Public Works and Infrastructure Committee

Wednesday, September 23, 2020
9:00 AM

Henry Baker Hall, Main Floor, City Hall

Public Agenda
Public Works and Infrastructure Committee
Wednesday, September 23, 2020

Approval of Public Agenda

Adoption of Minutes

Minutes of the meeting held on May 19, 2020.

Administration Reports

PWI20-5 Fencing Setback Regulations

Recommendation
That the Public Works and Infrastructure Committee:

1. Remove item *MN20-7* from the List of Outstanding Items.

2. Receive and file this report.

PWI20-6 Cycling Safety & Passing

Recommendation
The Public Works and Infrastructure Committee recommends that City Council:

1. Approve the recommendations as detailed in Appendix A to this report.

2. Remove item *CR20-22* from the List of Outstanding Items for the Community and Protective Services Committee.

3. Direct the City Solicitor to prepare the necessary bylaws to amend *The Regina Traffic. Bylaw No. 9900* (Traffic Bylaw) to reflect the changes proposed in this report

4. Approve these recommendations at its September 30, 2020 meeting.

PWI20-7 Annual Winter Maintenance Summary Report 2019/ 2020

Recommendation
That the Public Works and Infrastructure Committee receive and file this report.

PWI20-8 Winter Maintenance Policy Update

Recommendation

The Public Works and Infrastructure Committee recommends that City Council:

1. Consider the Winter Maintenance Policy Update during the 2021 Budget process.

2. Approve this recommendation at its September 30, 2020 meeting.

Adjournment

AT REGINA, SASKATCHEWAN, TUESDAY, MAY 19, 2020

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

AT 9:00 AM

These are considered a draft rendering of the official minutes. Official minutes can be obtained through the Office of the City Clerk once approved.

Present: Councillor John Findura, in the Chair
Councillor Lori Bresciani (Videoconference)
Councillor Bob Hawkins (Videoconference)
Councillor Jason Mancinelli (Videoconference)
Councillor Andrew Stevens (Videoconference)

Also in Attendance: Council Officer, Elaine Gohlke
Legal Counsel, Jayne Krueger (Videoconference)
Executive Director, Citizen Services, Kim Onrait
Executive Director, Financial Strategy & Sustainability, Barry Lacey
Director, Assessment, Tax & Utility Billing, Deborah Bryden (Videoconference)
Director, Roadways & Transportation, Chris Warren (Videoconference)
Director, Water, Waste & Environment, Kurtis Doney (Videoconference)
Manager, Enviromental Services, Greg Kuntz (Videoconference)
Manager, Traffic Engineering, Carolyn Kalim (Videoconference)
Manager, Waste Diversion, Janet Aird (Videoconference)

APPOINTMENT OF CHAIRPERSON

The Secretary called the meeting to order and following nomination procedures for the position of Chairperson, Councillor John Findura was declared Chairperson of the Public Works and Infrastructure Committee for 2020.

(Councillor Findura took the Chair.)

APPOINTMENT OF VICE-CHAIRPERSON

Following nomination procedures for the position of Vice-Chairperson, Councillor Jason Mancinelli was declared Vice-Chairperson of the Public Works and Infrastructure Committee for 2020.

APPROVAL OF PUBLIC AGENDA

Councillor Bob Hawkins moved, AND IT WAS RESOLVED, that the agenda for this meeting be approved, as submitted, after withdrawing report PWI20-3 regarding Single-Use Plastics from the agenda.

Councillor Lori Bresciani	**Yes**
Councillor Bob Hawkins	**Yes**
Councillor Jason Mancinelli	**Yes**
Councillor Andrew Stevens	**Yes**
Councillor John Findura	**Yes**

ADOPTION OF MINUTES

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the minutes for the meeting held on December 12, 2019 be adopted, as circulated.

Councillor Lori Bresciani	**Yes**
Councillor Bob Hawkins	**Yes**
Councillor Jason Mancinelli	**Yes**
Councillor Andrew Stevens	**Yes**
Councillor John Findura	**Yes**

TABLED REPORTS

PWI20-1 Amendments to the Regina Traffic Bylaw, 1997, No.9900
(Tabled March 18, 2020)

Recommendation

Public Works and Infrastructure Committee recommends that City Council:

1. Approve the following amendments to *The Regina Traffic Bylaw, 1997, No. 9900* (Traffic Bylaw) as detailed in Appendix A.

2. Direct the City Solicitor to amend the Traffic Bylaw to reflect the changes proposed in Appendix A.

3. Approve these recommendations at its March 25, 2020 meeting.

Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that City Council:

1. **Approve the following amendments to *The Regina Traffic Bylaw, 1997, No. 9900* (Traffic Bylaw) as detailed in Appendix A.**

2. **Direct the City Solicitor to amend the Traffic Bylaw to reflect the changes proposed in Appendix A.**

3. **Approve these recommendations at its May 27, 2020 meeting.**

Councillor Lori Bresciani	**Yes**
Councillor Bob Hawkins	**Yes**
Councillor Jason Mancinelli	**Yes**
Councillor Andrew Stevens	**Yes**
Councillor John Findura	**Yes**

PWI20-2 Waste Plan Regina - 2019 Update (Tabled March 18, 2020)

Recommendation
That the Public Works and Infrastructure Committee receive and file this report.

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that this report be received and filed.

Councillor Lori Bresciani	**Yes**
Councillor Bob Hawkins	**Yes**
Councillor Jason Mancinelli	**Yes**
Councillor Andrew Stevens	**Yes**
Councillor John Findura	**Yes**

ADMINISTRATION REPORT

PWI20-4 Water Meter and AMR Replacement Project- Issue Request for Award Consulting Services Contract

Recommendation
The Public Works and Infrastructure Committee recommends that City Council:

1. Delegate the authority to the Executive Director of Financial Strategy and Sustainability, or designate, to negotiate, award, and enter into a contract (including any later amendments to the contract) with the highest-ranked proponent from the Water Meter and AMR Replacement-AMI Consultant Negotiated Request for Proposal (NRFP)

2. Direct the City Clerk to execute a contract with the highest-ranked proponent upon review and approval of the City Solicitor.

Councillor Bob Hawkins moved, AND IT WAS RESOLVED, that City Council:

1. **Delegate the authority to the Executive Director of Financial Strategy and Sustainability, or designate, to negotiate, award, and enter into a contract**

(including any later amendments to the contract) with the highest-ranked proponent from the Water Meter and AMR Replacement-AMI Consultant Negotiated Request for Proposal (NRFP).

2. **Direct the City Clerk to execute a contract with the highest-ranked proponent upon review and approval of the City Solicitor.**

3. **Approve these recommendations at its May 27, 2020 meeting.**

Councillor Lori Bresciani	**Yes**
Councillor Bob Hawkins	**Yes**
Councillor Jason Mancinelli	**Yes**
Councillor Andrew Stevens	**Yes**
Councillor John Findura	**Yes**

ADJOURNMENT

Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the meeting adjourn.

The meeting adjourned at 11:13 a.m.

Councillor Lori Bresciani	**Yes**
Councillor Bob Hawkins	**Yes**
Councillor Jason Mancinelli	**Yes**
Councillor Andrew Stevens	**Yes**
Councillor John Findura	**Yes**

_____ _____

Chairperson Secretary

Fencing Setback Regulations

Date	September 23, 2020
To	Public Works and Infrastructure Committee
From	Citizen Services
Service Area	Roadways & Transportation
Item No.	PWI20-5

RECOMMENDATION

That the Public Works and Infrastructure Committee:

1. Remove item *MN20-7* from the List of Outstanding Items.
2. Receive and file this report.

ISSUE

This report provides recommendations, options and implications of amendments to fence setbacks in '*Schedule H2'* of *The Traffic Bylaw, Bylaw, 1997*, *Bylaw No. 9900* (*Bylaw*) in response to Motion *MN20-7* from the June 24, 2020 meeting of City Council.

IMPACTS

Financial Impact

None with respect to this report.

Policy/Strategic Impact

The recommended option is consistent with *The Transportation Master Plan,* specifically:

- *2.9 Develop a strategy to protect land for transportation needs, including Right of Way's (ROWs) and future transit corridors, as part of the land-use planning and approvals processes. Real Estate staff should be made aware of future corridor requirements to inform where the land should be retained by the city or purchased to accommodate future transportation needs.*
- *2.28 Ensure infrastructure in new neighbourhoods and employment areas is designed to support universal accessibility.*

- *4.22 Update the Development Standards Manual (DSM) to identify improvements to sidewalk and adjacent features in support of pedestrian comfort.*
- *4.24 Update sidewalk design standards to increase accessibility. New guidelines should be developed with particular attention to sidewalk width, quality of materials and the provision of accessible pedestrian curb ramps.*

There are no environmental, accessibility or other implications or considerations.

OTHER OPTIONS

Alternatives to Option 1 reviewed by Administration are:

- Option 2 - Develop a permit process for fence installation and make no changes to the *Bylaw*.
- Option 3 - Implement the new fence setbacks as per motion *MN20-7.*

COMMUNICATIONS

Pending Council's decision, Administration will develop a communication approach to ensure residents are aware of any amendments made to the *Bylaw*. Any bylaw amendments would be posted on Regina.ca. Administration would update materials relating to the *Bylaw* and communicate changes directly with impacted developers and residents as required.

DISCUSSION

At the June 24, 2020, meeting of City Council motion *MN20-7* was passed:
Direct the Administration to prepare a report for the next Public Works and Infrastructure Committee that outlines any potential implications to amend 'Schedule H2' of The Traffic Bylaw, Bylaw No. 9900 as follows:

a. set the minimum setback measurement for fences and other obstructions, "From Curb Only – No Sidewalk" from 2.0 metres to 0.6 metres; and
b. that if approved, the City Solicitor prepare the necessary amending bylaw, for this to take effect immediately

The fence setback section of the *Bylaw* states that on a roadway with just a curb (no sidewalk) a fence structure needs to be at least 2.0 metres from the back of curb. Appendix A provides an illustration for the fence setback requirements from *Schedule H(2)* in the *Bylaw*.

Option 1 – Maintain fence setback regulation as currently outlined in the *Bylaw*. (Recommended)

Administration recommends no alteration to the current section of the *Bylaw* governing fence setbacks.

The existing bylaw provision provides consistent setbacks from the roadway regardless of the presence of a sidewalk and ensures city right of way is adequately protected and that sightlines for alleys, driveways and pedestrians are maintained. Violations of this section of the *Bylaw* can continue to be evaluated on a case by case basis to determine the priority enforcement locations based on the respective impacts to safety and accessibility.

It is important that the City of Regina (City) clearly asserts its property rights and maintains access to public right of way for the purpose of precedent, in addition to the ensuring access for construction, installation, maintenance and future capacity upgrades. The City does not permit individuals to occupy or erect structures on other public spaces such as parks or roads and should maintain this consistency. At present, if there was a requested encroachment that was not problematic for safety, accessibility or other concerns, the City can knowingly and formally consent to the encroachment through an encroachment agreement with the party seeking to encroach on City land. However, such an agreement may still result in the structure being removed at the cost of the property owner if infrastructure upgrades or enhancements were required. It is also important that a bylaw such as the *Traffic Bylaw* not encourage or suggest to residents that public land can be taken on an individual basis at no cost and without the consent of the City.

It should be noted that when the width of a standard sidewalk is added to the setback for sidewalk locations, the respective setbacks are both approximately 2.0 metres. By this measurement from the traveled road, the distance is consistent for locations with and without sidewalks.

Municipalities such as Saskatoon and Winnipeg clearly identify that fences in their communities are not to be constructed beyond the property lines or boundaries, and it is the responsibility of the property owner to ensure the fence does not encroach the right of way. In the case of Regina, property lines can typically be set back up to three metres.

Although Administration highlights right of way protection and sightline related safety considerations as a sufficient rationale for maintaining the 2.0 metre setback, additional purposes and benefits are described below:

- Vehicles parked adjacent to the curb can safely open passenger doors without impediment, and a reduction in the number of vehicles encroaching on a driving lane to provide enough room to access passenger doors. Appendix B illustrates this concern.
- Future installation of sidewalks to improve pedestrian connectivity and safety will not have a significant impact on the adjacent property owners. The 2.0 metre setback ensures enough room for sidewalk installation while maintaining the 0.6 metre buffer.
- Construction activities for road work, underground infrastructure and signage installation have sufficient space to do the construction work and stage equipment.
- A buffer space is maintained for pedestrian access and refuge where there are no sidewalks adjacent to the roadway.
- Sufficient space is reserved to respond to accessibility concerns, such as pedestrian ramps or accessible bus stops.
- Improves the aesthetics of neighbourhoods by ensuring residential streetscapes providing opportunities for landscaping and avoiding a ‘hemmed in visual’. This

aligns with the aesthetic rationales for other structure setbacks, such as house placements in the zoning bylaw.
- Ensures equality across all neighbourhoods and does not reward those who have obtained larger private space by taking public lands without cost.
- Ensures the integrity of City bylaws by not retroactively changing to address a minority of residents. Current enforcement processes have encountered approximately 35 Service Requests in the last five years.

A reduction of the 2.0 metre buffer space to 0.6 metres would often result in the placement of a fence on City land or right of way and the City could still compel the removal of the fence. Rather the *Bylaw* codifies safety and accessibility and would provide an improved threshold where the City could then consider encroachments agreements for spaces where property lines exceed a 2 metre setback. Maintaining this buffer space in the bylaw reduces the risk of the removal of a fence constructed by a well-intentioned resident who was unaware the fence's configuration could cause a concern to future infrastructure, to safety or for accessibility.

The primary disadvantage of this option is this section of the *Bylaw* has not been proactively enforced. Generally, enforcement takes place on a complaint basis often after a fence has already been constructed. This results in a financial cost for a non-compliant homeowner to remove or relocate the fence when requested by the City.

Option 2 – Develop a permit process for fence installation and make no changes to the existing *Bylaw* (Not recommended)

Requiring homeowners to obtain a fence construction permit would help reinforce regulations in the *Bylaw* and all other City bylaws which govern fences. This option would require more research and development to assess potential staffing and funding implications. Municipalities such as Saskatoon, Edmonton, Calgary and Winnipeg do not typically require a building permit for construction of a fence, with the exception of instances where the fence exceeds height requirements.

Advantages include:
- ensures consistency across fence installations across the City
- ensures City staff are reviewing all governing regulations with regards to fences including setbacks, height, sightlines and property line adherence
- retains all the benefits from option 1 in keeping the Bylaw regulations the same.

Disadvantages include:
- would not address fences that are already built
- increased staff time to manage the permit process
- more effort would be required on behalf of the property owner for a new fence installation
- increased construction time and cost to resident.

Option 3 - Implement reduced setbacks as per Motion *MN20-7* (Not Recommended)

Reducing the setback as outlined in this report would negatively impact all the benefits as outlined in Option 1 of this report. Appendix B provides examples of locations within the City that currently have less than the minimum setback and the issues that they cause. In addition, it may create confusion as to where the property line is located especially in instances where the property line is at least 2.0 metres from the back of curb. This could lead to enforcement issues if residents only refer to the Bylaw before construction.

Advantages include:

- If a homeowner owns the land 0.6 metres behind a curb only roadway, they would be able to build a fence up to 0.6 metres setback from the curb.

Disadvantages include:

- Where sidewalks are not present next to a roadway, a vehicle may not be able to open passenger doors fully causing passengers not to be able to get out of vehicle and restrict parking locations on certain streets. This may lead to drivers parking further from the curb than legally allowed, or cause accessibility issues in some locations.
- Pedestrians would be adversely affected by having to use the streets in locations where there are no sidewalks as the grass boulevard would not exist with the new fence setbacks. This is not ideal for pedestrians where there is not dedicated infrastructure. The safety of pedestrians is concerning when forced to walk on the street in mixed traffic and around parked cars instead of being able to use the right of way that is currently retained.
- If the City determines that a sidewalk is needed adjacent to one of these roadways the cost would be increased if a fence needs to be relocated as a part of the project.
- New regulations would need to be researched and implemented to ensure adequate sightlines near driveways and alleyways.

DECISION HISTORY

At the June 24, 2020 meeting of City Council, Administration was directed to prepare a report outlining the implications of changing '*Schedule H2'* of *The Traffic Bylaw, Bylaw No. 9900* related to minimum setbacks for fences and other obstructions.

Respectfully Submitted,

Chris Warren, Director, Roadways & Transportation 8/21/2020

Respectfully Submitted,

Kim Onrait, Executive Director, Citizen Services 9/14/2020

Prepared by: Danielle Fortin, Project Engineer

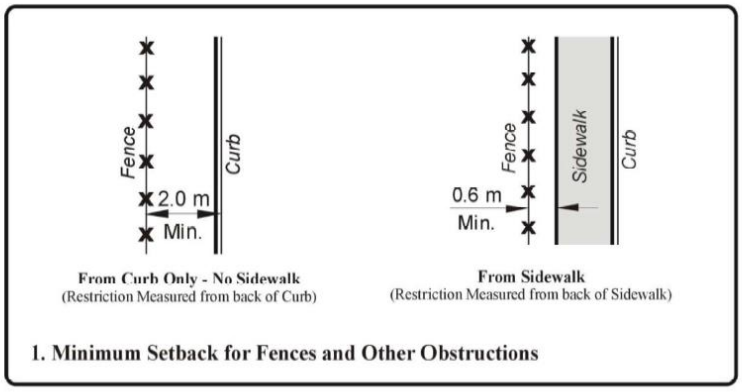
ATTACHMENTS

Appendix A - Fence Setback (Existing & Proposed)
Appendix B - Examples Fence Setback

Appendix A
Fence Setback & Sight Lines

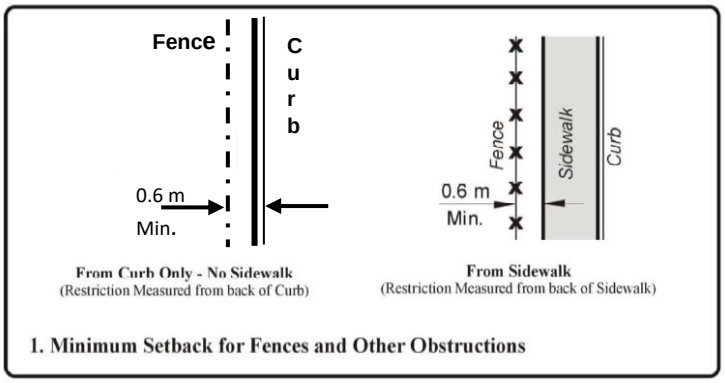
Existing Minimum Fence Setbacks

SCHEDULE "H(2)"
Minimum Setbacks For Fences and Recreational Vehicles
(as provided for in Section 69)



Motion Inquiry of Minimum Fence Setbacks

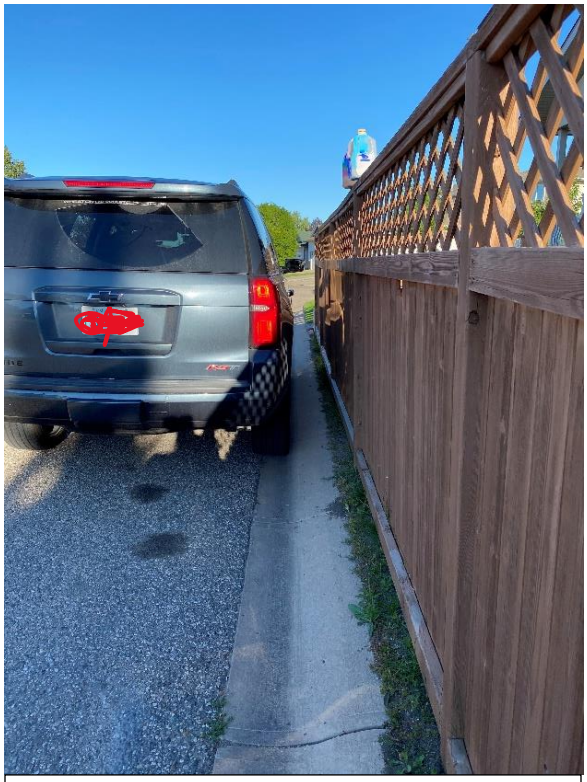
SCHEDULE "H(2)"
Minimum Setbacks For Fences and Recreational Vehicles
(as provided for in Section 69)



Appendix B
Examples of Fence Setback Issues

Parking

The pictures below show a fence built right at the curb edge. The car is properly parked along the curb edge and unable to open the passenger side doors. Persons with disabilities and children in carseats can not be accessed from the passenger side of the vehicle.



Fence in violation of Traffic Bylaw

Fence in violation of Traffic Bylaw

The picture below illustrates the proper setback of a fence on a street without a sidewalk. Car doors can be opened without obstruction and pedestrians can access the landscaped area for refuge and staging as needed.

Fence in compliance with Traffic Bylaw

Infrastructure Placement

The pictures below examples of a variety of infrastructure adjacent to the roadway near fences.

Mailbox near fence violation

Mailbox with Fence setback

Sign Installation with Setback Fence

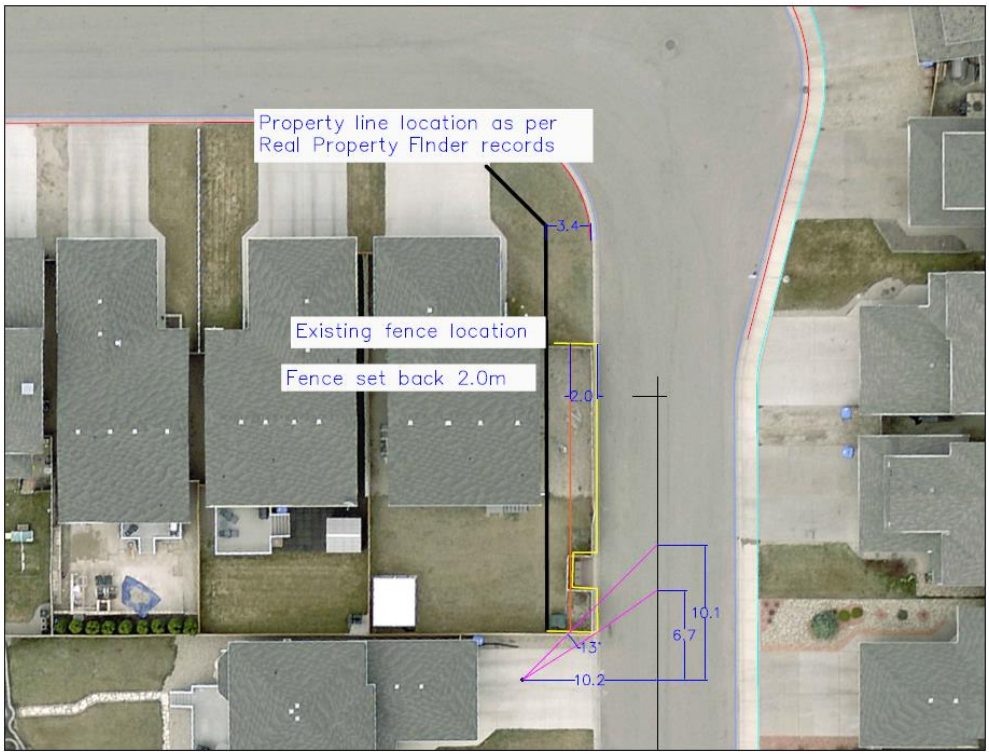
Sign without Setback Fence

Streetlight pole: Proper Setback (R)
Improper Setback (L)

Improper Setback encroaches into streetlight placement

Sightline issue when a fence is encroaching the ROW

The picture below illustrates the location of the property line and how the fence setback affects the sightline of a driver backing out of a driveway.



Cycling Safety & Passing

Date	September 23, 2020
To	Public Works and Infrastructure Committee
From	Citizen Services
Service Area	Roadways & Transportation
Item No.	PWI20-6

RECOMMENDATION

The Public Works and Infrastructure Committee recommends that City Council:

1. Approve the recommendations as detailed in Appendix A to this report.

2. Remove item *CR20-22* from the List of Outstanding Items for the Community and Protective Services Committee.

3. Direct the City Solicitor to prepare the necessary bylaws to amend *The Regina Traffic. Bylaw No. 9900* (Traffic Bylaw) to reflect the changes proposed in this report

4. Approve these recommendations at its September 30, 2020 meeting.

impISSUE

This report provides recommendations, options and implications for *Traffic Bylaw* regulations and educational awareness to enhance cycling safety, including minimum passing distances in response to a motion from the April 29, 2020 meeting of City Council.

IMPACTS

Financial Impact
There will be a cost of $30,000 for the educational campaign. This cost will be supported by the Automated Speed Enforcement account.

