

BETTER WINTER ROADS



Winter Road Maintenance

Level of Service

November 9, 2015
Version 1.1



City of
Saskatoon
Public Works

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BETTER WINTER ROADS

This Public Works Winter Road Maintenance Level of Service document provides information about the activities provided by Public Works throughout the City of Saskatoon's road network each winter.

Scope

This document describes the activities Public Works conducts to support the winter road maintenance level of service. This document is a first version, intended to be a living document and updated annually to document the changing services required in a 21st Century City. Future versions will separate customer and technical levels of service. With a formal level of service defined for the winter maintenance programs beginning this year, some operations are under review to align the maintenance programs with the levels of service.

Note: Affected programs are noted with end notes at the end of the document.

SUMMARY

Saskatoon's severe winters means the City requires a wide variety of snow programs, including regular maintenance and special programs to meet the service levels for the road network. City crews work seven days a week to provide better winter conditions for drivers and pedestrians.

High traffic streets are graded after a snow event, with snow pushed to the side of the road, onto boulevards, or down the middle of streets. Snow is removed from the streets with no room to store more snow and where accumulation causes visibility issues for drivers. During and after a heavy snowfall, salting, sanding and grading occur according to the City's Priority Street System, with the highest traffic streets being treated first. The following tables define the activities performance measures for each of the programs described in this document.

Snow Grading	
Task	Measure
Priority 1 Street Grading	Driving lanes are graded within 12 hours once a snow event ends. Snow storage is minimized along high-speed protective barriers.
Priority 2 Street Grading	Driving lanes are graded within 36 hours once a snow event ends.
Priority 3 Street Grading	Driving lanes are graded within 72 hours once a snow event ends.
Accessibility Parking and Transit Stops	Snow is not stored within the posted Accessibility Parking and Saskatoon Transit stops.
Business Improvement District (BID) Grading	Graded according to priority street system, with additional activities to maintain sidewalk access and parking adjacent to businesses within defined maintenance areas (as shown in appendix C).
School Zones	The pre-determined loading zone is graded and does not have windrows. Winter maintenance equipment operations occur only in designated hours (See Designated School Zone Hours in Appendix F: Definitions).
Local Roads	Grading occurs along section of road where it is deemed to be impassible (see Impassible in Appendix F: Definitions).
North Industrial	The North Industrial Area (Agriplace, Marquis Industrial, Hudson Bay Industrial, and Airport Business Area) is graded according to the priority street system.

Snow Grading

City-wide Neighbourhood Grading	Local roads with severe rutting, or potential for developing severe ruts (if overall average snow pack depth at 15 cm), are graded just prior to snowmelt if grading will not significantly reduce mobility by blocking lanes.
Back Lanes	Backlanes can be accessed by City and emergency vehicles.
Grading Communications	City Council, Leadership Team, local media and residents are informed of grading activities, parking restrictions and progress in a timely manner.

Snow Removal

Task	Measure
Priority Street Snow Removal	Stored snow is removed when capacity is reached to make space for future snow falls and in locations where stored snow presents an unusual hazard.
Business Improvement District (BID) Snow Removal	Stored snow does not interfere with street parking adjacent to businesses within the defined maintenance area. ²
School Zone Snow Removal	When City officials measure the height of the windrows at greater than 75 centimeters it will initiate a snow removal or windrow height reduction.
Back Lane Snow Removal	City or its contractor trucks can access back lanes for garbage and recycling cart collection. Snow may only be removed when grading is ineffective.
Snow Removal Communications	City Council, Leadership Team, BIDs, Community Associations and Schools have clear information about the process for snow removal in their area, including special restrictions.

Snow Storage Site Management

Task	Measure
Snow Storage Capacity	Private and City haulers may unload snow at a City snow storage site while the ground is adequately frozen to accommodate vehicles.
Noise Attenuation	Snow site users are complying with the No Tailgate Slamming requirement. Less than five verified complaints of noise from nearby residents.

Snow Storage Site Management

Task	Measure
Reasonable Access	Site is used at own risk. Signs posted at visible locations throughout the site indicating where snow shall be unloaded, and a clear pathway for travel in and out of the site in compliance with Saskatchewan Highways regulations. Sites may be closed due to change in site conditions.

Sidewalk and Pathway Grading

Task	Measure
Sidewalk Grading	Meeting Bylaw No. 8463 – The Sidewalk Clearing Bylaw, 2005 ²
Sidewalk Sanding	Less than five (5) substantiated complaints after Bylaw No. 8463 timelines
Public Park Pathway Grading	Public Works completes assigned locations, based on efficient routing, and meets the levels of service defined for the Parks Division. ²
Neighbourhood Pathway (catwalk) Grading	Graded as required by Council policy C07-021 to provide reasonable access.

Roadway Ice Management

Task	Measure
Priority 1 Street Weather Event Ice Inspection	Inspection of icy conditions occurs every 2 hours on all bridge decks and Priority 1 streets during adverse weather conditions.
Priority 2 Street Weather Event Ice Inspection	Inspection occurs every 4 hours on all Priority 2 streets during adverse weather conditions.
Priority 3 Street Weather Event Ice Inspection	Inspection occurs every 8 hours on all Priority 3 streets during adverse weather conditions.
Local and Rural Roads Weather Event Ice Inspection	Inspection does not occur during a weather event.
Priority 1 Street normal winter Conditions Ice Inspection	Inspection occurs every 4 hours on all Priority 1 streets.

Roadway Ice Management

Task	Measure
Priority 2 Street Normal Winter Conditions Ice Inspection	Inspection occurs every 8 hours on all Priority 2 streets.
Priority 3 Street Normal Winter Conditions Ice Inspection	Inspection occurs every 12 hours on all Priority 3 streets.
Local and Rural Roads Regular Conditions Ice Inspection	Complaints are assessed on an individual basis. Ice management may occur following a maintenance activity (such as a water main break).
Traction Improvement	Product application occurs as inspection warrants. Complaints monitored by Customer Service Centre. On-ramps, bridges and overpasses are sanded prior to peak traffic times during high-wind and extreme cold temperatures, as required. Pavement in the driving lanes of priority streets is improved after each application.
Product Selection	Specification & impact assessments: Corrosiveness and salinity, gradation and eutectic concentration are done prior to purchase of material.

Fiscal Responsibility

Task	Measure
Managing Budget	Setting a budget based on best practice and costs of an average winter. Public and crew safety is never sacrificed for the sake of the budget.
Financial Efficiencies	Programs are reviewed on a regular basis to find efficiencies in the delivery of the approved level of service.

SNOW GRADING

The City of Saskatoon conducts snow grading activities to maintain mobility of residents and access to services. Services can include emergency services, transit services, and education. Grading occurs according to the Priority Street System, which is based on impact on mobility and access to services. The grading program is designed so that the routing of equipment is done in the most optimal (greatest length of high-traffic streets graded in the shortest time frame) and efficient (cost effective for total kilometres traveled) manner.

Priority Street Grading

All streets in Saskatoon are categorized; the priority streets are considered those in categories priority one to three (see Appendix A for the determination for street priority). During a change in weather that affects driving conditions, such as a snow fall, extreme cold and blowing snow, Public Works will manage mobility on the priority streets.

Grading moves the snow from the driving lanes and rows it along the curb, boulevards or medians in windrows. This work includes high speed plows on Circle Drive and graders on critical lower speed streets, in coordination with Ice Management tasks.

Snow Event

Once the snowfall ends, Public Works crews continue to clean up the priority streets. At approximately five centimetres of accumulated snow, or a combination of snow and other factors, significantly affect driving conditions, a Snow Event may be called¹ to clear high-traffic streets quickly (See Appendix B: Snow Event).

