

STORMWATER ANNUAL SUMMARY REPORT 2019



Michael Callahan, Stormwater Program Manager
mcallahan@dtma.com
www.dtma.com



EXECUTIVE SUMMARY

In 2019, Derry Township Municipal Authority (DTMA) entered its third 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 2019, as well as providing details of proposed 2020 projects.

Approximately 20 projects were completed in 2019. The minimum cost was \$895 and the maximum cost was \$385,500. The median cost was \$5,080. In total, approximately \$650,000 was spent on construction costs. Approximately \$267,000 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 2020 will likely be similar to those experienced in 2019. Additionally, approximately \$2,275,000 of planned projects are slated to be undertaken in 2020. DTMA has also applied for \$665,000 in grant funds for two additional projects in the Township. If awarded, those projects will commence in 2020. DTMA staff will continue to review repair needs across the Township to develop the 2020 program of planned repairs and projects.

Outreach and collaboration efforts were increased this year as we put into motion plans to address the impairments in our stream network. Addressing these impairments are an important compliance requirement of our MS4 permit. Much of the ground work we conducted in 2017-2019 will start to bear fruit in 2020. As always, we are grateful for the continued efforts of our customers to help achieve are long-term goals.



Michael P. Callahan
Stormwater Program Manager



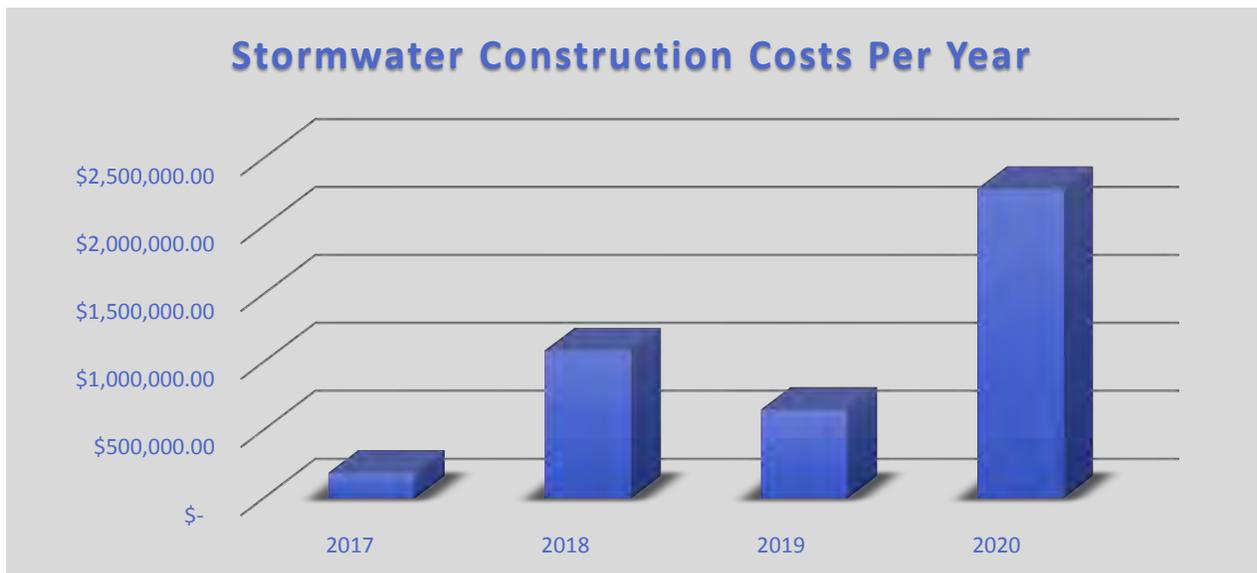
Wayne A Schutz
Executive Director

INFRASTRUCTURE UPGRADES - 2019 Overall Cost: \$650,000

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. As we enter into year four of our program, we can begin charting our expenditures over time, as shown in the table below. Although we spent less in 2019 compared to 2018, most of that had to do with going through necessary preparation steps, such as surveying and permitting. We have budgeted for a dramatic increase in our projects for 2020, as much of this past preparation enters the construction phase. To that end,

