous Pavement	N/A
181		Storage Basin	8 York PL	EW Birch Building and construction INC	Private	-----	Storage Basin	N/A
182		Storage Basin	21 Reynolds St		Private	-----		N/A
183		Infiltration	Ashland Ave	Private	Private	-----	Subsurface Infiltration System	N/A
184		Infiltration	Proctor Ave	Private	Private	F-5		N/A
185		Filtering practice	Harding Ave	Private	Private	F-5		N/A

No	FID	Technology Type	Address	Owner	Public or Private	SMP Practice	Comment	Maintenance Cost
186		Pond	6 Renas DR	F & D Builders LLC	Private	-----	Detention with Restrictor	N/A
187		Infiltration	6 Old Pine Ave	F & D Builders LLC	Private	I-3	Drywells	N/A
188		Storage Basin	155 Wolf RD	Wolf Road Park Associates	Private	-----	Underground Detention	N/A
189		Filtering practice	186 Troy Schdy RD	Stewarts Shop Corp	Private	F-5	Bioretention	N/A
190		Infiltration	144 Wolf RD	1476 Route 9, LLC	Private	I-2	First Defense (Hydrodynamic) and Underground Infiltration	N/A
191		Infiltration	21 Interstate Ave	80 Lockrow Realty LLC	Private	I-2	First Defense (Hydrodynamic) and Underground Infiltration Basin	N/A
192		Infiltration	63 Schermerhorn RD	David Maioriello	Private	I-2	Cultec Unit	N/A
193		Open channel	301 Old Nisk RD	299 Old Niskayuna RD, LLC	Private	O-1	Porous Pavement and Dry Swale	N/A
194		Infiltration	10 Hoefer St	James Haldeman	Private	I-2		N/A
195		Open channel	74 Mary Hadge Dr	Steven Case	Private	O-1		N/A
196		Infiltration			Private	-----		N/A
197		Open channel	109 Wolf RD	Wolf 109, LLC	Private	O-1	Dry Swale/First Defense/Underground Storage	N/A
198		Infiltration	69 overlook Ave		Private	I-3		N/A
199		Storage Basin	106 Wolf RD	McDonald's Real estate CO	Private	-----	Underground Detention (Storage Only)	N/A
200		Storage Basin	80 Cordell RD	Brian Peek	Private	-----	Straight Detention	N/A
201		Infiltration	34 Michigan Ave	Simone Razzano	Private	I-2	Cultec Unit	N/A
202		Infiltration	610 Troy Schdy RD	Laguna Mini Mart INC.	Private	I-3	Drywell	N/A
203		Infiltration	4194 Albany St	Daniel Smith & Kathy Brunetter	Private	I-2	Underground Infiltration	N/A
204		Filtering practice	579 Troy Schdy RD	KIR Latham Farms	Private	F-5		N/A
205		Infiltration	348 Old Niskayuna RD	348 OLD Niskayuna RD LLC	Private	I-2	I-2 & I-4	N/A
206		Storage Basin	212 Lisha Kill RD	JOW Huber	Private	-----	Straight Detention	N/A
207		Storage Basin	21 Reynolds St	Antari & Adriatik Xhaferi	Private	-----	Straight Detention	N/A
208		Infiltration	15 Oakland Ave	Manual Mizhirumbay	Private	I-2		N/A
209		Storage Basin	671 Boght RD	Zane & Krista Robbins	Private	-----	Straight Detention	N/A
210		Infiltration	18 Turner LN	Jeffrey & Kirsten Rockmore	Private	I-2		N/A
211	86	Green Infrastructure	Antoinette LN	Town of Colonie	Public	Porous pavement	Porous pavement	\$500
212	11	Pond	15A Ridgfield Way	Town of Colonie	Public	P-5	Pocket Pond	\$750
213	48	Pond	10 Keystone CT	Town of Colonie	Public	P-5	Pocket Pond	\$750
214	54	Pond	2 Matthews CT	Town of Colonie	Public	P-5	Pocket Pond	\$750
215	57	Pond	11 Windrose Way	Town of Colonie	Public	P-5	Pocket Pond	\$750
216	59	Pond	450 Old Nisky RD	Private	Private	P-5	Pocket Pond	N/A
217	64	Pond	760 Troy Schdy RD	Private	Private	P-5	Pocket Pond	N/A
218	92	Pond	13 Sundance LN	Town of Colonie	Public	P-5	Pocket Pond	\$750
219	93	Pond	35 Burton LN	Town of Colonie	Public	P-5	Pocket Pond	\$750
220	97	Pond	14 Eagles LN	Town of Colonie	Public	P-5	Pocket Pond	\$750
221	111	Pond	586 Old Loudon RD	Private	Private	P-5	Pocket Pond	N/A
222	118	Pond	8 Buckingham LN	Town of Colonie	Public	P-5	Pocket Pond	\$750
223	131	Pond	24 Justin LN	Town of Colonie	Public	P-5	Pocket Pond	\$750
224	163	Pond	631 Columbia St	Town of Colonie	Public	P-5	Pocket Pond	\$750
225	166	Pond	1 Penfield DR	Town of Colonie	Public	P-5	Pocket Pond	\$750
226	15	Pond	1 Beacon DR	Town of Colonie	Public	P-5	Pocket Pond	\$750
227	16	Pond	1 Sutherland DR	Town of Colonie	Public	P-2	Wet Pond	\$950
228	17	Pond	75 Sutherland DR	Town of Colonie	Public	P-2	Wet Pond	\$950
229	101	Pond	100 Cambridge Way	Private	Private	P-2	Wet Pond	N/A
230	159	Pond	3952 Becker St	Town of Colonie	Public	P-2	Wet Pond	\$950
231	56	Pond	284 Boght RD	Private	Private	P-2	Wet Pond	N/A
232	65	Pond	800 Troy Schdy RD	Town of Colonie	Public	P-2	Wet Pond	\$950
233	161	Pond	40 Charterpoint RD	Town of Colonie	Public	P-2	Wet Pond	\$950
234	8	Pond	2 Howansky DR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
235	18	Pond	6 Walters Way	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
236	19	Pond	10 Maidstone LN	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
237	22	Pond	1 Amanda Way	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
238	55	Pond	2 Legacy CT	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
239	63	Pond	5 Oreshan DR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
240	52	Pond	9 Knollwood DR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
241	94	Pond	45 Buckingham LN	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
242	95	Pond	42 Buckingham LN	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
243	96	Pond	40 Buckingham LN	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
244	98	Pond	115 Haswell RD	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
245	99	Pond	3 Preston DR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
246	102	Pond	6 Sound PL	Private	Private	P-1	Micropool Extended Detention Pond	N/A
247	103	Pond	5 Sound PL	Private	Private	P-1	Micropool Extended Detention Pond	N/A
248	105	Pond	1 Matthews CT	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200

No	FID	Technology Type	Address	Owner	Public or Private	SMP Practice	Comment	Maintenance Cost
249	106	Pond	32 Sutton DR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
250	109	Pond	29 Londonderry Way	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
251	110	Pond	21 Highcroft CT	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
252	112	Pond	1226 Loudon RD	Private	Private	P-1	Micropool Extended Detention Pond	N/A
253	116	Pond	35 Waverly CIR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
254	115	Pond	2 Winners Circle	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
255	117	Pond	35 Preston DR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
256	122	Pond	61 Tamarack NL	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
257	126	Pond	25 Kendra CT	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
258	127	Pond	Wardley CIR	Town of Colonie	Public	P-1	Micropool Extended Detention Pond	\$1,200
259	120	Open channel	27A Tamarack NL	Town of Colonie	Public	O-2	Wet Swale	\$500
260	123	Open channel	85A Tamarack NL	Town of Colonie	Public	O-2	Wet Swale	\$500
261	155	Open channel	20 Charterpoint RD	Town of Colonie	Public	O-1	Dry Swale	\$500
262	104	Infiltration	5 Winners Circle	Town of Colonie	Public	I-2	Infiltration Basin	\$200
263	113	Infiltration	Winners Circle	Town of Colonie	Public	I-2	Infiltration Basin	\$200
264	130	Infiltration	1 Jordan CT	Town of Colonie	Public	I-2	Infiltration Basin	\$200
265	133	Filtering practice	32 Hastings DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
266	134	Filtering practice	35 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
267	135	Filtering practice	31 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
268	136	Filtering practice	31 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
269	137	Filtering practice	27 Hillard LN	Town of Colonie	Public	I-2	Infiltration Basin	\$200
270	138	Filtering practice	27 Hillard LN	Town of Colonie	Public	I-2	Infiltration Basin	\$200
271	139	Filtering practice	25 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
272	140	Filtering practice	29 Hasting DR	Private	Private	I-2	Infiltration Basin	N/A
273	141	Filtering practice	22 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
274	142	Filtering practice	17 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
275	143	Filtering practice	18 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
276	144	Filtering practice	15 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
277	145	Filtering practice	65 Priddle LN	Town of Colonie	Public	I-2	Infiltration Basin	\$200
278	146	Filtering practice	2A Priddle LN	Town of Colonie	Public	I-2	Infiltration Basin	\$200
279	147	Filtering practice	11 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
280	148	Filtering practice	11 Hasting DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
281	151	Infiltration	2 Steeple View DR	Town of Colonie	Public	I-2	Infiltration Basin	\$200
282	128	Filtering practice	22 Isabel CT	Town of Colonie	Public	F-5	Bioretention	\$300
283	129	Filtering practice	1 Isabel CT	Town of Colonie	Public	F-5	Bioretention	\$300
284	164	Filtering practice	51 Penfield DR	Town of Colonie	Public	F-5	Bioretention	\$300
285	168	Filtering practice	Proctor Ave	Town of Colonie	Public	F-5	Bioretention	\$300
286	169	Filtering practice	Harding Ave	Private	Private	F-5	Bioretention	N/A
287	20	Filtering practice	53 Amanda Way	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
288	21	Filtering practice	3A Jones DR	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
289	60	Filtering practice	12 Summerton PL	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
290	62	Filtering practice	16 Balboa DR	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
291	85	Filtering practice	16 Summerton PL	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
292	108	Filtering practice	4 Tail Feature CT	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
293	119	Filtering practice	12 Gabby CT	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
294	11	Filtering practice	27A Tamarack NL	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
295	125	Filtering practice	4 Fort Vaux LN	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
296	149	Filtering practice	1 Cragmoor LN	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
297	156	Filtering practice	6A Misty Morning	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
298	157	Filtering practice	14 Northern BLVD	Town of Colonie	Public	F-1	Surface Sand Filter	\$250
299	1	Storage Basin	50 History Hill Court	Town of Colonie	Public		Storage basin	\$400
300	2	Storage Basin	13 Kings Mill CT	Town of Colonie	Public		Storage basin	\$400
301	3	Storage Basin	90A Bonner Ave	Town of Colonie	Public		Storage basin	\$400
302	4	Storage Basin	8 Lupe Way	Town of Colonie	Public		Storage basin	\$400
303	5	Storage Basin	98 Wolf RD	Private	Private		Storage basin	N/A
304	6	Storage Basin	98 Wolf RD	Private	Private		Storage basin	N/A
305	9	Storage Basin	3 Charterpoint RD	Town of Colonie	Public		Storage basin	\$400
306	10	Storage Basin	6 Charterpoint RD	Town of Colonie	Public		Storage basin	\$400
307	12	Chamber	Post RD	Private	Private		Chamber	N/A
308	13	Storage Basin	Post RD	Private	Private		Storage basin	N/A
309	14	Storage Basin	Wilson Ave/ Mercy CT	Town of Colonie	Public		Storage basin	\$400
310	24	Storage Basin	129 Consaul RD	Town of Colonie	Public		Storage basin	\$400
311	23	Storage Basin	131 Consaul RD	Town of Colonie	Public		Storage basin	\$400

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312	25	Storage Basin	1 Shinecook Hills RD	Town of Colonie	Public		Storage basin	\$400
313	26	Storage Basin	2 Oakmont Teer	Town of Colonie	Public		Storage basin	\$400
314	27	Storage Basin	8 Bergen Woods DR	Town of Colonie	Public		Storage basin	\$400
315	28	Storage Basin	2 Runnel DR	Town of Colonie	Public		Storage basin	\$400
316	29	Storage Basin	38-42 Runnel DR	Town of Colonie	Public		Storage basin	\$400
317	30	Storage Basin	652 Sand Creek DR	Town of Colonie	Public		Storage basin	\$400
318	31	Storage Basin	16 Sarah CT	Town of Colonie	Public		Storage basin	\$400
319	32	Storage Basin	30A Dutch Meadows	Town of Colonie	Public		Storage basin	\$400
320	33	Storage Basin	12A Windmill Way	Town of Colonie	Public		Storage basin	\$400
321	34	Storage Basin	495 Columbia St	Town of Colonie	Public		Storage basin	\$400
322	35	Storage Basin	487 Albany Shaker RD	Town of Colonie	Public		Storage basin	\$400
323	36	Storage Basin	1A Alysha Lynne CT	Town of Colonie	Public		Storage basin	\$400
324	38	Storage Basin	10 Vanessa CT	Town of Colonie	Public		Storage basin	\$400
325	39	Storage Basin	408 VLY RD	Town of Colonie	Public		Storage basin	\$400
326	40	Storage Basin	371 Sand Creek RD	Town of Colonie	Public		Storage basin	\$400
327	41	Storage Basin	35/40 Dutch Meadows SD	Town of Colonie	Public		Storage basin	\$400
328	42	Storage Basin	362/364 Boght RD	Town of Colonie	Public		Storage basin	\$400
329	58	Storage Basin	16 Copenhagen CT	Town of Colonie	Public		Storage basin	\$400
330	43	Storage Basin	9 East Ridge RD	Town of Colonie	Public		Storage basin	\$400
331	44	Storage Basin	70 Spring Street RD	Town of Colonie	Public		Storage basin	\$400
332	45	Storage Basin	70 Southgate RD	Town of Colonie	Public		Storage basin	\$400
333	46	Storage Basin	94 Southgate RD	Town of Colonie	Public		Storage basin	\$400
334	47	Storage Basin	9 Jeffery LN	Town of Colonie	Public		Storage basin	\$400
335	7	Storage Basin	33 Marne St	Town of Colonie	Public		Storage basin	\$400
336	49	Storage Basin	498A Watervliet Shaker RD	Town of Colonie	Public		Storage basin	\$400
337	50	Storage Basin	30 Churchill SQ	Town of Colonie	Public		Storage basin	\$400
338	51	Storage Basin	32A Square RD	Town of Colonie	Public		Storage basin	\$400
339	53	Storage Basin	171 Osborne RD	Town of Colonie	Public		Storage basin	\$400
340	61	Storage Basin	32 Miller RD	Town of Colonie	Public		Storage basin	\$400
341	66	Storage Basin	3 Lear Jet LN	Town of Colonie	Public		Storage basin	\$400
342	67	Storage Basin	760 Troy Schdy RD	Town of Colonie	Public		Storage basin	\$400
343	68	Storage Basin	17 Fielding LN	Town of Colonie	Public		Storage basin	\$400
344	69	Storage Basin	Amy Marie/Willoughby/Glenmore	Town of Colonie	Public		Storage basin	\$400
345	70	Storage Basin	27/29 Omega Terrace	Town of Colonie	Public		Storage basin	\$400
346	71	Storage Basin	Harrogate/Omega Terrace	Town of Colonie	Public		Storage basin	\$400
347	72	Storage Basin	6, 7, 9, 11 Cimarron Way	Town of Colonie	Public		Storage basin	\$400
348	73	Storage Basin	14/16 Tornado	Town of Colonie	Public		Storage basin	\$400
349	37	Storage Basin	9 Sawyer PL	Town of Colonie	Public		Storage basin	\$400
350	74	Storage Basin	26 Conrad ST	Town of Colonie	Public		Storage basin	\$400
351	75	Storage Basin	6 Cavalier Way	Town of Colonie	Public		Storage basin	\$400
352	76	Storage Basin	16 Graystone RD	Town of Colonie	Public		Storage basin	\$400
353	77	Storage Basin	24 Morgan Way	Town of Colonie	Public		Storage basin	\$400
354	78	Storage Basin	35 Cord DR	Town of Colonie	Public		Storage basin	\$400
355	79	Storage Basin	1 Hunts End Lane	Town of Colonie	Public		Storage basin	\$400
356	80	Storage Basin	67 Consaul RD	Town of Colonie	Public		Storage basin	\$400
357	81	Storage Basin	4330 Albany St	Town of Colonie	Public		Storage basin	\$400
358	82	Storage Basin	56 & 58 Glade DR	Town of Colonie	Public		Storage basin	\$400
359	83	Storage Basin	6 Channele CT	Town of Colonie	Public		Storage basin	\$400
360	84	Storage Basin	14 Willow Spring	Town of Colonie	Public		Storage basin	\$400
361	88	Storage Basin	13 Oxford DR	Town of Colonie	Public		Storage basin	\$400
362	87	Storage Basin	26 Corina CT	Town of Colonie	Public		Storage basin	\$400
363	89	Storage Basin	12 Fiore Circle	Town of Colonie	Public		Storage basin	\$400
364	90	Storage Basin	1/3 Ann Lee CT	Town of Colonie	Public		Storage basin	\$400
365	91	Storage Basin	106 Schermerhorn RD	Town of Colonie	Public		Storage basin	\$400
366	100	Storage Basin	343A Albany Shaker RD	Town of Colonie	Public		Storage basin	\$400
367	107	Pond	64 Miller RD	Town of Colonie	Public		Pond	\$750
368	114	Infiltration	1 Winners Circle	Private	Private		Infiltration	N/A
369	14	Storage Basin	85A Tamarack NL	Town of Colonie	Public		Storage basin	\$400
370	132	Pond	41 Waverly CIR	Town of Colonie	Public		Pond	\$1,200
371	150	Storage Basin	1 Cragmoor LN	Town of Colonie	Public		Storage basin	\$400
372	152	Storage Basin	800 Alb Shaker RD	Private	Private		Storage basin	N/A
373	153	Storage Basin	37 Graffin DR	Town of Colonie	Public		Storage basin	\$400
374	154	Storage Basin	42 Graffin DR	Town of Colonie	Public		Storage basin	\$400

