



Public Works and Infrastructure Committee

**Thursday, September 6, 2018
4:00 PM**

Henry Baker Hall, Main Floor, City Hall



OFFICE OF THE CITY CLERK

**Public Agenda
Public Works and Infrastructure Committee
Thursday, September 6, 2018**

Approval of Public Agenda**Adoption of Minutes**

Public Works & Infrastructure Committee - Public - Jun 7, 2018 4:00 PM

Administration Reports

PWI18-14 9th Avenue North – Courtney Street to Pinkie Road

Recommendation

That this report be received and filed.

PWI18-15 Snow Routes Pilot Program Update

Recommendation

1. That the Snow Routes Pilot Program implemented in 2017/18, become part of a regular winter maintenance program.
2. That the snow routes be expanded to include an additional 11km section on the following Arterial and Collector streets, for the 2019/2020 winter season be approved;
 - i. Victoria Avenue (Albert Street to Pasqua Street)
 - ii. Winnipeg Street (College Avenue to Broadway Avenue)
 - iii. Winnipeg Street (Victoria Avenue to Ross Avenue)
 - iv. Broadway Avenue (Broad Street to Park Street)
 - v. 13th Avenue (Toronto Street to Broad Street)
 - vi. 14th Avenue (Toronto Street to Winnipeg Street)
 - vii. 14th Avenue (Albert Street to Halifax Street)
 - viii. 15th Avenue (Winnipeg Street to Elphinstone Street)
 - ix. Toronto Street (Victoria Avenue to College Avenue)
3. That Administration bring updates on snow routes, as part of the Annual Winter Maintenance report.
4. That the City Solicitor be directed to prepare the necessary amendments to



OFFICE OF THE CITY CLERK

Regina Traffic Bylaw No. 9900 (Bylaw) to authorize the requirements for an expanded Snow Routes Program, as detailed in Appendix A to this report.

5. That \$70,000 of the 2019 Winter Road Maintenance operating budget be used to fund the capital and operating expenses associated with the implementation of an expanded Snow Routes Program.
6. That this report be forwarded to the September 24, 2018 City Council meeting for approval.

PWI18-16 Winter Maintenance Summary Report

Recommendation

That this report be received and filed.

PWI18-17 Organic Waste Service Recommendation

Recommendation

1. That City Council approve a residential year-round curbside food and yard waste collection and processing service, described as Service Option 4 in this report.
2. That City Council approve Service Option 4's preliminary implementation plan, recognizing that:
 - a. The total cost of the preliminary implementation plan as presented is \$3.5 million in capital funding from the Solid Waste Reserve to be considered in the 2019 budget process.
 - b. A competitive procurement process will begin in 2019 to facilitate final plan development and the construction and operation of an organic processing facility.
 - c. A pilot will be conducted in 2020 to test, evaluate and adjust any service details prior to city-wide implementation.
 - d. Administration will return to City Council with the final implementation plan in Q2 of 2021.
 - e. City-wide implementation as presented will be complete by 2023.
 - f. Funding the annual operating expenditures of Service Option 4 from general revenue or a user fee, will be determined by City Council's decision regarding a solid waste curbside collection services funding policy, to be considered through a subsequent report that will be brought forward in October 2018.



OFFICE OF THE CITY CLERK

3. That City Council approve Service Option 2, a full growing season yard waste depot for implementation in 2019, establishing a permanent depot site as well as a lead into Service Option 4.
4. That this report be forwarded to the September 24, 2018 meeting of City Council for approval.

Adjournment

AT REGINA, SASKATCHEWAN, THURSDAY, JUNE 7, 2018

AT A MEETING OF PUBLIC WORKS AND INFRASTRUCTURE
COMMITTEE
HELD IN PUBLIC SESSION

AT 4:00 PM

Present: Councillor Sharron Bryce, in the Chair
Councillor Lori Bresciani
Councillor Jason Mancinelli
Councillor Andrew Stevens
Councillor Barbara Young

Also in Attendance: Council Officer, Ashley Thompson
Council Officer, Donna Mitchell
Legal Counsel, Jayne Krueger
Executive Director, City Planning & Development, Diana Hawryluk
Executive Director, Transportation & Utilities, Karen Gasmo
Director, Communications & Customer Experience, Alan Clay
Director, Development Services, Louise Folk
Director, Roadways & Transportation, Norman Kyle
Director, Solid Waste, Lisa Legault
Manager, Development Engineering, Dustin McCall
Manager, Waste Diversion Services, Janet Aird
Senior Engineer, Development Services, Bill Wright
Senior Engineer, Planning, Scott Thomas
Senior Engineer, Roadways & Transportation, Jared Hagen

(The meeting commenced in the absence of Councillor Mancinelli.)

APPROVAL OF PUBLIC AGENDA

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the agenda for this meeting be approved, as submitted.

ADOPTION OF MINUTES

Councillor Barbara Young moved, AND IT WAS RESOLVED, that the minutes for the meeting held on May 10, 2018 be adopted, as circulated.

ADMINISTRATION REPORTS

PWI18-9 Arcola Avenue Corridor from College Avenue to Prince of Wales Drive

(Administration provided maps to the Committee on the Arcola Avenue Functional Study- College Avenue to Prince of Wales Drive figures 3.1-3.5. Copies of the maps are on file in the Office of the City Clerk.)

Recommendation

That this report be forwarded to the June 25, 2018 meeting of City Council for information.

Mike Mepham addressed the Committee.

(Councillor Mancinelli arrived at the meeting.)

Councillor Lori Bresciani moved that the recommendations contained in the report be concurred in.

Councillor Lori Bresciani moved, in amendment, that a recommendation be added to advance the Arcola Avenue Corridor Functional Study to be started in 2021 with a return to Council in Q2 of 2022.

The motion was put and declared LOST.

Councillor Lori Bresciani moved, in amendment, AND IT WAS RESOLVED, that a plan to accelerate the land acquisition for the Wascana Parkway extension be referred to the 2019 budget process for consideration.

The motion was put and declared CARRIED.

Councillor Lori Bresciani moved, in amendment, AND IT WAS RESOLVED, that the improvements to Arcola Avenue and University Park Drive, outlined in Table 3, page 6 of the report be referred to the 2019 budget process for consideration.

The main motion, as amended, was put and declared CARRIED.

PWI18-10 Residential Road Renewal Program Review Report

Recommendation

1. That City Council approve the redistribution of funding for the Residential Road Renewal Program from its current allocation to the new allocation of 10 per cent to 'good' roads, 45 per cent to 'fair' roads and 45 per cent to 'poor' roads.
2. That this report be forwarded to the July 30, 2018 meeting of City Council for approval.
3. That item MN16-8 be removed from the list of outstanding items for the Public Works & Infrastructure Committee.

James Vogel addressed the Committee.

Councillor Barbara Young moved, in amendment, AND IT WAS RESOLVED, that level 3 and 4 poor roads across the city be given preference in maintenance such as patching and pot holes and that a report on that be brought back to Public Works and Infrastructure Committee in Q1 2019.

The main motion, as amended, was put and declared CARRIED.

RECESS

Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that the Committee recess for ten minutes.

(The Committee recessed at 6:40 p.m.)

(The Committee reconvened at 6:50 p.m.)

(The meeting reconvened in the absence of Councillor Mancinelli.)

PWI18-11 Waste Plan Regina – 2017 Update

Recommendation

That this report be forwarded to the June 25, 2018 City Council meeting for information.

(Councillor Mancinelli arrived at the meeting.)

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the recommendations contained in the report be concurred in.

PWI18-12 Biweekly Curbside Garbage Collection - Pilot Project Results

Recommendation

1. That City Council approve an annual biweekly curbside garbage collection schedule from the start of November through to the end of March, with a return to a weekly schedule for a three-week period extending from the end of December to the beginning of January.
2. That City Council approve amending *The Waste Management Bylaw, 2012*, No. 2012-63 to allow property owners to apply to the City of Regina (City) for additional garbage services as identified in this report and generally as follows:
 - a. Primary customers or co-applicants of designated properties who require an additional garbage cart may request one from the City and pay an annual fee for the additional cart which will be billed on their utility bill. The annual fee will be either: \$156.95 per year (\$0.43 per day) for a 360-litre cart or \$116.80 per year (\$0.32 per day) for a 240-litre cart.

3. That the City Solicitor be instructed to prepare and bring forward the necessary amendments to *The Waste Management Bylaw, 2012*, No. 2012-63.
4. That this report be forwarded to the June 25, 2018 meeting of City Council for approval.

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the recommendations contained in the report be concurred in.

PW118-13 Solid Waste Curbside Collection Services Funding Policy

Recommendation

1. That City Council approves a policy for waste services that:
 - a. Funds curbside collection services that divert waste from the landfill from general revenues.
 - b. Levies user fees for curbside collection services that direct waste disposal to the landfill, as detailed in Option 2.
2. That City Council directs Administration to bring forward a report in Q4 2018, recommending fees for solid waste services, including opportunities to offset operating costs with other solid waste revenues.
3. That this report be forwarded to the June 25, 2018 City Council meeting for approval.

Councillor Barbara Young moved, AND IT WAS RESOLVED, that the Administration bring back a report to this committee outlining the details of cost per household for garbage collection and billing details to the October 11, 2018 Public Works and Infrastructure meeting.

The main motion, as amended, was put and declared CARRIED.

ADJOURNMENT

Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that the meeting adjourn.

The meeting adjourned at 8:30 p.m.

Chairperson

Secretary

September 6, 2018

To: Members
Public Works and Infrastructure Committee

Re: 9th Avenue North – Courtney Street to Pinkie Road

RECOMMENDATION

That this report be received and filed.

CONCLUSION

Due to the proximity of the Regina Bypass to Pinkie Road, options for managing traffic flow in and around 9th Avenue North are limited. City of Regina (City) Administration, with input from the Ministry of Highways and Infrastructure (MHI) and major land developers, have developed a short and long-term plan for the 9th Avenue North corridor from Courtney Street to Pinkie Road, which will optimize traffic flow and minimize impacts to adjacent landowners. It will also allow access to development, while ensuring that 9th Avenue North can be maintained as an expressway connection to the bypass.

BACKGROUND

The MHI is in the process of constructing a new bypass around Regina. Due to the proximity of the 9th Avenue North interchange and Regina Bypass, the City is not permitted to maintain all traffic movements at the intersection of 9th Avenue North and Pinkie Road, nor to signalize that intersection now or in the future. The MHI has the authority to close all or part of any public highway through *The Highways and Transportation Act, 2007*.

With all movements not permitted at the intersection of 9th Avenue North and Pinkie Road in both the short and long-term, the City's long-term plans for the road network require adjustments to these new conditions.

The City and MHI agreed to cost-share a Value Engineering Study (VE) that would explore different options for managing traffic along the 9th Avenue North corridor. This report provides an overview of the VE process and illustrates the short and long-term plans for the corridor.

DISCUSSION

In the summer of 2017, the City retained the services of ISL Engineering who partnered with eHan Engineering to conduct a series of Value Engineering and Risk Assessment Workshops, as well as providing traffic analysis. In September of 2017, the first workshop was held and participant organizations included the City, MHI, Dream Development, Harvard Development and Forster Projects. The purpose of this workshop was to brainstorm ideas for managing short

and long-term traffic flow on and around the 9th Avenue North corridor, given the constraints presented by the location of the Regina Bypass.

The workshop resulted in the creation of 66 different options for managing traffic in and around the corridor. Through a series of discussions and voting processes, the options were subsequently narrowed to three, which were subjected to more detailed traffic analysis and cost estimating before the second workshop.

A smaller group comprised of all the previously mentioned stakeholders reconvened in December of 2017 to establish the formal criteria to rank each of the options against a series of criteria, such as traffic performance, accessibility and impact to landowners, cost, overall functionality and to create a benefit-cost ratio for each of the options to establish a preferred option.

While a preferred long-term option was identified, additional follow-up items were necessary to ensure that all stakeholder concerns were addressed in the short-term. Specifically, the MHI had indicated that all left-turn movements at the intersection of Pinkie Road would not be permissible in the short-term; however, the west-bound to south-bound left turn movement was deemed to be an important turn movement in the short-term for some stakeholders.

Following the workshop, the City and MHI agreed that a west-bound to south-bound left turn movement onto Pinkie Road from 9th Avenue North could be safely accommodated in the short-term and the MHI have subsequently made plans to include the construction of this left turn lane as part of their current project that would enable that movement, while blocking the unsafe movements that were of concern in the Regina Bypass construction project. This can be found in Appendix A - 9th Avenue Corridor - Short-term Plan.

The long-term plan is shown in Appendix B - 9th Avenue Corridor - Long-term Plan. While the City had intended for Pinkie Road to be an all-turns intersection at 9th Avenue North in both the short and long-term, this is no longer a viable option due to short weaving distances that would pose safety concerns and negatively affect the operation of the Regina Bypass in the long-term.

As illustrated in Appendix B, the long-term plan calls for restricted access to 9th Avenue North from Pinkie Road. In order to manage traffic volumes from the future Coopertown neighbourhood, in the absence of all-turns movements at Pinkie Road, the importance of the future connection north of Fairway Road is elevated.

To manage traffic volumes and maintain 9th Avenue North as an expressway and ultimately a freeway, the long-term plan calls for interchanges at both Courtney Street (consistent with City's previous plan) and at Fairway Road, as well as an off-ramp from the Regina Bypass at roughly the mid-point between 9th Avenue North and Armour Road.

While the long-term plan will be subject to change and refinement closer to implementation, which will be years if not decades away depending on the pace of growth, the short-term plan is imminent and must be in place prior to the opening of the Regina Bypass in 2019.

The work associated with the 9th Avenue North corridor was accelerated to meet timeframes associated with the Regina Bypass Project construction schedule. The City has also been conducting a study related to the function and planning of the Courtney Street and Pinkie Road corridors from 9th Avenue North and Dewdney Avenue and the findings from that study will consider the outcome from the 9th Avenue North Corridor VE and will be presented to City Council separately.

RECOMMENDATION IMPLICATIONS

Financial Implications

Any costs to the City associated with the short-term work will be funded through Servicing Agreement Fees (SAFs). Any financial implications to the City associated with the long-term work will be in accordance with applicable SAF policy in effect at the time of the work. Any costs associated with both the short and long-term solution will be included in ongoing cost-sharing negotiations with MHI for the 9th Avenue North interchange.

Environmental Implications

None with respect to this report.

Policy and/or Strategic Implications

The proposed solution does not directly conflict with policies within *Design Regina: The Official Community Plan Bylaw No. 2013-48* or the Transportation Master Plan; however, the design solution is not consistent with the City's original intent for the Fairway Road/Coopertown Boulevard north leg or the Pinkie Road corridor. The Coopertown Neighbourhood Plan will require a future update to reflect the changes to the 9th Avenue North corridor.

Other Implications

None with respect to this report.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

A copy of this report is being provided to the stakeholders who have been engaged in previous discussions related to the intersection of 9th Avenue North and Pinkie Road.

A letter will be provided to property owners within 1,000 m of the intersection of 9th Avenue North and Pinkie Road advising them of the short-term changes they can expect at the intersection. Proper signage will be placed at the intersection of 9th Avenue North and Pinkie Road in advance of the changes being made. Residents can learn more about the Regina Bypass and the 9th Avenue North interchange at reginabypass.ca/.

DELEGATED AUTHORITY

The recommendation contained in this report is within the delegated authority of the Public Works & Infrastructure Committee.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'SBzdel'.

Shauna Bzdel, Director
Planning Department

Report prepared by:
Shanie Leugner, Manager, Business Support

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Diana Hawryluk'.

