



Stormwater User Fee Feasibility Project

Stormwater Advisory Committee Background – Current Program and Investments in Stormwater Management

Background

Throughout the Chesapeake Bay watershed, communities are facing new mandates to address stormwater. These mandates include the National Pollutant and Discharge Elimination System - **Municipal Separate Storm Sewer System (NPDES MS4)** Permits, Total Maximum Daily Load (TMDL) allocations, and Watershed Implementation Plans (WIPs) as part of the Chesapeake Bay Pollutant Reduction Plan (CBPRP). Compliance with these mandates suggests that current financial policies be examined and additional financial sources and/or other resources be allocated to stormwater. Runoff controls for quantity management including drainage system maintenance is an additional responsibility of the Township and are part of the analysis in this Study.

Compliance with the aforementioned mandates requires financial and other resources that may not currently be available at the levels needed to sustain necessary program elements, especially for smaller communities. The scope of these mandates may require smaller communities to expand their operations whereas a large city may already have a staff to manage permits and reporting requirements. Addressing overall system maintenance for both quantity and quality controls place increased demand on the resources of public works operations across the Commonwealth.

Most communities, including Ferguson Township (the Township), currently rely on general funds for stormwater management activities. However, this option forces stormwater management to compete for funding with other community priorities, such as police services, planning and zoning, parks, and other public works activities. Using the general fund, without increasing taxes, to attempt to meet new regulatory requirements along with capital project funding and system maintenance will almost certainly require cutting funding to established Township programs. However, with budget adjustments from other programs, it would not guarantee sufficient funds to meet the new mandates or adequately address aging and long-neglected stormwater infrastructure systems, which are often in need of substantial maintenance. Investment in stormwater is rarely a high budget priority unless there is regular damage from flooding or some regulatory driver.

The purpose of this initial part of the study is to identify, document, and understand what level of both effort and funding are expended for the current Ferguson Township Stormwater Management Program. Understanding current levels of service and operating policies help preface a discussion on desired improvements to the stormwater program (such as modifications to the level of service provided).

As noted in the Capital Improvement Plan for the Township, a guiding document for capital improvement spending, the vision for Township aligns with the intent of this study:

"The Township will strive to appropriate staff and resources to maintain the infrastructure in acceptable condition, provide exemplary service, keep Township operations financially stable and



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keep pace with technology. As a result, the Township can continue to be a leader and model for the Centre Region and other Home Rule municipalities."

A successful stormwater program will specifically maintain and improve the current stormwater assets, improve upon the quality of water in both the regional and larger watersheds, and maintain compliance with applicable permitting to avoid the fines that other municipalities across the country and state have faced from the U.S Environmental Protection Agency (USEPA) and the Pennsylvania Department of Environmental Protection (PADEP) due to inaction.

Watershed / Stormwater Background - Ferguson Township

The Township is located in the southwestern part of Centre County in central Pennsylvania. The Township adjoins State College Borough and Pennsylvania State University (PSU) to the east, which has strongly influenced development activities in recent decades. Ferguson Township is also bordered by Halfmoon and Patton Townships to the northwest, College Township to the northeast, Harris Township to the east and Huntingdon County to the south. The Township contains approximately 47.6 square miles or approximately 30,464 acres and has a population of approximately 17,690 (2010 Census).

Drainage Basins

A drainage basins typically consists of a stream and the adjacent area that discharges surface water to that stream. Drainage basin(s) in this region are separated by narrow, steep ridges and valleys. A few of the drainage basins are further described below:

1. Spring Creek

Spring Creek is a 25.2-mile-long tributary of Bald Eagle Creek in Centre County. Spring Creek passes through a water gap in Bald Eagle Mountain and joins Bald Eagle Creek at Milesburg. The headwaters are located in the Tussey Mountain Forest. It is largely fed by springs, seeps, and tributaries. The creek flows through Boalsburg and Spring Creek Canyon to Bellefonte. From Bellefonte, it continues to its mouth at Milesburg where it confluences with Bald Eagle Creek as a tributary to the Susquehanna River and ultimately the Chesapeake Bay. The Spring Creek watershed remains a world class wild trout stream fishery. The

