

## Enhanced Service Level Options for Snow Grading and Removal – August 2021 Update

### ISSUE

This report provides an additional option for snow grading and removal on local residential streets to supplement the options presented in the report titled “Enhanced Service Level Options for Snow Grading and Removal” presented at the June 7, 2021 Standing Policy Committee on Transportation.

### BACKGROUND

The current service level for snow and ice management includes snow grading on local streets, but only when there is severe rutting or prior to snowmelt when there is an average snowpack of 15 cm. Snow grading after every snow event or removal of snow from local streets is not included in the current service level.

City-wide snow grading and removal on local streets was undertaken following the November 2020 snowstorm due to the severity of the snowstorm and volume of snow on local streets. Some residents provided positive feedback and suggested that the City consider enhanced levels of service to include snow grading and removal on local streets.

The Standing Policy Committee on Transportation at its meeting held on June 7, 2021, considered the Enhanced Service Level Options for Snow Grading and Removal report, and resolved, in part:

- “1. That the Administration include the following information in the report to the Governance and Priorities Committee budget options meeting:
  1. The implications of setting a service standard similar to Option B but having city-wide snow removal occur only when a certain threshold is met (perhaps when snowfall is average, or above average). This means that city-wide snow removal would not necessarily occur annually (when snowfall is less than the threshold). This may include the establishment of a reserve;
  2. That the Administration assess the FTE’s required for this seasonal work; and
  3. That the Administration prepare a funding plan (similar to the Roadways Asset Management Plan) that would see us reach our funding level within 4-5 years.”

Option B was the completion of snow grading and removal on local streets in residential neighborhoods once per year within six weeks.

**DISCUSSION/ANALYSIS**

A new service level enhancement option (B1) for snow grading and removal on local streets in residential neighbourhoods has been developed. This option includes criteria that would have to be met to trigger this work, rather than undertaking the work every year.

	Enhanced Level of Service	Incremental Cost <sup>1</sup>	Incremental Resources (FTEs)
B1	<p><u>Local streets in residential neighbourhoods:</u> Snow graded and removed only in those years when established criteria are met. All work completed simultaneously as one continuous operation and within a period of six weeks.</p>	<p>Total cost of a one-time event snow grading and removal – approximately \$10 million.</p> <p>Required annual reserve contributions assuming snow grading and removal is completed twice every five years - \$4 million, which could be phased in at \$1.0 million over four years (approximately 0.39% annual increase in property tax rate)<sup>1</sup>.</p>	<p>Due to the seasonal nature of the work and work not occurring every year, the Administration would not require any additional internal resources.</p> <p>Contracted resources would be utilized for all incremental work that exceeds available internal capacity.</p>

1. In 2022, a 1% property tax increase is approximately \$2.57 million.

The Administration is currently developing a Roadways Emergency Response Plan that includes city-wide snow grading and removal in response to severe snow events that may significantly impact mobility and safety. The emergency response plan is in addition to the option detailed in this report.

Criteria for Triggering Snow Grading and Removal

The proposed criteria for initiating snow grading and removal on local streets in residential neighbourhoods is based on the snowpack depth and time of year. Each year is different, in that snow can accumulate through a series of smaller events or a single or few major events, and some areas of the City could be more significantly affected than others depending on the storm. Melting days through a winter can have a significant impact on snowpack as well. The criteria listed below would be considered guidelines, with the City observing conditions and utilizing all available information to make a decision on whether or not to trigger city-wide removal on residential streets.

The Canada Climate Normal 1981-2010 Station Data from Environment Canada indicates that the average total snowfall accumulation at the end of December in Saskatoon is 38 cm. The snow on local streets is packed by vehicular traffic which creates a snowpack. Depending on the type of snow, the average depth of the snowpack at the end of December based on the average snowfall accumulation is estimated to be between 6 and 9 cm.

A snowpack depth of greater than 10 cm is proposed as the trigger for snow grading and removal on local streets. Depending on the type of snow, the total snowfall accumulation would have to be approximately 40 to 60 cm to result in 10 cm of packed snow on residential streets. This represents above average total snowfall accumulation at the end of December. If this threshold is exceeded on a city-wide basis before the middle of January, city-wide snow removal on residential streets would commence.