Policy/Strategic Impact
The available options are consistent with *The Official Community Plan*, *Bylaw No. 2013-48* (OCP), specifically:
Section D3, Goal 1 – Sustainable Transportation Choices, "Offer a range of year-round sustainable transportation choices for all, including a complete streets framework."

- *5.7 Proactively and strategically promote walking, cycling, carpooling and transit choices by using City and community-led programs and organizations to provide education and promote awareness.*

The available options are consistent with *The Transportation Master Plan,* specifically:

- *4.6 Develop a strategy to increase awareness of active transportation mode opportunities and their benefits.*
- *4.32 Increase education and awareness about how motor vehicles and cyclists can safely share road space. Materials and resources should be developed with community partners including SGI Canada.*

There is no accessibility, environmental or other implications or considerations.

OTHER OPTIONS

An alternative reviewed by Administration to Option 1 is:

Option 2: Establish minimum passing distances in the *Traffic Bylaw*
(Not Recommended)

The original motion from Committee requested that Administration consider requiring vehicles to pass a cyclist with a distance of 1.0 metres at speed limits 50 kilometres per hour or less and 1.5 metres at speed limits over 50 kilometres per hour.

Further details and consideration on Option 2 can be found at the end of the report's discussion section, with respect to its impacts on Administration's recommendation for Option 1. It is described as Amendment 17 and would establish a fine for violation of $180.

COMMUNICATIONS

Administration is working to develop a multi-year cycling campaign that can address three pillars:

- safety education for cyclists
- promotion of existing and new cycling infrastructure across the city
- shifting attitudes of cyclists and drivers towards mutual respect in sharing the road

This campaign will support and enhance the recommended *Traffic Bylaw* amendments contained in this report upon Council approval.

DISCUSSION

At the October 28, 2019 meeting of City Council, a referral motion (*MN19-19*) was passed and it was resolved that:

A report be written by City Administration to the Community & Protective Services Committee in Q1 of 2020 with additional information that includes options, implications, protective gear such as helmets etc., and consultation with other municipalities related to implementing a fine structure and Bylaw enforcement respecting cycling safety.

At its April 29, 2020 meeting, City Council considered report *(CPS20-8 and CR20-22)* in response to *MN19-19* and passed a motion and it was resolved that:

1. *Implement an education awareness campaign, as outlined in "Motorist and Cycling Distance – Option 2".*

2. *Implement a communication plan to educate residents on the benefit of wearing helmets and the use of additional safety equipment on bicycles, as outlined in "Helmets and Cycling Safety - Option B".*

3. *Direct Administration to prepare a report to be brought back to the Community & Protective Services Committee on April 8, 2020with respect to requiring motorists to maintain a distance of 1.5 metres when passing a cyclist with a speed higher than 50 kilometres per hour, and one metre when passing a cyclists with a speed of 50 kilometres per hour or less.*

Administration reviewed *The Traffic Safety Act* (*the Act*) and completed a jurisdictional review of other bylaws, provincial acts, and regulations (Appendix C). Saskatchewan's provincial legislation, including *the Act*, has few provisions that regulate pedal bicycles, and none that regulate the passing distance between motor vehicles and pedal bicycles.

The *Traffic Bylaw* already contains a section that requires cyclists to operate a bicycle in accordance with the applicable rules of the road as set out in *the Act*.

Many jurisdictions use a combination of provisions for both motorists and cyclists to maximize safety while ensuring adequate traffic flow.

Administration engaged with the Traffic Bylaw Working Group (TBWG) for the proposed bylaw amendments to enhance cycling safety, including provisions to require motorists to maintain 1.5 metre and 1.0 metre passing distances on roads with speeds of 50 kilometres per hour or less and higher than 50 kilometres per hour respectively. The TBWG is comprised of members from Traffic Engineering Branch, Regina Police Service, Bylaw Enforcement and Parking Services. The Infrastructure Engineering Branch, who is establishing cycling infrastructure standards in the city of Regina, also attended these

TBWG meetings to provide a review of the proposed amendments and how they relate to the *Transportation Master Plan* (TMP).

Option 1: Cycling Safety - Traffic Bylaw Amendments (Recommended)

Cycling is a healthy transportation option and is encouraged and promoted through Regina's *TMP* and the *OCP*. This recommended option strives for a holistic approach to improve cycling safety by addressing both direct and indirect impacts on cyclist safety, while ensuring a practical implementation of regulations for both general traffic flow and ability to successfully enforce the *Traffic Bylaw.*

Through extensive discussions, the TBWG recommend items 1 through 16 as bylaw amendments, and support Council's goals for improved cycling safety in Regina.

Administration recommends amending the *Traffic Bylaw* to increase the safety of cyclists through the following proposed amendments. The recommendations below are designed to increase safety for cyclists while also clearly defining the responsibilities of both cyclists and motorists.

Amendment 1:
Add definitions for cycling infrastructure that includes both existing and future road treatments:

a. Bicycle Lane
b. Bicycle Lane Buffer
c. Protected Bicycle Lane
d. Advisory Bicycle Lane
e. Bicycle Boulevard
f. Bicycle box
g. Bicycle Cross-Ride
h. Multi Use Cross-Ride

The definition of 'Bicycle' and 'Bicycle only lane' already exist in the *Traffic Bylaw*. The addition of the new terms will permit the installation of new infrastructure types. It will also ensure regulations can be established with respect to specific infrastructure, while also ensuring motorists obligations are clear. Several of the definitions are required for subsequent recommended amendments below.
The actual definitions will be determined with the City Solicitor's office and will be contained in the Bylaw Amendment report; typical definitions can be found in Appendix B.

Amendment 2:
Require the driver of a vehicle to drive in a manner that is reasonable and prudent when approaching any special hazard that exists with respect to cyclists or other active transportation modes. Establish a fine for violation of $180.

Section 213(2) of *the Act* states that "*no person shall drive a vehicle on a highway without reasonable consideration for other persons using the highway*". This section has a fine amount of $500 for a first-time offence, and $1000 for a second offence in a 12-month period, and a $1500 for a third offence in a 12-month period.

This provision of *the Act* can be and has been used to address egregious driver behaviour near cyclists. However, the large fine for the offence sometimes limits a peace officer's appetite for use of this section with less serious, yet still improper activities, such as failing to slow as appropriate when in the vicinity of cyclists. This proposed new amendment to the *Traffic Bylaw* will provide more discretion for Regina Police Service's enforcement to ensure motorists are penalized for more moderate unsafe acts near cyclists.

It should be noted that adding this proposed amendment to the *Traffic Bylaw* does not preclude Regina Police Service from issuing an offence under S*ection 213* of *the Act*, rather this proposed bylaw amendment and the choice of provision would be at the officer's discretion based on the severity of the incident.

Amendment 3:
Prohibit the driver of a vehicle from following a cyclist more closely than is reasonable and prudent, without due regard for the speed of the bicycle. Establish a fine for violation of $100.

Anecdotal accounts from cyclists self-reporting hazards or near miss incidents indicate they frequently experience aggressively encounters with impatient motorists when operating on narrow or obstructed roadways with insufficient room for the faster moving vehicle to pass the cyclist. The intent of this provision would be to penalize a driver who follows a cyclist closer than is reasonably safe, whether by ignorance, or as a deliberate attempt to intimidate cyclists who are lawfully occupying the street. The requirement to maintain an appropriate distance from a cyclist also improves the vehicle's ability to avoid a collision with a cyclist who stops suddenly or who falls from the bicycle.

It should be noted adding this proposed amendment to the *Traffic Bylaw* does not preclude Regina Police Service from issuing an offence under *Section 213(1)* of *the Act,* which states that "*no person shall drive a vehicle on a highway without due care and attention*".

Amendment 4:
Prohibit the driver of a motor vehicle from passing a cyclist in the same lane that the cyclist is occupying except where the lane width exceeds 4.5 metres and the cyclist is able to safely operate in the far-right of the lane, or the far-left lane of a one-way street. Establish a fine for violation of $85.

The intent of this provision is to ensure motorists have a clear understanding of the right of cyclists to operate as a vehicle in a travelling lane where no dedicated cycling lanes exist.

Where two or more lanes exist in one direction it would also require a motorist to change lanes to pass the cyclist, thus providing a much larger buffer space for the cyclist. Some disruption to traffic may occur where a parking lane does not exist or where a parking lane has many parked cars. The vehicle would then have to wait for the appropriate time to pass a cyclist.

Amendment 5:
Require the driver of a motor vehicle to pass a cyclist at a speed no greater than 50 kilometres per hour, or for streets with a posted speed limit equal to or exceeding 80 kilometres per hour at a speed no greater than 70 kilometres per hour, with exceptions for:

a. passing cyclists who are operating in a designated bicycle lane
b. where two or more lanes of travel in the same direction exist and the vehicle is travelling with at least one full lane away from the cyclist occupying the shoulder

Establish a fine for violation of $180.

This provision requires that a motorist slow down to pass a cyclist on any roadway that has a speed limit of greater than 50 kilometres per hour, where the risk of serious injury or death to a cyclist is greatest. It will also give enforcing officers a definitive standard to use for any motorist who may be speeding while passing a cyclist.

There may be some impact to traffic flow where there are high volumes of traffic operating on a highspeed roadway and vehicles are not able to change lanes and subsequently must reduce their speed. However, the time required to pass a cyclist is minimal and traffic will be able to quickly resume regular operating speeds.

Amendment 6:
Prohibit cyclists from operating on the following roads:

a. Ring Road between Pasqua Street and Victoria Avenue
b. Highway 1 Bypass between Victoria Avenue and City Limits.

Establish a fine for violation of $85

The intent of this provision is to protect cyclists and remove conflict points on a 100 kilometres per hour expressway. The access points on and off the expressway are free-flowing and present a greater hazard to cyclists when compared with highspeed roads with controlled intersections.

Amendment 7:
In addition to Amendment Six, prohibit cyclists from operating on roadways with a posted speed greater than 50 kilometres per hour, unless the cyclist is operating in a designated bicycle lane or upon a paved shoulder of at least two metres. Establish a fine for violation of $85.

The intent of this provision is to ensure cyclists are not encouraged to operate on a roadway which may be unsafe due to the speed differential of vehicular traffic and bicycle traffic and the likelihood of severe injury should a collision occur.

This proposed prohibition also decreases the hazards for vehicular traffic when travelling at higher speeds encounter an unexpected cyclist and where motorists are unable to slow down as appropriate to pass. The provision provides exemptions where the City of Regina has constructed appropriate infrastructure for cyclists. For example, under this provision, cyclists would be able to operate in the bicycle only lanes on Wascana Parkway which is a 70 kilometres per hour expressway.

This provision also supports the establishment of maximum passing speeds in the Amendment Five.

Amendment 8:
Add bicycles to *section 53* of the *Traffic Bylaw* which already states that no person shall open the door of a vehicle unless it is safe to do so and can be done without interfering with the movement of traffic. Change the fine for violation from $70 to $180.

A frequent concern for cyclists is the hazard of stopped vehicles suddenly opening a car door into their travelling path without adequate time to stop or safely maneuver around the obstacle, resulting in a collision between the cyclist and the car door. This type of collision is known as ‘dooring’. Although cycling collision data is inconsistently collected in North America, a review of available data, studies and self-reported anecdotal accounts, suggest that of the collisions where cyclists are not at-fault, dooring is one of the leading causes of injury.

The *Traffic Bylaw* currently has this provision and is enforceable as written, but an explicit reference to cyclists will help to frame the concern in a manner that better highlights the risk as being one to road user (cyclist) rather than to property (driver’s car door).

The existing fine amount for this offence is $70. Administration recommends a fine increase to $180 in keeping with other summary offence fines in the *Traffic Bylaw* for drivers of vehicles with respect to offences towards vulnerable road users, such as pedestrians. Jurisdictions vary in their fine amounts for this offence, with examples ranging from $81 (BC) to $365 (Ontario) or the highest amount noted, $1000 (Chicago, USA).

It should be noted the proposed amendment does not require a cyclist collision or injury be sustained to be considered an offence.

In addition to the proposed amendment, Administration intends to include motorists’ safe door opening in the forthcoming educational campaign. Where protected or separated cycling infrastructure exists, the risk of ‘dooring’ will also be diminished.

Amendment 9:
Require cyclists riding at a speed slower than the normal and reasonable flow of motor vehicle traffic to ride as near to the right side of the right through lane as is safe with exemptions for:

a. all road hazards including fixed objects, parked or moving vehicles and road surface hazards
b. when operating in a bicycle only lane, protected bicycle lane, advisory bicycle lane or upon a cycle track or mixed-use path
c. executing a left turn
d. overtaking another vehicle or cyclist traveling in the same direction
e. for one-way roads with more than one lane, cyclists may also ride as near to the left side of the left through lane as is safe

Establish a fine for violation of $20.

This provision is typically a standard provision in provincial legislation; however, it is not present in Saskatchewan's *Traffic Safety Act*. Adding this provision to the *Traffic Bylaw* will enhance the other cycling amendments with respect to motor vehicle interactions. This provision will allow for adequate traffic flow in most situations while encouraging safe passing of cyclists by motorists.

The provision provides flexibility to cyclists to consider hazards such as the risk of dooring from a parked car and adjust their position in the lane accordingly to provide an appropriate buffer space.

The $20 fine is in keeping with other fines issued to cyclists in the *Traffic Bylaw*, such as riding bicycles more than two abreast.

Amendment 10:
Add an exemption to *section 32* of the *Traffic Bylaw* for parking a vehicle on a street at the edge which is furthest from the right-hand curb of a bicycle buffer which is adjacent to a protected bicycle lane.

This amendment will allow vehicles to treat the bicycle buffer for a protected bicycle lane in the same manner vehicles treat a curb for parallel parking. The combination of a bicycle buffer and parked cars provide enhanced protection for cyclists from moving vehicles who operate between the curb and the buffer followed by a parking lane.

Amendment 11:
Requiring vehicles to park within 0.3 metres of the edge which is furthest from the curb of a bicycle buffer that is for an adjacent protected bicycle lane. Establish a fine for violation of $70.

This amendment is important to ensure that vehicles do not park too far away from the bike buffer and encroach into a driving lane. This provision is necessary to support new

protected bicycle lanes, such as the 2020 Cycling Infrastructure Project on Park Street. A $70 fine is consistent with the offence for parking too far from a curb.

Amendment 12:
Prohibit the parking of a vehicle on any portion of a designated bicycle lane or bike buffer with an exemption for any vehicles owned by or under contract to the City of Regina, which is engaged in maintenance or construction activities. Establish a fine for violation of $70.

This proposed amendment ensures that dedicated cycling infrastructure remains unobstructed for use by cyclists. It is important to note that the bike buffer should also remain unobstructed to ensure it can be effectively used as a protective space between passenger car door openings and the bicycle lane. A $70 fine is consistent with other no-parking infraction fines, such as the fine for parking on a sidewalk.

Amendment 13:
Prohibit the stopping of a vehicle on any portion of a designated bicycle lane or bike buffer except where direct by a police or traffic control device, and with an exemption for any vehicles owned by or under contract to the City of Regina, which is engaged in maintenance or construction activities. Establish a fine for violation of $70.

This amendment ensures that dedicated cycling infrastructure remains unobstructed for use by cyclists. A $70 fine is consistent with other no stopping infraction fines.

Amendment 14:
Permit cyclists to operate on a street designated as a one-way street in the opposite direction where a contraflow bicycle only lane exists as marked by signs or pavement markings.

This amendment would ensure bicycles can operate in a designated contraflow bicycle lane despite traveling against the prescribed one-way direction required for vehicles. It should be noted it would still be an offence for a cyclist to operate in the wrong direction of a one-way street without dedicated cycling infrastructure. This offence currently exists in the *Traffic Bylaw* for all vehicles, including cyclists with a fine for offence of $100. It would be at an officer's discretion to issue a ticket to a cyclist for this offence.

Amendment 15:
Amend the list of bike lanes in *Section 9.1(1)* of the *Traffic Bylaw* to include new and forthcoming bicycle only lanes:

a. extend Lorne Street to 12th Avenue
b. add Chuka Boulevard from Arcola Avenue to Keller
c. add Wascana Gate South on street bike lanes from Prince of Wales Drive to Wascana Circle
d. add forthcoming Park Street from Douglas Avenue to 17th Avenue

This amendment is a housekeeping update to the designated list of bicycle only lane locations.

Amendment 16:
Establish a new section for Advisory Bicycle Lanes, including the requirements for motorists to yield to bicycles already in the advisory lane, and to follow behind the cyclist until such a time as it is safe to return to the shared vehicular driving lane.

Establish a fine for the offence of a motorists failing to yield to cyclists in advisory lanes of $180.

This amendment is primarily a housekeeping amendment to create a new list of advisory bicycle lane locations.
The proposed fine of $180 is consistent with the offence of failing to yield when pulling out from a curb lane on any street. It is also consistent with the fine for similar offences in *the Act*.

Administration is implementing an educational initiative in the 2020 and 2021 for motorists practicing safe passing behaviours for cyclists as a part of a larger educational campaign. The educational campaign can encompass aspects of cycling safety to align with the recommended bylaw revisions, as well as the benefits of wearing helmets and the use of additional safety equipment on bicycles.

Option 2: Establish minimum passing distances in the *Traffic Bylaw*
(Not Recommended)

Item 17 is the requested amendment and is not recommended for the reasons identified below. If Council chooses to approve item 17 of Option 2, then proposed amendments 2-5 from Administration's recommended Option 1 are incompatible and should be removed from any approved combination of Option 1 and Option 2.

In this instance, items 2-5 could be reconsidered at a future time based on the efficacy of item 17.

Amendment 17:
Require the driver of a motor vehicle to pass a cyclist with a minimum distance of 1.0m on roads with a speed limit of 50 kilometres per hour or less and require the driver of a motor vehicle to pass a cyclist with a minimum distance of 1.5m on roads with a speed limit exceeding 50 kilometres per hour.

Establish a fine for violation of $180.

Advantages:

Motorists have clear guidance on a prescribed safe passing distance. The distances specified are aligned with best practices for passing cyclists. Residents may be more encouraged to choose cycling as a transportation with a regulated passing distance.

Disadvantages:

Enforcement Issues:

The primary issue with enforcing this section of the *Traffic Bylaw* will be measuring the distance between a cyclist and a motorist while they are in motion. Administration has discussed this issue extensively with Regina Police Service who would be tasked with enforcing this moving violation. Regina Police Service advised Administration that an enforcing officer would not have a method of confidently and accurately measuring the distance between the motorist and cyclist while the parties were in motion, in a manner that would yield a successful prosecution. Other jurisdictions have used a measurement device that can be installed on the bicycle however that would only be useful in situations where the officer is the cyclist and would not benefit regular cyclists operating on the road network.

The addition of the provision in the Bylaw could increase the number enforcement requests to Regina Police Service from cyclists. While complaints would be investigated, the process is lengthy and unlikely to lead to charges or successful convictions.

Traffic Flow Impacts:

A cyclist passing distance amendment may cause some traffic flow issues where motorists are unable to pass cyclists due to insufficient widths or where a centre line precludes passing. The designs of some roadways may not leave enough room for a motorist to pass a cyclist which is in a bicycle only lane. If this amendment is pursued Administration would recommend an exclusion of this section for passing cyclists who are in dedicated bicycle only lanes.

In addition, this amendment could become problematic at signalized intersections. If a cyclist is waiting in the curb lane for a red light a vehicle would not be able to pass to make a right turn at the red light. The designs of the City of Regina's signalized intersections rely on this movement and limiting it may create some traffic flow issues at some intersections. If this amendment is pursued Administration would recommend that it apply only to cyclists in motion.

DECISION HISTORY

At the October 28, 2019 meeting of City Council, a referral motion (*MN19-19*) was passed and it was resolved that a report would be brought back to Community & Protective Services Committee containing additional cycling safety information and a municipal review of fines and Bylaws as they relate to Cycling Safety.

At its April 29, 2020 meeting of City Council reports (*CPS20-8* and *CR20-22*) were considered in response to *MN19-19* and it was resolved to implement an educational awareness campaign regarding motorist and cycling distances as well as the use of helmets and cycling safety.

Respectfully Submitted,

Chris Warren, Director, Roadways & Transportation 8/21/2020

Respectfully Submitted,

Kim Onrait, Executive Director, Citizen Services 9/15/2020

Prepared by: Carolyn Kalim, Manager, Traffic Engineering

ATTACHMENTS

Appendix A - Proposed Amendments to the Regina Traffic Bylaw
Appendix B - Definitions for Cycling Report
Appendix C - Jurisdictional Review of Amendments

Appendix A
Proposed Amendments to *The Regina Traffic. Bylaw No. 9900*

Amendment 1:
Add definitions for cycling infrastructure that includes both existing and future road treatments:

a. Bicycle Lane
b. Bicycle Lane Buffer
c. Protected Bicycle Lane
d. Advisory Bicycle Lane
e. Bicycle Boulevard
f. Bicycle box
g. Bicycle Cross-Ride
h. Multi Use Cross-Ride

Amendment 2:
Require the driver of a vehicle to drive in a manner that is reasonable and prudent when approaching any special hazard that exists with respect to cyclists or other active transportation modes.

Establish a fine for violation of $180.

Amendment 3:
Prohibit the driver of a vehicle from following a cyclist more closely than is reasonable and prudent, without due regard for the speed of the bicycle.

Establish a fine for violation of $100.

Amendment 4:
Prohibit the driver of a motor vehicle from passing a cyclist in the same lane that the cyclist is occupying except where the lane width exceeds 4.5 metres and the cyclist is able to safely operate in the far-right of the lane, or the far-left lane of a one-way street.

Establish a fine for violation of $85.

Amendment 5:
Require the driver of a motor vehicle to pass a cyclist at a speed no greater than 50 kilometres per hour, or for streets with a posted speed limit equal to or exceeding 80 kilometres per hour at a speed no greater than 70 kilometres per hour, with exceptions for:

a. passing cyclists who are operating in a designated bicycle lane
b. where two or more lanes of travel in the same direction exist and the vehicle is travelling with at least one full lane away from the cyclist occupying the shoulder

Establish a fine for violation of $180.

Amendment 6:
Prohibit cyclists from operating on the following roads:

a. Ring Road between Pasqua Street and Victoria Avenue
b. Highway 1 Bypass between Victoria Avenue and City Limits.

Establish a fine for violation of $85

Amendment 7:
Prohibit cyclists from operating on roadways with a posted speed greater than 50 kilometres per hour, unless the cyclist is operating in a designated bicycle lane or upon a paved shoulder of at least two metres.

Establish a fine for violation of $85.

Amendment 8:
Add bicycles to section 53 of the Traffic Bylaw which already states that no person shall open the door of a vehicle unless it is safe to do so and can be done without interfering with the movement of traffic.

Change the fine for violation from $70 to $180.

Amendment 9:
Require cyclists riding at a speed slower than the normal and reasonable flow of motor vehicle traffic to ride as near to the right side of the right through lane as is safe with exemptions for:

a. all road hazards including fixed objects, parked or moving vehicles and road surface hazards
b. when operating in a bicycle only lane, protected bicycle lane, advisory bicycle lane or upon a cycle track or mixed-use path
c. executing a left turn
d. overtaking another vehicle or cyclist traveling in the same direction
e. for one-way roads with more than one lane, cyclists may also ride as near to the left side of the left through lane as is safe

Establish a fine for violation of $20.

Amendment 10:
Add an exemption to *section 32* of the *Traffic Bylaw* for parking a vehicle on a street at the edge which is furthest from the right-hand curb of a bicycle buffer which is adjacent to a protected bicycle lane.

Amendment 11:
Requiring vehicles to park within 0.3 metres of the edge which is furthest from the curb of a bicycle buffer that is for an adjacent protected bicycle lane.

Establish a fine for violation of $70.

Amendment 12:
Prohibit the parking of a vehicle on any portion of a designated bicycle lane or bike buffer with an exemption for any vehicles owned by or under contract to the City of Regina, which is engaged in maintenance or construction activities.

Establish a fine for violation of $70.

Amendment 13:
Prohibit the stopping of a vehicle on any portion of a designated bicycle lane or bike buffer except where direct by a police or traffic control device, and with an exemption for any vehicles owned by or under contract to the City of Regina, which is engaged in maintenance or construction activities.

Establish a fine for violation of $70.

Amendment 14:
Permit cyclists to operate on a street designated as a one-way street in the opposite direction where a contraflow bicycle only lane exists as marked by signs or pavement markings.