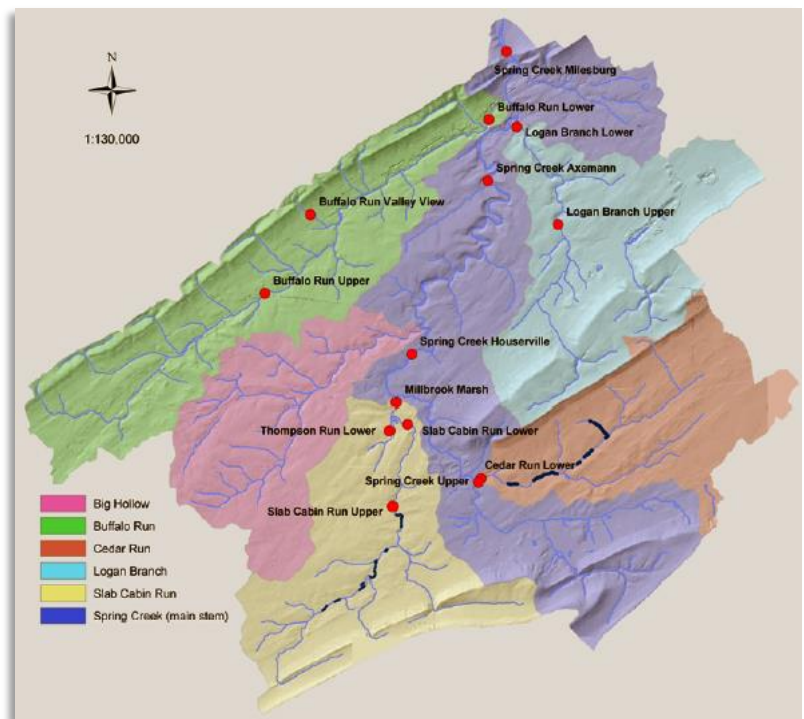


Figure 1. Ferguson Township Drainage Basins Map. (source: "Spring Creek Watershed MS4 Partners" and "PennState: Riparia" website)



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continued survival of wild trout in the watershed is due to the karst geology, which is characterized by numerous limestone springs that provide year-round stream flow that moderate stream temperatures.

2. Slab Cabin Run

Slab Cabin Run is an 11.2-mile-long tributary of Spring Creek in Centre County. Slab Cabin Run confluences with Spring Creek at Houserville. Water from Slab Cabin Run flows via Spring Creek to Bald Eagle Creek, the West Branch Susquehanna River, the Susquehanna River, and ultimately Chesapeake Bay.

3. Big Hollow

Big Hollow is an under-drained carbonate valley identified as a perennial stream on USGS maps. However, the Big Hollow does not have baseflow anywhere along its length and there are no large springs. Surface runoff is primarily generated only by overland flow from impervious areas during rainfall events, apart from extreme runoff events or major snow melt or rain on frozen ground conditions; and therefore, is more accurately described as an ephemeral stream. The reason this phenomenon occurs in the Big Hollow is that it and its tributaries generally act as influent streams; in other words, the streambed loses water to the ground as groundwater. (Source: MS4 Partners Website)

4. Cedar Run

Cedar Run is an 11.4-mile-long tributary of Pine Creek in Lycoming and Tioga Counties.



Stormwater Program Existing Levels of Service

In order to better understand current stormwater program costs, interviews with current staff members were conducted over a period of two days on August 16th and 17th, 2017 (refer to Appendix A - Kickoff and Interview Schedule). This exploratory effort focused on the current levels of effort and spending relative to the Township's current stormwater program. Agenda Topics included;

1. Overview of Current Public Work Services

This topic is more fully described below in the context of the Public Works Department (as an item of "Organizational Roles").

