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Ferguson Township Stormwater Program Assessing Needs / Creating Strategies



Agenda

- Introductions & Background
- Project Approach & Progress
- Review of Gaps
- Development of Priorities & Strategies
- Funding Strategies
- Conclusions

Background

- Challenges in stormwater management place pressure to find strategies to meet short term and long term program objectives with sufficient funding.
- The purpose of this study is to evaluate the feasibility of establishing a user fee in the Township to provide stormwater management service funding for infrastructure needs, regulatory compliance, and maintenance objectives.



Study Process



- What is the current stormwater management program?
- What are the problems, needs, and opportunities?
- Why change the current funding method?
- What are the priorities in the next 5 years and what are the long range goals?
- What is the best organizational structure to deliver services to the community?
- What program elements require additional funding?
- What is the best way to pay for stormwater management?

Scope of Work

- Program Review
- Stormwater Management Program Development
- Public Outreach / Education
- Stakeholder Advisory Committee
- Organization and Staffing
- Rate Structure

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Stormwater Advisory Committee

Name	Representative	Name	Representative	
Albert Jarrett	Agricultural Engineering	Darlene Chivers	Master Gardener / Resident	
Steve Balkey	Contractor / Resident	Andrew McKinnon	Resident / Water Resource Activist	
Jason Little	SCASD	Rob Cooper	PSU	
Todd Irvin	Farmer	Darryl Slimak	Resident	
Craig Bowser	Resident	Ansusan Brewer	HOA	
Jim Carpenter	CRPR	Gary Petersen	Geology	
Jennifer Myers	CBICC			

Stormwater Collection System - Drainage Inlets

- Township owns almost 2,000 drainage inlets
- Routine inspection & maintenance is not conducted (limited shared work force)
- Inlets replaced/repaired as part of or ahead of highway projects.

Need:

Strategy of inspecting, repairing / replacing and operating is required.



Stormwater Collection System - Pipes

- Township owns approx. 33.5 miles of drainage pipe (with additional privately owned pipe)
- Inspection and Repair/Replacement done in advance of highway projects
- Township has a Capital Improvements Plan for pipe replacement, but not driven by greatest risk of failure.

Need:

Comprehensive strategy of inspecting, repairing / replacing and operating is required.



Stormwater Collection System - Channels

- Township owns almost 48 miles of roads without curbing (i.e. rely on side drainage / channels)
- Debris in channels (both roadside and "backyard") is a consistent issue.
- Township has identified 24 miles of existing channels in need of repair.

Need:

Strategy of inspecting and maintaining is required.



BMPs (Stormwater Basins)

- Inventory lacks pre-2003 facilities.
- 118 Private BMPs
- 23 Township Owned BMPs
- 20% of post 2003 inspected for permit compliance.

Need:

- Updated inventory (1975-2003)
- Program for inspecting, rating and maintaining facilities.
- Clarification of roles and responsibilities (public/private)





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Basins & BMPs – Roles and Responsibilities

- There are "orphaned" basins (one owner providing maintenance for facility serving many)
- Failure of private facilities receiving public land runoff can create safety and health issues, blockages, reduced capacity.

Need:

 Role of public versus private requires careful review and clarification.



Green Infrastructure & Low Impact Development

- Township required to maintain written program for inspection of BMPs.
- Inspections rely on part time staff member.
- Township is mandated to "encourage" LID practices.

Need:

System master plan and recommended design standards.





Green Infrastructure (GSI) – Why Invest

- Increased use of BMP's provide on-site solutions addressing water quality and quantity.
- Build on Township Tree Inventory efforts – reduce "heat island" and infiltrate runoff.
- Promote "green" practices such as neighborhood rain barrel programs to engage the public.
- Stream restoration and implementation in agricultural areas support meeting land management goals.