No	FID	Technology Type	Address	Owner	Public or Private	SMP Practice	Comment	Maintenance Cost
375	158	Storage Basin	156 Maxwell RD	Town of Colonie	Public		Storage basin	\$400
376	160	Storage Basin	49 Hampshire Way	Town of Colonie	Public		Storage basin	\$400
377	162	Storage Basin	40 Nancy Theresa Ter	Town of Colonie	Public		Storage basin	\$400
378	165	Storage Basin	51 Penfield DR	Town of Colonie	Public		Storage basin	\$400
379	167	Infiltration	Ashland Ave	Private	Private		Infiltration	N/A

**\$80,900**

Municipally-Owned Post Construction Stormwater Management Practices: 152  
 Privately-Owned Post Construction Stormwater Management Practices: 227  
 Total Post Construction Stormwater Management Practices: 379

# MEMORANDUM

**To:** Nancy Heinzen, Program Coordinator/Coalition Director, Stormwater Coalition of Albany County  
Paul Reuss, Executive Assistant to the Mayor, Menands, NY

**From:** Steven Roy, LEED® AP, Senior Technical Leader, Weston & Sampson

**Date:** December 9, 2019

**Subject:** Analysis and Development of Stormwater Program Costs for Menands, NY to Support Potential Implementation of a Stormwater Utility

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## INTRODUCTION

Under the United States Environmental Protection Agency (USEPA's) Phase II Stormwater Rule (EPA 2005), small municipal separate stormwater sewer systems (MS4s) are required to develop a stormwater management program that reduces the amount of pollutants carried by stormwater during storm events to waterbodies to the "maximum extent practicable". The goal of the program is to improve water quality and recreational use of waterways. MS4 stormwater programs have six elements called minimum control measures (MCM) that when implemented together, are expected to result in a reduction of pollutants discharged into waterbodies. These goals are achievable through ongoing assessment and maintenance of drainage infrastructure and associated waterways to protect flood-prone areas, providing adequate stormwater drainage and improving water quality. However, many communities are impeded by a lack of a clear fundable plan to prioritize improvements and effectively maintain their drainage infrastructure. While many communities have capital improvement plans and funding sources in place for their water and wastewater systems, adequate time and resources have not been allocated to operating and maintaining stormwater drainage system assets. With the extensive requirements of the MS4 Permit, the value of having such a plan in place, as well as a funding source, has become even more apparent.

The purpose of this memo is to summarize the information that was collected to support development of the Village of Menands 5-year stormwater budget projection and recommendations for implementing a stormwater utility fee.

## DEMOGRAPHICS

The Village of Menands has a total area of 3 square miles and it is located wholly within the Town of Colonie, North of the City Albany on the western bank of the Hudson River. Per the 2010 Census, Menands had a total population of 3,990. There are 2,728 total residential units, of which 968 are single family, 100 are multi-family, and apartments account for 1,600 units. Additionally, there are approximately 200 commercial properties in Menands.

# STORMWATER COSTS

A meeting and interview were conducted with the Executive Assistant to the Mayor, Mr. Paul Reuss, and DPW Foreman, Mike Hagmann, to gather information regarding the Village’s existing and future costs related to stormwater management. Mr. Reuss is responsible for implementation of stormwater management initiatives related to compliance with the Villages’ MS4 permit, and Mayor Megan Grenier is the Chief Elected Official for the Village.

During the interview, it became apparent that Menands spends very little on stormwater management. There were no major or recurring drainage or flooding problems identified during the interview. In addition to information collected during the interview, the Village of Menands Annual Budget adopted April 15, 2019 for the fiscal year beginning June 1, 2019 and ending May 31, 2020 was reviewed. For this period, the total annual village appropriation for Menands is \$6,732,678, which covers all costs related to the day to day operation of the village. Of this total, it was determined that expenditures for stormwater included the following:

MS4 Officer Salary (Stormwater partial salary)	\$14,788
Storm Sewer Expenditures (Equipment rentals)	\$2,500
<u>MS4 Expenditures (Albany County MS4 Compliance Support Dues)</u>	<u>\$15,000</u>
 Total Projected Stormwater Expenditures for FY 2020	 \$32,288

Stormwater costs account for 0.48% of the Villages’ annual budget and this is not expected to significantly increase under the new NY State MS4 Permit.

The Village of Menands stormwater program is currently funded through property taxes paid into the Town’s General Fund. It was clear from the interview that the system is well managed and has few chronic drainage problems. An occasional catch basin requires repair and/or replacement, and a few areas with drainage problems have been corrected over the years. No major stormwater drainage or MS4 compliance costs were identified. As a result, it is not recommended that Menands proceed at this time with the implementation of a stormwater utility or enterprise fund. The cost of developing and administrating the assessment and collection of stormwater utility fees would not generate significant annual revenue, and the administrative costs to collect the fees and manage the program could approach the amount of annual revenue collected.

# IMPERVIOUS AREA ASSESSMENT AND FEE ANALYSIS

Weston & Sampson has determined the extent of impervious surfaces in Menands as part of the Stormwater Utility Fee Assessment and we have calculated the amount of revenue that could be generated in Menands from a stormwater utility fee. There are only 88 acres of impervious area attributed to residential properties within Menands. There are 183 acres of impervious surface associated with commercial properties. The low density of residential development and few commercial areas result in limited stormwater infrastructure that needs maintenance. The DPW Foreman manages the stormwater system and the Executive Assistant to the Mayor

manages compliance with the MS4 Permit requirements. Additional analysis of stormwater revenues is included in the Stormwater Utility Fee Assessment Report, but it is expected that only about \$32,000 per year could be generated from a stormwater fee for Menands. While the administrative cost associated with assessing, collecting, and managing a stormwater utility would not warrant a stormwater fee at this time, should the Village decide to join the Town of Colonie in such an effort, and the Town willing to provide administrative services, the expected revenue of \$32,000 per year would be helpful to the Village. There are existing shared service agreements formal and informal between the Village and Town which indicate a capacity and potential interest in pursuing this further.



Stormwater Utility Development Analysis  
Albany County, New York  
Town of New Scotland, Town of Colonie, Village of Menands

**Rate Structure Options – Town of New Scotland**

1. Stormwater Costs by Permit Year (with and without Coalition support)

Non-Capital and Capital Stormwater-Related Costs by MS<sub>4</sub> Permit Year (with Coalition support)

Stormwater Items	Stormwater Cost by Permit Year				
	Permit Year 1 2020	Permit Year 2 2021	Permit Year 3 2022	Permit Year 4 2023	Permit Year 5 2024
Non-Capital Items (MS <sub>4</sub> Compliance, including associated O&M, staffing)	\$32,734	\$45,334	\$44,886	\$42,961	\$43,539
Capital Projects	\$124,600	\$59,200	\$60,400	\$61,600	\$62,800
<b>Total Stormwater Expenditures</b>	<b>\$157,334</b>	<b>\$104,534</b>	<b>\$105,286</b>	<b>\$104,561</b>	<b>\$106,339</b>

Non-Capital and Capital Stormwater-Related Costs by MS<sub>4</sub> Permit Year (without Coalition support)

Stormwater Items	Stormwater Cost by Permit Year				
	Permit Year 1 2020	Permit Year 2 2021	Permit Year 3 2022	Permit Year 4 2023	Permit Year 5 2024
Non-Capital Items (MS <sub>4</sub> Compliance, including associated O&M, staffing)	\$47,500	\$61,135	\$62,225	\$54,340	\$56,955
Capital Projects	\$124,600	\$59,200	\$60,400	\$61,600	\$62,800
<b>Total Stormwater Expenditures</b>	<b>\$172,100</b>	<b>\$120,335</b>	<b>\$122,625</b>	<b>\$115,940</b>	<b>\$119,755</b>

2. Parcels

- Single Family, Two Family, Three Family Residential Parcels
  - Total Parcels: 2,027 Total Parcels
  - Average Impervious Area: 7,040 SF
  - Range of Impervious Area: 34 SF to 78,076 SF
  - Average Lot Size: 144,445 SF
- Non-Residential Parcels Analyzed (apartments, vacant lots, commercial and industrial parcels)
  - 1,296 Parcels Analyzed

- Range of Impervious Area for Non-Residential Parcels: 0 SF to 524,852 SF (Highest Impervious Area is associated with a parcel owned by National Grid which contains a substation)

- Publicly owned parcels are excluded from the analysis and billing (including state and town-owned land)

### 3. Equivalent Residential Unit (ERU) Data Collection and Analysis

All parcels (excluding government) are billed an amount proportional to the impervious area on a parcel, regardless of the parcel's total area. The rate is based on an ERU, which is the average impervious area of 1-3 family residential parcels.

- 1 ERU = 7,040 SF

Land Use Classification	No. of Parcels (units)
Residential	
Single Family	1,918
Two Family	98 (196)
Three Family	11 (33)
Other Residential/Non-Residential – Apartments, Commercial, Industrial	1,296

### 4. ERU Rate Structure Options

Under options 1A and 1B, as described below, residential parcels (1, 2, and 3 Families) would be charged a flat fee. All other parcels would be charged varying fees based on their actual impervious area. Using the impervious area, the number of ERUs would be calculated for each parcel, and then rounded to the nearest whole number and multiplied by the ERU rate to determine the rate for each parcel.

- Option #1A
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Fees for all other parcels based on impervious area
  - ERU = 7,040 SF; ERU Rate = \$40
  - Revenue Generated = \$168,520 annually

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
Single Family	1,918	-	-	-	\$40	\$76,720
Two Family	98	-	-	-	\$40	\$3,920
Three Family	11	-	-	-	\$40	\$440
Other Residential/Non-Residential	1,296	11,900,181	2,186	\$40	-	\$87,440
<b>TOTAL REVENUE COLLECTED:</b>						<b>\$168,520</b>

- Option #1B
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Fees for All Other Parcels Based on Impervious Area
  - ERU = 7,040 SF; Split ERU Rate of \$40 for Residential (1, 2, and 3 Families) and \$50 for all other parcels
  - Revenue generated: \$190,380 annually

Under Option 2, described below, residential parcels (1, 2, and 3 families) would be charged a flat fee. All other parcels would be charged varying fees based on tiered actual impervious areas.

- Option #2
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - ERU = 7,040 SF; ERU Rate = \$40
  - Varying Fees for All Other Parcels Based on Impervious Area Tiers
  - Tie impervious area midpoints to ERU
  - Revenue Generated from 1, 2, and 3 Families = \$81,080
  - Revenue Generated from Other Residential/Non-Residential = \$106,125

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERU s	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	1,918	-			\$40	\$76,720
• Two Family	98	-			\$40	\$3,920
• Three Family	11	-			\$40	\$440
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	826	-	-	-	\$50	\$41,300
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	147	-	-	-	\$75	\$11,025
Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	101	-	-	-	\$100	\$10,100
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	118	-	-	-	\$150	\$17,700
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	68	-	-	-	\$200	\$13,600
Other Residential/Non-Residential Tier 6 (50,000 ≤ IA < 75,000 SF)	16	-	-	-	\$250	\$4,000
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	9	-	-	-	\$300	\$2,700
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	6	-	-	-	\$400	\$2,400
Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	1	-	-	-	\$500	\$500
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	1	-	-	-	\$600	\$600
Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	2	-	-	-	\$700	\$1,400

Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	1	-	-	-	\$800	\$800
<b>Total Revenue Collected:</b>						<b>\$187,205</b>

#### 5. Intensity of Development Data Collection and Analysis

All parcels (excluding government) are charged a fee based on percentage of impervious area. Level of development is categorized, and parcels in each category are charged a fee based on the "total served area" - meaning total area of the parcel.