2. TMDL & MS4 Permit Status and Renewal Efforts

The Township currently operates in accordance with an existing Individual MS4 Permit which expires in August 2018. The program associated with this permit is outlined in the MS4 Stormwater Management Program report (last revised February 2017 included as Appendix C). This document outlines the various minimum control measures (MCM's) that have been developed. These form the basis for compliance with the Township's MS4 permit. Regarding MCM #1 (Public Education) & #2 (Public Outreach), the permit uses Clearwater Conservancy as a regionalized approach to assist in compliance. This amounts to a collaborative effort where the Township pays an annual fee, along with 5 other "partners", for a contribution by each member of about \$ 1,200 per year. The Township Engineer provides training per MCM #6 (Municipal Housekeeping). Additionally, the Township has a Memorandum of Understanding with the Centre County Conservation District (CCCD) to administer all activities related to MCM #4 (Construction Site Runoff). This delegates the CCCD (in lieu of Township staff) to monitor and enforce as necessary any violations of discharge from construction sites. MCM #3, Illicit Discharge Detection and Elimination requirements are met through inspection of outfalls owned and operated by the Township at least once during each 5-year permit cycle. The Township has sufficient legal authority to identify and remove any illicit discharge discovered through the inspection process. The Township provide public education to reinforce the prohibition of dumping non-stormwater materials/liquids into the separate storm sewer system. MCM #5, Post Construction Stormwater Management addresses on-going inspection of public and private stormwater controls to ensure maintenance and operation of these facilities.

In the course of discussions with Township staff, it was noted that the PADEP Northcentral Office conducted an audit in 2016 with no notices of non-compliance.

3. Maintenance Efforts (Public and Private Best Management Practices (BMP's))

BMP maintenance of public facilities occurs through either the Township Public Works, or is provided by contracted services depending on the nature and scope of work. Most detention basin (BMP) facilities in the Township are privately owned and maintained. There is currently a GIS inventory of Township owned BMP's. The Township also maintains an inventory of pipes and



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inlets associated with their system. However, as televising work and repair work is done, not all relevant data is re-attributed back to the GIS map elements. For instance, television video of a pipe inspection could be attached (attributed) to the pipe element on the map and a user could simply click on it for future access of the data. This would allow the data to be more readily accessible to staff in all departments who may be using the data to make capital program decisions.

Drainage “swales”, as a linear BMP, are being tracked inside the Urbanized Area (UA), but the Township acknowledges that they do not document many features outside of the UA. There is a more defined swale maintenance program being considered for upcoming years of the evolving stormwater program.

Currently, privately owned BMP’s require an Operations and Maintenance (O&M) Agreement be executed with the approval process for installation. However, older BMP’s simply had a note provided on the plan without a more formal (legal) agreement. The Township MS4 Inspector enforces the O&M Agreements currently in place. During the interviews, it was noted that many ownership arrangements exist in the Township such as BMP’s on private lands, with multiple property-owner participation in maintenance. However, there are some instances where one owner manages a facility for an entire development, creating a burden for the owner on behalf of all properties who benefit. Further discussion regarding the possibility of the Township taking over ownership of BMP facilities, funded through the stormwater management program, is suggested.

4. Organizational Roles

Ferguson Township currently employs 56 full time, 5 seasonal, and 6 part-time staff members across five (5) separate departments (each with its own organizational structure).

Administrative Department – The Administrative Department includes the Manager, Assistant Manager (currently vacant), and related support staff as well as a part time Community Communications Coordinator. This department has some responsibilities to stormwater related to the role of Township Manager as an overseer of all Township activities. While daily operations for stormwater management is assigned to another department, the Administrative department can often be the interface of the stormwater program with the public.

Finance Department – The Finance Department is responsible for the day to day financial operations of the Township. Current budgeting for the Township involves an annual budget and a five-year plan: Capital Plan (5-year period, as described in the “Capital Improvement Plan”) and Annual Budget (1-year period, approved in December, running concurrently with the Calendar Year). Department heads review their respective budgets, the Manager makes necessary adjustments, and then it is presented to the Board of Supervisors, who make the final approval.

While not currently a practice, the Finance Department is able to use the Township’s financial software system (Springbrook®) to allocate payroll for staff between more than one fund. The Township only allocates salaries in the General Fund. This functionality becomes relevant as the Township better defines the payroll costs expended on stormwater-related efforts versus those



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attributed to other job functions. Current efforts to define “sharing” of time for stormwater management will occur through calculation of estimated daily work percentages (spent on stormwater). This basic approach will provide a means for further refinement as the program discussions move forward.

