

June 22, 2023

Mr. Peter Hartz, Water and Wastewater Utilities Manager
City of Watertown
800 Hoffmann Drive
P.O. Box 477
Watertown, WI 53094

Re: Milford Street Interceptor Capacity Analysis
City of Watertown, Wisconsin (City)

Dear Pete,

This letter serves to document the capacity analysis that was conducted for the City's 15-inch sanitary sewer interceptor on Milford Street, including an evaluation of existing flows and future sanitary sewer flow projections from proposed development in the Southwest Service Area.

The existing 15-inch sanitary sewer interceptor on Milford Street has a capacity of approximately 1,212 gallons per minute (gpm), and flows by gravity to the northeast before discharging into the 36-inch sanitary sewer on Hoffman Drive. A temporary flow monitor was installed in the Milford Street Interceptor from March 2021 through July 2021 as part of the Sanitary Sewer Model Creation and Calibration project, recording an average flow of 276 gpm. The peak flow observed during the flow metering period was 580 gpm, representing a 2-year recurrence interval (R.I.) event. A 10-year, 1-hour R.I. design storm was projected and run in the hydraulic model, which resulted in a peak wet weather flow of 722 gpm, or 59.6 percent of the full pipe capacity. Figure 1 displays the wet weather hydrograph for the Milford Street Interceptor under the dry weather flow, 5- and 10-year design storm scenarios.

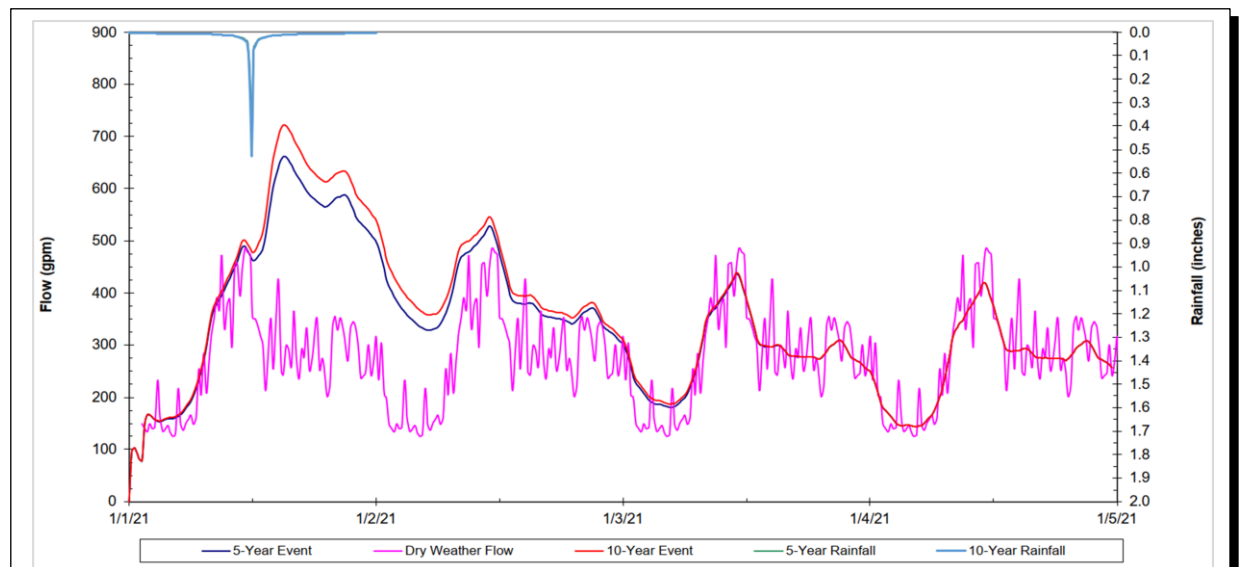


Figure 1 Milford Street Interceptor 5- and 10-Year Wet Weather Hydrograph

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The results of the hydraulic model indicate that the Milford Street Interceptor has approximately 490 gpm of excess capacity for future sanitary sewer flows. Developers in the City have proposed two locations for near-term development in the Southwest Service Area, consisting of the Loos Development (shown in Figure 2) and the Greater Watertown Community Health Foundation (GWCHF) Neighborhood Development Plan (shown in Figure 3). Additionally, the Johnsonville factory located on Perry Way, which currently discharges at an average rate of 97 gpm to the Milford Street Interceptor, is anticipating a 50 percent expansion in the near future.