Total Annual Revenue = \$1,949,754.00

Category Number	Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)	Total Served Area (sq.ft.)	Total Monthly Revenue
1	Vacant/Undeveloped (0%)	\$0.08	220,072,891	\$ 17,605.83
2	Light Development (1% to 20%)	\$0.12	1,191,203,786	\$142,944.45
3	Moderate Development (21% to 40%)	\$0.16	9,392,420	\$1,502.79
4	Heavy Development (41% to 70%)	\$0.24	1,409,409	\$338.26
5	Very Heavy Development (71% to 100%)	\$0.32	275,535	\$88.17
				<b>\$162,479.50</b>
<b>Total Annual Revenue</b>				<b>\$1,949,754.00</b>

## Rate Structure Options – Town of Colonie

### 1. Stormwater Costs by Permit Year (with and without Coalition support)

#### Non-Capital and Capital Stormwater-Related Costs by MS<sub>4</sub> Permit Year (with Coalition Support)

Stormwater Items	Stormwater Cost by Permit Year				
	Permit Year 1 (2020)	Permit Year 2 (2021)	Permit Year 3 (2022)	Permit Year 4 (2023)	Permit Year 5 (2024)
Non-Capital Items (MS <sub>4</sub> Compliance, including associated O&M, staffing)	\$1,103,209 (54%)	\$1,117,293 (44%)	\$1,136,799 (43%)	\$1,147,735 (38%)	\$1,173,110 (34%)
Capital Projects	\$950,000 (46%)	\$1,437,500 (56%)	\$1,484,375 (57%)	\$1,855,469 (62%)	\$2,319,336 (66%)
<b>Total Stormwater Expenditures</b>	<b>\$2,053,209</b>	<b>\$2,554,793</b>	<b>\$2,621,174</b>	<b>\$3,003,204</b>	<b>\$3,492,446</b>

#### Non-Capital and Capital Stormwater-Related Costs by MS<sub>4</sub> Permit Year (without Coalition Support)

Stormwater Items	Stormwater Cost by Permit Year				
	Permit Year 1 (2020)	Permit Year 2 (2021)	Permit Year 3 (2022)	Permit Year 4 (2023)	Permit Year 5 (2024)
Non-Capital Items (MS <sub>4</sub> Compliance, including associated O&M, staffing)	\$1,111,359 (54%)	\$1,124,443 (44%)	\$1,141,699 (43%)	\$1,152,635 (38%)	\$1,176,510 (34%)
Capital Projects	\$950,000 (46%)	\$1,437,500 (56%)	\$1,484,375 (57%)	\$1,855,469 (62%)	\$2,319,336 (66%)
<b>Total Stormwater Expenditures</b>	<b>\$2,061,359</b>	<b>\$2,561,943</b>	<b>\$2,626,074</b>	<b>\$3,008,104</b>	<b>\$3,495,846</b>

### 2. Parcels

- Single Family, Two Family, Three Family Residential Parcels
  - Total Parcels: 22,694
  - Average Impervious Area: 3,780 SF
  - Range of Impervious Area: 12 SF to 109,290 SF
  - Average Lot Size: 18,351 SF
- Non-Residential Parcels Analyzed (apartments, vacant lots, commercial and industrial parcels)
  - Parcels Analyzed: 4,627
  - Range of Impervious Area of Non-Residential Parcels: 0 SF to 2,393,948 SF (the highest impervious area is associated with 579 Troy Schdy Road, a multi-use commercial facility)
- Publicly owned parcels are excluded from the analysis and billing (including state and town-owned land)

### 3. ERU Data Collection and Analysis

- 1 ERU = 3,780 SF

Land Use Classification	No. of Parcels (units)
Residential	
Single Family	21,556
Two Family	1,091 (2,182)
Three Family	47 (141)
Other Residential/Non-Residential – Apartments, Commercial, Industrial	4,627

### 4. ERU Rate Structure Options

Under options 1A and 1B, as described below, residential parcels (1, 2, and 3 Families) would be charged a flat fee. All other parcels would be charged varying fees based on their actual impervious area. Using the impervious area, the number of ERUs would be calculated for each parcel, and then rounded to the nearest whole number and multiplied by the ERU rate to determine the rate for each parcel.

- Option #1A
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Fees for All Other Parcels Based on Impervious Area
  - ERU = 3,780 SF; ERU Rate = \$40
  - Revenue Generated = \$2,524,920 annually

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
Single Family	21,556	-	-	-	\$40	\$862,240
Two Family	1,091	-	-	-	\$40	\$43,640
Three Family	47	-	-	-	\$40	\$1,880
Other Residential/Non-Residential	4,627	145,002,416	40,429	\$40	-	\$1,617,160
<b>TOTAL REVENUE COLLECTED:</b>						<b>\$2,524,920</b>

- Option #1B
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Fees for All Other Parcels Based on Impervious Area
  - ERU = 3,780 SF; Split ERU Rate of \$20 for Residential (1, 2, and 3 Families) and \$50 for all other parcels
  - Revenue generated: \$2,475,330 annually

Under Options 2A and 2B, as described below, residential parcels (1, 2, and 3 families) would be charged a flat fee. All other parcels would be charged varying fees based on tiered actual impervious areas.

- Option #2A
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Flat Fee = \$40
  - Varying Fees for All Other Parcels Based on Impervious Area Tiers
  - Revenue Generated from 1, 2, and 3 Families = \$907,760
  - Revenue Generated from Other Residential/Non-Residential = \$1,500,900
  - Total Revenue Generated = \$2,408,660

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERU s	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	21,556	-			\$40	\$862,240
• Two Family	1091	-			\$40	\$43,640
• Three Family	47	-			\$40	\$1,880
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	2,638	-	-	-	\$125	\$329,750
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	331	-	-	-	\$150	\$49,650
Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	231	-	-	-	\$200	\$46,200
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	314	-	-	-	\$250	\$78,500
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	431	-	-	-	\$300	\$129,300
Other Residential/Non-Residential Tier 6 (50,000 ≤ IA < 75,000 SF)	235	-	-	-	\$400	\$94,000
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	134	-	-	-	\$500	\$67,000
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	180	-	-	-	\$1,000	\$180,000
Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	60	-	-	-	\$2,000	\$120,000
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	34	-	-	-	\$3,000	\$102,000
Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	13	-	-	-	\$4,000	\$52,000
Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	7	-	-	-	\$5,000	\$35,000
Other Residential/Non-Residential Tier 13 (600,000 ≤ IA < 700,000 SF)	5	-	-	-	\$7,500	\$37,500
Other Residential/Non-Residential Tier 14 (700,000 ≤ IA < 800,000 SF)	6	-	-	-	\$10,000	\$60,000
Other Residential/Non-Residential	3	-	-	-	\$12,500	\$37,500

Tier 15 (800,000 ≤ IA < 900,000 SF)						
Other Residential/Non-Residential	0	-	-	-	\$15,000	\$ -
Tier 16 (900,000 ≤ IA < 1,000,000 SF)						
Other Residential/Non-Residential	1	-	-	-	\$17,500	\$17,500
Tier 17 (1,000,000 SF ≤ IA < 1,500,000 SF)						
Other Residential/Non-Residential	1	-	-	-	\$20,000	\$20,000
Tier 18 (1,500,000 SF ≤ IA < 2,000,000 SF)						
Other Residential/Non-Residential	2	-	-	-	\$22,500	\$45,000
Tier 19 (2,000,000 SF ≤ IA < 2,500,000 SF)						
Other Residential/Non-Residential	0	-	-	-	\$25,000	\$ -
Tier 20 (2,500,000 ≤ IA < 3,000,000 SF)						
<b>Total Revenue Collected:</b>						<b>\$2,408,660</b>

- Option #2B
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Flat Fee = \$40
  - Varying Fees for All Other Parcels Based on Impervious Area Tier
  - Revenue Generated from 1, 2, and 3 Families = \$907,760
  - Revenue Generated from other Residential/Non-Residential = \$1,969,400
  - Total Revenue Generated - \$2,877,160

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERU s	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	21556	-			\$40	\$862,240
• Two Family	1091	-			\$40	\$43,640
• Three Family	47	-			\$40	\$1,880
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	2638	-	-	-	\$100	\$263,800
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	331	-	-	-	\$200	\$66,200
Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	231	-	-	-	\$300	\$69,300
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	314	-	-	-	\$400	\$125,600
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	431	-	-	-	\$500	\$215,500
Other Residential/Non-Residential Tier 6 (50,000 ≤ IA < 75,000 SF)	235	-	-	-	\$1,000	\$235,000
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	134	-	-	-	\$1,500	\$201,000
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	180	-	-	-	\$2,000	\$360,000



Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	60	-	-	-	\$2,500	\$150,000
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	34	-	-	-	\$3,000	\$102,000
Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	13	-	-	-	\$3,500	\$45,500
Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	7	-	-	-	\$4,000	\$28,000
Other Residential/Non-Residential Tier 13 (600,000 ≤ IA < 700,000 SF)	5	-	-	-	\$4,500	\$22,500
Other Residential/Non-Residential Tier 14 (700,000 ≤ IA < 800,000 SF)	6	-	-	-	\$5,000	\$30,000
Other Residential/Non-Residential Tier 15 (800,000 ≤ IA < 900,000 SF)	3	-	-	-	\$6,000	\$18,000
Other Residential/Non-Residential Tier 16 (900,000 ≤ IA < 1,000,000 SF)	0	-	-	-	\$7,000	\$ -
Other Residential/Non-Residential Tier 17 (1,000,000 SF ≤ IA < 1,500,000 SF)	1	-	-	-	\$8,000	\$8,000
Other Residential/Non-Residential Tier 18 (1,500,000 SF ≤ IA < 2,000,000 SF)	1	-	-	-	\$9,000	\$9,000
Other Residential/Non-Residential Tier 19 (2,000,000 SF ≤ IA < 2,500,000 SF)	2	-	-	-	\$10,000	\$20,000
Other Residential/Non-Residential Tier 20 (2,500,000 ≤ IA < 3,000,000 SF)	0	-	-	-	\$11,000	\$ -
<b>Total Revenue Collected:</b>						<b>\$2,877,160</b>

5. Intensity of Development Data Collection and Analysis

Total Annual Revenue = \$2,104,461.60

Category Number	Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)	Total Served Area (sq.ft.)	Total Monthly Revenue
1	Vacant/Undeveloped (0%)	\$0.08	94,973,508	\$7,597.88
2	Light Development (1% to 20%)	\$0.12	636,230,204	\$76,347.62
3	Moderate Development (21% to 40%)	\$0.16	296,909,893	\$47,505.58
4	Heavy Development (41% to 70%)	\$0.24	123,255,708	\$29,581.37
5	Very Heavy Development (71% to 100%)	\$0.32	44,810,447	\$14,339.34

				<b>\$175,371.80</b>
<b>Total Annual Revenue</b>				<b>\$2,104,461.60</b>

## Rate Structure Options – Village of Menands (A Village of the Town of Colonie)

1. While a stormwater utility fee is not warranted in Menands at this time, should the village decide to join the Town of Colonie in this effort, they would expect to generate in the range of \$32,000 per year from the fee.
2. Parcels
  - Single Family, Two Family, Three Family Residential Parcels
    - 863 Total Parcels
    - 4,429 SF Average Impervious Area
    - Range of Impervious Area: 230 SF to 23,461 SF
    - Average Lot Size: 21,297 SF
  - Other Residential / Non-Residential Parcels Analyzed (apartments, vacant lots, commercial and industrial parcels)
    - 243 Parcels Analyzed
    - Range of Impervious Area: 0 SF to 910,003 (the highest impervious area is associated with Riverview Center, a multi-use commercial facility located at 150 Broadway)
  - Publicly owned parcels are excluded from the analysis and billing (including state and town-owned land)
3. ERU Data Collection & Analysis
  - 1 ERU = 4,429 SF

Land Use Classification	No. of Parcels (units)
Residential	
Single Family	804
Two Family	54 (108)
Three Family	5 (15)
Other Residential/Non-Residential – Apartments, Commercial, Industrial	243

## 4. ERU Rate Structure Options

Under options 1A and 1B, as described below, residential parcels (1, 2, and 3 Families) would be charged a flat fee. All other parcels would be charged varying fees based on their actual impervious area. Using the impervious area, the number of ERUs would be calculated for each parcel, and then rounded to the nearest whole number and multiplied by the ERU rate to determine the rate for each parcel.

- Option #1A
  - Flat Fee for Residential Parcels (1, 2, and 3 Families) = \$20
  - Flat Rate for All Other Parcels = \$50
  - Revenue Generated = \$26,980 annually

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
Single Family	804	-	-	-	\$20	\$16,080
Two Family	54	-	-	-	\$20	\$1,080
Three Family	5	-	-	-	\$20	\$100
Other Residential/ Non-Residential	243	12,430,556	2,924	-	\$40	\$12,150
<b>TOTAL REVENUE COLLECTED:</b>						<b>\$29,410</b>

- Option #1B
  - Flat Fee for Residential Parcels (1, 2, and 3 Families) = \$25
  - Flat Rate for all other Parcels: \$75
  - Revenue Generated = \$39,800 annually

Under Options 2 as described below, residential parcels (1, 2, and 3 families) would be charged a flat fee. All other parcels would be charged varying fees based on tiered actual impervious areas.

- Option #2
  - Flat Fee for Residential Parcels (1, 2, and 3 Families)
  - Flat Fee = \$20
  - Varying Fees for All Other Parcels Based on Impervious Area Tiers
  - Revenue Generated from 1, 2, and 3 Families = \$17,260
  - Revenue Generated from Other Residential/Non-Residential = \$14,180
  - Total Revenue Generated = \$31,440

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERU s	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	804	-			\$20	\$16,080
• Two Family	54	-			\$20	\$1,080
• Three Family	5	-			\$20	\$100
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	110	-	-	-	\$20	\$2200
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	24	-	-	-	\$30	\$720
Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	11	-	-	-	\$40	\$440
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	16	-	-	-	\$50	\$800
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	26	-	-	-	\$60	\$1560
Other Residential/Non-Residential	54	-	-	-	\$70	\$3780

Tier 6 (50,000 ≤ IA < 75,000 SF)						
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	13	-	-	-	\$80	\$1040
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	15	-	-	-	\$90	\$1350
Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	7	-	-	-	\$100	\$700
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	6	-	-	-	\$120	\$720
Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	1	-	-	-	\$140	\$140
Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	0	-	-	-	\$160	\$ -
Other Residential/Non-Residential Tier 13 (600,000 ≤ IA < 700,000 SF)	1	-	-	-	\$180	\$180
Other Residential/Non-Residential Tier 14 (700,000 ≤ IA < 800,000 SF)	0	-	-	-	\$200	\$ -
Other Residential/Non-Residential Tier 15 (800,000 ≤ IA < 900,000 SF)	1	-	-	-	\$250	\$250
Other Residential/Non-Residential Tier 16 (900,000 ≤ IA < 1,000,000 SF)	1	-	-	-	\$300	\$300
<b>Total Revenue Collected:</b>						<b>\$31,440</b>

#### 5. Intensity of Development Data Collection and Analysis

Total Annual Revenue = \$116,158.44

Category Number	Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)	Total Served Area (sq.ft.)	Total Monthly Revenue
1	Vacant/Undeveloped (0%)	\$0.08	2,493,197	\$199.46
2	Light Development (1% to 20%)	\$0.12	27,119,460	\$3,254.34
3	Moderate Development (21% to 40%)	\$0.16	10,671,683	\$1,707.47
4	Heavy Development (41% to 70%)	\$0.24	8,168,539	\$1,960.45
5	Very Heavy Development (71% to 100%)	\$0.32	7,994,242	\$2,558.16
				<b>\$9,679.87</b>
<b>Total Annual Revenue</b>				<b>\$116,158.44</b>

# Exploring the Development of a Stormwater Utility

Three Case Studies in Albany County, New York  
Town of New Scotland  
Town of Colonie  
Village of Menands



April 2020

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## SPECIAL THANKS AND ACKNOWLEDGMENTS

The Stormwater Coalition of Albany County lead by Nancy Heinzen Stormwater Coalition Program Coordinator/Director, obtained the funding and provided direction and technical oversight for this stormwater utility investigation. Nancy, along with the following municipal leaders invested significant hours in meetings, background data collection, access to important files, reviews of drafts and shared their local knowledge of development, stormwater infrastructure and operations and current and future stormwater permit requirements. Special thanks go out to John Dzialo, Town of Colonie, Stormwater Management Program Coordinator; Jeremy Cramer, Town of New Scotland, Deputy Code Enforcement Officer; and Paul Reuss, Village of Menands, Executive Assistant to the Mayor/Stormwater Coordinator.