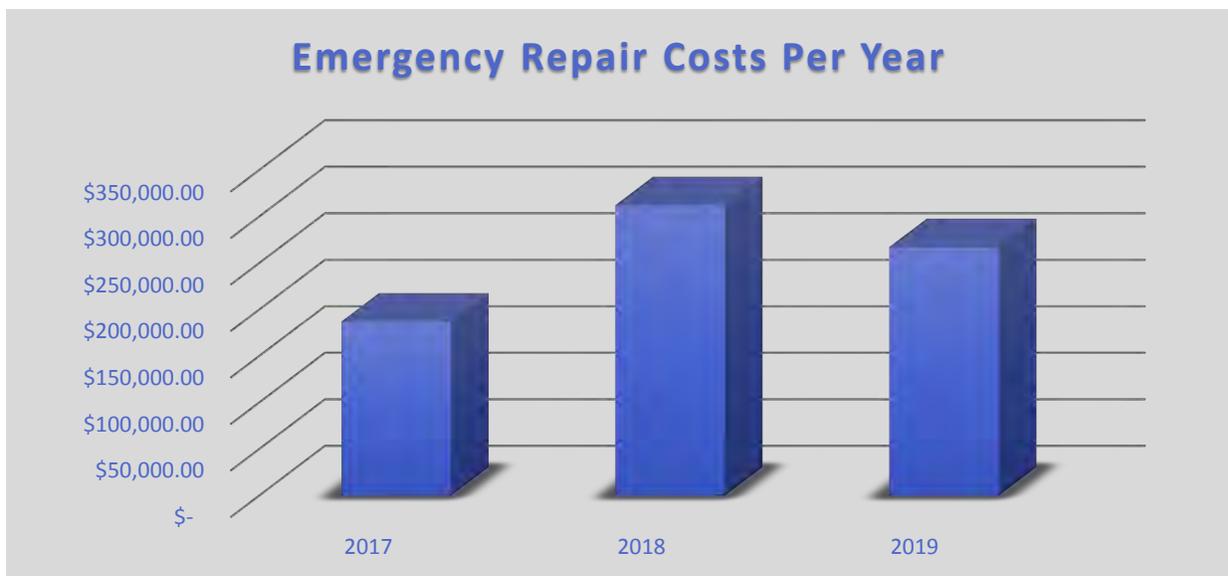


DTMA has compiled a lengthy list of projects to improve and enhance our stormwater management system. Those are described in more detail under [EMERGENCY REPAIRS](#), [CURED-IN-PLACE LINING](#), and [ROAD UPGRADES](#).



