

ATTENDEES: SWMAC: Paige Maz, Regina Majercak, Paul Burgmayer, Heather Gill, Joe Schanne, Charles Boschen
CH2M: Daniel Wible, Courtney Finneran

PREPARED BY: CH2M

MEETING DATE: September 8, 2016

SUBJECT: September 2016 meeting

YouTube link:

<https://www.youtube.com/watch?v=dIhKIXxq2pM>

Review of Previous Meeting Minutes

- AUGUST 18, 2016 SWMAC meeting minutes – approved

Public Comment

- Amy Murnane (Radnor resident; 321 Conestoga Road) asked the SWMAC for assistance for some of the water problems in her neighborhood; Amy was accompanied by Aaron Sorensen (Radnor resident; 319 Conestoga Road)
 - Amy stated that the problem has to do with water running down Maplewood Road and overpowering the drains on Conestoga Road; this water then flows down onto her and her neighbors' properties, flooding their front and back yards
 - Amy shared several videos and photos showing the flooding
 - According to Amy, the problem is that residents on Maplewood have built walls and there is no place for the water to go but toward Conestoga and the inlets on Conestoga cannot handle this flow
 - Aaron noted that other residents in the neighborhood have claimed that when the Wayne Art Center expanded around a decade ago it created additional runoff from that site

Township Wide Assessment (TWA) Update

- Daniel presented an overview of the TWA status and schedule
 - Task 1 – ID Flood Locations has long been complete
 - Task 2 – Data Collection is very close to completion
 - Task 3 – Existing Conditions Model will be completed by mid-October
 - Task 4 – Develop and Model Conceptual Solutions has commenced and will be completed by the end of November
 - Daniel noted that according to the scope of work for this effort, up to 28 conceptual solutions will be modeled; some of these solutions will be at specific locations, while others will be more general (neighborhood scale)
 - Task 5 – Prioritization of Projects will entail a public workshop in either October or November
 - Regina asked about the cost estimates for the various conceptual solutions and if they would be refined after the solutions have been modeled; for budgeting purposes, Regina would like to see fairly accurate costs developed
 - Daniel noted that per the scope of work, CH2M will develop conceptual-level cost estimates (AACE Class 4: -30% to +50%) appropriate for conceptual-level solutions
 - Daniel also noted that at a conceptual, planning level it is difficult to accurately take into account the various uncertainties associated with a project, particularly

- geotechnical conditions; thus, contingency factors are often applied to cost estimates at this level
- Courtney noted that CH2M’s cost estimates are heavily informed by our numerous built projects and therefore fairly accurate for planning purposes
- Discussion of updated N. Wayne basin modeling results
 - Daniel noted the following with respect to design storms:
 - A 10-year storm event has a 10% *probability* of happening in any given year and can happen more than once in a year (2-year: 50%, 5-year: 20%, 25-year: 4%, 100-year: 1%)
 - Return frequency is based on historical data and is constantly changing
 - Depth vs. volume: 2 inches of rain falling on 1 acre will not cause as much flooding as 2 inches of rain falling on 100 acres
 - Daniel noted the following with respect to stormwater models:
 - Models are tools for decision making
 - Combine many variables and assumptions: total rainfall, rainfall intensity and duration, rainfall extent, hydraulic data, topographic data, etc.
 - Can be effectively used to compare and contrast alternatives
 - Daniel presented several slides depicting the design plans for the existing basin (designed by Pennoni) and the proposed basin (Option “E” as designed by Chagrin Valley)
 - The existing basin has a series of 48-inch diameter pipes beneath the surface
 - The proposed basin is deeper and larger than the existing basin and does not contain any underground storage elements; the proposed design also includes re-engineered inflow and outflow conditions
 - The drainage area to the N. Wayne basin is around 11% of the overall drainage area to N. Wayne and Poplar Ave
 - The drainage area to the basin is 55 acres, 28% of which is impervious cover
 - Around 10% of the drainage area to the basin is in Tredyffrin Township
 - The drainage area not going to the basin is 439 acres, 30% of which is impervious cover
 - Of the overall drainage area not going to the basin (89%), around 73% is in Tredyffrin Township
 - CH2M modeled three scenarios:
 - Original basin design, which had approximately 49,000 cubic feet of storage capacity
 - Existing basin conditions, in which there is approximately 12-18 inches of sedimentation within the storage pipes, as well as a slightly obstructed inflow point
 - Proposed basin conditions (Option “E” from the Chagrin Valley design), which has approximately 147,000 cubic feet of storage capacity, as well as a reconfigured outlet structure
 - Daniel presented updated model results for the 2-year, 5-year, 10-year, and 25-year, 1-hour storms for the three scenarios described above; specifically, Daniel presented basin overflow rates (in cubic feet per second) from the spillway and/or berm
 - In the 2-year storm, only the existing basin experienced surface overflows
 - In both the 5-year and 10-year storms, both the existing and original basin design experienced surface overflows; the existing basin discharged at a higher rate than the original design (roughly double); the proposed basin did not overflow during these events
 - In the 25-year storm, the existing basin discharged at roughly double the rate of the original design; however, the proposed basin also experienced surface overflows and they were less than the existing basin, but greater than the original design