## EXECUTIVE SUMMARY

The Towns of New Scotland and Colonie, as well as the Village of Menands, located in Albany County, New York, are evaluating strategies to fund stormwater management needs, guarantee regulatory compliance, reduce stormwater flooding, and invest in aging infrastructure, while at the same time ensuring that any methodology adopted for assigning fees is fair and equitable to all users. After reviewing available funding mechanisms and examples of other municipalities in the northeast region leading the way on stormwater management, the Towns and Village decided to explore the feasibility of implementing a stormwater utility. A stormwater utility collects fees to support the operation, permit compliance, maintenance, upgrades, and expansion of the existing stormwater system. The Stormwater Coalition of Albany County, under the direction of Nancy Heinzen, organized and managed this project.

### STORMWATER MANAGEMENT GOALS & ASSUMPTIONS



#### INVEST IN THE FUTURE

Each community will need to invest more in stormwater infrastructure to ensure an adequate level of service and regulatory compliance than what has been invested historically. By creating a stormwater utility, each community could invest in the future without burdening other departments financed through the General Fund, like schools and highway.



#### REDUCE STORMWATER FLOODING

Urban stormwater runoff is directly correlated to the amount of impervious area. Impervious area keeps stormwater from seeping into the soil and recharging groundwater. In heavy downpours, the current storm drainage system can become overwhelmed. Funds generated through a stormwater utility could be used to upgrade systems and to construct green infrastructure. Green infrastructure, like bioswales and rain gardens, uses natural properties to filter pollutants and allow water to soak into the soil rather than flood our streets.



#### MEET REGULATORY REQUIREMENT

Each community must comply with the extensive requirements of the Municipal Separate Storm Sewer Systems (MS4) Permit. The communities will incur significant costs in order to meet the mandates within the permit. A reliable funding source will be necessary for the foreseeable future.



#### CONTROL WATER POLLUTION

Stormwater flowing from impervious surfaces, like roadways and parking lots, carries pollutants into rivers, streams, and groundwater. Water contamination is harmful to drinking water sources, wildlife and recreation. Water pollution results in both indirect and direct costs.

The projected stormwater budget for FY 2020 to FY 2024 covers compliance with the NYS Proposed 2016 MS4 Permit, culvert and drainage improvements, operation and maintenance, as well as equipment needs. The total budgets average approximately:

#### PROJECTED STORMWATER BUDGET

	WITH COALITION SUPPORT	WITHOUT COALITION SUPPORT
<b>Town of Colonie</b>	\$2,744,966	\$2,750,665
<b>Town of New Scotland</b>	\$115,611	\$130,151

### STORMWATER UTILITY FEASIBILITY



A stormwater utility fee offers a reliable and equitable funding mechanism to meet municipal stormwater management needs compared to other funding sources. There are many communities in the northeast region that have stormwater fee systems in place, and many several other communities actively working to develop stormwater funding mechanisms or that have passed enabling legislation.

FUNDING	PROS	CONS
<b>General Fund</b>	Protocol is already in place. Guaranteed source of funding.	New cost burdens from the MS4 Permit would increase the amount of funding going towards stormwater from the general fund, which could limit funding for other departments. Not all properties are taxed.
<b>Grants</b>	Brings funding from outside of the Town.	Grants are only for specific types of projects and are not guaranteed.
<b>Stormwater Fund</b>	Guaranteed source of funding. A more equitable fee based on impact to stormwater system.	Initial time and effort involved in implementation and oversight going forward.

### HOW WOULD A STORMWATER UTILITY WORK FOR INTERESTED COMMUNITIES?

One of the fairest ways to create a stormwater utility is to calculate the fee based on a parcel's impact upon the drainage system. Parcels with greater impervious area, and without stormwater controls onsite, discharge greater amounts of stormwater into the municipal storm drain system. Therefore, the first step to calculate a stormwater utility fee is to measure the impervious area on parcels with different types of development. The second step is to analyze various ways to calculate stormwater user fees and corresponding billing rates.

One such stormwater utility is called the “intensity of development” method. This method categorizes parcels based on an impervious percentage range and changes a rate based on this. Another option that some communities use is an Equivalent Residential Unit (ERU). This is used to compare impact to the stormwater system across different land use types and it is typically based on the average impervious area of the dominant land use type. For example, in the Town of Colonie, the ERU would equal the average impervious surface on a single-family residential parcel, which equals 3,780 square feet. Here are potential fee options for the Town (see below). The details and analysis for each of these steps are included herein.

<div>  Residential </div>		<div>  Commercial </div>		
Option 1	Flat Fee	Impervious Area using ERU	3,780	<div> <div>average sq. ft. of impervious area per residential sample</div> <div> <div></div> <div></div> </div> <div>1 ERU</div> </div>
Option 2	Flat Fee	Based on Impervious Area Tiers		

For example, option 1 would issue a flat fee for small residential customers (households with three units or less) of \$40 per year. Commercial properties and larger residential properties would be charged based on the properties’ ERU. For example, a property with 7,560 square feet of impervious surface would pay \$80 per year (see calculation below). Fees would be administered through the existing water/sewer billing system. Abatements or corrections to the stormwater bill would be offered and a simple credit or incentive program system could be explored.

**Commercial Property A**

Amount of Impervious Area	7,560 sq. ft.
Equivalent Residential Unit (ERU)	<div> <div>÷ 3,780 sq. ft.</div> <div>2 ERU</div> </div>
Rate per ERU	\$40 per year
Commercial Property A	<div> <div>× 2 ERU</div> <div>\$80 per year</div> </div>
Stormwater Utility Fee	

## 1.0 INTRODUCTION & OVERVIEW

### 1.1 Background

Stormwater is runoff from rain or snow melt. Most stormwater currently flows into drainage systems and ultimately ends up in groundwater, ponds, streams or wetlands. These drainage systems are often municipal or County owned and since 2003, increasingly regulated. Stormwater can carry pollutants (such as bacteria, oil and grease, fertilizer, sand, and trash), which can contaminate drinking water supplies, surface waters utilized for recreational activities, fish and wildlife habitat. Impervious surfaces do not allow any stormwater to infiltrate or seep into the ground. Areas with widespread impervious surfaces can channel large amounts of stormwater to the drainage system, which can become overwhelmed during intense periods of rainfall.

Under the United States Environmental Protection Agency (USEPA's) Phase II Stormwater Rule (EPA 2005), small municipal separate stormwater sewer systems (MS4s) are required to develop a stormwater management program that reduces the amount of pollutants carried by stormwater during storm events to waterbodies to the "maximum extent practicable." The goal of the program is to improve water quality and recreational use of waterways. MS4 stormwater programs have six elements called minimum control measures (MCM) that when implemented together, are expected to result in pollutant load reductions. These goals are achievable through ongoing implementation of permit requirements, routine assessment of stormwater infrastructure needs, and the effective operation and maintenance of drainage infrastructure. In this way, flood prone areas are protected, there is adequate stormwater drainage, and water quality concerns are addressed.

Thus, stormwater management programs are intended to reduce stormwater pollution and control localized flooding. The ability of the current system to meet its intended purpose can be improved by complying with regulatory requirements and investing in the future. The goals of the stormwater program are to:

- Reduce Stormwater Flooding
- Improve Water Quality
- Meet Regulatory Requirements
- Invest in the Future

Three municipalities, the Towns of Colonie and New Scotland, and the Village of Menands (a village of Colonie) all located in Albany County, NY analyzed historic and current stormwater activities and expenditures as well as projected stormwater activities and investments to gain a full understanding of current stormwater program budget constraints and anticipated annual costs of meeting its goals. Each placed special attention on reducing flooding as well as efforts needed to comply with the requirements of the future State Pollutant Discharge Elimination System (SPDES) General Permit for stormwater discharges from the Municipal Separate Storm Sewer System (MS4 Permit). Together they have an overall goal of improving receiving water quality by reducing pollutant loadings to valuable water resources such as rivers, lakes and wetlands





asphalt, surface sand filters, infiltration basins, etc.). Of these, 152 post construction stormwater management practices are publicly owned and maintained by the Town. The remaining 227 practices are privately-owned and maintained but require some oversight by Town staff as described in the MS4 Permit (i.e. map, monitor maintenance by private owners, and tracking and enforcement related to failed practices).

The Town also owns one facility regulated under the NYSDEC General Permit for Stormwater Discharges from Multi-Sector Industrial Activities. While this industrial permit is currently managed by an outside contractor, from time to time inspections have been the responsibility of Town stormwater staff.

There is one *Impaired Water Without an Approved TMDL* within a small area of Town. The impairment is phosphorus and the waterbody is Ann Lee (Shakers) Pond. The Draft MS4 Permit includes various impairment related requirements, such as targeting sources of phosphorus within the watershed through enhanced public education as it relates to lawn care and yard waste disposal, pet waste management, and septic system maintenance; GIS updates to identify areas with potential to contribute phosphorus based on land use characteristics; supplemental IDDE investigation requirements; enhanced catch basin cleaning and street sweeping; and retrofit of the existing drainage system with green infrastructure in conjunction with planned municipal improvement projects.

#### 1.1.3 Village of Menands

The Village of Menands has a total area of 3 square miles and it is located wholly within the Town of Colonie, North of the City of Albany on the western bank of the Hudson River. Per the 2010 Census, Menands had a total population of 3,990. There are 2,728 total residential units, of which 968 are single family, 100 are multi-family, and apartments account for 1,600 units. Additionally, there are approximately 200 commercial properties in Menands.

### 1.3 Current Stormwater Management Costs and Funding

Stormwater programs for all three municipalities are currently funded through the General Fund, which is financed through property taxes, and some have a dedicated Highway Department Budget. Stormwater programs currently budget for maintenance items such as street sweeping and catch basin cleaning, and capital improvement projects. By relying on the General Fund, stormwater management must compete with other budgets and is often not prioritized when compared with other highly visible or acute problems, like public safety and schools. However, when regulations necessitate funding for additional compliance, like the new MS4 permit, municipalities in the County must reallocate funds to stormwater management, which limits funding for other departments. Certain stormwater system improvements can be financed through other external finance mechanisms; however, none are specifically for stormwater management or guaranteed long-term funding sources. Capital funding grants are for capital improvement projects such as highway construction, preservation and improvement projects.

Ongoing and future municipal activities related to system operation and maintenance, and planned capital improvement projects, were examined to gain a full understanding of the current program and anticipated annual costs to implement municipal stormwater programs going forward. Non-capital costs, which also reflect staffing and equipment needs, as they relate to the MS4 Permit compliance, were also examined.

### 1.4 Near- and Long- Term Stormwater Management Costs and Funding

Information and data was reviewed, and interviews were conducted with experts from each Town and Village to gain a greater understanding of the Stormwater System and related budgets and costs for each municipality.

Using information provided by the Towns and Village, including each 5-Year Capital Improvement Plan, a five-year comprehensive stormwater management budget that captures each municipality's stormwater needs was developed. The budgets included both capital projects, and non-capital items related to MS4 compliance, such as operation and maintenance of the drainage system, and associated equipment. These budgets reflect estimated annual planning level costs.

#### 1.1.4 Town of New Scotland Stormwater Management Costs and Funding

Using the information provided, Weston & Sampson developed a five-year comprehensive stormwater management budget that captures the Town's stormwater needs including both capital projects, and non-capital items related to MS4 compliance, such as operation and maintenance of the drainage system, and associated staffing. This budget includes, but goes beyond, the MS4 Permit compliance budget, which is captured in the Non-Capital Costs item highlighted in Table 1. This budget and summarized in Table 1 reflects estimated annual planning level costs. These are preliminary estimated costs that warrant further future refinement as additional information is obtained.

*Table 1. Non-Capital and Capital Stormwater-Related Costs by Permit Year*

Stormwater Items	Stormwater Costs by Permit Year				
	Permit Year 1 - 2020	Permit Year 2 - 2021	Permit Year 3 - 2022	Permit Year 4 - 2023	Permit Year 5 - 2024
Non-Capital Items (MS4 Compliance, including associated O&M, staffing)	\$47,500	\$61,135	\$62,225	\$54,340	\$56,955
Capital Projects	\$124,600	\$59,200	\$60,400	\$61,600	\$62,800
<b>Total Stormwater Expenditures</b>	<b>\$172,100</b>	<b>\$120,335</b>	<b>\$122,625</b>	<b>\$115,940</b>	<b>\$119,755</b>

To date, the Town's Building Inspector has been the lead person responsible for implementing MS4 Permit requirements along with support that the Town has received from the Stormwater Coalition of Albany County. As the requirements of the new permit are more extensive, the Town will need to rely on continued Coalition support or may need to expand their existing staffing resources. It is anticipated that the Town may need to dedicate an estimated 10 staff hours on a weekly basis to meet MS4 Permit requirements and to operate and maintain their drainage system going forward. Hiring additional staff dedicated to stormwater management would provide the Town with the opportunity to perform more stormwater operation and maintenance-related items in-house at a potential cost savings to the Town. In addition, the use of Town staff to perform operation and maintenance activities also allows for Town staff to gain institutional system knowledge that provides many added benefits as the Town works to operate and maintain their drainage system. In some instances, the use of private sector, consulting and/or Coalition support may result in cost savings through lower overhead/fringe benefit costs. Outsourcing of specific stormwater program elements could be handled under contract arrangements especially for those tasks that are infrequent or require specialized skill sets that may be expensive for the Town to maintain on a full-time basis. Historically, the Town's involvement with the Coalition has allowed the Town to meet critical MS4 Permit requirements including mapping of town-drainage infrastructure through use of GIS staff support provided by the Coalition.

In addition to potential needed increases in staff to support MS4 Permit requirements going forward, the Town is also actively evaluating equipment needs. The Town of New Scotland and adjacent Town of

Bethlehem submitted a grant application to the New York State Department of Environmental Conservation for funds to purchase a vacuum truck. The addition of this shared vacuum truck could be utilized to clean catch basins in both communities. A shared services agreement between the towns will be implemented and the Towns already have a Highway Department Shared Services Agreement. The Town has not budgeted any additional funds for the purchase of other stormwater related equipment at this time. Currently, the Town cleans out catch basins with a 5-gallon bucket and a shovel. As the Town works to optimize cleaning of catch basins under the new permit, it is anticipated that catch basin cleaning frequency may need to increase, which would make a vacuum truck valuable to the Town. New Scotland will be able to clean catch basins at a faster rate, without having to consider contracting out the work, especially if the urbanized area were to expand into the construction areas adjacent to current urbanized areas.

