STORMWATER ANNUAL SUMMARY REPORT 2018

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In 2018, Derry Township Municipal Authority (DTMA) entered its second year administering the Stormwater Management Program (SMP). Administering the SMP included establishing a SMP fee to support the program with designated funds to conduct maintenance and repair of the stormwater infrastructure within the Township of Derry. This report is a summary of the most significant activities conducted and major projects completed during 2018, as well as providing details of proposed 2019 projects.

Approximately 30 projects were completed in 2018. The minimum cost was $550 and the maximum cost was $705,000. The median cost was $11,900. In total, approximately $1,085,000 was spent on construction costs. Approximately $312,000 of the construction repairs were attributed to unplanned repairs (emergency issues). The majority of the projects involved replacing failed corrugated metal pipe that had rusted to the point of deterioration.

It is anticipated that unplanned repair costs in 2019 will likely be similar to those experienced in 2018. Additionally, approximately $675,000 of planned repairs are slated to be undertaken in 2019. DTMA staff will continue to review repair needs across the Township to develop the 2020 program of planned repairs and projects.

Condition assessment efforts were increased this year and approximately $300,000 was spent on equipment, software, and hydraulic modeling to increase our knowledge of the stormwater system and its vulnerable components. DTMA received approximately $175,000 in grants and cost share monies to advance the long-term strategy for the SMP.

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INFRASTRUCTURE

UPGRADES - Overall Cost: $1,085,000

A central responsibility of the SMP is the operation, maintenance, and restoration of the stormwater infrastructure. This includes inlets, pipes, basins, and other stormwater conveyance and treatment facilities. To that end, DTMA has compiled a lengthy list of projects to improve and enhance our stormwater management system. Those are described in more detail under EMERGENCY REPAIRS, CURED-IN-PLACE LINING, and BULLFROG VALLEY ROAD UPGRADES.

EMERGENCY REPAIRS - Cost: $312,000

In the early stages of implementing the SMP, emergency repairs continue to be the priority. Eventually, the goal is to reduce the number of emergency repairs, and as the condition assessment of the stormwater assets is completed, move to a proactive and planned approach to system repair and maintenance. Much of the existing stormwater pipes are corrugated metal pipes that are prone to rusting and failure. By monitoring the condition of those pipes, we will be able to replace them before a failure results in sinkholes opening up in the streets. Below is a list of the emergency repairs completed in 2018.

KAYLOR ROAD ($10,800): Pipe failure and sinkhole
GROVE STREET ($16,600): Pipe failure and sinkhole
BULLFROG VALLEY ROAD ($650): Inlet box degradation and sinkhole
WALKER AVENUE ($550): Inlet box degradation and sinkhole
HAWTHORNE DRIVE ($4,800): Pipe failure and sinkhole
HOMESTEAD ROAD ($4,700): Inlet box failure and sinkhole
PEFFLEY ROAD ($4,700):
Pipe failure and sinkhole
RED FOX DRIVE ($4,700):
Inlet box failure and sinkhole
RALEIGH ROAD ($4,700):
Pipe failure and sinkhole
MEADOW LANE ($12,000):
Pipe failure and sinkhole
RIDGE ROAD ($47,700):
Pipe failure and sinkhole
STONEGATE ROAD ($4,700):
Pipe failure and sinkhole
DERRY WOODS BASIN ($39,100):
Pipe and berm failure
SHOPES CHURCH ROAD ($14,600):
Pipe failure and sinkhole

OLD HERSHEY ROAD ($24,700):
Pipe collapse
SANDHILL ROAD ($58,200):
Pipe failure and sinkhole
HILL CHURCH ROAD ($12,600):
Pipe collapse
LIMERICK COURT ($31,400):
Sinkhole, curb & pipe failure
BOATHOUSE ROAD ($11,700):
Pipe failure and sinkhole
SUNNYSIDE DRIVE ($1,000):
Pipe failure and sinkhole
BROOKLINE DRIVE ($1,000):
Pipe failure and sinkhole
WYNDHAM ROAD ($1,000):
Pipe failure and sinkhole
CURED-IN-PLACE PIPE LINING - Cost: $68,000

In 2017, DTMA identified several stormwater pipes that were approaching failure. In cooperation with the Authority’s sanitary sewer group, a jointly bid project to repair designated pipes with a cured-in-place (CIP) plastic liner was completed in 2018. The CIP approach eliminated the need to dig up the roadway and is generally cost effective in certain applications when compared to traditional dig and replace projects. By combining projects from both our sanitary and stormwater groups, lower unit pricing allowed both departments to realize lower project costs when the project was bid.