In a snow event situation, priority one streets will be plowed and graded within 12 hours beginning when the snow fall ends, 36 hours for priority two streets, and 72 hours for priority three streets. In order to accomplish these critical timelines, snow grading contractors may be initiated to simultaneously grade priority streets in four maintenance areas outside of the Circle Drive boundary.

Accessibility Parking and Saskatoon Transit Bus Stops

Grader operators watch for posted Saskatoon Transit bus stops and parking spaces reserved for Accessibility Parking and undertake to prevent windrows from forming.

Business Improvement Districts (BIDs)

Snow is graded on priority streets in BIDs with the entire priority system. Snow may be pushed and stored on medians to minimize impact to business access and parking. Following Priority Street grading, snow is graded and removed within defined maintenance areas to accommodate business access and parking within the BID (see Appendix C: Business Improvement District Maintenance Area).

School Zones

For reduced risk of hazards for students and to reduce the impact of congestion within school zones during normal school operations, grading activities will not occur within the area at times posted (8 a.m. – 5 p.m.). Outside of these hours, the road and parking lane is graded within a defined loading and unloading area for each school, called No Windrow Zones. These areas will have minimal windrows left for reduced congestion of vehicles stopping or passing by, and ease of access to the sidewalk. School Zone No Windrow Area maps are available on request. Note: There are limited exceptions to hour restrictions in school zones for snow events and non-school days.

North Industrial Areas

Priority 1, 2 and 3 streets in the North Industrial Areas (North Industrial, Agriplace, Marquis Industrial, Hudson Bay Industrial and Airport Business Area) are graded as part of Priority Street Grading following a snow event (see Appendix B: Snow Event).

Local Roads

Local roads are graded on an as needed basis, such as severe blown-in snow, to accommodate a bus route detour, or to remove hazards caused by a maintenance activity (such as water main repair).

Back Lanes

An individual back lane may be graded to provide access for City and emergency vehicles.

City-Wide Neighbourhood Grading

Prioritized grading on local roads will be initiated after the average overall snowpack is a minimum of 15 centimetres (6 inches) and when it is deemed that roads will become impassible (see Appendix F: Terms of Reference for definitions). When a snow pack softens, deep slushy ruts can form; which when frozen, quickly deteriorate driving conditions. The intent is to perform this program later in the season to reduce the time that windrows adversely affect parking. If the snow pack turns to ice at any point during the winter, the City will only grade areas where problematic rutting has occurred.

Icepack tends to melt slowly and evenly in the spring and will not be graded unless there are significant hazards. Yellow No Parking signs are posted to notify drivers in advance of grading; and ticketing/towing may be required. The schedule is available on the website at saskatoon.ca/snow.

Snow Route Parking Ban

Following an extreme snow event, where vehicles must be removed from priority streets for effective grading a temporary parking ban may be declared starting with the “Green Circle” Snow Route (see Snow Route flyer and map in Appendix B: Snow Event).

A Snow Route Parking Ban declaration will only be made at 7:00 a.m. or 3:00 p.m., eight (8) hours in advance for each Snow Route. For example, a declaration may be made at 7:00 a.m. to take effect at 6:00 p.m., or at 3:00 p.m. to take effect at 11:00 p.m. These parking bans are each in effect for 24 hours. This will enable the media and City to adequately distribute the information, and will also give citizens appropriate time to move their vehicles.

As the end of the Green Circle Snow Route Parking Ban approaches, the Blue Square Snow Route Parking Ban is declared.

Streets on a snow route are marked with permanent No Parking Snow Route signs, with a metal plate indicating if it's the "Green Circle" or "Blue Square" snow route. When a temporary parking ban is in effect, violators may receive a \$100 parking ticket and be relocated.

Grading Communications

Affected drivers and residents will be notified of the objectives and activities of the City's grading program, using various advertising channels and through news media.

Throughout the season, drivers and residents can stay informed through a combination of timely Public Service Announcements, Service Alerts, and direct email (internal stakeholders and subscribers). If a Snow Route Parking Ban is declared, local news channels and the City's website will provide timely information.

Program Measures

Snow Grading	
Task	Measure
Priority 1 Street Grading	Driving lanes are graded within 12 hours once a snow event ends. Snow storage is minimized along high-speed protective barriers.
Priority 2 Street Grading	Driving lanes are graded within 36 hours once a snow event ends.
Priority 3 Street Grading	Driving lanes are graded within 72 hours once a snow event ends.
Accessibility Parking and Transit Stops	Snow is not stored within the posted Accessibility Parking and Saskatoon Transit stops.
Business Improvement District (BID) Grading	Graded according to priority street system, with additional activities to maintain sidewalk access and parking adjacent to businesses within defined maintenance areas (as shown in appendix C).

Snow Grading	
School Zones	The pre-determined loading zone is graded and does not have windrows. Winter maintenance equipment operations occur only in designated hours (See Designated School Zone Hours in Appendix F: Definitions).
Local Roads	Grading occurs along section of road where it is deemed to be impassible (see Impassible in Appendix F: Definitions).
North Industrial	The North Industrial Area (Agriplace, Marquis Industrial, Hudson Bay Industrial, and Airport Business Area) is graded according to the priority street system.
City-wide Neighbourhood Grading	Local roads with severe rutting, or potential for developing severe ruts (if overall average snow pack depth at 15 cm), are graded just prior to snowmelt if grading will not significantly reduce mobility by blocking lanes.
Back Lanes	Back lanes can be accessed by City and emergency vehicles.
Grading Communications	City Council, Leadership Team, local media and residents are informed of grading activities, parking restrictions and progress in a timely manner.

SNOW REMOVAL

The City of Saskatoon conducts snow removal activities to maintain mobility and right-of-way snow storage capacity along the Priority Street System. Snow that is removed is then transported to a dedicated snow storage site.

Priority Street Snow Removal

Snow windrows shall be removed from priority streets only when one or more of the following conditions are met:

- When the grading program is unable to store any more snow on the side of the road.
- Windrow width occupies the lane such that it cannot be graded or is hazardous for travel.
- When the average windrow height in a certain area interferes with reasonable driver lines of sight for passenger class vehicles.

Snow is removed from along Circle Drive and other high-speed barriers to prevent ramping.

Business Improvement Districts (BID)

Snow stored in windrows that interfere with street parking adjacent to businesses will be removed within the designated maintenance area (see Appendix C: Business Improvement District Maintenance Area), beginning once Priority Street Grading is completed and priority street snow is removed where necessary (see Snow Event Timeline in Appendix B: Snow Event).

School Zones

For increased visibility of students during drop-off and pick-up, snow is removed periodically from *designated school zone removal areas*. Graded snow will be stored in windrows within the posted School Zone. When City officials measure the height of the windrows at greater than 75 centimeters it will initiate a snow removal or windrow height reduction. This is based on maintaining a line of sight with kindergarten aged students.

Back Lanes

If grading is required and it is not effective, snow will be removed from a back lane to create a path for City and emergency vehicles.

Program Measures

Snow Removal	
Task	Measure
Priority Street Snow Removal	Stored snow is removed when capacity is reached to make space for future snow falls and in locations where stored snow presents an unusual hazard.
Business Improvement District (BID) Snow Removal	Stored snow does not interfere with street parking adjacent to businesses within the defined maintenance area. ²
School Zone Snow Removal	When City officials measure the height of the windrows at greater than 75 centimeters it will initiate a snow removal or windrow height reduction.
Back Lane Snow Removal	City or its contractor trucks can access back lanes for garbage and recycling cart collection. Snow may only be removed when grading is ineffective.
Snow Removal Communications	City Council, Leadership Team, BIDs, Community Associations and Schools have clear information about the process for snow removal in their area, including special restrictions.

