ADMINISTRATIVE REPORT

Title: Annual Report on Snow Clearing and Ice Control and Spring Cleanup Programs

Critical Path: Standing Policy Committee on Public Works – Executive Policy Committee – Council

AUTHORIZATION

Author	Department Head	CFO	CAO
M. Cantor/J. Ruby	J. Berezowsky	O. Garrett, acting for C. Kloepfer	M. Jack

EXECUTIVE SUMMARY

The City of Winnipeg Public Service has sought and will continue to seek affordable and innovative methods to deliver effective snow removal operations within the Council-approved Policy on Snow Clearing and Ice Control.

This annual report provides information on a variety of topics as they relate to snow clearing and ice control operations, processes, and potential service level improvements. The report also recommends amendments to the Winter Route Parking Ban By-law that would make finding alternate parking easier during a Residential Parking Ban (RPB). It is expected implementing such changes would increase compliance during the RPB and make clearing residential streets easier and more effective.

Snow and ice control activities are weather-dependent for which costs can significantly vary from one year to the next. Snow and ice control activities have traditionally been budgeted using the assumption of a ‘low scenario’ and have exceeded adopted budget for the last 10 consecutive years, depleting funds from the Financial Stabilization Reserve fund. This report recommends the 2024 - 2027 Multi-year Budget address this situation by budgeting for average rather than low-scenario snow and ice control costs and using the Snow Clearing Reserve to address higher than average cost years.

Spring clean-up activities are part of the city beautification service and have exceeded budget in recent years. Spring clean-up activities are difficult to reduce in scope as they are highly visible to the public as it is obvious when winter sand has not been removed from a boulevard, street or pathway. This report recommends the 2024 - 2027 Multi-year Budget address the current situation by budgeting for average spring clean-up costs.

RECOMMENDATIONS

1. That Council enact a bylaw to amend the Winter Route Parking Ban By-law No. 76/2011, a draft of which is attached as Appendix C to this report.

2. That budgeting for the average cost of snow and ice control activities of $54.2 million plus using the snow clearing reserve to address higher than average cost years be referred to the 2024 - 2027 Multi-year budget process.
3. That budgeting for the average cost of city beautification/spring clean-up activities of $19.7 million be referred to the 2024 – 2027 Multi-year budget process.

4. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

REASON FOR THE REPORT

On January 27, 2022, Council concurred in the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works and adopted the following:

1. That the previous directions of the Standing Policy Committee on Infrastructure Renewal and Public Works on June 10, October 12 and December 1, 2021, together with the Council direction of October 28, 2021, be amended, and the Winnipeg Public Service be directed to report back to the Standing Committee at its July 5, 2022 meeting on the following:

    A. An annual report on process and service improvements to the snow clearing and ice control and spring cleanup programs.

On December 15, 2022, Council amended its decision by directing the Public Service to bring the annual report forward in June.

On September 7, 2022, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and approved the following:

1. That the Winnipeg Public Service be directed to report back to the Standing Policy Committee following the 2022-2023 winter season on compliance during a Residential Parking Ban and on any recommendation for changing the fine.

On April 11, 2022, the Standing Policy Committee on Public Works recommended to Council:

1. That the Winnipeg Public Service be directed to include the following in its annual report on the Snow Clearing and Ice Control Policy:

    A. The net new cost to the City Operating and Capital Budgets if the Snow Clearing and Ice Control Policy were amended to require snow clearing on all sidewalks and active transportation paths within a 72-hour period after a Priority 1 snow event.

    B. A potential phasing-in of said new increase in service level, to allow for costs to be accommodated via said budgets as well as to allow staff to progress towards said service level, and include consideration of the following:

        i. Providing the higher level of service on sidewalks adjacent to hospitals, schools, personal care homes, daycares, community clubs, regional parks, and seniors' blocks.

ii. Active transportation paths being phased in for said snow clearing as a Priority 1 status separate to sidewalks, and in advance of any potential sidewalk snow removal change.

Additionally, only Council may enact by-laws.

