



TOWNSHIP OF FERGUSON

Ferguson Township - Stormwater Advisory Committee (SAC) Meeting #2 November 1, 2017 (@ 12pm)

Attendees

Ferguson Township: Ron Seybert, Lance King, Kristina Aneckstein

Amec Foster Wheeler / Gannett Fleming Team: Elizabeth Treadway, P. Eric Mains, Virginia Thornton

Stormwater Advisory Committee: As listed on attached Sign-In Sheet

The following minutes/notes are intended to be an overview of the presentation and discussion that occurred at the above referenced meeting. There are provided to document the general content of those discussions such that they can be used as a tool with future meetings and stormwater program discussions. They are not intended to be a transcript of the meeting. However, any noted differences, exclusions, or variations from personal notes of the meeting should be brought to the attention of the Township so that they can be considered for the final record.

The following minutes were captured;

Introductions - Ron

Condolences to the family and friends of the late George Pytel

Introduction of Kristina Aneckstein, GIS Technician, and Lance King, Township Arborist

Township Website Demo

- The Township website has information regarding various departments, such as Public Works
 - o Public Works features a Stormwater Management Page including:
 - Information about the MS4 System & Regulations
 - Department of Environmental Protection & Conservation District Links
 - The Stormwater Management Ordinance
 - SAC information, including meeting and supplemental links

Township GIS Demo - Ron & Kristina

- The Township has GIS information for parcels and streets from the County GIS database
- Watersheds have been delineated including:
 - o Spring Creek
 - o Sewersheds (a watershed that takes the Stormsewer pipeline into account) have been delineated
 - o Some of these 'sewersheds' have 'stop points' meaning that they never continue to another pipeline or stream
 - o Haymarket goes to Thompson Run
 - o Big Hollow Drainage way - some stop points in that area
- Pipe Networks
 - o Privately Owned
 - Discharges into these are 'monitored'
 - o Township owned pipes
 - o The Township has begun 'retrofitting' Corrugated Metal Pipe (CMP) by adding a Cured-In-Place (CIP) lining made of a fiberglass/resin/vinyl material.



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- The lining returns the structural integrity to the rusting CMP pipe, so long as it hasn't lost all of its structure. For example, if a CMP pipe has begun collapsing, it would not be eligible for CMP and, most likely, the road over the pipe would be sinking as well.
- Ron to bring a sample of CIP pipe to the 3rd SAC Meeting
- The Expected Life of CMP is 20-30 years, CIP is 50+ years
 - the CMP in the ground here are probably there if not older. A lot of development happened in the township during the 80s/90s; the Township is at a critical point to begin replacing CMP.
- No pipe capacity is lost but friction is reduced in the pipe.
- CIP is not an inexpensive retrofit; however, it is often cheaper than complete pipe and surrounding infrastructure (roads) replacement.
- o The Township is beginning to attribute pipe videos/imagery with both before and after imagery to GIS database
 - Pipe is typically videoed before replacement in order to determine if its eligible for CIP.
 - In a project this year, an 'illegal' lateral was identified and resolved after videoing.
- o Ron pointed to some neighborhood examples of 'weak links' in the Stormwater System.
 - Chestnut Ridge
 - CMP connects between two sets of MS4 system pipes - HOA 'weak link' (not orphaned)
 - Homestead Farms
 - some pipes not in the ROW, in a stormwater easement, no HOA, never dedicated, on homeowner's properties, recently had an issue there the homeowners didn't know/just fixed the hole not the pipe
 - If there's an issue with this the Township will be seeing issues with the area
 - Brackenridge
 - developed in early 80s, stormwater basin between these lots, long narrow swale, ownership and maintenance was assigned to each individual property owner (pipes and basin). not orphaned but not really maintained.
- Inlets - owned and maintained
 - o An inlet is also called a 'stormbox' or a catchment, but most common is the 2'x4' grates, often in curbing or a swale.
 - o The Township doesn't differentiate inlets by the volume they receive (it is rarely consistent).
- Sinkholes
- Observation points - Township MS4 connects to someone else's MS4 (state, PSU, etc)
- 126 Outfalls - end of MS4 discharges to regulated waterway of the commonwealth - observing general water quality and looking for key indicators (odors, sheens, etc.)
- Send any additional questions to Dave & Ron after the meeting