Regulatory Pressures

- Township in headwaters of streams/rivers leading to Chesapeake Bay.
- 2003 Pennsylvania Stormwater Discharge Permit for Small municipal storm sewer systems (MS4) issued to Ferguson Township.
- 2018 MS4 permit is renewed with additional mandates.
- Five-year permit will be renewed in 2023.

Permit Compliance – Outfall Screening Program

- Township screens 126 outfalls regulated under the MS4 program.
- Inspections currently rely on part time staff member.
- GIS can be useful in management of the screening or data collection effort.

Need:

Coordination of all inspections, both regulatory and infrastructure-driven.



Equipment

- Township rents equipment or shares with other departments and as available. Limits ability to proactively plan and can cause delays in effort and increases in costs.
- Township lacks CCTV truck, flush truck or modern vac truck to perform basic stormwater inspection and maintenance.

Need:

Investment strategy that supports more proactive approach in system maintenance.



Staffing

- Township retains part time stormwater staff member for inspections.
- Township shares role for stormwater with Township Engineer.
- GIS is a key to resource allocation to maintain system and inventory database.
- Proactive management requires additional "dedicated" staff (both office and field)



Program Level of Service Options



Prioritization Survey

- Infrastructure
- Operations
- Investment
- Regulatory
- Issues

Web-Based Poll



	Priority	ost model the state	portant No	Ophion Importation	than ss	nootoni
Infra	structure	Mr Vo	14.	14	/ \ /	- Far
1	BMPs	88% 12%	41%	47%	12%	0%
1	CMP	82% 18%	71%	12%	12%	6%
2	Basins	71% 29%	24%	47%	29%	0%
3	Inlets	65% 35%	24%	41%	29%	6%
4	Plastic Pipes	53% 47%	12%	41%	41%	6%
5	Concrete Pipes	47% 53%	6%	41%	41%	12%
6	Channels	35% 65%	0%	35%	59%	6%
7	Curbing	29% 71%	0%	29%	65%	6%
Oper	ations					
1	Assessment	94% 6%	41%	53%	6%	0%
2	System Inventory	88% 12%	47%	41%	12%	0%
3	Proactive Maintenance	82% 18%	41%	41%	18%	0%
4	Staffing - Maintenance Tasks	82% 18%	35%	47%	12%	6%
5	Partnering with other Communities	71% 29%	41%	29%	24%	6%
6	Flow Capacity Analysis	59% 41%	12%	47%	35%	6%
7	Staffing - Engineerings	59% 41%	12%	47%	29%	12%
8	Staffing - Inspections	53% 47%	24%	29%	41%	6%
Inves	tment					
1	Mandated Capital Projects	94% 6%	35%	59%	6%	0%
2	Non-Mandated Capital Projects	71% 29%	12%	59%	29%	0%
3	Equipment	47% 53%	24%	24%	53%	0%
Regu	atory			170		0.01
1	National Pollutant Discharge Elimination System (NPDES) MS4 Permit	88% 12%	41%	47%	12%	0%
2	Development standards for new and redevelopment projects	/1% 29%	24%	4/%	29%	0%
3	Min. design standards to advance green infrastructure/climate change related goals	41% 59%	18%	24%	59%	0%
Issue		000/ 400/	4001	050/	4.00/	0.0/
1	Privately owned basins and systems that manage public stormwater runoff	52% 18%	18%	65%	18%	60%
2	Erosion along streambanks in both urban and non-urban areas.	53% 47%	12%	41%	41%	0%
3	Maintenance of roadside channels in non-urban areas.	41% 59%	0%	41%	59%	0%

Priority Analysis

Gap

 Current stormwater program 'gaps'

Priority / Goal

 As determined by the SAC and Township Staff

Strategy

 The action item to resolve or begin resolving the gap

BMPs / Basins

Gap

- Unknown facility conditions
- Unknown site-specific data (records, plans)
- Unknown facility locations
- Limited resources to conduct inspections

Priority / Goal

- Create Prioritization of
- Establish roles for private facilities (receiving public runoff)
- Develop database of BMP facilities attributes