As reported by the Albany County Multi-Jurisdictional Multi-Hazard Mitigation Plan (2018), Albany County and its jurisdictions have experienced various types of flooding in recent years due to higher frequency and intensity of rainfall events. Although Albany County is not located along the Atlantic Coast shoreline subjected to hurricane or catastrophic surge events, the county does lie within a part of the Hudson River that is tidally influenced. Although only 4% of the Town of New Scotland is in the high-risk flood area, Albany County has experienced flooding on many of its roadways, and at many of its parks, sewer treatment facilities, and pump stations.

Due to recent flooding from heavy rainfall events, impacted residents of Albany County (not including Town of New Scotland) filed lawsuits against their local governments, claiming that the local authorities had failed to maintain the sewer systems, and to operate, repair, and maintain the collection pipes and collection structures effectively. Considering the effects of the changing climate pattern and the increased frequency of heavy rainfall events, in general, the Town of New Scotland may also want to consider including infrastructure maintenance potential related costs in the Town's stormwater budget going forward to account for new climate projection related expenses.

#### *1.1.5 Town of Colonie Stormwater Management Costs and Funding*

Utilizing information collected during the literature and data review a comprehensive set of questions were prepared and submitted to the Stormwater Coalition of Albany County/Town of Colonie. The questions were reviewed in detail during an April 4, 2019 interview conducted with Nancy Heinzen, Program Coordinator/Coalition Director for the Stormwater Coalition of Albany County; John Dzialo, Senior Public Works Operations Technician/Town Designated Stormwater Coordinator for the Town of Colonie; and Adam Wands, Stormwater Management Inspector for the Town of Colonie. Any missing information identified during the interview and available was subsequently provided to Weston and Sampson. Information was also provided by William Neeley, former Public Works Operations Supervisor for the Town of Colonie, as part of a separate phone interview.

*Table 2. Breakdown of 5-Year Stormwater Budget for Town of Colonie with Coalition Support*

Items	Permit Year 1 2020	Permit Year 2 2021	Permit Year 3 2022	Permit Year 4 2023	Permit Year 5 2024
Non-Capital Project Costs	\$1,103,209 (54%)	\$1,117,293 (44%)	\$1,136,799 (43%)	\$1,147,735 (38%)	\$1,173,110 (34%)
Capital Project Costs	\$950,000 (46%)	\$1,437,500 (56%)	\$1,484,375 (57%)	\$1,855,469 (62%)	\$2,319,336 (66%)
All Project Costs	\$2,053,209	\$2,554,793	\$2,621,174	\$3,003,204	\$3,492,446

*Table 3. Breakdown of 5-Year Stormwater Budget for Town of Colonie without Coalition Support*

Items	Permit Year 1 2020	Permit Year 2 2021	Permit Year 3 2022	Permit Year 4 2023	Permit Year 5 2024
Non-Capital Project Costs	\$1,111,359 (54%)	\$1,124,443 (44%)	\$1,141,699 (43%)	\$1,152,635 (38%)	\$1,176,510 (34%)
Capital Project Costs	\$950,000 (46%)	\$1,437,500 (56%)	\$1,484,375 (57%)	\$1,855,469 (62%)	\$2,319,336 (66%)
All Project Costs	\$2,061,359	\$2,561,943	\$2,626,074	\$3,008,104	\$3,495,846

The current stormwater budget for 2019, which covers staffing and certain contractual expenses, is \$334,519. That budget describes well the staffing needs and costs associated with implementing the current MS4 program. There are however a variety of other stormwater program and drainage management costs, some known and some anticipated which involve other Town departments, their staff, and equipment. The methods described here provide a thorough analysis of all stormwater costs consolidated into a holistic stormwater budget. As such, using the methods described herein, the 2019 stormwater budget increases significantly in 2020, specifically to \$2,053,209 with Coalition support and \$2,061,359 without Coalition support.

These costs are further broken out into capital and non-capital costs. Both Table 2 and Table 3 indicate that the percentage of the proposed budget allocated to non-capital costs beginning in Year 1 decreases from approximately 54% in Year 1 to 34% by Year 5. This is largely a result of the fact that capital costs are increasing substantially. Starting in Year 1, capital costs increase from 46% in Year 1 to 66% by Year 5 with the Coalition and 46% to 66% without the Coalition. Capital costs are unaffected by Coalition support since the Coalition will not be assisting with any capital projects.

Although the percentage of non-capital cost shows a downward trend in the next five years compared to the increasing percentage of capital project costs, non-capital costs do increase over time with membership in the Coalition helping to defray those costs.

Also, by employing new staff, the Town of Colonie will be able to conduct most of its stormwater and permit required tasks utilizing in-house staff. On the other hand, capital costs associated with the operation and



maintenance of the existing stormwater infrastructure will increase. It is anticipated that the increase in budget would be supported through highway funds and continued help from the Coalition with stormwater MS<sub>4</sub> Permit tasks.

The following observations have been made based on the data provided by the Town and follow-up discussions with the Town and Coalition Staff:

- Currently, a majority of stormwater related work is performed by in-house staff.
- There is a need for additional staffing and budget allocation for the Town to be able to comply with the requirements of the new MS<sub>4</sub> Permit.
- The Town requires additional external funding for capital projects including culvert and drainage improvements which are the major components of the budget.
- There is a need in the short-term to replace the existing vacuum sweeper, which is at the end of its useful life.

#### 1.1.6 Village of Menands

A meeting and interview were conducted with the Executive Assistant to the Mayor, Mr. Paul Reuss, and DPW Foreman, Mike Hagmann, to gather information regarding the Village's existing and future costs related to stormwater management. Mr. Reuss is responsible for implementation of stormwater management initiatives related to compliance with the Villages' MS<sub>4</sub> permit, and Mayor Megan Grenier is the Chief Elected Official for the Village.

During the interview, it became apparent that Menands spends very little on stormwater management. There were no major or recurring drainage or flooding problems identified during the interview. In addition to information collected during the interview, the Village of Menands Annual Budget adopted April 15, 2019 for the fiscal year beginning June 1, 2019 and ending May 31, 2020 was reviewed. For this period, the total annual village appropriation for Menands is \$6,732,678, which covers all costs related to the day to day operation of the village. Of this total, it was determined that expenditures for stormwater included the following:

MS <sub>4</sub> Officer Salary (Stormwater partial salary)	\$14,788
Storm Sewer Expenditures (Equipment rentals)	\$2,500
<u>MS<sub>4</sub> Expenditures (Albany County MS<sub>4</sub> Compliance Support Dues)</u>	<u>\$15,000</u>

Total Projected Stormwater Expenditures for FY 2020	\$32,288
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Stormwater costs account for 0.48% of the Villages' annual budget and this is not expected to significantly increase under the new NY State MS<sub>4</sub> Permit.

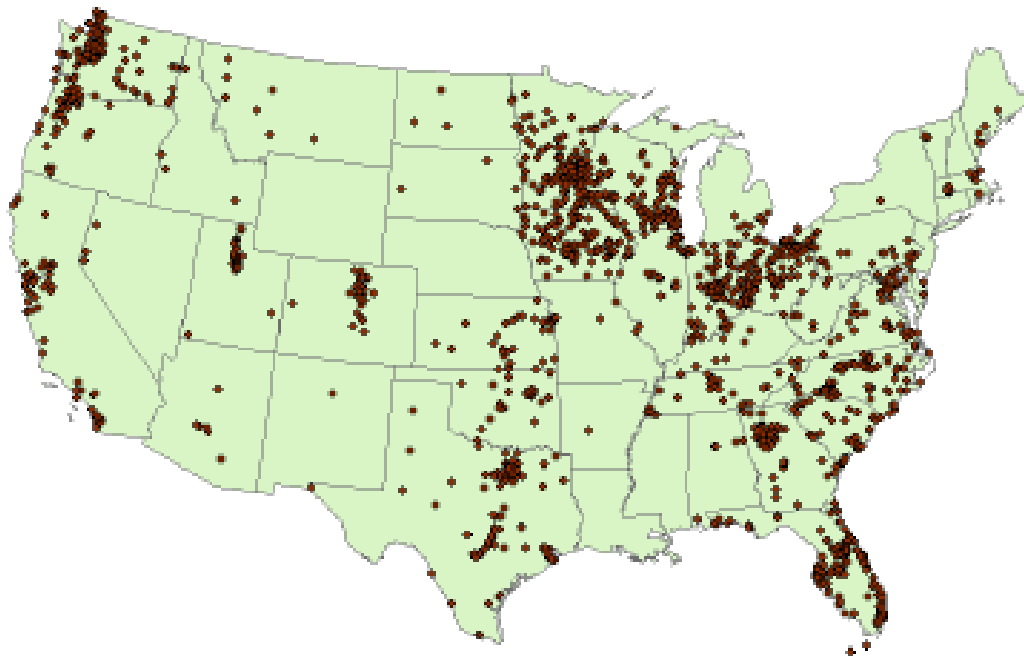
The Village of Menands stormwater program is currently funded through property taxes paid into the Town's General Fund. It was clear from the interview that the system is well managed and has few chronic drainage problems. An occasional catch basin requires repair and/or replacement, and a few areas with drainage problems have been corrected over the years. No major stormwater drainage or MS<sub>4</sub> compliance costs were identified. As a result, it is not recommended that Menands proceed at this time with the implementation of

a stormwater utility. The cost of developing and administering the assessment and collection of stormwater utility fees would not generate significant annual revenue, and the administrative costs to collect the fees and manage the program could approach the amount of annual revenue collected.

## 2.0 STORMWATER FUNDING MECHANISMS

Few funding alternatives currently exist to meet the stormwater needs described in Section 1 above. To avoid pulling funding away from other departments, such as schools and highway, a viable funding source is needed. One way to finance the stormwater operations and future investment is to increase taxes. Taking advantage of available grant opportunities is another alternative. However, grant opportunities do not provide a stable source of funding and often require a town match. The final alternative is a stormwater utility. A stormwater utility collects user fees based on a parcel's impact on the stormwater system. A stormwater utility was determined to be the best alternative for further analysis because it provides a stable funding source that is equitably distributed based on a property's impact on the stormwater system.

Stormwater utilities have been successfully implemented in many other communities across the United States, including the Northeast Region. At present, there is one other community in New York (Ithaca) with a stormwater fee system in place. As the region experiences more stormwater flooding and waterbody pollution, this gives Albany County the opportunity to be a leading community in New York, as the state begins to catch up with many other states across the country that have implemented a dedicated funding source. At least 40 states and the District of Columbia have stormwater utilities and at least 6 states have over 100 stormwater utilities (Campbell, 2018). Figure 1 depicts the distribution of stormwater funding mechanisms by state.



*Figure 1. Stormwater Utilities, 2018*

*Campbell, C. Warren. (2018). Western Kentucky University Stormwater Utility Survey. Western Kentucky University, Bowling Green, KY. pp.2 <https://www.wku.edu/seas/undergradprogramdescription/swusurvey2018.pdf>*

Although fee structures differ, they are generally based upon the amount of impervious surface on a parcel as a measure of the user's impact on the stormwater system. Some municipalities that have a stormwater utility measure the amount, or percentage, of impervious surface on each parcel and charge a fee



accordingly. One such stormwater utility is called the “intensity of development” method. This method categorizes parcels based on an impervious percentage range and changes a rate based on this. Other municipalities use a metric called “equivalent residential unit.” The metric equivalent residential unit can be used to compare a parcel’s impact on the stormwater system across various land use types. Equivalent residential units are generally based on the average use of a single-family residential home because single-family residential parcels are usually the dominant land use type. For stormwater funding mechanisms, an equivalent residential unit (ERU) usually equals the average impervious area associated with a single-family residential parcel.

Another advantage of a stormwater utility as a funding mechanism is the ability to decrease or increase fees based on need. For example, if the amount of revenue generated by their stormwater utility was not meeting their stormwater needs, a municipality could reconsider how fees were collected. A City in Massachusetts originally assigned residential properties 1 ERU and non-residential properties 6 ERUs with a rate of \$25/ERU per year. The City has since increased the rate for 1.0 ERU to \$75 and switched to a tiered fee system based on the amount of impervious area for non-residential properties and residential properties with more than 4 units. By implementing these changes, the City has more than doubled the estimated \$700,000 in revenue that they previously generated under their flat fee system to collect total fees closer to \$2 million.

### 3.0 EQUIVALENT RESIDENTIAL UNIT (ERU) FEE STRUCTURE

#### 3.1 Fee Structures

The Towns and Village have chosen to investigate the revenue potential of implementing a stormwater utility matched to stormwater program costs. Projected costs are available in tables in Section 1. Stormwater fees are generally structured as flat fees based on land use type or as user fees based on impervious area. Note, the term rate is not interchangeable with fee, rather it is the dollar amount associated with the fee. For example, a flat fee could have a rate of \$100 per year.

A flat fee refers to a universal rate or charge (e.g., \$100 per user) and is often tied to a particular land use classification. Flat fees are typically used when there is limited data available on individual use, when use is difficult to quantify, or when there is little variance from one user to the next. Sometimes flat fees are used for certain categories of land use.

Converse to the flat fee is when a customer is charged based on their use of or impact to the storm drain system. User fees can be structured to charge by exact use or to charge through a tiered system. Stormwater user fees are generally calculated based on the amount of impervious surface area on a parcel. The metric "equivalent residential unit" can be used to compare use of the storm drain system across different land use types. Equivalent residential units are generally based on the average use of a single-family residential parcel because single-family properties are usually the dominant land use type. To calculate the user fee, each property would be assigned an ERU based on the amount of impervious surface on the parcel. For example, if the ERU is set to 1,000 square feet and the parcel has 10,000 square feet of impervious surface, the property would be charged for 10 ERUs. The Massachusetts Town of Reading utilizes an ERU structure for non-residential properties and charges \$60 per year for each ERU (3,210 square feet of impervious area).

A tiered user fee involves a stepped rate (e.g., \$50, \$75, and \$100 per year) assigned to groups with specific impervious area amounts. Tiered fees can be used for several reasons, including when the precise quantity of service (impervious area) is impracticable to calculate for each individual user. In addition, tiered user fees are helpful when there is significant variance in impervious area that can be reasonably approximated and then clustered into groups where a small change in impervious area would result in a change in tier and fee. In some respects, a tiered fee system can also be easier to implement and maintain. Instead of all paying different user fees, users pay according to a set number of tiers with established rates, which simplifies the billing process. Also, with a tiered system, changes in impervious area would not automatically equate to a change in fee making the billing system easier to maintain over time. The non-residential properties tiers are (IA=Square Feet of Impervious Area) as shown in the following example:

- \$90 - Tier 1 ( $0 < IA \leq 5,000$ )
- \$200 - Tier 2 ( $5,000 < IA \leq 10,000$ )
- \$325 - Tier 3 ( $10,000 < IA \leq 15,000$ )
- \$500 - Tier 4 ( $15,000 < IA \leq 25,000$ )
- \$1,000 - Tier 5 ( $25,000 < IA \leq 50,000$ )
- \$1,500 - Tier 6 ( $50,000 < IA \leq 75,000$ )
- \$2,250 - Tier 7 ( $75,000 < IA \leq 100,000$ )
- \$3,750 - Tier 8 ( $100,000 < IA \leq 200,000$ )
- \$6,250 - Tier 9 ( $200,000 < IA \leq 300,000$ )
- \$7,500 - Tier 10 ( $IA > 300,000$ )

Some communities simplify rollout by applying less complex fee structures (e.g., flat fees) initially and then following a trial period move to more granular fee structures (e.g., tiered and individualized fees) once more precise data can be obtained to apply these fees appropriately.