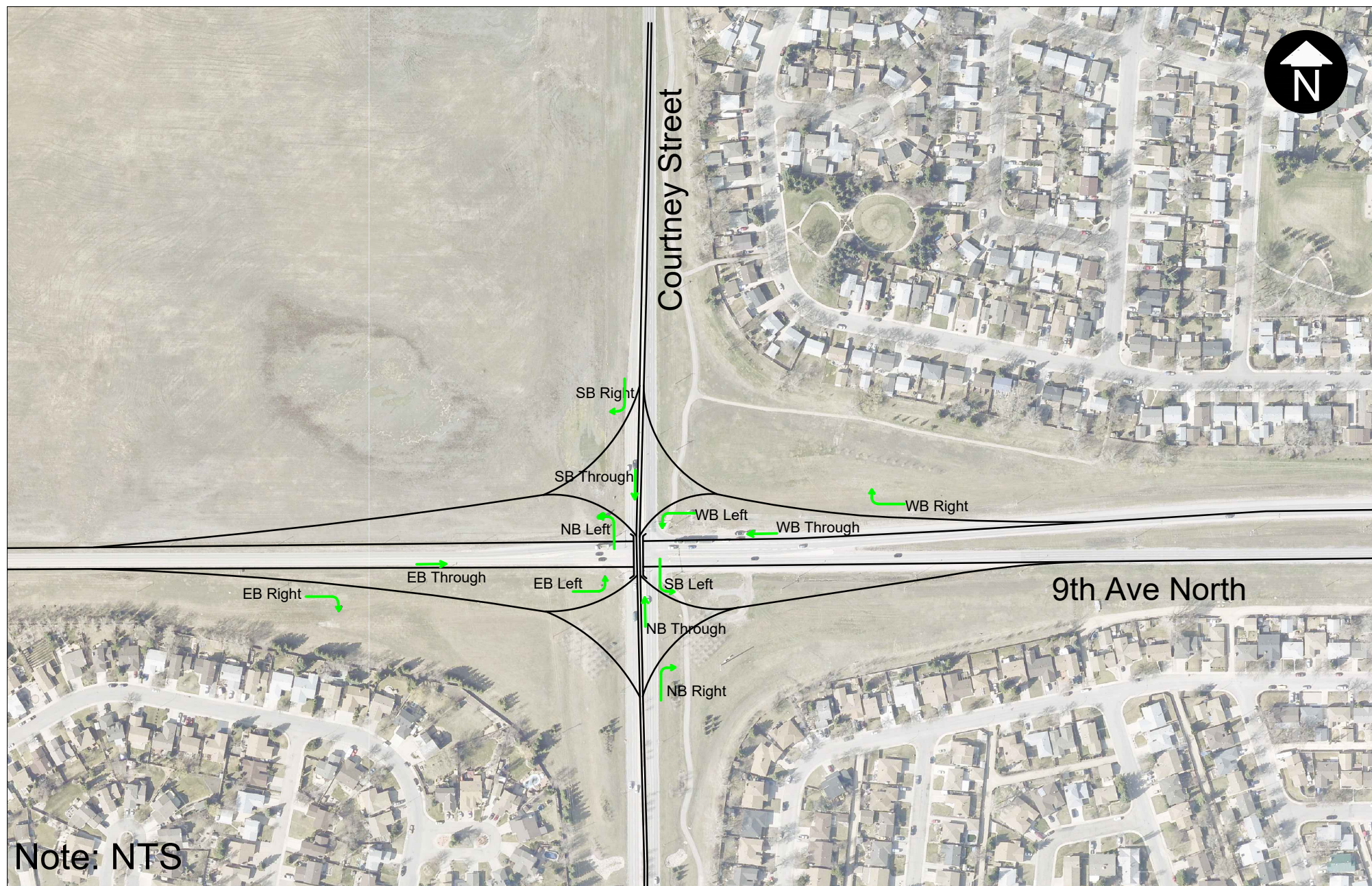
Diana Hawryluk, Executive Director
City Planning and Development

APPENDIX A

9th Avenue North & Pinkie Road - Short-term Plan

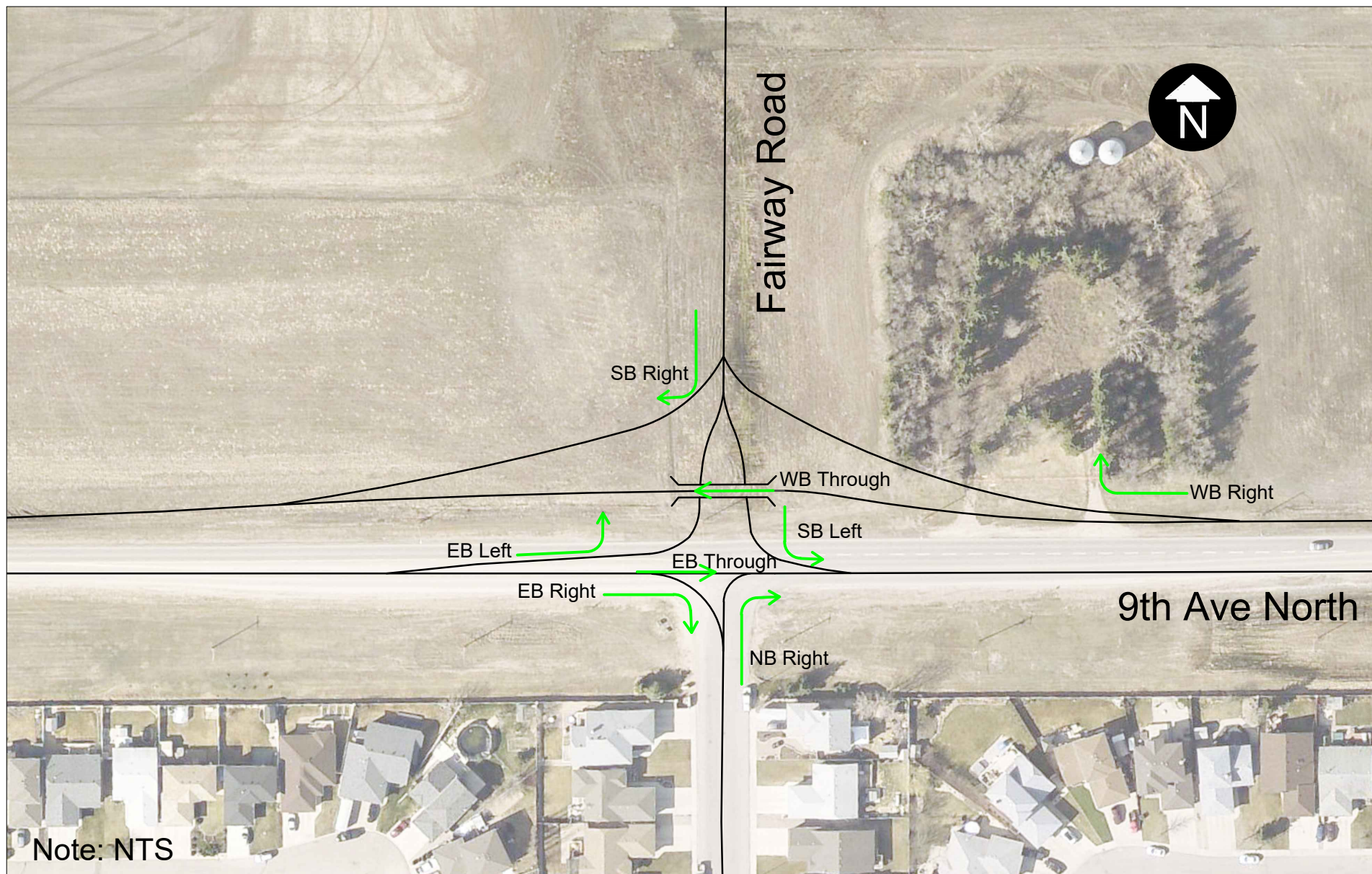


9th Avenue North & Courtney Street - Long-term Plan - Concept Only



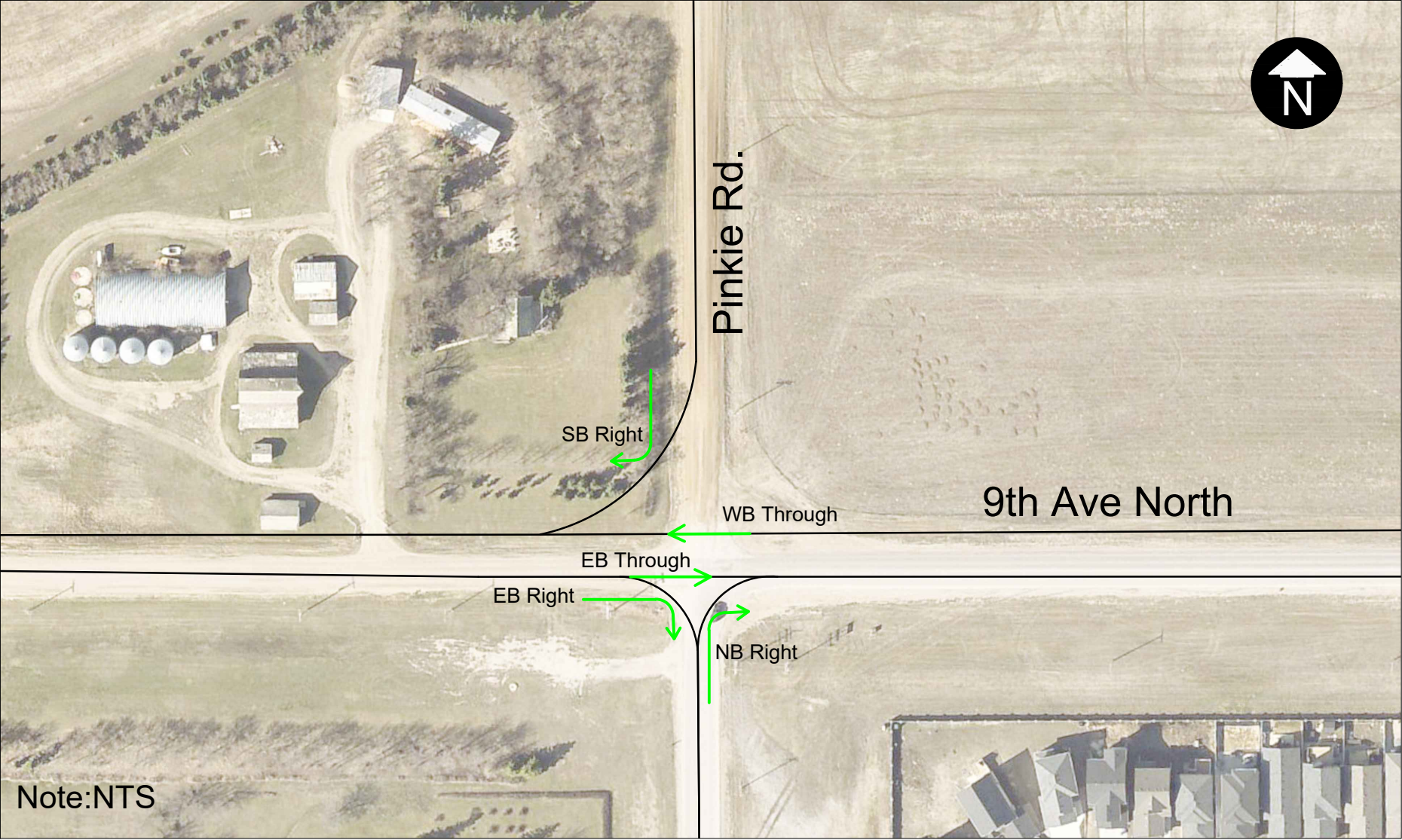


9th Avenue North & Fairway Road - Long-Term Plan - Concept Only





9th Avenue North and Pinkie Road - Long-term Plan - Concept Only



September 6, 2018

To: Members
Public Works and Infrastructure Committee

Re: Snow Routes Pilot Program Update

RECOMMENDATION

1. That the Snow Routes Pilot Program implemented in 2017/18, become part of a regular winter maintenance program.
2. That the snow routes be expanded to include an additional 11km section on the following Arterial and Collector streets, for the 2019/2020 winter season be approved;
 - i. Victoria Avenue (Albert Street to Pasqua Street)
 - ii. Winnipeg Street (College Avenue to Broadway Avenue)
 - iii. Winnipeg Street (Victoria Avenue to Ross Avenue)
 - iv. Broadway Avenue (Broad Street to Park Street)
 - v. 13th Avenue (Toronto Street to Broad Street)
 - vi. 14th Avenue (Toronto Street to Winnipeg Street)
 - vii. 14th Avenue (Albert Street to Halifax Street)
 - viii. 15th Avenue (Winnipeg Street to Elphinstone Street)
 - ix. Toronto Street (Victoria Avenue to College Avenue)
3. That Administration bring updates on snow routes, as part of the Annual Winter Maintenance report.
4. That the City Solicitor be directed to prepare the necessary amendments to *Regina Traffic Bylaw No. 9900* (Bylaw) to authorize the requirements for an expanded Snow Routes Program, as detailed in Appendix A to this report.
5. That \$70,000 of the 2019 Winter Road Maintenance operating budget be used to fund the capital and operating expenses associated with the implementation of an expanded Snow Routes Program.
6. That this report be forwarded to the September 24, 2018 City Council meeting for approval.

CONCLUSION

This report is based on the recommendation of report *CR17-7 Snow Routes Pilot Program* and provides feedback on the Snow Routes Pilot Program, successfully implemented on five km of road network during the 2017/2018 winter season.

Based on benchmark data, the Snow Routes Pilot Program did provide both operational efficiencies and improved traffic flow on streets cleared under the program.

Additionally, based on the positive response of the resident survey conducted after the pilot season, Administration recommends continuing with the current program, while strategically expanding the program to an additional 11 km of arterial and collector roads during the 2019/2020 winter season.

The pilot evaluation found that roadway travel widths after clearing and voluntary compliance with the parking bans were all positive factors in the initial program.

The 2018/2019 winter season will also be used to study the road sections proposed under the expansion plan and prepare for any changes that may be required operationally. Based on the timeframes to install additional signage and the communications required, Administration is recommending that any capital investments (signage and communications) related to expanding the program would be funded through carry forward from the initial pilot and through the winter maintenance operating budget. Work to expand the program would be carried out during Q2 and Q3 of 2019.

BACKGROUND

At the January 30, 2017 meeting of Council report CR17-7 was presented with the following recommendations:

1. *That City Council authorizes the implementation of a Snow Routes Pilot Program (the “Pilot Program”) on a 5km section on the following Category 1 and 2 streets, beginning in the fall of 2017 and through the 2017/2018 winter season:*
 - i. *Victoria Avenue (Broad Street to Winnipeg Street);*
 - ii. *Winnipeg Street (Victoria Avenue to College Avenue); and*
 - iii. *College Avenue (Winnipeg Street to Abbott Road).*
2. *That City Council approve the enforcement of a parking ban when declared on streets selected for the Pilot Program, as Snow Routes.*
3. *That City Council directs Administration to bring back a report in 2018 that evaluates the effectiveness of the Pilot Program, with future recommendations.*
4. *That City Council instructs the City Solicitor’s office to prepare amendments to The Regina Traffic Bylaw, 1997, No. 9900 (the “Bylaw”) to incorporate the requirements for the Pilot Program as detailed in Appendix C to this report.*
5. *That City Council authorizes \$85,000 of the 2016 Winter Road Maintenance operating budget be used to fund the capital and operating expenses associated with the implementation of the Pilot Program.*

Based on the above approval by City Council, a Snow Routes Pilot Program was launched in the

2017/2018 winter season on five km of roads identified as good candidates during initial research. Benchmarking data was collected during the 2016/2017 season to measure the effectiveness of the initial pilot program.

DISCUSSION

Analysis of the initial season indicates that there are significant operational efficiencies and safer end conditions as follows:

- On an average, it took approximately 20 per cent less time to complete plowing of the snow routes with the parking bans in place.
- The average time taken to complete plowing during the 2017/2018 pilot was 51 minutes.
- The average time taken to complete plowing during the 2016/2017 pre-pilot was 62 minutes.
- There was 35 per cent additional lane width achieved during the 2017/2018 pilot for traffic to travel these sections of road, due to better snow clearing.
- There was 36 per cent reduction achieved during the 2017/2018 pilot in maximum snow ridge height, due to uniform distribution of snow along the route.
- Public perception was positive through the Feedback Survey conducted shortly after the first season; of the 848 residents, more than 70 per cent were in favour of expanding the program.

Key highlights of the data from the pilot and findings from the resident survey can be found in Appendix B.

Administration explored three options with respect to the expansion of the Snow Routes Program. These options are:

Option 1 - Status Quo: Snow Routes on existing 5 km of Pilot locations: (Not Recommended)

This option would retain the current 5 km of roads considered as snow routes, but no further expansion would occur at this time.

Advantages:

- Minimal cost to continue running the Snow Routes Program on the 5 km stretch
- No need to remove existing Snow Routes Signage installed on these sections of roads

Disadvantages:

- Will not fully satisfy the strong support of the residents to have an expanded Snow Routes Program, as indicated by survey findings (2016 and 2018 surveys)
- Limits the program to 5 km which does not address all areas of concern due to parked vehicles during the winter season
- The potential to increase operational efficiencies will not be realized

Option 2: Staged Expansion – Add 11 km to current program during 2019/2020 season: (Recommended Option)

This option was developed based on feedback from the public and internal stakeholders. Data analysis done during the pilot season indicated that the program did deliver measurable improvements. Additional roads were identified based on proximity to the current program area and are trouble spots due to a high volume of on street parked vehicles. This can cause internal stakeholders, such as Winter Maintenance operators, Transit Services, Traffic operations and Emergency Services, issues during the winter months.

Further changes to the *Regina Traffic Bylaw, No. 9900* are required to expand the program, see Appendix A.

Advantages:

- Staged implementation will enable replicating the successful implementation of the program on a 5 km section during 2017/2018 by utilizing the learnings from the pilot. A staged expansion of the program on relatively smaller street sections can be managed more effectively.
- Expansion to highly critical streets as identified by various internal stakeholders, will address trouble spots first, while continuing towards a city-wide Snow Routes Program.
- Supporting areas are well equipped to support the expansion of the program on an additional 11 km to replicate success.
- Roads identified under this option generally have alternate parking locations available in the vicinity. This includes the roads around the hospital area, where Saskatchewan Health Authority provides hospital staff a Park & Ride service that operates to the Regina General Hospital, Monday to Friday from 6 a.m. to 9 p.m. and provides on-site parking Saturday, Sunday and any Statutory Holiday.
- Streets identified under this option are near or are an extension of the street sections already approved under the program. This would promote a better level of awareness about the program amongst residents.
- Due to the high volume of vehicles parked in these areas, the movement of traffic in these areas would be improved during the winter months.
- This option will provide minimal operational challenges for Administration, as the street sections are close together.