SNOW STORAGE SITE MANAGEMENT

The City of Saskatoon maintains temporary snow storage sites available for City use. It is also open for use by private haulers. Site users may access the sites at their own risk 24 hours per day, with the exception of the 8th Street Southeast site, which operates from 7:00 a.m. to 10:00 p.m.

Snow Storage Capacity

The City manages sites for City and private haulers to unload snow removed from streets and private property. Continuous monitoring with snow pushed as required into a ramped wedge shape with a height not exceeding ten metres.

Noise Attenuation

“Tail gate slamming” is not permitted at the 8th Street Southeast and Valley Road Southwest sites. When possible, a snow berm is constructed to reduce the noise impact for nearby residential neighbourhoods.

Reasonable Access

For the 2015-2016 winter, one snow storage site is located in each of the four quadrants of the City to allow for easy access and reduced travel time during winter snow removal operations. Once the ground is frozen, three of the four snow storage sites are open 24 hours a day; while the hours of operation for the 8th Street Southeast site are 7:00 a.m. to 10:00 p.m. to eliminate disturbance during the night of nearby residents. Snow storage sites are closed if site conditions deteriorate due to melting or if storage capacity is reached.

The City may also close access to private haulers if capacity requirements are needed for city snow removal operations.

Program Measures

Snow Storage Site Management	
Task	Measure
Snow Storage Capacity	Private and City haulers may unload snow at a City snow storage site while the ground is adequately frozen to accommodate vehicles.
Noise Attenuation	Snow site users are complying with the No Tailgate Slamming requirement. Less than five verified complaints of noise from nearby residents.
Reasonable Access	Site is used at own risk. Signs posted at visible locations throughout the site indicating where snow shall be unloaded, and a clear pathway for travel in and out of the site in compliance with Saskatchewan Highways regulations. Sites may be closed due to change in site conditions.

SIDEWALK AND PATHWAY GRADING

The City of Saskatoon conducts winter sidewalk maintenance activities to manage winter weather hazards. Public park pathway and neighbourhood pathway (catwalk) grading activities are a shared responsibility between the Public Works and Parks Divisions. The order these locations are graded may vary depending on the schedule and route of each work group. Public Works meets these program objectives through the following tasks:

Sidewalk Grading

All sidewalks where the adjoining property is owned by the City will be cleared according to Bylaw No. 8463 – The Sidewalk Clearing Bylaw, 2005². The sidewalk adjacent to City-owned parks is maintained by City of Saskatoon Parks and Public Works.

Sidewalk grading includes pedestrian overpasses, bridge walkways, the area between the sidewalk and the parking lane where parking metres are/were located (amenity strip) and streetscaping. Amenity strips and streetscaping along 2nd Avenue, 21st Street, Transit bus mall and City Hall are cleared with contractor assistance.

Neighbourhood Pathway (catwalk) Grading

Following all snow event sidewalk grading, reports of hazards will be investigated and cleared where necessary.

Sidewalk Sanding

Sanding occurs on sidewalks where Public Works conducts grading activities as required.

Program Measures

Sidewalk and Pathway Grading	
Task	Measure
Sidewalk Grading	Meeting Bylaw No. 8463 – The Sidewalk Clearing Bylaw, 2005 ²
Sidewalk Sanding	Less than five (5) substantiated complaints after Bylaw No. 8463 timelines
Public Park Pathway Grading	Public Works completes assigned locations, based on efficient routing, and meets the levels of service defined for the Parks Division. ²
Neighbourhood Pathway (catwalk) Grading	Graded as required by Council policy C07-021 to provide reasonable access.

ROADWAY ICE MANAGEMENT

Public Works uses a variety of techniques and products throughout winter to manage ice on the road network.

Ice Inspection

Public Works staff inspects and rates the condition of roads regularly throughout winter. The frequency of inspection may vary depending on the weather conditions; however, the priority street system is monitored regularly as part of the traction improvement tasks.

Traction Improvement

In slippery conditions, sanding trucks spread a sand and salt and/or liquid brine mixture in the driving lane and key intersections where required, to improve traction. In temperatures below -14°C, a liquid Magnesium-Chloride de-icing chemical is added to help the material stick to priority streets. It softens the ice and holds the sand, once activated by the moisture in the air and aided by the friction from traffic.

Ice Removal

In extreme cold temperatures, the sand/salt tends to blow away before it can stick to the ice. Four sanding trucks are modified to spray the liquid Magnesium-Chloride de-icing chemical to the sand/salt mixture as it is applied to Circle Drive and high-volume intersections, which is currently only being applied to these streets as a pilot test. This pre-wetting technique keeps the mixture moist allowing it to activate immediately as it settles on ice. This equipment will be used primarily in extreme cold weather. In some circumstances, a plow or a grader may be used to scrape the ice off the road.

Program Measures

Roadway Ice Management	
Task	Measure
Priority 1 Street Weather Event Ice Inspection	Inspection of icy conditions occurs every 2 hours on all bridge decks and Priority 1 streets during adverse weather conditions.
Priority 2 Street Weather Event Ice Inspection	Inspection occurs every 4 hours on all Priority 2 streets during adverse weather conditions.
Priority 3 Street Weather Event Ice Inspection	Inspection occurs every 8 hours on all Priority 3 streets during adverse weather conditions.
Local and Rural Roads	Inspection does not occur during a weather event.

Roadway Ice Management	
Task	Measure
Weather Event Ice Inspection	
Priority 1 Street normal winter Conditions Ice Inspection	Inspection occurs every 4 hours on all Priority 1 streets.
Priority 2 Street Normal Winter Conditions Ice Inspection	Inspection occurs every 8 hours on all Priority 2 streets.
Priority 3 Street Normal Winter Conditions Ice Inspection	Inspection occurs every 12 hours on all Priority 3 streets.
Local and Rural Roads Regular Conditions Ice Inspection	Complaints are assessed on an individual basis. Ice management may occur following a maintenance activity (such as a water main break).
Traction Improvement	Product application occurs as inspection warrants. Complaints monitored by Customer Service Centre. On-ramps, bridges and overpasses are sanded prior to peak traffic times during high-wind and extreme cold temperatures, as required. Pavement in the driving lanes of priority streets is improved after each application.
Product Selection	Specification & impact assessments: Corrosiveness and salinity, gradation and eutectic concentration are done prior to purchase of material.

FISCAL RESPONSIBILITY

The Snow & Ice budget is based on an average Saskatoon winter, which is based on four minor, two moderate and one major snow event. The January to December budget cycle addresses the second half of one winter and the first half of the next winter.

An adverse winter will impact two budget cycles, one extreme snow event can consume up to 20 per cent of the annual budget. Actual costs are highly variable and weather dependant. Even without snow events, there are fixed expenses for each year that Public Work strives to use as efficiently as possible.

Public Works manages winter maintenance programs to align with the budget; however, public safety and the safety of our staff is paramount.

Program Measures

Fiscal Responsibility	
Task	Measure
Managing Budget	Setting a budget based on best practice and costs of an average winter. Public and crew safety is never sacrificed for the sake of the budget.
Financial Efficiencies	Programs are reviewed on a regular basis to find efficiencies in the delivery of the approved level of service.

END NOTES

End Notes	
Note	Description
1	An internal decision model is used to consider criteria such as snow accumulation, wind, temperature, drifting snow, and traffic flow when calling a snow event.
2	Sidewalk and pathway grading is currently under review. The current timeframe for all applicable sidewalks and pathways is 108 hours. Neighbourhood pathway grading is currently under review. Regular maintenance of neighbourhood pathways is not currently funded.

