



Winter Operations Plan

2018 / 2019



**Winter Operations Plan
2018 / 2019**

Table of Contents

Table of Contents	i
Purpose	ii
Definitions	ii
1.0 Winter Operations Management – Objective	1
2.0 Policy Statement	1
3.0 Winter Maintenance Program	1
3.1 The System Maintained	1
3.2 Levels of Service	2
3.3 Winter Maintenance Season	5
3.4 Winter Preparations	5
3.4.1 Prior to the Winter Season	5
3.4.2 One Month Prior to the Winter Season	6
3.4.3 Two Weeks Prior to the Winter Season	6
3.4.4 At the Start of the Winter Season	6
3.5 Winter Patrol	6
3.6 Operations	7
3.6.1 Staffing	7
3.6.2 Winter Materials Used Annually	7
3.6.3 Baseline Application Rates	7
3.6.4 Prior Year Statistics	8
3.6.5 Yard Facilities	8
3.6.6 Winter Maintenance Areas	8
3.6.7 Snow Removal and Disposal	10
3.6.8 Vulnerable Areas	11
3.6.9 Weather Monitoring	11
3.6.10 Communications	12
3.6.11 Call Out Procedures	14
3.6.12 Incident Command System	14
3.6.13 Road Closure Procedure	17
3.7 Decommissioning Winter Operations	18
3.7.1 Two Weeks After the Winter Season Ends	18
3.7.2 One Month After the Winter Season Ends	18
3.8 Training	18
3.9 Record Keeping	19
4.0 Plan Improvements	20
5.0 Program Review and Updating	20

Winter Operations Plan 2018 / 2019

Purpose

This Winter Operations Plan sets out a policy and procedural framework for ensuring that Lincoln Transportation and Utilities (LTU) continuously improves on the effective delivery of winter maintenance services and the management of road salt used in winter maintenance operations.

The plan is meant to be dynamic, to allow the municipality to evaluate and phase-in any changes, new approaches and technologies in winter maintenance activities in a fiscally sound manner. At the same time, any modifications to municipal winter maintenance activities must ensure that roadway safety is not compromised.

Definitions

Anti-icing - the application of liquid deicers directly to the road surface in advance of a winter event.

De-icing - the application of solid and/or liquid deicers onto the road surface after the on-set of the winter event.

Highway - includes a common and public highway, street, avenue, parkway, driveway, square, place, bridge, viaduct or trestle, any part of which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.

Paved Road - a road with an asphalt surface, concrete surface, composite pavement, or portland cement.

Pre-wetting - is the incorporation of liquid deicers with dry granular material, by truck-mounted material spreaders, as product is being applied to the road surface.

Unpaved Road - a road that does not have a solid concrete or asphalt surface. Rather the surface is comprised of soil, rock or road gravel, spread evenly and crowned for proper drainage.

Winter Event - is a weather condition affecting roads such as snowfall, wind-blown snow, freezing rain, frost, black ice, etc. to which a winter event response is required.

Winter Event Response - is a series of winter control activities performed in response to a winter event.

Continuous Winter Event Response - a response to a winter event with full deployment of manpower and equipment that plow/salt the entire system.

Spot Winter Event Response - a response to a winter event with only a part deployment of manpower and equipment or with full deployment to only part of the system.

Winter Event Hours - the total number of hours per year (brine application, plowing, material spreading, etc.) when winter event responses were underway.

State of Repair - means a roadway is in reasonable repair so that it is in a reasonably safe condition and suitable for public vehicular travel.

**Winter Operations Plan
2018 / 2019**

1.0 Winter Operations Management – Objective. The City of Lincoln is committed to improving winter maintenance operations while continuing to ensure public safety. The City of Lincoln will optimize the use of winter maintenance materials containing chlorides on all municipal roads while striving to minimize negative impacts to the environment. The City of Lincoln Department Public Works staff will strive, insofar as reasonably practicable, to provide safe winter road conditions for vehicular and pedestrian traffic as set out in the level of service policies and within the resources established by the City Council of Lincoln.

2.0 Policy Statement. The City of Lincoln will provide efficient and cost effective winter maintenance to ensure, insofar as reasonably practicable, the safety of users of the municipal road network in keeping with accepted standards while striving to minimize adverse impacts to the environment. These commitments will be met by:

- 2.1** adhering to the procedures contained within the Winter Operations Plan;
- 2.2** reviewing and upgrading the Winter Operations Plan on an annual basis to incorporate new technologies and new developments;
- 2.3** committing to ongoing winter maintenance staff training and education; and
- 2.4** monitoring on an annual basis, the present conditions of the winter maintenance program, as well as the effectiveness of the Winter Operations Plan.