Disadvantages:

- This option will still not cover 100 per cent of the street sections in the city with similar challenges during winter, due to on street parking.
- Expansion of the program is dependent on the capacity of the supporting areas like Traffic Engineering, Parking Services and Communications.
- Although alternate parking will be generally available on adjoining streets or blocks for the duration of temporary parking bans, residents may have to park their vehicles away from their regular parking spots. Certain street sections may provide more challenges than others.

- The expanded program may not be the same for all 11 km street sections identified under Option 2. Operational changes will be required to cover certain street sections like hospital routes. Operational changes may include reduced timeframes of parking bans on certain critical streets adjoining the hospital, time of day for plowing operations, as well as an enhanced communication strategy with those affected.

**Option 3 - Cease Snow Route Program:
(Not Recommended)**

This Option considers discontinuing the implementation of a Snow Routes Program in the city. This Option would require removing the permanent Snow Routes signs installed on the 5 km road sections and educating the residents on why the program is being discontinued. This would be despite a successful pilot, encouraging program results and strong initial support from the residents.

Advantages:

- No change in the winter maintenance operation
- No change in the parking services operation
- No communications cost implications
- No additional signage required

Disadvantages:

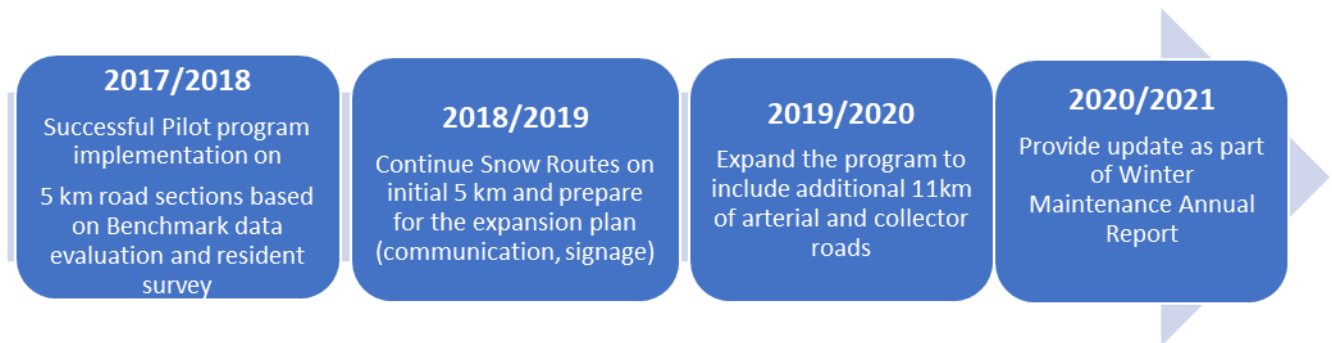
- Will not satisfy residents desire to have a Snow Routes Program
- Increased costs associated with the removal of snow route signage
- There will be additional communication costs to implement a similar program in future
- No efficiencies will be gained for winter maintenance operation during plowing
- Mobility issues will remain during winter, due to parked vehicles on these streets
- Increased chances of property damage on these streets during winter, due to parked vehicles
- Continued traffic flow issues due to reduced lane widths in the winter

Based on the above, Administration is recommending a phased in expansion of snow routes to other City of Regina (City) streets. The change management approach and benchmarks for success used in the pilot, will be used to evaluate and assess an expanded program during the 2020/2021 season. This will help in further optimizing a Snow Route Program for other parts of the city. See Appendices C and D for details.

The proposed implementation for an expanded program for the 2019/2020 winter season, would allow Administration time to install additional signage, provide communications to residents and collaborate with other departments to ensure an effective approach is in place.

Figure 1. Below indicates the proposed timeline for the implementation of an expanded program.

Figure 1: Snow Routes Expanded Program Timeline



RECOMMENDATION IMPLICATIONS

Financial Implications

The implementation costs for the pilot in the 2017/2018 winter season was \$54,000, of the \$85,000 budgeted. Spending for the pilot was broken down to \$36,000 for communications and \$18,000 on signage. The unused funds could be used for the expansion of the program, if approved by Council.

Capital expenditures for implementing an expanded Snow Route Program on 11 km of the road network would require a total of \$70,000, including \$32,000 for signage and \$38,000 for communications. Revenues and expenditures of Parking Services are not included here, as the enforcement costs proved to be negligible and ticketing revenue exceeded the operating costs.

Expanding the program is expected to result in operational efficiencies. Evaluation of the efficiencies gained will be completed after the successful implementation of the expanded program.

Environmental Implications

Expanding the Snow Routes Program will have a positive environmental impact, due to the improved traffic flow, resulting in reduced fuel consumption and exhaust emissions.

Policy and/or Strategic Implications

The Snow Routes Program expansion will assist Winter Maintenance crews in providing safe transportation, better mobility and accessibility on city streets and is in line with *the Design Regina: The Official Community Plan (OCP)* as follows:

Section D3, Transportation, Goal 1-Sustainable Transportation, 5.4. “Establish all-season design and maintenance priorities for roads, sidewalks and pathways to ensure the transportation network provides safe travel, access and mobility, including for the following:

- 5.4.1 Key transit facilities*
- 5.4.2 Key pedestrian and cycling routes*
- 5.4.3 Public buildings and institutions”*

Other Implications

Analysis of the pilot indicates that expansion of the program will result in increased efficiencies of winter maintenance operations, reduced claims due to property damage, improved driving conditions and provide safer roads for residents. Properly cleared streets will help create a more positive image of the City in the eyes of residents, businesses and visitors.

Accessibility Implications

Administration will continue contact with residents with accessibility and parking issues and will monitor Service Regina calls for any concerns related to mobility.

COMMUNICATIONS

Multiple communication channels will be used to ensure that residents are well informed about the expanded program. This will include focused communications for snow routes in the vicinity of the hospital as well as communications regarding the changes to the *Regina Traffic Bylaw, No. 9900*.

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,



Norman Kyle, Director
Roadways & Transportation

Respectfully submitted,



Karen Gasmo, Executive Director
Transportation & Utilities

Report prepared by:
Neeraj Saroj, Acting Manager, Winter District Maintenance

Appendix A
Amendment to the Regina Traffic Bylaw No. 9900

Proposed Amendments Regarding Snow Routes

The amendments to *The Regina Traffic Bylaw No. 9900* will be to add the following provisions:

1. Additional Arterial and Collector Road sections subject to a snow route are:
 - Victoria Avenue (Albert Street to Pasqua Street)
 - Winnipeg Street (College Avenue to Broadway Avenue)
 - Winnipeg Street (Victoria Avenue to Ross Avenue)
 - Broadway Avenue (Broad Street to Park Street)
 - 13th Avenue (Toronto Street to Broad Street)
 - 14th Avenue (Toronto Street to Winnipeg Street)
 - 14th Avenue (Albert Street to Halifax Street)
 - 15th Avenue (Winnipeg Street to Elphinstone Street)
 - Toronto Street (Victoria Avenue to College Avenue)
2. Section 91(4) needs to be amended to allow the City to tow around the corner for violations of temporary street closure (section 64), temporary street permit violations (section 65) or snow routes (section 64.1).

Existing Bylaw Sections regarding Snow Routes

64.1 (1) No person shall park or stop a vehicle or permit a vehicle to be parked or stopped on any street or portion of any street identified as a snow route in Schedule "O" to this Bylaw.

(2) Subsection (1) applies when the City Manager declares snow routes to be in effect.

(3) A declaration announcing snow routes to be in effect shall remain in effect for a period of 24 hours unless sooner terminated or extended by further declaration of the City Manager with such 24 hour period commencing and being effective from the time specified in the declaration.

(4) The City Manager shall inform the general public of the existence of the snow route declaration using whatever means he or she may deem advisable. RESTRICTED USE OF HIGHWAYS 39

(5) All vehicles parked on designated snow routes while a declaration is in effect may be moved, without notice, for such distance as is necessary, or impounded by the City at the expense of the registered owner of the said vehicle." (#2017-3, s. 64.1, 2017)

SCHEDULE “O”

SNOW ROUTES

The following streets or portions of streets are designated as snow routes when a snow route declaration is in effect in accordance with Section 64.1 of this bylaw:

CATEGORY 1 ROADS 1. Victoria Avenue (Broad Street to Winnipeg Street); and 2. College Avenue (Winnipeg Street to Abbott Road).

CATEGORY 2 ROADS 1. Winnipeg Street (Victoria Avenue to College Avenue). (#2017-3, s. 2017)

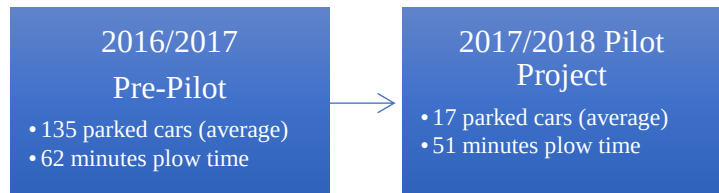
Appendix B: Highlights of the Snow Routes Pilot Program

Overview of the Pilot Program:

- Implemented on 5 km of street sections during 2017/2018.
- Four Snow Routes parking ban declarations:
 - November 5, 2017
 - December 5, 2017
 - March 6, 2018
 - March 24, 2018
- Declaration and temporary parking ban notifications issued at least 8 hours before the parking bans came into effect.
- Extensive communication and education activities were aimed at residents living on, passing through and parking on the designated snow routes.
- Media tactics included social media feeds, brochures, public open houses in the area, media announcements and automated email notifications.
 - Increased communications included one-on-one meetings with businesses, care-homes, school staff, hospital officials and residents with disability signs.
- Benchmark evaluation based on identified criteria completed using information gathered during 2016/2017 pre-Pilot Program and 2017/2018 Pilot Program.
- Survey was carried out after the Pilot Program to gather residents' feedback.

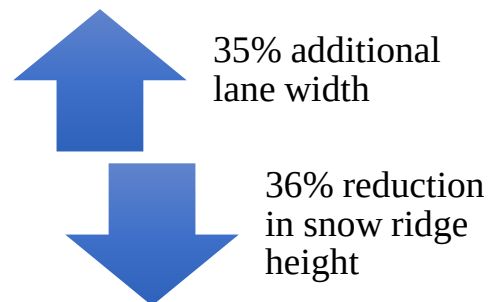
Compliance & Parking Enforcement:

- There was a very high-level compliance during the Pilot Program implementation after each declaration. Almost 90 per cent less cars were parked on designated streets when the temporary parking bans were in effect, compared to the previous year.
- Average number of parked cars during 2017/2018 Pilot Program: 17 cars
- Average number of parked cars during 2016/2017 Pre-Pilot Program: 135 cars
- A total of 53 warning leaflets were issued during the first snow route declaration of the season to create public awareness.
- A total of 52 parking tickets were issued in total during four declared snow route parking bans.



Operational Efficiencies:

- On an average, it took approximately 20 per cent less time to complete plow of the snow route with the parking bans in place.
- Average time taken to complete plow during 2017/2018 Pilot: 51 minutes
- Average time taken to complete plow during 2016/2017 Pre-Pilot: 62 minutes



- There was 35 per cent additional lane width achieved during 2017/2018 Pilot for traffic to travel these sections of road, due to better snow clearing.
- There was 36 per cent reduction achieved during 2017/2018 Pilot in maximum snow ridge height, due to uniform distribution of snow along the route.

Snow Route Pilot Project Feedback Survey:

An online survey was conducted from April 25 to May 7, 2018 (just after the season) to gather firsthand information from residents who live, travel, park or have businesses on the route.

Survey respondents belonged to one of the following categories:

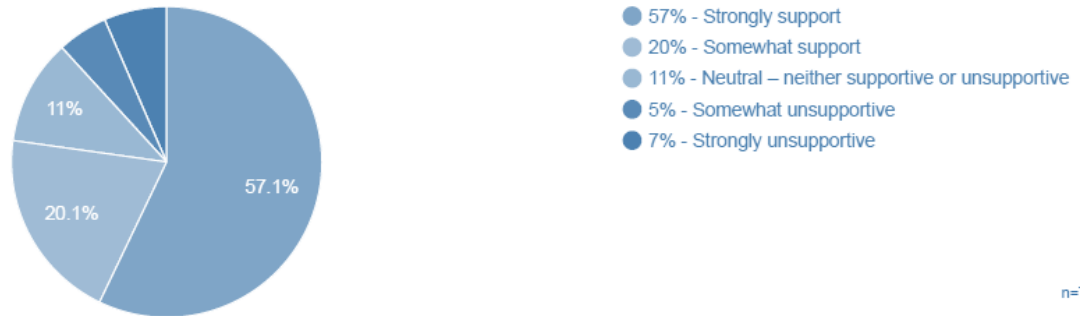
- Regularly travelled along the snow route locations
- Lived on the snow route locations
- Regularly parked on the snow route locations

A total of 848 residents responded to the survey. Approximately 60 per cent agreed that the Pilot met the goals and over 70 per cent supported a Snow Routes Program for other parts of the City's road network. Some residents preferred that snow removal be included in the snow routes plan.

Results from the survey will be used to help inform future policy direction and decisions regarding snow routes in Regina.

Survey Results Summary

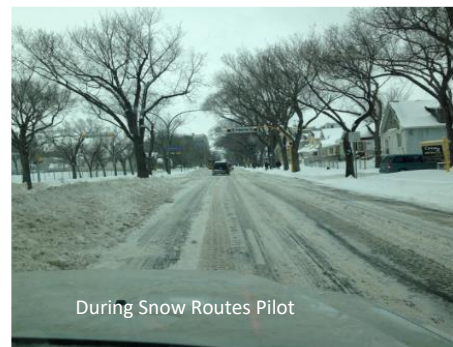
Do you support Regina introducing a permanent snow route program on major roads to plow snow more quickly and efficiently?



Snow Route Pilot Survey Summary:

How respondents were affected by snow routes pilot	Total Survey Respondents: 848	Agree- Pilot project met the objectives	Support a permanent snow route program
I live on the Snow Routes	147	64%	79% 56% strongly supportive 23% Somewhat supportive 6% strongly unsupportive
I regularly travel through a snow route	610	58%	77% 57% strongly supportive
I regularly park on a snow route	100	61%	69% 49% strongly supportive 20% somewhat supportive

Site Photos Before and During Snow Routes Pilot:



Communications & Media

What do I have to do when a Snow Route is declared?

When a snow route is declared, that means there is no on-street parking along the route for the 24-hour duration of the ban. Vehicles can be parked in your own driveways, in garages, or on adjacent streets where legally allowed.

The no-parking zones are easily identified by blue signs with a white snowflake. Vehicles left parked on snow routes during a temporary parking ban will be ticketed \$120. This penalty is in line with other municipalities and according to the City's Traffic Bylaw.

If you have a parking permit from the Saskatchewan Abilities Council Parking Program for People with Disabilities, contact us at 306-777-7000.

Other information:

- ❖ **Why were these roads selected?** This snow route was selected based on extensive consultation with Regina residents in 2016. These roads are typically difficult for snow plows to efficiently clear, largely due to on-street parking.
- ❖ **Can my street be a Snow Route?** Once the pilot program has been reviewed and if it proves successful, we'll determine other locations appropriate for the next phase of a snow routes program.
- ❖ **Will these Snow Routes mean my street won't get cleared?** The City of Regina's winter maintenance program is not impacted by the pilot program. Snow clearing depends on the type of road you live on and the amount of snow accumulation.
- ❖ **When will the Snow Route streets be cleared?** The route will be cleared within 24 hours of a snow event when more than five centimetres of snow accumulates. This is consistent with the Winter Maintenance Policy.
- ❖ **Can I park on my street if it's been cleared but the ban is still on?** Crews may not be finished and could return. Parking on the snow route while the 24-hour parking ban is in effect could result in a ticket.
- ❖ **Will you be clearing sidewalks?** Just like all other areas of the community, residents are asked to clear their sidewalks and the frontage of their home as specified in the Winter Maintenance Policy.

Understanding the Snow Route Pilot Project

Whether you live, work, drive or park on the snow route, your feedback is important to us.

Take the Snow Route Survey by May 7.

When is a Snow Route declared?

- ❖ When a snowfall has reached a minimum of five centimetres of accumulated snow.
- ❖ At least eight hours before the parking ban is in effect.
- ❖ Any day of the week.

For example:

Snow Route Declared at 3 p.m. Tuesday	No Parking on Snow Route Starting 8 a.m. Wednesday to 6 a.m. Thursday
---------------------------------------	---

What are Snow Routes?

Snow routes help improve traffic flow after a storm by declaring a 24-hour parking ban along a designated route to snow clearing. With no vehicles in the parking lane, a more thorough snow clearing from curb-to-curb can be achieved. This improves traffic flow along the busiest roadways and helps make winter operations more efficient.

- ❖ Victoria Avenue between Broad Street and Winnipeg Street
- ❖ Winnipeg Street between Victoria Avenue and College Avenue
- ❖ College Avenue between Winnipeg Street and Arcola Avenue

Questions?

Contact Service Regina at 306-777-7000 or visit Regina.ca/snowroutes.

When do I know when a Snow Route is declared?

Snow Routes will be declared by 3 p.m. the day before the parking ban is in effect. Information will be shared on our website, Facebook and Twitter pages, through public service announcements and by email notifications. Sign up for email notifications at Regina.ca/snowroutes.

We strongly encourage neighbourhood residents and businesses to sign up so you know when a snow route is declared. It's the most direct way for us to let you know when a snow route has been declared and the 24-hour parking ban will be in effect.