IMPLICATIONS OF THE RECOMMENDATIONS

Approval of the recommended amendments to the Winter Parking Ban By-law 76/2011 is expected to reduce illegal parking during a RPB and, in turn, make snow-clearing efforts on residential streets easier and more effective.

Budgeting for snow clearing and ice control activities and spring clean-up activities will be referred to the 2024 - 2027 Multi-year budget process.

HISTORY/DISCUSSION

This annual report includes information on the following topics:

1. Weather and operations.
2. Improvements to sidewalks and pathways snow clearing.
3. Alternative to salt trial.
4. Coordination of back lanes snow clearing and garbage pickup.
5. Snow clearing of Transit Plus loading zones.
6. Suspending the Annual Winter Route Parking Ban during the Residential Parking Ban.
7. New snow dump at the west end.
8. Compliance during a Residential Parking Ban.
9. Financial discussion and analysis – snow and ice control activities – current level of service.
10. Financial discussion and analysis – city beautification, spring clean-up – current level of service.

Weather and operations summary

The 2022-2023 winter season was below-average in terms of snowfall volume, melting events, and high-wind days. The Public Service undertook fewer truck and grader plows and removed fewer windrows than the previous seasons' average. The winter season was above-average in terms of days of snow. The Public Service undertook a higher number of lanes and walk/path plows. Although the number of salting opportunities remained the same, the Public Service used less salt and more sand than the previous seasons' average.

	2022-2023	Avg.	Seasons
Weather			
Snow (cm)	98.2	123.5	9
Days of snow	55	46	9
Salting opportunities (days)*	100	99	9
Melting opportunities (hours)**	110	124	9
High wind (days)***	27	32	9
Operations			
P1 truck plows	6	8	3
P2 truck plows	7	7	3
P1 grader plows	1	3	3
P2 grader plows	1	4	3
P3 grader plows	2	2	3
Lanes plows	7	5	3
P1/2 walk/path plows	17	14	3
P3 walk/path plows	7	7	3
Windrows removal (km)	376	404	3
Snow hauled (CBM)	643,816	703,534	3
Sand applied (tonnes)	72,158	71,533	3
Salt applied (tonnes)	22,629	25,235	3

***** Daily Max temp. >=-9c
** Daytime temp.>=-7c and cloud cover<=2
*** Daily Max wind speed >= 40km/hr

Improvements to sidewalks and pathways snow clearing

An environmental and internal review following the 2021-2022 winter season identified opportunities to meet and improve the level of service as per the Policy on Snow Clearing and Ice Control.

Municipalities survey

The Public Service identified and reached out to the following municipalities based on winter weather similarities:

- Prince George, BC
- Edmonton, AB
- Saskatoon, SK
- Brandon, MB
- Thunder Bay, ON
- Ottawa, ON
- Oulu, Finland
- Grand Forks, ND
- Montreal, QC
- Sudbury, ON
- Minneapolis, MN

Six of 11 municipalities responded to the questionnaire and three (Edmonton, AB, Ottawa, ON and Oulu, Finland) were identified for further review due to reported enhanced services.

Noted below are service comparisons on active transportation facilities:

	Edmonton	**Ottawa**	**Winnipeg**
Plowing trigger	2 cm	2.5 cm	5 cm
Chemicals applied	Calcium Chloride	Sodium Chloride	None
Priority 1	140 km, 24 hours Bare pavement	120 km, 4 hours Bare pavement	985 km, 36 hours Compacted snow/ Bare pavement (Downtown)
Priority 2	7,000 km, 81 hours Compacted snow	975 km, 12 hours Bare pavement	1,024 km, 36 hrs Compacted snow
Priority 3	Plowed by residents	1,345 km Compacted snow	1,189 km, 5 days Compacted snow
Equipment #	80	100	31

Securing adequate resources to meet the level of service on Priority 1 and 2 sidewalks and pathways

As identified during the 2021-2022 winter season and reported in July 2022, sidewalks and pathways were not completed according to the standard set out by the policy.

The additional 15 sidewalk machines, which were approved by Council on July 21, 2022, are expected to be delivered in August 2023 and the Public Service is working toward training additional equipment operators that will be offered winter positions, this coming and future winter seasons, to operate the additional machines.