### 3.2 Fee Structure and Rate Analysis

#### 3.2.1 Town of New Scotland

In examining the development of a stormwater utility, two fee structures were analyzed. (Table 4). The fee structures were chosen and then evaluated based upon the following: the revenue each might generate compared to need, the feasibility of administering the fee, and the Town's overall stormwater management goals. Under the two options, residential parcels with three units or less were assigned a flat fee. The impervious area associated with non-residential properties and residential properties with more than three units tends to vary widely. Therefore, charging a flat fee to these types of properties was an unfair and unequitable method because of their varying impact on the storm drain system. Option 1 analyzed applying a straight ERU methodology, while Option 2 used a tiered methodology, which still had some basis in the calculated ERU.

*Table 4. Stormwater Rate Structure Option for Smaller Residential Properties and Non-Residential/Larger Residential Properties*

	Rate Structure for Smaller Residential Properties	Rate Structure for Non-Residential/Large Residential Properties
Option 1	Flat Fee	Fee based on ERU Rate
Option 2	Flat Fee	Tiered Fee based on Impervious Area

As part of the evaluation, rates needed to be applied to calculate the projected revenue generated, which is further described in the following sections. In order to calculate potential rates for the stormwater utility, impervious cover data was collected and analyzed including information on the types of development and associated amounts of impervious surface. Using 2018 aerial imagery, the impervious surface was delineated on 2,027 residential parcels and 1,296 non-residential parcels located throughout New Scotland.

Residential parcels with three units or less are the dominant land use type in New Scotland (Table 5). Therefore, for this analysis, a single equivalent resident unit (ERU) equals the average impervious area for residential parcels with three units or less. The average impervious area of all 1-3 family residential parcels was 7,040 square feet. This sets the ERU in New Scotland to 7,040 SF.

Many of the one to three family properties in New Scotland are large properties with multiple buildings and other impervious surfaces. Often these larger parcels contain fields and farm roads connecting these fields. These large properties contribute to an increase in the average impervious area in New Scotland.

*Table 5. New Scotland: Number of Parcels by Land Use Classification*

Land Use Classification	Number of Parcels (Units)
Small Residential	
• Single- Family	1,918
• Two-Unit (Single Family with In-Law Unit)	98 (196)
• Three-Family	11 (33)
Larger Residential <sup>1</sup> /Commercial/Industrial/Tax-Exempt Parcels <sup>2</sup>	1,296
<sup>1</sup> "Larger Residential" includes parcels identified as apartments, childcare facilities, nursing homes, and garden style condominium complexes or other condominium complexes that are billed for sewer as part of a larger entity (building or complex) and not under separate individual sewer accounts. <sup>2</sup> Municipal parcels were removed from the analysis as the Town does not anticipate collecting a fee from Town-owned parcels at this time.	

### 3.2.2 Town of Colonie

In examining the development of a stormwater utility, the Town of Colonie analyzed two fee structures (Table 6). The fee structures were chosen and then evaluated based upon the following: the revenue each might generate compared to need, the feasibility of administering the fee, and the Town's overall stormwater management goals. Under the two options, residential parcels with three units or less were assigned a flat fee. Large residential or non-residential parcels were assigned a fee based on an ERU rate. Option 1 analyzed applying a straight ERU methodology, while Option 2 used a tiered methodology, which still had some basis in the calculated ERU.

*Table 6. Stormwater Rate Structure Option for Smaller Residential Properties and Non-Residential/Larger Residential Properties*

	Rate Structure for Smaller Residential Properties	Rate Structure for Non-Residential/Large Residential Properties
Option 1	Flat Fee	Fee based on ERU Rate
Option 2	Flat Fee	Tiered Fee based on Impervious Area

As part of the evaluation, rates needed to be applied to calculate the projected revenue generated, which is further described in the following sections. In order to calculate potential rates for the stormwater utility, impervious cover and the types of development and associated amounts of impervious surface were evaluated. Using 2018 aerial imagery, the impervious surface was delineated on 22,694 residential parcels and 4,389 non-residential parcels located throughout Colonie.

Residential parcels with three units or less are the dominant land use type in Colonie (Table 7). Therefore, for this analysis, a single equivalent resident unit (ERU) equals the average impervious area for residential parcels with three units or less. The average impervious area of all 1-3 family residential parcels was 3,780 square feet. Since the average impervious area of the sample size was 3,780 SF, the equivalent residential unit or 1.0 ERU was set to 3,780 SF.

*Table 7. Colonie: Number of Parcels by Land Use Classification*

Land Use Classification	Number of Parcels (Units)
Small Residential	
• Single- Family	21,556
• Two-Unit (Single Family with In-Law Unit)	1,091 (2,182)
• Three-Family	47 (141)
Larger Residential <sup>1</sup> /Commercial/Industrial/Tax-Exempt Parcels <sup>2</sup>	4,627
<sup>1</sup> "Larger Residential" includes parcels identified as apartments, childcare facilities, nursing homes, and garden style condominium complexes or other condominium complexes that are billed for sewer as part of a larger entity (building or complex) and not under separate individual sewer accounts. <sup>2</sup> Municipal parcels were removed from the analysis as the Town does not anticipate collecting a fee from Town-owned parcels at this time.	

### 3.2.3 Village of Menands

In assessing the potential for implementing a stormwater utility in Menands, the Village analyzed two fee structures (Table 8). As a Village within the Town of Colonie, the fee structures were chosen and then evaluated based upon the estimated fee the Village would likely pay into the Town of Colonie stormwater utility. Under the two options, residential parcels with three units or less were assigned a flat fee. Large residential or non-residential parcels were assigned a fee based on an ERU rate. Option 1 analyzed applying a straight ERU methodology, while Option 2 used a tiered methodology, which still had some basis in the calculated ERU.

*Table 8. Stormwater Rate Structure Option for Smaller Residential Properties and Non-Residential/Larger Residential Properties*

	Rate Structure for Smaller Residential Properties	Rate Structure for Non-Residential/Large Residential Properties
Option 1	Flat Fee	Flat Fee
Option 2	Flat Fee	Tiered Fee based on Impervious Area

As part of the evaluation, rates needed to be applied to calculate the projected revenue generated, which is further described in the following sections. In order to calculate potential rates for the stormwater utility, the Village collected information about the types of development and associated amounts of impervious surface. Parcel-specific information was available from the New York State GIS Clearinghouse, such as town land use, zoning, aerial imagery, and tax assessor's information. Using 2018 aerial imagery, the impervious surface was delineated on 863 residential parcels and 243 non-residential parcels located in Menands.

Residential parcels with three units or less are the dominant land use type in Menands (Table 9). Therefore, for this analysis, a single equivalent resident unit (ERU) equals the average impervious area for residential parcels with three units or less. The average impervious area of all 1-3 family residential parcels was 4,429 square feet. Since the average impervious area of the sample size was 4,429 SF, the equivalent residential unit or 1.0 ERU was set to 4,429 SF.

*Table 9. Menands: Number of Parcels by Land Use Classification*

Land Use Classification	Number of Parcels (Units)
Small Residential	
• Single- Family	804
• Two-Unit (Single Family with In-Law Unit)	54 (108)
• Three-Family	5 (15)
Larger Residential <sup>1</sup> /Commercial/Industrial/Tax-Exempt Parcels <sup>2</sup>	243
<sup>1</sup> "Larger Residential" includes parcels identified as apartments, childcare facilities, nursing homes, and garden style condominium complexes or other condominium complexes that are billed for sewer as part of a larger entity (building or complex) and not under separate individual sewer accounts.	
<sup>2</sup> Municipal parcels were removed from the analysis as the Town does not anticipate collecting a fee from Town-owned parcels at this time.	

### 3.3 Option 1. Flat Fee for Residential and Non-Residential Parcels Based on ERU

For all three municipalities, the first option analyzed for residential and non-residential parcel was a flat fee based on ERU. This option is described in further detail for each municipality below.

#### 3.3.1 Town of New Scotland

Two variations of Option 1 were analyzed (Table 10). Each variation assigns small residential properties a flat rate. Non-residential properties and larger residential properties would be assigned a fee based on the number of equivalent residential units (ERU), which is calculated by dividing the impervious area for each property by 7,040 square feet (1 ERU). There is a total of 2,186 ERUs associated with non-residential and large residential properties. Table 11 examines the amount of revenue that could be collected by assigning ERU rates of \$40 as outlined in Iteration Number 1A. Under Iteration Number 1B, the use of a split ERU is proposed where all smaller residential properties with three units or less pay a flat fee of \$40, and all other parcels pay a fee based on an ERU rate of \$50.

*Table 10. New Scotland: Option #1 Rate Iterations and Projected Revenue*

Option #1 Iteration	Residential Flat Rate per Year	ERU Rate	Revenue from Small Residential	Revenue from Large Residential/Non-Residential	Annual Revenue
#1A	\$40	\$40	\$81,080	\$87,440	\$168,520
#1B	\$40	\$50	\$81,080	\$109,300	\$190,380

Table 11 provides a detailed breakdown of revenue collected by parcel type as an example of how the fees would be calculated for Option #1 using Iteration #1A. If Option #1A were selected, larger residential properties with more than three units and non-residential properties would pay \$67 per year on average. Residential properties would be charged \$40 per year.

*Table 11. New Scotland: Option #1A Revenue by Parcel Type*

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
Single Family	1,918	-	-	-	\$40	\$76,720
Two Family	98	-	-	-	\$40	\$3,920
Three Family	11	-	-	-	\$40	\$440
Other Residential/ Non-Residential	1,296	11,900,181	2,186	\$40	-	\$87,440
<b>TOTAL REVENUE COLLECTED:</b>						<b>\$168,520</b>

### 3.3.2 Town of Colonie

Two variations of Option 1 were analyzed (Table 12). Each variation assigns small residential properties a flat rate. Non-residential properties and larger residential properties would be assigned a fee based on the number of equivalent residential units (ERU), which is calculated by dividing the impervious area for each property by 3,780 square feet (1 ERU). There are a total of 40,429 ERUs associated with non-residential and large residential properties. Table 13 examines the amount of revenue that could be collected by assigning ERU rates of \$40 as outlined in Iteration Number 1A. Under Iteration Number 1B, the use of a split ERU is proposed where all smaller residential properties with three units or less pay a flat fee of \$20, and all other parcels pay a fee based on an ERU rate of \$50.

*Table 12. Colonie: Option #1 Rate Iterations and Projected Revenue*

Option #1 Iteration	Residential Flat Rate per Year	ERU Rate	Revenue from Small Residential	Revenue from Large Residential/Non- Residential	Annual Revenue
#1A	\$40	\$40	\$907,760	\$1,617,160	\$2,524,920
#1B	\$20	\$50	\$453,880	\$2,021,450	\$2,475,330

Table 13 provides a detailed breakdown of revenue collected by parcel type as an example of how the fees would be calculated for Option #1 using Iteration #1A. If Option #1A were selected, larger residential properties with more than three units and non-residential properties would pay \$350 per year on average. Residential properties would be charged \$40 per year.

*Table 13. Colonie: Option #1A Revenue by Parcel Type*

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
Single Family	21,556	-	-	-	\$40	\$862,240
Two Family	1,091	-	-	-	\$40	\$43,640
Three Family	47	-	-	-	\$40	\$1,880
Other Residential/ Non-Residential	4,627	145,002,416	40,429	\$40	-	\$1,617,160
<b>TOTAL REVENUE COLLECTED:</b>						<b>\$2,524,920</b>

### 3.3.3 Village of Menands

As was done in New Scotland and Colonie, two variations of Option 1 were analyzed (Table 14). Each variation assigns small residential properties a flat rate. Non-residential properties and larger residential properties would be assigned a fee based on the number of equivalent residential units (ERU), which is calculated by dividing the impervious area for each property by 4,429 square feet (1 ERU). There are a total of 2,924 ERUs associated with non-residential and large residential properties. Table 15 examines the amount of revenue that could be collected by the use of a split ERU, which is proposed for both options, where all smaller residential properties with three units or less pay a flat fee of \$20, and all other parcels pay a fee based on an ERU rate of \$50.

*Table 14. Menands: Option #1 Rate Iterations and Projected Revenue*

Option #1 Iteration	Residential Flat Rate per Year	ERU Rate	Revenue from Small Residential	Revenue from Large Residential/Non- Residential	Annual Revenue
#1A	\$20	\$50	\$17,260	\$12,150	\$29,410
#1B	\$25	\$75	\$21,575	\$18,255	\$39,800

Table 15 provides a detailed breakdown of revenue collected by parcel type as an example of how the fees would be calculated for Option #1 using Iteration #1A. If Option #1A were selected, larger residential properties with more than three units and non-residential properties would pay \$75 per year on average. Residential properties would be charged \$20 per year.



*Table 15. Menands- Option #1A Revenue by Parcel Type*

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
Single Family	804	-	-	-	\$20	\$16,080
Two Family	54	-	-	-	\$20	\$1,080
Three Family	5	-	-	-	\$20	\$100
Other Residential/ Non-Residential	243	12,430,556	2,924	-	\$40	\$12,150
<b>TOTAL REVENUE COLLECTED:</b>						<b>\$29,410</b>

### 3.4 Option 2. Residential Flat Fees and Non-Residential Fee based on Tiered Impervious Surface

Under Option 2 for all municipalities, residential parcels (1, 2 & 3-Families) would be charged a flat fee and all other parcels would be charged by tier based upon their actual impervious area. To ensure that fees were equitable and to tie them back to the ERU, fees were assigned by taking the mid-point of each tier and dividing it by the ERU. Town of New Scotland

#### 3.4.1 Town of New Scotland

Table 16 provides an overview of the projected revenue generated in the Town of New Scotland under Option 2.

*Table 16. New Scotland: Option #2 Rate Structure Iterations and Annual Revenue*

Option #2	Residential Flat Fee	Non- Residential Range	Revenue from Small Residential	Revenue from Large Residential/Non- Residential	Annual Revenue
#2	\$40	\$50-800	\$81,080	\$106,125	\$187,205

Table 17 provides a detailed breakdown of revenue collected by parcel type as an example of how the fees would be calculated for Option #2. If Option #2A were selected, larger residential properties with more than three units and non-residential properties would pay \$82 per year on average. Residential properties would be charged \$40 per year.

*Table 17. New Scotland: Option #2A Residential Flat Fee and Non-Residential Fee by Tiered Impervious*

Parcel Type	No. of Parcel s	Total Impervious Area (SF)	ERU s	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	1,918	-			\$40	\$76,720
• Two Family	98	-			\$40	\$3,920
• Three Family	11	-			\$40	\$440
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	826	-	-	-	\$50	\$41,300
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	147	-	-	-	\$75	\$11,025
Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	101	-	-	-	\$100	\$10,100
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	118	-	-	-	\$150	\$17,700
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	68	-	-	-	\$200	\$13,600
Other Residential/Non-Residential Tier 6 (50,000 ≤ IA < 75,000 SF)	16	-	-	-	\$250	\$4,000
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	9	-	-	-	\$300	\$2,700
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	6	-	-	-	\$400	\$2,400
Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	1	-	-	-	\$500	\$500
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	1	-	-	-	\$600	\$600

Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	2	-	-	-	\$700	\$1,400
Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	1	-	-	-	\$800	\$800
<b>Total Revenue Collected:</b>						<b>\$187,205</b>

#### 3.4.2 Town of Colonie

Table 18 provides an overview of the different rate iterations for Option 2 and the projected revenue generation in Colonie. Two variations were chosen where residential properties would pay a flat fee of \$40. In each iteration, the flat rate is varied for each tier of other residential and non-residential parcels.

