

SNOW AND ICE CONTROL

Options to Increase Service Standards

RECOMMENDATION

That the April 25, 2022, City Operations report CO00778, be received for information.

Report Purpose

Information only.

This report provides Community and Public Services Committee with an in-depth analysis of the Snow and Ice Control program including options to enhance service levels and community perspectives.

Previous Council/Committee Action

At the August 16, 2021, City Council meeting, the following motion was passed:

That Administration provide options to increase the service standard in the Snow and Ice Control Procedure. This report is to include: any equipment, staffing and budget changes required to increase the standard with a greater emphasis on safety, efficiency and connectivity. This report should also include feedback from the Accessibility Advisory Committee, Edmonton Transit Service Advisory Board, the Edmonton Seniors Coordinating Council and the Women's Advocacy Voice of Edmonton Committee.

At the November 30/December 1/8/10/14/15/17, 2021, City Council budget meeting, the following motion was passed:

That Administration pilot an enhanced snow clearing standard for Priority 4 roads (residential) until April 30, 2022. This enhancement would include blading down to pavement and sanding, especially at intersections within communities and after major snow and ice events, using the existing 2022 budget, which will be reassessed at the Spring 2022 Supplemental Budget Adjustment.

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Executive Summary

- The Snow and Ice Control (SNIC) program enables Edmontonians to experience a safe and liveable winter city, ensuring residents can safely connect to and access spaces, services, facilities and transportation networks no matter how they travel.
- Policy C409K - Snow and Ice Control Policy and its corresponding Administrative Procedure build on ConnectEdmonton and the Safe Mobility Strategy with the outcome of ensuring a safe and livable mobility network in winter.
- Following an analysis of newly developed performance measures, Administration has determined that there are insufficient resources and equipment to meet the majority of current service levels outlined in the SNIC Policy or Administrative Procedure.
- After a comprehensive review, jurisdictional scan, engagement with the public, stakeholders and frontline staff, and a GBA+ analysis, Administration has proposed two options to establish new baseline service levels, as well as a suite of options for new service enhancements once a baseline level of service is determined.
- The proposed options for service enhancements are aligned with the City Plan's goals to create 15 minute districts and to achieve a 50 per cent split between vehicular use and alternative modes of transportation.
- Several options for service enhancements align with actions of the Winter City Strategy Implementation Plan related to snow clearing on sidewalks and active pathways.

REPORT

Administration completed a comprehensive review of the current Snow and Ice Control (SNIC) operations and resources. This includes:

- Analysis of the current Snow and Ice Control program
 - Arterial and collector roads
 - Residential snow clearing, including evaluation of the residential snow clearing pilot
 - Active pathways and trails
 - Community sandboxes
- Jurisdictional scan
- GBA+
- Councillor, community, staff and stakeholder feedback and insights
- Proposed options for service enhancements
- Budget and financial implications

Administration has developed a suite of proposed options including an overview of requirements necessary for implementation.

Background

The City of Edmonton's SNIC policy began in 1978. Since then, it has received several updates to align with industry best practices, other City policies, changing weather patterns, in response to citizen and Council feedback, and in order to improve the safety, mobility and livability of Edmontonians. A history of Snow and Ice Control policy changes can be found in Attachment 1.

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- Since 2016, Administration has presented 21 reports and received 10 SNIC-related motions from Council. Seven of those motions directed changes to the policy or program direction.
- The most recent policy refresh occurred in August 2021 (Policy C409K). The policy focused on safety, reliability and accessibility for users of all modes of transportation. Operational content, including service levels, was moved from the policy to the SNIC Administrative Procedure.

Analysis of the Current Snow and Ice Control Program

Administration completed a full review of the program's current state and recent historical SNIC operations from the 2017-18 winter season to the present day (Attachment 2).

