Procedure

Snow and Ice Control Procedure

This procedure falls under the Snow and Ice Control Policy C409L.

Program Impacted	ConnectEdmonton (Urban Places) - City Plan (A Rebuildable City) *Edmonton has an accessible and varied transportation system moving people, goods and services efficiently* Community Standards Bylaw 14600 *Edmonton has bylaws regarding clearing snow and ice from adjacent public sidewalks* Edmonton Bike Plan and Bike Plan Implementation Guide *These provide direction and standards for snow clearing from bike paths within Edmonton* Building Great Neighbourhoods *As Edmonton neighbourhoods receive renewed infrastructure, functionality in winter months is considered and included in the design* Active Transportation Network Expansion *This program is looking to expand active pathways within the city, with snow and ice clearing considerations taken into account* Community Sandbox Program *Provides free, dry sand at designated locations across the city for residents to use*
Approved By	City Manager
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To achieve a safe and reliable mobility network, snow and ice control activities will be carried out in the following manner.

1. Snow Clearing Priority Hierarchy (considering an average snowfall)

1.1. Roadway and Goods Movement Network

1.1.1. Essential Roads (Priority 1)

Select freeways, arterial roadways, business districts:

Maintain to a bare pavement standard within 24 hours (1 days) following the end of snowfall.

1.1.2. Arterial and Collector Roads (Priority 2)

Remaining freeways, arterial roadways, business districts:

Maintain to a bare pavement standard within 120 hours (5 days) following the end of snowfall.

Alleys/back lanes in business districts:

Maintain to 5 cm snowpack within 120 hours (5 days) following the end of snowfall.

Collector roadways, Transit Park and Ride access roads:

Maintain to a bare pavement standard within 120 hours (5 days) following the end of snowfall.

1.1.3. Industrial Routes (Priority 3)

Industrial hubs:

Maintain to a bare pavement standard within 144 hours (6 days) following the end of snowfall.

Rural roadways:

Maintain a level snowpack within 144 hours (6 days) following the end of snowfall.

1.1.4. Local/Residential Roads (Priority 4)

Residential roadways and alleys/back lanes:

Maintain to 5 cm snowpack and completed within 240 hours (10 total work days) once a residential blading cycle is initiated. Total work duration is 10 days to complete, which may be on business days, or may also occur on weekends as required. Completion may not be done in consecutive days, as rework or touchup work may be done outside of the parking ban in areas where low parking ban compliance is high.

Back alleys/lanes may be done after residential roads are bladed and outside of the localized parking ban for an area, as weather permits.

1.2. Active Pathways and Public Amenities Network

1.2.1. Core Facilities and Pathways (Priority 1)

Inventory adjacent to City facilities (City Hall, recreation centres and seniors centres), transit centres and LRT stations such as: City maintained sidewalks, wheelchair ramps, shared pathways, all season staircases and bus stops:

Maintain to a bare pavement standard within 24 hours following the end of snowfall.

Winter Priority Bike Network (network of protected bike lanes, designated painted bike lanes and designated shared pathways):

Maintain to a bare pavement standard within 24 hours following the end of snowfall.

1.2.2. Machine City-Maintained Pathways and Transit Access (Priority 2)

Excluding inventory listed in 1.2.1, all other City maintained sidewalks, wheelchair ramps, shared pathways adjacent to city property and parking lots, all season staircases, designated bike lanes, access to bus stops adjacent to City property, pedestrian bridges:

Maintain to a safe and passable surface beginning at the end of snowfall and completed within 68 hours (3 days) following the end of snowfall.

1.2.3. Manual City-Maintained Pathways and Transit Access (Priority 3)

Other manually cleared active pathways and public amenities (breezeways, traffic islands, and fire hydrants*), pedestrian only streets:

Maintain to a safe and passable surface within 14 days following the end of snowfall.

* During snow emergencies only. Snow emergency triggers are as defined in the Snow and Ice Control Internal Emergency Response Plan

1.2.4 Community Support (Priority 4)

Traffic Calming measures (such as speed humps, curb extensions, two-stage crossings) and community sandboxes:

As resources allow.

2. Procedures for Snow and Ice Control

2.1. Roadways (Non-Residential)

2.1.1. Clear snow from all Essential Roads (Priority 1), Arterial and Collector Roads (Priority 2), and Industrial Routes (Priority 3) roadways following the end of snowfall where there is an accumulation of 2 cm or more, as per the priority hierarchy in section 1.1, Roadway and Goods Movement Network. Clearing snow refers to pushing the accumulation of snow to the edges of the roadway leaving windrows.