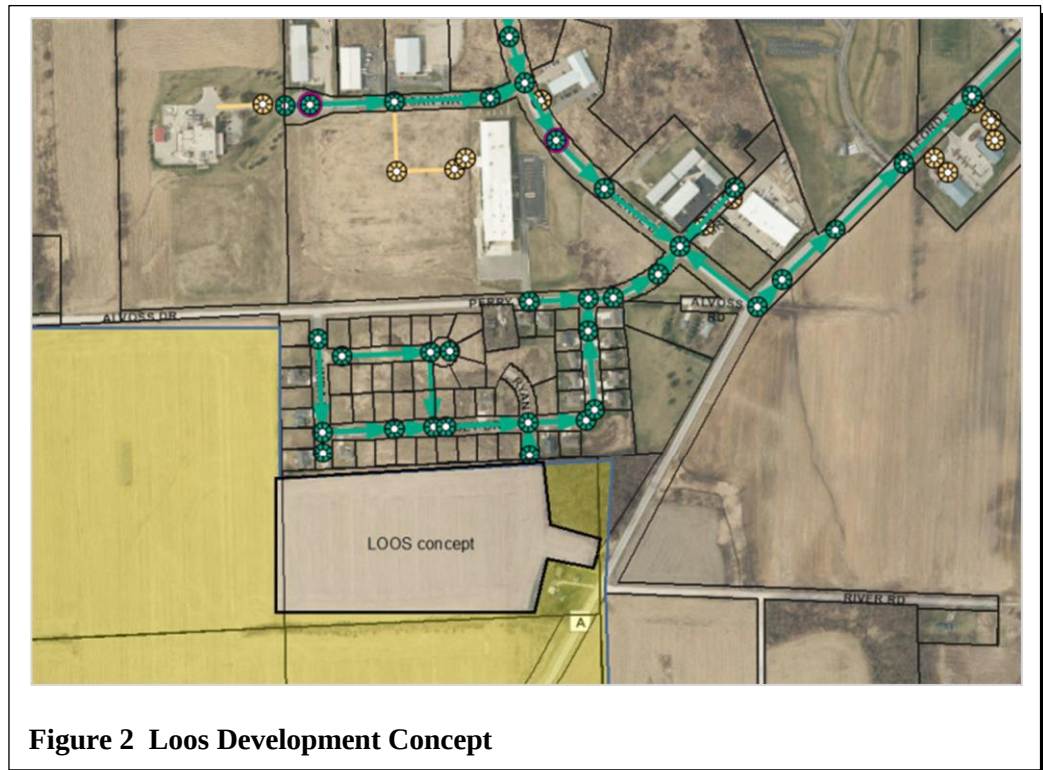


Figure 2 Loos Development Concept



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Description	Value	Unit
Number of Residential D.U.s	48	-
City Residential Density	2.46	capita per D.U.
WAC NR 110 Average Residential Flow Rate	80	gpcd
Loos Development Average Flow	9,450	gpd
Peaking Factor	4.0	-
Loos Development Peak Flow	37,800	gpd

gpd=gallons per day

Table 1 Sanitary Sewer Flow Projections–Loos Development

Description	Value	Unit
Number of Residential D.U.s	754	-
City Residential Density	2.46	capita per D.U.
WAC NR 110 Average Residential Flow Rate	80	gpcd
GWCHF Neighborhood Plan Average Flow	148,390	gpd
Peaking Factor	4.0	-
GWCHF Neighborhood Plan Peak Flow	593,560	gpd

Table 2 Sanitary Sewer Flow Projections–GWCHF Neighborhood Plan

Table 3 summarizes the existing flows and the anticipated future flows from the proposed expansion at the Johnsonville factory. No additional peaking factor is typically applied to industrial flows due to the consistency in daily variation from the industrial discharger.

Description	Value	Unit
Johnsonville Existing Average Flow	139,120	gpd
Proposed Expansion	50%	-
Johnsonville Additional Average/Peak Flow	69,560	gpd

Table 3 Sanitary Sewer Flow Projections–Johnsonville Expansion

Table 4 presents a summary of the future average and peak sanitary sewer flows from the three proposed developments/expansions in the City's sanitary service area.

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Flow Condition	Average. Flow (gpd)	Average Flow (gpm)	Peak Flow (gpd)	Peak Flow (gpm)
Loos Development	9,450	7	37,800	26
GWCHF Neighborhood Plan	148,390	103	593,560	412
Johnsonville Expansion	69,560	48	69,560	48
Total Future Additional Flows	227,400	158	700,920	487

Table 4 Future Sanitary Sewer Flow Projection Summary

Approximately 158 and 487 gpm of average and peak flows, respectively, are anticipated from the three proposed developments/expansions. Based on the hydraulic modeling results for the Milford Street Interceptor for the 10-year, 1-hour design storm, the 15-inch Milford Street Interceptor has approximately 490 gpm of available capacity. Therefore, the Milford Street Interceptor would be at 100 percent capacity with the inclusion of future sanitary sewer flows from the Loos Development proposal, the GWCHF neighborhood plan proposal, and the proposed Johnsonville expansion.

An assumption that all peak flows will enter the Milford Street Interceptor at the same time and at the same upstream location was made with the above methodology. Therefore, the results of this evaluation err on the side of conservatism. It is recommended that the City conduct additional temporary flow monitoring in the 15-inch Milford Street Interceptor to better understand existing flows within the system and how the system reacts to a higher R.I. storm, as the hydraulic model was only properly calibrated to a 2-year event due to the limited wet weather data that was retrieved during the 2021 flow metering study.

Please do not hesitate to call 608-251-4843 with any questions.

Sincerely,

STRAND ASSOCIATES, INC.®


 Justin M. Bilskemper, P.E.


 Jake D. Collins, ENV SP