

April 4, 2019

Ryan Schroeder
City Administrator
City of West St. Paul
1616 Humboldt Avenue
West St. Paul, MN 55118

RE: Ongoing Inflow & Infiltration (I/I) Program
Mitigation and Flow Reduction Summary

Dear Mr. Schroeder:

Please see the information below and on the attached pages that summarize the wastewater flow reductions achieved by West St. Paul through investments in I/I mitigation from both public and private sources. The success of West St. Paul in reducing I/I peak flows by one-third and doing so with a high return-on-investment makes this one of the more economical programs both locally and nationally. These investments reduce the likelihood of untreated sewage backing up into basements or being released to waterways, retain capacity for growth and development, and reduce long-term costs.

City staff provided very thorough, detailed information to document the investments by the City and residents. That documentation and the attached metering analysis completed in 2018 showed that:

- Comprehensively addressing I/I has decreased peak clear water flows by one-third in M058.
- Flow reduction has kept the City Municipal Wastewater Charge (MWC) near the rate of inflation.
- The return-on-investment (ROI) for West St. Paul is above average both locally and nationally.
- Excessive flows from I/I continue to be reduced, even with larger rainfall events and frequencies.
- Investments prior to 2015 were mostly in the M058 metershed, which is the largest area of the City and was identified as a priority for peak flow reduction after the 2005 exceedance.

The comprehensive approach to addressing I/I by West St. Paul is having positive effects. Other communities in the Twin Cities have similar point-of-sale programs for service laterals, and almost all communities have similar ordinances for removal of I/I sources as they are discovered. Through the current Comprehensive Planning process, many communities have indicated that near-future efforts will encompass increased attention to private infrastructure, including outreach to residents and potential point-of-sale inspections.

Since 2015, more investment has focused on M056 and M057, which are planned to be evaluated in 2020. We look forward to quantifying the additional flow reductions once there is sufficient flow and rainfall data.

Continued investments should increase the reductions in both base and peak wastewater flows across the City. We look forward to our respective continued efforts and collaboration on I/I mitigation.

Thank you,

Marcus Bush, PE
Principal Engineer
MCES Engineering Programs

att: West Saint Paul Infiltration/Inflow Mitigation Evaluation
cc: Jeannine Clancy, MCES Assistant General Manager

Please see the following staff summary on the City of West St. Paul I/I mitigation program, including documented investments and results. Attached is the *West Saint Paul Infiltration/Inflow Mitigation Evaluation* by Brown and Caldwell, dated October 30, 2018.

West St. Paul Program Summary

Along with most other communities in the region, the West St. Paul efforts to reduce I/I from private infrastructure have had significant and positive effects on the wastewater flows and costs, reliability of the system, capacity for growth, and reduction of overflows to buildings and waterways. From 2007 to 2017, communities have reported over \$175M of work plan credits, which account for only a portion of the construction costs. For programs focused on service lateral repairs and sump pump disconnections, communities have reported over \$22M in investments. Adding rain-leader disconnection programs, the reported investments on private infrastructure exceed \$46M.

West St. Paul has invested in a substantial infrastructure rehabilitation program to reduce I/I from both private and public sewers. Records for the MCES I/I Program show that the City has invested in projects to eliminate sources of I/I from both public and private sources. West St. Paul has reported over \$5M in projects that reduce I/I from sources on private property, of which over \$0.5M was reimbursed through grants administered by MCES. Through the I/I Program, records from 2007 to 2017 show that West St. Paul has reported over \$7.4M of total investment and has received over \$0.9M in grants. These investments have offset potential wastewater surcharge fees- which were not assessed- of roughly \$5.5M.

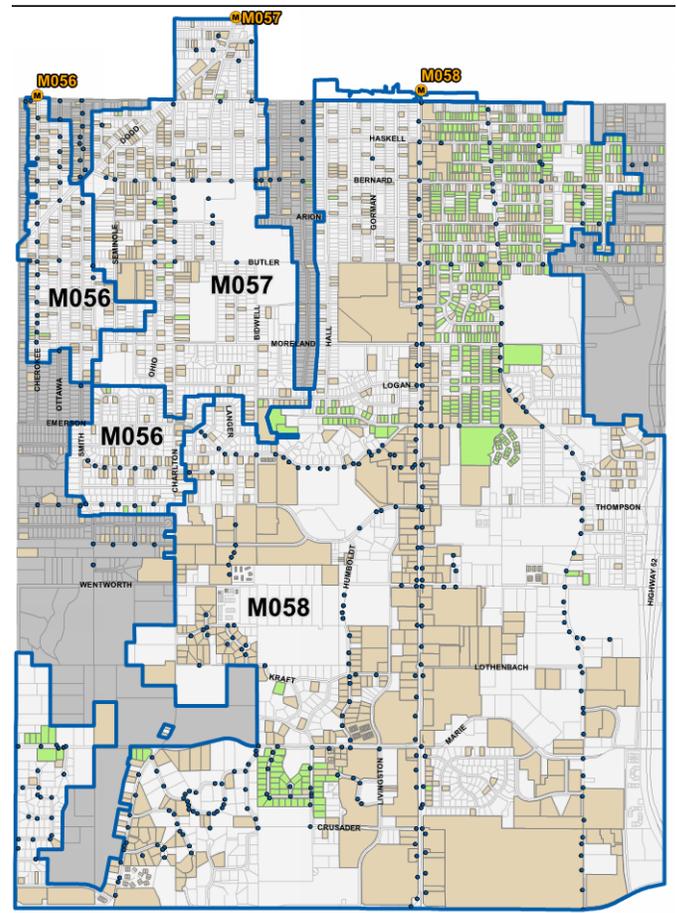
These potential fees do not include any demand charges that could be assessed for excessive I/I. Most regional communities have I/I reduction programs in place and not one has been assessed a demand charge to add capacity. The approach of adding capacity has been attempted by other wastewater utilities in other areas of the county, and has not been shown to effectively avoid backups, spills, and overflows. If a community chose to stop making efforts to reduce excessive I/I, local funds could be diverted from local mitigation projects and used instead to defray the costs to the region in the form of a demand charge.