You are free to park as normal the following morning if there has been no declaration by 3 p.m. the day before, no matter what the weather brings.





City issues dozens of warnings on Regina's first snow route parking ban

Next time drivers could face a \$120 ticket

CBC News · Posted: Nov 05, 2017 11:50 AM CT | Last Updated: November 5, 2017



Stephanie Taylor @_stephaniejane · 5 Nov 2017
This is what the sign looks like BTW. #yqrtraffic



1



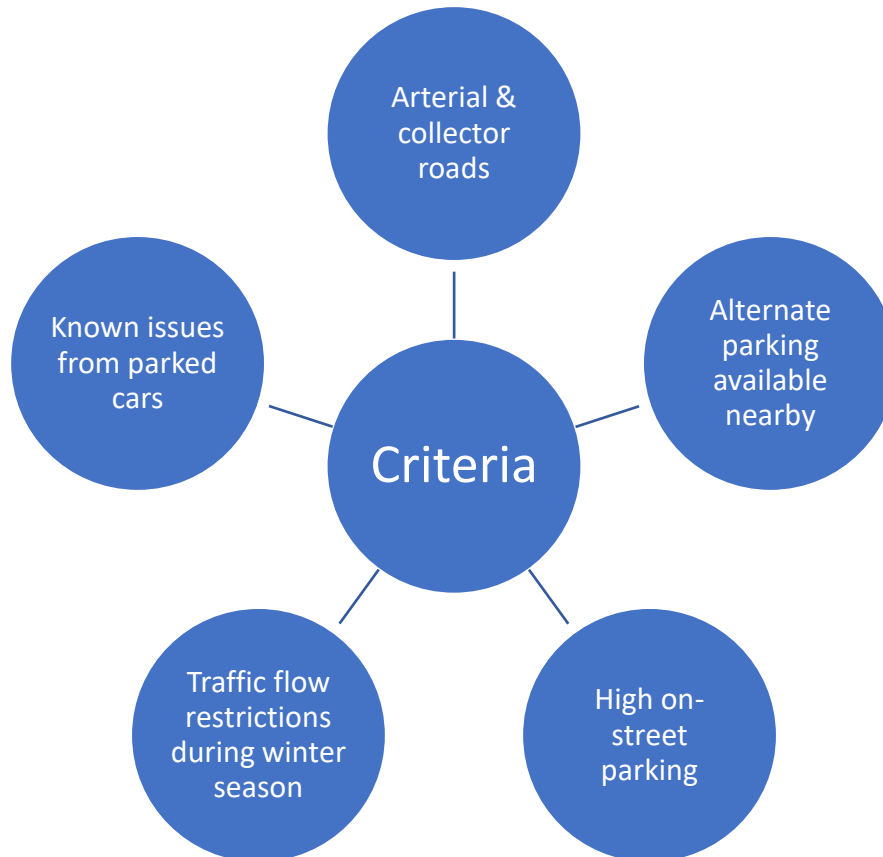
**Appendix C:
Snow Routes Pilot (2017/2018) vs. Benchmark Data (2016/2017)**

Key Parameters	Benchmark	Pilot
	2016-2017 (average)	2017-2018 (average)
# of Parked Cars during parking ban	135	17 average
# of Parking tickets issued		52 parking tickets issued during season 53 warning leaflets were issued during the first storm
Fines paid within period		\$4,680 for 39 tickets as of May 24, 2018
# of tickets paid voluntarily		39 tickets paid as of April 3, 2018
# of tickets resulting in appeal		4 reviews received total
# of tickets where appeal was successful		1 withdrawn by prosecutor
Time taken to complete the plow on Pilot (average)	62 minutes	51 minutes
End conditions achievement: Min. road width due to parked cars Winnipeg St (SB)	2.2 m	2.97 m
End conditions achievement: Maximum ridge height- with parked cars (Winnipeg Street-worst scenario)	0.64 m	0.41 m average for 3 storms. Not considered the big storm of 6 March, 2018
End conditions achievement: Maximum ridge height (No parked cars)	0.42 m	0.27 m average for 3 storms. Not considered the big storm of March 6, 2018
% of available parking spots in adjoining streets with additional cars from snow routes parked	50% capacity was available after accommodating cars from snow route streets	Over 25% parking capacity was still available after accommodating cars from snow route streets
Number of concerns relating to accessibility issues reported	Nil	Nil
Number of incidents/collisions/near misses reported	Nil	Nil
Service Requests received	Nil	15 Service Requests and 29 calls – General information relating to Snow Routes, survey etc.
# of vehicles parked longer than 24 hours	Nil	Nil

Appendix D
Snow Routes Expansion Plan
Criteria for Selection and Proposed Locations – 2019/2020

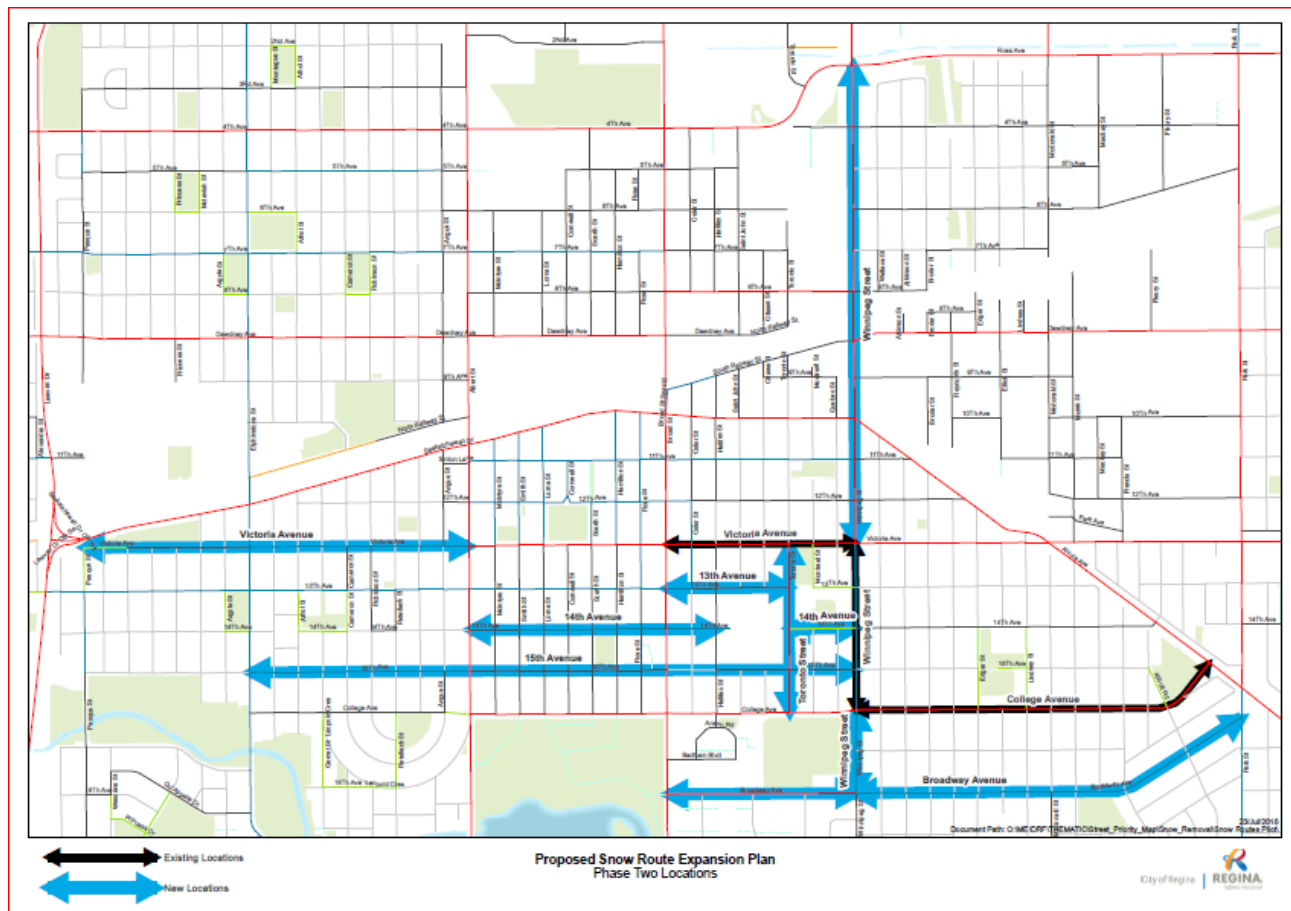
Criteria for 11 km Expansion 2019/2020:

- Arterial and collector roads
- Stakeholders identified street sections with known issues due to parked vehicles
- Street sections known to cause traffic flow restrictions during winter
- Street sections with high on-street parking
- Street sections meeting the above criteria with sufficient alternate parking availability nearby during temporary parking bans



Expansion - Proposed Locations (2019/2020)

Street	From-To
Victoria Avenue	Albert Street to Pasqua Street
Winnipeg Street	College Ave to Broadway Avenue
Winnipeg Street	Victoria Avenue to Ross Avenue
Broadway Avenue	Broad Street to Park Street
15th Avenue	Winnipeg to Elphinstone Street
14th Avenue	Albert Street to Halifax Street
14th Avenue	Toronto Street to Winnipeg Street
13th Avenue	Toronto Street to Broad Street
Toronto Street	Victoria Avenue to College Avenue



Although some road sections in the vicinity of the proposed expansion may meet the criteria laid out for inclusion in the Snow Route expansion plan for 2019/2020, Administration will consider those in the future for any expansion to the program. Roads surrounding the Hospital area are challenging based on the amount of on-street parking. Administration will focus on some of these smaller road sections first during 2019/2020 expansion and try to expand the program in small steps to ensure program success.

***Possible Option for a future Citywide Snow Route Expansion Plan:**

Administration will review the success of Snow Route expansion on 11 km during 2019/2020 winter season, based on the benchmarks identified in Appendix B and C. This will help to inform any further expansion of the program. Previous research has already identified approximately 60 km of arterial and collector street sections that currently allow on-street parking as potential future snow route locations, due to varying levels of similar challenges regarding parked vehicles. This research could form a basis of the future expansion studies.

Expansion does come with challenges around sustainability and will require a careful step by step progression. This includes considerations like internal stakeholder resource capacity, public awareness and readiness for change, capacity of the towing industry, relatively limited experience with managing snow routes and guidelines set under the Winter Maintenance Policy.

Based on feedback from residents, there may also be opportunity to change the program in the future to include snow removal. This would be an enhancement to the current Winter Maintenance Policy and is not recommended at this time, as it is not in line with the current guidelines in the Policy to trigger snow removal activities.

***Further evaluation required**

September 6, 2018

To: Members
Public Works and Infrastructure Committee

Re: Winter Maintenance Summary Report

RECOMMENDATION

That this report be received and filed.

CONCLUSION

The 2017/2018 winter season overall, can be described as average when analyzing environmental data and measurements, but also had two unusual weather events, including freezing rain in January and a major snowfall event in March. The majority of the Winter Maintenance Policy (Policy) objectives were met throughout the winter season. Expenditures are typical and Administration is forecasting to be slightly below budget, even after a budget reduction in 2018, due to improved efficiencies and cost reductions. The budget reductions were a result of improved routing of equipment, less reliance on contracted equipment due to reduced downtime of City of Regina (City) equipment and reductions in sand/salt due to liquid salt trials.

As a result of the unusual storm events, Administration will undertake the following actions:

- Communications for the Sandbox Program will be increased.
- Resources allocated to keep the sandboxes stocked for the public to use.
- Revising our tendering process for contracted services; this will allow us to have more equipment available during storm events.
- Review of how transit routes are prioritized, ensuring priority transit routes are addressed before other streets in the same category.

BACKGROUND

Approved by City Council on December 18, 2006 and implemented in November 2007, the Policy guides operations that effectively supports the health, safety, attractiveness, and economic viability of the city. Reviewed annually, the Policy was created to provide an acceptable and consistent level of service when maintaining the road network and to ensure safe winter driving conditions for the residents of Regina. This includes guidelines and timelines regarding the plowing of streets, sidewalks, and alleys following snow events, and routine maintenance of the road network during the winter months.

A full review of the Policy will commence in 2018 and will be brought back to City Council in late 2019, along with any budget implications for a 2020 implementation of the new Policy.

DISCUSSION

Appendix A of this report provides a detailed summary of the 2017/2018 winter maintenance activities and weather conditions. The following are highlights of that report.

Environmental Conditions:

The winter season is defined as the period from October 1 to April 30.

Regina residents experienced:

- Slightly below average snowfalls
- Average temperatures
- The largest snow event in over five years
- Increased freeze/thaw cycles and slippery conditions, including a freezing rain event in January with unprecedented use of free public sand
- More days with snowfalls of less than 2 cm.

Budget & Expenditures:

The 2017 fiscal year budget was \$9.234 million with expenditures of \$6.936 million. The 2018 budget is \$8.491 million which is \$743,000 less than 2017, due to efficiencies and innovation. These include improved routing of equipment, reduced downtime for equipment and a reduction in dry sand.

Expenditures as of June 30, 2018, are \$5.141 million, which is approximately 2/3 of our overall costs for the annual budget for January to April. These months are when the most snow removal activities occur. The total expenditures for 2018 are forecasted to be \$7.879 million, which is slightly below the budget, based on average conditions expected for October through December.

Policy Objective Achievements:

The community experienced five major snow events requiring plowing operations and winter maintenance activities outlined in the Policy.

Highlights of the achievements included:

- Applied over 14,600 tonnes of sand and salt to mitigate slippery road conditions.
- Applied 2,425 tonnes of sand and salt to City streets, sidewalks, and alleys during the freezing rain event.
- Supplied 349 tonnes of sand to our sandboxes for residents to use on their sidewalks and driveways, because of the freezing rain event.
- Stored and maintained over 316,000 cubic meters of snow at the Snow Storage Site.
- Responded to 3,109 Service Requests with 91 per cent responses within 48 hours.
- Successfully implemented Regina's first Snow Routes Pilot Project.
- Generated \$424,000 in revenue at the Snow Storage Site.

During the 2017/2018 winter season 3,109 Service Requests were received, of which the majority required action - an inspection of the location, scheduling of an activity, providing a response, or calling the resident and discussing the issue.

Most of the calls were related to ice control and the March snow event. Of the 650 residents requesting a call back, we achieved 91 per cent contact within the 48-hour corporate timeline. Administration will continue to work at ensuring timely information is provided regarding winter maintenance activities.

Unusual Events:

Freezing Rain:

The city experienced a freezing rain event on January 9 that created slippery and hazardous conditions for both vehicular and pedestrian traffic. At this time there was very little snow cover, which led to the ice on the sidewalks adhering for an extended period. Crews responded immediately and applied over 2,400 tonnes of sand and salt to the roads, sidewalks, and alleys over an eight day period.

Although the driving conditions on the roads after this event returned to acceptable levels within a few days, the sidewalks in the city became difficult to navigate due to the layer of ice on them. Crews salted and sanded sidewalks that are the City's responsibility to make them safe and promoted the Sandbox Program for residents to address their sidewalks.

The efforts in keeping the roads safe and passable during this event were recognized by the community, receiving 26 Service Bouquets thanking the City for their efforts. The Sandbox Program was also picked up by national media as a unique service the City provides residents.

Going forward, during similar events, Administration will look to increase communications related to the community sandboxes, as well as reviewing options to address these kinds of events through the Policy review.

March Blizzard:

During the first week of March, the community experienced the largest snowfall in over five years. Through a strategic approach, all available resources (15 City graders and all 10 contractor graders, in addition to our sanding/plow trucks) were deployed to clear roads, alleys and sidewalks over several challenging and difficult days. During this period, the City also worked to ensure City services such as transit and waste collection were not negatively impacted.

During this event, all available contractor resources were called upon to assist with snow removal activities. After two days, the contractor resources were allocated strictly to the clearing of residential roads, which continued non-stop until all roads and alleys had been plowed.

The communications approach focused on educating residents about the work being done to keep roads safe and ensure good winter driving conditions. Messages across a variety of platforms such as radio, television and social media, were used to educate and remind residents that roads

are categorized and prioritized so the busiest, most-used roads in the community are plowed before roads less travelled.

Lessons Learned & Continuous Improvement:

As a result of the two unusual events, Administration has learned that we will need to be more prepared. Going forward, Administration will be undertaking the following actions, should they be required:

- Revising our tendering process for contracted services in the winter to have more equipment available in a major event.
- Looking at continuing and expanding the Snow Routes Pilot Program to be able to clear roads quicker and more efficiently.
- Reviewing how Transit routes are prioritized and ensuring they are elevated in relation to other roads in the same prioritization category; this would be to provide service to category 2 and 3 Transit routes in advance of other roads in these categories.
- Increasing communication and resources to the Sandbox Program, should freezing rain events occur.
- Increased use of liquid salts to allow sand to better adhere to the road surface and to improve the time required for roads to become bare pavement.

A review of the Policy is scheduled to begin in 2019, to ensure it is aligned with *Design Regina: The Official Community Plan*, the *Transportation Master Plan* and community needs. This will involve both internal and external stakeholder meetings, public engagement sessions and analysis of both financial and operational impacts. The results from this review will be brought to City Council for discussion and approval in late 2019, for implementation in the 2020/2021 winter season.

RECOMMENDATION IMPLICATIONS

Financial Implications

None with respect to this report.

Environmental Implications

None with respect to this report.