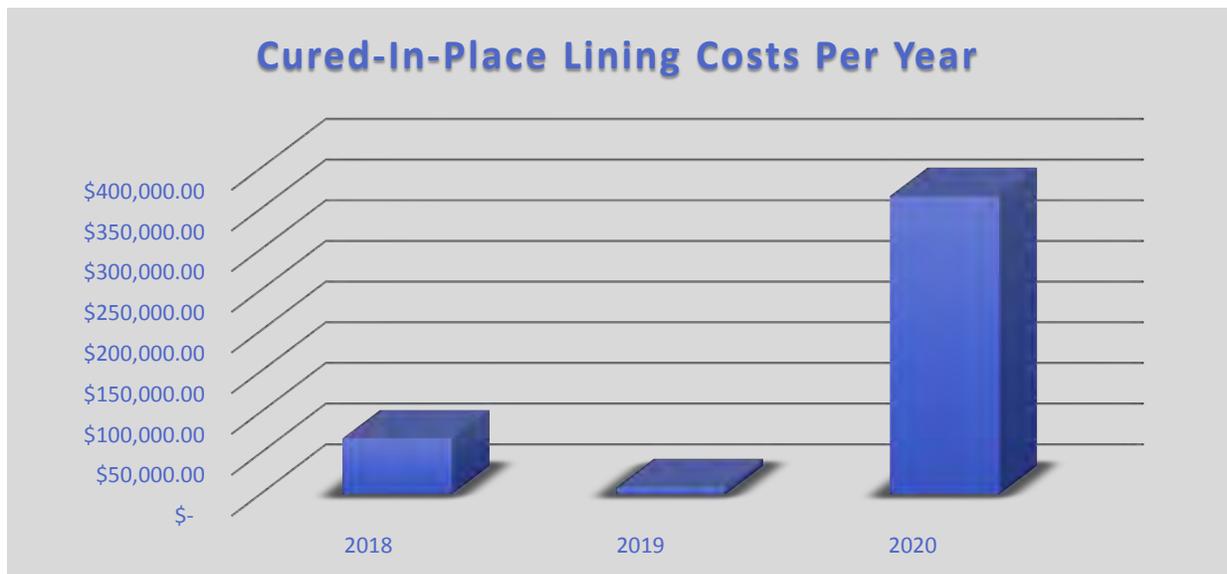
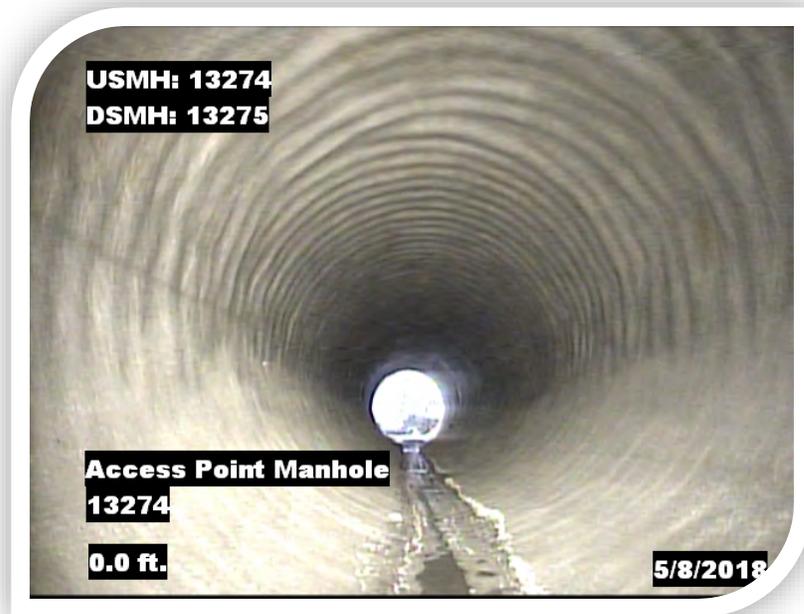
EMERGENCY REPAIRS - Cost: \$267,000

In the early stages of implementing the SMP, emergency repairs were 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. We saw a 15% decline in emergency repairs in 2019 compared to 2018. As we continue to make improvements to the system, we anticipate a trend lower in emergency repair costs for 2020 and beyond.



CURED-IN-PLACE PIPE LINING - Cost: \$8,250

In 2018 and 2019, 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 bid in late 2019. The CIP approach eliminates 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 allows both departments to realize lower project costs. The project will commence in 2020, with bid pricing coming in at approximately \$366,000.