- Use interns to research BMPs and collect data
- Contract for system wide assessment of BMPs and create Maintenance Plan from results
- Enforce existing policy re: Maintenance
- Connect assessment to GIS mapping / database
- Increase PT to FT
 Inspector Position

BMPs / Basins

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- Unknown facility conditions
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Priority / Goal

- Create Prioritization of necessary public facility repairs
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Collection / Conveyance System : Pipes

Gap

- Extensive system with unknown pipe conditions
- Pipe repairs connected to road improvement projects only

Priority / Goal

Create Assessment of Pipe Conditions (with prioritization)

- Contract for system wide CCTV inspection of system
- Utilize NAASCO scale for rating system (to prioritize non-critical repairs)
- Commit to minimum
 % of pipe length for relining projects

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Collection / Conveyance System : Drainage Inlets

Gap

- Unknown inlet conditions
- Inlets only repaired as part of road projects

Priority / Goal

 Create Prioritization of necessary inlet repairs

- Conduct rapid assessment of all public drainage inlets
- Connect assessment to GIS mapping / database
- Provide resources to address 10-15 major repairs (annually)

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- Create Assessment of all inlet conditions

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Drainage Channels

Gap

- Unknown channel conditions
- Channels only repaired reactively
- Private channels often "critical" link in system

Priority / Goal

 Create Prioritization of necessary channel rehabilitation / stabilization

- Conduct rapid assessment of all drainage channels
- Connect assessment to GIS mapping / database
- Develop policy for maintenance of private channels conveying public runoff
- Increase funding and resources for Maintenance of channels

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Stormwater Equipment / Resources

Gap

- Resources are required to conduct assessment and ongoing maintenance
- Sharing equipment leads to scheduling and productivity issues
- Current staffing is split with roadway maintenance

Priority / Goal

- Secure necessary equipment resources in most cost-effective manner to provide needed services
- Ensure appropriate staff is available to support necessary stormwater functions

- Purchase vac truck to replace existing equipment
- Continue current borrowing / sharing / contracting arrangements until assessment is done, evaluate purchase of CCTV rig
- Develop specialized "stormwater crew" (with foreman, equipment operator and laborer)
- Hire Stormwater Program Superintendent

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Green Infrastructure

GapPriority / Goal• Current policies and
ordinances do not
fully provide for
Township specific GSI
details, or strategic /
appropriate
placement of GSI
practices• Identify priority
locations for GSI
practices

- Fund Shade Tree Program
- Contract for Master Plan of prioritized GSI locations in the Township
- Contract for preparation of a GSI Design Manual (specific to Township)
- Revise Township Ordinances to mandate higher degree of GSI

Green Infrastructure

Gap

 Current policies and ordinances do not fully provide for Township specific GSI details, or strategic / appropriate placement of GSI practices

Priority / Goal

- Identify priority locations for GSI practices
- Ensure GSI facilities are properly designed and utilized
- Integrate stormwater efforts into street tree programs

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Conclusions



- Township has some key program "pieces" in place, but focus is reactive or driven by roadway investments.
- Need for infrastructure condition assessment is a common theme for all system components.
- New / Revised stormwater program elements can work in conjunction with other existing Township programs
- Future SAC meeting(s) will discuss and refine strategies
- Strategies will evolve and be adapted over time



Funding Strategies for Township Stormwater Services

Local Funding Methods and Tools

- Taxes
 - Tax Increment Financing
 - Income and Real Property
- Assessments
 - Infrastructure Cost Recovery for Direct Benefit
- Exactions
 - Charge for Rights to Conduct Business

- Use Fees/Charges
 - Water
 - Sewer
 - Solid Waste
 - Stormwater
 - False Alarm Charge
 - Inspections
 - Permit Processing

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Differences in Funding Methods

- Who pays
- Basis of payment
- Stability of revenue
- Flexibility of policies
- Purpose of revenue



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User Fees – Primary Funding Source for Stormwater Services

User Fee Financing for Stormwater

- History
 - Began in early 1970s to fund as a publicly owned utility
 - Can be:
 - A separate organization such as an Authority
 - Integrated into existing organizational structure
 - Several thousand communities have user fees for stormwater services

What is Driving a Change in Funding Strategy Across the Industry?