APPENDIX A: PRIORITY STREET SYSTEM

The Priority Street System is a method of classifying roadways based on these attributes:

- Road Class, as provided by the Transportation Division when the roads are constructed;
- Annual Average Daily Traffic (AADT), as provided by the Transportation Division for the entire road network annually;
- Bus Routes, as provided by Saskatoon Transit annually; and
- Access to the following facilities:
 - Police Headquarters,
 - Fire Halls,
 - Hospitals,
 - Ambulance Depots,
 - Emergency Measures Organization HQ/Staging Area,
 - City Downtown Yards,
 - City Hall, and
 - Schools.

Priority One Streets

- Road Classes and AADT: All Expressways (Driving Lanes); All Freeways (Driving Lanes); Arterials (AADT >15,000); Collectors (AADT > 15,000);
- Some additional Arterials and Collectors with AADT ≤ 15,000 for route continuity;
- Access to the following facilities:
 - Police Headquarters;
 - Fire Halls;
 - Hospitals;
 - Ambulance Depots.
- Examples include Circle Drive, College Drive, 8th Street, and 22nd Street.

Priority Two Streets

- Road Classes and AADT: All Expressways (Shoulders); All Freeways (Shoulders); Arterials (15,000 ≥ AADT >7,500); Collectors (15,000 ≥ AADT >7,500);
- Some additional Arterials and Collectors with AADT ≤ 7,500 for route continuity;
- Bus Routes: Bus Rapid Transit Routes
- Access to the following facilities:
 - Emergency Measures Organization HQ/Staging Area.
 - Saskatoon Airport (to City responsibility limits, allows access for emergency services)

- Examples include Lenore Drive, 11th Street West, and Main Street.

Priority Three Streets

- Road Classes and AADT: All remaining Arterials (AADT \leq 7,500); All remaining Collectors (AADT \leq 7,500);
- Some Local roads for route continuity;
- Bus Routes: Local and DART Bus Routes;
- Access to the following facilities:
 - City Downtown Yards;
 - City Hall; and
 - Schools.
- Examples include: 16th Street, Spadina Crescent and Cumberland (South of Taylor).

Local and Rural Roads

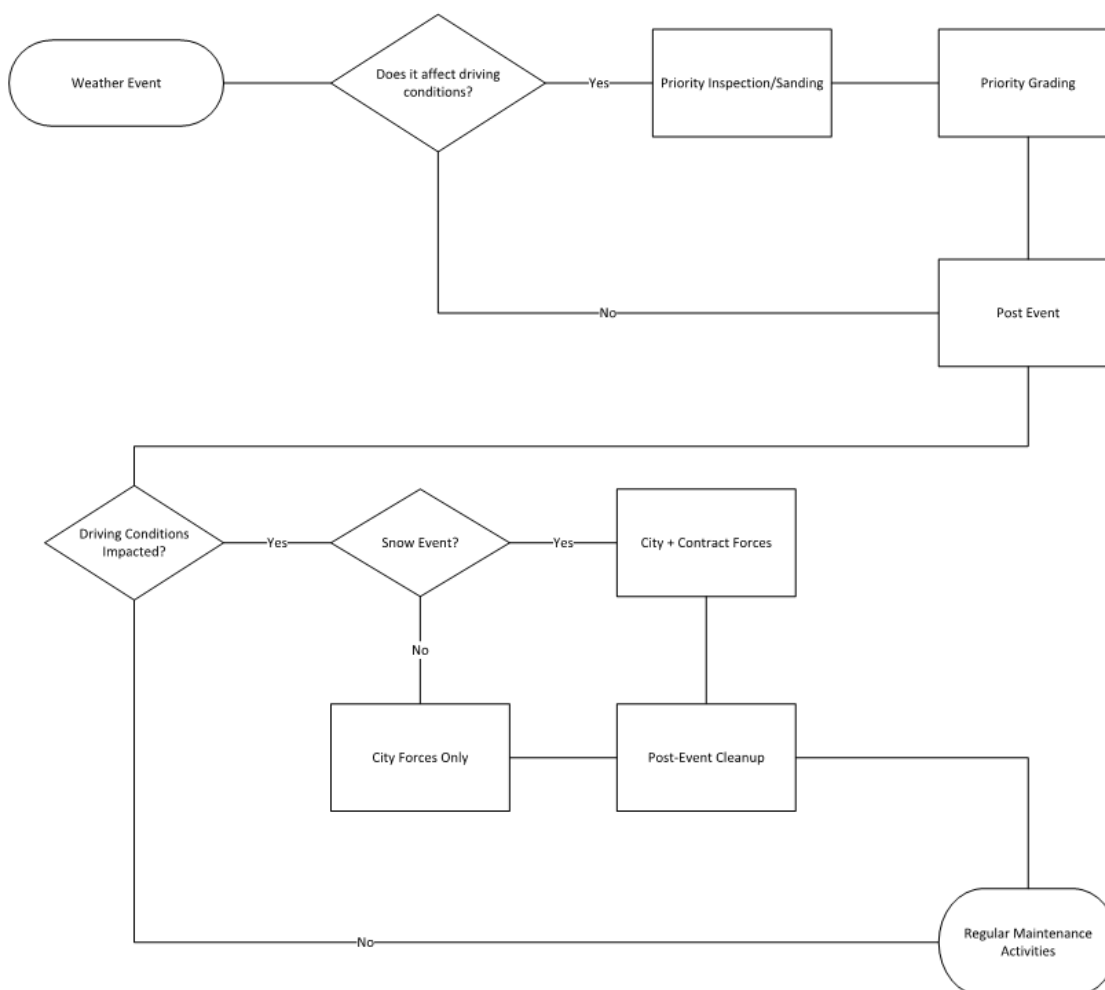
- All remaining Local Roads and Rural Roads.

APPENDIX B: SNOW EVENT

During the winter months, staff are ready 24/7 to salt, sand, and treat with other chemicals high-traffic streets, overpasses and bridges. Following a major snow fall, priority streets will be graded, including removal on bridges and overpasses, and Business Improvement Districts. When accumulated snow of approximately 5 centimetres, or a combination of snow and other storm conditions significantly affect road conditions, a snow event may be called. An internal decision model considers the multiple conditions before a Snow Event is called.

Once a snow event is called, Priority 1 roads are graded within 12 hours, Priority 2 roads within 36 hours, and Priority 3 roads within 72 hours.

If there are not enough City resources to complete the snow event timing, contractor snow grading may be initiated.



When it... Snows

From snow grading to sanding, the City of Saskatoon is ready.

1. Ice Management and Monitoring

Sand/salt mixture is used for de-icing and traction on high traffic roads and intersections. City staff monitor driving conditions regularly.



2. Plowing and grading

During a winter storm, snow plows and graders remain on the high-traffic/high-volume streets like Circle Drive and other Priority 1 Streets.



3. Snow Event Grading

When an extreme storm affects driving conditions, a Snow Event is called & all priority streets are graded within 72 hours.



4. Sidewalks

Primary sidewalks, including those adjacent to City-owned facilities and in high-pedestrian areas are cleared within 24-48 hours. Residents are required to clear their sidewalks within 48 hours of the snow ending.



5. Snow Removal

Snow along bridge and overpass barriers is removed after each snow event. Snow on medians and boulevards is monitored and removed to make room for the next snow fall.



**BETTER
WINTER
ROADS**
SASKATOON'S SNOW & ICE PLAN



Snow

What to do?



