

# Winter Operations Plan

Township of Essa

Approved by Council: ( \_\_ / \_\_ / \_\_\_\_ )

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## Purpose

This Winter Operations Plan sets out a policy and procedural framework for ensuring that **Township of Essa** continuously improves on the effective delivery of winter maintenance services and the management of road salt used in winter maintenance operations, as outlined in Environment Canada's Code of Practice for the Environmental Management of Road Salts.

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.

As specified in the Code of Practice for the Environmental Management of Road Salts, the Winter Operations Plan for **Township of Essa** was endorsed by council on the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

## Definitions

**Anti-icing..** means the application of liquid de-icers directly to the road surface in advance of a winter event.

**De-icing..** means the application of solids, liquids, pre-treated material to 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..** is a road with an asphalt surface, concrete surface, composite pavement, or portland cement.

**Pre-treat..** means 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..** means the application of liquids (calcium chloride, sodium chloride, etc) at the spinner of the truck just prior to application to the road surface.

**Surface Treated Road..** is road with bituminous surface treatment comprised of one or two applications of asphalt emulsion and stone chips over a gravel road.

**Unpaved Road..** 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..** 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..** is a response to a winter event with full deployment of manpower and equipment that plow/salt/sand the entire system.
- **Spot Winter Event Response..** is 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** .. are the total number of person-hours per year (plowing, salting/sanding, winging back, etc.) to respond to winter events.

## 1.0 Winter Operations Management - Objective

**Township of Essa** is committed to improving winter maintenance operations while continuing to ensure public safety. **Township of Essa** will optimize the use of winter maintenance materials containing chlorides on all municipal roads while striving to minimize negative impacts to the environment. **Township of Essa** 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 Council of **Township of Essa**

## 2.0 Policy Statement

**Township of Essa** 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 applicable provincial legislation and accepted standards while striving to minimize adverse impacts to the environment. These commitments will be met by:

- adhering to the procedures contained within the Winter Operations Plan;
- reviewing and upgrading the Winter Operations Plan on an annual basis to incorporate new technologies and new developments;
- committing to ongoing winter maintenance staff training and education; and
- 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

### 3.1.0 The System Maintained

The major activities related to winter maintenance are:

- anti-icing
- snow plowing
- salt /sand application
- salt and sand storage
- snow removal
- snow storage
- sidewalk plowing and de-icing

**Township of Essa** is responsible for winter maintenance on:

Paved roads	<u>133 lane km</u>
Surface treated roads	<u>272 lane km</u>
Unpaved roads	<u>65 lane km</u>
Sidewalks	<u>0 km</u>
Paths and Trails	<u>0 km</u>

For the purposes of this winter operations plan, the highways under the jurisdiction of **Township of Essa** have been classified (Class 1, 2, 3, 4, 5) as per the following table which is based on the Classification of Highways table included in O.Reg. 239/02.

Average Annual Daily Traffic (number of motor vehicles)	Posted or Statutory Speed Limit (kilometres per hour)						
	91 - 100	81 - 90	71 - 80	61 - 70	51 - 60	41 - 50	1 - 40
Å							
15,000 or more	1	1	1	2	2	2	2
12,000 - 14,999	1	1	1	2	2	3	3
10,000 - 11,999	1	1	2	2	3	3	3
8,000 - 9,999	1	1	2	3	3	3	3
6,000 - 7,999	1	2	2	3	3	3	3
5,000 - 5,999	1	2	2	3	3	3	3
4,000 - 4,999	1	2	3	3	3	3	4
3,000 - 3,999	1	2	3	3	3	4	4
2,000 - 2,999	1	2	3	3	4	4	4
1,000 - 1,999	1	3	3	3	4	4	5
500 - 999	1	3	4	4	4	4	5
200 - 499	1	3	4	4	5	5	5
50 - 199	1	3	4	5	5	5	5
0 - 49	1	3	6	6	6	6	6

For the purposes of the table above to this section, the average daily traffic on a highway or part of a highway under the jurisdiction of **Township of Essa** shall be determined:

- a. by counting and averaging the daily two-way traffic on the highway or part of the highway; or
- b. by estimating the average daily two-way traffic on the highway or part of the highway.