Amendment 15:
Amend the list of bike lanes in *Section 9.1(1)* of the *Traffic Bylaw* to include new and forthcoming bicycle only lanes:

a. extend Lorne Street to 12th Avenue
b. add 13th Avenue from York Street to Pasqua Street – postponed to 2021
c. add Chuka Boulevard from Arcola Avenue to Keller
d. add Wascana Gate South on street bike lanes from Prince of Wales Drive to Wascana Circle
e. add forthcoming Park Street from Douglas Avenue to 17th Avenue

Amendment 16:
Establish a new section for Advisory Bicycle Lanes, including the requirements for motorists to yield to bicycles already in the advisory lane, and to follow behind the cyclist until such a time as it is safe to return to the shared vehicular driving lane.

Establish a fine for the offence of a motorists failing to yield to cyclists in advisory lanes of $180.

Appendix B – Definitions

Bicycle Lane:

- That portion of a longitudinal division of a highway designated for bicycles only by this bylaw and is indicated through signs and/or pavement markings as being for bicycles only.

Bicycle Lane Buffer:

- That portion of longitudinal division of a highway which separates cyclists from vehicle parking or vehicle travelling lanes through the use of signage, pavement markings or delineation elements.

Protected Bicycle Lane:

- A bicycle lane which is physically separated from a travelling lane through the use of:
    - an adjacent parking lane
    - delineation elements such as pavement markings, posts, barriers, or other infrastructure

Advisory Bicycle Lane:

- That portion of a longitudinal division of a highway that is designated through this bylaw and is indicated through signs and/or pavement markings dividing it into the following configuration:
    - two uni-directional lanes indicated through signs and/or pavement markings that cyclists have the right-of-way, and that vehicles must yield to cyclists in these lanes
    - one bi-directional central vehicle travelling lane which is insufficiently wide for two vehicles to pass each other without merging into the uni-directional lanes

Bicycle Boulevard:

- A highway which emphasizes the shared use of the road by cyclists and motorists through signs, pavement markings and design elements.

Bicycle box

- That portion of a highway intersection which is designated through signs and pavement markings as reserved for cyclists making turning movements at intersections.

Bicycle Cross-Ride

- That portion of a public highway designated by signs, pavement markings, or combination thereof, for use by cyclists to cross a public highway.

Multi Use Cross-Ride

- That portion of a public highway designated by signs, pavement markings, or combination thereof, for use by cyclists and pedestrians to cross a public highway.

Appendix C
Jurisdictional Review of Amendments

Amendments	Description	Provincial Acts & Municipal Bylaws Reviewed							
		Saskatchewan			Alberta		BC	Ontario	
		Moose Jaw	Prince Albert	Saskatoon	Calgary	Edmonton	Vancouver	Ottawa	Toronto
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Drive reasonalble when approaching any special hazard	Prov.	Prov.	Prov.	Mun.	No	Prov.	Prov.	Prov.
3	Prohibit vehicle from following a cyclist closely	No	No	No	Mun.	No	Prov.	Prov.	Prov.
4	Prohibit a vehicle from passing a cyclist in the same lane that the cyclist is occupying	No	No	No	No	No	No	No	No
5	Prescribe maximum passing speeds.	No	No	No	No	No	No	No	No
6	Prohibit cyclists from operating on certain roads	No	Mun.	Mun.	Mun.	No	Prov.	Prov.	Prov.
7	Prohibit cyclists on roadways with a posted speed greater than 50 km/h	No	No	No	Mun.	No	No	Prov.	Prov.
8	Opening the door of a motor vehicle when unsafe on the side adjacent to moving traffic	Mun.	Mun.	Mun.	Mun./Prov.	Prov.	Prov.	Prov.	Prov.
9	Slower traffic to ride as near to the right side of the right through lane	No	No	Mun.	Mun.	Mun.	Prov.	Mun./Prov.	Mun./Prov.
10	Allow parallel parking floating away from curb and next to a protected bike lane.	No	No	No	No	No	No	No	No
11	Prescribe maximum distance vehicles may park away from a protected bike lane.	No	No	No	No	No	No	No	No
12	Prohibit the parking of a vehicle on any portion of a designated bicycle lane or bicycle buffer	No	No	Mun.	Mun.	Mun.	Mun.	Mun.	Mun.
13	Prohibit the stopping of a vehicle on any portion of a designated bicycle lane or bicycle buffer	No	No	No	Mun.	Mun.	Mun.	Mun.	Mun.
14	Permit cyclists to operate on a street designated as a one-way street in the opposite direction	No	No	No	Mun.	Mun.	No	Mun.	Mun.
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	Establish a new section for Advisory Bicycle Lanes	No	No	No	No	No	No	Mun.	Mun.
17	Minimum passing distance of 1.0 m	No	No	Mun.	Mun.	No	No	Prov.	Prov.

Annual Winter Maintenance Summary Report 2019/ 2020

Date	September 23, 2020
To	Public Works and Infrastructure Committee
From	Citizen Services
Service Area	Roadways & Transportation
Item No.	PWI20-7

RECOMMENDATION

That the Public Works and Infrastructure Committee receive and file this report.

ISSUE

This report provides a summary of the City of Regina's (City) Winter Maintenance operations for the 2019/2020 winter season, including highlights, major operational challenges, actions taken to mitigate these challenges and key takeaways for future winter seasons.

IMPACTS

There is no accessibility, financial, environmental, policy/strategic, risk/legal or other implications or considerations with this report.

OTHER OPTIONS

There are no other options to consider with this report.

COMMUNICATIONS

Residents were advised of general winter maintenance operations and activities through several paid communication tactics such as radio, television and online advertising. These were reduced in frequency due to the below average snowfalls. Using the City of Regina's

(City) social media channels, information was shared about various aspects of the winter maintenance program to help create realistic expectations about service levels.

As part of the winter maintenance policy review, Administration engaged with residents and both internal and external stakeholders to gather feedback. This feedback will be provided in the corresponding Winter Maintenance Policy Update report.

DISCUSSION

The Winter Maintenance Policy (Policy) was approved by City Council and implemented in November 2007. The Policy guides operations to effectively support 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 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.

Appendix A provides a detailed summary of the 2019/2020 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. There were only five days with more than two centimetres of snow during the season and only 64 freeze thaw days. The season can be summarized as follows:

- below average winter season
- below average snowfalls
- above average temperatures – generally warmer winter season temperatures
- reduced slippery conditions due to lower number of freeze/thaw cycles as compared to average number
- almost 50 per cent reduction in number of days with snowfalls over two centimetres
- significantly lower number of service requests during the season

Budget and Expenditures

The 2019 Winter Maintenance operating budget was $8.86 million and total expenditures were $7.70 million in the fiscal year. The reduced expenditure was due to below average environmental conditions during the year and general operational efficiencies.

The 2020 budget is $8.809 million, with current expenditures of $3.28 million as of July 30, 2020. The total expenditures for 2020 are forecasted to be $6.85 million, based on average conditions expected for October to December. In addition, the Winter Maintenance budget was reduced by $1.4 million to offset the projected negative financial implications of Covid-19, resulting in an updated forecasted expenditure of $8.25 million.

Policy Objective Achievement

Regina experienced two snow events requiring plowing operations and winter maintenance activities outlined in the Policy. Plowing and ice control objectives were met during the season.

Key highlights of the achievements include:

- successfully completed systematic plowing of roads during two storms in the season
- applied more than 10,450 tonnes of sand and salt during the season to mitigate slippery road conditions due to increased freeze thaw cycles
- supplied over 53 tonnes of sand to various sandbox locations for residents to use on their sidewalks and driveways
- generated $297,000 revenue at the Snow Storage Site during 2019
- stored and maintained over 260,000 cubic metres of snow at the Snow Storage Site
- responded to 1,002 Service Requests with 86 per cent contact rate
- performed liquid salt trials (pre-wetting) on additional street sections
- efficient utilization of crews resulted in a total cost savings and cost avoidance of $871,000 during the season

Service Requests

During 2019/ 2020 winter season there was a significant drop in the number of Service Requests over previous winters. This could be attributed to a very mild winter season. Of the 1002 service requests received, almost 45 per cent were related to ice-control on roads and sidewalks.

Efficient Utilization of Crews during Mild Winter

With a mild winter season crews supported activities such as hauling of material, checking and filling utility excavation cut repairs and supporting the Pothole Program for roads and alleys.
These efforts brought operational efficiency and resulted in a total cost savings and cost avoidance of $871,277. There was also a significant reduced number of casual employees recalled during the season. This ensured the winter maintenance crews were efficiently engaged and well utilized during the season.

Snow Routes

Snow routes was not required during the season due to less snow accumulation. The planned snow routes pilot study could not be completed on additional 11 kilometers of road sections as per report *CR18-103*. However, the relatively milder winter allowed Administration to continue monitoring the pilot locations as done during the benchmarking study and continued interacting with major stakeholders like the Pasqua Hospital parking department to ensure an effective implementation of the program.

Administration will continue to include these 11 kilometres of pilot locations under routine Snow Routes Program.

Liquid Salt Trial for Ice Control

Dedicated ice control equipment was used to gradually extend the liquid salt trials to almost 50 per cent of the arterial and collector roads during the season. The trial results continued to indicate that the pre-wetted material adhered to the pavement better and remained effective for longer periods of time. The sections of the roads where pre-wetted material was applied reached bare pavement condition sooner than with the use of dry sand/salt only. Based on the success of the trials the remaining road network will be brought under the pre-wetting operational plan during 2020- 2021 winter season.

Snow Fence/Snow Ridge Pilot Study

As a result of report *CR19-68*, a pilot study was planned during 2019-2020 season in order to test the benefits and/or drawbacks of snow fences and snow ridges. Due to less snow during the season, sufficient data could not be collected as desired. However, an observation was made that the plastic fence required frequent maintenance and monitoring throughout the season due to windy conditions.

Administration intends to continue the trial in the 2020/2021 season, and the option is referenced in the corresponding Winter Maintenance Policy Update report.

Winter Maintenance Policy Review

A review of the Policy was completed to align with the *Official Community Plan* (OCP), Transportation Master Plan (TMP) and community needs and priorities. The review process included identifying critical areas of concerns in winter maintenance programs based on research of other jurisdictions, study of historic concerns related to winter maintenance, feedback from internal and external stakeholders and recommendation of suitable options for updating the Policy.

The corresponding Winter Policy Update report includes recommendations along with any budget or operational implications. Once the recommendations in the report are considered, an updated Level of Service and Policy document will be brought back to the Public Works and Infrastructure Committee in Q3, 2021 for final review and approval. Any changes to winter maintenance operations will be communicated extensively to residents to ensure awareness in advance of the 202/2022 winter season.

Lessons Learned and Continuous Improvements

As a result of the long-ranged trend analysis of the environmental conditions, Regina has experienced diminishing snow accumulation and warmer temperatures amounts over years and the linear analysis indicates that this trend could possibly continue for coming winters

as well. Although this would influence future planning of winter maintenance programs, consideration would still be given to the possibilities of extreme and unpredictable nature of winter seasons. The Policy survey completed during the spring of 2020 provided good feedback regarding the expected levels of service for key winter maintenance programs.

Considering the above factors and lessons learned from the last season, Administration will be prepared to handle future challenges by undertaking the following actions:

- continue further analysis of the Snow Route Program to the identified critical street sections to be able to clear the roads quicker and more efficiently
- expand the use of liquid salt on all major road categories by adopting pre-wetting technology, improving the time required for roads to reach bare payment conditions
- continue to review options to further improve the material storage facility including possibility of covered storage areas for dry material and safer liquid salt storage areas
- continue with the Snow Ridge Program in the coming season for efficiently handling concerns due to blowing snow around new subdivisions or open areas
- update the Policy following Council considerations and modify current winter maintenance operations to bring operational efficiencies and enhanced levels of service in line with the new Policy
- prepare an emergency winter response plan in consultation with internal and external stakeholders such as Emergency Management, Regina Police Service, Regina Transit, and Solid Waste Operations

DECISION HISTORY

This annual report provides the Public Works and Infrastructure Committee with a brief summary of the previous winter seasons accomplishments, challenges and learnings.

The recommendation in this report is within the delegated authority of the Committee.

Respectfully Submitted,

Chris Warren, Director, Roadways & Transportation 9/1/2020

Respectfully Submitted,

Kim Onrait, Executive Director, Citizen Services 9/15/2020

Prepared by: {Neeraj Saroj, Senior Engineer}

ATTACHMENTS

Appendix A - Annual Winter Maintenance Summary 2019-2020

ANNUAL WINTER MAINTENANCE SUMMARY

2019/2020

Table of Contents

Contents

Introduction

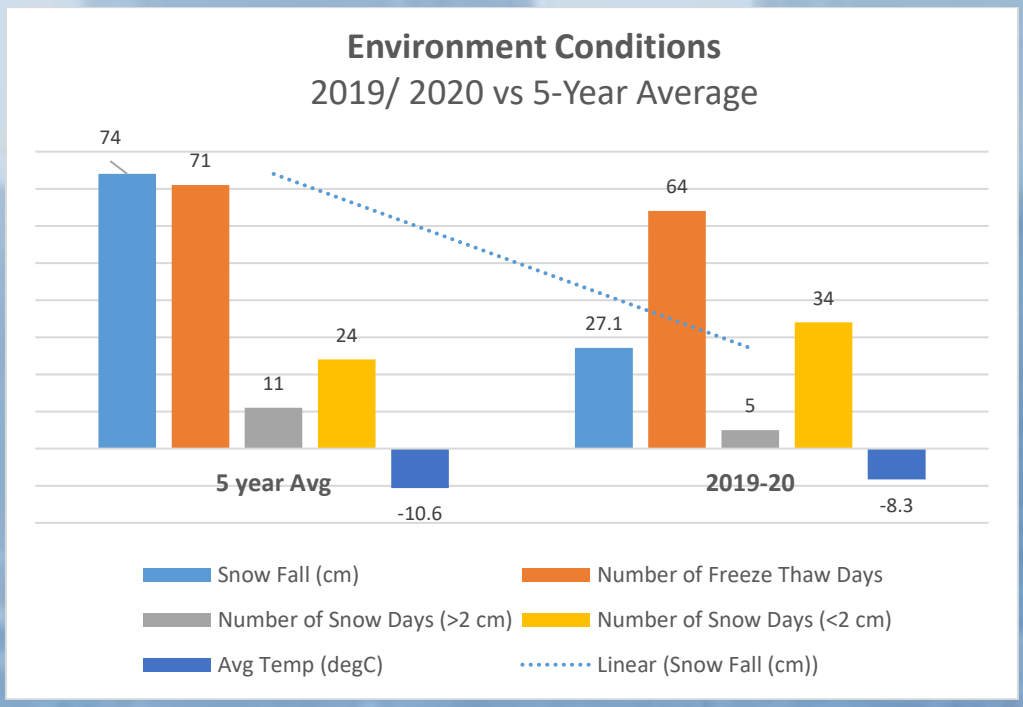
Approved by City Council on December 18, 2006, and implemented in November 2007, the Winter Maintenance Policy (Policy) guides operations that effectively supports the health, safety, attractiveness, and economic viability of the city. Reviewed annually, the Policy was created to provide an acceptable 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.

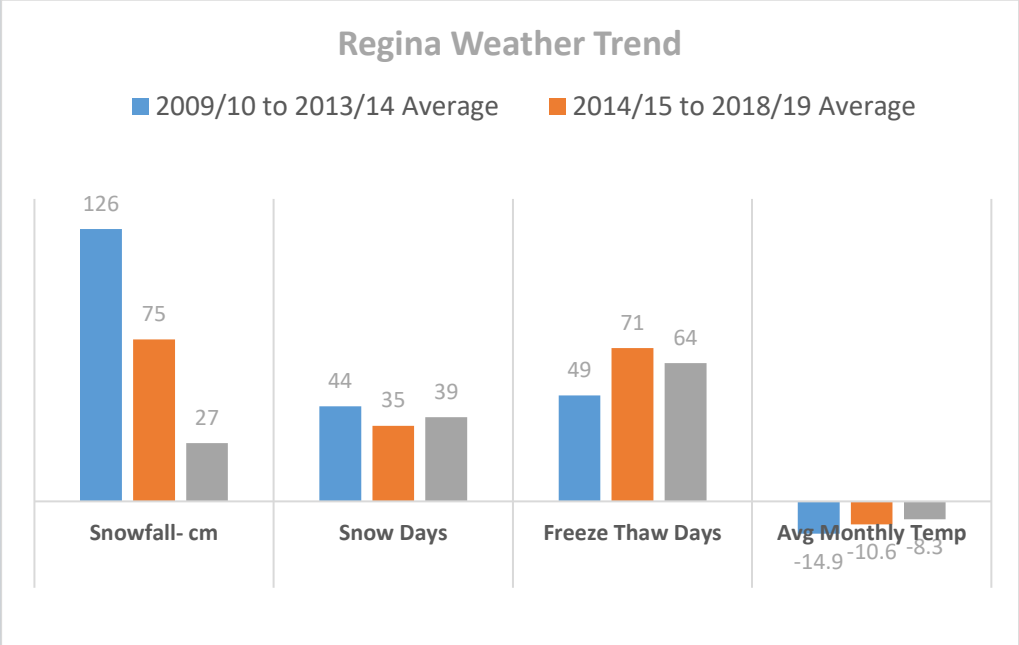
2019/2020 Accomplishments

- successfully completed systematic plowing of roads during two storms in the season
- applied more than 10,450 tonnes of sand and salt to mitigate slippery road conditions due to increased freeze thaw cycles
- supplied over 53 tonnes of sand to various sandbox locations for residents to use on their sidewalks and driveways
- generated $297,000 revenue at the Snow Storage Site (2019)
- stored and maintained over 260,000 cubic metres of snow at the Snow Storage Site
- responded to 1,002 Service Requests with 86% contact rate
- performed liquid salt trials (pre-wetting) on additional street sections
- efficient utilization of winter maintenance crews during milder season, resulted in a total cost savings and cost avoidance of $871,000

Environmental Conditions

The 2019/2020 experienced below average snowfall, below average freeze thaw days and above average daily temperatures

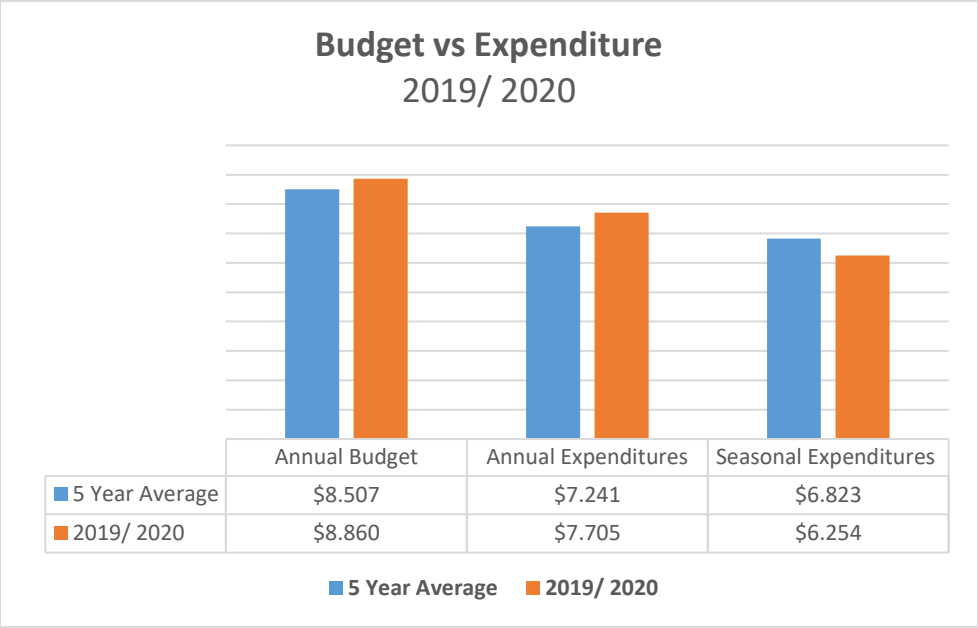




Budget & Expenditures

The Winter Maintenance budget is used for the delivery of services to meet the objectives outlined in the Policy. The 2019 budget was $8.86 million and total expenditures were $7.70 million. The 2019/2020 seasonal expenditures were lower than the respective five-year average values on account of less snow and asa result of close monitoring and anlaysis of winter maintennace activities.

The 2020 budget is $8.80 million, with current expenditures of $3.28 million as of July 30, 2020. The total expenditures for 2020 are forecasted to be $6.85 million based on average conditions expected for October through December.



**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. The amount in Winter Road Maintenance Reserve as on August 25, 2020 is $ 1.80 million.

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 and sanding operations

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

ALLEYS are passable for the collection of solid waste collection and 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

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

1,100 km of roads

10,450 tonnes of sand and salt

$871,277 total cost savings & cost avoidance

The community experienced two snow events requiring major plowing operations and winter maintenance activities outlined in the Policy. Both the storms had snow accumulation amounts close to five centimetres. There were only five days during the season with snowfall amounts more than two centimetres. The month of November saw heavier snow as compared to the rest of the season requiring the entire fleet of City of Regina graders and additional contractor graders to ensure the Policy objectives related to plowing of major roads was met as per guidelines. Both plowing and ice control objectives were met during the season as indicated by reduced number of service requests received during the season.

2019-2020 Major Snow Events

Date	Accumulation	Forecast	Systematic Plow by Category					
			1	**2**	**3**	**4**	**5**	**Alleys**
November 29	4.5 cm over 24 hours	7 cm	x	x				
January 13	4 cm over 24 hours	10 cm	x	x	x	x		

Winter Maintenance Modes

When staff move into the winter season 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 plowed 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.

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.

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

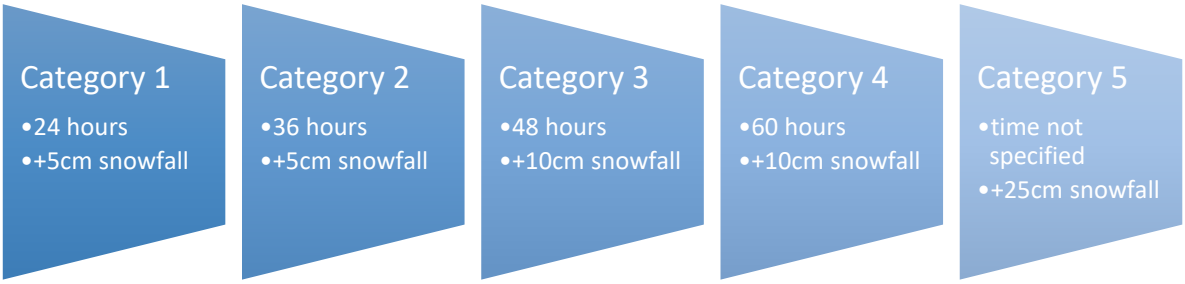
- Lewvan Drive
- Ring Road
- Albert Street
- Broad Street
- Elphinstone Street
- Broadway Avenue
- Regina Avenue

Category 1 roads are cleared within 24 hours and Category 2 roads are cleared within 36 hours, provided the community received over five centimetres 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 ten centimetres 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. Based on five-year average, Category 1 through 4 streets usually experience a Systematic Plow four 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. In the previous years, crews had been performing an average of two residential plows in a season. However, due to reduced snowfall amounts, in the last five years an average of only one residential plow was required.



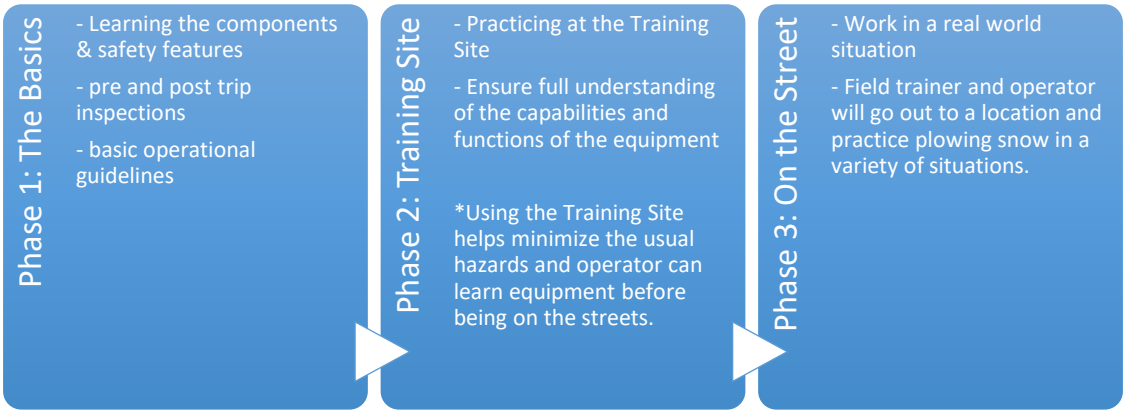
After Systematic Mode is completed, crews go into Routine Maintenance, returning to all roads to ensure that proper plowing operations took place and that the end conditions meet the Policy guidelines or post snow event cleanup including making sure all transit stops have snow ridges cleared to a minimum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

Routine Maintenance 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 there is snow to give operators the experience they need before the snow falls.