Policy and/or Strategic Implications

Roadways & Transportation will continue to review the Policy, to ensure that it aligns with *Design Regina: The Official Community Plan* and the *Transportation Master Plan*.

Other Implications

None with respect to this report.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

Since the implementation of the Policy, Winter District Maintenance staff have engaged in stakeholder meetings with both internal and external groups to discuss the challenges the winter season brings and ways to better communicate and mitigate the challenges.

In addition, the annual summary report is sent to a list of interested parties that has evolved over time and both of these processes continue today.

DELEGATED AUTHORITY

As there are no recommendations to change the policy at this time, the Public Works and Infrastructure Committee has delegated authority to receive and file this report.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'N. Kyle'.

Norman Kyle, Director
Roadways & Transportation

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Karen Gasmo'.

Karen Gasmo, Executive Director
Transportation and Utilities

Report prepared by:
Chris Warren, Manager, Winter Maintenance

ANNUAL WINTER MAINTENANCE SUMMARY

2017/2018





Table of Contents

Introduction & 2017/2018 highlights.....	Page 3
Budget & Expenditures.....	Page 5
Policy Objects & Achievements.....	Page 6
Training Program.....	Page 9
Freezing Rain.....	Page 10
Sandboxes & March Blizzard.....	Page 11
Communication Strategy.....	Page 13
Service Requests.....	Page 14
Success in Collaboration.....	Page 15
Snow Routes & Liquid Salt.....	Page 18
Winter Maintenance Policy Review.....	Page 19

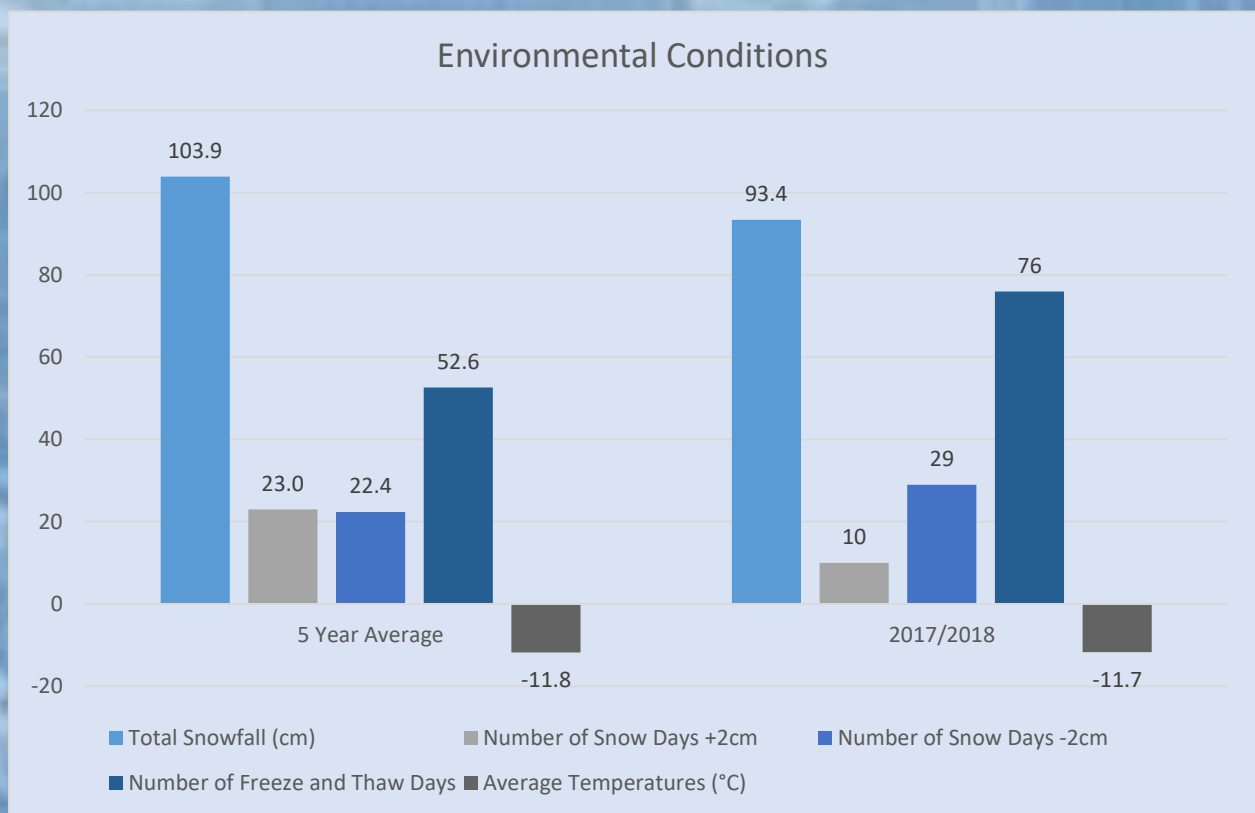
Introduction

Approved by City Council on December 18, 2006 and implemented in November 2007, the Winter Maintenance Policy (Policy) guides operations that effectively supports the health, safety, attractiveness, and economic viability of the city. Reviewed annually, the Policy was created in an effort to provide an acceptable and consistent level of service when maintaining the road network and to ensure safe winter driving conditions for the citizens of Regina. This includes guidelines and timelines regarding the plowing of streets, sidewalks, and alleys following snow events, and routine maintenance of the road network during the winter months.

2017/2018 Accomplishments

- ❄ Applied over 14,600 tonnes of sand and salt to mitigate slippery road conditions
- ❄ Applied 2,425 tonnes of sand and salt to city streets, sidewalks, and alleys during the freezing rain event
- ❄ Supplied 349 tonnes of sand at our Winter Sandboxes for residents to use on their sidewalks and driveways as a result of the freezing rain event
- ❄ Stored and maintained over 316,000 cubic meters of snow at the Snow Storage Site
- ❄ Responded to 3,109 Service Requests with 91 per cent responses within 48 hours
- ❄ Successfully implemented Regina's first Snow Routes Pilot Project
- ❄ Generated \$424,000 in revenue at the Snow Storage Site
- ❄ Average temperatures & below average snowfall during the first half of the season allowed collaboration with other branches resulting in a total cost savings and cost avoidance of \$761,000

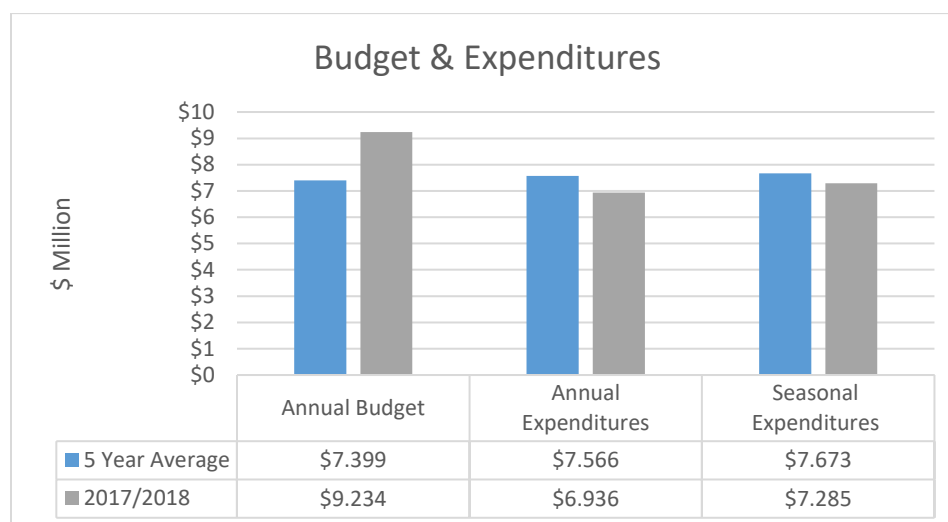
Regina residents experienced below average snowfalls and close to average temperatures, the largest snow event in over five years and increased slippery conditions due to a freezing rain event in January with unprecedented use of free public sand.



Budget & Expenditures

The Winter Maintenance budget is used for the delivery of services to meet the objectives outlined in the Policy. The 2017 budget was \$9.234 million and total expenditures were \$6.936 million, with a surplus of \$2.298 million. As part of the 2017 and 2018 budget process, the Winter Maintenance Branch identified major savings as a result of several years worth of efficiencies, initiatives, and analysis of winter maintenance activities. In total, the branch budget was reduced by \$685,000 because of routing efficiencies for sidewalk and road plowing and a decreased reliance on rental equipment and contractor support. The expenditure reductions are ongoing and will continue to be realized into the future.

The 2018 budget is \$8.491 million, with current expenditures of \$5.141 million as of June 30, 2018. The total expenditures for 2018 are forecasted to be \$7.879 million, based on average conditions expected for October through December. It is anticipated that there will be another surplus of approximately \$612,000 at the end of 2018. This is based on another below average winter and due to cost avoidance from work performed for and funded from other areas.



**Seasonal expenditures represent traditional winter season expenditures between October and April*

Winter Road Maintenance Reserve:

The Winter Road Maintenance Reserve is an operating reserve used to manage annual fluctuations in the winter road maintenance program expenditures that may arise due to unpredictable winter events. Through a reserve review and subsequent Council approval in May 2018, which included analyzing historical expenditures, it was determined that a minimum limit of \$1 million and maximum limit of \$2 million was found to be reasonable to fund any fluctuations in seasonal expenditures. Funds exceeding the \$2 million cap were transferred; \$4.8 million to the Social Development Reserve and \$1.89 million to the General Fund Reserve, for a total of \$5.69 million at the end of 2017.

POLICY OBJECTIVES



All roads are made passable for **EMERGENCY RESPONSE VEHICLES**



PRIORITY 1 ROADS: Normal winter driving conditions and reasonable sidewalk access are provided on key routes through systematic plowing and sanding operations



PRIORITY 2 ROADS: Normal winter driving conditions and reasonable sidewalk access are provided along regional commercial developments and secondary routes through systematic plowing and sanding operations



PRIORITY 3 ROADS: Normal winter driving conditions are provided along tertiary routes through systematic plowing & sanding operations



Safety and travel efficiency are provided through the plowing and removal of windrows from in front of **GUARD RAILS** & off of **BRIDGE DECKS**



ALLEYS are passable for the collection of solid waste collection & access by utility companies & the public



Normal winter driving conditions are maintained with **SNOW REMOVAL** operations



RESIDENTIAL and low volume routes are made passable through **PLOWING** operations

Policy Objective Achievements



1,100 km of roads

Winter Maintenance activities require a great deal of coordination as the City crews cover a lot of distance when clearing snow each winter. There are nearly 1,100 km of roads in our community and winter crews are hard at work during all hours to keep our roads safe.

14,600 tonnes of sand and salt



The community experienced five major snow events requiring major plowing operations and winter maintenance activities outlined in the Policy.



316,000 m³ of snow at the Snow Site

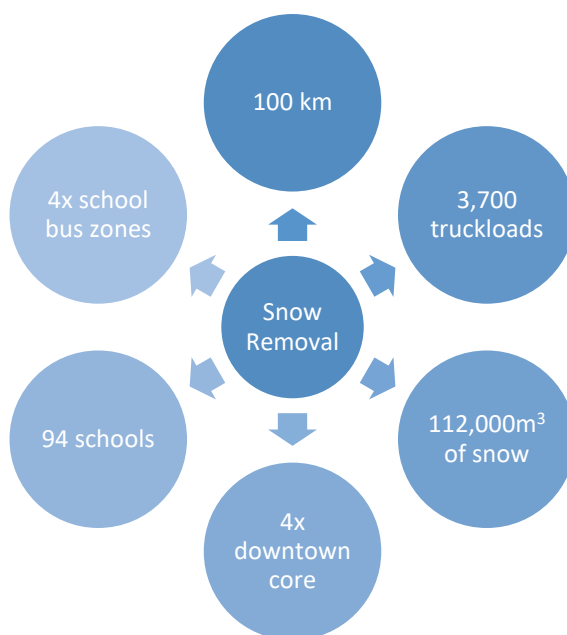
2017-2018 Major Snow Events

Date	Accumulation	Systematic Plow by Category					
		1	2	3	4	5	Alleys
November 4	10 cm over 24 hours	x	x	x	x		
December 4	7 cm over 24 hours	x	x				
February 3	6 cm over 24 hours	x	x				
March 5	35 cm over 48 hours	x	x	x	x	x	x
March 23	10 cm over 8 hours ¹	Cancelled due to melting					

9
Community
Sandboxes

44 fills

369
tonnes of
sand



¹ Due to warm temperatures and melting snow, the Systematic Plow and Routine Maintenance activities were cancelled after 18 hours

Winter Maintenance Modes

When staff move into the Winter Maintenance Branch in November of every year, they are scheduled to provide around the clock service with 20-hour coverage, seven days a week. This helps minimize overtime while improving response time during storms.

When the snow starts falling, roads are prioritized and the busiest roads are cleared first. Factors that contribute to the priority include traffic volumes, traffic speeds, and emergency routes. While the snow is falling, winter crews primarily focus attention on Category 1 and 2 streets and this is called Storm Mode in the Policy. Category 1 roads include our major arterials and high-speed roads such as Lewvan Drive, Ring Road, Albert Street and Broad Street. Category 2 roads include streets like Elphinstone Street, Broadway Avenue and Regina Avenue. We continuously cycle these streets providing ice control and plowing operations for the duration of the snow event. The objective is to keep the major roads passable for the duration of the storm.

Storm Mode means priority clearing of Category 1 & 2 roads like:

- | | |
|------------------|-----------------------|
| ❄️ Lewvan Drive | ❄️ Elphinstone Street |
| ❄️ Ring Road | ❄️ Broadway Avenue |
| ❄️ Albert Street | ❄️ Regina Avenue |
| ❄️ Broad Street | |

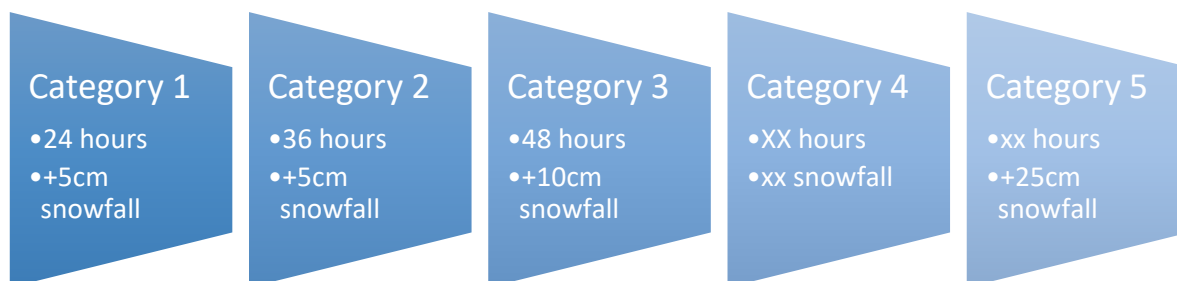
After the snow stops falling, we restart plowing operations to ensure the busiest roads are plowed first, working our way through the road network – Systematic Mode.

Category 1 roads are cleared within 24 hours and Category 2 roads are cleared within 36 hours, provided the community received over 5 cm of snow. These are often completed at the same time as many of these roads intersect so it is operationally efficient to combine them.

As the Category 1 and 2 roads are completed, crews move to Category 3 roads, plowing them within 48 hours if accumulations were 10 cm or greater. These include low volume major collectors like Dalgliesh Drive, Harvard Way and Woodland Grove Drive. It also includes industrial/commercial roads and Transit routes that are not on Category 1 or 2 roads.

Then we move on to Category 4 roads which include streets around school zones, like Maple Leaf Crescent, Coronation Street, Cowan Crescent and other minor collectors. Category 1 through 4 streets usually experience a Systematic Plow about five times in a season.

Category 5 roads are plowed after 25 centimetres of snow, when weather and time permits. These residential roads have the lowest traffic volumes. While we may not plow them as often, we make sure that they are passable for services such as garbage and recycling collection through other maintenance activities such as the Ice Shaving program.



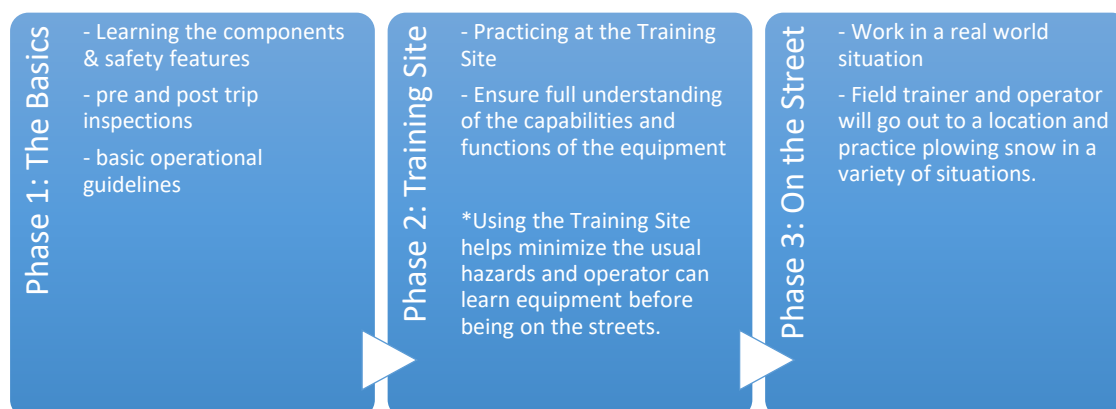
After Systematic Mode is completed, crews go into Routine Maintenance, returning to all roads to ensure that proper plowing operations took place and that the end conditions meet the Policy guidelines or post snow event cleanup including making sure all transit stops have snow ridges cleared to a minimum of 12 meters in length within seven days on Category 1 & 2 roads.