BULLFROG VALLEY ROAD UPGRADES -  
Cost: $705,000

In anticipation of a proposed 2019 paving project to be performed by the Township, numerous deteriorated stormwater facilities along Bullfrog Valley Road were addressed. The deteriorated inlets and pipes were often crushed and clogged with sediment and debris. Additionally, an engineering analysis indicated the need to increase the capacity of certain pipes. As a result, the pipe and inlet network along Bullfrog Valley Road was redesigned and the project was bid and awarded in 2018. The work, which commenced in the fall of 2018, was delayed due to the unusual wet weather (precipitation) that occurred during the latter part of 2018. Although most of this work had been completed before the end of 2018, the remaining portion of the work will be completed in the spring of 2019.
CONDITION

ASSESSMENT –

Cost: $300,000

Establishing an accurate assessment of the stormwater infrastructure assets is critical to developing a long-term asset management strategy. To that end, several initiatives have been undertaken to improve our understanding of the stormwater system and will provide decision-making data on which future improvement projects will be based. A second camera truck and two additional Collection System (pipeline) staff were added in 2018 to facilitate inspection and assessment of our stormwater pipe network. Additionally, DTMA began the implementation of an upgraded asset management system that will work in conjunction with our camera trucks and our digital GIS mapping data to facilitate more cost-effective assessment and management of our infrastructure assets. Finally, we partnered with the US Army Corps of Engineers on a 50/50 cost share program to map assets and model water flow in a watershed tributary to Swatara Creek along Middletown Road. This area has experienced severe flooding during high-intensity precipitation events and the modeling results will assist us in determining the corrective actions or mitigation activities that can be taken to improve conditions.
GRANTS AND AWARDS

Awarded: $175,000

A key tenet of our stormwater management program is the identification and acquisition of outside funding sources to help accelerate our project implementation. To this end, we continue to partner with the US Army Corps of Engineers in their 50/50 cost share program, which results in $50,000 worth of Army Corps services. The Authority was an inaugural partner with the Chesapeake Bay Foundation and their 10 Million Tree Partnership to secure trees, tubes, and stakes for several tree planting projects across the Township.

Additionally, we worked with the Dauphin County Conservation District on a DCNR Riparian Buffer Planting grant to expand riparian buffers as part of our Pollution Reduction Plan. We applied for and received $103,000 from the Mariner East 2 Pipeline civil penalty fund for restoration of the stream running adjacent to Bullfrog Valley Road. We also received a $15,000 grant from the Growing Greener program to begin stormwater basin improvements in the Oakmont Community. These grants will allow us to complete early-stage work on several watershed-scale improvements and position the Authority to apply for additional grant monies in the future.
CONCLUSION

The projects completed in 2018 focused mainly on repairs to failed infrastructure. In total, approximately $312,000 worth of unplanned or emergency repairs were completed. It is anticipated that a similar magnitude of that type of work will occur in 2019 as much of the stormwater infrastructure in the Township is aging and reaching the end of its useful life.

In addition to the unplanned repairs, DTMA completed $773,000 of planned infrastructure improvements and upgrades. DTMA is planning for the repair and/or replacement of additional pipes and associated stormwater infrastructure across the Township as part of a proactive effort to begin addressing our aging infrastructure before complete failures occur. By so doing, we are able to address the issues in a more organized and methodical manner that will reduce costs and minimize disruptions to the community. It is anticipated that an additional $675,000 will be spent in 2019 on addressing known problem areas.

As part of the proactive program development, DTMA has undertaken a digital mapping upgrade as well as implementing an asset management software, purchasing a second pipeline inspection video camera van, and increasing staff levels to allow for more rapid condition assessment of the stormwater infrastructure. These program improvements will allow DTMA to more accurately prioritize repair needs and avoid catastrophic failures and most importantly, provide the foundation for our long term goal of moving the stormwater program level of service from an emergency response/reactionary level to the desired comprehensive proactive level envisioned during the SMP development with the Stormwater Advisory Committee during creation of the program.

Beyond the maintenance of the traditional stormwater infrastructure, DTMA is moving forward with several larger-scale projects to deal with areas of localized flooding and projects related to compliance with our MS4 permit obligations. These multi-year projects require considerable investment upfront to fully comprehend the complex issues and formulate a sound approach to design and eventual resolution. Many of the grants we received will lay the foundation to bring those projects to fruition over the next several years.