

LUCAN BIDDULPH



Winter Maintenance Plan

Township of Lucan Biddulph Winter Maintenance Plan

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Township of Lucan Biddulph

Winter Maintenance Plan

Purpose

The Winter Maintenance Plan sets out the framework for The Township of Lucan Biddulph to provide winter maintenance services.

This plan ensures that winter operations will:

- Meet or exceed the requirements of **Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways**.
- Prioritize the safety of residents, motorists, and vulnerable road users.
- Optimize resources in a cost-effective manner while minimizing environmental impacts of de-icing materials.
- Include proactive monitoring of weather conditions and timely responses to winter events.
- Maintain accurate records of winter maintenance activities to demonstrate due diligence

Policy Statement

The **Township of Lucan Biddulph** is committed to providing safe and sustainable winter maintenance operations for the wellbeing and mobility of the traveling public.

The Director of Public Works shall review the **Winter Maintenance Plan** annually to ensure compliance with legislation. The director will update the plan as needed and bring forward changes to council.

Legislative Framework

This plan is prepared in compliance with the following:

- Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways
- Municipal Act, 2001
- Occupational Health & Safety Act
- Environmental Protection Guidelines on Road Salt Management

Council

Council will adopt the Winter Maintenance Plan through by-law.

Definitions

Anti-icing: The application of liquid or solid de-icers directly to the road surface in advance of a winter event to prevent the formation or development of bonded snow and ice.

De-icing: The application of solids or pre-treated material to the road surface at the onset of and during a 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 public for the passage of vehicles and includes the area between the lateral property lines thereof.

MMS: Refers to Ontario Regulation 239/02 Minimum Maintenance Standards for Municipal Highways as amended from time to time.

Paved Road: A road with an asphalt surface, concrete surface, composite pavement.

Pre-treat: The application of liquids (calcium chloride, sodium chloride, etc.) to dry sand or salt prior to being loaded for storage or applied to the road surface.

Pre-wetting: The application of liquids (calcium chloride, sodium chloride, etc.) at the spinner of the truck just prior to application to the road surface.

Significant Weather Event: An approaching or occurring weather hazard with the potential to pose a significant danger to users of the highways within a municipality.

Unpaved Road: A road with a gravel, stone or other loose traveling surface.

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

Winter Event Response: 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/sand 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 Response Hours: The total number of person-hours per year (plowing, salting/sanding, winging back, etc.) to respond to winter events.

Winter Maintenance Overview

The Township of Lucan Biddulph maintains 117.6 km of 2 lane road, 19.5km of sidewalk and 1.5km of multiuse trails. The category of roads includes 76.8 km of rural gravel, 22.8 km of paved rural and 18km of paved urban. For winter maintenance level of service, all Urban Roads are classified as Class 5 highways, and all rural roads are classified as Class 4 highway as per the MMS classification of Highways. The sidewalks are divided into three areas: Clandeboye with 0.2km, Granton with 1.9km and Lucan with 17.4 km of sidewalk. Multi-use trails are located in Lucan and include the Campanale Park, Elm Street Park, Spencer Street Park, Market Street Park and the trail leading to the commercial center. Multiuse paths are maintained at the same level of service as the sidewalks.

The winter season starts on November 15th and ends on April 15th. It is recognized that a winter event can happen outside the winter season. The Township has and is prepared to have equipment and staff respond to events outside of the winter season.

Prior to the start of the winter season the following takes place.

Completed by October 1st.

- The Director of Public Works will have reviewed the winter plan. Updates will have been completed and provided to the Road Supervisor.
- The Road Supervisor will be prepared to monitor weather.
- Patrol routes confirmed with the Road Supervisor.

Completed by mid-October.

- Routes assigned to operators.
- Contact list is updated.
- Inventory of supplies completed.
- Inspect winter equipment to ensure it is operational.
- Winter tenders and contracts are to be completed.
- Training for staff completed. Equipment operators are to have training in equipment operation specific to the equipment they are operating.
- Review with staff the Winter Patroller's activities and required documentation.

Completed by November 1st:

- All staff, equipment, contractors and materials needed for winter maintenance will be in place.
- Calibrate material application equipment.
- Review with staff the required procedures for winter maintenance, including the review of the Winter Maintenance plan and its requirements. This includes contractors. Individual responsibilities will be outlined for each equipment

operator. Patrolling, call out procedures, work schedules and health and safety guidelines will be confirmed. There will be a complete review of documentation and record keeping for the winter season.