3.0 Winter Maintenance Program

3.1 The System Maintained

3.1.1 City Road System

	Paved lane miles	Un-paved lane miles
Emergency Snow Routes	574.00	--
Other Arterials	438.67	--
Bus Routes	32.34	--
School Routes	136.65	--
Residential Streets (Approx)	1500.00	30.00
Total =	2681.66	30.00

Table 1

**Winter Operations Plan
2018 / 2019**

3.1.2 Winter Maintenance Activities

3.1.2.1 Anti-icing/de-icing brine application

3.1.2.2 Snow plowing

3.1.2.3 Granular material application

3.1.2.4 Material storage

3.1.2.5 Snow removal

3.1.2.6 Snow storage

3.2 Levels of Service. The City of Lincoln provides the following levels of service during the winter maintenance season in response to a winter event:

3.2.1 Weather monitoring. From November 15 to March 15, the minimum standard is to monitor the weather, both current and forecast to occur in the next 24 hours, once every shift or twice per calendar day, at intervals determined by the municipality.

3.2.2 Snow accumulation

3.2.2.1 The minimum standard for addressing snow accumulation is,

3.2.2.1.1 after becoming aware of the fact that the snow accumulation on a roadway is greater than or equal to the depth set out in Table 2, to deploy resources as soon as practicable to address the snow accumulation; and

3.2.2.1.2 after the snow accumulation has ended, to address the snow accumulation so as to reduce the snow to a depth less than the depth set out in Table 2 within the time set out in Table 2,

3.2.2.1.2.1 to provide a minimum lane width of the lesser of ten feet for each lane or the actual lane width, or

3.2.2.1.2.2 on a Bus Route, School Route, or residential street with two lanes, to provide a total width of at least 16 feet.

**Winter Operations Plan
2018 / 2019**

- 3.2.2.2 If the depth of snow accumulation on a roadway is less than the depth set out in Table 2, the roadway is deemed to be in a state of repair with respect to snow accumulation.
- 3.2.2.3 For the purposes of this section, the depth of snow accumulation on a roadway may be determined in accordance with subsection 3.2.2.4 by a municipal employee, agent or contractor, whose duties or responsibilities include one or more of the following:
 - 3.2.2.3.1 patrolling highways.
 - 3.2.2.3.2 performing highway maintenance activities.
 - 3.2.2.3.3 supervising staff who perform activities described in paragraph 3.2.2.3.1 or 3.2.2.3.2.
- 3.2.2.4 The depth of snow accumulation on a roadway may be determined by,
 - 3.2.2.4.1 performing an actual measurement;
 - 3.2.2.4.2 monitoring the weather; or
 - 3.2.2.4.3 performing a visual estimate.
- 3.2.2.5 For the purposes of this section, addressing snow accumulation on a roadway includes, but is not limited to,
 - 3.2.2.5.1 plowing the roadway;
 - 3.2.2.5.2 applying deicers;
 - 3.2.2.5.3 any combination of the methods described in clauses 3.2.2.5.1 – 3.2.2.5.2.
- 3.2.2.6 This section does not apply to that portion of the roadway designated for parking.

**Winter Operations Plan
2018 / 2019**

SNOW ACCUMULATION

The minimum standard for addressing snow accumulation is as follows:

Priority	Depth	Time
Emergency Snow Routes	≥ 1"	6 hrs.
Other Arterials	≥ 2"	9 hrs.
Bus Routes	≥ 3"	12 hrs.
School Routes	≥ 3"	16 hrs.
Residential Streets	≥ 4"	48 hrs.

Table 2

3.2.3 Ice formation and icy roadways

3.2.3.1 The minimum standard for the prevention of ice formation on roadways is doing the following in the 24-hour period preceding an anticipated formation of ice on a roadway:

3.2.3.1.1 monitor the weather in accordance with section 3.2.1;

3.2.3.1.2 patrol, and;

3.2.3.1.3 if the municipality determines, as a result of its activities under paragraphs 3.2.3.1.1 or 3.2.3.1.2, that there is a substantial probability of ice forming on a roadway, treat the roadway to prevent ice formation within the time set out in Table 3, starting from the time that the municipality determines is the appropriate time to deploy resources for that purpose.

3.2.3.2 If the municipality meets the minimum standard set out in subsection 3.2.3.1 and, despite such compliance, ice forms on a roadway, the roadway is deemed to be in a state of repair until the earlier of,

3.2.3.2.1 the time that the municipality becomes aware of the fact that the roadway is icy; or

3.2.3.2.2 the applicable time set out in Table 3 for treating the roadway, pursuant to paragraph 3.2.3.1.3, to prevent ice formation expires.

3.2.3.3 The minimum standard for treating icy roadways after the municipality becomes aware of the fact that a roadway is icy is to treat the icy roadway within the time set out in Table 3, and an icy roadway is deemed to be in a state of repair until the applicable time set out in Table 3 for treating the icy roadway expires.

**Winter Operations Plan
2018 / 2019**

3.2.3.4 For the purposes of this section, treating a roadway means applying material to the roadway including, but not limited to: salt, sand (residential), liquid deicers, or any combination of these materials.

ICY ROADWAYS

The minimum standard for treating icy roadways is as follows:

Priority	Time
Emergency Snow Routes	6 hrs.
Other Arterials	10 hrs.
Bus Routes	14 hrs.
School Routes	16 hrs.
Residential Streets	N/A

Table 3

3.3 Winter Maintenance Season. While seasonal winter weather can commence and end at irregular dates on a calendar, for long-range planning purposes, the winter maintenance season within which the City of Lincoln prepares to perform winter maintenance commences on November 15th, 2018 and ends on March 15th, 2019.