To continually improve our operations, we are committed to:

- investigate opportunities to attract more interest from our contractor supporting partners to increase access to additional resources during large snow events
- manage equipment cycle times in a way to ensure sufficient thawing time is provided to each equipment to avoid major equipment breakdowns, especially when the equipment is operating continuously in extreme low temperatures
- continue working closely with teams from Transit Operations, Solid Waste, Traffic Engineering and Communication
- enhance training to supervisors and staff on winter operation best practices

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

Sandboxes

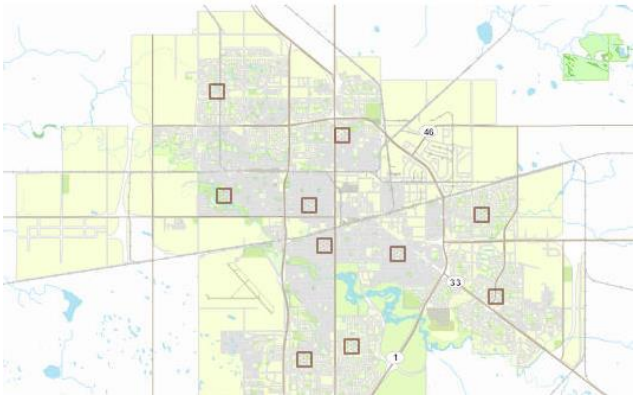
The City of Regina offers free sand at 10 locations throughout the community for residents to use to help keep their sidewalks and driveways safe. You can find the yellow bins at community centers with a map located on the City website. Residents are encouraged to bring their own container and fill it up with sand to use on their sidewalks and driveways.

10 Community Sandboxes

32 fills

53 tonnes of sand

Though the program typically does not receive much attention, the freezing rain we had in last two seasons brought it to the forefront. We ensured the sandboxes were closely monitored and filled with sand at any time during the season, especially when there was a freezing rain or freeze-thaw forecast.



Based on the number of sandbox related Service Requests received during the 2019/2020 season and observations made at the sandbox locations, there was less panic amongst the residents to get sand. The behavior was observed during increased freeze-thaw days in January and February. Throughout the season no instances or situations were reported when the sandboxes were without enough sand.

2019/2020 Service Improvements

Administration will be undertaking the following improvements to the winter maintenance activities:

- make operational changes in line with the updated Winter Maintenance Policy (if approved by Council in the Q3, 2020 meeting)
- implement a communication plan for residents and external stakeholders in order to ensure awareness about the changes in the Policy
- ensure City of Regina crews and internal stakeholders are fully aware and trained on the changes in the winter maintenance operation.
- ensure crews and other staff are aware of the new service levels and timelines
- continue working on options for improving ice control material storage facility
- expand the use of liquid salt citywide by adopting pre-wetting technology to allow sand to better adhere to the road surface and to improve the time required for roads to become bare pavement

- continue and expand the Snow Routes Program in order to be able to clear roads quicker and more efficiently
- ensure the tendering process for contracted services in the winter allows to have more equipment available in a major event
- perform intersection safety study to categorize intersections for service priority

Communication with the Community

Through the 2019-2020 winter season, residents were advised about general winter maintenance operations and activities using a flexible weather-responsive approach through several paid communication tactics such as radio, television and online advertising. This flexible approach means the campaign started and stopped based upon actual weather and forecasts, rather than a traditional campaign that runs the entire season. This approach allows the City of Regina to provide messaging to residents about the road conditions being experienced in the moment.

In addition to the paid advertising campaign, the City of Regina's social media channels were also used to share information about various aspects of the winter maintenance program. Nine posts were shared between December and March, averaging 639 engagements on each. One of the posts used a video which had more than 11,000 video plays.

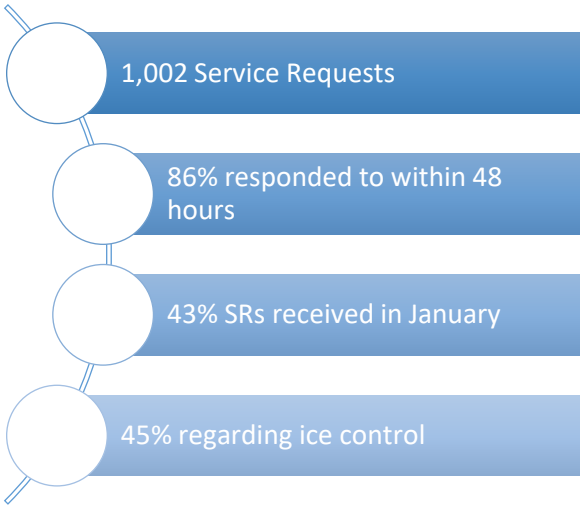
During the winter season, there were more than 13,500-page views to the winter section on Regina.ca. This number is slightly higher than in past years as residents have less pages to navigate through to find information, thanks to the update to the City of Regina's website.

In addition to the communications for winter maintenance operations and activities, Administration also engaged with community and stakeholders to gather feedback for the Winter Maintenance Policy Review. This feedback will be provided in the upcoming report.

Service Requests

The Seasonal Roadways Operations Branch received 1,002 Service Requests. This number is a major reduction compared to the peak of 10,315 Service Requests in 2012, 3,109 in 2017/2018 season and less than half of the five-year average. Consistent application of Policy guidelines, success in meeting targets, and ongoing communication strategies on our levels of service have contributed to this decline. Most 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. 111 customers requested a call back; we achieved 86 per cent contact within the 48-hour corporate timeline.

The two snowstorms during November and January accompanied by cold temperatures and gusty winds generated 611 or 61 per cent of all Service Requests and focussed primarily on ice control and plowing on sidewalks and streets, and snow ridges. Out of a total of 1002 service requests, almost 45 per cent were related to ice-control on roads and sidewalks. Maximum ice-control related service requests were received during the month of November. Overall, January received the maximum number of service requests during the season including plowing, ice-control and other winter activities.



Most concerns were addressed by explaining the operations and what residents can expect during storm response. Blocked driveways and snow plow in alleys were also brought to our attention vie Service Regina and addressed in a timely manner.

Generally, most of the Service Requests received during the season focused on ice control. This is because of the above average number of freeze and thaw cycles throughout the season.

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
•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 Operations •Service Regina •Solid Waste Operations •Landfill Services •Roadway Maintenance Operations

External Stakeholders
•Bike Regina •Regina Public School Division •Regina Catholic School Division •Regina Downtown Business Improvement District •RM of Sherwood •Regina Bypass •Ministry of Highways

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 events in January and February.

Efficient Utilization During Mild Winters

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. During mild winter season, our crews provided trucking and hauling services creating a cost avoidance to the winter maintenance budget and an additional costs savings of $304,000 in performing the work in favour of contracted services. In addition, the crews addressed potholes and sunken utility cuts that become hazardous throughout the season contributing to a cost avoidance of more than $566,000 to the Winter Maintenance budget.

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 five-kilometre section of roads during the 2017-2018 winter season. The pilot 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 respondent's support expanding the Snow Route Program.

As per Report *CR18-103*, Council has approved an expansion of the pilot, adding an additional eleven kilometres to the Snow Route Project. The expansion will be part of a staged approach, continuing with criteria that made Phase 1 successful. Phase 2 expansion was implemented in the 2019-2020 season with capital costs related to signage installation and communication efforts taking place in the summer of 2019.

Since there was less snow in 2019/ 2020 season, no snow routes were declared. Although we could not get the desired, we were able to study the issues on the 11 km stretch even with less snow due to parked cars.

Liquid Salt for 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.

Dedicated precision sanding equipment were used to conduct liquid salt trials on some larger street sections in the city during the season. The trial activity included providing hands on training to the equipment operators on the new sanding equipment as well as effective utilization of prewetting technology using liquid salts. The trial results were consistent with the trial outcomes from the previous season when trials were conducted on smaller road sections.

Because the trials were successful, we will be expanding the program to the entire arterials and collector road network by end of 2020/2021 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.

Winter Maintenance Policy Review

The results of the review will be brought to City Council for discussion and approval in late 2020 with budget implications and new Policy implementation for 2021. Should the recommendations for the Policy be approved Administration will utilize Q1, Q2 and Q3 of 2021 to make suitable changes in the operation. This will include updating standard operating procedures, staff training, collaborating with other branches in the City of Regina and educating external stakeholders on the new updates. A communication plan will include informing the residents of any changes in the Policy before the new policy is implemented in November 2021.

Snow Fence vs Snow Ridge

As a result of report *CR19-68*, a pilot study was planned during 2019-2020 season in order to test the benefits and/or drawbacks of snow fences and snow ridges. As part of the trial, snow fence was installed on a road section on Courtney Street around the open area before the season. An equal stretch of the adjoining open area was identified to create snow ridges for comparison.
Although the season saw a few windy days with blowing snow, there was not enough snow available to create snow ridges and no reports of any road blockage concerns due to snow drifts. This was true for both the road sections along the snow fenced section as well as the open area where snow ridges had to be installed if there was enough snow. One observation that was made during the study was that the vendor had to send their crew at least four times during the season to fix the plastic snow fence that required frequent maintenance and monitoring after strong winds. The number of snow fence related service calls increased due to installation of the snow fence for the purpose of trial.

Administration intends to extend the trial period into the 2020/2021 season.

Winter Maintenance Policy Update

Date	September 23, 2020
To	Public Works and Infrastructure Committee
From	Citizen Services
Service Area	Roadways & Transportation
Item No.	PWI20-8

RECOMMENDATION

The Public Works and Infrastructure Committee recommends that City Council:

1. Consider the Winter Maintenance Policy Update during the 2021 Budget process.

2. Approve this recommendation at its September 30, 2020 meeting.

ISSUE

The purpose of this report is to review the City of Regina's (City) Winter Maintenance Policy (Policy) for snow and ice management services and to provide recommendations to update the Policy in alignment with City's *Transportation Master Plan* (TMP) and the *Official Community Plan* (OCP) and community needs.

IMPACTS

Accessibility Impact:
One of the enhancements to the Policy could include enhanced snow clearing on sidewalks adjacent to transit stops, making them more accessible for all users.

Financial Impact:
Administration undertook an evaluation and analysis of the environmental conditions over the last ten years and it demonstrates that Regina is experiencing a reduced amount of snow accumulation and number of snow days in recent years, resulting in a cost savings of

$1.2 million annually. Further details can be found in appendix A.

Any approved enhancements to the Policy would result in additional expenditures on an annual basis.

The Winter Road Maintenance Reserve has a current balance of $1.8 million and is sufficient to cover expenditures during an above average winter season if conditions exceed historic averages.

Policy/ Strategy Impact:
The recommendations support the Transportation Master Plan (TMP) and the D*esign Regina: The Official Community Plan* (OCP), specifically:

Section D3, Transportation:

- *Goal 1 – Sustainable Transportation Choices; Offer a range of year-round sustainable transportation choices for all, including a complete street framework.*
- *Goal 2 – Public Transit; Elevate the role of public transit.*
- *Goal 3 – Integrated Transportation and Land Use Planning; Integrate transportation and land-use planning in order to better facilitate walking, cycling, and transit trips.*
- *Goal 4 – Road network Capacity; Optimize road network capacity.*
- *Goal 5 – Active Transportation; Promote active transportation for healthier communities*

The recommendations also support Council's resolution to continue providing winter maintenance that effectively supports the health, attractiveness, and economic viability of our community.

Environmental Impacts:
Any recommended Policy updates would enhance general ice control practices while still adhering to Environment Canada and Transportation Association of Canada (TAC) guidelines on responsible road salt usage. A better coordinated Ice Control Program will optimize the use of sand and salt while providing improved driving conditions.

Risk/Legal Impacts:
Administration will ensure the updated Policy document continues to serve as a legal document defining levels of service in the community, and roles and responsibilities of the Administration, City Council and residents.

OTHER OPTIONS

Administration is recommending that the winter maintenance policy update and any recommended enhancements or subsequent possible reductions to the budget be considered through the 2021 Budget process. An alternative to that option is:

Option 2: Status Quo Policy
The resident survey showed that general satisfaction is high, except for the residential roads level of service. Administration could continue to operate the winter maintenance program on a status quo basis.

COMMUNICATIONS

Administration will develop a comprehensive communications strategy once budget approval has been received from City Council on any of the recommended enhancements. This will be used prior to and during the implementation of the updated Policy in 2021. The estimated cost is expected to be approximately $35,000 annually and is included in the recommended Policy enhancements.

Administration will collaborate with community partners such as Regina Police Service, Canadian Automobile Associate (CAA), school boards, Community Associations, Regina Accessibility Committee, Regina Downtown Business Improvement District (RDBID), Saskatchewan Health Authority (SHA), and SGI in order to educate key stakeholders on the Policy enhancements.

DISCUSSION

The Winter Maintenance Policy (Appendix B) was approved by City Council in 2007 with the purpose of providing winter maintenance activities that support the health, attractiveness, and economic viability of our community. Since then, the community has experienced growth, environmental conditions have changed, and the wants and needs of residents has evolved. The City also adopted long-term strategies such as the *OCP* and *TMP* to achieve the City's vision and help guide our community into the future.

As part of the Policy review, Administration conducted a resident survey, engaged with internal and external stakeholders, evaluated previous feedback and Service Request data, researched policies in other cities, studied winter maintenance cost comparison for various cities under the MBN Canada Performance Measurement Report and evaluated gaps in the current Policy. More details can be shown in Appendix C. Although feedback from the survey showed that general satisfaction is high, the overall review identified several themes for consideration, some of which require City Council approval and others that can be implemented through operational changes.

Several options were reviewed and considered regarding possible enhancements to winter maintenance levels of service. Options were chosen based on survey and stakeholder feedback, financial viability and operational capacity. Administration is proposing the following Policy enhancements and would undertake to bring a Policy Level of Service document back to City Council in Q3 2021 for final approval. It should also be noted that activities contained in the current Policy and not identified in this enhancement report would be included in the new Policy and continue to be carried out as status quo.

Policy Enhancement 1 – Communication Plan
Implement an enhanced communication plan annually.

In previous years, the Roadways Seasonal Operations branch worked with the Citizen Services department to inform residents of the activities and expectations during winter months, opportunities for engagement with stakeholders, and level of service outlined in the Policy. More recently, the Administration has used specific tools and tactics to notify residents when there are parking bans in place for efficient snow plowing activities.

Feedback from the survey suggests that general awareness about the Policy is lacking and not sufficient, and that many of the Service Requests could be avoided if the City improved communication efforts and simplified the Policy document. This is like the findings in researching other municipalities; policy documents are simple to understand, and outline expected level of service that residents can expect. Administration will undertake to create a communication plan for residents leading into every winter season as well as throughout.

The cost for this enhancement is $35,000.

Policy Enhancement 2 – Road Classification and Priority
Adopt road classification system as shown in Table 1.

Table 1-Proposed Road Classification

Proposed/ New Road-Classification	Length Km	Snowfall trigger
Category 1	157	5 cm
Category 2	204	5 cm
Category 3	156	5 cm
Category 4	47	5 cm
Category 5	532	15 cm
Total	1096 Km	

The current Policy classifies roads in six categories based on road classification, traffic volumes, and usage for the purposes of prioritizing systematic plowing operations and service levels.

Administration is recommending that the road prioritization system be updated and simplified to enhance residents' understanding of the level of service for the road network. This will also and ensure that snow clearing efforts are in alignment with community priorities, such as the *OCP*. The classification and priority system will consist of five categories as shown in the table above.

The costs and implications of the enhanced classification system are reflected in the upgrades to the categories of school unloading zones, transit routes and residential roads with traffic volumes greater than 1500 vehicles per day (VPD). Additional details can be found in Appendix D.

Policy Enhancement 3 – School Unloading Zones
Upgrade the road plowing classification of all school unloading zones to Category 3 or higher and remove the snow ridges on both sides of the road adjacent to a school after a systematic plowing event.

Currently the Policy for snow clearing in front of schools specifies that snow ridges are removed when they exceed 30 centimetres in the School Bus Unloading Zone and exceed 75 centimetres on the remainder of the road adjacent to the school. However, there are no provisions for snow removal on the side of the road opposite of the school and this creates overall pick-up and drop-off challenges for parents and students.

Feedback from the survey and Service Requests suggests that snow ridges should be removed from both sides of the road after a snowfall and systematic plowing operations. This will allow for adequate parking and pick-up and drop-off locations, as well as enhance road conditions and safety for those accessing the schools.

The cost for this enhancement is $100,000 annually and details can be found in Appendix E.

Policy Enhancement 4 – Sidewalks Adjacent to Transit Stops
Plow all sidewalks adjacent to transit stops.

Currently the Policy for snow plowing on sidewalks includes maintaining sidewalks adjacent to City-owned parks and facilities, bridge decks and subways, and locations that do not have a property owner fronting the sidewalk. However, this only represents a small percentage of sidewalks in the community, with most of the responsibility assigned to the property owners adjacent to the sidewalk. There is a requirement for commercial properties to clear their sidewalk as outlined in *The Clean Property Bylaw*, however residential properties are not included, and the City encourages residents to be a good neighbor and clear their sidewalks. Unfortunately, this does not always happen, and it creates accessibility challenges for users of the transit system when the pick-up and drop-off locations are not consistently cleared by property owners.

Feedback from the survey and Service Requests suggests that the City improve snow clearing efforts around transit stops. This is also in alignment with *OCP* goals of offering a range of year-round sustainable transportation choices for all, as well promoting active transportation.

It should be noted that a negative impact is that sidewalks not adjacent to the transit stops will not be cleared and there may be a negative perception that the City is clearing some

residents' sidewalks and not all. In addition, this does not address accessibility on the remaining sidewalk network.

If City Council preferred to adopt a Bylaw requiring all property owners to keep the sidewalks adjacent to their property free and clear of snow, this policy enhancement would not be required (see Bylaw Amendment – Sidewalk Clearing option below).

The cost for this enhancement is $339,000 annually and details can be found in Appendix F.

Policy Enhancement 5 – Transit Routes

Upgrade the road plowing classification of all transit routes to Category 2 or higher.

Currently the Policy states that all transit routes are to be classified as a Category 3 priority or better. This means that during systematic plowing operations, many of the transit routes in the community can take up to 48 hours to complete after a snow event.

Feedback from Service Requests and internal stakeholders such as Regina Transit and Winter Maintenance staff, suggests that transit routes should be classified as a higher priority and cleared faster as this may be the primary mode of transportation for many residents after a snowfall. This may be especially true during a major snow event when major roads are cleared relatively quickly but residential roads take more time. Ensuring that Regina Transit has clear and safe roads to carry out consistent service level commitments and schedules is integral in elevating the role of public transit and optimizing the road network capacity.

There are no costs associated with this level of service enhancement and Administration will utilize existing tools and resources to implement this enhancement for the 2021/2022 season. Additional details can be found in Appendix G.

Policy Enhancement 6 – Residential Roads

Upgrade the road plowing classification of residential roads greater than 1500 vehicles per day (VPD) to Category 3 and plow all residential roads after every snow event greater than 15 centimetres.

Currently the Policy specifies that residential roads are plowed after a snow event greater than 25 centimetres, or when rutting exceeds ten centimetres. The residential road network represents approximately 541 kilometres of the entire road network and are typically plowed once or twice per season.

Feedback from the survey and Service Requests suggest that general satisfaction is low regarding snow clearing on residential roads. Administration is recommending that residential roads that are acting more as collector roads serving over 1500 VPD be classified as a higher priority and included in systematic plowing operations. In addition,

Administration recommends all residential roads are systematically plowed after a snow event greater than 15 centimetres.

Based on recent data, it is expected that this will result in one additional plow every season. It should be noted that the City will continue utilizing the Ice Shaving Program to maintain ruts and have discretion to plow all residential roads if there are unusual or extenuating circumstances during the winter.

The cost for this enhancement is $304,000 annually and details can be found in Appendix H.

Policy Enhancement 7 – Bike Lanes
Upgrade the road plowing classification of bike lanes to Category 2 or higher.

The current Policy does not include any reference to bike lanes. However, most the City's existing bike lanes are located on Category 1 or 2 roads, therefore they are plowed within 36 hours of a snowfall event. There are some bike lanes located on Category 3 roads, such as Lorne Street and Smith Street, and they would be included in the upgrade.

In an effort to offer a range of year-round transportation choices and promote active transportation, the enhanced level of service will include plowing and ice control activities after a snowfall, as well as routine inspections to ensure ice, snow, and slush is cleared from the bike lane.

As most of the bike lanes are already located on higher priority roads, there are no costs associated with this enhancement. Routine inspections will be included in the current inspection program. Additional details can be found in Appendix I.

Policy Enhancement 8 –Intersection Ice Control
Implement ice control routing and enhance coordination between snow plowing and ice control activities.

The current Policy for ice control outlines minimum cycling times based on category during snow events and when slippery conditions are present. Sand and salt is placed on the road in advance of intersections, crosswalks, ramps and merge lanes, curves and adjacent to school properties. After a snowfall, ice control material is placed on the road up to 24 hours after systematic plowing operations have been completed.

Feedback from the survey showed general satisfaction of ice control operations, however comments suggested there could be better coordination between snow plowing and ice control activities. Implementing routes based on priority and classification for both ice control and plowing operations will bring greater consistency to these activities and reduce the time delay between the coordinated activities.

There are no costs associated with this level of service enhancement and Administration will utilize existing tools and resources to implement this enhancement for the 2021/2022 season. Additional details can be found in Appendix J.

Policy Enhancement 9 – Snow Removal on Category 1, 2, 3 Roads
Remove snow on all Category 1, 2 and 3 roads when sightlines and lane widths are impacted.

The current Policy specifies that snow removal on Category 1 and 2 roads and Category 3 transit routes will be completed when sightlines and lane widths are impacted.

Feedback from the survey indicates that the snow removal activities need to be further enhanced on major roads after each systematic plow. Removing snow from Category 1, 2, 3 roads will ensure that snow removal takes place on all arterial and collector roads that are regularly plowed, providing safer winter driving conditions by improving road capacity and visibility around intersections.

There are no additional costs associated with this level of service enhancement as Administration has gained efficiencies in this activity and typically performed much of this activity on Category 3 roads out of necessity. Additional details can be found in Appendix K.

Bylaw Amendment – Sidewalk Clearing
Implement a sidewalk snow clearing Bylaw for all property owners.

In conjunction with the City's sidewalk clearing activities outlined in the Policy, the City requires owners of commercial properties, parking lots and apartment buildings to clear sidewalks within 24-48 hours of a snowfall as per *The Clean Property Bylaw*. These programs combined represent eighteen per cent of sidewalks in our community.

Feedback from the survey and Service Requests suggest that residents want to see increased and consistent sidewalk clearing efforts in our community and favour an approach that includes enforcement options.

This would assist in achieving *OCP* goals to offer a range of year-round transportation choices and promote active transportation and would ultimately benefit Regina residents by ensuring all sidewalks are consistently cleared of snow and maintained throughout the winter season.

If this option was chosen, Administration would bring a report in Q3 2021 with options to amend *The Clean Property Bylaw.*

DECISION HISTORY

At the September 8, 2018 Public Works and Infrastructure Committee meeting, the Winter Maintenance Summary Report *PWI18-16* was considered, and Administration committed to review to update and align the policy with community priorities and operational requirements.

The recommendations in this report require City Council Approval.

Respectfully Submitted,

Chris Warren, Director, Roadways & Transportation 9/4/2020

Respectfully Submitted,

Kim Ohrai, Executive Director, Citizen Services 9/18/2020

Prepared by: Neeraj Saroj, Senior Engineer, Roadways & Transportation

ATTACHMENTS

Appendix A - Environmental Conditions and Budgetary Impacts
Appendix B - Current Winter Maintenance Policy
Appendix C - Policy Review and Feedback
Appendix D - Road Network Reclassification
Appendix E - School Unloading Zones
Appendix F - Transit Stop Accessibility
Appendix G - Transit Route General Conditions
Appendix H - Residential Road General Conditions
Appendix I - Bike Lane General Conditions
Appendix J - Intersection Ice Control
Appendix K - Snow Removal on Category 1-3 Roads

Appendix A
Environmental Conditions Analysis

Although it is very difficult to predict the winter conditions in advance, the weather data for the past ten years indicates that the snowfall amounts in Regina have been decreasing. Figures 1 and 2 below indicate this trend. The linear trendline in Figure 2 highlights the possibility of snowfall amounts dropping in the coming years if this trend continued. The data also shows that the average monthly temperatures have been rising through the years. The number of snow days have dropped to 35 days in the last five years when compared to an average of 44 days during 2009/2010 to 2013/2014 seasons.