*Table 18. Colonie: Option #2 Rate Structure Iterations and Annual Revenue*

Option #2 Iterations	Residential Flat Fee	Non-Residential Range	Revenue from Small Residential	Revenue from Large Residential/Non-Residential	Annual Revenue
#2A	\$40	\$125-\$25,000	\$727,760	\$1,500,900	\$2,408,660
#2B	\$40	\$100-\$11,000	\$727,760	\$1,969,400	\$2,877,160

Table 19 provides a detailed breakdown of revenue collected by parcel type as an example of how the fees would be calculated for Option #2A. If Option #2A were selected, larger residential properties with more than three units and non-residential properties would pay \$325 per year on average. Residential properties would be charged \$40 per year.

*Table 19. Colonie: Option #2A Residential Flat Fee and Non-Residential Fee by Tiered Impervious*

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERU s	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	21556	-			\$40	\$862,240
• Two Family	1091	-			\$40	\$43,640
• Three Family	47	-			\$40	\$1,880
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	2,638	-	-	-	\$125	\$329,750
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	331	-	-	-	\$150	\$49,650
Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	231	-	-	-	\$200	\$46,200
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	314	-	-	-	\$250	\$78,500
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	431	-	-	-	\$300	\$129,300
Other Residential/Non-Residential Tier 6 (50,000 ≤ IA < 75,000 SF)	235	-	-	-	\$400	\$94,000
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	134	-	-	-	\$500	\$67,000
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	180	-	-	-	\$1,000	\$180,000
Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	60	-	-	-	\$2,000	\$120,000
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	34	-	-	-	\$3,000	\$102,000
Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	13	-	-	-	\$4,000	\$52,000
Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	7	-	-	-	\$5,000	\$35,000
Other Residential/Non-Residential Tier 13 (600,000 ≤ IA < 700,000 SF)	5	-	-	-	\$7,500	\$37,500
Other Residential/Non-Residential Tier 14 (700,000 ≤ IA < 800,000 SF)	6	-	-	-	\$10,000	\$60,000
Other Residential/Non-Residential Tier 15 (800,000 ≤ IA < 900,000 SF)	3	-	-	-	\$12,500	\$37,500
Other Residential/Non-Residential Tier 16 (900,000 ≤ IA < 1,000,000 SF)	0	-	-	-	\$15,000	\$ -
Other Residential/Non-Residential	1	-	-	-	\$17,500	\$17,500

Tier 17 (1,000,000 SF ≤ IA < 1,500,000 SF)						
Other Residential/Non-Residential Tier 18 (1,500,000 SF ≤ IA < 2,000,000 SF)	1	-	-	-	\$20,000	\$20,000
Other Residential/Non-Residential Tier 19 (2,000,000 SF ≤ IA < 2,500,000 SF)	2	-	-	-	\$22,500	\$45,000
Other Residential/Non-Residential Tier 20 (2,500,000 ≤ IA < 3,000,000 SF)	0	-	-	-	\$25,000	\$ -
<b>Total Revenue Collected:</b>						<b>\$2,408,660</b>

### 3.4.3 Village of Menands

Table 20 provides an overview of the projected revenue generated in the Village of Menands under Option 2.

*Table 20. Menands: Option #2 Rate Structure Iterations and Annual Revenue*

Option #2	Residential Flat Fee	Non-Residential Range	Revenue from Small Residential	Revenue from Large Residential/Non-Residential	Annual Revenue
#2	\$20	\$20-300	\$17,260	\$14,180	\$31,440

Table 21 provides a detailed breakdown of revenue collected by parcel type as an example of how the fees would be calculated for Option #2A. If Option #2A were selected, larger residential properties with more than three units and non-residential properties would pay \$58 per year on average. Residential properties would be charged \$20 per year.

*Table 21. Menands: Option #2A Residential Flat Fee and Non-Residential Fee by Tiered Impervious*

Parcel Type	No. of Parcels	Total Impervious Area (SF)	ERUs	ERU Rate	Flat Rate	Fees Collected
Residential						
• Single Family	804	-			\$20	\$16,080
• Two Family	54	-			\$20	\$1,080
• Three Family	5	-			\$20	\$100
Other Residential/Non-Residential Tier 1 (IA < 5,000 SF)	110	-	-	-	\$20	\$2200
Other Residential/Non-Residential Tier 2 (5,000 ≤ IA < 10,000 SF)	24	-	-	-	\$30	\$720

Other Residential/Non-Residential Tier 3 (10,000 ≤ IA < 15,000 SF)	11	-	-	-	\$40	\$440
Other Residential/Non-Residential Tier 4 (15,000 ≤ IA < 25,000 SF)	16	-	-	-	\$50	\$800
Other Residential/Non-Residential Tier 5 (25,000 ≤ IA < 50,000 SF)	26	-	-	-	\$60	\$1560
Other Residential/Non-Residential Tier 6 (50,000 ≤ IA < 75,000 SF)	54	-	-	-	\$70	\$3780
Other Residential/Non-Residential Tier 7 (75,000 ≤ IA < 100,000 SF)	13	-	-	-	\$80	\$1040
Other Residential/Non-Residential Tier 8 (100,000 ≤ IA < 200,000 SF)	15	-	-	-	\$90	\$1350
Other Residential/Non-Residential Tier 9 (200,000 ≤ IA < 300,000 SF)	7	-	-	-	\$100	\$700
Other Residential/Non-Residential Tier 10 (300,000 ≤ IA < 400,000 SF)	6	-	-	-	\$120	\$720
Other Residential/Non-Residential Tier 11 (400,000 ≤ IA < 500,000 SF)	1	-	-	-	\$140	\$140
Other Residential/Non-Residential Tier 12 (500,000 ≤ IA < 600,000 SF)	0	-	-	-	\$160	\$ -
Other Residential/Non-Residential Tier 13 (600,000 ≤ IA < 700,000 SF)	1	-	-	-	\$180	\$180
Other Residential/Non-Residential Tier 14 (700,000 ≤ IA < 800,000 SF)	0	-	-	-	\$200	\$ -
Other Residential/Non-Residential Tier 15 (800,000 ≤ IA < 900,000 SF)	1	-	-	-	\$250	\$250
Other Residential/Non-Residential Tier 16 (900,000 ≤ IA < 1,000,000 SF)	1	-	-	-	\$300	\$300
<b>Total Revenue Collected:</b>						<b>\$31,440</b>

## 4.0 INTENSITY OF DEVELOPMENT (ID) FEE STRUCTURE

### 4.1 Fee Structure

Intensity of development fees as charged based on the percentage of impervious cover on a parcel. All parcels, including vacant and undeveloped parcels, are charged a fee. The only parcels that are not included in this stormwater utility method is government and publicly owned land. Stormwater fee are structured to be charged based on a range of development.

Development is categorized into five impervious percentage ranges. To calculate the user fee, each property would be assigned a category depending on the range of impervious cover that the parcel lies within. Each category is assigned a monthly rate per 1,000 square feet of total served area, which includes all land on the property, both pervious and impervious.

*Table 22. Intensity of Development Rates*

Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)
Vacant/Undeveloped (0%)	\$0.08
Light Development (1% to 20%)	\$0.12
Moderate Development (21% to 40%)	\$0.16
Heavy Development (41% to 70%)	\$0.24
Very Heavy Development (71% to 100%)	\$0.32

### 4.2 Rate Analysis

The rates noted in Table 22 are consistent across the two towns and one village in this study. The following sections provide potential revenue that could be generated in the towns and village by following the intensity of development methodology.

#### 4.2.1 Town of New Scotland

Intensity of development rates are calculated as monthly rates, which can then be converted to an annual revenue. Table 23 demonstrates the projected monthly revenue collected. It can be noted that the majority of land cover in the Town of New Scotland is associated with properties having between 1% and 20% of the parcel covered by impervious surfaces.

*Table 23. Town of New Scotland ID Projected Revenue*

Category Number	Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)	Total Served Area (sq.ft.)	Total Monthly Revenue
1	Vacant/Undeveloped (0%)	\$0.08	220,072,891	\$17,605.83
2	Light Development (1% to 20%)	\$0.12	1,191,203,786	\$142,944.45

3	Moderate Development (21% to 40%)	\$0.16	9,392,420	\$1,502.79
4	Heavy Development (41% to 70%)	\$0.24	1,409,409	\$338.26
5	Very Heavy Development (71% to 100%)	\$0.32	275,535	\$88.17
				<b>\$162,479.50</b>

As can be seen above, \$162,480 would be generated per month using this methodology. If billed once per year, the Town of New Scotland would generate an additional \$1,949,754. This is nearly twelve times the stormwater budget for the year of 2020. It would be recommended that if this stormwater utility method were used, the rates would be adjusted to reflect a more accurate revenue for the stormwater needs.

#### 4.2.2 Town of Colonie

The Town of Colonie has a 2020 stormwater budget of \$2,061,359. By following this methodology, the Town could generate an annual revenue of \$2,104,462, which would cover just over 100% of the budget. Table 24 shows the total projected monthly revenue collected in the Town of Colonie. The most revenue would come from properties with light development in the Town of Colonie.

*Table 24. Town of Colonie ID Projected Revenue*

Category Number	Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)	Total Served Area (sq.ft.)	Total Monthly Revenue
1	Vacant/Undeveloped (0%)	\$0.08	94,973,508	\$7,597.88
2	Light Development (1% to 20%)	\$0.12	636,230,204	\$76,347.62
3	Moderate Development (21% to 40%)	\$0.16	296,909,893	\$47,505.58
4	Heavy Development (41% to 70%)	\$0.24	123,255,708	\$29,581.37
5	Very Heavy Development (71% to 100%)	\$0.32	44,810,447	\$14,339.34
				<b>\$175,371.80</b>

#### 4.2.3 Village of Menands

If the Town of Menands were to implement a stormwater utility, potential annual revenue generated by following the ID method would equate to \$116,158. Properties with light development cover the majority of the Village of Menands. However, the greatest revenue is generated from parcels with between 71% and 100% impervious cover.



*Table 25. Village of Menands ID Projected Revenue*

Category Number	Category (Impervious Percentage Range)	Rate Per Month per 1,000 Square Feet of Total Served Area (Impervious plus pervious)	Total Served Area (sq.ft.)	Total Monthly Revenue
1	Vacant/Undeveloped (0%)	\$0.08	2,493,197	\$199.46
2	Light Development (1% to 20%)	\$0.12	27,119,460	\$3,254.34
3	Moderate Development (21% to 40%)	\$0.16	1,0671,683	\$1,707.47
4	Heavy Development (41% to 70%)	\$0.24	8,168,539	\$1,960.45
5	Very Heavy Development (71% to 100%)	\$0.32	7,994,242	\$42,558.16
				<b>\$9,679.87</b>

## 5.0 BILLING

### 5.1 Revenue Collection Systems

Municipal governments have several options for collecting stormwater fees. Fees can be collected through a current water or sewer system billing system to reduce costs if the option is available; the fee can be added to a property tax billing; or a bill can be sent as a standalone mailing. The table below lists general benefits and limitations of each approach.


*Table 26. Bill Delivery Approach, Benefits, and Limitations*

Bill Delivery Approach	Benefits	Limitations
Add fee onto property tax billing	<ul style="list-style-type: none"> <li>• Reduces cost of implementation</li> <li>• Simplifies implementation</li> <li>• Improves likelihood of fee collection</li> </ul>	<ul style="list-style-type: none"> <li>• Nonprofits will need special billing</li> <li>• Makes the fee appear to be a tax</li> </ul>
Add fee onto an existing utility billing (e.g., water and sewer)	<ul style="list-style-type: none"> <li>• Reduces cost of implementation</li> <li>• Simplifies implementation</li> <li>• Improves likelihood of fee collection</li> </ul>	<ul style="list-style-type: none"> <li>• A separate bill may still need to be sent for properties not on Town water or sewer</li> </ul>
Create a stand-alone billing process	<ul style="list-style-type: none"> <li>• Clarifies the purpose of the fee</li> </ul>	<ul style="list-style-type: none"> <li>• Increases cost of implementation</li> <li>• Complexity of developing a new billing/collection system</li> <li>• A new bill may be off-putting to ratepayers</li> </ul>

Most communities opt to conduct billing using in-house staff and to add the fee to an existing billing platform (e.g., tax bills or utility bills). By using existing staff and procedures, this billing approach is much less expensive and generally easier to implement than other approaches. Additionally, since ratepayers are already accustomed to paying existing utility bills, the payment is also easier for customers.

#### 4.0 REFERENCES

Campbell, C. Warren. (2018). Western Kentucky University Stormwater Utility Survey. Western Kentucky University, Bowling Green, KY. pp.2  
<https://www.wku.edu/seas/undergradprogramdescription/swusurvey2018.pdf>



# Exploring the Development of a Stormwater Utility

Three Case Studies in Albany County, New York:








- Town of New Scotland
- Town of Colonie
- Village of Menands

April 2020

Stormwater Coalition of Albany County  
"Education, Participation, Compliance"

Weston & Sampson

## What is stormwater management?

-  PUBLIC EDUCATION
-  ILLICIT DISCHARGE DETECTION
-  SYSTEM MAPPING
-  WATER QUALITY TESTING
-  CONSTRUCTION SITE RUNOFF CONTROL
-  UPGRADE AND MAINTAIN AGING INFRASTRUCTURE
-  INSTALLING NEW INFRASTRUCTURE

STORMWATER COALITION OF ALBANY COUNTY

Weston & Sampson

# STORMWATER MANAGEMENT GOALS



**Reduce  
Stormwater  
Flooding**



**Invest in the  
Future**



**Control Water  
Pollution/Improve  
Water Quality**



**Meet Regulatory  
Requirements**



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## SOME EXISTING FINANCIAL MECHANISMS

- General Fund (property tax)
- Capital Funding Grants



**Competition between  
departments**



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## Why is a dedicated stormwater fund necessary?