Historic Paradigm Shift in Managing Runoff

- Collect and discharge (any pipe will do)
- Don't send it to the wastewater plant (separate)
- Don't flood (larger pipes)
- Don't pollute either (on-site BMPs)
- Be accountable (regulatory mandates)
- Promote "Green" Infrastructure



Public Perception Issues - Water-related services are "free" and Stormwater and Wastewater are one and the same.

Stormwater "utility" is:

- A way to organize operations and clarify roles
- A way to quantify root problems and the cost to correct
- A way to build political support for change in services
- A way to move along efficiently; goal-driven
- A way to identify priorities to meet needs
- A way to identify legal barriers to change

Stormwater Management Program



How Are Fees for Stormwater Calculated Today?

- Impervious area is the primary link between the parcel and amount of the fee.
- Use of the "ERU" approach– equates all land use to single family residential footprints.
- Shift is to a fixed billing unit 500 sf, 1000 sf, 1500 sf chosen after an analysis of the data when digital data is available.
- Impervious area is the "meter" for stormwater cost allocation to property owners.
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How a Fee Has Been Calculated – Parcel by Parcel

[']Equivalent Residential Units' – All Single Family Detached Parcels =



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What is the process for user fee development?

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Building Blocks for User Fee Implementation

- From current program to the recommended future program
 - Evaluate **sources of data** for cost allocation
 - Program analysis establishing priorities
 - Business plan creating a path forward
 - Engage community input, inform, educate
 - Engage decision makers policy, values



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Why is Ferguson Evaluating a User-Fee?



- Regulatory requirements will continue to drive much of the future "non-optional" program requirements.
- What, who and how long it takes to "do stormwater" are each growing complex.
- Systems are aging and under-served.
- Costs are typically greater when "reacting" to problems.
- Collaboration can result in greater efficiencies BUT also much more difficult to put together.

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Steps to Successful Stormwater Program Funding

Funding Strategy Selection

Questions that should be considered.

- What method(s) cover the full cost of service?
- What modifiers should be available?
 - Credits for private investments
 - Incentives to handle stormwater on site
- What is the relationship between the <u>revenue basis</u> and the <u>need for a public drainage</u> system/services?
- How stable is the funding source?
- Can funding source be tied to levels of services delivered?
- How flexible is the funding source?

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Top 5 Do's to Implement Sustainable Infrastructure Funding Approach

- Treat infrastructure management as a business.
 - This includes establishing leadership, accountability, and sound business practices.
- Establish a clear vision and program goals.
 - You need to visualize (and communicate) how a well managed program will operate in your community.
- Set priorities
 - You may not get everything you need all at once, but be clear what your "must have's" are.
- Engage internal and external stakeholders.
- Be creative and maximize all funding options.



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Question to the Board:

What are the important values or outcomes for a stormwater funding strategy?

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What Values Should Be Taken Into Consideration?

- Stability to Manage Long Term Program?
- Dedication to Stormwater Services Only?
- Linked to Purpose for Public System/Services?
- Easy to Administer? Minimal Overhead Costs?
- Easy to Understand Method(s)?
- Distribute Costs based on Level of Service? (often considered in rural/urban areas)
- Ability to use Credits/Incentives?

⁵⁹ Ferguson Township – Board Workshop February 8 2018

Next Steps...

- Align Strategies with Cost Estimates
- Conduct Three (3) Additional Stormwater Advisory Committee Meetings (Feb./Mar./Apr.)
- Conduct Two (2) Community Meetings (Mar./Apr.)
- Provide Final Presentation to the Board of Supervisors with Recommendations on Feasibility (May)