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- FAQs Documents have been distributed for background on the water quality permit (MS4) and user-fee funding for stormwater management programs.
- Note that funding will be the focus for a future meeting where information will be provided in-depth.
- Q - Is the development of the SAC requirement of the MS4 (municipal separate storm sewer system)?
 - o No - public engagement is 'required' but this group was created to provide the Township direction on programs for management of the entire stormwater system as well as compliance programs (tolerance for investment in addition to and separate from MS4).
 - o The SAC was developed independently of MS4 permit requirements.
- Q - Is there a list of Capital Improvement Projects for the MS4 as a result of the PRP?
 - o PRP is being finalized now and has a 'menu' of potential projects that will need to be financed.
 - Pine Grove Mills, 300' section of stream to be stabilized
 - first permit cycle financial requirement for Ferguson Township is quarter million dollars
 - o Pipe - lining costs are beginning to occur independent of road pavements due to aging pipe systems. There is a 'placeholder' in the CIP budget in an attempt to capture infrastructure before it fails.
 - o There are additional Projects the Township needs to take on in order to improve the discharge from the Township MS4.
- Orphaned facilities are a concern. The community depends on them to perform as designed but they're not being serviced or maintained. The Township is investigating if there is there a policy that should be implemented when there is a responsibility for operational maintenance that is greater than what a Homeowner or HOA could manage.
- The purpose of improving Stormwater Infrastructure is to protect property, water quality, and the environment.

Program Level of Service Options - Eric

- The information in this presentation relates to issues identified with the Township. The goal of the conversation about each of these is to determine community's priorities and for the SAC to provide feedback on key questions and strategies for moving programs forward.
- Feedback will be updated in the matrix that was provided for Meeting #2.
- The matrix is similar to an Asset Management program by assigning Level of Service (LOS) to different infrastructure and portions of the Township to determine what are the expectations of the Stormwater Program
- 4 categories: O&M, Capital Improvements, Regulation & Enforcement, and Program Administration & Staffing
- LOS
 - o Current/Basic tends to be very reactive
 - o Med/High - begins proactive work
 - o Some are combined if there isn't a lot of differentiate between the levels
- The LOS options in each slide/row of the matrix is a framework of 'what you might expect'. They can and will be updated based on SAC feedback and refined in the study process.
- O&M Inlets



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- o Currently the Township is reactive with regard to inspection and minor repair of the approximately 1900 inlets.
- o Attributing information to GIS would enable the Township to prioritize based on last time inspected, last status, and spatial location of inlets.
- o Q- How do inlets relate to WQ? Is the focus of this group the improvement of WQ in the Township per Chesapeake Bay requirements?
 - Inlets are important to WQ - cleaning needs to occur to remove sediment from around and in the inlet. Sediment reduction is a component of the overall reduction requirement for the Chesapeake Bay. Corrugated Metal Pipe (CMP) that bottomed out is eroding the ground underneath, also contributing to sediment loading. They are interconnected infrastructure issues - the system condition can contribute to a pollutant discharge problem. Proactively managing the infrastructure will contribute to a reduction of what pollutants are going through the system.
 - Some inlets are designed to capture pollutants, with a sump bottoms or filter bags to allow sediment to be collected and then removed from the inlet.
 - Inlets are important to the operation of the entire Stormwater System (including areas outside of the MS4) in addition to the WQ requirements (which are primarily managed in the PRP).
- o Q - Does the Township have the capacity to respond as they fail - how big of a problem is it now?
 - Information on failures and potential failures will be reviewed with Public Works staff.
- o Q - Is there any information regarding the requirement of inlet cleaning for water quality, frequency of flooding, frequency of current repairs, associated costs?
 - The Township does not have extensive information regarding these questions. In general, if an inlet is clogged with sediment the inlet is likely to flood and likely a point of sediment entering the system.
- o Issues where inlets are collapsing - safety issues especially in the street - these receive immediate attention when identified.
- o The Township does not currently have a database of the conditions of the inlets. Infrastructure assessment could be the first step in developing a LOS.
- o Q - Can existing street and street sweeping crews do a 'drive by' evaluation?
 - There is potential legal liability if inlets fail and roads and intersections flood resulting in loss of life or property damage.
 - Leaking inlets lead to sinkholes.
 - Regular inspection is a safer more proactive approach.
 - Crews in the field report problems routinely but their primary responsibility is to complete their assignment. The Study Team will discuss this issue with the PW Staff.
- o Q - Do we have a sense of events that have happened and the consequences of those events (that have already happened)? The Study Team will discuss with Township staff.
- o Note - The Borough has a prioritization based on location, failure rate, flooding rate, etc. Inlets are checked before storms.
 - This type of management 'before storms' happens in Ferguson but not formally.