- Since 2016, Edmonton has grown in geographic size (11.7 per cent increase), population (8.4 per cent increase) and mobility network inventory (21.2 per cent increase).
- The human and equipment resource requirements of the SNIC program have not kept pace with the ambitions of the SNIC policy. Equipment has been replaced at a one-to-one ratio and the approved budget and total number of staff within the SNIC program have both decreased (15.4 per cent and 13.5 per cent, respectively).
- Precipitation during the 2021-22 winter season was only slightly above average compared to the previous five years. However, multiple freezing rain events within a short time period, followed by an immediate and extended period of extreme cold, resulted in compacted, thick ice that was difficult to remove. Although the amount of freezing rain in previous years was similar, the changes in weather patterns (frequency and order of weather events) have created new snow and ice control needs.
- Administration's climate modelling shows that over time, Edmonton will likely have warmer, wetter winters with more rain on snow, continued extreme cold events, and unpredictable winter seasons. Edmonton requires a robust, agile SNIC program to respond to many types of weather conditions.
- 311 notifications continue to increase annually, with a notable increase in the number of active pathways service notifications. During a snow event, the City receives approximately 100-300 notifications per day in addition to Councillor inquiries. The themes for the inquiries are dependent on weather conditions. Heavy snowfalls result in snow clearing concerns on active pathways and in residential areas; thaw cycles and rainfall result in icy condition complaints; longer thaws result in flooding concerns. In the 2021-22 winter season, the City received a high level of rutting notifications on active pathways and residential alleys.

In response to a recommendation in the 2021 SNIC Audit, Administration developed and implemented a set of performance measures for the 2021-22 winter season. The new performance measures align more effectively with the current SNIC service standards as well as help inform decision-making, continuous improvement and strategic oversight. The performance measures were reviewed by the City Auditor and the recommendation was closed.

Following a comprehensive analysis of the newly developed performance measures, Administration has determined that there are insufficient resources or equipment to meet the majority of current service levels outlined in the SNIC Policy or Administrative Procedure.

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Administration also identified that the service standards outlined in the Administrative Procedure should be adjusted in order to realistically meet the expectations of Edmontonians. Service levels set out in maintenance policies and procedures should reflect a standard that can be consistently and predictably achieved for an average winter season and policy decisions should be linked directly to financial considerations. Administration recommends a policy approach that is attainable, not aspirational. Aligning the policy and resources will help to ensure service levels can be met and that policy statements are an accurate reflection of what is possible.

Arterial and Collector Roads

The current service standard for arterial roads is to clear to bare pavement within 36 hours after the end of snowfall. In the 2021-22 winter season, the City completed an average of 76.1 per cent of arterial roads within 36 hours. The current service standard for collector roads is to clear to bare pavement within 48 hours after the end of snowfall. In the 2021-22 winter season, the City completed an average of 36.5 per cent of collector roads within 48 hours. On average, arterial and collector roads receive a lower percentage of public inquiries and complaints overall.

Residential Snow Clearing

The service standard for residential roads is to maintain a five centimeter snowpack, to be completed within seven to nine days after the start of a residential blading cycle (Phase 2 Parking Ban) is initiated. On December 17, 2021, a Council motion directed Administration to blade residential roads to bare pavement through a pilot project from November 2021 to April 30, 2022. Preliminary findings of the pilot indicate that blading to bare pavement did mitigate rutting concerns. However, significant flooding, sightline, and accessibility challenges arose due to the resulting windrows.

Related to windrows, the City also completed a trial in Griesbach to evaluate removal in residential areas after blading to bare pavement. The evaluation included the process, cost and timing of this work on different types of roads. Administration used the information from the evaluation to inform part of the options for service enhancements proposed below.

Active Pathways and Trails

The City's performance metrics for active pathways and trails varies significantly depending on the type of pathway or trail area. The area that requires manual clearing (hand-shoveling) does not typically meet the service standard articulated in the policy. Highlights of the performance metrics are outlined below:

- The City cleared 91.4 per cent of the prioritized bike route network to bare pavement within 24 hours.
- The City maintained 82.5 per cent of all natural trail areas to a safe and passable surface within 48 hours following the end of snowfall.
- The City manually cleared 41.9 per cent of areas around bus stops (eg. benches, windrows in front of bus stops) within 120 hours.

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Community Sandboxes

The City provides sand and similar traction materials for Edmonton Transit Service, Fire Rescue Service, and at locations throughout Edmonton for anyone to access at no cost. This program grew from 150 sandboxes (\$300K per season to operate) in 2016 to 769 sandboxes (\$900K per season to operate) in 2021. The service standard for this program is to refill all community sandboxes within five days following the end of snowfall. The City refilled an average of 57.8 per cent of community sandboxes within this service standard in the 2021-22 winter season.

In response to a recommendation in the 2021 SNIC Audit report, Administration will perform a full review of the Community Sandbox program in 2022, including public engagement and a jurisdictional scan. This audit recommendation is due to be completed by December 31, 2022.