2.1.2. All Essential Roads (Priority 1) and Arterial and Collector Roads (Priority 2) roadways are routed for snow and ice control. They will be monitored and maintained as required throughout the winter season and in response to 311 notifications, even when there is no snowfall. This may include, but not limited to, material application and snow clearing.

2.1.3. Alleys/back lanes in business districts are cleared during one of three circumstances: priority 1 snow clearing following the end of snowfall, maintenance blading between snowfall to maintain the snowpack, or in response to 311 notifications.

2.1.4. Snow will be removed from business districts by the City of Edmonton based on several factors including, but not limited to,

2.1.4.1. When windrows have been temporarily placed in a center stack formation,

2.1.4.2. When driving lanes are reduced to less than 3.2 metres in width by windrowed snow,

2.1.4.3. When accessibility to parking areas is restricted,

2.1.4.4. When line of sight has been obstructed due to windrow placement,

2.1.4.5. Current and forecasted weather.

2.1.5. Snow will be removed from arterial roadways when curb lanes are reduced to less than 3.2 metres in width by windrowed snow. This service is activated on an as-needed basis once the threshold criteria of the reduced lane width is met.

2.1.6. Snow will be removed from collector roadways when the driving lanes are reduced to less than 3.2 metres in width or parking area restricts safe vehicular movement.

2.1.7. Snow will not be removed from industrial or rural roadways unless to permit safe vehicular movement.

2.1.8. Snow will be removed from roadways adjacent to the designated windrow free zones and school drop-off zones based on several factors including, but not limited to, windrow size, impacted parking areas, sightlines, current and forecasted weather.

2.2. Residential Roadways (Including Alleys/Back Lanes)

2.2.1. Residential roadways are cleared only during one of three circumstances. Clearing snow on residential roadways refers to pushing the accumulation of snow to an adjacent boulevard area or in the roadway adjacent to the curb where there is no boulevard available. In all cases, the targeted service level is to maintain a minimum 5cm snowpack on the driving lanes of residential roadways and alleys/backlanes:

2.2.1.1. Through a residential blading cycle during a Residential (Phase 2) parking ban

2.2.1.2. Maintenance blading between snowfalls to maintain the snowpack,

2.2.1.3. In response to 311 notifications.

2.2.2. Alleys and Back Lanes are cleared following the adjacent residential roadways or due to specific 311 notification. This action occurs outside of timelines if clearing is taking place during a residential cycle.

2.2.3. The decision to initiate a residential blading cycle will be made by the City of Edmonton based on several factors including, but not limited to, residential roadway conditions, current and forecasted weather, a minimum snowpack of 5 cm consistently citywide and status of snow clearing on Essential Roads (Priority 1), Arterial and Collector Roads (Priority 2) and Industrial Routes (Priority 3).

2.2.4. Residential roads and alleys/back lanes are maintained to approximately 5 cm snowpack condition in the driving lane.

2.2.5. Shared streets will receive the same level of service as the adjacent residential roadway on which they are located.

2.2.6. Snow will not be removed from residential roadways unless to permit safe vehicular movement.

2.2.7. Notification of a citywide residential blading cycle will be announced through a variety of communications channels. A Residential (Phase 2) parking ban will be implemented as explained in section 2.8, Parking Ban.

2.2.8. Culs-de-sac are not cleared as part of the standard residential clearing due to the specialized techniques and equipment required for cul-de-sacs. They will be cleared as per section 2.3, Cul-de-sac Clearing, set out below.

2.3. Cul-de-sac Clearing

2.3.1. Cul-de-sac clearing is a separate event that may be initiated by the City of Edmonton based on several factors including, but not limited to, snow accumulation which impedes access, safety concerns, time of the year, and current and forecasted weather.

2.3.2. Service will include stacking and removal of snow from the cul-de-sac to achieve bare pavement when possible (as conditions allow). Stacking and clearing may not occur at the same time.

2.3.3. Cul-de-sac clearing, when initiated, can take between four to six weeks.

2.4. Active Pathways and Public Amenities

2.4.1. Clear snow from all Core Facilities and Pathways (Priority 1), Machine City-Maintained Pathways and Transit Access (Priority 2), and Manual City-Maintained Pathways and Transit Access (Priority 3) active pathways and public amenities following the end of snowfall where there is accumulation of 2 cm or more, as per the priority hierarchy in section 1.2, Active Pathways and Public Amenities Network. Clearing snow refers to pushing the accumulation of snow to an adjacent non pedestrian surface, rendering the walking areas safe.