The above factors directly impact City of Regina's (City) Winter Maintenance Program in terms of operational and financial planning. Over the past few years, the need to systematically plow the major roads in Regina has reduced from five times a season to only four times. Similarly, major blizzards that dump 25 centimetres or more during a single event are less frequent requiring winter maintenance crews to perform only one residential plow and one alley plow in a season instead of two plows performed for each activity in earlier seasons.

Figure 1: Regina Weather Trend

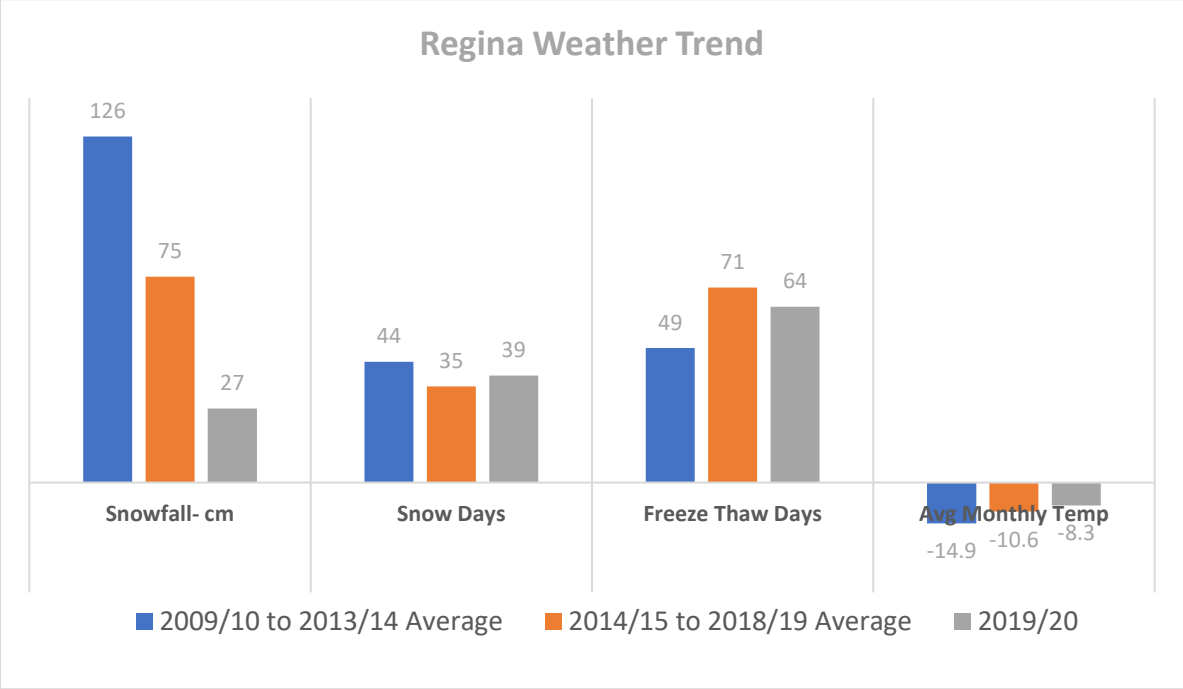
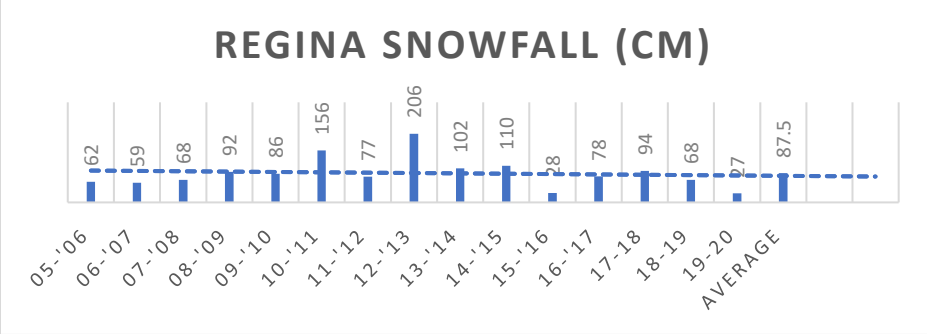


Figure 2:Regina Snowfall 2005/06 to 2019/20 & Average



The Roadways Seasonal Operations branch would always be ready to tackle harsher winters and provide emergency response if required. The Winter Maintenance Reserve has a current balance of $1.8 million and this source of funding would be used in an above average season. Assuming the milder weather trend could continue in the coming years, Administration studied the possible financial impact and it is expected that a total cost saving of $1.223 million is possible due to reduced maintenance activities.

Expected Savings:
As indicated in the Table 1 below, there is a total saving potential of $1.223 million due to reduced winter maintenance requirements under various programs listed in the table.

Table 1: ***Expected Savings due to milder weather trends:***

Major Winter Maintenance Program	**Expected Costs (Average 5-storms)** Previous average winter season based on historic data	**Expected Costs (Average 4 storms)** New average	**Expected Savings**	**Comments**
Plowing of Roads	$2.172 million	$1.575 million	$0.596 million	• Based on cost of 4 systematic plows instead of 5 plows • Based on only one residential plow instead of two plows • Cost saving in storm, systematic and routine maintenance modes due to reduced cost of resources (manpower, City owned and hired equipment)
Plowing of Alleys	$0.131 million	$0.066 million	$0.066 million (reflected in Alley Tax Levy)	• Based on one alley plow instead of two.
Ice Control on Roads	$1.932 million	$1.665 million	$0.267 million	• Based on cost of 4 systematic plows instead of 5 plows
Snow removal	$2.519 million	$2.159 million	$0.360 million	• Lower snow accumulations require less snow removal
		Total Expected Saving	**$1.223 million**	

Winter Maintenance Policy

Purpose

The purpose of the Winter Maintenance Program is to provide winter maintenance that effectively supports the health, attractiveness, and economic viability of this community. The purpose of this Policy is to provide winter maintenance guidelines for the Winter Maintenance Program. Both the policy and program are intended to be complimentary with the City of Regina Salt Management Plan. All activities in the program, in particular the Ice Control activity, will follow the intent, guidelines, and practices laid out in the Plan.

Scope

The scope of the Winter Maintenance Program and Policy addresses those public right of way assets involving:

a) streets;
b) sidewalks;
c) alleys; and
d) easements.

Not included in the scope of this Policy or the Program are public and private property or right of way assets that are located within City limits:

a) in City parks and open spaces;
b) on City facilities and properties or on properties that are controlled by the City;
c) in the F.W. Hill Mall;
d) on properties controlled by the Wascana Centre Authority;
e) are the responsibility of Saskatchewan Highways; or
f) on private roads, sidewalks, facilities, or properties.

The Winter Road Maintenance Program is comprised of the following general activities:

a) snow plowing of roads, alleys and sidewalks;
b) ice control of roads, alleys and sidewalks;
c) snow removal;
d) snow dump sites; (To Be Inserted at Later Date)
e) spring runoff - catch basins and ditches; (To Be Inserted at Later Date);
f) snow fencing; and (To Be Inserted at Later Date)
g) success indicators, monitoring, documentation and reporting (To Be Inserted at Later Date)

Authority

This Policy is established by City Council.

Contact

For further information, please contact:

Public Works Division
Roadways Operations Department
P.O. Box 1790
2425 4th Avenue
Regina, Saskatchewan S4P 3C8
Telephone: 306.777.7000
Fax: 306.777.7057

Definitions

Bare Pavement – refers to a road surface condition where the wheel paths in driving lanes are generally visible. Ice, frost, or snow may remain in wheel paths which results in slippery conditions. Loose snow between or outside of the wheel paths is normally plowed. Generally 3 cm of compacted snow between or outside of the wheel paths is not plowed.

Ice Control – the application of aggregate abrasives and/or chemicals to a driving or walking surface to improve traction.

Normal Winter Driving Conditions – refers to the road conditions which result from adhering to a set of end condition statements as described in this Policy document.

Passability - refers to maintaining a driving lane in such a condition that police, fire, and ambulance vehicles can use the street in an emergency response.

Peak Traffic Hours – the hours between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. Monday to Friday, excluding holidays.

Plow Snow (Alleys) – the pushing of accumulated snow from the centreline of the alley surface, leaving snow ridges on each side, such that one vehicle width is provided.

Plow Snow (Roads) - the pushing of accumulated snow from driving or parking lanes. The resulting snow ridges may be stored in centre medians or in parking lanes adjacent to the curb.

Plow Snow (Sidewalks) – the pushing of accumulated snow from the sidewalk surface, resulting in a minimum one metre wide compacted snow walking surface, leaving snow ridges on both sides of the sidewalk.

Plowed Around – during plowing operations a plow may travel around a parked vehicle leaving a snow ridge.

Road Categories for Systematic Plowing and Ice Control – every road segment within the entire road network is classified into one of five categories which are defined as follows:

Category 1	Freeways/expressways including ramps and loops, major arterial roads, and any road on a designated hospital emergency route.
Category 2	Minor arterial roads, major collector roads with traffic volumes > 5,000 vehicles per day and all roads in the area referred to as Regina downtown.
Category 3	Major collector roads (with traffic volumes < 5,000 vehicles per day), industrial/commercial roads, and any minor collector or major residential local roads on a designated transit or truck route.
Category 4	Minor collector roads and major residential local roads which lead into school bus unloading zones.
Category 5	Residential local roads.
Category 6	Gravel roads.

Road Segment – the distance between two intersections.

Rutting – refers to the wheel path troughs in compacted snow surfaces.

Salt Management Plan – the most recent version of the City's "Plan" developed in accordance with Environment Canada's "Code of Practice for the Environmental Management of Road Salts".

Snow Event – a combination of snow or wind causing snow to accumulate on driving or walking surfaces. For the ice control activity, snow event shall also include rain or freezing rain or other weather conditions that have a similar effect on road surfaces. The end of a snow event is when winter precipitation no longer accumulates on roadway surfaces for a sufficient period of time to allow complete systematic plowing and ice control to be completed as specified in this Policy.

Snow Removal – refers to the reducing or cleaning away of snow ridges or piles. Typically, this is accomplished by redistributing this excess snow to existing snow ridges on the same block and if this is not possible then it is removed by loading and hauling off site.

Snow Ridge- the row of excess snow formed by plowing roads, alleys, or sidewalks.

Systematic Ice Control (Roads) – refers to a methodical approach taken to complete one ice control cycle on the road network as specified in this Policy following systematic road plowing or the end of a snow event.

Systematic Plowing (Roads) – refers to a methodical approach taken to complete one plowing cycle on the road network as specified in this Policy following the end of a snow event.

Typical Winter – refers to the average weather conditions for Regina between October and April including approximately: two blizzards lasting six hours or more per year; 30 blizzard hours per year; 50 days with snow fall per year; total annual snowfall of 105 cm; temperature ranges from 10°C to -50°C; and individual snow events less than 10 cm.

Windrowing – multiple snow ridges placed in an open field parallel with the road to minimize drifting snow from collecting on the road surface.

Policy Statement

1.0 GENERAL

The performance and end condition objectives outlined by this policy include the following underlying assumptions:

a) That the operational activities are being undertaken during a typical weather event during a typical winter season. The City acknowledges that Regina may be subject to extreme or extraordinary weather which may diminish the City's ability to achieve the policy objectives within the stated time frames.
b) The activities detailed herein attempt to reduce hazardous roadways conditions caused by winter weather; however, the City acknowledges that weather conditions are beyond the City's control and dangerous conditions may nonetheless result despite the City's efforts.
c) That winter road safety is a cooperative activity between users of the roadways and the City. The City expects that users of the roadways will

exercise reasonable care for their own safety when travelling the roadways during winter conditions.

There are several general objectives which support the purpose of the program policy:

Objective #1	All roads are made passable for emergency (fire, police, ambulance) response vehicles.
Objective #2	Normal winter driving conditions and reasonable sidewalk access are provided on key routes through systematic plowing and sanding operations on priority one roads.
Objective #3	Normal winter driving conditions and reasonable sidewalk access are provided along regional commercial developments and secondary routes through systematic plowing and sanding operations on priority two roads.
Objective #4	Normal winter driving conditions are provided along tertiary routes through systematic plowing and sanding operations on priority three roads.
Objective #5	Safety and travel efficiency are provided through the plowing and removal of windrows from in front of guardrails and off of bridge decks.
Objective #6	Alleys are passable for the collection of solid waste collection and access by utility companies and the public.
Objective #7	Normal winter driving conditions are maintained through snow removal operations.
Objective #8	Residential and low volume routes are made passable through plowing operations.
Objective #9	Snow clearing is provided at City owned facilities to provide reasonable parking and access.
Objective #10	Snow clearing is provided on pathways in some parks and connecting walkways and in some open spaces which are typically in the vicinity of recreation centres.
Objective #11	Reasonable sidewalk access is provided through enforcement of the Regina Clean Property Bylaw, 1997.

When severe weather conditions reach a point where winter maintenance operations can not continue without compromising public and/or employee safety, temporary road closures may be implemented.

The Manager of Winter Maintenance, or his/her designate, makes the ultimate decision to temporarily close a road. When this occurs, the Public Works Dispatch Office shall contact:

- Traffic Operations Command Centre;
- Fire, Police, and Emergency Medical Services;
- City Central and City Manager's Office;
- Communications Division;
- Local radio/television newsrooms and the Leader Post.

The Manager of Winter Maintenance is responsible for the day-to-day operation and coordination of the Roadway Operations Winter Maintenance Program.

2.0 PLOWING

There are three operating environments involved in the snow plowing operation:

- During a snow event;
- Systematic road plowing; and
- Routine maintenance

2.1 ROADS

The City will classify the road network for snow plowing activities. In all three operating environments, road snow plowing will be conducted in accordance with the Road Categories for Systematic Plowing and Ice Control.

a) During a Snow Event:

- **General**
  During a snow event, the first priority objective for road snow plowing is to maintain passability on roads for emergency response vehicles. As the end of the storm approaches, this operational objective becomes increasingly shared with the next operational objective, that of systematically plowing the road network. Plowing will be initiated on Category 1 and 2 roads when approximately 5 cm of snow has accumulated on the road surface during a snow event. When severe snow events occur, operations to establish and maintain passability may only focus on Category 1 and 2 roads.

- **Locations**
  All roads which are not passable for emergency response vehicles.

- **Time Frames**
  Time frames are not applicable during a snow event. Operations will continuously cycle for the duration of the snow event. Following typical snow events, all roads will be passable for emergency response vehicles within twenty-four hours from conclusion of snow event.

- **End Conditions**
  Passability is maintained on as many roads as resources and weather conditions permit.

  Snow and ice accumulation could remain on the road surface

  Snow ridges across driveways, intersections, alleys, transit stops, and around parked vehicles may not be reduced in height.

b) Systematic Plowing:

- **General**
  During systematic road plowing, the operational objective is to re-establish traffic flow in driving lanes and designated turning lanes. Systematic road plowing operations will be triggered by the following snow accumulations during a single snow event:

  Category 1 and 2 roads – 5 cm
  Category 3 and 4 roads – 10 cm
  Category 5 roads – 25 cm
  Category 6 roads – 10 cm

  Systematic road plowing operations may also be triggered in other circumstances where there are several snow accumulations of less than 5 cm, and the Manger of Winter Maintenance will make the determination to call a systematic response if warranted.

- **Locations**
  All roads provided snow accumulation has met or exceeded trigger values for each category.

- **Time Frames**

Systematic road plowing will be completed within the following time frames from end of snow event:

Category 1 roads within 24 hours
Category 2 roads within 36 hours
Category 3 roads within 48 hours
Category 4 roads within 60 hours
Category 5 roads – no time frames specified
Category 6 roads – within 60 hours

- **End Conditions**

  Systematic road plowing is considered to be complete when the following conditions are met.

  <u>All Roads</u>

  Snow ridges will be reduced to a maximum height of 30 cm across driveways, intersections, alleys and signed unloading zones (including for school buses adjacent to schools and in front of senior's complexes with over 20 units in a single building).

  Snow ridges will be reduced to a maximum height of 15 cm on Transit stops.

  Snow ridges of any height may be left around parked vehicles.

  Snow ridges placed in parking lanes may encroach up to 30 cm on to the sidewalk.

  The driving lanes and designated turning lanes will be plowed to the following conditions during systematic plowing:

  - Category 1 and 2 roads to bare pavement as defined
  - Category 3 and 4 roads to a compacted snow surface of approximately 8 cm or less depth
  - Category 5 roads to a compacted snow surface
  - Category 6 roads to a compacted snow surface of approximately 8 cm or less depth

c) Routine Maintenance

- **General**

During routine maintenance, the operational objectives are to:

a) Complete post snow event cleanup on the road network to establish normal winter driving conditions as defined for each category of road;

b) Maintain the road network to normal winter driving conditions and correct deficiencies which result from cumulative light snow events, spot drifting, or traffic effects; and

c) Prepare for future snow events.

Category 5 roads may be systematically plowed to reduce snow pack depth resulting from cumulative snow events.

- **Locations**
  Routine maintenance is conducted on all roads in accordance with the Road Categories for Systematic Plowing and Ice Control.

- **Time Frames**
  a) Post snow event cleanup will be completed within the following time frames following systematic plowing completion:

     - Category 1 and 2 roads – seven days
     - Category 3 and 4 roads – 14 days
     - Category 5 roads – 21 days
     - Category 6 roads – 14 days

  b) Time frames are not applicable when maintaining the road network to normal winter driving conditions and correcting deficiencies which result from cumulative light snow events, spot drifting, or traffic effects.

  c) Time frame requirements are not applicable when preparing for future snow events.

- **End Conditions**
  Normal winter driving conditions are considered to be established on roads when the following conditions are met:

  - Snow ridges will be reduced to a maximum height of 30cm across driveways, intersections, alleys and signed unloading zones

(including for school buses adjacent to schools and in front of seniors' complexes with over 20 units in a single building).

- Snow ridges placed in parking lanes may encroach up to 30 cm on to the sidewalk. The outside base edge of the snow ridge will not exceed 60 cm from the curb face.
- On bridge decks and in subways snow ridges will generally be less than 1 metre high or 1.5 metres wide.
- Snow ridges in front of guard rails will generally be less that 30 cm in height.
- Maximum height of snow ridges within transit stops will be 15 cm and will not encroach onto the sidewalk.
- Transit stops will be a minimum of 12 m in length.

Driving lanes and designated turning lanes will be maintained to surface conditions as follows:

- Category 1 and 2 roads to bare pavement including a portion of the parking lanes adjacent to a snow ridge.

- Category 3 and 4 roads rutting in excess of approximately 8 cm will be addressed.

- Category 5 roads rutting in excess of approximately 10 cm will be addressed.

- Category 6 roads rutting in excess of approximately 8 cm will be addressed.

2.2 ALLEYS

The City does not classify the alley network for the purpose of prioritizing snow plowing activities in alleys.

a) During a Snow Event

- **General**
  Typically, alleys will not be plowed during a storm event.

b) Systematic Plowing

- **General**
  During systematic alley plowing, the operational objective is to return the alley network to normal winter driving conditions. Systematic alley plowing operations are triggered by a 25 cm snow accumulation during a single snow event.

- **Locations**
  All alleys.

- **Time Frames**
  Systematic alley plowing will be completed within 96 hours from the end of a snow event.

- **End Conditions**
  Normal winter driving conditions are considered to be established on alleys when the following conditions are met:

  - The compacted snow surface width will provide single vehicle passage.
  - Snow ridges may be formed on both sides of the plowed surface.
  - Snow ridges are not reduced in height across garages, driveways, or parking lot entrances.

c) Routine Maintenance

- **General**
  During routine maintenance, the operational objective is to maintain normal winter driving conditions in alleys as defined. Alleys may be systematically plowed to reduce snow pack depth resulting from cumulative snow events.

- **Time Frames**
  No time frames specified.

- **End Conditions**
  The compacted snow surface width will provide single vehicle passage.

  Rutting in the compacted snow surface will not exceed approximately 10 cm.

2.3 SIDEWALKS

The City does not classify the sidewalk network for the purpose of prioritizing snow plowing activities on sidewalks.

a) During a Snow Event
Systematic sidewalk plowing operations will be triggered by 5 cm snow accumulations during a single snow event.

b) Sidewalk Plowing

- **General**
  The City will plow and maintain specific sidewalk locations.

- **Locations**
  - Any sidewalk adjacent to a City owned building or property that is located within the area noted in Schedule B of The Clean Property Bylaw No. 9881.
  - Any sidewalk adjacent to a City owned building or parking lot that is regularly used by the public during the winter season, excluding outdoor rinks.
  - Any sidewalk adjacent to bridge decks and subways.
  - Any sidewalk adjacent to transit stops on the Heritage bus route which is not covered by The Clean Property Bylaw No. 9881.
  - Adjacent to no frontage locations.
  - Adjacent to storm channel and railway crossings on Category 1 and 2 streets.

- Adjacent to vacant land on Category 1 and 2 streets.
- Adjacent to city owned parks on Category 1, 2, 3, and 4 streets.
- Adjacent to city owned parks that are next to a public school.
- Adjacent to city owned buildings or parks not accessed by the public in winter on Category 1 and 2 streets.
- Adjacent to hospital gateway (sidewalks both sides on 14th Avenue from Broad Street to the alley east of Halifax Street).
- Adjacent to Core Community Park (Quebec Street side).

- **Time Frames**
  Within 72 hours from end of snow event.

- **End Conditions**
  Sidewalk locations will be maintained to a general width of 1 metre.

  Sidewalk locations will be maintained to a compacted snow surface with a maximum depth of approximately 5 cm.

3.0 ICE CONTROL

There are three operating environments involved in the ice control operation:

- During a snow event;
- Systematic ice control; and
- Routine maintenance

Typically, ice control materials are only applied intermittently at spot sections along roads, alleys, or sidewalks. Continuous or uninterrupted application of ice control materials is not standard practice.

To determine if a spot section is treated with ice control material during any given cycle, staff judge the relative visibility of previously applied materials.

3.1 ROADS

The City will classify the road network for ice control activities. In all three operating environments, ice control will be conducted in accordance with the Road Categories for Systematic Plowing and Ice Control. For the ice control activity, time frames are typically expressed as a cycle frequency. Cycle frequency refers to the time interval between successive passes on a road to apply materials as judged by City staff.

a) During a Snow Event

- **General**
  During a snow event, the operational objective of the ice control activity is to slow the rate of deterioration in driving conditions.

- **Locations**
  During a snow event ice control operations on Category 1, 2, 3, and 4 roads will be initiated near the start of snow or freezing rain precipitation.

  As snow or freezing rain precipitation continues, ice control operations will be increasingly directed, as determined by City staff, to Category 1 and 2 roads only.

- **Time Frames**
  From near the start of snow accumulation to a point where approximately 2 cm of snow has accumulated during a single snow event on the road surface, cycle frequency will be as follows:

Category 1 roads (posted speeds > 70kph)	4 hour cycle
Category 1 roads (posted speeds < 70kph	12 hour cycle
Category 2 roads	12 hour cycle
Category 3 roads	24 hour cycle
Category 4 roads	24 hour cycle

  After approximately 2 cm of snow accumulation during a single snow event, cycle frequency will be as follows:

Category 1 roads (posted speeds) > 70kph	4 hour cycle
Category 1 roads (posted speeds) < 70kph	5 hour cycle
Category 2 roads	5 hour cycle
Category 3 and 4 roads	Not specified

- **End Conditions**
  The effectiveness of ice control can not be pre-determined.

  Spot sections of roads that are typically treated, based on the judgement of staff are:

  - sections leading up to sign or signal controlled intersections and crosswalks;

- bridge decks and subways including the approach to and exit from;
- grades greater than 5%;
- ramps and merging lanes;
- curves located on Category 1 – 4 roads; or
- public and separate school frontage roads and those intersections immediately adjacent to school properties.

b) Systematic Ice Control

- **General**
  During systematic ice control operations, the operational objective is to complete one cycle of ice control on spot sections of all roads which have been systematically plowed.

- **Locations**
  All roads which have been systematically plowed.

- **Time Frames**
  Systematic ice control will be completed within the following time frames:

  Category 1 and 2 roads within four hours of systematic plowing.
  Category 3 and 4 roads within eight hours of systematic plowing.
  Category 5 and 6 roads within 24 hours of systematic plowing.

- **End conditions**
  The effectiveness of ice control can not be pre-determined.