Weather conditions will be monitored three times a day from October 1st to April 30th. The road supervisor will be responsible to ensure weather monitoring is completed. Weather is monitored through Environment Canada or the Weather Network web sites. These can be accessed from computer or Township issued phone. Documentation is in the staff logs. Local weather reports on TV or radio can also be sourced. The patroller and operators will log current weather conditions during the start of maintenance activities.

After every winter season, there will be a review with all staff. This allows for information to be passed along on what issues, positive and negative, were experienced and how to improve for the following year.

The winter maintenance activities provided are:

- Patrolling
- Snow plowing
- Snow Removal
- Sanding/salting application
- Ice Blading
- Sidewalk/trail plowing
- Sidewalk/trail salt application

Level of Service Standards

The Township of Lucan Biddulph provides a level of service in accordance with Ontario Regulation 239/02.

Patrolling

If weather monitoring indicates icy conditions or snow accumulation a patrol will be conducted based on the monitoring information.

Due to the proximity of Lucan Biddulph to Lake Huron there are frequent lake effect snow events. Patrollers must monitor weather conditions.

During the winter season a minimum of one winter patrol per day will be done to confirm road conditions. The Township will conduct this patrol between 4am and 7am each day. The time of the patrol is based on weather conditions. Weather monitoring may require multiple winter patrols to confirm road conditions throughout the day. A winter patrol is carried out on a route that represents a variation of road surfaces, location and classification.

Sidewalks/trail condition will be patrolled based on weather monitoring. When the weather monitor indicates a substantial probability of > 8 cm of snow accumulation or ice formation, then the MMS standard is for the Township to patrol its “representative route” of sidewalks at intervals deemed necessary. This is completed by the assigned staff responsible for the winter maintenance of the sidewalk or if they are unavailable, the road patroller. Main Street in Lucan will be inspected and/or any identified areas that have a hazard. An example of a hazard is water that drains across a section of sidewalk that can freeze and build up.

A patroller will document time, weather and conditions. If conditions require winter maintenance, the patroller will call in or confirm resources are deployed. Citywide is used for documentation. Additional information can be entered in to a staff log book.

After maintenance has been completed, operators will update the supervisor/patroller on road or sidewalk conditions.

Snow Accumulation

The standard for addressing snow accumulation is that, once it is observed, or reported, to exceed the depth set out in the table below, resources will be deployed when practicable. Clearing snow for the Township’s 2 lane roads will be a minimum width of 5m total to be in a state of repair.

Road Class	Snow Accumulation	Clearance Time
Class 4	8 cm	Within 16 hours of the end of the event
Class 5	10 cm	Within 24 hours

Sidewalk/trail	8 cm	Within 48 hours
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If at any time the Township declares a significant weather event, then all roadways and sidewalks are deemed in a state of repair with respect to any snow accumulation present, until applicable time in the table expires following the Township declaring the end of the significant weather event.

Ice Formation Prevention and Treatment of Icy Roadways

The Township will monitor the weather and patrol in accordance with the MMS. If the Township determines there is a substantial probability of ice forming, the Township will treat the road, if practicable to prevent ice formation, to within the time listed under the column titled "Formation" on the table below, starting from the time that the Township determines the appropriate time to deploy resources for that purpose. It is important to recognize ice formation during a forecasted freezing rain event or rain freezing on contact due to surface temperatures below 0 degrees.

The standard for treatment of icy conditions is to deploy resources, when practicable, once the Township is aware of the condition. The treatment time is listed on the table below. Treating a roadway/sidewalk can mean applying sand, salt, or a combination of sand/salt, and ice blading.

Road Class	Formation	Treatment Time
Class 4	24 hours	Within 12 hours of being aware of the condition
Class 5	24 hours	Within 16 hours
Sidewalk/trail	48 hours	Within 48 hours

If at any time the Township declares a significant weather event, then all roadways and sidewalks are deemed in a state of repair in respect to any ice present, until the treatment time expires after the Township declares the end of the significant weather event.