JURISDICTIONAL SCAN

Administration conducted a jurisdictional scan of eight Canadian cities, as well as Stockholm, Sweden, which adopted a sidewalk-first snow clearing approach several years ago (Attachment 3).

- Each city manages their snow and ice control program very differently based on their weather, climate and unique challenges. There is no consistent standard in spending based on density or per capita population served.
- There is no consistent or replicable example to follow on accessibility. Examples of pedestrian prioritization include clearing around hospitals, schools, bus routes and bike lanes.
- Although all cities have established service standards, few publicly report their operational performance especially for lower priority (eg. residential) roads.
- Residential streets are generally deemed the lowest priority, with the majority of cities leaving a snow pack. Most cities do not remove windrows from driveways.
- All but one of the cities reviewed enact a parking ban to assist with snow clearing.
- The responsibility of residential and commercial property snow removal is generally the responsibility of property owners in most cities.
- The majority of cities prioritize active pathways and bike lanes similar to Edmonton.
- Edmonton has the highest number of community sandboxes for public use.

COMMUNITY INSIGHT

Administration conducted engagement to gather feedback on current SNIC service levels and proposed options for service enhancements. Feedback from staff, stakeholders and the general public was used to inform the proposed options for service enhancement in the report. Overall, key findings from the engagement align with the summary of findings from the SNIC program analysis (Attachment 4):

- Stakeholders and the public expressed concerns about accessibility and pedestrian safety, particularly in regard to residential sidewalks, transit locations, and public sidewalks and parking lots at City Facilities and seniors centres.
- Staff, stakeholders and the public all mentioned that windrows create issues for accessibility, emergency services access and parking and should either be avoided or cleared as soon as possible.

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- Concerns identified by frontline staff about limited resources and equipment aligned with public feedback about longer response times for snow and ice clearing and related service requests submitted through 311.
- Staff, stakeholders and the public expressed concerns about lack of compliance on clearing residential sidewalks and/or the parking ban, which creates safety and accessibility issues and lack of consistency in snow and ice clearing. Interest in seeing enhanced enforcement was also expressed.
- Edmonton Insight survey respondents were split between those who preferred bare pavement in residential areas (47 per cent) and those who preferred leaving a snowpack on the road (47 per cent).
- Edmonton Insight survey respondents were split in support of (45 per cent) and against (40 per cent) a tax increase to make snow and ice service enhancements possible.
- While overall SNIC communication tactics were not identified as a significant concern, some participants expressed concerns regarding the timing and placement of temporary parking ban signs, as well as a strong desire for more real-time updates and advance notifications during residential road clearing.

GBA+

Administration applied GBA+ when conducting engagement, in order to identify inequities and develop a SNIC program that promotes a safe and livable winter mobility network for all. (Attachment 5). By considering diverse inputs, the City developed proposed enhancements to service levels that take into consideration residents' lived experience, protect vulnerable mobility network users, address unintentional systemic service delivery inequity, and contribute to Vision Zero.

Key findings of the GBA+ analysis included:

- Persons with mobility and accessibility challenges (including seniors, persons with disabilities, parents with strollers and active transportation users), as well as those who use multiple modes of transportation, have greater difficulty moving around in snowy and icy winter conditions, which results in safety hazards (eg. increased slips and falls) and day-to-day barriers to mobility around Edmonton.
- Persons with limited mobility are disproportionately affected by SNIC measures and face the risk of increased injuries with icy conditions along any part of their route.
- People who use active pathways and public transportation are affected differently by snow and ice, compared with those who use roads and vehicles. These individuals face increased barriers and risk of injury with snow and ice accumulation along any part of their route.
- Persons with mobility and accessibility challenges may face additional barriers to clearing snow and ice from shared walkways adjacent to their property, which results in safety hazards (eg. increased slips and falls) for themselves and others in the community.

PROPOSED OPTIONS FOR SERVICE ENHANCEMENTS

Administration developed proposed options for service enhancements that will address the feedback Administration heard from Council, stakeholders, and the public. The options include

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adjustments to current service standards, improvements to service delivery and enhancements to key parts of the SNIC program.