3.4 Winter Preparations. In the months prior to the start of the winter maintenance season, the City of Lincoln undertakes the following tasks to prepare for the upcoming winter season.

3.4.1 Prior to the Winter Season. Prior to the winter season, if required, prepare and call vendors for the supply of materials, replacement parts (for plows, solid and liquid application equipment), augment and contract equipment (plow trucks, tractors, motor graders, and haulers). Prior to the winter season the City of Lincoln will:

3.4.1.1 Conduct mandatory training for staff and contract operators covering policies, procedures, equipment training and safety precautions.

3.4.1.2 Train Supervisors on the Routes of Representative Roads (to be patrolled during a winter event), record keeping requirements, callout procedures and the deicing chemicals.

3.4.1.3 Inspect equipment to ensure proper working order. Schedule and complete all equipment repairs.

3.4.1.4 Arrange for the delivery of materials and begin filling storage facilities. Begin mixing and filling storage tanks.

**Winter Operations Plan
2018 / 2019**

3.4.2 One Month Prior to the Winter Season

3.4.2.1 Assign equipment to staff.

3.4.2.2 Calibrate material application equipment.

3.4.2.3 Allow operators (staff and contract) time to familiarize themselves with any new equipment, material application rates, material application equipment and their route.

3.4.2.4 Assign staff to monitor weather forecasts on a daily basis. Assign night patrol shift if forecast indicates an overnight winter event is probable. The Supervisor will be authorized to initiate a winter event response if conditions warrant a response.

3.4.2.5 Have 80% of the fleet ready to respond to a winter event.

3.4.2.6 Have sufficient staff available to operate the fleet if conditions warrant a winter event response.

3.4.3 Two Weeks Prior to the Winter Season

3.4.3.1 Have 95% of the fleet ready to respond to a winter event.

3.4.3.2 Have staff available to operate the required complement of the fleet if conditions warrant a winter event response.

3.4.4 At the Start of the Winter Season

3.4.4.1 Issue route assignments.

3.4.4.2 Begin patrolling Routes of Representative Roads.

3.4.4.3 Respond to winter events as per this Plan.

3.5 Winter Patrol. The purpose of the patrol is to monitor weather and road conditions and mobilize winter maintenance operators and equipment should a winter event be observed and a winter event response is required. Supervisors will be familiar with local conditions in their patrol area. The Routes of Representative Roads may be modified, insofar as reasonably practicable, depending on the type and severity of winter event or the direction from which the storm approaches.

3.5.1 Between winter events. The City of Lincoln will patrol Routes of Representative Roads on an on-call basis. A patrol of representative roads may occur during daylight hours, and a second night patrol may also be scheduled.

**Winter Operations Plan
2018 / 2019**

3.5.2 On the approach of a winter event, or during a winter event. The City of Lincoln carries out a winter patrol on Routes of Representative Roads at least once daily, regardless of the day of week.

3.6 Operations

3.6.1 Staffing. The City of Lincoln accomplishes winter maintenance services through the deployment of assigned personnel and equipment assets, contracted services, and augment City resources.

3.6.2 Winter Materials Used Annually

Material	Avg. consumption	Planning factors
Solids		
Rock salt (NaCl)	6,325 tons	8,300 tons
Calcium chloride (pellets)	164 tons	220 tons
Total salts	6,489 tons	8,520 tons
Sand (residential only)	300 tons	500 tons
Liquids		
Sodium chloride brine	400,279 gallons	550,000 gallons
Calcium chloride brine	74,036 gallons	100,000 gallons
Beet 55®	59,765 gallons	72,000 gallons
Total brine	539,112 gallons	750,000 gallons

Table 4

3.6.3 Baseline Application Rates. The following figures are the baseline application rates, which will be adjusted as appropriate for the conditions and deicing performance:

Baseline Application Rates	
Granular salt (NaCl)	250 pounds per lane mile
Sand (residential only)	1,000 pounds per lane mile
Anti-icing	50 gallons per lane mile
De-icing brine	150 gallons per lane mile
Pre-wet brine	20 gallons per ton of salt

Table 5

**Winter Operations Plan
2018 / 2019**

3.6.4 Prior Year Statistics

	15/16	16/17	17/18
Seasonal snow accumulation	20.5"	7.5"	21.4"
Days with measurable snow fall	12	9	24
Days with freezing rain	2	0	0
Continuous winter event responses	9	2	4
Spot winter event responses	4	11	15
Winter event hours	515	388	595
Service requests	1013	563	310