The table below summarizes the road system in **Township of Essa** as follows:

	Paved Lane / KM		Surface Treated / KM		Unpaved Lane / KM	
	Rural	Urban	Rural	Urban	Rural	Urban
Class 1						
Class 2	10					
Class 3		10	72			
Class 4		103	145			
Class 5		10	55		47.25	
Class 6					18.25	

### 3.2.0 Level of Service

**Township of Essa** provides the following level of service during the winter maintenance season, as set out in 3.3.0, in response to a winter event.

### 3.3.0 Winter Maintenance Season

The winter maintenance season within which **Township of Essa** will perform winter highway maintenance commences on **November 9th, 2015** and is completed **April 10th, 2016**

### 3.4.0 Winter Preparations

In the months prior to the start of the winter maintenance season, as identified in 3.3.0, the **Township of Essa** 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 tenders for the supply of materials (salt, sand, liquid), replacement parts (for plows, solid and liquid application equipment), value added meteorological services (VAMS) and contract equipment (plow trucks, spreader trucks, combination units).

Prior to the winter season **Township of Essa** will

1. Conduct a mandatory training session for staff and contract operators where all policies, procedures, schedules, reporting procedures for callout, route maps, equipment training and safety precautions will be discussed. Any issues resulting from the meeting with regard to the policies, procedures, schedules, reporting procedures for callout, route maps, equipment training and safety precautions shall be resolved either at the meeting or prior to the winter season.
2. Train winter patrollers (or staff whose duties also include patrolling) on the route of representative roads to be patrolled between winter events, their duties during a winter event, recording keeping requirements and callout procedures and the de-icing chemicals to be applied for the forecast weather conditions.
3. Inspect equipment to ensure proper working order. Schedule and complete any and all equipment repairs.
4. Arrange for the delivery of materials (salt, sand and liquid solution) and begin filling storage facilities. If liquid solution is mixed on site, begin mixing and filling storage tanks.
5. Confirm that all guiderail, catchbasin, hazard and fire hydrant markers, if any, are in place. Any missing markers will be replaced prior to the winter session.

#### 3.4.2 One Month Prior to the Winter Season

One month prior to the winter season **Township of Essa** will

1. Post the winter shift schedule in accordance with the municipality's collective agreement, if any.
2. Assign equipment to staff.
3. Calibrate material application equipment.
4. Allow operators (staff and contract) time to familiarize themselves with any new equipment, material application rates, material application equipment and their route (driving the route and noting obstacles along the route).
5. Assign staff to monitor weather forecasts on a daily basis. Assign night patrol shift if forecast indicates an overnight winter event is probable. The patrol person will be authorized to initiate a winter event response if conditions warrant a response.
6. Have a **20 %** of the fleet ready to respond to a winter event.
7. 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**

Two weeks prior to the winter season **Township of Essa** will

1. Begin regularly scheduled night patrol of representative roads that are maintenance class 1 and 2 roads.
2. Have the required complement of the fleet ready to respond to a winter event.
3. 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**

At the start of the winter season:

1. Implement the winter shift schedule.
2. Begin patrolling representative roads in all maintenance classes.
3. Respond to winter events as per the winter operations plan.

**3.5.0 Winter Patrol**

During the winter maintenance season, 3.3.0, **Township of Essa** carries out a winter patrol on a route of representative roads twice daily, 7 days a week. Between winter events a patrol of representative roads will occur during daylight hours and a second night patrol will be also be scheduled. The purpose of the patrol is to monitor and record weather and road conditions and mobilize winter maintenance operators and equipment should a winter event be observed and a winter event response is required. On the approach of a winter event or during a winter event the route 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.