Routine Maintenance includes activities include:

- ❄ Snow Removal on Category 1 and 2 roads
- ❄ Ice control
- ❄ Checking, plowing, and snow removal at:
 - ❄ Schools - school bus unloading zones are free of snow ridges
 - ❄ Transit Routes and Hotspots - parking lanes clear and safe travel widths
 - ❄ Bridge decks and guard rails - for safe travel over and around
- ❄ Plowing and ice control on sidewalks that are City responsibility
- ❄ Snow Storage Site maintenance and operation (24/7)
- ❄ Filling and maintaining sand boxes for public use

Training Program

Winter operations require the use of heavy equipment like motor graders, front end loaders, tandem axle plow trucks, semi-trucks, loader mounted snow blowers and bulldozers. To ensure the safety of our staff and the public, to comply with Occupational Health and Safety legislation, and to deliver quality programming to our residents, all operators go through extensive training. The equipment training program has three phases, done under the supervision of a Field Trainer. This is done regardless of whether or not there is snow to give operators the experience they need before the snow falls.



Extraordinary Events

Every winter brings its own, unique challenges and the 2017-2018 season was no different.

Freezing Rain

Freezing rain events are rare in Regina, but they can happen. On January 9, the community was showered with rain in the afternoon and evening which quickly created icy conditions due to frozen pavement and cold air temperatures. City streets, sidewalks, and alleys became very hazardous and difficult to navigate for both vehicular and pedestrian traffic.

“GOOD JOB!!!!!! I was scared to death thinking about what the roads were going to be like this morning on my commute to work. They were perfect. High five to all involved.”

Service Request - January 10, 2018

“We have gotten absolutely zero negative feedback from staff. Your staffs’ efforts are very much appreciated.”

Dave Hughes, Manager
Solid Waste Collection

Crews responded immediately, initially focusing on applying sand and salt to the main roads, arterials and collectors, as they see the most traffic and city sidewalks that we maintain. Once the main roads like Albert Street and Ring Road were in good driving conditions, we moved to residential roads. From January 11 to 13, we applied sand and salt to over 500 km of the road network. Working with our partners in the Solid Waste Department, we cycled through 298 km of back alleys, coordinating our efforts to ensure Solid Waste and Recycling collection services were maintained. Within three days, all alleys were treated.

In total, Winter Maintenance crews applied 2,425 tonnes of sand and salt to city streets, sidewalks, and alleys during the eight days following the freezing rain event. Our efforts were recognized by the community - the Winter Maintenance Branch received 26 Service Bouquets thanking the City for their efforts.

We will review ice control activities on roads, sidewalks, and alleys as part of the upcoming Policy Review, engaging stakeholders at all levels to receive feedback and provide options on future levels of service that the community desires. In the interim, we will continue to ensure that our community moves safely throughout the winter months whether Policy guidelines apply or not, adapting to any weather conditions that we might encounter.

March Blizzard

In late February, long range forecasts were calling for a large snow event in early March. Snow events of this magnitude do not happen often, – the last +30 cm event was November 2012. However, with careful planning, we were well equipped to carry out the plowing and sanding operations based on the Policy guidelines.

In preparation, we began notifying and confirming availability of off-duty staff, contractors, and our Fleet Services staff of equipment requirements. Collaboration with Transit and Solid Waste was essential to ensure minimal impacts to City services. Work plans were generated, increasing coverage and ability to respond to Service Requests and emergency calls. A Communications strategy was employed to ensure appropriate notifications to the community and media.

When the snow began to fall on March 3, crews were on shift and responded immediately, launching into Storm Mode. Continuing for 48 hours and totaling over 35 cm, the snow kept crews busy as they cycled the arterial and collector roads, high speed roads and perimeter roads. Attention was also paid to known trouble spots including priority roads leading to EVRAZ Place as the Tim Horton's Brier was in full swing.

When the snow stopped falling in the evening of March 5, crews switched into Systematic Mode. Because more than 35 cm had accumulated, all major activities were triggered including plowing arterial and collector roads (Category 1, 2, 3, 4), plowing residential roads (Category 5), plowing grid roads, plowing all alleys, sidewalk plowing of those that are City responsibility, plowing and snow removal on bridge decks and around guard rails, snow removal at all Transit Stops, snow removal at all schools, and snow removal in the Downtown core as well as arterial and collector roads.

"Big shout out to the hard-working City employees that have done a fantastic job in 48 hours to clear so much of our city. We LOVE Regina and are proud of the fantastic work that has been done to make our city moveable. YAAAH!"

Service Request – March 7, 2018

Winter Maintenance crews worked 20 hours per day, seven days a week, utilizing 45 to 70 pieces of equipment over a three-week period, to complete these activities.

In response to this storm and in an effort to continually improve our operations, we are committed to:

- ❄ Undertaking a review of the Plow Lists to ensure transit routes are plowed sooner than other Category 3 and 4 roads that do not contain a transit route.
- ❄ Creating better tools for our supervisory staff to ensure they are assigning the most effective and appropriate plow lists based on the time of day that the snow stops falling and a Systematic Plow begins.
- ❄ Investigate opportunities to attract more interest from our contractor supporting partners to increase access to additional resources during large snow events.

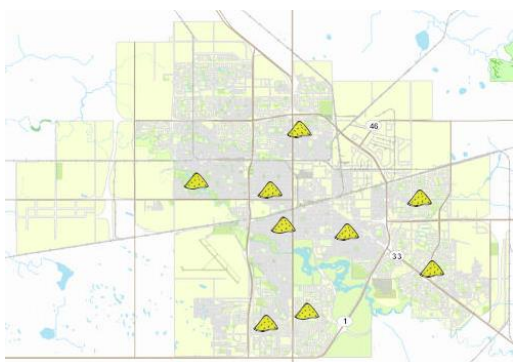
These actions will ensure that resources are available and assigned in the most efficient way to ensure the roads that handle the majority of the traffic in the city will be cleared and drivable in the quickest time possible.

Unique Services

Sandboxes

The City offers free sand at nine locations throughout the community for residents to use to help keep their sidewalks and driveways safe. You can find the yellow bins at community centers with a map located on the City website. Residents are encouraged to bring their own container and fill it up with sand to use on their sidewalks and driveways.

Though the program typically does not receive much attention, the freezing rain we had in January brought it to the forefront. On January 10, a Public Service Announcement was sent out highlighting the activities that winter crews were undertaking to address the slippery conditions and reminding the community of the Sand Box program. The story was picked up by all major



news outlets and became the top story of the community. Within hours, residents flocked to the sandboxes at record levels, using over 85 tonnes of sand in the first 36 hours following the rain. To compare, the yearly average usage was 68 tonnes in the past five years.

As winter crews tried to balance the priorities of public safety – ice control on our streets - with the demand to keep the sandboxes filled, it became evident that additional strategies were required. The sandboxes were being emptied almost as quickly as they were filled. Six of the nine locations have adequate space for additional sand storage so on the evening of January 10, winter crews put large loads of sand directly onto the ground beside the sandboxes which helped satisfy the demands of the public. This continued until January 15 when demand subsided after 349 tonnes of sand was given out.

9 Community Sandboxes

44 fills

369 tonnes of sand

2018/2019 Service Improvements

Based on current process improvements and as a result of the unusual events in 2018 Administration will be undertaking the following improvements to the winter maintenance activities:

- ❄ Revising our tendering process for contracted services in the winter in order to have more equipment available in a major event
- ❄ Looking at continuing and expanding the Snow Routes Program in order to be able to clear roads quicker and more efficiently
- ❄ Reviewing how Transit routes are prioritized and ensuring they are elevated in relation to other roads in the same prioritization category

- ❄ Increasing communication and resources to the Sand Box Program should freezing rain events occur
- ❄ Increased use of liquid salts to allow sand to better adhere to the road surface and to improve the time required for roads to become bare pavement

Communication with the Community

The communications approach for the 2018/19 winter season focused on educating residents about the work being done to keep roads safe and ensure good winter driving conditions. Messages were used to educate and remind residents that roads are categorized and prioritized so the busiest, most-used roads in the community are plowed before roads less travelled.

Several paid communication tools such as radio, television, online advertising and billboards helped inform the public of our winter operations and activities. These tactics featured winter maintenance equipment with a simple, clear message about safe winter conditions. Similar advertising was used on our social media channels, Facebook and Twitter, and shared on Regina.ca.



Increased communications were used following the major snow event and to advise residents of the Residential Snow Plow. Between March 1 and April 30, the traffic to Regina.ca increased to 54,252 page views, with the largest spike in traffic on March 7 with 20,914 views.

We received 52 media requests on winter maintenance and related activities and held seven media scrums to answer questions.

Follow us on Facebook, Twitter, YouTube and Pinterest.



Find



Follow



Watch



Pin

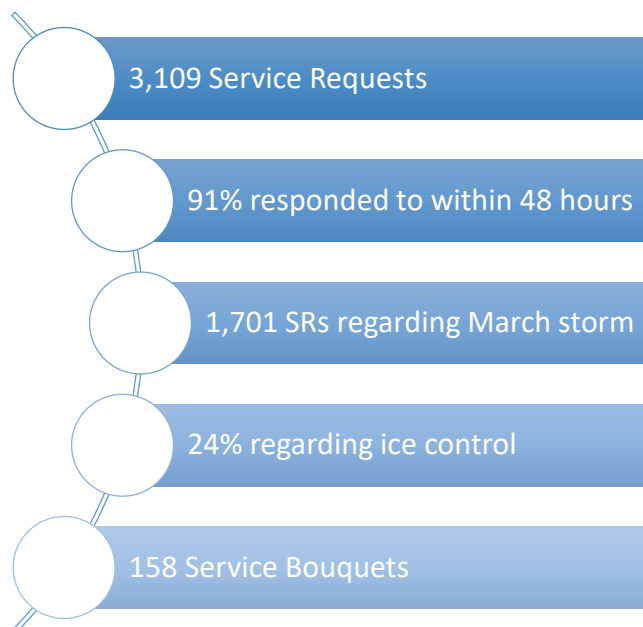
52 media requests &
7 media scrums

Service Requests

Winter District Maintenance handled 3,109 Service Requests. While this number seems high, it is a major reduction compared to the peak of 10,315 Service Requests in 2012 and the five-year average of 3,970 per season. Consistent application of Policy guidelines, success in meeting targets, and ongoing communication strategies on our levels of service have contributed to this decline. The majority of the Service Requests require action - an inspection of the location, scheduling of an activity, providing a response, or calling the customer and discussing the issue. 650 customers requested a call back; we achieved 91 per cent contact within the 48 hour corporate timeline.

Thank you @CityofRegina for your hard work getting the snow moved. It was a treat to see some pavement again this afternoon. We take so much for granted.

The March snow storm generated 1,701 or 55 per cent of all Service Requests and focussed primarily on street plowing, snow ridges, and blocked driveways. Most concerns were addressed by explaining the operations and what residents can expect during storm response. Blocked driveways and snow ridges on sidewalks were also brought to our attention via Service Regina and addressed in a timely manner; this justifies the importance of the enhanced resource allocation and inspection process to identify when major concerns exist.



Service Requests received outside of the storm focused on ice control. This is partially due to the January rain but also because of the above average number of freeze and thaw cycles. Temperatures reached both above and below zero on 76 days throughout the winter. This creates frost, black ice and slippery conditions.

Success in Collaboration

We investigate and explore innovative solutions on an ongoing basis to reduce the cost of delivering policy objectives, maximize resources, assist other departments when there is capacity and reduce spending on contracted services, when they are not required. There are also many partnerships and collaborative efforts between our many stakeholder groups, both internal and external, that aid in the delivery of our services. We meet annually with various groups to discuss the challenges that winter brings and how the Policy can help, ways to enhance communication to discuss issues, and confirm working relationships that benefit both parties involved:

Internal Stakeholders	External Stakeholders
•Bylaw Enforcement •Parking Services •Parks Maintenance •Financial Services •Financial Operations •Fleet Services •Service Regina •Traffic Engineering •Transit Services •Solid Waste •Development Engineering •Facilities Building Services •Communications •Water & Sewer Construction •Service Regina •Landfill Operations •Asphalt Production & Materials Engineering	•Bike Regina •Regina Public School Division •Regina Catholic School Division •Regina Downtown Business Improvement District •RM of Sherwood •Regina Bypass •Ministry of Highways

Supporting Internal Branches

Staffing numbers are based on the minimum number of employees required to fulfill the guidelines in the Policy throughout an average winter season. Because every winter is different, there are challenges in ensuring operations have consistent and meaningful activities at all times. To balance staffing needs operationally, we have forged several partnerships throughout the corporation showcasing the mutual benefits. Continuing for several seasons, we provided trucking and hauling services for Water & Sewer Construction, Landfill Operations and Asphalt Production & Materials Engineering that would normally be performed by an external contractor. This created a cost avoidance to the Winter Maintenance budget of over \$178,000 and an additional costs savings of \$583,000²³ in performing the work in favour of contracted services.

² Based on actual Winter Maintenance cost vs. 3-year average Contractor rates per tonne (AP&ME)

³ Based on actual Winter Maintenance cost vs. 2018 Contractor rate for same amount of hourly work performed (Landfill & WS Construction)

Crews also addressed potholes and sunken utility cuts that become hazardous throughout the season contributing to a cost avoidance of more than \$309,000 to the Winter Maintenance budget as these activities are funded by Asphalt Services budgets.

Sweeping and Alleys

There has been substantial collaboration between the Sweeping & Alley Services branch over the years, historically in clearing snow from back alleys and grid roads, and more recently in spring sweeping activities as weather and conditions permit. When temperatures reach above freezing and snow starts to melt, the 24/7 shift scheduling and Equipment Training program provides an excellent platform for our Boulevard and Arterial Sweeping programs which are typically done at night when traffic is at its lightest. Having Winter Maintenance staff execute allows efficient delivery of this program.



Parks Maintenance

Snow clearing on sidewalks is similar to the work done by Parks Maintenance on the pathway systems in City parks. Staff meet regularly to discuss synergies, this season crews assisted in clearing the pathway through Rochdale Park; the large snowfall event in March proved difficult to clear with Parks Maintenance equipment. Reciprocally, Parks Maintenance provided support in helping Winter Maintenance crews clear Transit Stops after the large snow event, allowing us to complete the work faster. We provided trucks and Parks Maintenance provided the operators and tractor loader, clearing all Transit stops of snow in the Northeast District while we worked in the other areas of the community.

Solid Waste

Winter Maintenance and Solid Waste staff discuss the challenges of garbage collection in the winter months on several occasions throughout the year. Every fall we update maps and records with the most current collection schedules to ensure snow clearing activities do not interfere or are inhibited by carts placed on the street or in the alley. During the March snow storm, we worked closely with Solid Waste staff scheduling plowing operations based on collection activities ensuring services were maintained, including residential plowing.

Transit Services

Maintaining transit routes and Paratransit Service is a high priority during the winter months, particularly when there is a big storm. We have worked with Transit Services to enhance clearing at transit stops that see a high number of users that are accessibility challenged, called Transit

Hotspots. Beginning in 2014, crews ensure transit stops, transit lanes, and curb face at pickup and drop off points are free and clear of snow. The locations are reviewed annually and the program has grown from enhanced maintenance activities on 6.4 km of the transit route network to 9.7 km. During the 2012-2013 season, Paratransit Services identified that there were several instances where services were reduced because of road conditions. By increasing communications between the two areas, we have overcome this barrier and can report that on an annual basis that Paratransit drivers have experienced limited to no issues over the past five years.

Bylaw Services

Winter staff meet in the off-season to discuss a wide range of issues including illegal dumping of snow, the Clean Property Bylaw investigation process, and commercial sidewalk snow clearing. In previous years, Bylaw Services contracted sidewalk clearing adjacent to commercial properties when the property owner was not clearing snow within 48 hours of a snow event. This past winter, our internal crews worked with Bylaw to take on this work, clearing two locations that were not compliant. This not only created a cost-avoidance but also ensured consistent and adequate snow clearing.



Regina School Boards

Winter staff meets annually with representatives from Regina Public School Division and the Regina Catholic School Division, representing the 94 schools in our community. Regular discussions include issues raised from principals and parents, locations where school yards can be used for snow storage, school contact information and the notification process, optimum times to perform maintenance activities around schools to maximize safety and processes to report issues. This partnership has proven to be very successful in reducing the number of issues the schools face, with the most recent example including testimonials from both school boards commending winter staff for the work performed and Policy compliance during the major snow event in March.

Emergency Services

One of the mandates of the Policy is to ensure continuity of emergency services such as Fire and Protective Services, Regina Police Services, and Regina EMS during a snow event. From November to April, there are staff and equipment working in all areas of the city so the ability to respond to an emergency can be done quickly. We are also in direct communication with Operational Services Dispatch, which is a 24/7 operation and can respond at a moment's notice to ensure the safe passage of all emergency vehicles throughout the city. During an emergency situation and when a road is blocked or impassable, Fire, Police, and EMS call Operational Services. A Winter Maintenance Supervisor is immediately notified and crews dispatched to address the concern.