Operation

The Township operates one public works facility located at 34363 Sainstbury Line. The facility includes a sand/salt storage shed that can hold 1500 cubic meters of material. The material stored is a sand/salt mixture. The ratio is 4:1. Forty tonnes of salt in the shed. This can be used to strengthen the sand/salt ratio, sidewalk application and parking lot application. Township operates three tandem combination plow trucks, one snow grader, one backhoe with a push blade and 3 sidewalk maintenance units. The three trucks are interchangeable with the set routes. This gives the Township the ability to shift units during an extreme event or to deal with equipment repairs. The trucks can plow and distribute a sand/salt mixture at the same time dependent on conditions. Trucks are calibrated at the start of the season. Using ground speed sensors, the truck will apply the sand /salt mixture at a set rate. The best practice application rate set by the MTO for sand is 570 kg per 2 lane km. Our trucks have calibrated settings of 300, 400, 550 and 600 kg per 2 lane km. The sidewalk units use salt for deicing. Note, the Township uses less than 500 tonnes of salt annually and therefore does not have a salt management plan in place but follows best practice of the industry.

Each time an operator or patroller is active they will be using the Citywide App on a smart device. The operator will select their activity and route. The app tracks the route through GPS. It records date, time, and speed continuously. At the start of the route, the operator enters road and weather conditions. The operator can enter notes and pictures at any time during the route.

At the end of each shift the operator or patroller will document their work shift. This will include information on activities, communications, equipment, materials and weather and road conditions.

All operators are required to follow the Hours of Service Regulations (O. Reg. 555/06: HOURS OF SERVICE). A driver can have up to 14 hours of on-duty time and then requires 10 hours of off-duty time in a 24-hour period. An employee's timesheet documents their on and off duty times. The employee's supervisor will monitor time to ensure regulations are being followed. Drivers are required to tell their supervisor if additional on-duty time has been accumulated through another employer.

The supervisor can adjust operator shift times if weather monitoring indicates ice has formed or if there is a probability of it forming.

Operators can be called in due to extreme conditions at any time throughout the winter season.

During an operator's shift, if the weather conditions become extreme and lack of visibility becomes a hazard, the operator will stop maintenance activities. The operator

will continue once conditions improve. The Road Supervisor will inform the Director of Public Works if maintenance activities are suspended.

Summary of Combination Plow Truck Routes					
	Class 4 (km)	Class 5 (km)	Paved Length	Gravel Length	Description of route
Route 1	1.6	46	13.5	32.5	Majority of the route is rural, responsible for Granton
Route 2	1.25	53.6	9.3	44.3	Majority of the route is rural, responsible for Clandeboye
Route 3	16.1				Majority of route is Urban, responsible for the Town of Lucan

Route 3 is an urban route. Urban roads are maintained once every 24 hrs. The starting time is in the early morning during a snow event or when practicable for an ice event. The driver and the truck can assist with rural winter maintenance throughout the day.

The Township operates two rural routes. The combination snow trucks will start in the early morning. A typical run will have a start time of 5am. Priority is the rural paved roads. These roads tend to be more commuter roads with a higher traffic volume. The trucks will continue to operate throughout the day dependent on road conditions. The driver will continue to complete winter maintenance if required until 7pm, at that point the equipment will come off the road. Staff will not conduct winter maintenance through the nighttime hours. The operator would then be available at 5am the next morning to start the next shift. ***Map of Routes is included in Appendix A.***

The snow grader can be used for plowing snow and ice blading when gravel roads become slippery. The ice blading is conducted when needed due to icy conditions.

The Township owns one sidewalk unit and contracts two sidewalk units. The Clandeboye sidewalks and the Granton sidewalks are done with rental equipment and all of Lucan is serviced by the combination sidewalk machine, housed at the Public Works shop on Saintsbury Line. All machines can push snow or blow snow depending on conditions. Sidewalks are maintained as per the MMS. There is a priority route in Lucan that is done first and will get a double pass dependent on conditions. This route includes the downtown core and the sidewalks on Beech Street that lead to the school. Typical completion times are less than an hour in Clandeboye and Granton. The Lucan sidewalk route can take 6 to 8 hours.

The Township maintains several parking lots. This includes the Lucan Downtown parking lot, the library/office parking lot and the Lucan Firehall. Maintenance and resources are deployed when practicable, noting parking lots are not priority and will be cleared after a snow event.

The Township does move snow in two defined areas. This is to remove site obstruction and safety hazards from accumulated snowbanks. In Lucan, this is on Main Street from Saintsbury Line to George Street and in Granton, on Granton Line from Fallon to High Street. The supervisor can arrange snow removal based on an identified hazard at intersections over the course of the winter. When roads are in repair staff will continue to improve conditions by winging snow banks back, clear snow from around signs, improving visibility at intersection, clearing drainage ditches and conducting additional road patrols.