Snow Grading

Following a snow event, roads are graded in order of an established priority system. During a snow event, equipment remains on the high speed and high traffic volume roads such as Circle Drive and Priority 1 roads until the snow stops.



School Zones

Graded snow piles can present hazards for drop-off and pick-up and if a student attempts to climb them. These piles will be removed frequently, outside of school hours, typically at night.



Snow Route Parking Ban

In extreme snow falls, a Parking Ban may be declared at 7 AM or 3 PM for a Green Circle or Blue Square Snow Route. Drivers will have 8 hours to remove vehicles.



Sidewalk Clearing

A City bylaw requires residential sidewalks to be clear of snow and ice within 48 hours after a snowfall. Cleared snow must be placed on your own property, not on City streets. To report an uncleared sidewalk, contact Public Works Customer Service at 306-975-2476.



Sanding & Salting

When it comes to de-icing our roads and intersections crews use a mixture of sand and salt to improve traction and keep drivers moving around.



Snow Angel Contest

Nominate a friend, neighbour or volunteer who helps clear snow for you and others in your neighbourhood. We'll send them a thank you and enter their name in a monthly prize draw.

When it Snows

Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Day 8 | Day 9 | Day 10 | Day 11 | Day 12 | Day 13 | Day 14 | Day 15



Continuous salt/sanding on priority streets, as required

Snowing
(5+ cm)

72-hr post-event clean up

Routine monitoring of driving conditions



Plowing
Driving
Lanes

Priority Street Grading



On-going Priority Street Clean-up & Removal Prep

P1
(12 hrs)

P2
(24 hrs)

P3
(36 hrs)

Removal (night)
- Circle Drive (3 nights)



Removal - Business Improvement District (7 nights)

Primary Sidewalk Clearing
(24 - 48 hrs)

Secondary Sidewalks &
Pathway Clearing (72 hrs)

DO YOU PARK ON A SNOW ROUTE?



WHAT YOU NEED TO KNOW!

This winter, City of Saskatoon crews are working hard to keep excessive snow off major roads and streets. As someone who lives on a “snow route” we need your help.

Snow Routes

Snow routes are priority roadways for snow grading because they ease the flow of traffic across our city. The City will only declare a Snow Route Parking Ban if snowfall is extreme. These routes are marked with permanent **green** and **blue** metal signs that are positioned along the snow routes. See the map on the back of the flyer to see Saskatoon’s designated snow routes.

Parking

If a Snow Route Parking Ban is declared, vehicles must be removed from the street to help us grade snow more effectively. If you

typically park on one of these routes, here’s what you need to do:

Pay attention to public notices and media reports following a significant snowfall. A blue or green snow route parking ban may be declared.

Remove your vehicle from the street. Snow route declarations can only be announced at either 7:00 a.m. or 3:00 p.m. You will have a minimum of 8 hours notice before the parking ban takes effect.

Avoid getting towed and a \$100 parking ticket by removing your vehicle in time and keeping it off the declared snow route until the parking ban has expired.

Make a plan to have someone move your vehicle if you are going to be away.

KNOW RIGHT AFTER IT SNOWS

Sign Up for *notifynow*

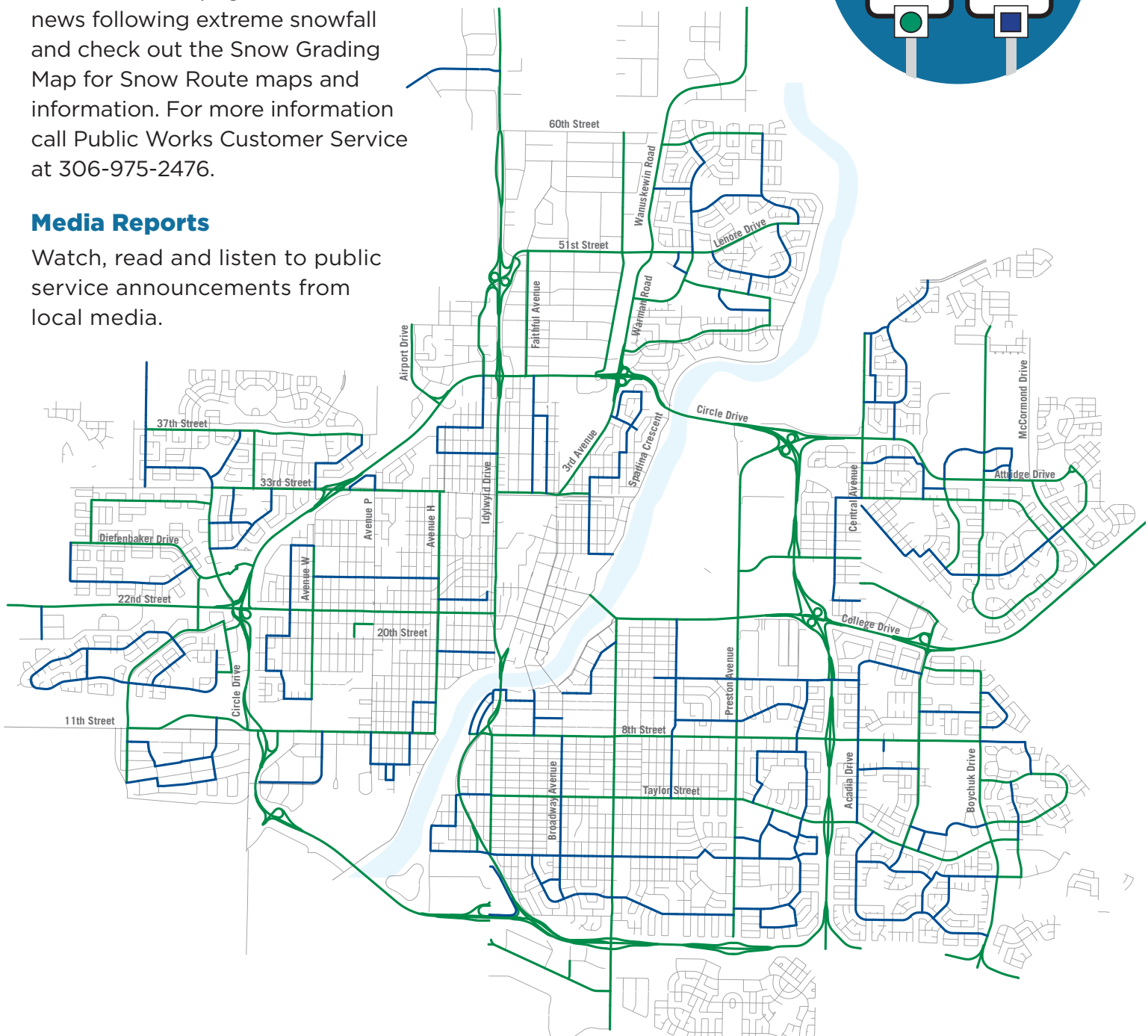
Receive direct communication from the City when a Snow Route Parking Ban is declared by signing up to the City's emergency mass alert system, *notifynow*, at saskatoon.ca.