Police Department – This department does not have much bearing or involvement in the stormwater program, other than notify appropriate staff / departments if they encounter activities which could be of concern relative to MS4 permit compliance or drainage system integrity (i.e., motor vehicle accidents, spills, etc.)

Planning & Zoning Department – This department has connections to the stormwater program from a broader perspective. As they are tasked with observing, documenting, and altering the patterns of development activities and growth in the Township, portions of long term stormwater planning may be associated. For instance, designating areas for riparian buffering would be an example of their activities working in conjunction with the goal of water quality in the Township (e.g., a Well Head Protection Ordinance).

Public Works Department – This department has the single largest responsibility for the stormwater program within the Township. It is charged with not only the asset management of the Township’s Stormwater Program (drainage system, etc.), but also compliance with the current and future MS4 permit obligations. Currently, a part time (20 hour per week) “MS4 Engineer” is on staff to act as an administrator and inspector. This position, created about a year ago, largely handles inspections of BMP’s and stormwater related complaints. It is noted that the responsibilities of this role are expected to increase and is recognized in the Capital Improvements Plan to become a full-time position.

In addition to the MS4 specific staff/function, the Public Works Department designs and implements stormwater related projects in the Township. This is done in conjunction with the Township Engineer, Assistant Engineer, and GIS Technician(s) and consultants.

The Road Superintendent leads efforts to address inlets, repair work, culvert maintenance, flooding issues, etc. It was noted in the interviews that the Township does not have a formal listing or database of flooding issues. It is largely from staff experience and knowledge of the system that response is planned and implemented for flood reduction as needed (as opposed to being mapped and formally planned). The Township has become more proactive in addressing flooding issues, with most priority issues addressed in the past decade.

Finally, as a matter of a practice related to stormwater, street sweeping in the Township was discussed during the interviews. The Township owns a regenerative air sweeper which is recognized by PA DEP as equipment that can provide reductions in sediment pollutants (versus broom-type that simply move the sediment along until it can be gathered up).

In the course of the discussions, it was noted that there are several areas for additional efforts/expenditures to ensure effective performance of the drainage system. They include but are not limited to the following;



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- ✓ *Inlet Inspections and Maintenance:* These inspections occur, but not at a frequency that optimizes performance. Program changes should address the need for additional inspections and development of a corrective action plan to prioritize inlet repairs/replacements when conditions warrant.
- ✓ *Pipe Inspections:* Pipe inspections (using closed circuit television or CCTV) occur once a year (in limited scope, contracted out). Township staff indicated that to reduce overall time required to inspect the entire system (e.g., contracting, mobilizing, implementation which must be repeated for each inspection cycles), the acquisition of a camera truck and dedication of staff may be more cost effective and reduce inspection time. This should be evaluated.
- ✓ *Pipe Maintenance:* One area of noted deficiency was the lack of a Township owned “flush truck”, dedicated to stormwater system maintenance. Currently, this service is contracted out based on need. Stormwater pipe maintenance, and a more proactive maintenance program, may benefit from a dedicated (owned) unit. This will be evaluated during the program gaps and challenges portion of the study.
- ✓ *Pipe Repair:* Currently, pipes are generally only reviewed for repair needs in immediate advance of street projects. The protocol is that the drainage system in a particular area will be reviewed and repairs completed ahead of the following years pavement project. This localized approach is not as effective as a broader, more proactive program where all pipes are regularly inspected and repairs can be prioritized and aligned with street program, when appropriate or addressed immediately based on risk of failure.

5. Financial Issues (Budget Process and Long Term Funding for Capital Projects)

In the course of the interviews with staff from the Finance Department, Capital Improvements funding needs were discussed. For the Capital Improvements Program (CIP), in amounts up to \$10M, a loan is used rather than issuance of bonds. The cost of bonding is typically 2-3 percent of the total bond. This expense can be avoided through loan placement. Debt financing is not appropriate for operational costs, either short-term or long-term costs (as either a bond or a loan). If a stormwater project such as a pollutant reduction project or major emergency repair requires substantial resources, a loan may be obtained with payback occurring from sources such as the General Fund.