- It is believed that the reason the proposed basin experienced greater surface overflows compared to the original basin design is that the proposed basin has a more efficient inflow configuration and as a result, runoff gets to it more efficiently rather than backing up in the inflow pipes and causing upstream flooding
- Daniel stated that it might make sense to explore bringing more area into the basin (via gravity); this might increase the benefit of the basin with respect to downstream flooding
 - This would entail installing new inlets and pipes on Forest Road, Eagle Road, and/or Bellevue Ave in order to convey an additional 40+/- acres into the N. Wayne field
 - This would also likely entail a basin bigger than Chagrin Valley Option “E”
- Paul asked if a plunge pool or something similar could be implemented on the south side of the tracks, which is likely owned by Amtrak
- Daniel presented a flood extents map for the 2-year, 1-hour storm event for the existing basin condition, which is the “worst case” scenario for that storm event
 - While partially obscured on the map, the model predicted some flooding would occur on West Ave, at least partially as a result of the inefficient inflow conditions to the basin; Daniel noted that a flood mitigation project on the south side of the tracks would probably be beneficial
 - The map shows significant flood extents on Poplar Ave, Beechtree Lane, Oak Lane, Forest Road, etc., largely as a result of excessive stream flow overtopping the banks and backing up pipes
 - Regina suggested that given the significant roadway flooding associated with only the 2-year storm (1.44 inches), it probably makes sense to focus on small storms with respect to proposed solutions
- Daniel was looking for input on the following questions:
 - Where does the “wall of water” come from?
 - What is specifically meant when it is said that the basin “ruptures” or “fails”?
 - Where else does flooding occur in the vicinity of the basin?
- Bryan Morrison (Radnor resident; 111 Poplar Ave) asked if the model says where the flooding is coming from and if it is assumed to be spread out evenly
 - The “wall of water” previously mentioned by Bill Bruno is a fact, according to Bryan; when Bryan’s property floods, it happens very quickly
 - The AT&T lots produces runoff almost immediately
 - When the basin previously failed, it was on the playground side; it was the embankment that failed
 - Bryan has never seen the aboveground basin full of water; Paul agreed, noting that when he visited the site during a large storm in 2013, the aboveground basin was basically dry
 - Bryan noted that the N. Wayne field is the only large open area in the neighborhood where it makes sense to do a flood mitigation project; Daniel stated that publically owned parcels (i.e. Township or School District) in this area of the Township are rather limited
- Daniel presented a map depicting several potential flood mitigation projects in this drainage area
 - As previously noted, one option is to reroute around 40 acres into the N. Wayne field (this would likely necessitate a bigger basin)
 - Another option is to utilize the private parcel at the northwest corner of N. Wayne and Eagle
 - Another option is to enhance the existing detention basin at the Church of the Saviour

- Another option is to enhance the private ponds on the west side of N. Wayne (west of Church of the Saviour)
- Heather asked if the basin could be modified in such a way that the aboveground storage volume could be utilized and therefore make the overall system that much more effective
 - Heather also noted that the existing system is probably not infiltrating that much water given its depth and proximity to the stream; could an infiltration system be located somewhere upstream of the basin, perhaps in the public right-of-way?
- Joe asked if the large parking lot on Radnor Street Road could be utilized for stormwater storage; could a pipe be installed in Beechtree Lane that would convey runoff by gravity toward that parking lot? Alternately, could a pump system be utilized?
 - Paige noted that pumped stormwater systems are not very practical
- Paul asked about the next steps for the N. Wayne basin analysis; what should be the SWMAC’s recommendation to the Board of Commissioners (BOC)?
 - Daniel stated that alternatives to the proposed basin (i.e. bringing more runoff to a larger basin), as well as other potential upstream projects, could be explored as part of the TWA
- Heather concerned about potentially bringing more runoff into the N. Wayne field; Daniel noted that this would likely only make sense if a larger basin was considered there (and properly engineered for the larger amount of runoff)
- Joe expressed extreme concern that the TWA is turning into a N. Wayne assessment; in addition, Joe said that it is imperative that CH2M appear before the BOC in the very near future in order to give them an update on the TWA (status, schedule, etc.)
 - Regina stated that in her opinion the TWA is going exactly the way it was intended to go and that the SWMAC had known from the start that the N. Wayne basin would be one of the key model development locations
- Regina noted that in addition to cleaning out and restoring the existing basin to its original design conditions, other minor improvements might be considered (and allowed by the School District) under the banner of improving basin maintenance; in other words, the restoration work would entail cleaning, repairing, and improving the basin
 - Regina noted the need for more realistic costs for this restoration work
- General SWMAC consensus that restoring and improving (as much as possible) the basin is the best course of action at this time; there is a general concern that any larger scale solutions, while important to consider in the TWA, will not be able to be implemented any time soon and that restoration could have immediate benefits
 - Bryan noted that restoring the basin is a “band-aid”, probably even a good band-aid, but that larger-scale solutions should still be on the table; the SWMAC generally agreed with this statement
 - Charles will draft a statement to the BOC outlining the SWMAC’s recommendation, which is to restore the basin and maximize other improvements to the extent allowable under the Township’s current agreement with the School District
- At one of the BOC meetings in either September or October, Daniel will present an overview of the TWA efforts to date, as well as a summary on the N. Wayne basin analysis
 - Members of the SWMAC will help to prepare/review the presentation to the BOC and plan to attend the meeting