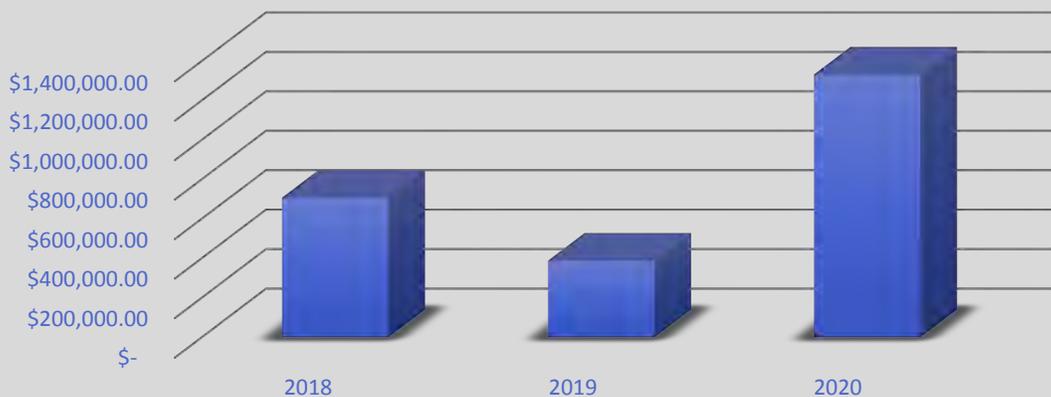
ROAD UPGRADES - Cost: \$385,500

Completion of the stormwater upgrades along Bullfrog Valley Road occurred in the spring of 2019. Additionally, we completed upgrades of stormwater infrastructure along Swatara Creek Road near Stone Creek Road, along a section of Hilltop Road, and two sections on Swatara Road near Peffley Road and

Kieffer Road. In 2020, we anticipate spending approximately \$1,330,000 on stormwater upgrades within our road network. These projects are not merely an in-kind replacement of old infrastructure, but a redesign of volume capacity and the addition of underground detention facilities to help mitigate some of the localized flooding issues experienced on our roadways.



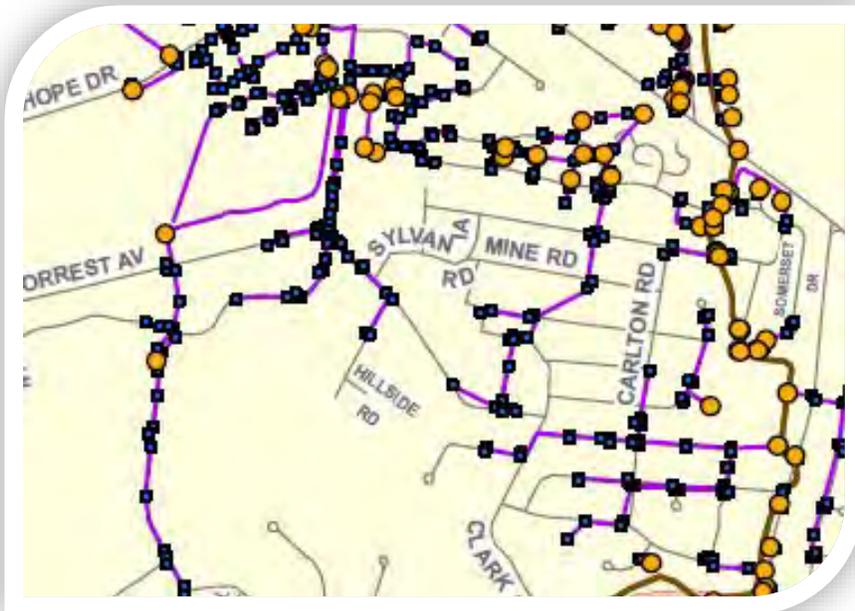
Planned Infrastructure Replacement Project Costs Per Year



CONDITION ASSESSMENT — Cost: \$140,000

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.

In 2020, the upgrades to our asset management system will be fully operational. This will allow us to fully utilize the capabilities of the camera truck upgrades we made in 2018 and 2019, and aid in future asset management decisions on our storm system, moving us toward our goal of a Comprehensive Level of Service.