  Spot sections of roads that are typically treated, based on the judgement of staff are:

  - sections leading up to sign or signal controlled intersections and crosswalks;
  - bridge decks and subways including the approach to and exit from;
  - grades greater than 5%;
  - ramps and merging lanes;
  - curves located on Category 1 – 4 roads; or
  - public and separate school frontage roads and those intersections immediately adjacent to school properties.

c) Routine Maintenance

- **General**
  During routine maintenance for the ice control activity, the operational objectives are to:

  - Complete one cycle of ice control following post snow event cleanup operations. This cycle will be similar to that provided during systematic ice control.
  - Conduct routine ice control on each road category at a pre-determined cycle frequency.

- **Time Frames**
  The one cycle of ice control will be completed within eight hours following post snow event clean-up operations.

  Routine ice control cycle frequency will be as follows:

Category 1 roads (posted speeds> 70kph)	12 hour cycle
Category 1 roads (posted speed < 70 kph)	24 hour cycle
Category 2 roads	24 hour cycle
Category 3 roads	48 hour cycle
Category 4 roads	48 hour cycle
Category 5 roads	120 hour cycle
Category 6 roads	120 hour cycle

- **End Conditions**
  The effectiveness of ice control can not be pre-determined.

  End conditions are judged solely on whether cycle frequency time frames have been met.

  Spot sections of roads that are typically treated, based on the judgement of staff are:

  - sections leading up to sign or signal controlled intersections and crosswalks;
  - bridge decks and subways including the approach to and exit from;
  - grades greater than 5%;
  - ramps and merging lanes;
  - curves located on Category 1 – 4 roads; or

- public and separate school frontage roads and those intersections immediately adjacent to school properties.

3.2 Alleys

The City does not classify the alley network for the purpose of prioritizing ice control activities in alleys.

Ice control activities for alleys are conducted as time and resources permit. No time frames are specified for ice control in alleys.

- **Locations**
  Alleys that will be considered for ice control activity must:

  - Have a majority of commercial or apartment building properties adjacent to the alley;
  - Be adjacent to school parking lot entrances or school bus unloading zones that are located in an alley; or
  - Have grades exceeding 5%

- **End Conditions**
  The effectiveness of ice control can not be pre-determined.

  Ice control will be applied on spot sections at the alley exit points and on grades exceeding 5%.

3.3 Sidewalks

The City does not classify the sidewalk network for the purpose of prioritizing ice control on sidewalks.

- **Locations**
  - Any sidewalk adjacent to a City owned building or property that is located within the area noted in Schedule B of The Clean Property Bylaw No. 9881.
  - Any sidewalk adjacent to a City owned building or parking lot that is regularly used by the public during the winter season, excluding outdoor rinks.
  - Any sidewalk adjacent to bridge decks and subways.
  - Any sidewalk adjacent to Transit stops on the Heritage bus routes which are not covered by The Clean Property Bylaw No. 9881.
  - Adjacent to no frontage locations.

- Adjacent to storm channel and railway crossings on Category 1 and 2 streets.
- Adjacent to vacant land on Category 1 and 2 streets.
- Adjacent to city owned parks on Category 1, 2, 3, and 4 streets.
- Adjacent to city owned parks that are next to a public school.
- Adjacent to city owned buildings or parks not accessed by the public in winter on Category 1 and 2 streets.
- Adjacent to hospital gateway (sidewalks both sides on 14th Avenue from Broad Street to the alley east of Halifax Street).
- Adjacent to Core Community Park (Quebec Street side).

- **Time Frames**
  Ice control activities following freezing rain events will be completed within 72 hours from end of event.

  Ice control activities on compacted snow surfaces as determined by staff have no time frame for completion specified.

- **End Conditions**
  The effectiveness of ice control can not be predetermined.

  End conditions are not specified.

4.0 SNOW REMOVAL

- **General**
  Plowing and ice control activities take precedence over snow removal activities both during a snow event and during systematic plowing or systematic ice control operations. Snow removal operations may be suspended at the beginning of snow events or during systematic operations so resources can be reallocated to address non-typical winter conditions and higher priority objectives.

- **Locations/Time Frames/ End Conditions**
  a) At the following locations, snow ridges of any height caused by plowing will be cleared from those areas within the time frames noted.

     - In school bus unloading zones at schools within 48 hours of road plowing (curb face showing).
     - In unloading zones in front of seniors complexes with over 20 units in a single building within 14 days of plowing.

- In disabled metered parking stalls within 24 hours of plowing.

b) At the following locations, snow ridge heights caused by plowing will comply with the sight line controls as set out in section 69 and Schedule H of the Traffic Bylaw within the time frames noted:

- At intersections adjacent to school properties and, at school fence gates that are opening onto roads within seven days of plowing. The snow ridge will be reduced at these locations to a maximum height of 30 cm.
- At signal or sign controlled pedestrian corridors within 14 days of plowing.
- At intersections on Category 1 and 2 roads, within 14 days of plowing.

c) Snow removal involving load and hauling off site will generally be initiated when:

- On blocks where the school bus unloading zones are located, snow ridges in excess of 75 cm exist – within 14 days of plowing.
- In metered parking stalls, snow ridges in excess of 60 cm within 14 days.
- Snow ridges generally greater than 1 m in height that impact travel widths or sight lines as determined by City staff on:
  - Category 1 and 2 roads;
  - Roads within the area bounded by Victoria Avenue to College Avenue and Albert Street to Broad Street;
  - 4th Avenue to Dewdney Avenue and Albert Street to Toronto Street;
  - Roads immediately adjacent to Regina General Hospital;
  - 14th Avenue from Halifax Street to Broad Street;
  - 15th Avenue from Broad Street to Winnipeg Street; and
  - Category 3 roads needed to provide City Transit with adequate travel width.

Appendix C
Policy Review and Feedback

The Winter Maintenance Policy review process included research of other municipalities as well as extensive engagement with residents, and external and internal stakeholders. The feedback was used to identify the most critical common areas of improvement in winter maintenance that needed to be addressed.

Identification of Key Areas of Concern Based on Collective Feedback:

1. Ice control on intersections
2. General conditions of residential roads
3. Accessibility of sidewalks around transit stops
4. General conditions of sidewalks
5. Safety around school zones
6. General conditions around Transit routes
7. General conditions of Bike lanes
8. Simplifying Policy document

Survey:

A winter Maintenance Policy Review Survey was conducted under '*Be Heard Regina'* initiative during Q1, 2020 to gather feedback from residents, businesses and anyone who was impacted by Winter Maintenance Policy service levels and could provide some useful feedback.

Multiple communication methods were adopted to reach out to maximum residents, businesses, stakeholders and visitors. Some of the communication channels included Public Service Announcements (PSA), media interviews, City of Regina's social media handles like Facebook and Twitter, City's winter webpage and stakeholder engagement.

Approximately 3000 residents and businesses responded to the survey and provided valuable feedback by answering a range of multiple-choice questions and writing comments in response to open-ended questions designed to encourage a richer feedback for final evaluation and analysis purpose.
Quantitative and Qualitative data from the survey results was analyzed to identify top five areas of concern relating to winter maintenance.

Identification of Critical Areas of Concern Based on Survey Feedback:

1. Ice control at intersections
2. General conditions of residential roads
3. Timely plowing of snow
4. General conditions of major roads
5. Sidewalks maintenance
6. Simplification of the policy document for better understanding

Survey Findings:

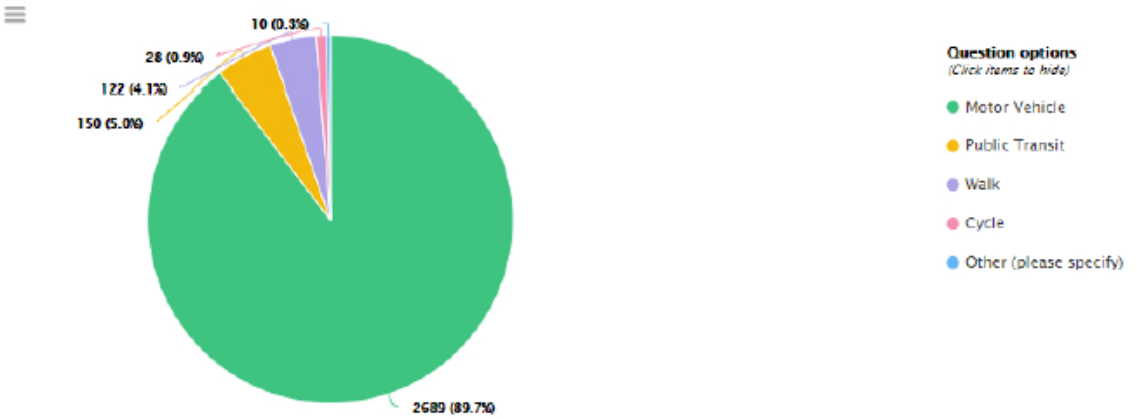
As evident from the Table 1 below, generally the respondents are satisfied with the current level of service towards majority of the policy parameters except '*general satisfaction with ice control and snow plow timelines on local/ residential roads*' for which the satisfaction level seems quite low (only 35%).

Table 1 Winter Maintenance Review Survey Findings

Key Policy parameter	**Respondents %** Satisfied with current LOS or No comments	**Respondents %** Not Satisfied
General satisfaction with road plowing and winter road maintenance	74%	26%
General satisfaction with snow plowing timelines	74%	26%
General satisfaction with ice control and snow plowing timelines on major roads	72%	28%
General satisfaction with ice control and snow plowing timelines on local/ residential roads	35%	65%
General satisfaction with current approach to snow removal	79%	21% However, 59% of these do not want an increased tax component to support snow removal enhancement
Sidewalks	76%	23% However, 53% of these do not want an increased tax-component to assist with the service enhancement
Priority Roads ·General satisfaction with road categorization	80%	20%

Survey Summary:

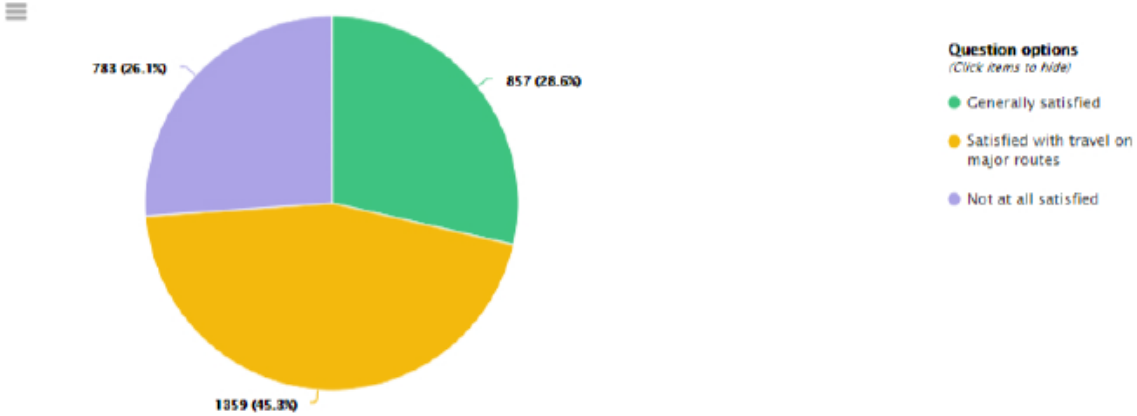
Q3 What is your primary way to get around Regina in winter?



Overview Pulse Responses

(2999 responses, 0 skipped)

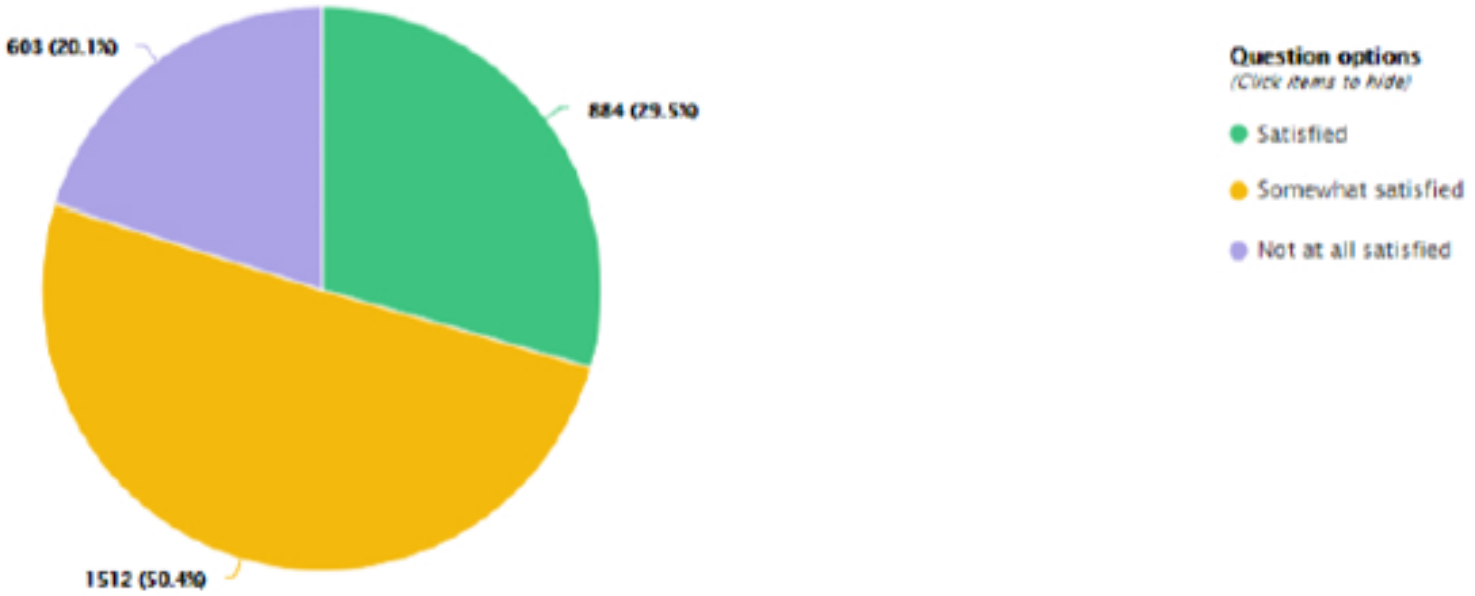
Q4 Thinking back over the last two winters, how satisfied are you with how the City plows and maintains roads from November 1 to March 31?



Overview Pulse Responses

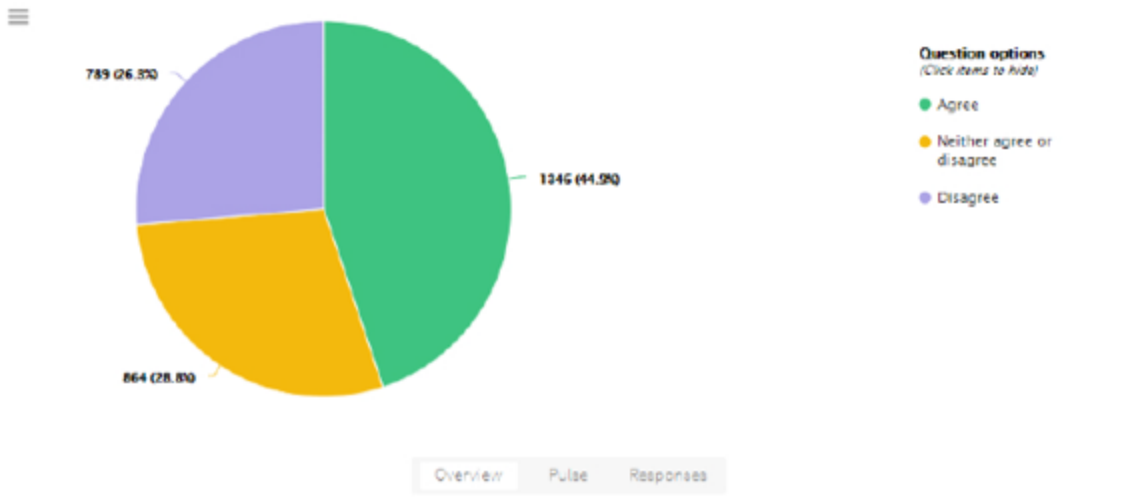
(2999 responses, 0 skipped)

Q5 How satisfied are you with the above categorization?

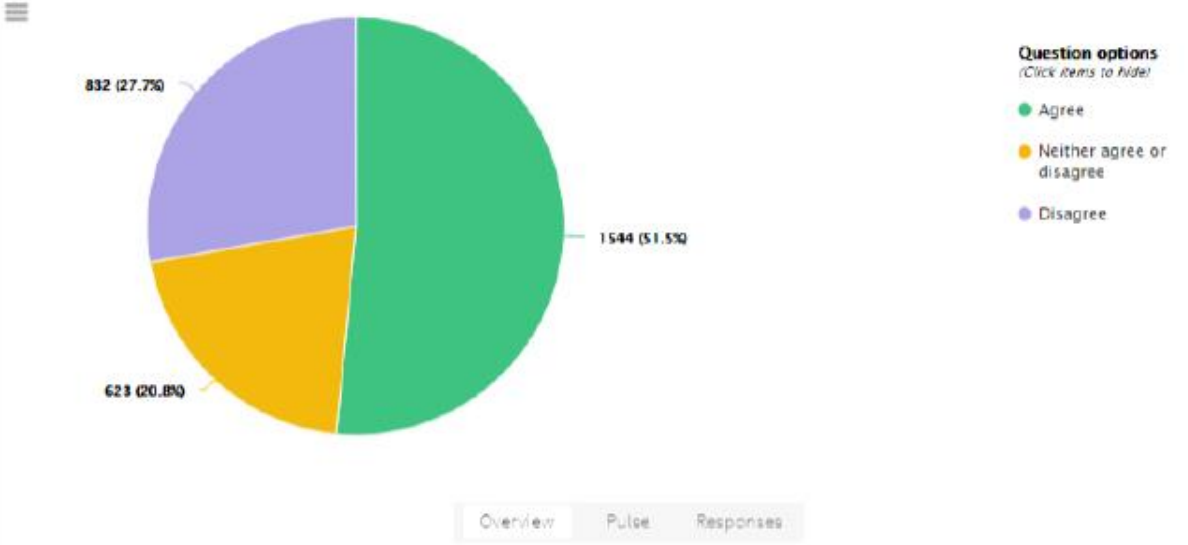


Overview Pulse Responses

Q8 The City of Regina's snow plowing activities typically occur within a reasonable amount of time.

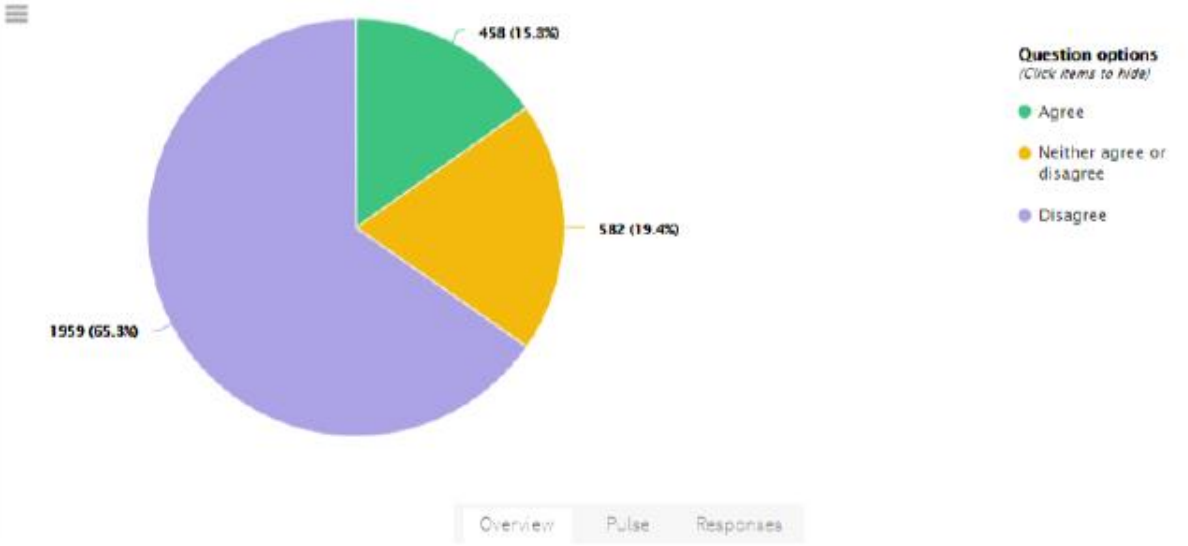


Q9 I am satisfied with ice control and snow plowing of major roads.

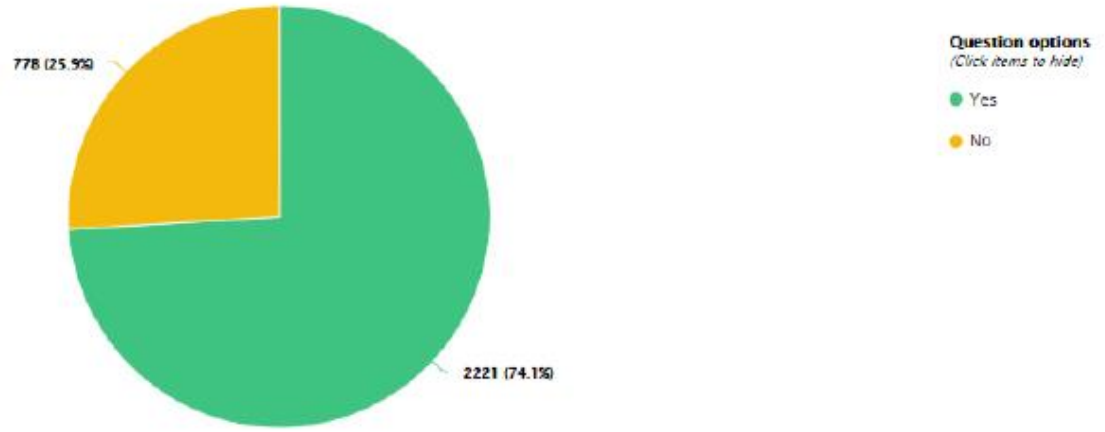


(2999 responses, 0 skipped)

Q10 I am satisfied with ice control and snow plowing of residential streets.



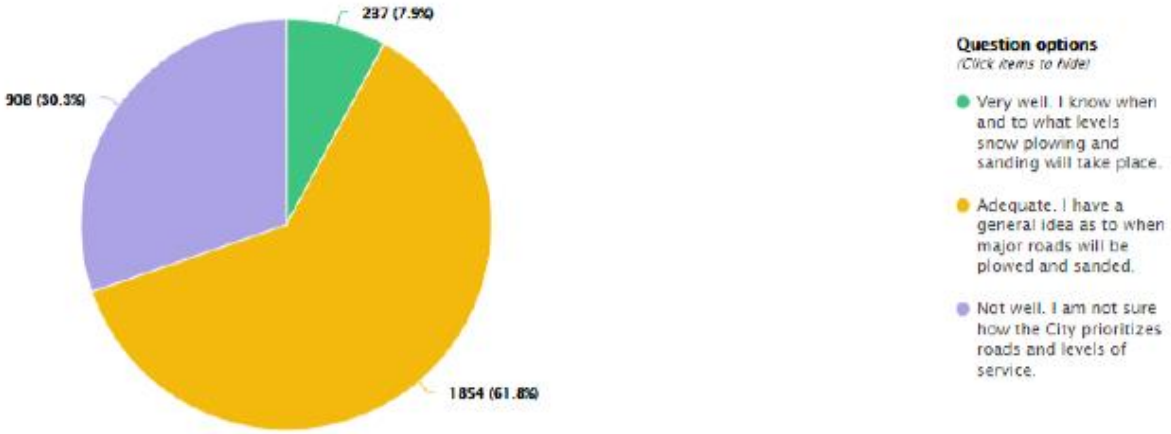
Q14 Were you aware that the City has a Winter Maintenance policy to guide how streets are plowed during the winter?