The patrol person will be familiar with local conditions in their patrol area, and prepare a condition log of road and weather conditions as well as any actions taken during the shift. The winter patrol schedule parallels the designated winter season.

**3.6.0 Operations**

**3.6.1 Staffing and Hours of Work**

**Township of Essa** has a full time employee assigned to each vehicle used for winter operations. Each vehicle is assigned a route for sanding/salting and/or plowing.

**Township of Essa** adheres to the hours of service as set out in the Highway Traffic Act, Reg.555/06.

Employee ID or Name	Equipment	Comments	Plow Routes
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**3.6.2 Winter Materials Used Annually**

Material	2011/2012	5 Year Average**
Solids		

\* Percentage of salt in sand/salt mix by weight % (industry standard 2 to 5 %)

(\*\* If you do not have 5 years experience, then provide the average for your number of years' experience.

\*\*\* Percentage pre-treat material use %

### 3.6.3 Application Rates

Solids	Spreading Rates per 2 lane km	
Highway Class	Salt	Sand

(Note: MTO Maintenance Manual MBP-703 suggests 130 to 170 kg salt for paved roads and 570 kg sand per 2 lane kilometer).

Liquids - Pre-wetting	Spreading Rates per 2 lane km Temperature		
	0 to -5 C	'-5 to -10oC'	'-10 to -18oC'

(Note: MTO Maintenance Manual MBP-705 suggests a range of application rates in litres/2lane km)

Liquids - Direct Application	Application Rates litres per lane km
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### 3.6.4 Equipment - Winter Maintenance Fleet

The municipality provides winter maintenance services on 2 routes with the equipment listed below:

Route	Equipment	Staff
EAST ANGUS SIDEWALK ROUTE	--	--
WEST ANGUS SIDEWALK ROUTE	--	--

For Equipment Details, See Appendix 3A

### 3.6.5 Yard Facilities

The municipality provides winter maintenance services from the patrol yards listed below. Each patrol yard has a front end loader capable of loading the winter maintenance fleet with sand or salt.

### 3.6.6 Snow Removal and Disposal

### 3.6.8 Vulnerable Areas

Township of Essa does not fall under a Source Water Protection Region.

### 3.6.9 Weather Monitoring

(1) From October 1 to April 30, the minimum standard is to monitor the weather, both current and forecast to occur in the next 24 hours, once every shift or three times per calendar day, whichever is more frequent, at intervals determined by the municipality.

(2) From May 1 to September 30, the minimum standard is to monitor the weather, both current and forecast to occur in the next 24 hours, once per calendar day.

In order to determine an effective winter event response and allocate the appropriate resources **Township of Essa** supplements road patrol information with weather information from various sources which includes:

### 3.6.10 Communications



### 3.6.11 Call Out Procedures

### 3.6.12 Road Closure Procedures

In the event a road must be closed due to a severe winter storm, **Nottawasaga OPP** will request signs be placed to close the road. Rb-92 Road Closed Signs on portable stands, TC-54 flexible drums and barricades will be available at the patrol yard. Upon receiving a request from **Nottawasaga OPP** to close a road to traffic, the Patrol Supervisor or his/her designate will organize manpower and equipment to place the signs and barricades. The Patrol Supervisor or his/her designate will contact the call centre and request that a media release (Appendix 4) 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 Patrol Supervisor or his/her designate will advise **Nottawasaga OPP** and request **Nottawasaga OPP** permission to send the media release (Appendix 5).

## 3.7.0 Decommissioning Winter Operations

After the winter season (identified in 3.3.0) expires **Township of Essa** undertakes the following tasks to decommission winter operations.

### 3.7.1 Two Weeks After the Winter Season Ends

Two weeks after the winter season ends:

1. Cease regularly scheduled winter night patrols;
2. Continue monitoring weather forecasts. Assign night patrol shift if forecast indicates an overnight winter event is probable.
3. Decommission % 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.