Significant Weather Event

The MMS provides for municipal declaration of a significant weather event. When the event is declared, roadways are considered to be 'in a state of repair'. The Township will continue to monitor the weather and deploy resources when deemed appropriate. This gives more time for the municipality to meet the minimum maintenance standards.

The CAO or the Director of Public Works can declare a significant event. This is typically done in consultation with the Road Supervisor. The severity of the weather events combined with the ability of equipment operation can have an impact on the Township to meet the MMS. The declaration stays in effect until the event is declared over. Once over the Township will follow the time requirements to bring the roads or sidewalks in to compliance with the MMS.

Declarations will be posted to the Township's website and social media. ***The declaration is found in Appendix B.***

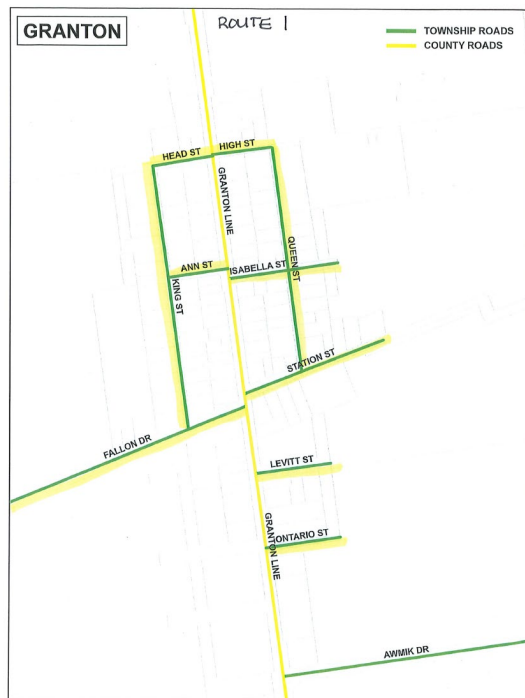
Communication

The Township will provide external communication with the public via the Township's website. Weather updates and road conditions can be posted. Information from the O.P.P. and the County of Middlesex can also be posted.

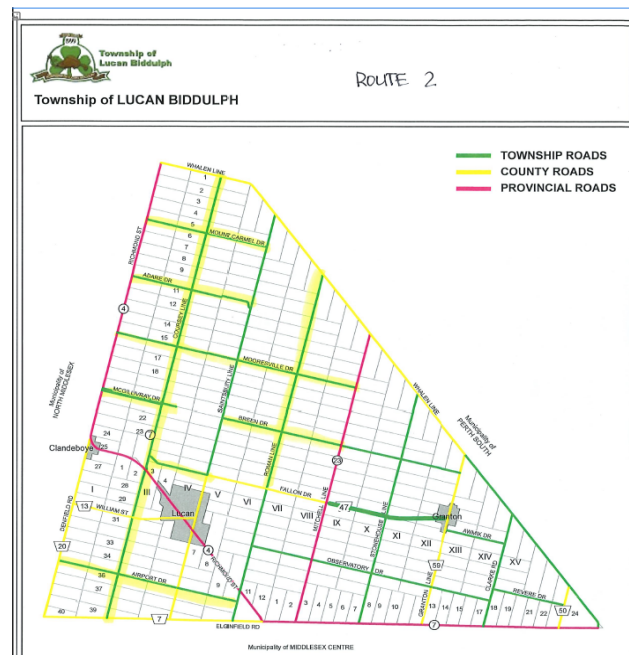
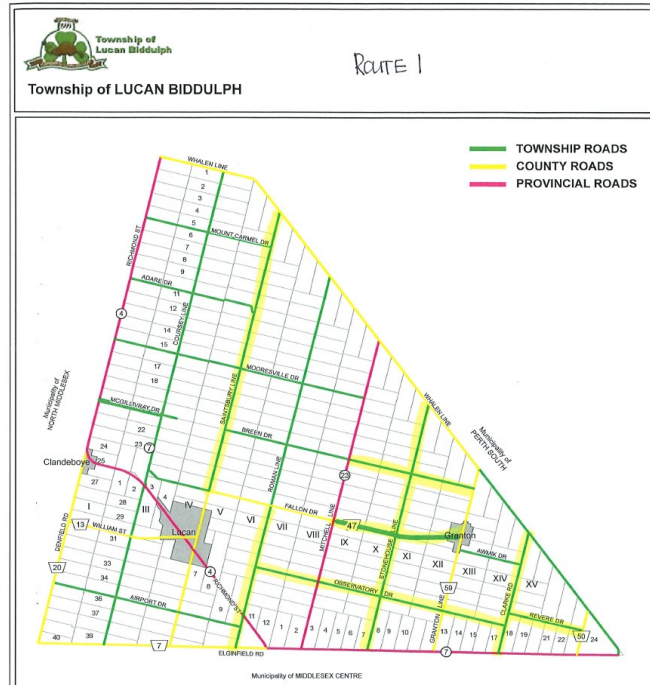
Social media will also be used to issue alerts and pass along information.