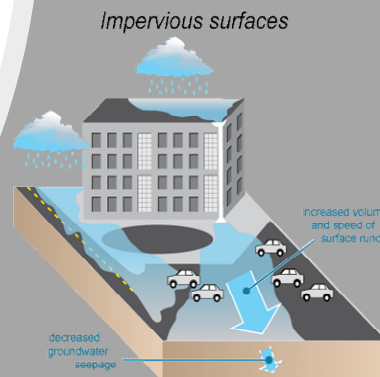
- **No competition** with other priority items for funding
- **Reliable & Predictable**
- Fee is **based upon use** of the stormwater system
- Increasing opportunities to **update stormwater infrastructure**



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## What is a stormwater utility?

a stormwater utility is a  
**FEE based on  
IMPERVIOUS SURFACES**  
on a parcel



Ex: roofs, roads, parking lots, patios, large areas of pavement



Ex: natural landscapes, green roofs, rain gardens, grass pavers, parking lots, infiltration trenches



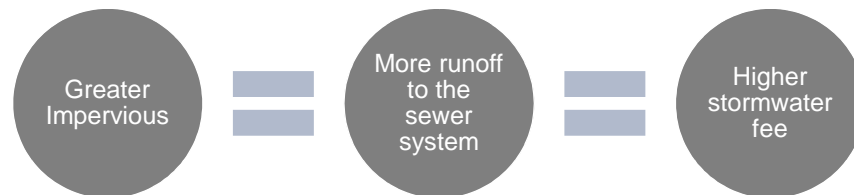
Weston & Sampson

## HOW IS A STORMWATER UTILITY EQUITABLE?

A stormwater utility aids in funding stormwater projects

A stormwater utility is based on the impervious surface of a residential parcel with three units or less

Parcels which produce more stormwater runoff pay a higher fee



Weston & Sampson

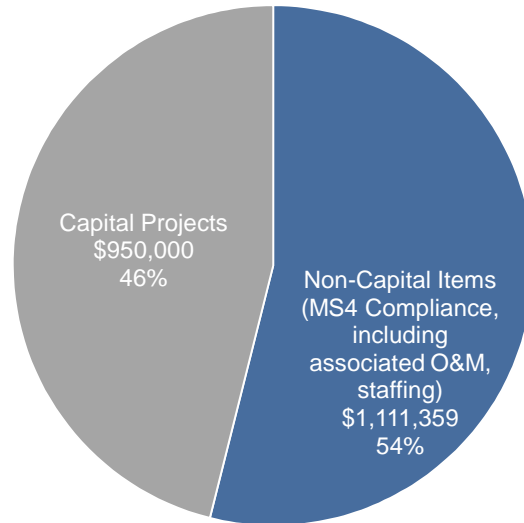
## STEPS TO SETUP A STORMWATER UTILITY

1. Determine existing & future stormwater budget needs ✓
2. Delineate parcel impervious surface area by land use type ✓
3. Assess rate structure options and fees ✓
4. Meet with stakeholders to review findings, assess feasibility, and determine best way to move forward
5. Pass enabling legislation at Town Meeting



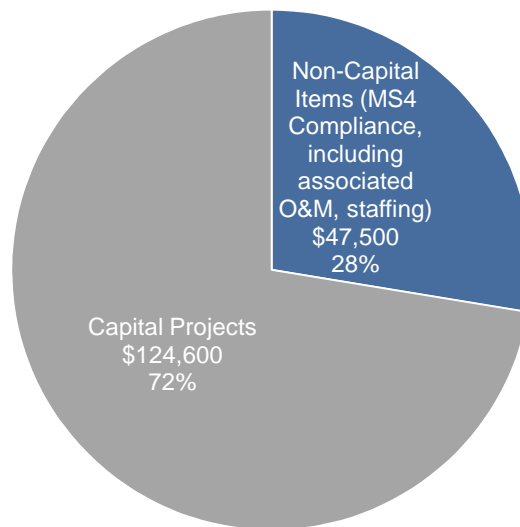
Weston & Sampson

## Town of Colonie 2020 Budgetary Needs: \$2,053,209



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## Town of New Scotland 2020 Budgetary Needs: \$172,100



Weston & Sampson



# EQUIVALENT RESIDENTIAL UNIT (ERU) METHODOLOGY

All parcels (excluding government) are billed an amount proportional to the impervious area on a parcel, regardless of the parcel's total area. The rate is based on an ERU, which is the average impervious area of 1-3 family residential parcels.

How are the ERU fees determined?

Program cost is evaluated and determined

Average Impervious Area of a three family or smaller residential property is determined

This becomes the *EQUIVILANT RESIDENTIAL UNIT (ERU)*

A *set fee* is determined for 1-3 family **residential lots** and a fee is calculated *per ERU* for **all other lots**

OR

A *set fee* is determined for 1-3 family **residential lots** and a *Tiered Fee* is determined for **all other lots** based on impervious area

The fees can be adjusted for budgetary requirements

## Recommended Fee Structure



Residential

Flat Fee



Commercial

Impervious Area  
Tiers or using ERU

Fairness

Cost of Implementation

Budgetary Needs

New York Models



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## EXAMPLE

New Scotland  
ERU calculation

### IMPERVIOUS AREA

(BASED OFF 1 – 3 FAMILY RESIDENTIAL PARCELS)

TOTAL: 14,269,171 square feet

AVERAGE: 7,040 square feet

1 ERU = 7,040 square feet



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### Commercial Property A (ERU Method)

Amount of Impervious Area	20,983 square feet
Equivalent Residential Unit (ERU)	$\div 7,040$ square feet
	<hr/> 3 ERUs (rounded)

Rate per ERU	\$40 per year
Commercial Property A	$\times 3$ ERUs
Stormwater Utility Fee	<hr/> \$120 per year



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### Commercial Property A (Tiered Method)

Amount of Impervious Area:	20,983 square feet
Tier 4 (15,000 SF < IA < 25,000 SF):	\$150 flat rate

Commercial Property A	
Stormwater Utility Fee:	<hr/> \$150 per year



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## Estimated Cost per Household



Small  
Residential

- \$40 per year =  
\$3.33 per month



Commercial/  
Large Residential

- \$40 dollars per ERU



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## Revenue Generated in New Scotland



Small  
Residential

\$40 per year  
X 2,027 parcels  
\$81,080 revenue  
generated per year



Commercial/  
Large Residential

\$40 dollars per ERU  
X 2,186 ERUs  
\$87,440 revenue  
generated per year



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## Revenue Generated in Town of Colonie



### Small Residential

\$40 per year  
X 22,694 parcels  
 \$907,760 revenue  
 generated per year



### Commercial/ Large Residential

\$40 dollars per ERU  
X 40,429 ERUs  
 \$1,617,160 revenue  
 generated per year



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## Revenue Generated in Menands



### Small Residential

\$25 per year  
X 863 parcels  
 \$17,260 revenue  
 generated per year



### Commercial/ Large Residential

\$75 dollars per parcel  
X 243 parcels  
 \$12,150 revenue  
 generated per year



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**\$40 fee per household and per ERU  
Town of New Scotland**

---

**\$172,100**

Stormwater Cost  
Permit Year 1

**98%**

of approximate  
budgetary needs in  
Permit Year 1 could be  
covered by the  
Stormwater Utility Fee



Weston & Sampson

**\$40 fee per household and per ERU  
Town of Colonie**

---

**\$2,061,359**

Stormwater Cost  
Permit Year 1

**100%**

of approximate  
budgetary needs in  
Permit Year 1 could be  
covered by the  
Stormwater Utility Fee



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**\$25 fee per household and \$75 fee per other parcels**  
**Village of Menands**

---

**\$39,800**

Revenue generated  
annually



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## INTENSITY OF DEVELOPMENT (ID) METHODOLOGY

All parcels (excluding government) are charged a fee based on percentage of impervious area. Level of development is categorized, and parcels in each category are charged a fee based on the "total served area" - meaning total area of the parcel.

## Intensity of Development Methodology

Fees are calculated based on the percentage of impervious area of a parcel

Category (impervious percentage range)	Rate per month per 1,000 square feet of total served area (impervious plus pervious)
Vacant/Undeveloped (0%)	\$0.08
Light development (1% to 20%)	\$0.12
Moderate development (21% to 40%)	\$0.16
Heavy development (41% to 70%)	\$0.24
Very heavy development (71% to 100%)	\$0.32



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## Revenue Generated in the Town of New Scotland

Impervious Percent Range	Annual Revenue
Vacant/Undeveloped (0%)	\$211,270
Light Development (1% to 20%)	\$1,715,333
Moderate Development (21% to 40%)	\$18,033
Heavy Development (41% to 70%)	\$4,059
Very Heavy Development (71% to 100%)	\$1,058
<b>TOTAL REVENUE GENERATED ANNUALLY</b>	<b>\$1,949,754</b>



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## Revenue Generated in the Town of Colonie

Impervious Percent Range	Annual Revenue
Vacant/Undeveloped (0%)	\$91,175
Light Development (1% to 20%)	\$916,172
Moderate Development (21% to 40%)	\$570,067
Heavy Development (41% to 70%)	\$354,976
Very Heavy Development (71% to 100%)	\$172,072
<b>TOTAL REVENUE GENERATED ANNUALLY</b>	<b>\$2,104,462</b>



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## Revenue Generated in the Village of Menands

Impervious Percent Range	Annual Revenue
Vacant/Undeveloped (0%)	\$2,393
Light Development (1% to 20%)	\$39,052
Moderate Development (21% to 40%)	\$20,490
Heavy Development (41% to 70%)	\$23,525
Very Heavy Development (71% to 100%)	\$30,698
<b>TOTAL REVENUE GENERATED ANNUALLY</b>	<b>\$116,158</b>



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## Intensity of Development Method Town of New Scotland

---

**\$172,100**

Stormwater Cost  
Permit Year 1

**>100%**

of approximate  
budgetary needs in  
Permit Year 1 could be  
covered by the  
Stormwater Utility Fee



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## Intensity of Development Method Town of Colonie

---

**\$2,061,359**

Stormwater Cost  
Permit Year 1

**100%**

of approximate  
budgetary needs in  
Permit Year 1 could be  
covered by the  
Stormwater Utility Fee



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## Intensity of Development Method Village of Menands

---

# \$116,158

Revenue generated  
annually



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## Credits and Incentives

Credits and incentives are received when a property owner reduces the amount of impervious area on their property.

Credits = permanent (or semi-permanent) reduction of stormwater fees

Incentives = one-time rebate

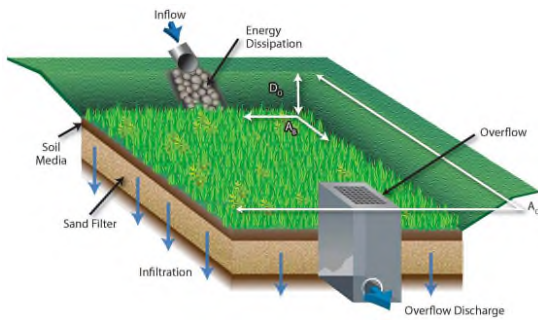


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## Examples

### CREDITS

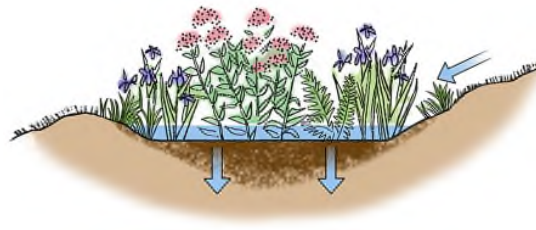
- Stormwater Detention Basins/Vaults
- Infiltration Basin



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### INCENTIVES

- Rain Barrels
- Rain Gardens
- Permeable Pavement



# THANK YOU!

## Questions or Comments?



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FILE NAME: 6\_Ph2\_Deliverables\_FileOrganization\_DirectoryScnShot\_6May2020.pub

File Explorer window showing the directory structure and file list for '1\_2020\_Ph2\_FeeAnalysis\_FINAL'.

Address bar: This PC > Documents > A\_Grant\_4\_Obj\_Mapg\_2016Fwd > Obj15\_Impervious\_CONSLT > 2\_WestonSampson > 1\_2020\_Ph2\_FeeAnalysis\_FINAL

Left sidebar: 20 items (2\_WestonSampson, 1\_2019\_Ph1MapDataReview, 1\_2019\_Ph3\_DraftReports\_F, 1\_2020\_Ph2\_FeeAnalysis\_DF, 1\_2020\_Ph2\_FeeAnalysis\_FINAL, 2\_2019\_Ph3\_nrFINAL\_SWCo, 2\_Ph3\_2019\_FINAL\_vMen, 2\_Ph3\_2020\_FINAL\_tCol, 2\_Ph3\_2020\_FINAL\_tNewScot, 2019\_3-18\_StakeholderMtg, 2019\_4-4\_TCol\_KickOffMtg, 2019\_4-5\_TNewScot\_KickOf, 2019\_5-22\_VMen\_KickOffM, 2019\_6-21\_ProgressReport, 2019\_7-1\_ProgressReport\_I, 2019\_7-30\_SkypeMtg\_Ph1\_F, 2019\_8-28\_Impv\_Recd\_Data, 2019\_9-13\_Ph3\_T-NewScot, 2019\_9-17\_Ph3\_T-Col\_SWCo, 2019\_11-26\_ImpvSurf\_GIS\_C, 2019\_12-9\_Ph3\_SWCosts\_M)

File List:

Name	Date modified	Type	Size
1_ExplorgDevOfSWUtility_Report_3MS4MuniAlbCntyNY_April2020_FINAL.docx	5/6/2020 12:13 PM	Microsoft Word ...	628 KB
1_ExplorgDevOfSWUtility_Report_3MS4MuniAlbCntyNY_April2020_FINAL.pdf	5/6/2020 12:09 PM	Adobe Acrobat ...	1,224 KB
1_Final Stormwater Utility Report.msg	5/6/2020 10:48 AM	Outlook Item	1,285 KB
1_Stormwater-Utility-Development-Analysis_FINAL.docx <—Original file name, #1 added – all same doc	4/24/2020 5:05 PM	Microsoft Word ...	526 KB
1_Stormwater-Utility-Development-Analysis_FINAL.pdf	4/24/2020 5:05 PM	Adobe Acrobat ...	643 KB
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3_ERU Analysis_Scenarios.xlsx (Original file at link until 7/21/2020, #3 all same document)	4/24/2020 10:22 AM	Microsoft Excel ...	36,924 KB
3_Fee Analysis Deliverable #3_SharefileLink_toERUAnalysis_22April2020.msg	5/6/2020 10:58 AM	Outlook Item	93 KB
4_Fee Analysis Deliverable #2_SharefileLink_toInsDevAnalysis_22April2020.msg	5/6/2020 10:57 AM	Outlook Item	93 KB
4_Intensity of Development Analysis_FINAL_Recd24April2020.xlsx	4/23/2020 4:16 PM	Microsoft Excel ...	33,313 KB
4_Intensity of Development Analysis_Scenarios.xlsx (Original file at link until 7/21/2020, #4 all same doc)	4/24/2020 10:34 AM	Microsoft Excel ...	33,313 KB
5_Albany County Stormwater Presentation_20200421.pptx <—Original file name, #5 added – all same doc	5/6/2020 10:52 AM	Microsoft Power...	840 KB
5_ExplorgDevSWUtility_Presentation_3MS4MuniAlbCntyNY_20200421_FINAL.pptx	5/6/2020 11:43 AM	Microsoft Power...	840 KB
5_ExplorgDevSWUtility_Presentation_3MS4MuniAlbCntyNY_20200421_FINAL_1slide.pdf	5/6/2020 11:45 AM	Adobe Acrobat ...	1,694 KB
5_ExplorgDevSWUtility_Presentation_3MS4MuniAlbCntyNY_20200421_FINAL_2slides.pdf	5/6/2020 11:45 AM	Adobe Acrobat ...	1,593 KB
5_Fee Analysis Deliverables_SharefileLink_toPresentation_22April2020.msg	5/6/2020 10:55 AM	Outlook Item	93 KB
6_Ph2_Deliverables_FileOrganization_DirectoryScnShot_6May2020.pub	5/6/2020 12:16 PM	Microsoft Publis...	287 KB