Table 6

3.6.5 Yard Facilities. The municipality provides winter maintenance services from the patrol yards listed below.

		West District	Northeast District	Southeast District
Location		901 West Bond St., 68521	3200 Baldwin Ave., 68504	3180 South St., 68502
Equipment storage		One pre-engineered steel building & paved lot. All equipment is capable of being stored indoors.	One pre-engineered steel building & paved lot. All spreaders are capable of being stored indoors.	One brick & mortar building & paved lot. All spreaders are capable of being stored indoors.
Equipment washing		One dedicated washing bay with oil and grit separator.	One dedicated washing bay with capture pit then drains to sanitary.	One non-dedicated washing area with capture pit, then drains to sanitary.
Drainage		Floor drains go to a capture pit, then drains to sanitary lines. Rainwater runoff from catch basins to ditch and creek.	Floor drains go to a capture pit, then drains to sanitary lines. Rainwater runoff from catch basins to ditch and creek.	Floor drains go to a capture pit, then drains to sanitary lines. Rainwater runoff from catch basins to ditch and creek.
Material	Salt	1,500 tons	4,500 tons	1,500 tons
Material Storage		Building constructed with block walls and a canvas roof & door, w/ concrete floor.	Building constructed of wood framing with an asphalt shingle roof, w/ concrete floor.	Building constructed of wood framing with an asphalt shingle roof, w/ concrete floor.
Brine storage & capacity		8 Cone bottom tanks 13,000 gal. each- 104,000 gal.	3 Cone bottom tanks 13,000 gal. each- 39,000 gal.	3 Cone bottom tanks 13,000 gal. each- 39,000 gal.
Gasoline		--	30,000 gallons	16,000 gallons
Diesel		3,000 gallons	30,000 gallons	10,000 gallons
Additional info.		The Municipal Services Center is shared with Fleet Svcs, Parks Dept, Traffic Op's, Fire Trng and USAR.	This facility also serves as a secondary Emergency Operations Center.	This yard is left open 24/7 for Lincoln Fire & Rescue to refuel.

Table 7

3.6.6 Winter Maintenance Areas

3.6.6.1 Priority Routes. Priority routes used for treatments and plowing will be updated annually.

**Winter Operations Plan
2018 / 2019**

3.6.6.2 Brine Application Routes. Routes used for brine application will be updated annually.

3.6.6.3 Residential Districts. Residential districts will be updated annually.

3.6.6.4 “N” Street Cycle Track. The paved surface of “N” Street, from Pinnacle Arena Drive to South 23rd Street, includes both travel lanes for motor vehicular traffic (northern lanes) as well as a dedicated bicycle lane (southern lane). Winter maintenance services along this portion of “N” Street are provided by a collaborative effort between the Departments of Parks & Recreation & LTU. These efforts are delineated as follows:

3.6.6.4.1 De-icing material application. The application of liquid and granular deicing material throughout all lanes will be provided by Public Works. This will be accomplished in conjunction with City-wide maintenance activities.

3.6.6.4.2 Plowing.

3.6.6.4.2.1 Motor vehicle lanes.

LTU is responsible for plowing the northern lanes for motor vehicle traffic. Snow accumulation in these lanes (for both eastbound and westbound traffic) must all be plowed to the northern curb; **snow accumulation in the motor vehicle lanes may not be plowed to the median common to the Cycle Track.**

3.6.6.4.2.2 Cycle Track lane. The Department of Parks & Recreation is responsible for plowing the Cycle Track. Snow accumulation in this lane may be plowed to either the southern curb or the median common to the motor vehicle lanes, at the Department’s discretion. **A minimum lane width of ten feet must be maintained to allow for subsequent complete removal contingencies.**

3.6.6.4.2.3 Windrow deconfliction. Whichever department is last to complete the plowing of their respective portion of “N” Street shall be responsible for the cleanup of windrows; windrows may not be left in either the motor vehicle lanes or the Cycle Track.

**Winter Operations Plan
2018 / 2019**

3.6.6.4.3 When snow accumulation in the Cycle Track lane exceeds what may be effectively plowed by dedicated equipment, LTU will provide complete removal services.

3.6.6.5 Complete Removal Operations. A map of all districts designated for complete snow removal is included on the city’s website.

3.6.6.6 City Quadrants. During periods of reduced staffing, or when fast developing weather conditions preclude a full pre-planned response, the City will focus winter maintenance efforts on specific areas of interest which are organized geographically into City quadrants. These areas of interest include bridges, overpasses and key intersections.

3.6.7 Snow Removal and Disposal. The municipal staff removes and hauls snow to the sites listed in the table below when the accumulation of piled snow impedes traffic on the road and/or sight lines at intersections.

Snow Dump Sites			
Name	Location	Drainage/runoff	Surrounding land use
London Park	East of S. 56 th & London Road.	South 100’ into Beal Slough, which empties into Salt Creek.	Light industrial, commercial, railroad, park
Sawyer Snell	North of S. 3 rd & South Street	North 100’ into a drainage ditch, then through 0.2 miles of storm water pipe that empties into Salt Creek	Park, light industrial
West Haymarket	West side of Downtown, between BNSF tracks and the Cook Foods facility.	West directly into a drainage ditch, then through 0.5 miles of storm water pipe that empties into Salt Creek.	Industrial
Impound Lot	East of N. 1 st & Charleston St.	North 100’ into a drainage ditch, then SE 900’ into Salt Creek.	Undeveloped, formerly an impound lot
Theresa Street	West of N. 27 th & Theresa St.	East 200’ into a drainage ditch, then North 700’ into Salt Creek.	Industrial
Baldwin Shop	33 rd & Baldwin Ave.	Two sites, both drain directly into Deadman’s Run Creek.	Industrial

Table 8

Winter Operations Plan 2018 / 2019

3.6.8 Vulnerable Areas. The application and storage of road salt and the storage of snow at snow disposal sites poses potential risks to source water and some species of fauna and flora.