Looking Forward

With a commitment to continuous improvement, we are excited to embark on initiatives that will help improve winter maintenance services for future seasons. The following are enhancements currently being worked on or identified to be brought forward in future winter maintenance recommendations.

Snow Routes Project

Report *PWI17-1* and subsequent approval in *CR17-7* recommended the implementation of a Snow Routes Pilot Project on a 5 km section of roads during 2017-2018 winter season. The Pilot Project analysis demonstrated that crews plowed the snow 20 per cent faster, snow ridges were more consistent, road widths and travel lanes were less impacted and that those who park on the snow route were aware and moved their vehicles when a snow route was declared. The pilot was also welcomed by the community as shown in a survey of 848 residents; more than 70 per cent of respondents support expanding the Snow Route Program.



We will be requesting an expansion of the pilot, adding an additional 11 km to the Snow Route Project. We will recommend a staged approach, continuing with criteria that made Phase 1 successful. Due to the timing of the budget process and the typical winter season, Phase 2 would be implemented in the 2019-2020 season with capital costs related to signage installation and communication efforts taking place in the

summer of 2019. Phase 1 will continue through the upcoming season to maintain the consistency, education, and momentum of the successes achieved during the Pilot Project.

Use of Liquid Salt in Ice Control

Historically, we have used dry sand and salt to mitigate slippery conditions. This method is only effective on calm days with little wind, lower traffic volumes and when the temperature is -10 degrees Celsius or warmer. With daily average lows range from -10 to -20 degrees Celsius throughout the winter months, this makes the current system ineffective for much of the season.

Liquid salt trials were conducted over the last few winter seasons. Statistical analysis has shown that the depth of snowpack on the road surface is reduced by 79 per cent and the pavement surface condition improved by 33 per cent when pre-wetting the dry sand with liquid salt. Good driving conditions are achieved quicker and the amount of sand and salt required is reduced. Magnesium chloride, used during the trials, is far less corrosive than dry salt (sodium chloride) currently used in our Ice Control Program, and thus reducing the negative impact on our infrastructure and to the environment.

Because the trial was successful, we will be expanding the program to approximately 30 per cent of the road network next season, with the intentions of expanding it city wide in 2019-2020 should the positive benefits continue. While this change requires a significant amount of training, long-term benefits will be realized through a phased and methodical approach to implementation. We will continue to educate the public and answer any questions they may have as the program expands.

Policy Review

In order to better align winter activities with the Official Community Plan and Transportation Master Plan, a review of the Winter Maintenance Policy is scheduled to begin in 2018. This review will reflect the community needs that have evolved since the Policy was approved in 2007. Through internal and external stakeholder meetings and public engagement sessions, we will gather feedback and community input. This will be used to form the basis of potential options for winter maintenance, with financial and operational analysis providing guidance to any changes that may be proposed.

The results of the review will then be brought to City Council for discussion and approval in late 2019 with budget implications and new Policy implementation for 2020.

September 6, 2018

To: Members
Public Works and Infrastructure Committee

Re: Organic Waste Service Recommendation

RECOMMENDATION

1. That City Council approve a residential year-round curbside food and yard waste collection and processing service, described as Service Option 4 in this report.
2. That City Council approve Service Option 4's preliminary implementation plan, recognizing that:
 - a. The total cost of the preliminary implementation plan as presented is \$3.5 million in capital funding from the Solid Waste Reserve to be considered in the 2019 budget process.
 - b. A competitive procurement process will begin in 2019 to facilitate final plan development and the construction and operation of an organic processing facility.
 - c. A pilot will be conducted in 2020 to test, evaluate and adjust any service details prior to city-wide implementation.
 - d. Administration will return to City Council with the final implementation plan in Q2 of 2021.
 - e. City-wide implementation as presented will be complete by 2023.
 - f. Funding the annual operating expenditures of Service Option 4 from general revenue or a user fee, will be determined by City Council's decision regarding a solid waste curbside collection services funding policy, to be considered through a subsequent report that will be brought forward in October 2018.
3. That City Council approve Service Option 2, a full growing season yard waste depot for implementation in 2019, establishing a permanent depot site as well as a lead into Service Option 4.
4. That this report be forwarded to the September 24, 2018 meeting of City Council for approval.

CONCLUSION

Administration's recommended option of implementing Service Option 4, a year-round curbside food and yard waste collection and processing service (organic waste service), has the potential to increase residential diversion by an additional 20 to 34 per cent annually. By accepting all food waste, commonly referred to as a "scrape the plate" program, as well as compostable products such as paper towels and pizza boxes, makes the recommended option easy to understand and use. Weekly curbside organic collection will allow remaining garbage to be

collected on a biweekly year-round basis, having eliminated odour and pest control issues by removing organic material from the garbage cart. Organic waste makes up over 50 per cent of residential waste. The volume of waste disposed at the City of Regina's Landfill (Landfill) is expected to decrease by 18,000 tonnes. This will eliminate 760 tonnes of greenhouse gas emissions and extend the life of the Landfill an additional two and a half years. The organic material collected can be processed into compost or renewable energy, generating revenue for the City of Regina (City). Weekly curbside organic collection can also reduce stress on wastewater infrastructure, by providing alternative disposal options for fats, oils, grease and food waste that is commonly disposed of through the sewer system.

Consistent with the implementation of biweekly garbage collection during winter months, a pilot curbside organic waste service will be initiated to finalize operational details, address public concern and build support for the new service. The pilot project will give residents the opportunity to use the service and provide feedback that will be incorporated into the City-wide implementation.

Estimated annual operating expenditures of the recommended organic waste service are \$7.9 million. The concurrent move to biweekly garbage collection year-round will save \$4.6 million. If savings realized from reduced garbage collection frequency are applied against the costs of the organic waste service, a \$36 increase to property taxes on a home assessed at \$350,000 or an additional \$51 annual user fee would fund the two services.

Until the organic waste service is available to all residential properties that currently receive City provided waste services, expansion of the current yard waste depot service to a large single site that can operate throughout the growing season (April to November) is recommended (Service Option 2). Due to the increased volume of yard waste diverted by residents and anticipated continued demand, the current depot program will not be able to effectively manage anticipated volumes in the future.

BACKGROUND

In 2009, a solid waste management plan, Waste Plan Regina (WPR), was developed to review the way in which the City was managing its solid waste and to consider alternatives for meeting and managing the long-term waste and diversion needs of the community. At that time, Regina had experienced unprecedented growth in population and the economy which had resulted in higher waste generation, most of which was disposed in the Landfill. WPR provides recommendations for the City's solid waste programs and services with attention to ensure that solid waste is being managed in an appropriate and sustainable manner.

In 2011, City Council adopted WPR's Enhanced Residential Service Level (Enhanced Services) option which identified services that could divert 30 to 40 per cent of residential waste. Enhanced Services included a seasonal curbside yard waste collection service. At that time, City Council also set a long-term target of 65 per cent diversion of residential waste by 2020. To achieve that goal, Waste Plan Regina's Comprehensive Residential Service Level option would need to be considered. This option includes both curbside food waste and yard waste collection.

Appendix A provides details of both Service Level options and the City's actions related to each recommended service within the options.

Currently, the City offers temporary depots to divert yard waste from the Landfill. Yard waste is comprised of leaves, grass clippings, garden waste, weeds and tree branches. The depots operate six Saturdays each spring and fall, for a total of twelve weeks annually, and are located at four sites throughout the City, two at City-owned locations (Kinsmen Park and 500 Arcola Avenue) and two high school sites (Michael A. Riffel and Thom Collegiate). City staff are present to assist residents with unloading material and to ensure contaminants such as plastic bags and garbage are removed from the yard waste. Since the inception of the yard waste depots, the material collected continues to increase. The current model can no longer support the volume of material residents are prepared to divert from their garbage. Public feedback from surveys conducted at the 2016 depots indicated that residents would prefer an option with more days or longer operating hours.

Among Canadian municipalities with populations over 150,000, Regina and Saskatoon are the only two that do not have some type of City-wide organic waste collection. On June 24, 2018, Saskatoon's City Council approved the development of a year-round curbside residential organic waste collection, utilizing a single green cart for co-mingled food and yard waste.

DISCUSSION

For the past three years, the City's residential waste diversion rate has remained static at 20 per cent. Implementation of the remaining diversion services outlined in WPR is needed to move toward the 65 per cent residential diversion goal set by City Council. Services aimed at diverting organic waste will have the most impact, as this waste stream makes up over 50 per cent of residential waste.

Administration's evaluation of organic waste service options examined the current composition of residential waste, gathered public input on waste management priorities and documented best practices in waste management, with a focus on municipalities in central Canada.

Waste Composition

Over half the material residents place in the garbage each week is organic waste. Curbside waste studies show that on average during the growing season, 25 per cent is yard waste. Throughout the year, 27 per cent is food waste and compostable products make up the content of the garbage cart.

Prior to the implementation of the Blue Cart Recycling Program in 2013, recyclable paper and packaging made up 40 per cent of residential garbage. Based on curbside waste studies in 2017, the percentage has decreased to 12 per cent. Participation by Regina's residents has contributed to a successful recycling program. With that, organic material represents the greatest volume of divertible waste remaining in the garbage cart. This information is illustrated in Appendix B.

Resident Feedback

Extensive community consultation was conducted on the preferred residential service options during the development of Waste Plan Regina, which included telephone polls, focus groups, website feedback, public meetings and comment cards.

In 2016, the City conducted market research to reconfirm public priorities for solid waste management. The research showed how residents view the role and responsibilities of the City related to waste diversion and improvements to be made to the City's solid waste management services:

- 96 per cent of residents agree that it is important to reduce the amount of household waste going to the landfill.
- 91 per cent of respondents feel that the City has a responsibility to help residents reduce the amount of waste going to the landfill.
- 77 per cent agreed that curbside food waste collection should be a priority.
- 88 per cent agreed that curbside yard waste collection should be a priority.

Market research conducted in March 2018 showed that:

- 62 per cent of respondents who receive curbside collection services agree the City should introduce a new curbside organic, compostable collection service, including 32 per cent who strongly agree.
- Among residents who sort their household waste all or most of the time, most, 65 per cent and 59 per cent, support a new curbside organic service collection.
- Support for curbside organic pick-up is significantly higher among young people ages 18 to 34.

Additional feedback will be collected during the pilot project from residents participating in the curbside organic waste collection service. The feedback will be analyzed and incorporated into a final implementation plan to be presented to City Council in Q2 of 2021.

Organic Services Best Practices in Canadian Municipalities

Administration reviewed solid waste services offered in Saskatchewan, British Columbia, Alberta, Yukon, Northwest Territories and Manitoba. After compiling the initial data, site visits were made to organic waste processing facilities in Alberta and Manitoba for a more detailed examination. All the municipalities offered some form of curbside organic collection of either yard waste or food and yard waste. These sites were chosen due to similarities in climate, geography, demographics, landfilling costs and provincial regulation. The information is summarized in Appendix C.

Organic Waste Collection Options

There are two distinct methods of collecting residential waste: drop-off depot and curbside collection. The choice between the two depends on the desired outcomes of convenience, resident participation, waste diversion as well as program cost and resident affordability. The

table below contrasts the collection options and their impact on the desired outcomes.

	Drop-off depot	Curbside collection
Convenience	Low/Medium	High
Participation	Low/Medium	High
Diversion	Low	Medium/High
Program Cost	Low	Medium/High
Affordability	High	Medium

Resident participation in an organic waste service is closely related to how convenient it is to use and if food items are accepted. According to *Environment Canada's Technical Document of Municipal Solid Waste Organics Processing*, curbside organic collection that includes food waste results in high participation, upwards of 90 per cent, as it replaces general garbage collection for the disposal of food waste. Curbside collection that only allows yard waste is limited to the growing season and will only be used by those that produce this waste. Yard waste depots require residents to travel to a disposal location making them less convenient. For that reason, some residents will opt to dispose of yard waste in their garbage cart. Drop-off depots are inappropriate for food waste due to health and odour concerns.

Higher levels of participation result in more material diverted from the Landfill. Based on internal waste composition audits, a curbside yard waste collection service could add an additional 13 per cent to the current residential diversion rate; a “scrape the plate” program has the potential to increase the rate an additional 34 per cent, resulting in a residential waste diversion rate of 54 per cent.

Expenditures associated with operating drop-off depots are less than \$350,000 annually. However, the lower volume of diverted material related to this type of collection, results in a high expenditure per diverted tonne. This results in an inefficient program. Conversely, although annual curbside collection expenditures are estimated at \$7.9 million, the exclusion of organic waste from the garbage cart, will realize a savings of \$4.6 million as garbage collection can be adjusted to a biweekly frequency from the current weekly schedule.

Drop-off depots are an affordable option for users. Since the City began operating yard waste depots in 2014, there has been no charge to the user. The expenditures of the depots are charged against the operations of the Landfill. A curbside collection service would require funding from either general revenue or a user fee. Some residents might consider either a financial hardship.

Options

Administration evaluated two depots and two curbside organic waste service options. Appendix D provides details of these options as well as the benefits and risks of each:

Service Option 1: Status quo

Operate yard waste depots at four locations throughout the city on Saturdays from 9 a.m. to 4 p.m. for six weeks in the spring and six weeks in the fall.

Service Option 2: Full growing season yard waste depot (Recommended as a lead into Service Option 4)

Operate a full growing season yard waste depot beginning in 2019. This option provides residents access to a single site with additional operating days to improve availability and meet growing program needs. Preliminary planning has identified adequate space within the footprint of Regina's Landfill, with a separate entrance allowing residents to drop off yard waste without interacting with landfill operations.

Service Option 3: Curbside yard waste collection

Provides weekly collection of yard waste throughout the growing season (April to November). Yard waste can be processed into compost through existing service providers.

Service Option 4: Curbside food and yard waste collection (Recommended)

Provides weekly collection of food and yard waste year-round. The processing method will be determined through the procurement phase. Service Option 4 will allow all yard and food waste, including meat, dairy, produce, fats, oils and grease to be disposed in the organic waste stream. The "scrape the plate" program also can extend to compostable food containers such as pizza boxes and paper towels.

The current depot model does not address resident concerns of program accessibility. Public feedback from surveys conducted at the 2016 depots included:

- Depots operating one day per week are inconvenient as they may conflict with other weekend commitments.
- Yard work often occurs on Saturday which does not provide adequate time to get material to the depots.
- Residents have expressed concern that leaving yard waste out for a week can attract pests.

City facility sites are available only on the weekend and access to school sites has been limited to Saturday's only. All the sites have been experiencing increasing incidents of illegal dumping during the week resulting in escalating clean-up costs and strained relationships with school administration partners. Depots are set up and taken down each day, resulting in significant staging costs. Resident participation in the current depot program has outpaced its capacity. Finding alternate locations adequate to meet the growing needs of the program has become a challenge.

Depots typically capture only a fraction, 10 to 25 per cent, of available material. The current depot program has experienced continued growth collecting 228 tonnes of material in 2014, 311 tonnes in 2015 and 405 tonnes in 2016. The program is on pace to collect over 1,000 tonnes in 2018. The current model can no longer support the volume of material residents are prepared to divert from their garbage. Based on the historical trends of collected tonnes and number of residents using the depots, there is an opportunity to improve the diversion of yard waste in the near term through a more accessible depot service.

A full growing season, single-site yard waste depot is recommended to be in place for spring 2019, establishing a permanent yard waste site and as a lead into the curbside organic waste service. This will provide the level of service needed to meet the current needs of the community and move closer to City Council's residential waste diversion target.

Food and yard waste collection is convenient for users as acceptable material is easy to understand. If it can be eaten, grown or composted, it can be disposed in the organic waste cart. Residents that do not have yard waste can divert food waste. Residents that compost at home can dispose of food waste that is not recommended for backyard composting, such as meat, dairy and other cooked foods.

The program's convenience will result in high participation. Year-round collection will achieve the highest diversion, resulting in less waste going to the Landfill. This will reduce the amount of greenhouse gas emissions and extend the life of the City's Landfill.

Service Option 4 is the only option that moves Regina toward City Council's target of 65 per cent of residential waste diversion.

Year-round food and yard waste collection will provide cost saving opportunities in other solid waste programs. Garbage collection frequency can be reduced as less waste will be disposed at the Landfill. This reduced frequency will result in an estimated savings of \$4.6 million. Landfill costs will be reduced marginally as less material is handled. It can also reduce costs associated with the City's wastewater infrastructure by creating a viable alternative for disposal of fats, oils, grease and other contaminants that impact the operations of the wastewater infrastructure and treatment plant.

Implementing a full growing season yard waste depot (Service Option 2) while developing a curbside food and yard waste collection service (Service Option 4) is recommended as it provides residents with a more accessible and affordable program than is currently delivered and allows for the time required to develop a comprehensive curbside program. Once the curbside collection service is implemented, the yard waste depot can handle any additional yard waste generated by residential properties, similar to the overflow handled by the Big Blue Bin Program with recyclable material.

There is an opportunity to implement a curbside yard waste program by 2020 and transition to a full organic waste service once a food waste processing technology is in place. This is not recommended. It would be an unnecessary service for many residents that do not produce yard waste. As well, the service would only be used during the growing season for those that have yard waste. Other communities have indicated that their residents experienced confusion and frustration with not understanding the limitations of a yard waste service.