Discussion of Draft Budget for 2017-2021

- Paul presented several slides related to repairs and the proposed stormwater budget
 - The budget objectives are as follows:
 - Maintain steady flow of capital projects (~67%)

- Repair/maintenance spending (~20%) – make significant progress on prioritized repairs
- Maintain buffer to respond to future contingencies
- Provide money for admin, MS4, and rebate program
- Capital projects
 - Will be informed by TWA results, which will yield 10+ year capital improvement plan
 - Banbury/Francis flood mitigation project - \$1.3M, expected completion in 2017
 - Arthur Road storm sewer extension - \$60k
 - Willow and Radnor Street Road sewer extension - \$75k
 - Assume one new capital project every two years
- Maintenance/repairs
 - Current known repairs - \$1.78M; assume \$200k/year spending, at least 9 years to complete
 - Also used for storm sewer maintenance / televising
 - Paul presented a list of current known repairs for basins, culverts, outfalls, storm sewers, and cleaning/televising/mapping; some of these items have cost estimates, some do not
 - Paul, Regina, and Paige reviewed the cost estimates developed for the various culverts (Earles Lane, Eagle Road, South Devon Ave, Malin Road, Chamounix Road, and Sawmill Road) in order to determine which portion of those costs was related to stormwater versus road/other improvements (e.g. road widening or pedestrian crosswalks)
 - The idea is to fund the stormwater-related items via the stormwater fund and the non-stormwater-related items under the general fund
 - Joe suggested that explicit criteria should be developed in order to clearly differentiate between these costs
 - Paul asked Steve for a breakdown of the costs for replacing the Malin Road culvert so that the stormwater-related costs be can isolated; the replacement cost developed by Gannett Fleming did not seem to include the roadway restoration cost
 - If the Malin Road culvert was rehabilitated, roadway restoration would not be required; however, the 100-year cost would be significantly higher (compared to replacement)
 - Regina suggested that in the future Daniel should be involved in the scoping and cost estimating process for repair projects so that stormwater-related costs are identified/clarified from the beginning
 - Possible ways to budget for culvert repairs:
 - Fixed 20% of total budget
 - Stormwater expenses only – seems most equitable way to proceed; requires splitting costs
 - Stormwater expenses above threshold – pay all expenses for any project above a certain threshold (e.g. 50%)
 - All costs covered – throws repair / capital ratio “out of whack”
 - How to prioritize repairs?
 - Paul also presented/summarized the stormwater budget spreadsheet, which includes the assumed stormwater-related costs for each culvert project; average allocation for repairs is 22%
 - Joe/Regina suggested that the SWMAC prepare two budgets:
 - a “formal” one that is more generic and organized by category; this is the version that gets approved by the BOC

- a more detailed one that is populated with known projects/priorities; this version is subject to change as more immediate repair needs come to light
- Paige noted that the BOC will likely want more specificity in the budget
 - General SWMAC consensus that costs for projects not yet approved by the BOC should be noted as such in the budget
- Paul stated that there are budgetary placeholders (under capital improvements) for future flood mitigation projects
 - Courtney noted that these placeholders should also include water quality projects, though it is understood that flood mitigation projects will include water quality components
- Discussion on when the stormwater budget could be finalized and then presented to the BOC; could this happen at the September 26 BOC?
- SWMAC will most likely finalize and vote on the stormwater budget at the October SWMAC meeting

Old/New Business

- Arthur Road and Radnor Street/Willow Ave storm sewer projects – the SWMAC considers these capital projects and therefore thinks they should be compared to other capital projects as part of the TWA (SWMAC passed a motion to include these in the TWA)
- Proposal for MS4 Permit Compliance – SWMAC will discuss at their October meeting, after several members of the SWMAC have attended an MS4 workshop and have a better understanding of the issues
- Daniel also provided updates on various other stormwater projects in the Township (see attached September 2016 Stormwater Tracking Table for detailed information)

Next SWMAC meeting: 10/13/16 (Radnorshire room)

Action Items

- **SWMAC (Charles)** to draft a statement to the BOC outlining the SWMAC's recommendation on N. Wayne (completed on 9/16/16)
- **CH2M** to ask Steve for clarity on the estimated construction cost for replacing the Malin Road culvert, specifically the estimated cost of roadway restoration