3.6.8.1 When combined, the refinement of salt application techniques and the implementation of snow dump site best management practices reduce environmental risks. Within this Plan, snow dump sites are regarded as Vulnerable Areas.

3.6.8.2 Snow Dump Site Best Management Practices

- Judicious use of de-icing chemicals, to mitigate secondary effects like heavy metal speciation and soil character changes from chlorides.
- Improved chemical storage and mixing (prescribed blending).
- Improved technology with direct brine application to roadway.
- Route snow removal and meltwater to less sensitive receiving waters or treatment facilities.
- Resume street sweeping as soon as weather and conditions permit.
- Remove debris from dump areas each spring.
- Re-vegetate stockpile areas as necessary each year with salt-tolerant species to prevent additional erosion and pollutant runoff.
- Provide vegetated buffer strips at least 100 feet in diameter between the snow dump site and collection stream.
- If snow melt is being directed to a storm sewer inlet, add inlet barriers or filters.
- Emplace snow fences around the perimeter of the dump sites.

3.6.9 Weather Monitoring

3.6.9.1 From November 15 to March 15, the minimum standard is to monitor the weather, both current and forecast to occur in the next 24 hours, once every shift or twice per calendar day, whichever is more frequent, at intervals determined by the municipality.

3.6.9.2 In order to determine an effective winter event response and allocate the appropriate resources, the City of Lincoln supplements road patrol information with weather information from various sources which includes:

3.6.9.2.1 Observations from municipal staff, and communication with staff of adjacent municipalities.

Winter Operations Plan 2018 / 2019

3.6.9.2.2 Weather Monitoring

3.6.9.2.2.1 NOAA <http://www.crh.noaa.gov/>

3.6.9.2.2.2 National Weather Service <http://weather.gov/>

3.6.9.2.2.3 Iteris ClearPath Weather Pavement Condition
Forecasting Services
<http://www.clearpathweather.com/>

3.6.9.2.2.4 Community Collaborative Rain, Hail & Snow Network
<https://www.cocorahs.org/>

3.6.9.2.3 Staff also monitor pavement conditions by means of infrared sensors located at six representative sites across the city.

3.6.9.3 The Maintenance Manager reports directly to the Director or Assistant Director for the city's preparedness and response action. The Maintenance Manager is also the contact person for winter storm watches and warnings from the National Weather Service. The Maintenance Manager is on the contact list following National Weather Service conference calls with local emergency management.

3.6.10 Communications

3.6.10.1 Electronic correspondence.

3.6.10.1.1 Winter Weather Warning Order. When a potential winter weather event has been forecast for the City of Lincoln, but the need to mobilize contractors and/or other City augment resources is not yet apparent, the Maintenance Manager will issue a Warning Order via e-mail to inform City staff about conditions and planned operations.

3.6.10.1.2 Winter Operations Order. When a winter weather event has been forecast for the City of Lincoln that **will likely warrant mobilizing** contractors and/or other City augment resources, the Maintenance Manager will issue a Winter Operations Order via e-mail, text, or phone call which will outline the detailed plan for the winter maintenance operation.

3.6.10.1.3 Winter Maintenance Operations Update. Throughout continuous winter event responses, the Maintenance Manager will periodically issue e-mail updates to City staff on conditions and operations.

**Winter Operations Plan
2018 / 2019**

3.6.10.2 Radios. All winter maintenance vehicles are equipped with two way communications. Municipal staff is responsible for reporting changing winter weather and/or road conditions as the changes are observed. Radios utilized by municipal staff communicate across channels as per the table below:

CHANNELS	SUB-CHANNELS	
SNOW WST	SNOW REM	ROUTE 8
	ROUTE 4	SNOW CBD
	ROUTE 5	SNOW EX1
	ROUTE 6	SNOW EX2
	ROUTE 7	SNOW EX3
SNOW NE	SNOW REM	ROUTE 13
	ROUTE 9	ROUTE 19
	ROUTE 10	SNOW EX4
	ROUTE 11	SNOW EX5
	ROUTE 12	SNOW EX6
SNOW SE	SNOW REM	ROUTE 16
	ROUTE 14	ROUTE 17
	ROUTE 15	ROUTE 18
SNOW UTIL	SNOW REM	ROUTE 3
	ROUTE 1	SNOW EX10
	ROUTE 2	

3.6.10.3 Beehive™. Maintenance Operations personnel utilize a software system known as Beehive™ to provide a holistic focus on asset, infrastructure and dynamic event management. This system logs and tracks public requests for service. As requests are entered by office staff, management personnel can efficiently dispatch operators to the problem locations to reconcile the complaint, if appropriate, and track completion progress. Beehive™ is also utilized during snow events for communication between the three district facilities and the Snow Center. Management staff and Snow Center staff are able to enter information that can be viewed by all other locations.