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- o Q - How long would it take the Township to get through the system at different maintenance % levels
 - The more they do it, the more efficient and the better performance is achieved. Maintaining inlets will require less time for each, once all are assessed and improvements are made. Perhaps the first year goal is to inspect them all and then, based on findings, update the inspection and maintenance plan.
- o Q - Data mining overkill - is the cost of ongoing inspection justified? When problems arrive they'll be addressed anyway, reactively?
 - Proactive management, based on data from an assessment and on-going inspection program, allows for less costly solutions than reaction to a failure.
 - "It's an old car" analogy that had deferred maintenance, you don't know what condition exists. Preventative maintenance avoids major more costly failures.
 - Some inlet inspections can be quick while others will be more intensive.
- o Q - Pipes and Inlets might have various levels of performance and operational status - are the street sweepers or other general maintenance folks taking notes of these things?
- o Note: Treatment can only occur post diagnosis/post assessment. The process does not need to go overboard but can be a more general assessment, once enough data is gathered on general conditions.
 - Perhaps a "drive by" process can provide information on the grate, and less frequent but intensive inspection is done based on age and risk of failure.
- o Note: PSU - has 2500 inlets. Their program includes inlet vacuumed and inspection, about 30-50% of inventory a year. Less than a dozen a year need repair.
- o Note - Tree Commission learned that - a lack of inventory of trees, limited ability to understand goals and completing an inventory has proved very valuable. It was critical to have a current inventory - the key is capturing the right amount of information.
- o The discussion concluded that there is some inventory development that should occur, but be balanced; an inventory that informs.
- O&M Pipes
 - o There is approximately 33 miles of CMP approaching end of design life.
 - o How critical is it to the community to build a database of the pipes in the system?
 - o Currently, only pipes prior to pavement projects are inspected by videoed.
 - o Q - What is the cost to video a mile of pipe? How important is video inspection to the Township?
 - The Township does not currently have a CCTV camera rig.
 - The Borough will be purchasing equipment in the spring - this is a potential for partnering or cost-sharing.
 - o Pipes are extremely important to the system; however, they are not necessarily the most important part of the system. They are the most difficult to assess and CCTV is the most effective method to determine condition of the pipe or to determine the extent of a failure.
- O&M Curbing
 - o Street sweeping removes pollutants and obstruction from the street/curb conveyance system, if the right type of sweeper is utilized (regenerative air versus broom sweepers).