## 3.8.0 Training

### 3.9.0 Record Keeping

Full and accurate completion of the documents listed below, according to the applicable procedures, ensures that the municipality is protected from liability by providing solid documentation that procedures have been followed.

Staff is responsible for keeping the following records:

The date will be recorded as Day/Month/Year. It will be written in a numerical format (27/09/12). The time shall be documented using the 24 hour clock format.

Always retain the original copy of documents regardless of their appearance. Writing must be legible for others to read and written in ink. Stains or dirt on the documents is not

an issue. If a document requires correction then a line is to be placed through the incorrect information without making it illegible and continue writing on the original document. Initial corrections or change in the colour of ink in a case where you change writing pens.

Records will be completed daily and forwarded to the \_\_\_\_\_ weekly for retention.

## 4.0 Plan Improvements

The current winter maintenance policies, practices and procedures form the baseline or benchmark upon which improvements can be made to improve winter operations and/or the use and management of road salt.

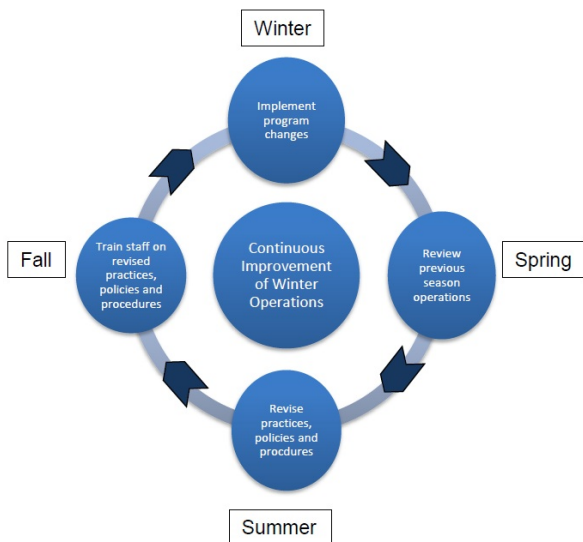
Over the next ten years **Township of Essa** plans to undertake the improvements as listed in Table 1. This list will be reviewed and updated annually.

Table 1

Description	Implementation

## 5.0 Monitoring and Updating

The purpose of monitoring and updating is to provide a basis for continuous improvement of the winter operations plan and the winter maintenance policies, practices and procedures of the **Township of Essa**.



At the end of the winter season, as identified in 3.3.0, a meeting to review winter operations will be held each year with all winter operations staff to itemize all issues that arose during the winter season and discuss how these issues may be resolved. Prior to the start of the next winter season and with sufficient lead time to implement any changes, the **Township of Essa** shall train staff on the changes to equipment and/or winter maintenance policies, practices, and procedures.

The winter season of **2011/12** will be the benchmark year. Year over year achievement using the performance measures listed below will be measured against said benchmark year. Performance measures will be used to determine whether or not the objectives of the Winter Operations Plan and/or winter maintenance policies, practices, and

procedures have been met.

## **Appendix 0 - Level Of Service Policy**



TOWNSHIP OF ESSA - Public Works Department  
**WINTER OPERATIONS - LEVEL OF SERVICE**

**PATROL**

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The weekday patrol person will provide road condition inspections from Monday to Friday, between the hours of **2:00 a.m. and 10:00 a.m.** This person shall have the authority to call out additional personnel and equipment if the need arises. The timing for this weekday patrol person will generally be from approximately mid-November to mid-April each season.

The weekend patrol person shall be required to perform patrolling duties between the hours of 4:00 a.m. and 2:00 p.m. on Saturdays, Sundays and statutory holidays.

During normal working hours in the winter season, the Roads Supervisor and/or his designate are responsible for undertaking inspections to determine necessary snow and ice control procedures.