3.6.10.4 Automatic Vehicle Location (AVL). The City of Lincoln will have AVL units installed in snow removal equipment for the 2018/2019 winter season.

3.6.10.5 Call Center.

3.6.10.5.1 402-441-7644

3.6.10.5.2 24 hours a day, 7 days a week.

**Winter Operations Plan
2018 / 2019**

3.6.10.6 Public Communications.

3.6.10.6.1 Media press releases are managed by City Communications.

3.6.10.6.2 Municipal website: <http://lincoln.ne.gov/>

3.6.10.6.3 Mobile applications for iPhone, Blackberry and Android.

3.6.10.6.4 Other information means:

3.6.10.6.4.1 Twitter <https://twitter.com/LincolnSnow>

3.6.10.6.4.2 UPLNK <https://www.lincoln.ne.gov/city/uplnk/>

3.6.11 Call Out Procedures. Operational decisions will be made by the Maintenance Manager, or designate, with the aid of available forecasting, level of service policy, and field reporting.

Supervisors shall inform the Maintenance Manager of changing of road and weather conditions observed in the field. When a winter event response is required the Maintenance Manager will contact staff as per the shift schedule and provide direction. In the absence of the Maintenance Manager, a Supervisor shall be designated and initiate a call out in response to a winter event.

3.6.12 Incident Command System (ICS)

3.6.12.1 ICS Policy Statement. When resources and personnel are activated in response to winter storm conditions, the command and control structure will model the Incident Command System (ICS).

3.6.12.2 ICS Prior to the Winter Season

3.6.12.2.1 Review of coordination with other city departments, such as the Lincoln Police Department for parking ban enforcement and City Communications for pre-season awareness PSA's and actual storm related messages.

3.6.12.2.2 Identify to other agencies the Transportation ICS positions to be staffed during a winter storm response, and confirm the

Winter Operations Plan 2018 / 2019

function of the law enforcement liaison at the Snow Center.

3.6.12.2.3 Coordinate the contractual snow removal services. Meet with the contractors to review call-out procedures, the command structure, assignments, communication, pay requests, and damage reporting.

3.6.12.2.4 The Maintenance Manager will contact Lancaster County Emergency Management to identify other available resources to assist LTU. An activation of the EOC will be requested when a storm is of a duration or magnitude that it exceeds capabilities of LTU resources. The EOC could also be activated as an alternate Snow Center.

3.6.12.3 ICS Operations

3.6.12.3.1 Correlate existing positions and functions from the Winter Operations Plan into an Incident Command structure. This will define areas of responsibility and assist in identifying potential staffing gaps.

3.6.12.3.2 The designation of assignments related to the incident shall be recorded on the standardized ICS form 203 Organization Assignment List. All ICS forms shall be modified to reflect the ICS structure. A laminated wall chart, ICS form 207, shall be displayed at District Offices and at the Snow Center as a visual reference for assignments.

3.6.12.3.3 Based on the magnitude of a potential storm, the Director may elect to activate other General and Command Staff positions within the ICS.

3.6.12.4 ICS Communications

3.6.12.4.1 The Maintenance Manager shall utilize ICS form 205 *Communications List*, as a record of equipment and channel assignments and forward it to the Director, as required.

3.6.12.4.2 A series of LTU channels for radio communications for each District is established and detailed in paragraph 3.6.10.2.

3.6.12.4.3 Pre-season meetings shall include representatives from the law enforcement communications group to verify channel

**Winter Operations Plan
2018 / 2019**

assignments, confirm the protocol for requesting additional TAC channels and assignments by the police communications center.

- 3.6.12.4.4 Coordinate with the Radio Maintenance Group at the pre-season meetings for any channel programming requirements including expanded BAD DAY Tactical channels.