Overview Pulse Responses

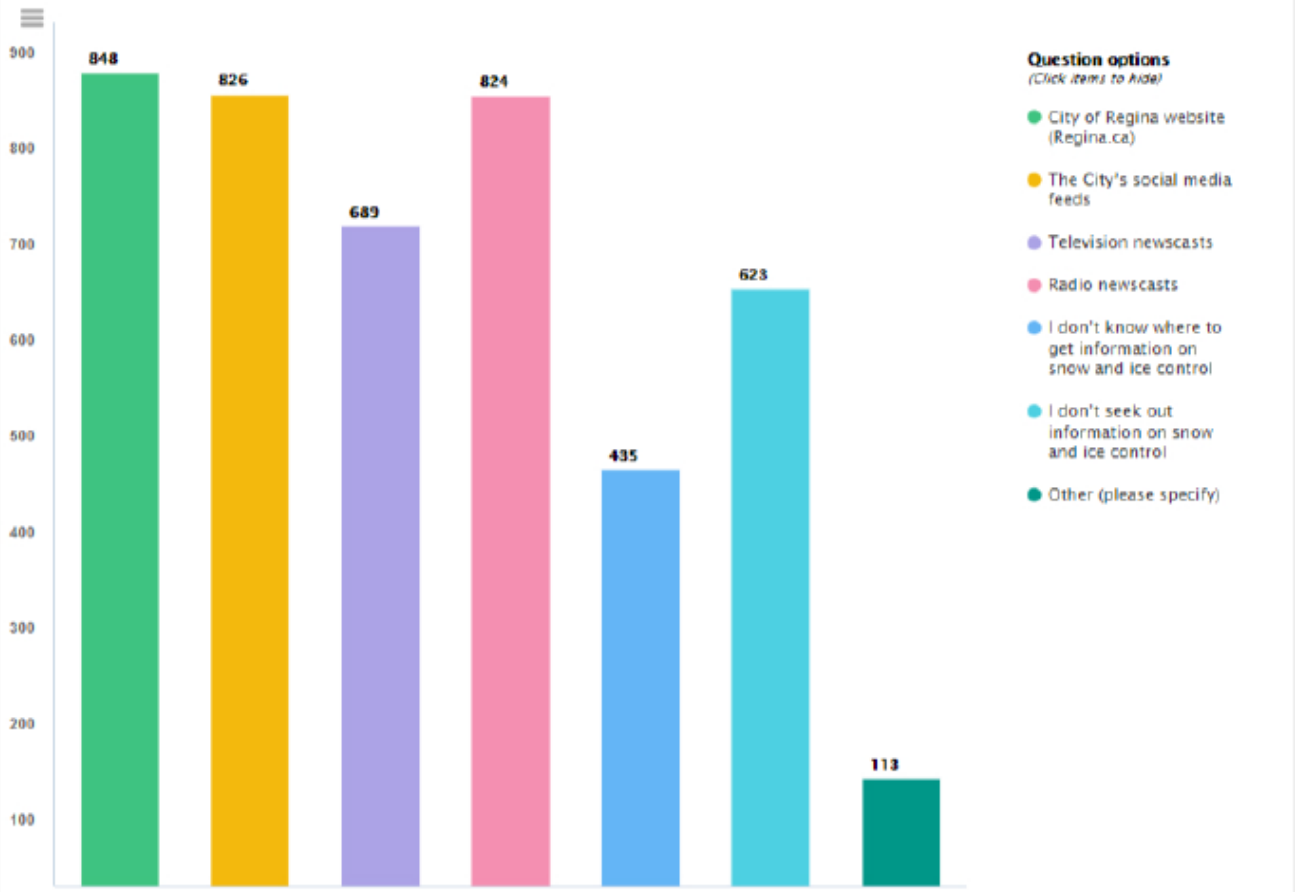
(2999 responses, 0 skipped)

Q15 How well does the City communicate its priorities for winter snow plowing and maintenance?

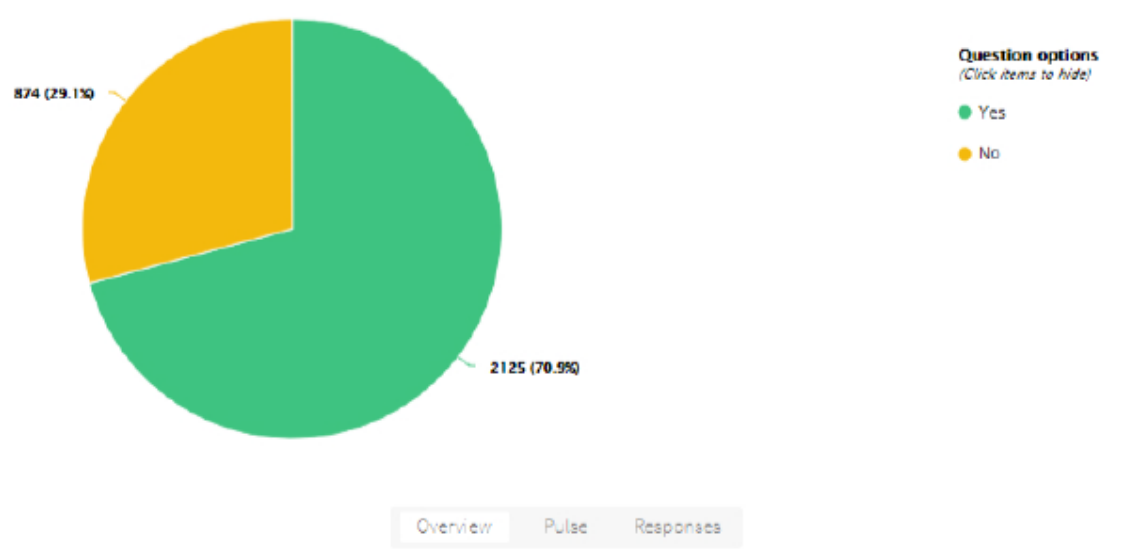


Overview Pulse Responses

Q16 How do you get information about winter road maintenance?

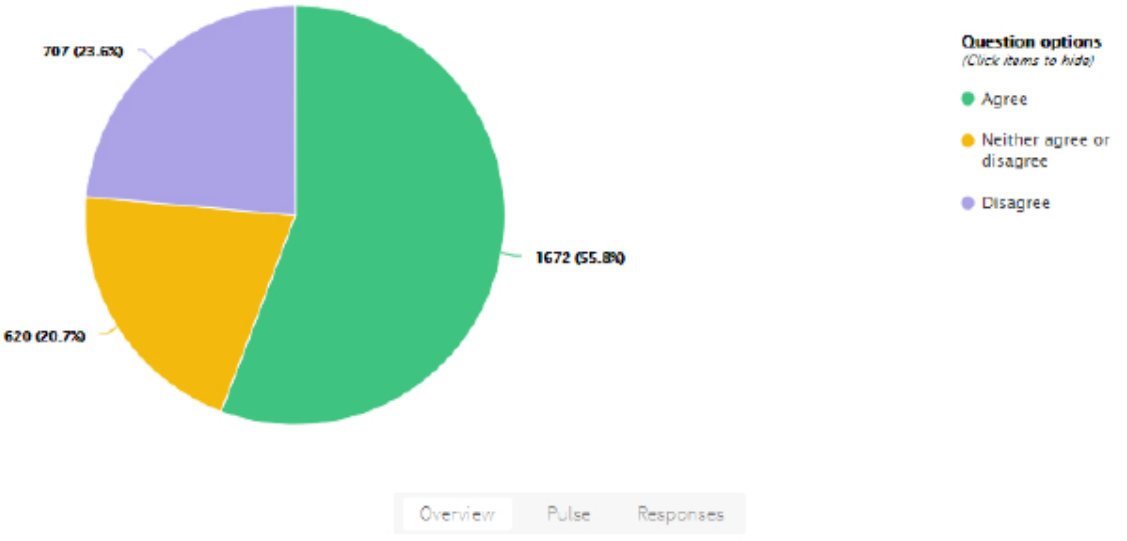


Q17 I am aware of the City's approach to winter sidewalk maintenance.

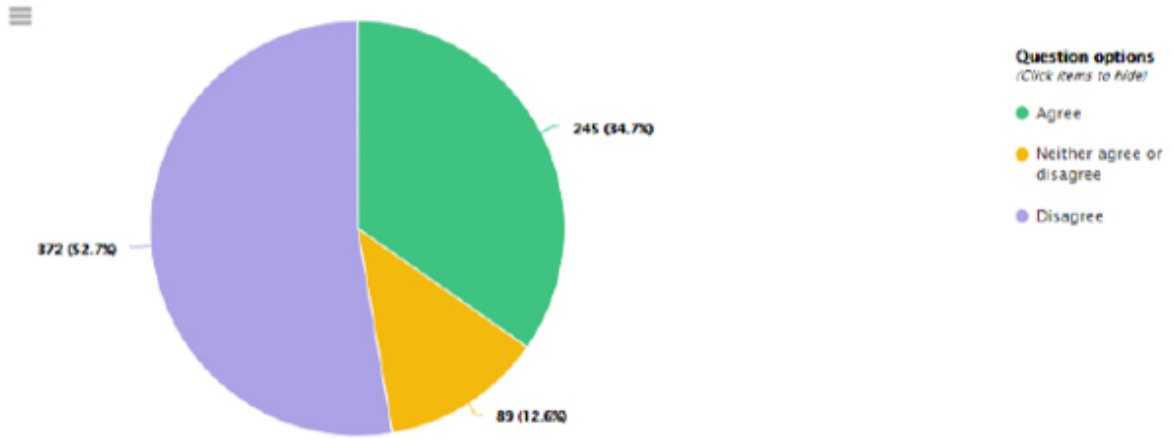


(2999 responses, 0 skipped)

Q18 I can support the approach the City is taking to sidewalk maintenance, including requiring businesses and encouraging citizens to be responsible for their own sidewalk clearing.

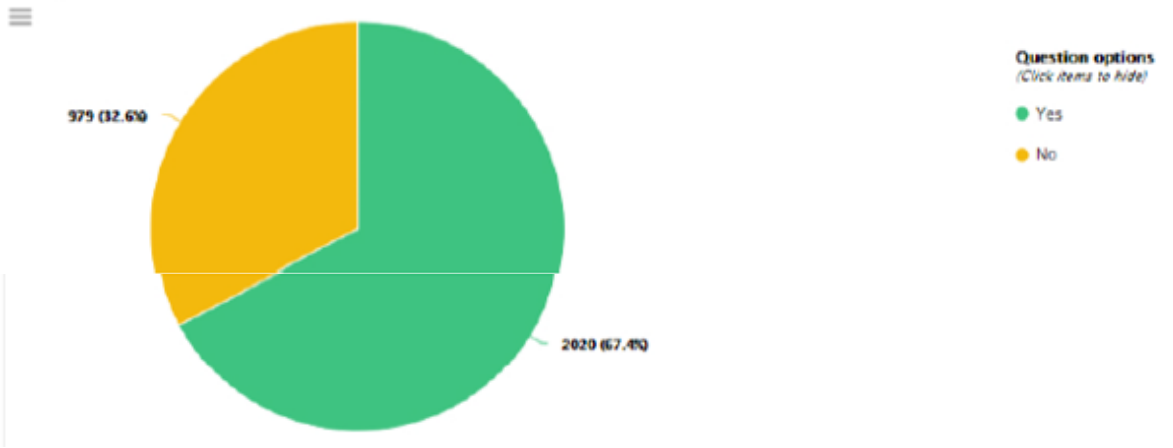


Q19 If Disagree, I can support increasing taxes to support enhanced sidewalk maintenance.

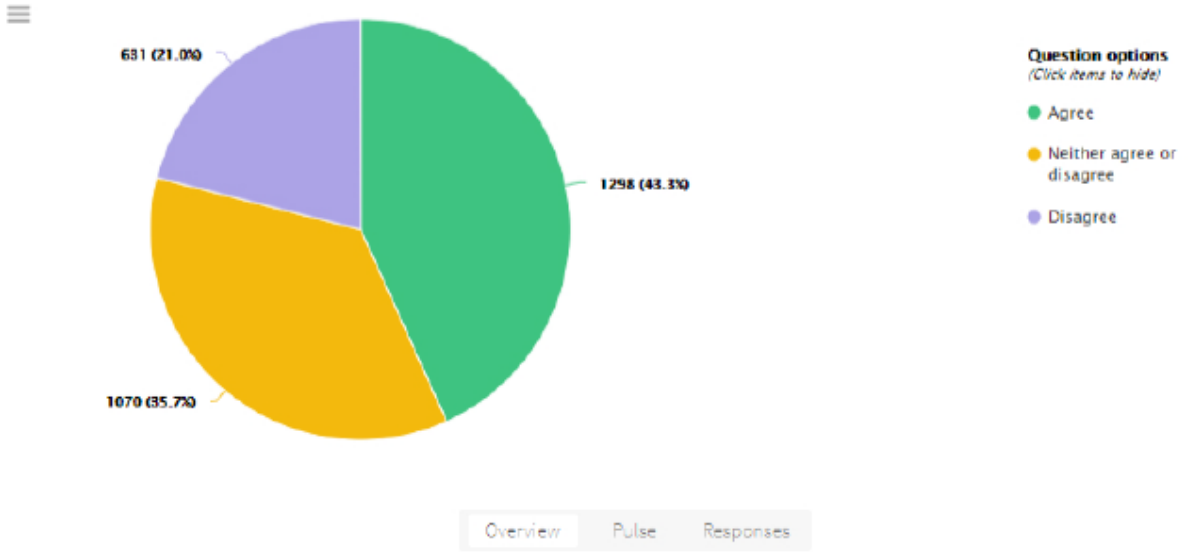


Optional question (706 responses, 2293 skipped)

Q20 I am aware of the City's approach to removing snow.

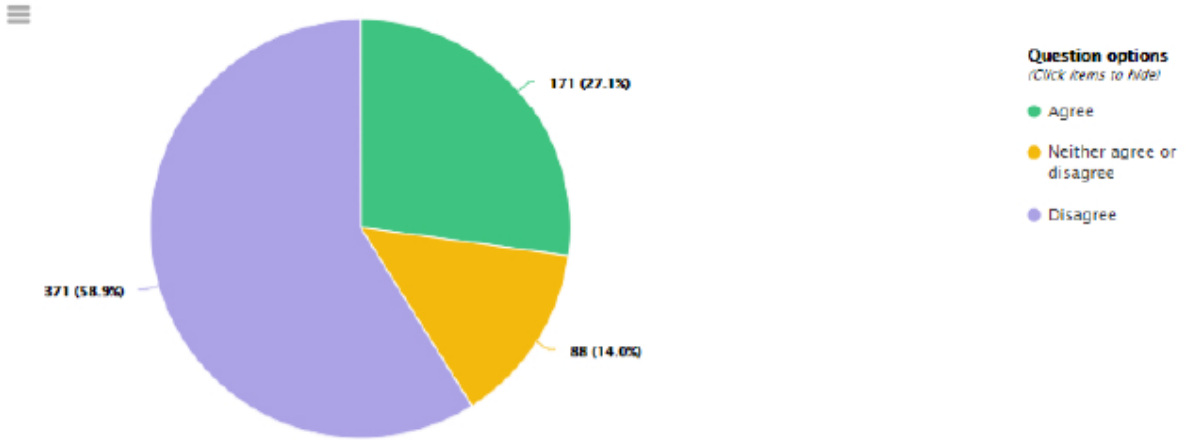


Q21 I can support the City's approach to removing snow.



(2999 responses, 0 skipped)

Q22 If Disagree, I can support increasing taxes to support enhanced snow removal.



Q25 As a resident, I would prioritize the following three areas for improvements to winter road maintenance.Please select your top three choices.

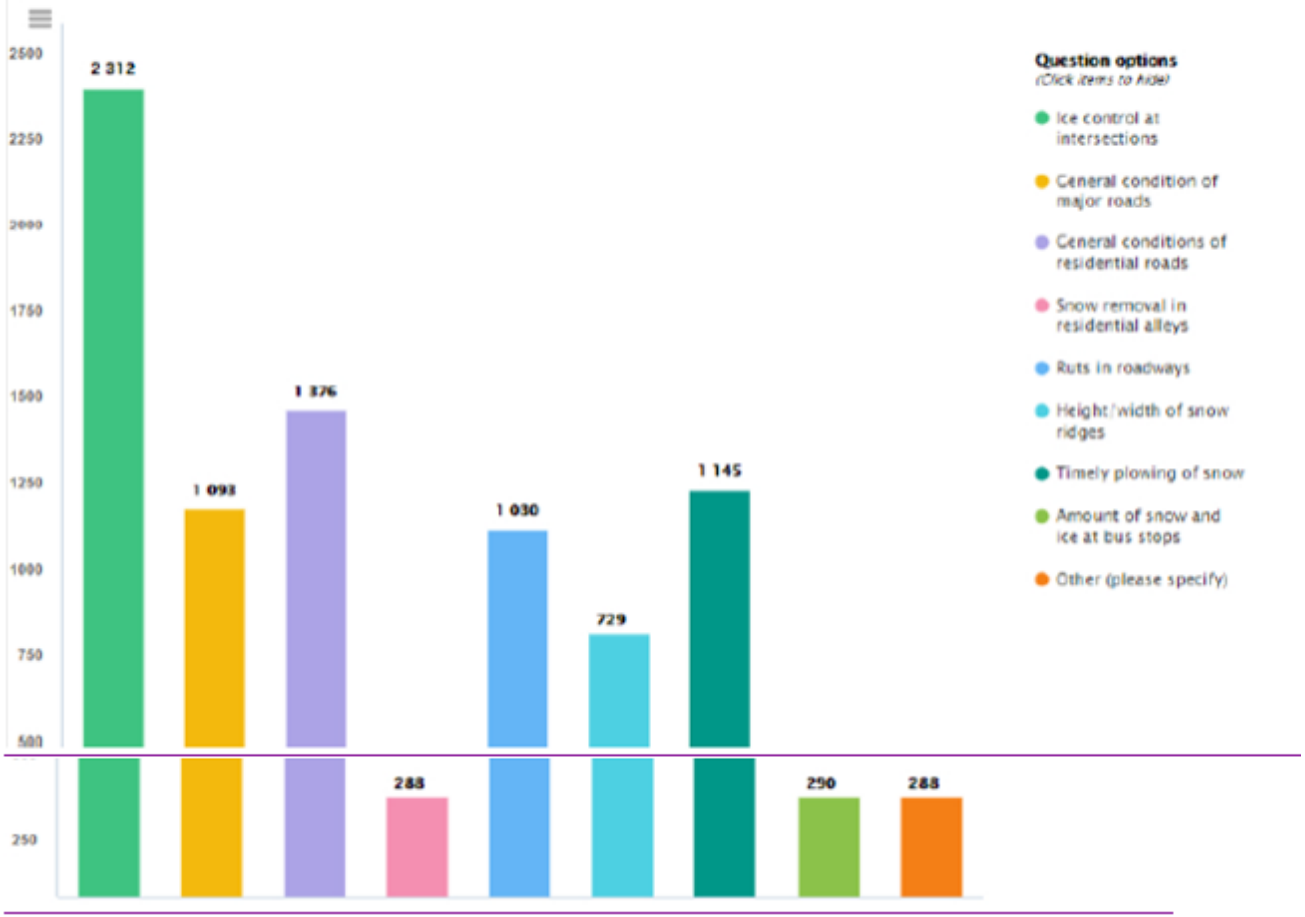


Table 2: Qualitative data from the Winter Maintenance Policy Review Survey:
(based on responses to the open-ended questions)

Other Observations from Survey Results	Evidence
Demand for enhanced residential winter maintenance programs including ice control, road plowing and frequent removal to avoid slippery conditions and ruts	Over 350 comments
Better coordination required between plowing and sanding activities. Especially, the time gap between plowing and sanding activity should be minimized	Over 300 comments
- Residents' want to establish a system of getting accountability and assurance from those private property owners who do not clear their sidewalks on time causing inconsistency around the city. - Demand for strict enforcement of existing sidewalk clearing clause in the *Clean Property Bylaw* for businesses, commercial property owners. - Some suggestions for creating a new bylaw provision enforcing citywide residents/ private property owners to clear their walks within 48 hours like in other jurisdictions.	Over 300 comments
Suggestions regarding making small changes in the current operational practices in order to achieve compliance to the levels of service for several policy parameters	Based on over 300 comments
Feedback to not raise taxes to achieve desired levels of service	Over 100 comments
Improve School zones plowing and removal. Do not leave ridges on either side of the streets around schools	Over 100 comments
Eliminating unnecessary cycling of roads with sanding equipment when no freeze thaw conditions	Over 100 comments
Finding: Residents' general awareness about current Winter Maintenance Policy not sufficient. Several comments could have been avoided if sufficient awareness was there.	Several examples in the survey comments
Improve communication relating to winter activities as well as policy.	Over 70
Full scale plowing activity on all roads should start while it is still snowing. Residents want all plows to be out even when <5cm snow on the ground or just at the start of snowfall	Over 60 comments
Many residents commented that the current WM policy is very good. No need to change. Just need to properly implement	Over 100 comments

Stakeholder Feedback:

Several internal and external stakeholders in the city and their associates get impacted by City's Winter Maintenance Policy. City Administration identified such stakeholders and engaged with them through meetings, phone calls and emails to get their feedback on current policy as well as expectations relating to improved winter maintenance service levels.

Feedback received from the stakeholders was utilized to identify their key concerns relating to winter maintenance.

Following are the key stakeholders who were approached for feedback:

Internal Stakeholders:
Transit and Fleet (including Transit Operations, Paratransit & Revenue Services, Fleet Maintenance), Regina Fire & Protective Services, Emergency Preparedness and Business Continuity, Service Regina, Parking Services, Bylaw Enforcement, Citizen Services

External Stakeholders:
Regina Public and Catholic School Boards, Regina Downtown business Improvement District (RBID), Saskatchewan Health Authority (SHA), City of Regina Accessibility Committee, Pedestrian School Traffic Safety Committee, Saskatchewan General Insurance (SGI)/ City of Regina/ Regina Police Service Traffic Safety Committee, Regina Police Services, Business Owners & Managers' Association (BOMA)

Identification of Critical Areas of Concern Based on Stakeholder Feedback:

1. Transit routes & Bike lanes to get higher priority and enhanced levels of service
2. Sidewalks around transit stops to get enhanced LOS especially for wheelchair accessibility
3. Safer school zones. Snow ridges to be removed from both sides of roads around schools
4. General sidewalk clearing all over the city
5. Simplification of the policy document for better understanding

Address Gaps in the current Winter Maintenance Policy:

The review of the current Winter Maintenance Policy indicated that although we are currently performing the work, there are some general activities under current Winter Road Maintenance Program that were identified "*to be inserted at later date"*

The review indicated that it would be appropriate to include these general activities in the program in the new policy document as these are critical components of the program and significantly impact residents or businesses in the city.

Following general activities should be considered for inclusion in the new Winter Maintenance Policy:
1. Snow storage sites
2. Snow fencing (ridging)

Research:

Research was carried out to study snow and ice control policies and level of service for municipalities in Western Canada that face similar operational challenges during winter season. These municipalities included Saskatoon, Moose-Jaw, Edmonton, Calgary and Winnipeg. Some of these cities have already gone through the process of updating their snow and ice control policies/ programs in recent years.

Research activity also included evaluating past feedback on winter activities based on Service Requests, engagement with City Council, operational staff, and recommendations, operational challenges, and outcomes of the best practices as recorded in previous Winter Maintenance Summary Reports.

Identification of Critical Areas of Concern Based on Research:
SRs, Council and Operations Staff/ field interactions, previous years' Annual Winter Summary Report, MBN report

1. Priority Roads/ Categorization of roads
2. Sidewalks
3. Residential Roads
4. Snow Ridges
5. School Zones
6. Simplification of the policy document for better understanding

Municipal Benchmarking Network Canada (MBNCanada)
The following graphs from the MBN Canada Performance Measurement Report 2018 indicate the comparison of winter maintenance costs (per lane km) of different municipalities in Canada. The costs are incurred to meet the Policy guidelines relating to the level of winter maintenance service for different programs.
Figures 28.4 and 28.3 below indicate the following:

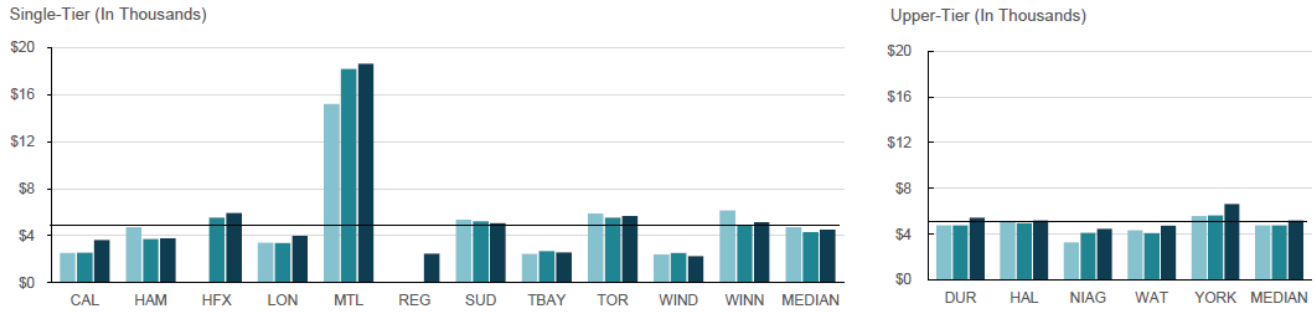
- Total cost for winter maintenance of roads per lane km for Regina is lower than most other municipalities in Canada that face similar challenges during winter but provide higher customer level of service. This shows that the cost of providing winter maintenance service in Regina could increase due to proposed enhancements of level of service.
- Total cost of winter maintenance per lane km of roads is fairly consistent for most municipalities. If required, this finding would be further studied and verified considering influencing factors like weather conditions and traffic volumes.