Visit Saskatoon.ca

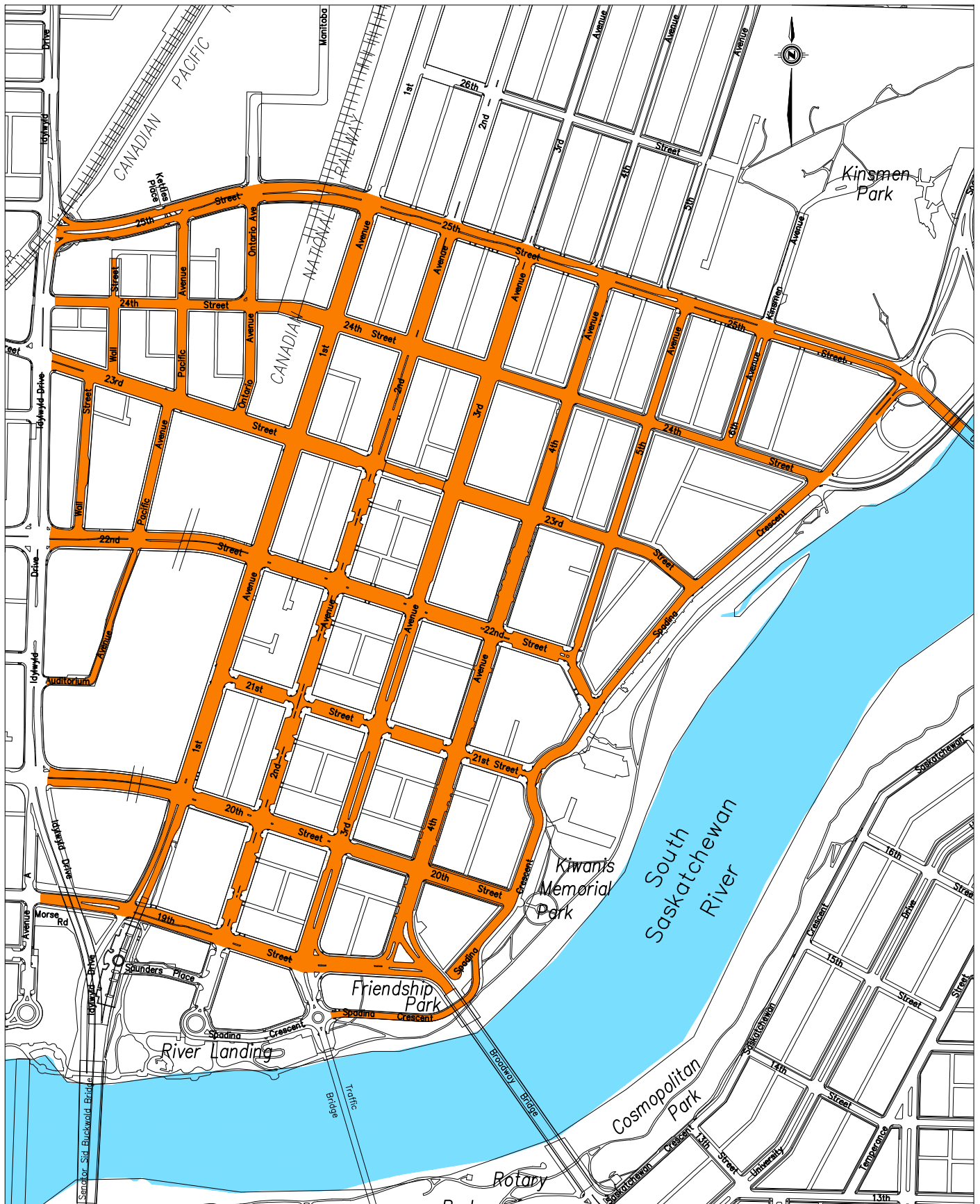
Go to our homepage for the latest news following extreme snowfall and check out the Snow Grading Map for Snow Route maps and information. For more information call Public Works Customer Service at 306-975-2476.

Media Reports

Watch, read and listen to public service announcements from local media.



APPENDIX C: BUSINESS IMPROVEMENT DISTRICT MAINTENANCE AREA



DOWNTOWN B.I.D. MAINTENANCE AREA

DRAWN BY JVS DATE _____
 SCALE: _____
 PLAN No.: _____
 PAGE: _____



**City of
Saskatoon**
 Transportation & Utilities Department

SOURCE DOCUMENT

PLAN No.:

APPROVAL DATE:

REVISION DATE:



RIVERSDALE B.I.D. MAINTENANCE AREA

DRAWN BY JVS DATE

SCALE:

PLAN No.:

PAGE:



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Transportation & Utilities Department

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PLAN No.:

APPROVAL DATE:

REVISION DATE:

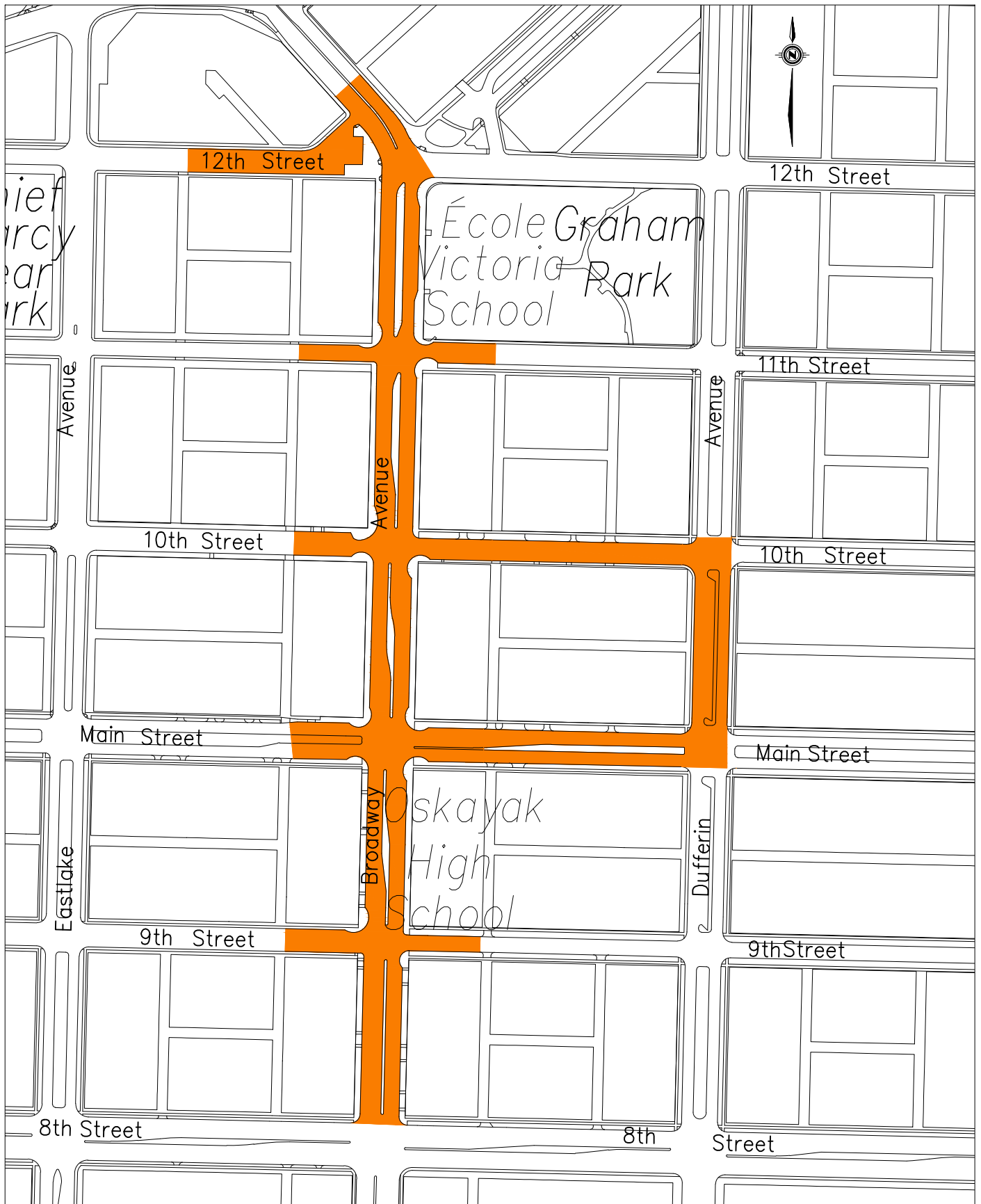


33rd STREET B.I.D. MAINTENANCE AREA

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PLAN No.:			
PAGE:			