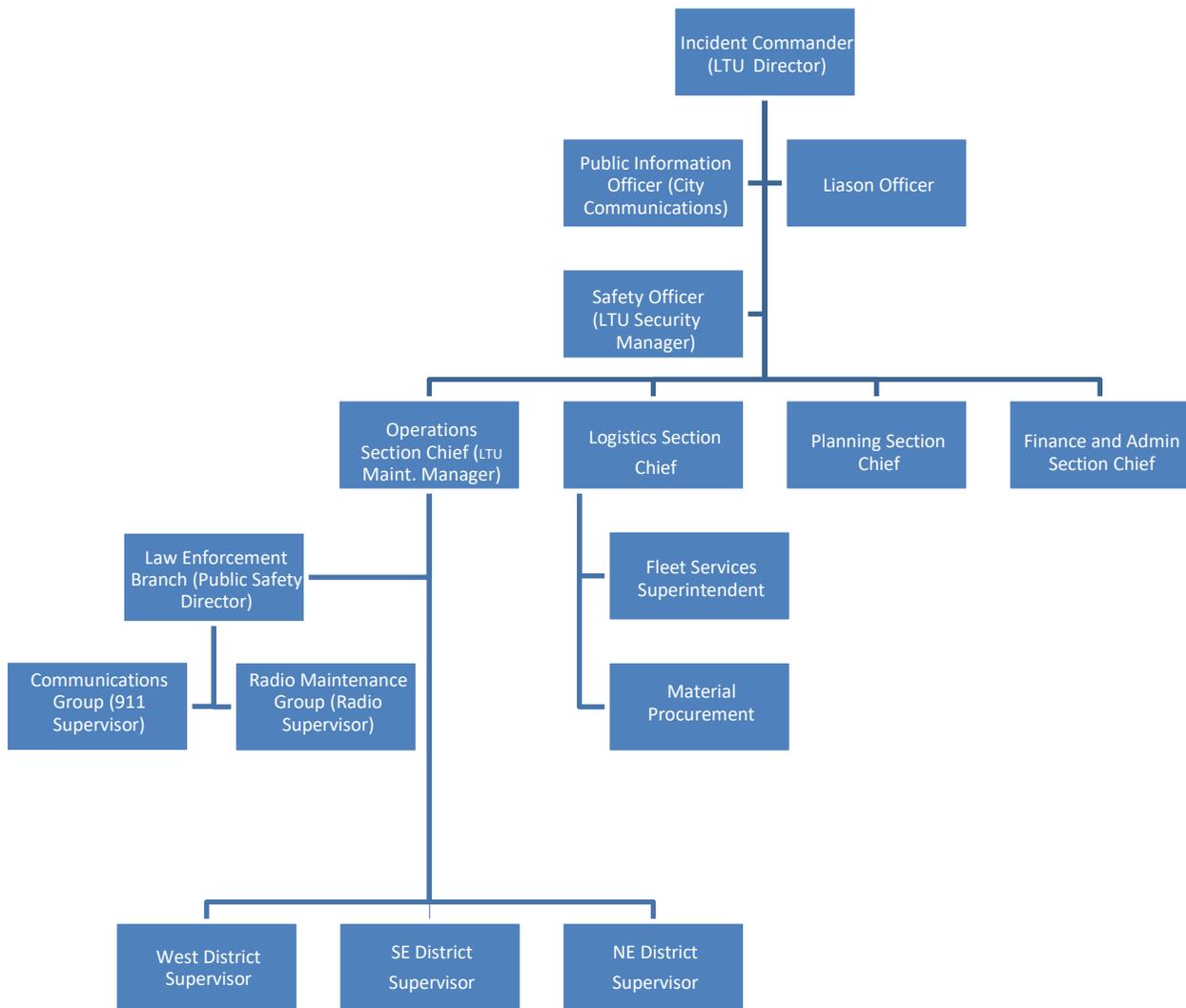
3.6.12.5 ICS Support with Lancaster County Emergency Management

- 3.6.12.5.1 Lancaster County Emergency Management maintains a list of contractual heavy equipment that could be requested if the storm exceeds Transportation resource capabilities.

- 3.6.12.5.2 In a storm that causes wide spread damage and power outages, Lancaster County Emergency Management will activate their EOC for Unified Command coordination.

- 3.6.12.6 ICS Training. Training sessions shall review the National Incident Management System, reaffirm winter operations ICS positions and responsibilities, and identify designated command posts and staging areas.

Winter Operations Plan 2018 / 2019



Incident Command Structure

3.6.13 Road Closure Procedure. In the event a road must be closed due to a severe winter storm, Lincoln Police Department will request signs be placed to close the road. Road Closed Signs, drums and barricades will be available at the patrol yard. Upon receiving a request from Lincoln Police Department to close a road to traffic, the Maintenance Manager or his designate will organize manpower and equipment to place the signs and barricades. The Maintenance Manager or his designate will contact the call center and request that a media release be sent to the local news and radio stations advising of the road closure. Roads will be deemed to be closed once the signs and barricades are placed. When it is physically impossible to place signs and barricades to close a road, the Maintenance Manager or his designate will advise Lincoln Police Department and request Lincoln Police Department permission to send the media release.

**Winter Operations Plan
2018 / 2019**

3.7 Decommissioning Winter Operations. After the winter season expires, the City of Lincoln undertakes the following tasks to decommission winter operations.

3.7.1 Two Weeks After the Winter Season Ends

3.7.1.1 Cease regularly scheduled winter night patrols.

3.7.1.2 Continue monitoring weather forecasts. Task the night shift to patrol if the forecast indicates an overnight winter event is possible.

3.7.1.3 Decommission 35% of the fleet.

3.7.2 One Month After the Winter Season Ends. One month after the winter season ends cease all winter highway maintenance operations and decommission the remainder of the equipment providing weather forecasts warrant the decommissioning.

3.8 Training. The City of Lincoln provides winter operations training for all staff involved in the delivery of winter services. It is compulsory for the municipal staff and the City's contractors to attend the training sessions.

3.8.1 Equipment Operator Training

Winter Operations Training – Equipment Operators
<ul style="list-style-type: none">✓ Equipment Inspection.✓ Equipment Calibration.✓ Record Keeping.✓ Health and Safety.✓ Level of Service - policies, practices and procedures.✓ Identification of Plow Routes - including variations for year to year and issues identified along the route.✓ De-icing chemicals - application procedures, rates, storage and handling Identification of vulnerable areas.✓ Yard and Equipment maintenance.

