
Frozen Service Connections Investigation Program

ISSUE

Over the last decade, several properties in Saskatoon have experienced frozen service connections on multiple occasions. The City of Saskatoon has established a program to investigate and repair this problem; however, additional funding is required in the capital project to fund high priority work. To fund the investigation and repairs of properties that have experienced frozen water service connections multiple times in recent years, this report is seeking approval for a budget adjustment transfer of \$500,000 from Capital Project #1618 – Sanitary Trunks to Capital Project #1615 – Water Distribution.

RECOMMENDATION

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That a budget adjustment transfer of \$500,000, from Capital Project #1618 – Sanitary Trunks to Capital Project #1615 – Water Distribution, be approved. Funds being transferred will be allocated through the Water & Wastewater Infrastructure Reserve, resulting in a net zero impact to the reserve.

BACKGROUND

At its meeting held on June 10, 2019, the Standing Policy Committee on Environment, Utilities and Corporate Services received a report from the Interim General Manager, Utilities & Environment Department titled Frozen Water Connections Information. In this report, it was reported that the extreme cold temperatures in February 2019 led to frost reaching depths of up to eight feet. This deep frost led to a high number of water service interruptions including 271 frozen service connections.

These widespread service connection freezing events do not occur every year. They correlate with sustained extreme cold periods and the depth of frost below approximately eight feet.

Table 1 – Total Frozen Water Service Connections

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Frozen Connections	2	39	2	30	289	9	3	10	80	271

Some properties have shown to be susceptible to freezing and have frozen in multiple years. The June 10, 2019 report outlined various contingency plans that will be put in place going forward to improve customer service and mitigate service connection freezing. Among these plans was to investigate and repair the locations where water service connections have frozen on multiple occasions.

DISCUSSION/ANALYSIS

Administration currently has data dating back to 2009 on frozen service connections. This data shows five properties that have experienced a frozen service connection in four separate years, and 29 properties that have experienced a frozen service connection in three separate years since 2009.

All locations that have frozen since 2009 were mapped and grouped into potential project areas. Proposed projects include locations that have experienced freezing in less than three separate years but are on the same block as locations that have frozen three or more times. Projects were given a priority rating based on the number of properties within the areas that have experienced freezing three or four times. Six project areas, representing 45 properties were rated as high priority and were recommended for investigation and repair in the fall of 2019. The 45 properties include all five locations that have frozen four times, 16 of the 29 locations that have frozen three times, and 24 locations that have frozen twice. These locations will be excavated to determine the likely cause of freezing and remedies such as insulating or lowering the service connection will be undertaken.

Capital Project #1615 – Water Distribution, would typically provide funding for this project; however, based on current projections there is no available funding in 2019 for additional work.

Capital Project #1618 – Waste Water Trunks, funds capital rehabilitation work on Sanitary Trunk Mains and current projections indicate there is sufficient unallocated funding to initiate a frozen service connections investigation program. Unallocated funding is available due to favorable cleaning and condition assessment pricing in 2019. This condition information is required prior to allocating the follow-up preservation programs. This allows utilization of current onetime funds for the frozen service connections program without the requirement for an increase to the Water and Wastewater Infrastructure Reserve.

As a result, the Administration is recommending that a onetime transfer of \$500,000 be transferred from Capital Project #1618 to Capital Project #1615. This transfer is necessary to complete the proposed work. The Administration is not proposing the establishment of an annual capital program due to the unpredictability of city-wide freezing events. Future extreme cold events leading to widespread service connections freezing will be evaluated similarly to the 2014 and 2019 events.

IMPLICATIONS

The capital cost to investigate and resolve locations where service connections have been freezing repeatedly will be offset by reduced operational, social and environmental costs.

Operational costs to deal with frozen service connections in 2019 was approximately \$387,000. This includes \$104,000 paid to contractors and \$283,000 for City staff, equipment and material. In addition to the direct financial cost to operations, staff are

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pulled away from planned activities resulting in important maintenance work being deferred.

The social and environmental costs of frozen service connections are also significant. Due to the large influx of frozen service connections occurring in a short period, residents can be faced with long wait times before water service is restored.

After a service connection is thawed, or in cases where the service connection cannot be thawed and a temporary service is installed, residents must leave a water tap running 24 hours per day in order to prevent refreezing of the service connection or temporary service. This also impacts water and sewer revenues from the frozen connection properties for the duration of time that the tap is required to run.

NEXT STEPS

If the recommendation is approved, investigations and repair work will start in the fall of 2019 on the 45 properties rated as high priority. The locations will be excavated to determine the likely cause of freezing and remedies to reduce the risk of freezing will be undertaken.

Administration will also continue to monitor frozen service connections and weather patterns that may be related to climate change. If required, similar onetime programs will be implemented to deal with problematic service connections throughout the City. This will ensure a better quality of life for citizens impacted multiple times with frozen connections.

Report Approval

Written by: Stephen Wood, Water & Sewer Preservation Manager,
Major Projects & Preservation

Reviewed by: Todd Grabowski, Acting Engineering Manager of Asset
Preservation

Reviewed by: Rob Frank, Interim Director of Major Projects & Preservation

Approved by: Terry Schmidt, General Manager, Transportation & Construction
Department

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