2.4.2. Snow will not be removed from active pathways and public amenities. Removing snow refers to the pick up and transport off site of snow pushed away from active pathways and amenities.

2.4.3. Property owners are required to clear snow and ice from sidewalks, including corners and any pedestrian infrastructure on the sidewalks adjacent to their property, as per the requirements of the Community Standards Bylaw #14600.

2.4.4. Painted bike lanes will receive the same level of service as the adjacent roadway on which they are located (except for those identified as higher priority in section 1.2.1).

2.4.5. All City-operated active pathways and public amenities will be monitored and maintained as required throughout the winter season and in response to 311 notifications, even when there is no snowfall. This may include, but not limited to, material application, snow blowing and snow sweeping.

2.4.6. The City does not clear pathways within parks, interior open spaces within parks, dead end pathways, undesignated park pathways or unpaved pathways when there is an alternative exterior pathway around the green space.

2.5. Windrow Encroachments

2.5.1. Driveways

2.5.1.1. Windrows (that are consistently 30 cm or less in height) left behind blocking driveways will be the responsibility of the adjacent property owner to clear. Windrows (that are consistently 30 cm or more in height) left behind blocking driveways will be cleared by the City of Edmonton to level snowpack within 12 hours of windrow placement.

2.5.1.2. When the City of Edmonton clears windrows on driveways, it is to allow a three metre wide opening, sufficient for a small car to pass safely.

2.5.2. Sidewalks

2.5.2.1. If windrow encroachment on sidewalks is consistently over 30 cm or more, and is 3m in length or greater, the City of Edmonton is responsible for clearing the windrow in response to a 311 notification. The adjacent property owner is responsible for clearing all other windrow encroachments.

2.5.3. Protected Bike Lanes

2.5.3.1. If windrow encroachment on protected bike lanes is consistently over 30 cm or more, and is 3m in length or greater, it is the City of Edmonton's responsibility to clear.

2.5.4. The following areas will be left clear of any windrows:

2.5.4.1 Bus stops, crosswalks, accessible parking stalls on roadways (marked by permanent signage), windrow free zones (marked by permanent signage), marked school drop-off zones, fire hydrants.

2.5.5 Residential Areas

2.5.5.1 Windrows will be left along curblines and walkways when there is inadequate room on the boulevard for placement. Additionally in areas where poor parking compliance has left windrows around parked vehicles.

2.6. Material Application

2.6.1. In addition to using mechanical means, the City of Edmonton may apply different materials for snow and ice control on the mobility network such as sand, salt, chips and calcium chloride.

2.6.2. A mix of sand and salt is typically applied to improve surface traction. The proportion of sand and salt may vary depending on the conditions including, but not limited to, air temperature, pavement temperature, humidity and dew point.

2.6.3. Chips may be used on snowpack and icy conditions in order to provide additional traction.

2.6.4. Salt may be used as a de-icer to melt any residual snow or ice depending on the conditions stated above.

2.6.5. Calcium chloride is used to pre-wet the sand-salt mix applied on roadways. Calcium chloride is used as an anti-icer/de-icer only for Core Facilities and Pathways (Priority 1) active pathways and public amenities except on bridge infrastructure.

2.7. Community Sandbox

2.7.1. The City of Edmonton provides a courtesy service in the form of free sand in designated community sandbox locations, as well as roadway maintenance yards and centralized large bins during winter months for private residents to use on icy sidewalks and pathways.

2.8. Parking Ban

2.8.1. The City of Edmonton may declare a parking ban at its discretion based on factors including, but not limited to, amount of snowfall, rate of snow accumulation, and current and forecasted conditions.

2.8.2. The parking ban, when declared, will operate in two phases. During Major Roadways (Phase 1) parking bBan, no parking is permitted on arterial roadways, roadways within business districts and roadways marked with seasonal no parking signage (collector roadways).

2.8.3. After Major Roadways (Phase 1) is completed, a Residential (Phase 2) parking ban may be declared to prohibit parking on residential roadways, culs-de-sac, alleys/back lanes, and

industrial roadways. Residents will need to arrange for alternative parking such as parking on their driveway or in their garage, in surplus parking on a neighbours property (with permission) or on cleared collector roads, many of which are within neighbourhoods.