**Winter Operations Plan
2018 / 2019**

3.8.2 Supervisor Training

Winter Operations Training – Supervisors
<ul style="list-style-type: none">✓ Weather monitoring and forecasting results including:<ul style="list-style-type: none">○ Road Weather Information System.○ Value Added Meteorological Service.○ Eutectic temperatures & brine stratification.○ Pavement temperatures & dew point.✓ Record Keeping.✓ Health and Safety.✓ Level of Service - policies, practices and procedures.✓ Identification of Plow Routes - including variations for year to year and issues identified along the route.✓ De-icing chemicals - usage, application rates, storage and handling Identification of road salt vulnerable areas and the procedures to follow in those areas.✓ Call-out procedures.✓ Emergency contacts.✓ Yard and Equipment maintenance.

3.9 Record Keeping

3.9.1 Maintenance Operations staff is responsible for maintaining the following records:

3.9.1.1 Equipment Operators

3.9.1.1.1 Materials used.

3.9.1.1.2 Route Plowed and strategy used (plow only, salt only, anti-ice, combination plowing/salting).

3.9.1.2 Supervisors

3.9.1.2.1 Crew Cards.

3.9.1.2.2 Stow Event Reports.

3.9.1.2.3 Vehicle Accident Reports.

3.9.1.2.4 Injury Reports.

3.9.1.2.5 Beehive™ entries and service updates.

Winter Operations Plan 2018 / 2019

3.9.2 Original documents will always be maintained, regardless of their appearance. Records will be completed daily and forwarded weekly to the Inspectors for retention.

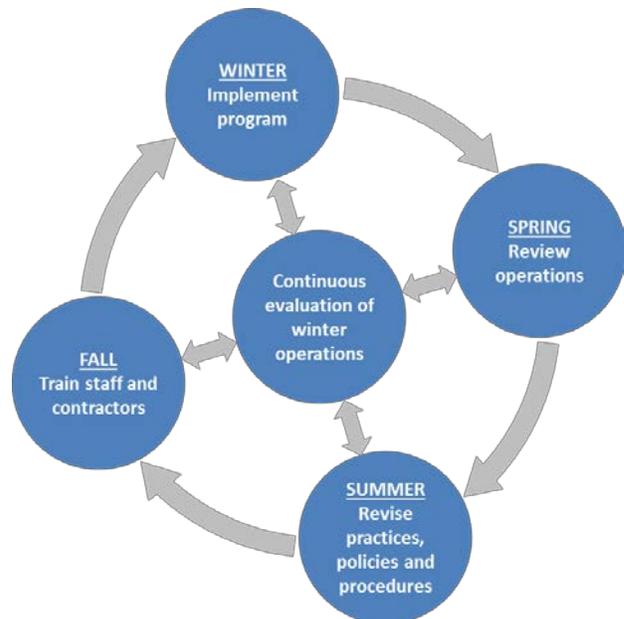
4.0 Plan Improvements. The current winter maintenance policies, practices and procedures form the baseline upon which improvements can be made to improve winter operations and/or the use and management of materials. The City of Lincoln plans to undertake the improvements as listed in the below table:

Plan Improvement Goals

	2018/2019	2019/2020	Long Term Goals
Equipment	<ul style="list-style-type: none"> · Increase tanker fleet by 25% (20 units total) · Increase material spreaders by 13% (26 units total) 	<ul style="list-style-type: none"> · Brine equipment advancements - remote truck filling, auto recirculation and data tracking 	<ul style="list-style-type: none"> · Modernize aging fleet to leverage technological & environmental benefits
Yards	<ul style="list-style-type: none"> · Additional storage for CaCl₂ super sacks at West District 	<ul style="list-style-type: none"> · Brine making and storage at Baldwin shop 	<ul style="list-style-type: none"> · Improve containment and drainage @ MSC brine facility · Relocate South St. shop · Brine making at all (3) shops
Materials	<ul style="list-style-type: none"> · Refine application rates & techniques 	<ul style="list-style-type: none"> · Refine application rates and techniques 	<ul style="list-style-type: none"> · Refine application rates and techniques
RWIS	<ul style="list-style-type: none"> · Install 6 pavement condition sensors 	<ul style="list-style-type: none"> · RWIS in service & data collection 	<ul style="list-style-type: none"> · Advanced RWIS capability
Additional	<ul style="list-style-type: none"> · Route optimization · Deploy AVL 	<ul style="list-style-type: none"> · Route optimization refinement · Advance AVL capabilities 	<ul style="list-style-type: none"> · Incorporate retention pond(s) into snow disposal

5.0 Program Review and Updating. At the end of each winter season, a review of winter operations will be conducted. Performance measures will be used to evaluate the effectiveness of the Winter Operations Plan in obtaining its objectives.

Prior to the start of the next winter season, and with sufficient lead time to implement changes, the City of Lincoln shall train staff and contractors on changes to equipment and/or winter maintenance policies, practices,





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