6. Current Funding Levels

For the purposes of this portion of the study, in order to begin to understand the current level of stormwater management program spending in the Township, various data were provided by the Township for the current fiscal year (Appendix D). This data includes a breakout of projects and staff by cost or by time spent at least partially attributed to stormwater. In order to organize the data in a way that could be described, six (6) categories were created;



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- ✓ **Capital Projects** – This includes projects that are typically contracted out, but could be performed by Township forces. These are projects the improve, rehabilitate, or otherwise construct facilities that are stormwater management facilities.
- ✓ **Planning & Permitting Compliance** – This includes efforts related to the planning effort for projects or permits and costs for permit compliance, including fees and public outreach efforts.
- ✓ **Staff** – This includes costs related to staff and the portion of their role that is devoted to stormwater activities. For this study, that includes staff operating within the Public Works Department (e.g., Township Engineer, GIS Technician, etc.)
- ✓ **Maintenance** – This includes projects or efforts that seek to maintain existing facilities or structures. It can include repairs, mowing operations, street sweeping, etc.
- ✓ **In-House Projects** – This includes those projects that are undertaken by Township forces (Public Works staff).

For 2017/18, the resulting expenditures for the above-mentioned categories is estimated as follows;

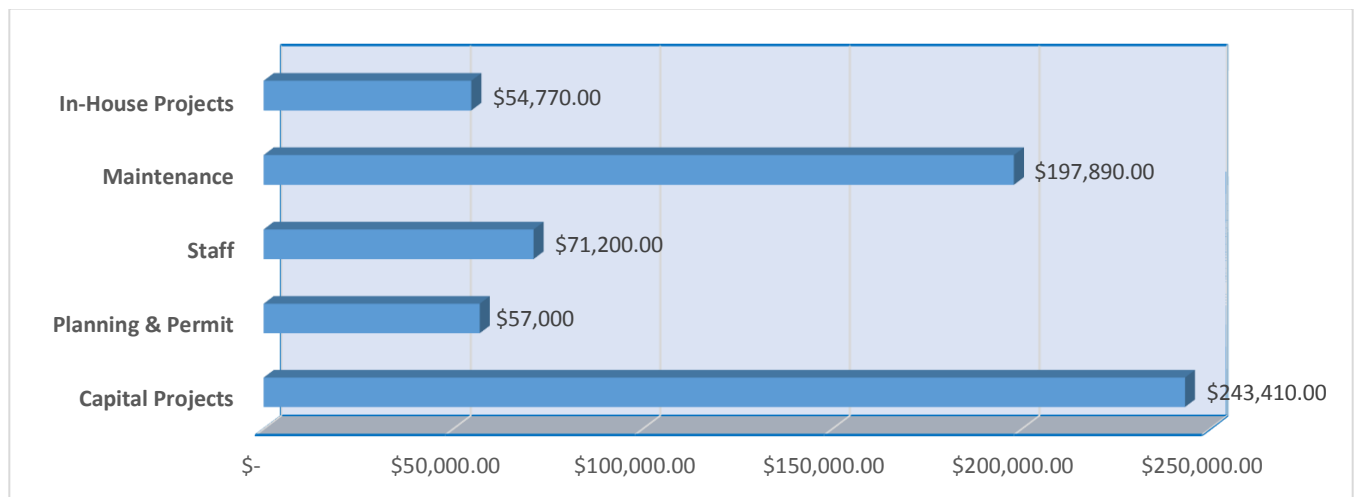


Figure 2. Ferguson Township 2017/18 Stormwater Related Expenditures

From this data, in the current year, for the current level of service, the Township is anticipating on expending approximately \$ 624,270. It is noted that this value is elevated from previous year's spending given a proactive move by staff to focus on stormwater issues. This is a trend that is expected to continually increase due to obligations with new permit items, pollutant reduction plans/projects, etc. These will be captured in future program costs and level of service changes.