Additional analysis determined that of the 506 km to be transferred to contracted services (as identified in the report to Council on July 21, 2022) only 210 km of sidewalks require realignment towards the contracted winter services. This will be included in the next round of contracts expected to be tendered in June 2023. The 210 km of Priority 1 and 2 sidewalks selected to be realigned are located on Priority 1 and 2 streets already serviced by contracted services.

Having contracted services clear the streets and adjacent sidewalks will improve the coordination of snow removal which will lead to a reduction of barriers for active transportation

users and an improved level of service on sidewalks. This realignment along with the additional 15 city-owned units will be integral towards meeting the Council-approved targets for sidewalk clearing levels of service.

Increasing the level of service on Priority 3 sidewalks and pathways

Two options are being presented to increase the snow clearing level of service on Priority 3 (P3) sidewalks and pathways.

Option 1 - Matching snow clearing level of service on all sidewalks and pathways

In this option, P3 sidewalks and pathways would be plowed following a 5 cm snowfall accumulation (vs the current 8 cm) and be completed within 36 hours following the end of an average storm (vs the current 5 days), same as Priority 1 (P1) and Priority 2 (P2) sidewalks and pathways.

This option would result in the need for additional internal resources to account for additional equipment, operators and mechanics, in addition to increased costs for external contracts due to the increase in plowing events on P3 sidewalks and pathways. The equipment purchase would require a total delivery time of approximately 14 months.

In order to implement this option, it is anticipated that Council would be required to approve the following budget additions in the estimated amounts of:

Item	**Type**	**Estimated Amount**
Fleet Purchase of 54 additional sidewalk machines	Capital	$11,801,900
Annual costs for Leasing of 54 sidewalk machines, external contracts, Operator 2 FTEs, and Garage Mechanic FTEs	Operating	$7,153,800

Option 2- Matching snow clearing event trigger on all sidewalks and pathways

In this option, P3 sidewalks and pathways would be plowed following a 5 cm snowfall accumulation (vs the current 8 cm). Plowing would begin once P1 and P2 sidewalks and pathways are cleared. Timelines would be tracked during the next winter season to establish adequate expectations. The Public Service would provide recommendations for a policy change for completion timelines of snow clearing on P3 sidewalks and pathways as a policy change in the next annual report on the Snow Clearing and Ice Control Policy.

This option would result in increased costs to account for overtime, equipment costs (fuel and damages) and contracts due to the increase in plowing events on P3 sidewalks and pathways.

In order to implement this option, it is anticipated that Council would be required to approve the following budget addition in the amount of:

Item	**Type**	**Estimated Amount**
Salaries (overtime), incremental equipment expenses and external contract costs	Operating	$540,983

It is important to note that the proposed options do not account for consecutive back-to-back snowfall events whereas the current practice is to restart the plow, by priority, once a new accumulation of above 5 cm has been identified.

Additional plowing activities

During a major snow clearing operation, roads and walks/paths are concurrently cleared. As walk-behind snow clearing machines are best suited to achieve the expected level of service on walks/paths and to address any spillage of snow stored on boulevards by road clearing equipment, the plan is to implement a second round of snow clearing on walks/paths where road clearing was completed after the clearing of walks/paths.

To address walks/paths conditions following high winds and mid-winter melts, maintenance plows would, moving forward, be performed on the entire walks/paths inventory to maintain the expected level of service.

Enhanced active transportation accessibility training

In 2017, the Public Service developed, in conjunction with the Heavy Equipment & Aggregate Truckers Association of Manitoba (HEAT), an orientation training for best practices for snow removal on City streets and lanes.

The training is designed for those who operate loaders, graders, trucks and sidewalk cleaning equipment to provide consistent information, guidelines and expectations on a variety of subjects related to snow clearing of roads, lanes, sidewalks and around various infrastructures. To date, the training has been a biennial requirement for City and hourly hired equipment operators.

The Public Service is currently updating the orientation training to include accessibility-related information, specific directions to equipment operators on how to avoid the creation and the removal of barriers, and clearer expectations on how to properly clear active transportation facilities.