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- o The Township covers the entire township about three times a year. There is no prioritization of the route.
 - o Street sweeping does not occur frequently enough to be included as a BMP in the PRP.
 - o It was suggested that inspection of curbing can be done via 'drive by' and the condition does not need to be added to GIS inventories.
- O&M Channels
 - o Public street runoff is being conveyed through privately owned channels (ownership is an issue for further discussion).
 - o Q - How many current problems are caused by channels being obstructed, etc.?
 - Discuss with the staff to determine what data may exist.
 - o Channel performance and condition:
 - There was a recent drainage issue where the Township staff contended that it was a private matter, but Owner disagrees.
 - Township has repeated issues with homeowners that should be maintaining channels who are challenging who is supposed to take care of it.
 - o Orphaned Channels have been neglected.
 - o General practice is to install by development and ignore.
 - o What is the level of service to be expected in rural areas (roadway) vs. urbanized setting. This is a key issue for a determination of the level of service the community should expect.
 - o Q - Of the 24+ miles of channel that have been identified, are any associated with the CIP?
- O&M BMPs
 - o When they're neglected they do not perform the way they should. Maintenance is key to performance.
 - o 118 private BMPs are ones that have been constructed since 2003. There are more that could double the number but they are not currently identified or located across the Township.
 - o The 118 noted are currently inspected once every five years.
 - o Complaints that the Township receive on BMPs include sinkholes, overgrown (vegetation control), erosion issues @ inlet or outlet, structures (trash racks missing).
 - o Q - What is the risk of reactive maintenance and response to BMP complaints? Reactive maintenance is typically more expensive than preventative maintenance that avoids emergency/high priority repairs. Not on in terms of the type of failures but crews are diverted from on-going work which falls behind. Efficiency is not sustained across operations.
 - o Note: With a rating system, the Township is in a better position to take a be responsive - with a better idea of what is needed.
 - o Q - The Township is comfortable inspecting the 118, should the unidentified BMPs be a point of concern?
 - The older BMPs can be identified through a record search from 1978 (the furthest back this search would have go to) as well as use of tools such as a satellite image search.
 - 1982 was the first stormwater ordinance.



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- o Q: We are assuming that what we see in the past will be what we see in the future. Are systems sized to manage climate changes that impact stormwater systems? Storm event modeling can provide insight into where system impacts will be realized, by changing the size of the storm (amount of rainfall over a set period of time). Developing models of the system may be of value to determine where additional capacity should be added by upsizing pipes during replacement to increase of flow management.
- o Q: What value could there be to the township to find & assess the additional BMPs?
 - Is it functioning for flood control?
 - Is there a sinkhole (direct access to GW)?
 - Has it completely eroded and provides no functionality?
 - This is something the Township supports, perhaps developing the inventory over a five-year period.
- O&M Equipment
 - o Are there cost Sharing opportunities, such as discussed regarding CCTV capability?
 - o With new equipment, you need people who know how to use it so training is key.
 - o With the level of inventory required it could be difficult to share equipment in the short term for additions such as the CCTV system as well as inlet cleaning.
 - o Videoing pipes both pre/post construction is required because they might be crushed in construction so the need is not only on condition assessment for existing but for new installations as well.

Level of Service General Points

- It would be helpful to understand what 5, 10, 50% of maintenance staff means (as an example in the LOS) - would this be in addition to existing Township tasks or taking away from other Tasks? What are the costs associated with these changes? How many inspections/repairs can be done in a man-hour?
 - o Much of this is detailed (based on assumptions) in the Matrix. Cost information will be discussed in a future SAC meeting.
- For each portion of the system, the focus is ‘should we be inspecting/repairing’ each portion of the system, not ‘how’ it is going to be done.
- Don't need to identify as a group what the maintenance will be. It is important to discuss what the specific funding is. Also important to discuss what elements are needed.
 - o That is the end game, this is a step to evaluate what the priority of the township is regarding system components.
- Prioritization is always the key for future repair and rehab.
- Priority could be determined based on road (volume of traffic), condition of facility, amount of runoff it receives, etc., current capacity in the system, and risk of failure.
- General system assessment and inventory is a priority before determining frequency of on-going levels of service for O&M.

Elizabeth Wrap Up

- One of the critical things the Township is dealing with is their limits of responsibility.
- The physical limits of responsibility - orphaned basins/pipes - things that the township relies on for a functional stormwater system but have no operational responsibility for under today's policies.



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- 'Collective' ownership or homeowner responsibility even though it's a larger drainage system can put the Township at risk in managing runoff and its impacts.
 - o This is a policy issue the township would like advice/guidance on.
 - o What can their function/relationship be in these situations - action, partnership, easements/rights?
 - o Issue with liability for private property