2.8.4. Best efforts to ensure a minimum notice of 8 hours will be provided to the public before a parking ban is set to begin, and a further minimum notice of 8 hours will be provided to the public when the City of Edmonton moves from Major Roadways (Phase 1) to Residential Roadways (Phase 2) of a parking ban, through a variety of communications channels. Exceptions may be necessary for emergencies.

2.9. Public Inquiries

2.9.1. Residents should call 311 for any inquiries or concerns related to the Snow and Ice Control program. Blading service requests via 311 are scheduled and then held open during normal operations, once the areas are cleared they are closed. Touch up or quality concerns from during active blading cycles are addressed in a priority order as resources allow. All other inquiries will be addressed in chronological order where an action may be required by the City of Edmonton.

2.9.2. Resolving the issue is dependent on several factors, including, but not limited to, the nature of the inquiry, accessibility, safety concerns, current and forecasted weather, and roadway conditions. Typically, 311 inquiries requiring City of Edmonton action will be resolved within 7 days after a scheduled blading cycle is complete.

2.9.3. Residents are provided with a reference number that they can use to track the status of their inquiry.

2.10. Monitoring Impacts

2.10.1. Environmental and Infrastructure Impacts:

2.10.1.1. The City of Edmonton will monitor the safety impacts of using the various snow and ice control activities in consideration with impacts on the environment and infrastructure through studies including, but not limited to traction, collisions, natural watercourses, soil and vegetation, corrosion, concrete and asphalt.

2.10.2. Snow Storage Site Management:

2.10.2.1. Snow removed from the mobility network will be hauled to the City of Edmonton snow storage sites to meet Environment Canada and Alberta Environment and Parks guidelines and Codes of Practice, as outlined in the Salt Management Plan.

2.10.3. Salt Management Plan:

2.10.3.1. The City of Edmonton will report to both Alberta Environment and Parks and Environment Canada annually on road salt usage and road salt management to meet Codes of Practice established by the Transportation Association of Canada and adopted by Environment Canada.

2.11. Major Snowfall Event

2.11.1. A major snowfall response is initiated according to the Snow Response Plan. This major snowfall response can be initiated if there is a snowfall of 30 cm or more within 10 days or less that threatens access to the mobility network. The focus of this major snowfall response will be to restore immediate mobility using resources and processes, which may be outside of this procedure.

2.11.2. A Major snowfall response includes:

2.11.2.1. Deployment of all available resources to restore mobility.

2.11.2.2. Delegation of control for the deployment of all available resources in all City departments associated with snow clearing, and enhanced, contracted resources to the Emergency Control Center task force.

2.11.2.3. Declaration of city-wide Major Roadway Phase 1 parking ban and communications associated with the severe snowfall event.

2.12. Emergency Snow Event

2.12.1. In the event of an extreme winter storm that causes the closure of a significant portion of the mobility network, the Snow and Ice team, in coordination with the Emergency Coordination Centre (ECC), will trigger an Emergency Snow Event following the Snow Response Plan. In a snow emergency, all snow clearing activities and communications will be coordinated through the ECC and will focus on providing mobility for emergency and essential services only until general mobility can be restored.

3. Definitions

3.1. **Active Pathways and Public Amenities**: All mobility corridors or infrastructure that are not roadways including, but not limited to, sidewalks, bus stops, shared pathways, protected bike lanes, parking lots, all season staircases, wheelchair ramps and transit facilities.

3.2. **All-Season Staircases**: Staircases that lead to a City maintained recreational space, City maintained sidewalks or shared pathways. In case of parallel staircases, only one staircase will be cleared for snow and ice control.

3.3. **Alleys/Back Lanes**: Streets providing direct access to adjacent lands typically parallel to other classification of streets and mainly used for access, deliveries, and waste collection. In core urban areas, some alleys are evolving into shared streets, with alley oriented development.

3.4. **Arterial Roadways**: Roadways carrying larger volumes of traffic (people driving as well as those riding transit, walking and wheeling, cycling, and delivering goods) between areas with relatively few and controlled access points.

3.5. **Bare Pavement**: Bare pavement is defined as a dry or wet surface generally clear of snow and ice (some patches of snow and ice may be present).

3.6. **Blading**: Mechanical plowing of snow and ice to leave a consistent, level snowpack or bare surface.