This training is owned and administered by HEAT and expectations will be put in place for all City staff, hired hourly equipment operators and contractors to take this training annually, starting the next winter season.

Live walk/path plowing status map using Automatic Vehicle Location

The Public Service is exploring Automatic Vehicle Location (AVL) technology to provide real-time information on plowing status. Information collected through this exploration is expected to offer better understanding of plowing progress on walks/paths and will enable better planning and decision making by users, BIZs and City staff. The new information sharing format will be announced once these capabilities are developed and tested for reliability and accuracy. The current implementation target date is January 2024.

Alternative to salt trial

Salt is used a few ways as part of the ice control service:

- Salt is spread when temperatures are -7 C or warmer for deicing to improve traction on the regional street network.
- Winter sand contains five percent salt to ensure it is maintained in a usable/spreadable condition.
- Salt is used as part of a solution with beet juice to pre-wet sand and salt before it gets dispersed onto the roadway to improve the adhesion of the material to the road surface.
- Salt is used as part of a solution with beet juice in the anti-icing operation to improve traction in a proactive manner in advance of a snowstorm or bad weather.
    - Anti-icing typically occurs around the end of October or early November when below-zero temperatures and precipitation are forecasted.

In November 2022, the Public Service trialed the ICE/BLOKR product (a chloride-free product manufactured by Cypher Environmental Ltd). The trial took place along Henderson Highway (between Knowles Avenue and Hespeler Avenue); ICE/BLOKR was spread on the northbound lanes and salt was spread on the southbound lanes for comparison.

The product was used during two separate snow events accompanied by mild temperatures. During the first event, it was used for anti-icing (bond breaker) as the snow started to fall; during the second event it was used for deicing in order to melt accumulated snow.

The performance of ICE/BLOKR was qualitatively captured by site inspections and camera recordings and was found to be as effective as salt in both events.

It was noted that the product was clumping together in the yard and had to be broken down before being loaded into a spreader truck. This was identified as an operational concern and communicated to the manufacturer for further review. Further trials will be considered once the concern is addressed. In discussion with the supplier, it was also noted that the cost for the ICE/BLOKR is currently expected to be approximately six times that of road salt.

Coordination of back lanes snow clearing and garbage pickup

Potential conflicts between back lanes snow clearing and garbage pickup services were analyzed. In January 2023, snow-clearing maps were implemented that consider garbage day schedules for each day of the week. This will minimize conflicts and improve both services during the winter season.

Snow clearing of Transit Plus loading zones

The Policy on Snow Clearing and Ice Control calls for windrows of snow to be removed at Transit Plus loading zones, which have been designated by Winnipeg Transit as high-volume locations and integral to their operations.

During a 2022 review, it was identified that a review of the loading zones list being cleared is required. This review was conducted in conjunction with Transit and Winnipeg Parking Authority and 52 loading zones were identified to be cleared as part of the streets clearing operations.

Suspending the Annual Winter Route Parking Ban during the Residential Parking Ban

In an effort to assist residents in finding parking during a Residential Parking Ban, the Public Service recommends that the Annual Winter Route Parking Ban be automatically suspended during a Residential Parking Ban to allow parking on Winter Routes between the hours of 2 a.m. and 7 a.m., subject to any other parking restrictions that may be in effect on those routes.

The recommended change is expected to offer additional parking options to residents which would lead to increased compliance during a Residential Parking Ban and make clearing residential streets easier and more effective.

If approved, ticket data would be analyzed following the 2023-2024 winter season and report on the effect of the recommended change in our next annual report.

New snow dump at the west end

Following the closure of the snow disposal sites at Kenaston Boulevard (due to the land transfer) and the West End Water Pollution Control Centre (due to the road work around the Perimeter Highway and Wilkes Avenue interchange), the Public Service identified a location for a new snow disposal site, south of the water pollution control center ponds (west of the Perimeter).

The project is currently in the design phase with construction expected in late summer. It is anticipated the new site will be available for the 2023-2024 winter season with a snow storage capacity of approximately 750,000 cubic meters.

Design and construction costs are paid by the Province of Manitoba.