Meter Analysis

The results of the rehabilitation work from 2007 to 2014 indicated a high rate of return in the form of a 33% reduction in the I/I component of the flow in the M058 metershed basin, the largest of the three metersheds serving the City and highest ranked based on the amount of I/I. Much of this reduction can be attributed to effectively managing I/I from both public and private sources, specifically by utilizing grant funding in 2008 and 2009 to inspect and repair faulty service connections. The total peak flow was reduced by 28% and the base flow was reduced by 8%. The area serviced by M058 is shown on the figure below with a meter located near Robert St. and Annapolis St. Of note is that only the work in green, completed through 2014 was used for this analysis. The additional investments shown in orange are expected to have further positive impacts on the system.

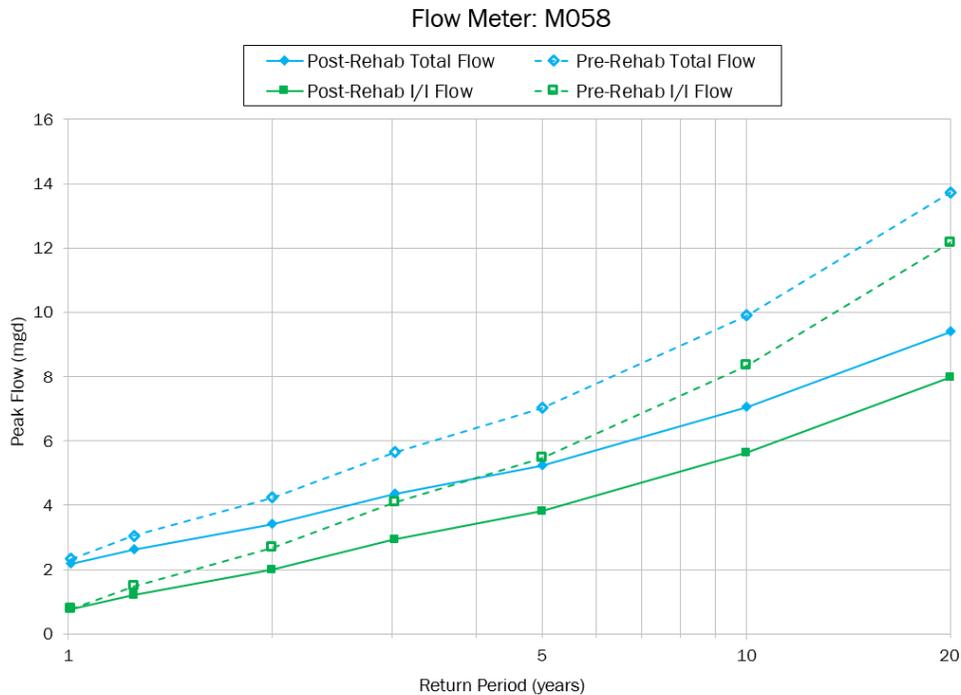
For inspections and repairs completed in 2008 and 2009, West St. Paul received roughly \$560,000 in grants. Many of these repairs are shown in green in the northern portion of M058 and assisted the flow reductions noted above.

After the expiration of grant funding, the City reduced



efforts to complete private property inspections and repairs. In June 2014 the West St. Paul area received just over four inches of rain in a 24-hour period. The resulting I/I from the storm event overwhelmed two sanitary lift stations and caused basement flooding in over 100 homes.

Following that event, the City increased efforts on the private property inspection and repair programs. More service lateral investigation and repair occurred in all metersheds- M056, M057, and M058. That investment is expected to show additional reductions in peak and base wastewater flows. MCES plans to quantify the success of I/I mitigation efforts for all metersheds within West St. Paul in 2020. There are roughly three years of rainfall and flow data needed after the significant work done through 2016 to properly calibrate those models and yield results with high-confidence.



West St. Paul MOU

Challenges exist in all communities. For West St. Paul, the age and growth of the community are specific challenges that are being addressed and may take more time to complete. Recognizing the challenges, the need to document a strategy for private infrastructure I/I mitigation within the community, and a desire to establish opportunities to measure program impact, MCES and West St. Paul entered a Memorandum of Understanding (MOU) in 2016. The MOU allows additional time for the City to refine their program to fully realize the benefits from investments in rehabilitation of the local wastewater system. In addition to the increased time permitted to address the I/I, MCES also completed the study noted above to assist the City in understanding which efforts are working and by how much. The results have shown that the focus on removing I/I from private sources has been effective and efficient.

That long-term strategy is expected to continue yielding flow reductions for the City and act as one model for other communities in the region. Each community is unique and has unique challenges. By focusing on the locations and sources of I/I that require the most attention, a community can get the most from their investments. By doing just that, West St. Paul has reduced I/I flows by a third, kept wastewater rates on-par with the consumer price index, and reduced sewer overflows to basements and waterways.