Each operator has access to a 2-way-radio system, and a Township issued cell phone for internal communication.

Appendix A: Route Maps

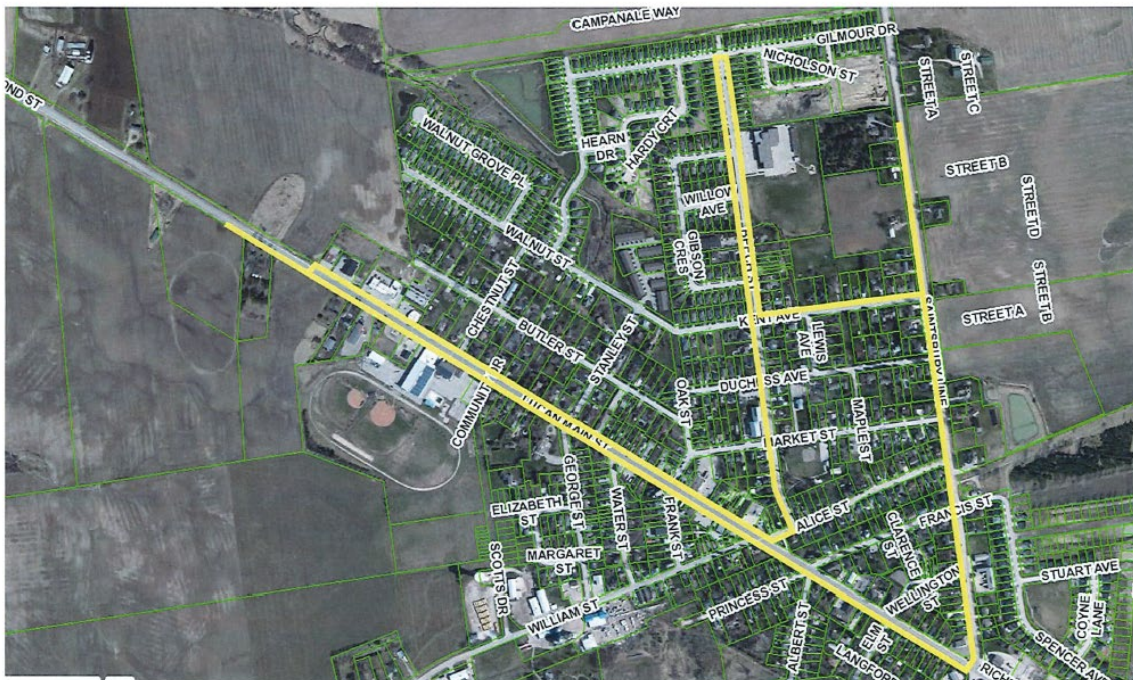


Route 1





PRIORITY ROUTE - SIDEWALK MAINTENANCE



Appendix B: Significant Weather Event Declaration

The TOWNSHIP OF LUCAN BIDDULPH DECLARES SIGNIFICANT WEATHER EVENT

Lucan, ON: Due to current and forecasted weather conditions that are impacting roads owned and operated by Lucan Biddulph, the Municipality is declaring a Significant Weather Event commencing at [insert time] on [insert date] pursuant to O. Reg. 239/02.

Updates will be provided as conditions change.

The Public Works Department is currently engaged in full winter operations on the Township's roads and sidewalks. Under this declaration the roads are in a state of repair.

This declaration is to notify the public that due to the current or forecasted conditions, extreme caution is to be observed when travelling on roads maintained by The Township of Lucan Biddulph. It may take longer than usual to bring the roads and sidewalks back to optimal condition.

The TOWNSHIP OF LUCAN BIDDULPH DECLARES SIGNIFICANT WEATHER EVENT OVER

Lucan, ON: The Significant Weather Event in respect to current and forecast weather conditions commencing at [insert time] on [insert date] pursuant to O. Reg. 239/02 is declared over as of [end time] on [end date] by the Township of Lucan Biddulph.