Compliance during Residential Parking Bans

Below is tickets data during the Residential Parking Bans that occurred following the last fine increase in January 2022, from $150 to $200:

Event Date	Total	Km Enforced		Tickets/Km
20-Jan-22	3,738	1,234.7	71%	3.0
23-Feb-22	4,139	903.2	52%	4.6
24-Nov-22	3,925	1,318.2	76%	3.0
18-Dec-22	4,150	1,626.4	93%	2.6

Based on the ongoing increase in enforcement coverage and decrease in the tickets per kilometers enforced, no changes are recommended to the current fine amount. The Public Service is working to identify and analyze locations where compliance is relatively low and will recommend strategies, such as expanding the use of alternating streets zones (B/D) to other areas, that could assist to improve compliance.

Financial discussion and analysis – snow and ice control activities – current level of service

Snow and ice control activities are weather-dependent and costs can significantly vary from one year to the next. Appendix A is a summary of snow and ice control costs over the last 10 years,

identifying Adopted Budget, Actual Costs and Actual Costs adjusted for inflation using the Consumer Price Index (CPI). Traditionally snow and ice control activities have been budgeted using the assumption of a 'low scenario' and in all 10 years of the rolling average actual costs have exceeded adopted budget resulting in an annual deficit (See Appendix A). Snow clearing costs have varied by significant amounts from year to year, ranging from a low of $40.3 million to a high of $87.2 million (adjusted for CPI).

In the 2022 calendar year, Winnipeg received an unprecedent amount of snowfall. The Council-adopted budget for the year was $34.7 million; actual costs were $87.2 million, resulting in a Committee-approved over-expenditure of $52.5 million. These costs combined with the impact of COVID-19 were a significant draw on the City's Financial Stabilization Reserve fund. The Standing Policy Committee on Finance and Economic Development (SPC-FED) approved over-expenditures of $4.2 million related to November 2022 and $8.5 million related to December 2022. The March 2023 forecast presented to Committee on June 2, 2023 included the fact that snow and ice control activities for the period from January 1 to March 31 had exceeded the budget by $1.7 million.

Subsequent to the reporting period, there was a late-season snowfall that caused the month of April to exceed budget by a further $2.6 million that will be reflected in the June 30, 2023 Forecast to SPC-FED. In summary, for the 2022-2023 snow season, snow clearing and ice control activities have exceeded budget by $17 million (noting these are not final numbers and there may be further unbudgeted costs for clean-up of snow dump sites which occurs during the summer).

Snow and ice control activities are provided using a combination of city forces and external resources. External resources are comprised of eight private sector companies on 10 snow clearing contracts (signed in the 2017-2018 season) as well as hired equipment. All 10 contracts were for a four-year period and expired at the end of the 2021-2022 snow clearing season. Under the terms of the bid opportunity, these contracts were extended for a final one-year period which expired at the end of the 2022-2023 snow clearing season.

Significant inflation was observed on these contract renewals for 2022-2023 due to higher costs of heavy equipment and anywhere from 17% to 29% fuel price increases over 2021-2022. All 10 contracts have now expired and will be tendered in accordance with the City's Materials Management Policy. It is unclear if further inflation will be observed when these contracts are awarded for the 2023-2024 season and beyond.

Appendix A identifies the actual snow clearing and ice control costs adjusted for inflation (CPI). As part of the annual budget process, a 10-year rolling average is used to identify the range of potential snow and ice control costs. Based on historical costs adjusted for inflation, the following is the range of possible snow and ice control costs.

Low -	$40.3 million
Average -	$54.2 million
High -	$87.2 million
2023 Adopted Budget -	$36.3 million

A best practice for budgeting snow and ice control costs would be to budget for an average snow and ice control costs and employ a reserve to deal with significant variations in cost from year to year. Also, per the analysis above, the 2024 Budget (forecast) has now dropped below

the lowest amount in the 10-year rolling average adjusted for inflation. The City does have a Snow Clearing reserve, but the reserve has been dormant for an extended period of time.

As the current snow budget is not sufficient to meet an average snow and ice control scenario, it is strongly recommended that current budgetary deficiencies are addressed prior to any additional enhancements being made to current service levels and that budgeting for average snow and ice control activities and using the Snow Clearing reserve to address higher than average cost years be referred to the 2024 - 2027 Multi-year budget process.

