

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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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
Town of Colonie	\$2,744,966	\$2,750,665
Town of New Scotland	\$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
General Fund	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.
Grants	Brings funding from outside of the Town.	Grants are only for specific types of projects and are not guaranteed.
Stormwater Fund	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.

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

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)	÷ 3,780 sq. ft.
	<hr/> 2 ERU

Rate per ERU	\$40 per year
Commercial Property A	× 2 ERU
Stormwater Utility Fee	<hr/> \$80 per year

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

1.2 Demographics and Drainage System Overview

1.2.1 Town of New Scotland

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.

1.1.2 Town of Colonie

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). The Town 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), 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

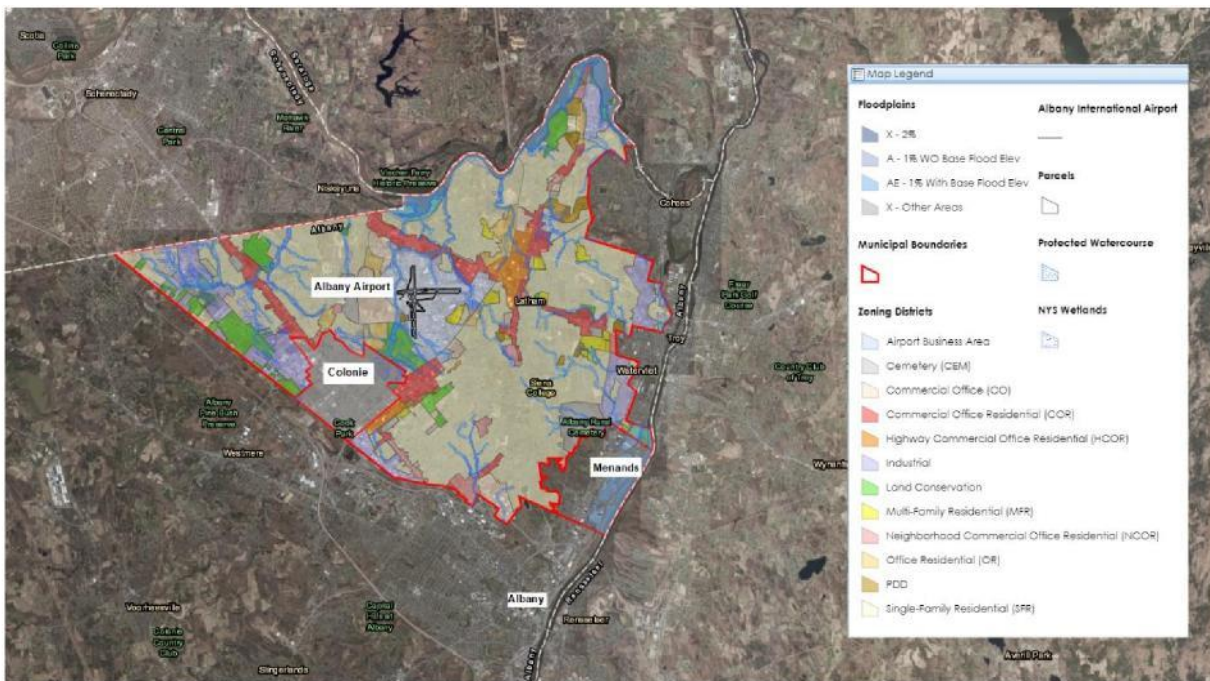


Figure 1. Location of Town of Colonie and its Geographical Features

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
Total Stormwater Expenditures	\$172,100	\$120,335	\$122,625	\$115,940	\$119,755

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 MS4 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 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.

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’ 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. 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.

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.

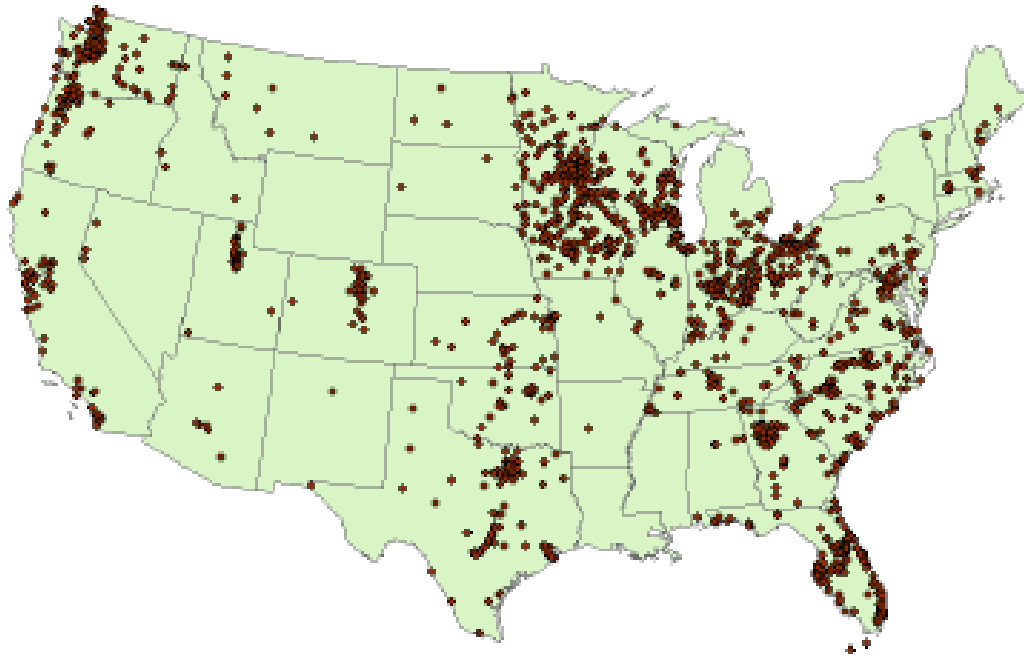


Figure 1. Stormwater Utilities, 2018

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 inequitable 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 ¹ /Commercial/Industrial/Tax-Exempt Parcels ²	1,296
¹ "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. ² 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 ¹ /Commercial/Industrial/Tax-Exempt Parcels ²	4,627
¹ “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. ² 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 ¹ /Commercial/Industrial/Tax-Exempt Parcels ²	243
¹ "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. ² 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
TOTAL REVENUE COLLECTED:						\$168,520

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
TOTAL REVENUE COLLECTED:						\$2,524,920

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
TOTAL REVENUE COLLECTED:						\$29,410

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 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 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
Total Revenue Collected:						\$187,205

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)	ERUs	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	\$ -
Total Revenue Collected:						\$2,408,660

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
Total Revenue Collected:						\$31,440

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
				\$162,479.50

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
				\$175,371.80

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
				\$9,679.87

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

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

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