

June 20, 2022, Rain Event Response – Storm Sewer Cleaning Pilot Project

ISSUE

On June 20, 2022, Saskatoon experienced heavy rain with the hardest-hit areas concentrated in the south, southeast, and north sides of the city. In response to the rain event, the City of Saskatoon (City) launched a targeted storm sewer infrastructure investigation in the areas where flooding causing damage was reported. This report provides information on a pilot project to expand storm water system cleaning measures.

RECOMMENDATION

That the Standing Policy Committee on Environment, Utilities, and Corporate Services recommend to City Council that capital funding required to complete the pilot project is proposed to be allocated as follows:

- a) A change in project scope to Project P.01619.02 (Preservation Program) and Project P.01619.04 (Capital Operations) that will operationalize the interim (2024-2025) CCTV inspection and cleaning pilot project, be approved;
- b) The budget for Project P.01619.02 (Preservation Program) be increased by \$187,000 to a total planned capital budget in 2024 of \$2.0 million, to be funded through a reduction of the budget of \$187,000 from Project P.01619.01 (Network Management); and
- c) The budget for Project P.01619.04 (Capital Operations) be increased by \$110,000 to a total planned capital budget in 2024 of \$166,000, to be funded through a reduction of the budget of \$110,000 from Project P.01619.01 (Network Management).

BACKGROUND

At its meeting on February 7, 2023, the Standing Policy Committee on Environment, Utilities and Corporate Services received the report [June 20, 2022, Rain Event Response – Report Back](#) and provided the direction:

That the Administration report back with information regarding a possible expansion of storm water system cleaning work to include pro-active measures in addition to the current approach.

The City participates in the Canadian Infrastructure Benchmarking Initiative (CIBI), which provides current data on how other cities manage storm water, water, and wastewater infrastructure.

DISCUSSION/ANALYSIS

Saskatoon has a comprehensive inspection and cleaning program in place for the sanitary sewer system, but currently, does not have a comprehensive inspection or cleaning program in place for the storm sewer system. None of the cities involved in the CIBI program report having such a program for their respective storm sewer systems; although, the Administration has learned that one British Columbia city has recently implemented a storm sewer inspection and cleaning program.

In Saskatoon, deficiencies or issues in the storm sewer system are typically identified through CCTV inspections performed ahead of water-sewer and roadways preservation programs or come to the attention of the City through a physical observation, often presenting as unexpected surface ponding.

The City's approach to designing for rain events is similar to other cities. The underground piped systems are designed to handle relatively minor storms; in Saskatoon's case, a "one-in-two-year" storm, which is defined as the strongest rain event expected every two years.

More significant rain events are handled with overland drainage designs. Streets, linear parks, and easements are designed to convey stormwater overland to designated storage ponds that drain out over time. These overland flow systems are designed to handle the "1-in-100-year" storm and, as such, provide the primary protection to private property during major rain events.

As noted in previous reporting, Saskatoon neighbourhoods constructed before 1990 were not designed to current standards for overland flow, resulting in a higher risk of surface flooding during major rain events. In 2018, City Council approved a program (the Flood Control Strategy) to retrofit areas of the city susceptible to surface flooding as a result of those pre-1990 design standards.

Saskatoon Water has conducted preliminary modelling to identify areas where preventative inspection and cleaning of the storm sewer may reduce the risk of potential surface flooding. As such, should City Council approve the funding reallocations recommended in this report, the Administration will implement a two-year pilot inspection and cleaning program. The pilot program will be evaluated, and a report will be brought back to the appropriate City Council committee prior to the 2026-2027 budget process, so that City Council has an administrative recommendation on the long-term viability of such a program.

The objective of the pilot project is to evaluate the impact of proactive storm sewer cleaning and CCTV inspections to determine if a change to service levels is recommended for the Asset Management Plan.

For the pilot, storm sewers that drain known high-risk flood locations will be selected for CCTV inspection in 2024-2025 and cleaning will occur where necessary. It is expected that through this pilot project, the types of locations or areas that are a potential concern will be confirmed. Debris levels will also be recorded and prioritized for removal.

It is important to reiterate that even perfectly functioning underground storm sewer systems may not protect all properties during major rain events. Overland flow and storage areas are the primary solutions for major events, and the Administration will continue implementing the City Council-approved Flood Control Strategy intended to systematically reduce the risk of surface flooding in identified Saskatoon neighbourhoods.

A third party will be used to conduct the CCTV inspections for the pilot program. Cleaning and debris removal will be completed by a combination of City staff and contractors. The capital funding recommendation for the pilot project is detailed below.

Year	CCTV	Cleaning	Total
2024	3.75 km 0.5% of inventory - \$93,500	0.68 km 18% of CCTV - \$55,000	4.43 km \$148,500
2025	3.75 km 0.5% of inventory - \$93,500	0.68 km 18% of CCTV - \$55,000	4.43 km \$148,500
Total	7.50 km \$187,000	1.36 km \$110,000	8.86 km \$297,000

In addition to the proposed pilot project, the existing storm operations, maintenance, and preservation program will continue to address emergent issues as has been done in previous years.

FINANCIAL IMPLICATIONS

Pending City Council approval, the 2024-2025 cleaning and CCTV inspection pilot project will be funded through existing operating and reallocation of capital budgets. Reallocating \$297,000 within Project P.01619 (Storm Sewer Trunk and Collection) will result in a reduction of approximately 0.15 km of storm trunk replacement over the years 2024 to 2025. Capital funding already approved for specific storm infrastructure system expansions (e.g., Flood Control Strategy, Montgomery Place, and CN Industrial drainage improvements) to mitigate flooding, will not be utilized for this pilot project.

If proven effective through the pilot project, changes to service levels will be documented and will be incorporated into the utility rates for the 2026-2027 business plan and budget deliberations.

OTHER IMPLICATIONS

There are no other implications.

NEXT STEPS

1. Administration will proceed with the interim (2024-2025) pilot cleaning and CCTV inspection project.
2. Administration will conduct a CIBI survey to attempt to learn more about how other municipalities manage storm sewer inspections and cleaning.
3. The recommendations for budget adjustments outlined in this report will be included in the 2024/2025 Capital Budget.

4. The Administration will report back on the results of the pilot and make a recommendation on whether or not to include an inspection and cleaning program in the 2026-2027 budget based on the pilot project while balancing existing projects and initiatives.

Report Approval

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