SOURCE DOCUMENT
PLAN No.:
APPROVAL DATE:
REVISION DATE:



BROADWAY AVENUE B.I.D. MAINTENANCE AREA

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**City of
Saskatoon**

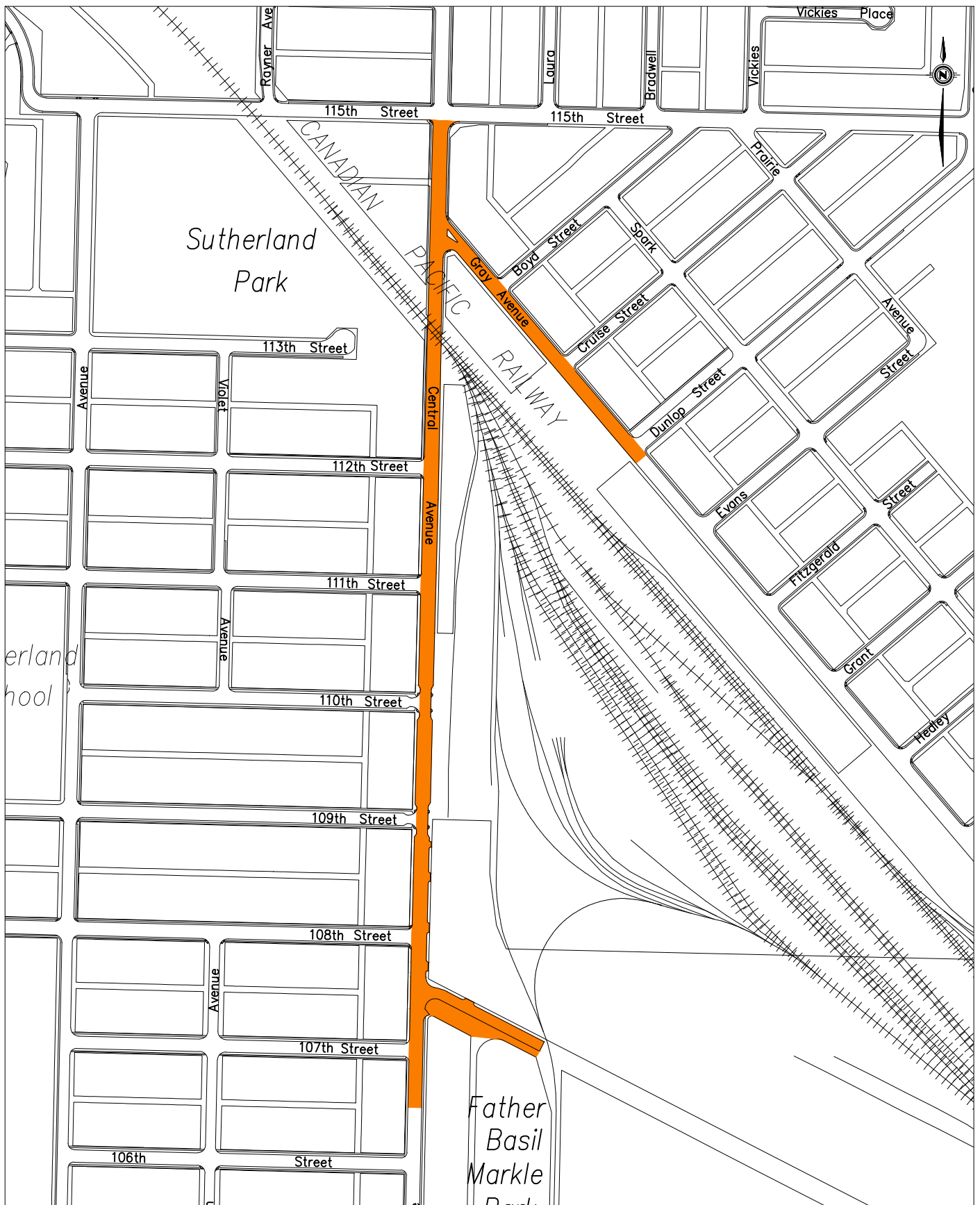
Transportation & Utilities Department

SOURCE DOCUMENT

PLAN No.:

APPROVAL DATE:

REVISION DATE:



SUTHERLAND B.I.D. MAINTENANCE AREA

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 PLAN No.: _____
 APPROVAL DATE: _____
 REVISION DATE: _____

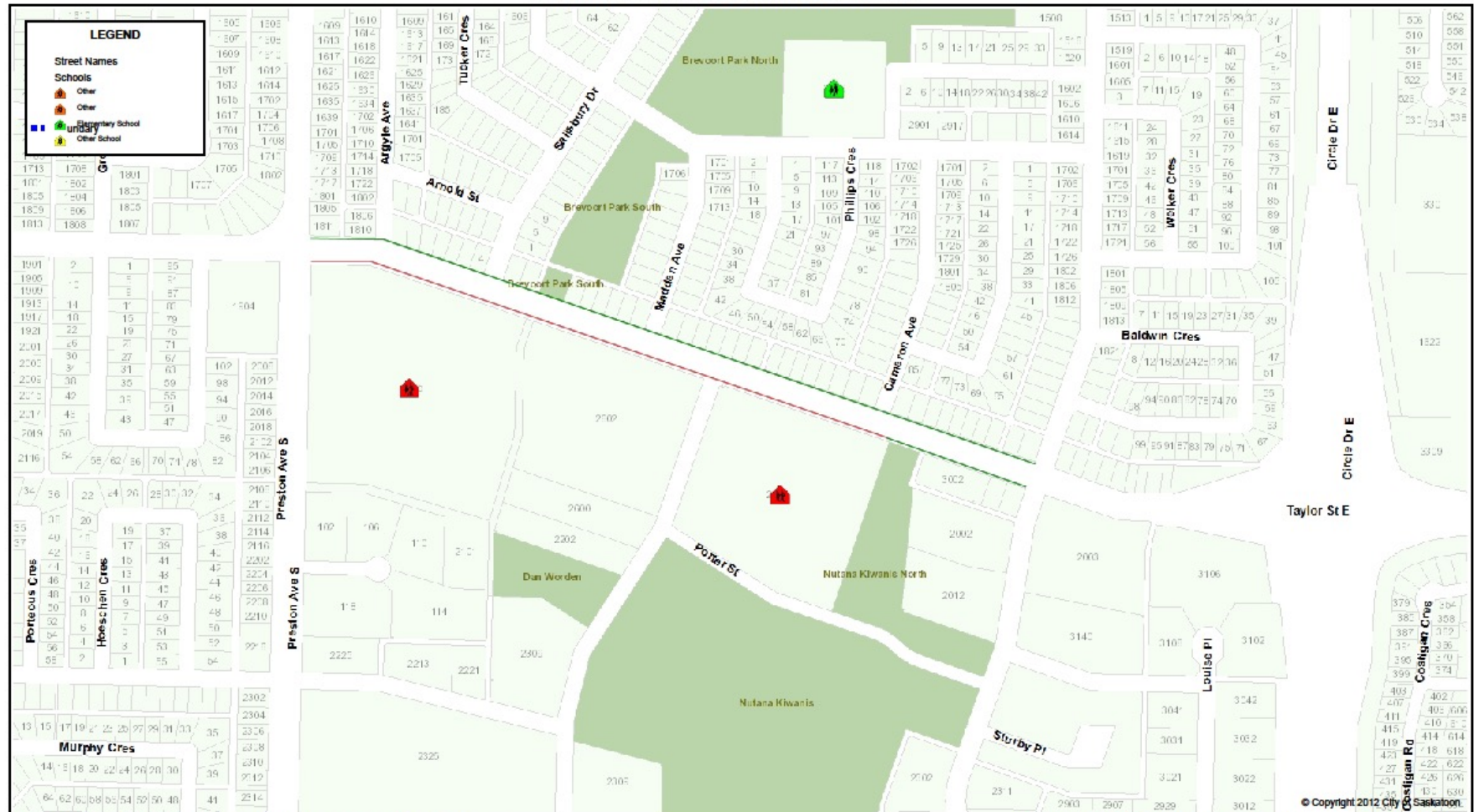
APPENDIX D: SCHOOL ZONE SNOW MAINTENANCE