Proposed Options to Enhance Current Service Delivery

Based on Administration's analysis, an increase in resources is needed to meet an appropriate service delivery level before considering new enhancements to the SNIC program. With the reduction in resources coupled with the increase in inventory of infrastructure, an increase in resources is required to improve snow and ice control performance. While Administration continually adjusts operational practices to improve SNIC response to variable winter conditions (snow, freezing rain, ice, significant thaw) within existing resources, additional resources would offer a greater level of service consistency to residents. Additional resources would enable operations to be more effective in responding to different types of weather events and bring the City into closer alignment with its current service standards.

Administration evaluated current service standards, budget requirements, and public and stakeholder feedback to develop two proposed options to improve current service delivery (Attachment 6).

- Option R1 balances the safety, mobility and livability of Edmontonians with value for taxpayer dollar. Service levels would be adjusted to reflect a standard that can be consistently achieved for an average winter season. With this option, Edmontonians would experience a noticeable improvement to overall service delivery.
- Option R2 would enable the City to fully meet current service standards on arterial, collector and residential roads, although there would be a significant increase in cost for doing so. This option may not be necessary to achieve Council's goal of improving SNIC service delivery for Edmontonians.
- The City's SNIC procedures are based on a priority sequence. Completing higher priority items (eg. arterial and collector roads) more quickly would enable operations to begin lower priority items (eg. residential areas, bus stops) sooner.
- By improving base service delivery, Edmontonians would experience improvements in areas that are important to them such as residential roads, bus stops, community sandboxes, and response times to 311 service requests such as accessibility concerns.
- Faster response to weather events would keep City roads and active pathways in better condition throughout the winter season. For example, if sidewalks and paths are cleared sooner, there will be less packed snow/ice to address which would improve safety, connectivity and accessibility of Edmonton's mobility network.
- Estimates are based on average winter weather events. This approach means that while Edmontonians will experience improved SNIC service delivery, the City will not always meet its policy-driven service standards during above-average weather events.

Administration will return to Council in June 2022 with updated costs and an approach to the SNIC program that will include Council's feedback from this report, financial integration with other business areas (eg. enforcement, parking ban signage, equipment maintenance), and proposed adjustments to the SNIC Policy and Administrative Procedures.

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Following Council approval of the programmed approach to SNIC in June, Administration will bring forward related funding needs for discussion as a part of the 2023-2026 budget process later this fall. Administration recommends implementing the program for a full winter season without changes in order to properly evaluate its effectiveness and make improvements or changes for the following season in alignment with the agreed upon four year budget cycle.

Proposed Options for New Service Enhancements

Administration has compiled a list of proposed options for new service enhancements once a baseline level of service is determined. These options take into consideration Council and public feedback as well as the lived experience of vulnerable mobility network users. The options, their costs, and considerations for Council are outlined in Attachment 6.

Administration conducted a jurisdictional scan of Canadian cities that provide assisted SNIC programs to residents with limited mobility as well as an internal scan of existing program supports. The options (Attachment 6) require feedback from Council prior to further exploration and the development of a potential assisted SNIC program proposal.

Communications Enhancements

Based on research conducted this winter, Administration will continue a comprehensive communication strategy (Attachment 7). The 2022-23 SNIC communications plan will also include the following improvements:

- Targeted messaging to meet the needs of specific demographic groups, including residents who speak English as a second language and persons with disabilities.
- Talking openly and positively about Edmonton's Snow and Ice Control program, which will feature expanded community activation and activities such as promotional contests and attendance at community events, to promote positive and non-traditional interactions.
- Development and implementation of new digital tool(s) that focus on real-time, localized information for residents.
- Updates to the reporting process for 311 that will provide more information on the status of inquiries

Budget/Financial Implications

Increases to SNIC service will require an adjustment to the program budget. Administration will bring forward enhanced service operating and capital funding requests as a part of the 2023-2026 budget deliberations. In the Spring 2022 Supplementary Operating Budget Adjustment, presented to City Council on April 19, 2022, Administration recommended a one-time adjustment to the program to address the cost of the enhanced program for the first two months of 2022.

ATTACHMENTS

1. History of the Snow and Ice Control Program 2016-2021
2. Snow and Ice Control Program Analysis
3. Jurisdictional Scan of Winter Operations Priorities

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4. What We Heard Report
5. GBA+ Reporting
6. Options to Enhance Current Service Delivery
7. Snow and Ice Control Communications Summary for 2021-22 Season