Preliminary Implementation Plan – Service Options 2 and 4

The development of a residential curbside organic (food and yard) waste collection and processing service will require immediate work on several major initiatives. The preliminary

implementation plan, pending budget approval is:

2019

- Replace the current yard waste depot program with a single-site location for spring 2019 (Service Option 2).
- Begin the competitive procurement process for a consultant with expert knowledge and experience in the implementation of residential organic waste diversion programs.
- Begin the competitive procurement process for the collection of residential curbside organic waste for the pilot period only.
- Begin the competitive procurement process for the construction and operation of an organic waste processing facility.

2020

- Begin the curbside organic waste pilot project.

2021

- Evaluate the pilot and adjust the final implementation plan.
- Prepare and present the final implementation plan to City Council in Q2.

2022 or 2023

- City-wide implementation (Service Option 4).

RECOMMENDATION IMPLICATIONS

Financial Implications

Initiatives associated with the development and implementation of WPR services are funded through the Solid Waste Reserve. Each recommendation will follow the proper procedures for capital and operating cost requests as directed in *The Regina Administration Bylaw, No. 2003-69*.

Implementing Service Option 2 will have no direct cost impact to the residents. This depot option will be a “no charge” service, the same as the current depot program. The capital investment of \$500,000 to get the site ready will be covered through reprioritizing existing WPR capital funding. The increase to annual operating expenditures has been referred to the 2019 budget process. The intent is that the annual operating expenditures, estimated between \$255,000 and \$350,000 will be funded through revenue earned from the Landfill’s tipping fees, as this outlay will contribute to extending the life of the Landfill.

Service Option 4 requires both a capital investment and annual operating funds. The capital required to implement the recommended service is estimated to be \$3.5 million. The capital investment would include the services of a consultant, a communication strategy, internal costs associated with procuring collection and processing partners as well as undertaking a pilot of the service.

The estimated annual operating expenditures are \$7.9 million. A weekly curbside organic waste service would reduce the need for weekly garbage collection. Biweekly garbage collection could

be extended to a year-round schedule. The opportunity to offset the annual expenditures by savings resulting from reduced garbage collection, could lower the overall expenditure of the combined services.

The annual operating expenditures of the curbside organic waste service can be funded either through a user fee or property tax. The choice will be determined by City Council's decision regarding a solid waste curbside collection services funding policy, to be considered through a subsequent report that will be brought forward in October 2018. If savings realized from reduced garbage collection frequency are applied against the costs of the organic waste service, a \$36 increase to property taxes on a home assessed at \$350,000 or an additional \$51 annual user would fund the two services.

Environmental Implications

The City's waste diversion programs are part of the integrated solid waste management plan for the collection and disposal of waste, which ensures protection of the natural environment by following provincial regulation and best practices.

Food and yard waste is the main contributor to greenhouse gas emissions at a landfill. Reduction of this waste stream will decrease the City's carbon footprint by 760 tonnes of greenhouse gas emissions, the equivalent of removing 140 cars from the road annually.

Policy and/or Strategic Implications

The long-term outcomes of an organic waste service have strong links to *Design Regina: The Official Community Plan*. Through extensive community engagement, the public identified eight community priorities during the development of *Design Regina: The Official Community Plan* which were endorsed by City Council in 2012. The continued implementation of WPR, specifically an organic waste service, directly contributes to four of these priorities:

1. Promote conservation, stewardship, and environmental sustainability
 - Environmental sustainability is a key principle of Regina's long-term strategic direction. An organic waste service increases opportunity for Regina residents to align with this principle through day-to-day activities, ensuring current waste disposal needs are met without compromising the needs and quality of life of future generations. As a service this will significantly influence the long-term environmental sustainability of the City by reducing greenhouse gases and increasing the useable life of the Landfill.
2. Foster economic prosperity
 - Processing food waste requires the development of a non-existent industry in Regina. Facilities and expertise in this industry exist across North America and the development of an organic waste service will attract economic interest. Using the City program as a foundation, organic waste processors can increase capacity to service commercial, institutional and regional customers.

3. Optimize regional cooperation

- Both the Landfill and private waste haulers in Regina service a geographic region that extends beyond the city limits. New waste services developed by the City will trickle into the surrounding region and allow future consideration of regional strategies to manage solid waste.

4. Achieve long-term financial viability

- The diversion of additional waste will contribute to extending the life of the Landfill, deferring capital investment for expansion (\$50 million) or construction (over \$100 million) of a new landfill site. Significant deferral of this capital investment will occur when organic waste diversion is extended to all landfill users.
- Diverting organic waste provides opportunities to generate revenue, reducing the reliance on general revenues or user fees to pay for solid waste services. Organic waste can be used to generate electrical power or natural gas. As well, an organic waste service will reduce operating expenditures associated with existing services, such as garbage collection and landfill operations, as the demand for those services is diminished.

Other Implications

Diverting food waste from household sinks and toilets will alleviate obstructions in wastewater infrastructure and reduce risks to the wastewater collection system. Fats, oils and greases and foods such as coffee grounds and other scraps can be safely disposed in the organic waste cart.

A reduction of food waste in the wastewater will reduce treatment requirements and result in additional capacity at the Wastewater Treatment Plant.

Accessibility Implications

None with respect to this report.

Communication

An extensive communication strategy will be developed to advise and educate residents of the change to the City's waste management program. On-going public awareness and education campaigns will be used to communicate the recommendation and focus on encouraging residents to divert waste from the Landfill.

Delegated Authority

The recommendations contained in this report require City Council approval.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Legault".

Lisa Legault, Director
Solid Waste

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Karen Gasmo".

Karen Gasmo, Executive Director
Transportation & Utilities

Report prepared by:
Janet Aird, Manager Waste Diversion Services
Ben Brodie, Waste Minimization Specialist

LL/JA/BB/pw

Appendix A

Waste Plan Regina Residential Service Level Options

Enhanced Service Level (Service level approved by Council in 2011)		
Potential diversion – 30 to 40%		
Cost - \$220 to \$240/HH/year		
Service Options	Status	
Curbside garbage & landfill		<i>Currently in service</i>
Promotion of backyard composting		<i>Currently in service</i>
Single family curbside recycling		<i>Currently in service</i>
Multi-family recycling		<i>Currently in service</i>
Curbside seasonal L&Y		<i>Planning (1-2 years)</i>
Permanent HHW Facility (less frequent operation)		<i>Future initiative (2-5 years)</i>
Curbside bulky/white goods		<i>Not planned (5 years)</i>

Comprehensive Service Level (Diversion target of 65% set by Council in 2011)		
Potential diversion – 50 to 65%		
Cost - \$280 to \$320/HH/year		
Service Options	Status	
Curbside garbage & landfill		<i>Currently in service</i>
Promotion of backyard composting		<i>Currently in service</i>
Single family curbside recycling		<i>Currently in service</i>
Multi-family recycling		<i>Currently in service</i>
Curbside seasonal L&Y		<i>Planning (1-2 years)</i>
Permanent HHW Facility (less frequent operation)		<i>Future initiative (2-5 years)</i>
Curbside bulky/white goods		<i>Not planned (5 years)</i>
Curbside food waste collection		<i>Planning (1-2 years)</i>

Supporting Mechanisms	Status	
Promotion and education		<i>Currently in service</i>
Goods exchange events		<i>Not planned (5 years)</i>
Customer reward program		<i>Not planned (5 years)</i>
Grass ban		<i>Not planned (5 years)</i>
Green procurement education		<i>Not planned (5 years)</i>
Outreach program		<i>Currently in service</i>
User pay for garbage		<i>Planning (1-2 years)</i>

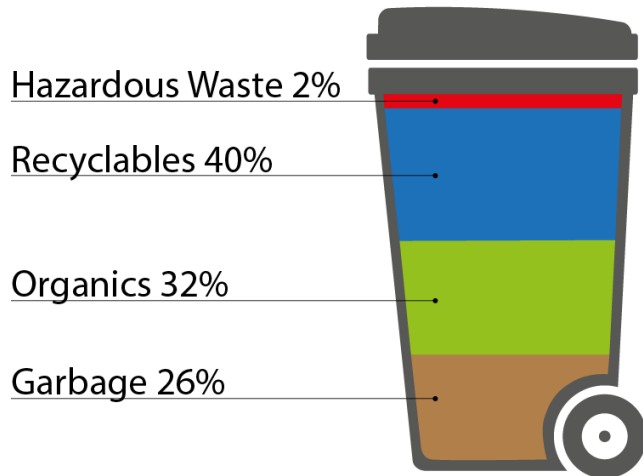
Supporting Mechanisms	Status	
Promotion and education		<i>Currently in service</i>
Goods exchange events		<i>Not planned (5 years)</i>
Customer reward program		<i>Not planned (5 years)</i>
Grass ban		<i>Not planned (5 years)</i>
Green procurement education		<i>Not planned (5 years)</i>
Outreach program		<i>Currently in service</i>
User pay for garbage		<i>Planning (1-2 years)</i>
Reduced frequency garbage collection		<i>Future initiative (2-5 years)</i>
Mandatory recycling		<i>Future initiative (2-5 years)</i>

Appendix B

Residential Waste Composition

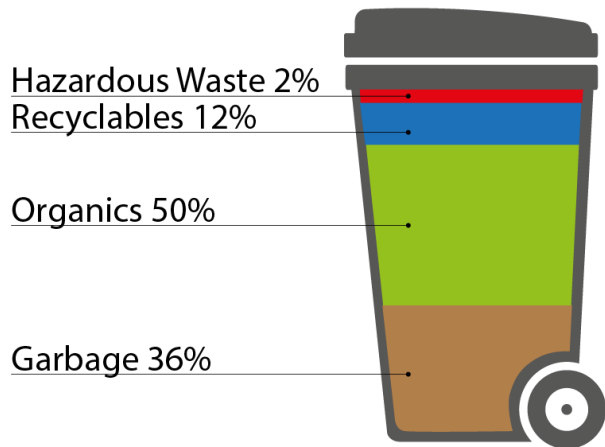
2007

Recyclable paper and packaging made up the majority of residential garbage.



2017

Organic material now make up the majority of residential garbage.



Appendix C

Organic Waste Services in Western Canada

City	Yard Waste	Food Waste	Funding	Service Type	Collection Frequency
Region of Central Okanagan	Yes	No	User fee and property tax	Automated curbside collection	Biweekly from March to end of November
Edmonton	Yes	Yes	User fee	Sorted from garbage after collection	Weekly
Red Deer	Yes	Pilot	Property tax	Manual curbside collection (leaf and yard waste); Automated curbside collection (green cart); free yard waste drop-off at the Waste Management Facility	Weekly yard waste collection from April to November; Weekly green cart collection year-round
Calgary	Yes	Yes	User fee	Automated curbside collection (green cart)	Weekly green cart collection; depot specific dates
Lethbridge	Yes	No	Under review	Curbside yard waste collected twice a year	Fall (leaf collection); January (Christmas trees). Spring yard waste event cancelled indefinitely in 2014
Saskatoon	Yes	Fruit and vegetables	User fee	Subscription automated curbside collection	Biweekly from May to November
Brandon	Yes	Fruit and vegetables	Property tax	Automated curbside collection	Weekly collection from April to November; Free yard waste drop off at yard waste depots
Winnipeg	Yes	No	User fee and property tax	Manual curbside collection; Free yard waste drop off at depots	Biweekly from April to November; Free yard waste drop off at depots
Thunder Bay	Yes	No	Property tax	Manual curbside collection	One collection day per household in the spring and fall; yard waste drop-off at landfill
Whitehorse	Yes	Yes	User fee	Automated curbside collection	Biweekly
Yellowknife	Yes	Yes	User fee	Automated curbside collection	Biweekly; free yard waste drop-off at the Solid Waste Facility

Appendix D

Organics Service Option Comparison

	Service Option 1 Status quo	Service Option 2 Full growing season yard waste depot	Service Option 3 Curbside yard waste collection	Service Option 4 Curbside food and yard waste collection (scrape the plate)
Accepted material	Yard waste: grass, leaves, garden debris and branches	Yard waste: grass, leaves, garden debris and branches	Yard waste: grass, leaves, garden debris and branches	Yard waste: grass, leaves, garden debris and branches Food waste Compostable kitchen waste (paper towels, compostable food containers such as pizza boxes)
Diversion potential	500 – 1,000 tonnes ² Up to 2% additional diversion	1,000 – 2,500 tonnes ² Up to 4% additional diversion	5,000 – 7,300 tonnes ³ Up to 13% additional diversion	12,000 – 18,000 tonnes ³ Up to 31% additional diversion
GHG reduction	24 tonnes annually	60 tonnes annually	177 tonnes annually	760 tonnes annually
Service details	4 sites operating Saturdays from 9 a.m. - 4 p.m. 6 weeks in spring 6 weeks in fall	Single site 7 days a week April – November (subject to weather conditions)	Weekly April to November 30 collection days	Weekly year round 52 collection days
Implementation Costs (Capital)	N/A	Site development: \$500,000	Communications: \$250,000 Staff: \$200,000 Consultant: \$300,000 Total ⁹: \$750,000	Communications: \$500,000 Staff: \$600,000 Consultant: \$600,000 Pilot: \$1,800,000 Total ⁹: \$3,500,000
Annual operating expenditure	Staff: \$80,000 Hauling: \$90,000 Processing ⁷ : \$32,500 - \$65,000 Total: \$202,500 - \$235,000	Staff: \$90,000 Hauling: \$100,000 Processing ⁷ : \$65,000 - \$160,000 Total: \$255,000 - \$350,000	Weekly collection ⁴ : \$3,537,000 Processing ⁶ : \$325,000 - \$475,000 Total: \$3,862,000 - \$4,012,000	Weekly collection ⁴ : \$6,131,000 Processing ⁶ : \$1,200,000 - \$1,800,000 Total: \$7,331,000 - \$7,931,000

	Service Option 1 Status quo	Service Option 2 Full growing season yard waste depot	Service Option 3 Curbside yard waste collection	Service Option 4 Curbside food and yard waste collection (scrape the plate)
Operating expenditures per processed tonne	\$235 - \$405 per tonne	\$140 - \$255 per tonne	\$550 - \$772 per tonne	\$440 - \$610 per tonne
Impact other services	No impact	No impact	Potential to extend biweekly garbage collection by two months (October and April)	Year-round biweekly garbage collection
Potential savings from other services	None	None	Garbage collection ^{4,5} : \$425,000 - \$621,000	Garbage collection ^{4,5} : \$4,085,000 - \$4,595,000
Potential revenue			Compost sales opportunity	Waste to energy opportunities
Cost to residents without considering savings from other services	No charge	No charge	\$60 per user ¹ ; or \$43 on an assessed property ¹⁰ value of \$350,000	\$120 per user ¹ ; or \$85 on an assessed property ¹⁰ value of \$350,000
Cost to residents including savings from other services	No charge	No charge	\$52 per user ¹ ; or \$37 on an assessed property ¹⁰ value of \$350,000	\$51 per user ¹ ; or \$36 on an assessed property ¹⁰ value of \$350,000
Impact to landfill	Useful life extended 0.14 years	Useful life extended 0.35 years	Useful life extended 1 year	Useful life extended 2.5 years
Implementation	Currently in operation	2019	2020	2022 - 2023

	Service Option 1 Status quo	Service Option 2 Full growing season yard waste depot	Service Option 3 Curbside yard waste collection	Service Option 4 Curbside food and yard waste collection (scrape the plate)
Benefits	Located closer to residential homes resulting in reduced travel time for residents	- Responds to resident feedback - Improves service level by operating more days per week throughout the growing season - Costs per processed tonne is reduced due to single site: efficiencies from staff allocation, waste hauling costs - Lower processing costs per tonne for higher volume - Could advance curbside biweekly garbage collection start up earlier than November	- Increase diversion of organic waste compared to depots - Market and/or return to resident potential for end products (compost)	- Reduced greenhouse gas emissions - Contributes to extending the life of the landfill - Benefits waste water infrastructure by providing alternative disposal option for fats, oils, grease and food waste - Market potential for end products (compost and/or power) - Highest diversion potential - Acceptable items easily communicated to the public
Risks	- Limited to Saturday operations - Does not respond to public and staff feedback - High staff requirement for short period of time	May increase travel time for users	Does not serve entire community (e.g. only residents that have yard waste)	- Cost to process comprehensive food waste is higher than composting yard waste; comparable to landfilling - Longer implementation time than yard waste collection

Notes: Assumptions for the Costing Calculations:

1. 65,500 single-family households
2. 10% - 15% capture rate of organic waste based on Environment Canada's Technical Document on Municipal Solid Waste Organics Processing and waste composition data from the City's Residential Waste Audits
3. 50% - 75% capture rate of organic waste based on Environment Canada's Technical Document on Municipal Solid Waste Organics Processing and waste composition data from the City's Residential Waste Audits

4. *\$1.80 per collection based on 2018 internal and external collection costs plus inflation*
5. *\$85 per tonne for garbage based on 2018 rate for landfill*
6. *\$100 per tonne for full organics processing is a conservative estimate based on the 2016 Organics RFI submission*
7. *\$65 per tonne for yard waste processing based on 2018 actuals*
8. *A 1% mill rate increase equals \$2,300,000*
9. *Organic waste carts are purchased and remain property of the collection service provider*
10. *84,400 assessed properties; includes residential and commercial properties not receiving the service*