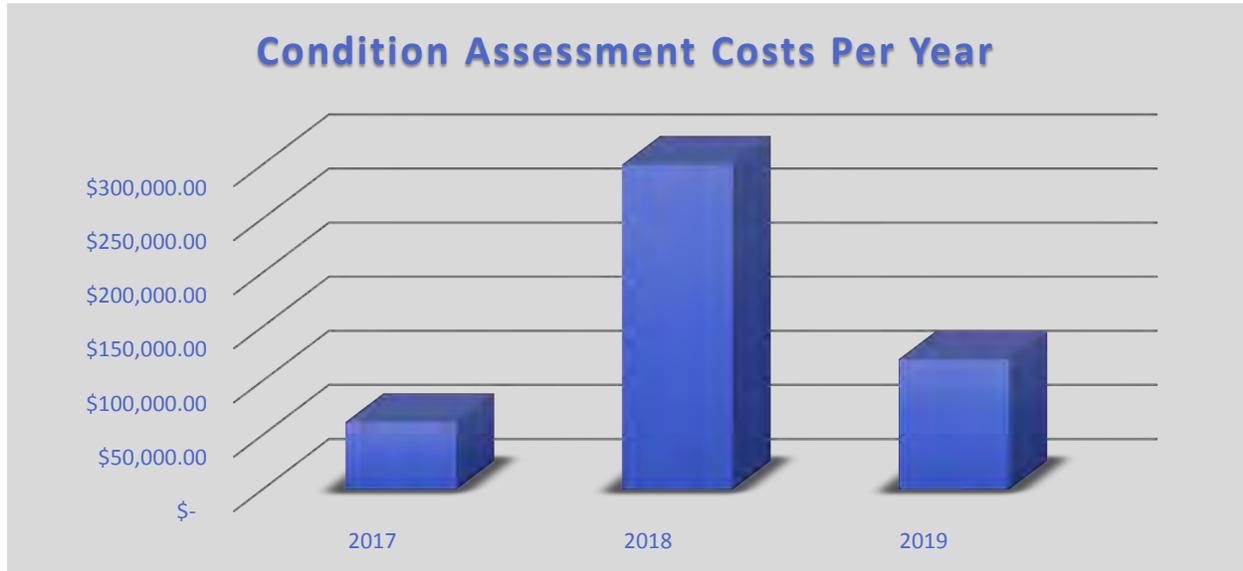


We also began collecting condition and survey data on several stormwater basins in the Township that are in need of repair and/or restoration. That data has provided the information needed to proceed with the design and permitting of those improvements.

Finally, we continue to collaborate with the US Army Corps of Engineers (ACOE) on an annual 50/50 cost share program to map and assess assets within the Township (Mapped areas depicted in Appendix).

In 2020, as part of the cost share program, the ACOE plans to model water flow in the Spring Creek watershed on the eastern portion of the Township. 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 PARTNERSHIPS

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.



In 2018, 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. In 2019, we collaborated with the Dauphin

County Conservation District to secure a grant for 50 rain barrels which were distributed to interested residents free of cost. These grants have allowed us to complete early-stage work on several watershed-scale improvements and position the Authority to apply for additional grant monies. We have recently applied for additional grants totaling \$665,000, and are in the process of applying for an additional \$1,250,000 in grants to help move projects forward.

Finally, we have begun discussions with neighboring municipalities, landowners, and interested stakeholders regarding a watershed implementation plan for the Spring Creek Watershed. This watershed occupies approximately 60 percent of Derry Township, and is one of our major impaired stream systems. The goal is to formulate an agreed upon approach to improvements in the watershed to help improve the quality of our local streams. This type of planning is integral to securing future grant monies.

CONCLUSION

The projects completed in 2019 were split between unplanned repairs to failed infrastructure and planned project implementation. In total, approximately \$267,000 worth of unplanned or emergency repairs were completed. It is anticipated that a similar magnitude of that type of work will occur in 2020 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 \$385,500 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 continue 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 more than \$2 million will be spent in 2020 on addressing known problem areas.

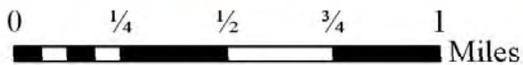
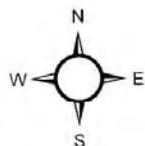
As part of the proactive program development, DTMA has undertaken a digital mapping upgrade as well as implementing an asset management software, purchasing a second pipeline inspection video camera van, and increasing staff levels to allow for more rapid condition assessment of the stormwater infrastructure. 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.

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.

APPENDIX



Figure 3.2
Derry Township
Stormwater Survey



- Stormwater Survey - Structures
- Stormwater Survey - Pipes