A snowpack depth threshold by a certain date is proposed in order to differentiate heavy snowfall years from typical snowfall years.

Unless exceptional conditions are encountered, snow grading and removal on local streets would not typically commence prior to mid-December. Initiating the work too early in the winter season would reduce the benefits due to additional snowfall expected in the remainder of the winter.

Snow removal work would typically commence no later than mid-January. With a mid-January start date and six-week time period to complete the snow removal, the work would be completed by the end of February. A commencement date of later than mid-January would result in very short-lived benefits due to melting temperatures in March. In the period from 1981 to 2010, the average high and low temperatures in Saskatoon for the month of March were 1°C and -9°C, respectively. In the period from 2010 to 2019, the average high and low temperatures were 0°C and -11°C, respectively. Exceeding the threshold late in the winter season, depending on conditions, could be dealt with by grading alone, and letting the imminent spring melting conditions deal with much of the removal.

All this said, exceptional circumstances occur where these guidelines would be superseded. Examples include a debilitating storm early in the year or late in the year.

#### Estimated Frequency of Snow Grading and Removal

In those winters when the criteria are met, snow grading and removal would in almost all situations only occur once per winter due to the high cost and six-week period required for the snow removal operation, unless the Roadways Emergency Response Plan was triggered by a severe winter storm.

Based on Environment Canada's historical winter weather data for Saskatoon, it is estimated that the local street snow grading and removal could occur on average twice every five years.

Environment Canada has indicated that climate change modeling shows there will be increased temperatures and increased precipitation over the next several decades in the Saskatoon area.

The City of Saskatoon Climate Change Plan indicates that over the next 80 years, global climate models project that Saskatoon can expect warmer overall temperatures, more hot days, increased precipitation, changes in precipitation timing, increasingly

variable seasons, and more intense storms. All things considered, the estimated frequency of city-wide removal can only be considered an estimate.

#### Incremental Resources

Due to the work not taking place every year, contracted resources would be secured to execute the snow grading and removal effort. Existing City resources from other groups would be reallocated to Roadways as much as possible to minimize the amount of contracted work, as was done with the November 2020 storm.

#### Jurisdictional Review

Other jurisdictions including Calgary, Edmonton, Winnipeg, Regina, and Red Deer do not undertake snow removal from local streets. Red Deer and Edmonton grade snow on local streets when there is approximately 5 cm of snowpack, and Winnipeg grades snow when there is a snowfall of more than 10 cm.

### **FINANCIAL IMPLICATIONS**

The cost to grade and remove snow from local streets is approximately \$10 million per event. Assuming that the snow grading and removal on local streets could be triggered twice every five years, up to \$20 million may be necessary over a five-year period. In order to fund the local street snow grading and removal, the Administration recommends accumulating funds into the current Snow and Ice Management Contingency Reserve. The reserve would spread out the cost of this enhanced level of service over multiple years and could be funded from unspent budget funds and a phase-in for funding to bring the reserve to approximately \$10 million plus any savings from normal operations. A \$1.0 million annual phase-in for four years (2022-2025) would achieve this objective.

The purpose of the existing Snow and Ice Management Contingency Reserve is to accumulate funds and offset any over-expenditures in the Snow and Ice Management budget attributable to variations in normal winter weather conditions, thus stabilizing the effect of weather variations on the mill rate and the City's year-end financial position. However, this reserve could also be used to fund a residential snow removal program using unspent budget funds as it is also a product of a variation in weather conditions. Additional contributions into this reserve could be considered to increase the balance in the reserve to offset an over-expenditure in the normal program as well as a residential snow removal program.

There is a financial risk that the criteria could be met more frequently than anticipated which would impact the overall City budget. Backfilling the expenditure in this case would be through the use of the general Fiscal Stabilization Reserve which is the purpose of that reserve.

Removal of snow from local streets substantially increases the amount of snow hauled to snow management facilities. The Administration is currently completing planning work for new snow management sites to mitigate environmental impacts at the existing non-engineered sites.

**OTHER IMPLICATIONS**

There are no privacy, legal, social, or environmental implications identified.

**NEXT STEPS**

The Administration will undertake next steps as directed by City Council.

Report Approval

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