Financial discussion and analysis – city beautification, spring clean-up – current level of service

Year	Adopted Budget	Actuals	Surplus/(Deficit)
2020	$ 17,583,631	$ 19,288,518	$ (1,704,887)
2021	$ 17,553,528	$ 19,584,525	$ (2,030,997)
2022	$ 17,463,108	$ 20,181,084	$ (2,717,976)
2023	$ 18,020,346		
3 year average (2020 - 2022)	$ 17,533,422	$ 19,684,709	$ (2,151,287)

Spring clean-up activities are difficult to reduce in scope as they are highly visible to the public; it is obvious when winter gravel and sand has not been removed from a boulevard, street or pathway. In prior years, the department has been able to off-set these overages by underspending in other areas, largely due to position vacancies in the Engineering and Transportation divisions. However, these vacancies are not expected to continue into the future. Therefore, it is recommended that budgeting for the average cost of spring clean-up activities be referred to the 2024 - 2027 Multi-year budget process.

FINANCIAL IMPACT

Financial Impact Statement

Date: May 31, 2023

Project Name:

Annual Report on Snow Clearing and Ice Control and Spring Cleanup Programs

First Year of Program **2024**

	2024	2025	2026	2027	2028
Capital					
Capital Expenditures Required	$ -	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	-	-	-	-	-
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ -	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants (Enter Description Here)	-	-	-	-	-
Reserves, Equity, Surplus	-	-	-	-	-
Other - Enter Description Here	-	-	-	-	-
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ 73,912,880	$ 75,391,138	$ 76,898,960	$ 78,436,940	$ 80,005,678
Less: Incremental Revenue/Recovery	-	-	-	-	-
Net Cost/(Benefit)	$ 73,912,880	$ 75,391,138	$ 76,898,960	$ 78,436,940	$ 80,005,678
Less: Existing Budget Amounts	54,282,028	54,282,028	54,282,028	54,282,028	54,282,028
Net Budget Adjustment Required	$ 19,630,852	$ 21,109,110	$ 22,616,932	$ 24,154,912	$ 25,723,650

Additional Comments: This statement reflects the amounts being referred to the 2024 Multi-year budget process for Recommendations #2 and #3 of this report. Direct costs represent average Snow Clearing and Ice Control costs of $54,228,171 plus average City Beautification costs of $19,684,709 in 2024, increased by 2% annually for inflation. Existing budgets are the 2023 Adopted Budgets, with $36,261,682 for Snow Clearing and Ice Control and $18,020,346 for City Beautification. The above does not include any amounts related to using the Snow Clearing Reserve to address higher than average cost years for snow clearing and ice control activities.

J. Ruby, 2023-05-31

J. Ruby, CPA, CA
Manager of Finance & Administration

CONSULTATION

This Report has been prepared in consultation with:

- Legal Services (as to legal issues)
- Winnipeg Parking Authority
- Winnipeg Fleet Management Agency

OURWINNIPEG POLICY ALIGNMENT

4.10 Transportation Safety - Design, construct, maintain, and regulate an integrated and sustainable transportation system and related infrastructure that optimize safe, connected and reliable mobility, and minimize severe injuries and fatalities for all road users.

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

Consideration was given as to whether this report connects to the Winnipeg Climate Action Plan (CAP), and it was determined that the CAP is not applicable to this specific report.

WINNIPEG POVERTY REDUCTION STRATEGY ALIGNMENT

Consideration was given as to whether this report connects to the Winnipeg Poverty Reduction Strategy (PRS) and its Goals and Objectives, and it was determined that the PRS is not applicable to this specific report.

SUBMITTED BY

Department: Public Works
Division: Streets Maintenance/Finance
Prepared by: Michael Cantor, P.Eng./J. Ruby, CPA, CA
Date: June 2, 2023

Attachments:

Appendix A- Snow Clearing and Ice Control Budget Analysis

Appendix B- Public Discussion Presentation February 25, 2023

Appendix C- Winter Parking Ban By-law 76/2011 Amendment