3.7. **Breezeways**: Connections within or between neighbourhoods that can be accessed with a bike or on foot. Most breezeways have a paved or concrete surface.

3.8. **Bus Stops Adjacent to City Property**: Bus stops with amenity pads located on or adjacent to City maintained sidewalks (i.e. not located on a sidewalk located on or adjacent to private property).

3.9. **Business Districts**: Roadways with commercial property on both sides having curb line sidewalks and on-street parking. This includes roadways in all 13 Business Improvement Areas within Edmonton (excludes industrial roadways).

3.10. **City Maintained Sidewalks**: Sidewalks maintained by the City include those around public schools, City facilities or buildings such as recreation centres, senior centres or City Hall, as well as sidewalks around the perimeter of City assets such as parks, public utility lots and parking lots.

3.11. **Collector Roadways**: Roadways providing travel between residential and arterial roadways with direct access to adjacent properties. Designated bus routes through a residential area are also categorized as a collector roadway.

3.12. **Cul-de-sac**: A street or passage closed at one end with no through traffic abutted by sites which are primarily occupied by residential buildings.

3.13. **Freeways**: High traffic volume and speed roads with limited access and typically grade separated intersections.

3.14. **Industrial Roadways**: Roadways providing direct access to wholesale or manufacturing complexes.

3.15. **Manually Cleared Active Pathways and Public Amenities**: Active pathways and public amenities that can't be reached mechanically and require manual snow clearing. Examples include breezeways with permanent bollards and City infrastructure like benches and fire hydrants.

3.16. **Mobility Network**: Entire transportation network that is maintained by the City of Edmonton for snow and ice control including the roadways and goods movement network as well as the active pathways and public amenities network.

3.17. **Painted Bike Lanes**: On-street bike lanes marked with paint and designated for bikes only but without physical separation from vehicular traffic.

3.18. **Pedestrian Bridges**: Bridges (or dedicated areas on bridges) meant for pedestrian or bike access that are restricted from vehicular traffic or are adjacent to vehicular traffic.

3.19. **Pedestrian Only Streets**: Unlike shared streets that allow people walking, wheeling, cycling, and driving to share the space, a pedestrian only street either prohibits vehicles from using the street at all times, or at specific times.

3.20. **Pre-wet**: Calibrated/standardized application of calcium chloride brine to sand-salt mix as the mix is being distributed on the roadway to help activate the melting process, reduce material usage and prevent material scatter.

3.21. **Protected Bike Lanes**: On-street bike lanes protected from moving cars, parked cars, and sidewalks, by a physical barrier.

3.22. **Residential (Local) Roadways**: A street or designated portion thereof abutted by sites which are primarily occupied by residential buildings. These are typically low-speed, low traffic volume.

3.23. **Rural Roadways**: Roadways on which minimal development or improvement has been made, such as oiled or gravel roads.

3.24. **School Drop-off Zones**: Designated areas in front of and surrounding schools that provide curb access for drop-off and pick-up by school buses. Whenever practicable these areas are marked as windrow free zones, but only marked areas are kept clear of accumulating windrows.

3.25. **Shared Pathways**: Paved, off-street paths outside of road carriageway that are marked with signs that indicate that they are shared by people on bikes and pedestrians.

3.26. **Shared Street**: These streets significantly limit motor vehicle traffic. Design elements like pavement material and entry features define the space and make it clear that shared streets are primarily designed for people walking, wheeling and cycling.

3.27. **Snow Clearing**: Mechanical clearing of snow and ice including, but not limited to, plowing, brooming/sweeping and snow blowing.

3.28. **Snow Removal**: The complete removal of accumulated snow from a roadway or active pathway,

usually undertaken after snow clearing is completed. This involves crews loading and removing windrowed snow from roadways or active pathways to an engineered snow storage facility.

3.29. **Transit Centres**: Bus facilities that act as a hub for several bus routes, providing an easy way for transit users to transfer from one bus to another, or in some cases, from a bus to the LRT.

3.30. **Windrow Free Zones**: Signed sections of a roadway, typically in front of a school, that are left free of windrows. Permanent signage indicates the area and the side of the zone along the roadway.

3.31. **Windrows**: The placement of snow into a long continuous row during snow clearing of roadways and active pathways.

4. References

The following are legislative and administrative references relevant to this administrative procedure:

4.1. Community Standards Bylaw 14600