Specific School Zone Maps are available on Request. Please find below a sample School Zone Map with Windrow Locations:

School Zone Windrow Location Map

PLEASE NOTE: Residents may park along all priority streets.

Printed: 2014/08/27
Scale: 1:4,214



All iMap data is provided as a public service by the City of Saskatoon, however, the City makes no warranty, express or implied, as to the accuracy, merchantability or fitness of any iMap image.

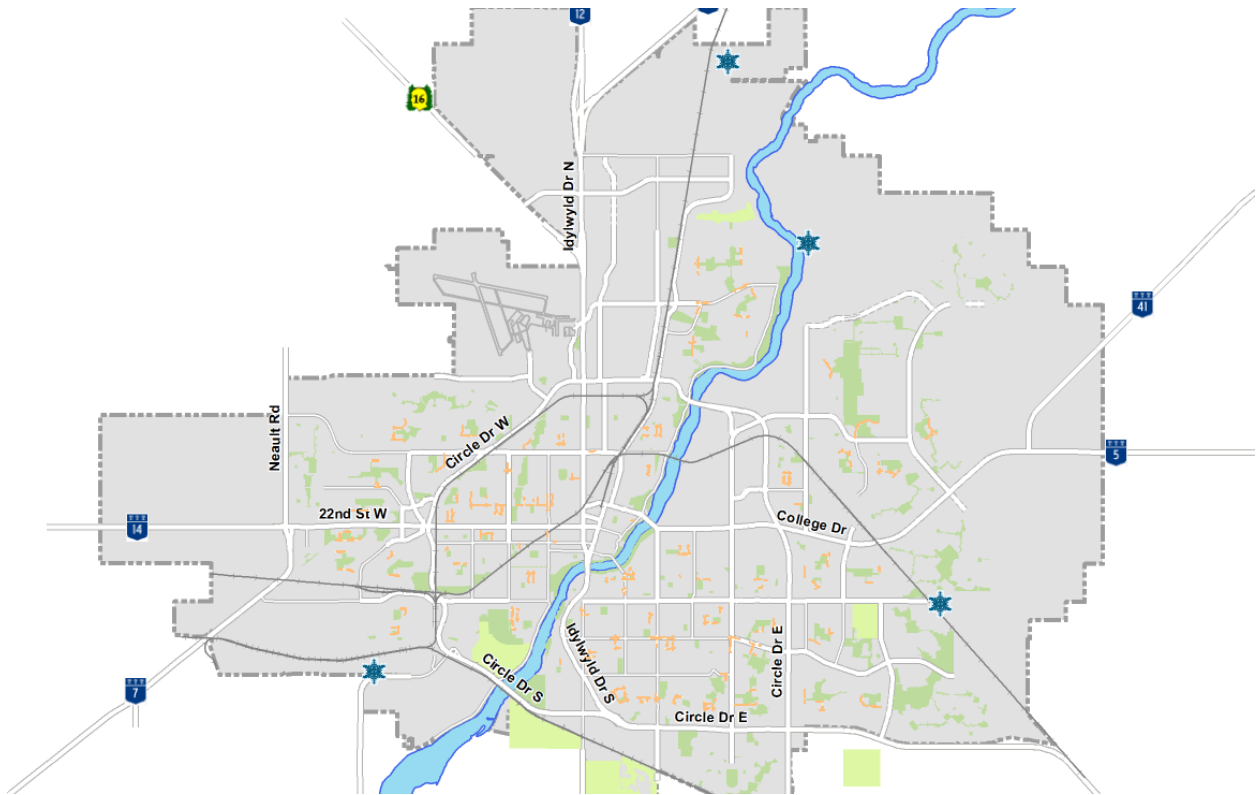
For a complete list of the Terms of Use please refer to the following link: [Terms of Use](#)

APPENDIX E: SNOW STORAGE SITES

An example (Central Ave) snow storage site and a map of the city showing the locations of snow storage sites is presented in this appendix.



1 Central Ave Snow Storage Site - Example



Snow Storage Site Locations taken from: <http://apps2.saskatoon.ca/app/aSnowProgram/>

APPENDIX F: DEFINITIONS

Winter Road Maintenance	
Term	Definition
Impassible	When there is a lack of reasonable mobility due to snow accumulation, snow density, drifting snow, severe icing or other factors.
Adjoining property	A parcel of land adjacent to a sidewalk
Driveway access	As a courtesy, operators may lower the wing of the grader blade during grading. Residents may be required to shovel or blow snow left behind at the end of their driveway after grading. The City does not remove windrows in front of driveways.
High density parking area	Business Improvement Districts with angle parking, grid neighbourhoods with limited off-street parking and a high volume of destination parking (Residential Parking Permit Areas), or other parking scenarios that affect snow grading, storage, and removal.
Pre-Wetting	Modified sanders can spray a Magnesium-Chloride de-icing chemical on a sand/salt mixture as it is applied to road surface. The moist mixture immediately activates the salt to soften the ice, which holds the sand for improved traction.
Local Roads	Residential roads not classified as Priority 1, 2 or 3 in the Priority Street Grading system (see Appendix A: Priority Street Grading).
Post Event	Grading and snow removal clean-up activities that take place after a significant snowfall or snow event.
Priority Streets	Roadways are classified as Priority 1, 2 or 3 in the Priority Street Grading system, based on their mobility characteristics to determine the priority for maintenance (see Appendix A: Priority Street Grading).
Rural Roads	Gravel roads that are inside the City limits.
School Zone Designated Hours	The posted time on the permanent School Zones signs govern hour where work cannot be conducted in a school zone. There are limited exceptions to these hours for snow events and non-school days
Snow Management Facility	A location where snow that has been removed from roads and private lands is managed year round. Where possible this includes melt water management and material recycling.
Snow Storage Site	A location where snow that has been removed from roads and private lands is stored. The snow is managed at the site throughout the winter and accessed by private haulers and City staff.

Winter Road Maintenance

Term	Definition
Tailgate slamming	When unloading snow, the operator of a large truck quickly stops to loosen remaining snow in the box of the truck. This causes the gate to slam against the box which can be very loud and disruptive. This is not allowed at snow storage sites adjacent to Montgomery Place and Briarwood neighbourhoods.
Unacceptable Traffic Risk	As part of the Snow Event decision process: where weather is affecting road conditions makes driving, transit, or pedestrian traffic unusually difficult or hazardous.
Windrow	The longitudinal pile of snow left by a grader along the side of the street or boulevards. Windrows are removed from some priority 1 and 2 streets periodically throughout the winter.