MBN Report 2018:

Roads

Figure 28.4 Total Cost for Winter Maintenance of Roads per Lane Km Maintained

This measure represents the total cost for winter maintenance of a single lane km. It includes all functions included in clearing and maintaining the roadway, and is not inclusive of sidewalk snow clearing and parking lots.



2016	$2,541	$4,736	N/A	$3,406	$15,189	N/A	$5,352	$2,464	$5,872	$2,406	$6,147	$4,736		$4,760	$5,148	$3,277	$4,322	$5,600	$4,760
2017	$2,566	$3,725	$5,538	$3,383	$18,167	N/A	$5,215	$2,693	$5,553	$2,534	$4,905	$4,315		$4,779	$4,975	$4,108	$4,089	$5,642	$4,779
2018	$3,637	$3,788	$5,946	$3,974	$18,624	$2,496	$5,065	$2,580	$5,665	$2,275	$5,159	$3,974		$5,450	$5,202	$4,459	$4,729	$6,643	$5,202

Source: ROAD309T (Efficiency)

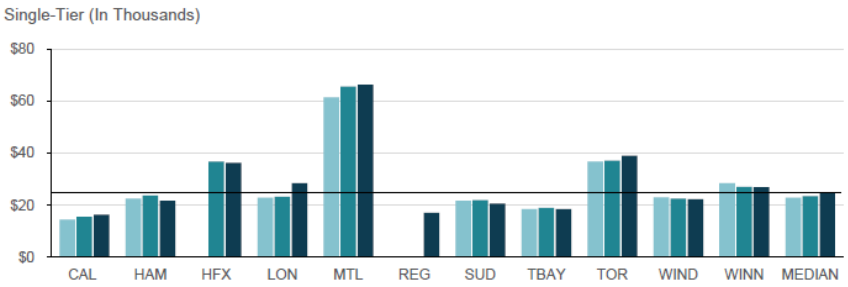
Montreal: The service thresholds for responding to weather incidents and the volume and type of snow removal required due to population density contribute to Montreal's higher cost.

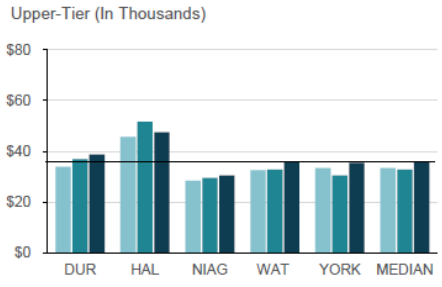
York: Expenditures for the renovation of Central Maintenance Yard and additional snowplows to maintain new Rapidways.

Roads

Figure 28.3 Total Cost for Roads - All Functions Per Lane Km

This measure represents the total cost of all functions related to road maintenance. This includes operating costs and amortization associated with capital costs for paved and unpaved roads, bridges and culverts, traffic operations, roadside maintenance, and winter control for roadways, sidewalks, and parking lots.





2016	$14,454	$22,507	N/A	$22,966	$61,492	N/A	$21,698	$18,486	$36,759	$23,014	$28,459	$22,966	$33,808	$45,667	$28,472	$32,568	$33,341	$33,341
2017	$15,607	$23,785	$36,780	$23,250	$65,657	N/A	$21,958	$18,983	$37,131	$22,506	$27,128	$23,518	$36,956	$51,644	$29,461	$32,838	$30,538	$32,838
2018	$16,394	$21,722	$36,402	$28,430	$66,366	$17,045	$20,704	$18,560	$39,117	$22,356	$26,953	$22,356	$38,775	$47,542	$30,425	$35,718	$35,441	$35,718

Source: ROAD308T (Efficiency)

Halton: Roads restoration costs, contracted services costs and road and bridges amortization increased due to Halton Region's continuous growth, new construction and roads rationalization.

London: Increase in 2018 expenditures due to some project contributions related to non-City owned assets.

Montreal: The higher cost can be attributed to investments in infrastructure and higher amortization costs.

Winter Maintenance Policy Comparison:

Table B below provides summary of the comparison of winter maintenance policies of some municipalities in Western Canada. The table provides comparison of road network classification of different jurisdictions for the purpose of providing winter maintenance and brief information about major winter maintenance programs like road plowing, residential plowing, sidewalk plowing etc.

Table B: Summary of Winter Maintenance Policy LOS & Timelines for Different Cities in Western Canada

	Regina	Saskatoon	Edmonton	Calgary	Moose Jaw	Winnipeg
Facts	**Roadways**: 1100Km **Sidewalks>**1300 Km **Equipment:** Access to 30 graders, 16 sanding plow trucks, 8 sidewalk machines, 4 blowers, 4 loaders, 2 under body plow trucks, 32 dump trucks-semis/tandems **Budget:** 8.8 million (2019)	**Roadways:** 4000 lane Km **Sidewalks:** n/a **Equipment:** n/a **Budget:** 12.59 million (2017)	**Roadways:** 11,000 Km **Sidewalks:** 1,380 Km (walks & trails) **Equipment:** Access to 150 plows, 300 graders, 260 end dumps **Budget:** 65 million (2019)	**Roadways:** 16,000 lane Km **Sidewalks:** 2,000km (city), 4500km (private) **Equipment:** 27 graders, 74 tandem trucks with underbody plow, 18 tandems with front plow and 6 blowers **Budget:** 40.4 million (2019)	**Roadways:** 200 Km **Sidewalks:** 210 Km **Equipment:** n/a **Budget:** n/a	**Roadways:** 7200 Km **Sidewalks:** 3000 Km **Heavy equip:** 300 **Budget:** 30-40 million
Policy Document	Winter Maintenance Policy	Service Level for Snow and Ice Maintenance	Snow & Ice Control Policy	Snow & Ice Control Policy	Winter Maintenance Policy	Snow Clearing & Ice Control Policy
Road Classification	**Category 1 to 6** **Category 1** Freeway, major arterials, designated hospital emergency route. **Category 2** Minor arterials, major collectors with traffic volumes > 5,000 vpd, downtown. **Category 3** Major collectors (traffic volumes < 5,000 vpd),industrial/ commercial roads, minor collector or major residential local roads on a designated transit or truck route. **Category 4** Minor collectors and major residential local roads leading into school bus unloading zones. **Category 5** Residential local roads **Category 6** Gravel roads.	**Priority 1 to 3** **Priority 1:** Freeways, High-use roads, Emergency routes **Priority 2:** Medium use roads & Transit routes **Priority 3:** School zones, bus stops, downtown, business districts	**Priority I to 4** **Priority1** - Freeways, Arterial roadways - Business districts, Busways - Bus stops adjacent to City property - Prioritized sidewalks, trails and bike routes **Priority 2** - Collector/Bus Route Roadways, Transit Park and Ride access roads **Priority 3** Local Industrial Roadways **Priority 4** Residential Roadways, Alleys	**Priority I to 4** **Priority 1** - Streets in Central business district with traffic volumes > 8,000 vpd - Designated routes on high-traffic-volume arterials (> 20, 000 plus vpd). **Priority 2** - Designated streets 5,000 to 19,999 vpd - Traffic lights and controlled crosswalks - Designated emergency routes (adjacent to hospitals and police and fire stations) - Roadways which facilitate marked, on-street bike lanes - Problem areas **Priority 3** - Designated feeders, collectors and bus routes - School and playground zones. - Designated hills. - Stop/yield signs. - Bus stops. **Priority 4** - Residential areas at:	**Priority I to 6** **Priority 1** arterial roads emergency services buildings. **Priority 2** bus routes **Priority 3** remaining collector roads and areas with potential drainage issues. **Priority 4** local collector routes **Priority 5** all remaining roads **Priority 6** parking lots.	**Priority 1 to 3** **Priority 1**All Regional Streets, hospital route **Priority 2** Non-regional bus routes and collector streets based on traffic counts, some streets in industrial areas **Priority 3** Residential and/or little used industrial streets.

		Regina	Saskatoon	Edmonton	Calgary	Moose Jaw	Winnipeg
					- School and playground zones - Designated hills		
Plow Triggers	Arterials	5 cm	5 cm	-	5 cm	-	3 cm
	Collectors	5-10 cm	5 cm	-	5 cm	-	5 cm
	Residential	25 cm	15 cm	-	12 cm (using graders); 5 cm (plow trucks)	-	10 cm
Plow Timelines	Arterials & Collectors	PLOWED & SANDED in 60 Hours to Bare pavement	PLOWED & SANDED in 72Hours to Bare pavement	PLOWED & SANDED in 48Hours to Bare pavement	PLOWED & SANDED in 48Hours to Bare pavement	PLOWED & SANDED in 48Hours to Bare pavement	PLOWED & SANDED in 36Hours to Bare pavement
	Residential	Residential systematic plow timeline not specified. Typically completed in 12-14 days after snow event	Residential plow timeline not specified	completed within 7 days, commencing within 48 hours following the end of the snowfall.	completed within 4 days, commencing within 48 hours following the end of the snowfall.	maintained based on rutting and drainage Residential streets are not normally completed as part of the Snow Management program	The snow plowing operations shall be completed within five working days
Sidewalk Policy		Encouragement model	Enforcement model	Enforcement model	Enforcement model	-	City clears
Transit Routes		Category 3	Priority 2	Priority 2	Advanced priority when plowing	-	Advanced priority when plowing
School Zones		Snow removed completely from one side of school unloading zones	Snow removed completely from both sides of school unloading zones	Snow removed completely from both sides of school unloading zones	The policy document does not specifically mention details of the school zone snow clearing. The only reference about schools in the main policy comes under road classification.	-	Priority shall be given to remove snow from high piles located at intersections and lane entrances in the vicinity of elementary schools. (No mention of the pile height in policy document)

Appendix D
Road Network Reclassification

Current Classification:
Based on the current Winter Maintenance Policy, the City of Regina roads including expressways, arterials, collectors, locals, gravel roads etc. are classified into six categories primarily based on the daily traffic volumes.

Category	Length Km	Timeline-Hour	Snowfall trigger-cm
Category1: Freeways/ Expressways including ramps and loops, major arterials, and any road on a designated hospital route	157	24	5
Category2: Minor arterial roads, major collector roads with traffic volumes greater than 5,000 vehicles per day (VPD) and all roads in the area referred to as Regina downtown	114	36	5
Category3: Major collector roads with traffic volumes less than 5,000 VPD, industrial/ commercial roads, and any minor collector or major residential local roads on a designated transit or truck route	178	48	10
Category4: Minor collector roads and major residential roads which lead into school bus unloading zones	59	60	10
Category5: Residential local roads	541	No	25
Category6: Gravel roads	47	60	10
Total	1096 Km		

Concern: Based on survey feedback, major roads like transit routes, high traffic residential roads, gravel roads getting lower level of service. In addition the road classification needed to be simplified.
Recommended Classification: Roads classified into 5 categories only

Category	Length Km	Expected Timeline-Hour	Snowfall trigger-cm
Category 1: Freeways/ Expressways, major arterials, roads on a designated hospital route	157	24	5
Category 2: Minor arterial roads, major collector roads with traffic volumes greater than 5,000 vehicles per day (VPD), transit routes, all roads in the area referred to as Regina downtown, and all bike lanes	204	36	5
Category 3: Major collector roads with traffic volumes less than 5,000 VPD, minor collector roads, industrial / commercial roads. Residential / local with traffic volume greater than 1500 VPD and roads which lead into school bus unloading zones.	156	48	5
Category 4: All gravel roads	47	60	5
Category 5: All local/ residential with traffic volume less than 1500 VPD	532	No	15
Total	1096 Km		

CATEGORY 1:
No changes in the road categorization for Category 1 roads. Levels of service remain the same as in the existing Policy.

CATEGORY 2:
Significant change in this category as all transit routes and bike lanes are added to this category. This would ensure enhanced level of service for transit routes and bike lanes in comparison with the existing policy.

CATEGORY 3:
Reclassification of the roads would allow all roads currently classified under existing policy as category 3 and 4 to be classified as category 3 roads. All residential / local roads with traffic volume greater than 1500 VPD would also be escalated to category 3, receiving an increased level of service. The Category 3 road network would include remaining collectors, roads in industrial and commercial zoning areas, roads leading to school bus unloading zones as well as all residential / local roads with traffic volume greater than 1500 VPD.

CATEGORY 4:
Gravel roads within City limits.

CATEGORY 5:
All residential roads with traffic volume less than 1500 VPD to be classified as category 5 roads.

Cost of Enhancement: As specified in Appendices E to M

Advantages:

- plowing all arterial and collector roads after a 5-centimetre event
- plowing residential roads after a 15-centimetre event
- transit routes and bike lanes upgraded to Category 2 roads or higher
- school unloading zones upgraded to a Category 3 road or higher
- residential roads with traffic volumes greater than 1500 VPD upgraded to a Category 3 road
- snow removal would take place on arterial and collector roads when lane widths and/or sightlines negatively impacted due to repeated plowing operations
- simpler classification

Disadvantages:

- None

Appendix E
School Unloading Zones

Current Policy:
The current Winter Maintenance Policy for snow clearing in front of schools specifies that snow ridges are removed when they exceed 30 centimeters in the School Bus Unloading Zone and exceed 75 centimeters on the remainder of the road adjacent to the school. However, there are no provisions for snow removal on the side of the road opposite of the school.

Concern:
Leaving snow ridges on the opposite side of the school hinders with the parking of the vehicles especially during pick-up and drop-off times. The snow ridges also pose as a safety hazard for children and others accessing the schools. The snow ridge on one side of the school may impact the road capacity in front of the schools.

Feedback from the survey, stakeholders and Service Requests suggested that snow ridges should be removed from both sides of the road after a snowfall and systematic plowing operations.

Recommendation:
Upgrade the road plowing classification of all school unloading zones to Category 3 or higher and remove the snow ridges completely on both sides of the road adjacent to a school after a systematic plowing event. Removal activity would be performed during off peak school hours.

Cost of Enhancement:
The cost for this enhancement is $100,000 annually.

Advantages:
- snow ridge free school drop-off zones
- provide safer school unloading zones and would improve road capacity around schools
- no equipment on school zones between 8 am and 4 pm

Disadvantages:
- operational flexibility lost as maintenance work around schools would be restricted during daytime

Appendix F
Transit Stop Accessibility

Current Policy:
The current Winter Maintenance Policy for snow plowing on sidewalks includes maintaining sidewalks adjacent to City-owned parks and facilities, bridge decks and subways, and locations that do not have a property owner fronting the sidewalk.

Examples of the locations where City crews clear sidewalks:

- Adjacent to city owned buildings
- Adjacent to Bridge decks and subways
- Adjacent to Transit stops on the Heritage bus route
- Adjacent to No frontage locations on all Category streets
- Adjacent to Storm channel and railway crossings on Category 1 and 2 streets
- Adjacent to Vacant land on Category 1 and 2 streets
- Adjacent to city owned parks on Category 1, 2, 3, and 4 streets
- Adjacent to city owned parks that are next to a public school
- Adjacent to the General Hospital gateway (sidewalks both sides on 14th Avenue from Broad Street to the alley east of Halifax Street)
- Adjacent to Core Community Park (Quebec Street side)

Sow clearing on these sidewalks is triggered with the systematic plow and the target is to clear within three days following a winter storm.

Concern:
The above locations only represent a small percentage of sidewalks in the community, with most of the responsibility assigned to the property owners adjacent to the sidewalk.
There is a requirement for commercial properties to clear their sidewalk as outlined in *The Clean Property Bylaw*, however residential properties are not included. The City uses an encouragement approach rather than an enforcement approach to motivate residents to be a good neighbor and clear their sidewalks. Unfortunately, this does not always happen, and it creates accessibility challenges for users of the transit system when the pick-up and drop-off locations are not consistently cleared.

Feedback from the survey, Service Requests and engagement with stakeholders suggested that there was a need to significantly improve snow clearing efforts around transit stops. This is also in alignment with OCP goals of offering a range of year-round sustainable transportation choices for all, as well promoting active transportation.

It should be noted that this option would not be required if City Council opted to implement a Bylaw requiring all property owners to clear the sidewalk adjacent to their property.

Recommendation:
Plow all sidewalks adjacent to transit stops. This will mean plowing snow from approximately 160 kilometres of sidewalks with over 1400 transit stops all over the community. The complete stretch of the sidewalk with transit stop will be plowed for the entire block.

Cost of Enhancement:
The cost for this enhancement is $339,000 annually

Advantages:

- improved accessibility of transit stops
- meet long standing request of stakeholders
- benefit community's aging demographics, persons with disabilities and accessibility challenges, transit users and pedestrians in general
- aligns with City's OCP/ TMP goals

Disadvantage:

- sidewalks not adjacent to the transit stops will not be cleared and there may be a negative perception that the City is clearing some residents sidewalks and not others
- does not address accessibility on the remaining sidewalk network

Appendix G
Transit Route General Conditions

Current Policy:
The current Winter Maintenance Policy states that all transit routes are to be classified as a Category 3 priority or higher. This means that during systematic plowing operations, many of the transit routes in the community can take up to 48 hours to complete after a snow event.

Concern:
Regina Transit needs clear and safe roads to carry out consistent service level commitments and schedules thereby elevating the role of public transit and optimizing the road network capacity. Regina transit routes cover a total of 650 km of the road network.

Regina Transit may be the primary mode of transportation for many residents after a snowfall. This may be especially true during a major snow event when major roads are cleared relatively quickly but residential roads take more time.

Feedback from Service Requests and internal stakeholders such as Regina Transit and Winter Maintenance staff suggest that transit routes should be classified as a higher priority and cleared faster.

Recommendation:
Upgrade the road plowing classification of all transit routes to Category 2 or higher. This will ensure the transit routes are plowed earlier and more frequently. Administration will also recommend frequent quality checks after maintenance work is completed at the end of each storm.

Cost of Enhancement:
There are no costs associated with this level of service enhancement and Administration will utilize existing tools and resources to implement this enhancement for the 2021/2022 season.

Advantages:
- elevates the role of public transit (OCP/ TMP Goal 2)
- enhanced level of service for transit routes
- reduced snow build-up on transit routes due to frequent plowing with 5 centimetres accumulation
- all transit routes will be plowed within 36 hours

Disadvantages:
- transit routes may change every season

Appendix H
Residential Road General Conditions

Current Policy:
The current policy classifies the residential roads as Category 5 roads and specifies that they are plowed after a snow event greater than 25 centimetres or when rutting exceeds ten centimetres. The City performs ice shaving activity to reduce ruts generally throughout the season to keep rutting to a minimum.

In the previous years, with more snowfall residential roads were generally plowed twice. However, in the last five years, on an average the residential plow was performed only once annually due to reduced amount of snowfall during this period. Currently the length of the residential road network is approximately 541 kilometres. The residential road network is almost half of the entire road network in the community. Plowing the residential roads comes with several challenges like parked cars and narrow streets.

Concern:
Feedback from the survey and Service Requests suggest that general satisfaction is low regarding snow clearing on residential roads.

Recommendation:
Administration is recommending that residential roads that are acting more as collector roads serving over 1500 vehicles per day be classified as a higher priority Category 3 roads and included in systematic plowing operations that starts with five centimetres snow accumulation.

In addition, Administration also recommends that residential roads be included in systematic plowing operations after snow events greater than 15 centimetres. Based on historical data, this will provide one additional residential plow during the season. The City will continue utilizing the Ice Shaving Program to maintain ruts and have discretion to plow all residential roads if there are unusual or extenuating circumstances during the winter.

Cost of Enhancement:
The cost for this enhancement is $304,000 annually.

Advantages:
- all high traffic residential roads would get enhanced level of service
- significant improvement in general residential road conditions
- increased resident satisfaction during winter seasons
- rutting will be reduced
- more frequent ice control cycles and inspections on major residential roads
- changes in line with municipalities like Calgary, Edmonton

Disadvantages:
- increased cost
- snow ridges created as a result of plowing more often and reducing on-street parking availability

Appendix I
Bike Lane General Conditions

Current Policy:
The current Policy does not include any reference to bike lanes. Majority of the existing bike lanes are located on Category 1 or 2 roads; therefore, they are plowed within 36 hours of a snowfall event. There are some bike lanes located on Category 3 roads.

Concerns:
Feedback received from the survey and stakeholder engagement indicated that the bike lanes should get enhanced level of service including snow plowing and ice control in order to ensure safer winter biking conditions. The feedback also indicated that availability of ice, snow and slush especially during spring and shoulder season could become safety hazards for the bike lane users.

Recommendation:
To meet corporate goals of providing a range of year-round transportation choices and promote active transportation, all existing and future bike lanes will be classified as Category 2 or higher. With this, the bike lanes currently located on Category 3 roads would be upgraded to Category 2 or higher, as well as any bike lanes added to the network in the future.

The enhanced level of service will include plowing and ice control activities after a snowfall, as well as routine inspections to ensure ice, snow, and slush is cleared from the bike lane especially during spring and shoulder seasons.

Cost of Enhancement:
As most of the bike lanes are already located on higher priority roads, there are no costs associated with this enhancement. Routine inspections will be built into current inspection program.

Advantages:
- safer bike lanes
- supports City's Official Community Plan (OCP) goals # 1, 3, 4 and 5:
    - offer a range of year-round sustainable transportation choices for all
    - integrate transportation and land use planning in order to facilitate better walking, cycling and transit trips.
    - optimize road network capacity.
    - promote active transportation for healthier communities

Disadvantages:
- None

Appendix J
Intersection Ice Control

Current Policy:
The current Winter Maintenance Policy for ice control outlines minimum cycling times based on category during snow events and when slippery conditions are present. Sand and salt is placed on the road in advance of intersections, crosswalks, ramps and merge lanes, curves and adjacent to school properties. After a snowfall, ice control material is placed on the road up to 24 hours after systematic plowing operations have been completed.

Concern:
Frequent freeze thaw cycles during the season require special attention of the sanding crews as the pavement conditions can change significantly during the day or night. While 2019/ 2020 winter season saw 64 freeze thaw days, last five-year average was 71 freeze thaw days.

Feedback from the survey showed general satisfaction of ice control operations, however comments suggested a need to enhance ice control activities in the community especially around the busy intersections. Comments also suggested there could be better coordination between snow plowing and ice control activities.

Recommendation:
Enhancement of ice control at intersections through operational efficiency. This will include:

- categorizing intersections based on traffic volume and collision history and prioritizing ice control activities as required
- quicker response time to Service Requests and frequent inspections by supervisors
- implementing routes based on priority and classification for both ice control and plowing operations for greater consistency and for reducing the time delay between the coordinated activities.

Cost of Enhancement:
There is no cost associated with this level of service enhancement and Administration will utilize existing tools and resources to implement this enhancement for the 2021/2022 season.

Advantages:

- sustainable option that would continue providing safer driving conditions through future seasons
- low implementation cost
- routing plan can include both ice control and plowing activity for a better coordinated maintenance activity
- categorization of intersections would ensure safer winter driving conditions by prioritizing ice control activities on high traffic and high-risk intersections
- improved safety and satisfaction of intersection users like drivers and pedestrians
- reduced claims due to less collision

Disadvantages:

- None

Appendix K
Snow removal on Category 1-3 Roads

Current Policy:
The current Winter Maintenance Policy specifies that snow removal will generally take place when snow ridges impact sight lines and lane widths on Category 1 and 2 roads, as well as Category 3 Transit routes.

Concern:
After each snow event greater than five centimetres, a systematic plow is completed and snow is plowed and placed in the parking lanes and centre medians. As the season progresses, snow ridges become higher and wider with each plow and snow storage capacity is reduced and sight lines become negatively affected as motorists cannot see around or over the snow ridge. In addition, lane widths become narrow as the snow ridge becomes wider and, causing traffic congestion and unsafe driving conditions.

Feedback from the survey indicated that the snow removal activities should be further enhanced on major roads after each systematic plow. Removing the snow from all arterial and collector roads that are plowed after each five-centimeter snow event would provide safer winter driving conditions by improving road capacity and visibility.

Recommendation:
Remove snow on all Category 1, 2, 3 roads when sightlines and lane widths are impacted.

Cost of Enhancement:
There is no cost associated with this level of service enhancement as Administration has gained efficiencies in snow removal operations in the last few years and has typically performed this work out of necessity. Administration will utilize existing tools and resources to implement this enhancement.

Advantages:
- safer driving conditions on major roads
- increased visibility at intersections
- maintain regular traffic flow

Disadvantages:
- None