Updated: November 2013

## **Appendix 1 - Route of Representative Roads**

### **Route of Representative Roads**

Assets

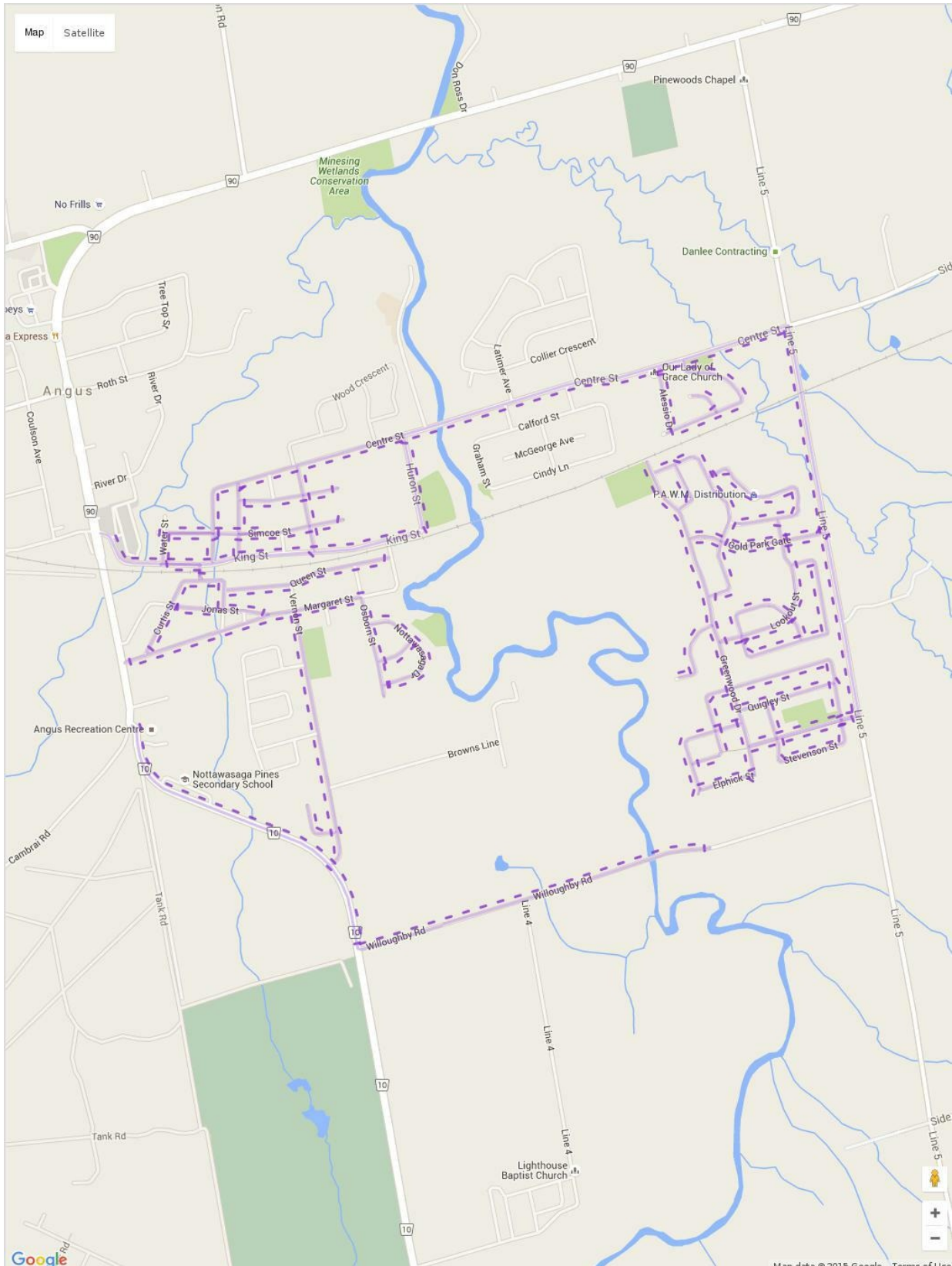
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# Appendix 2 - Plow Routes

**EAST ANGUS  
SIDEWALK ROUTE**

0.0 Lane KM

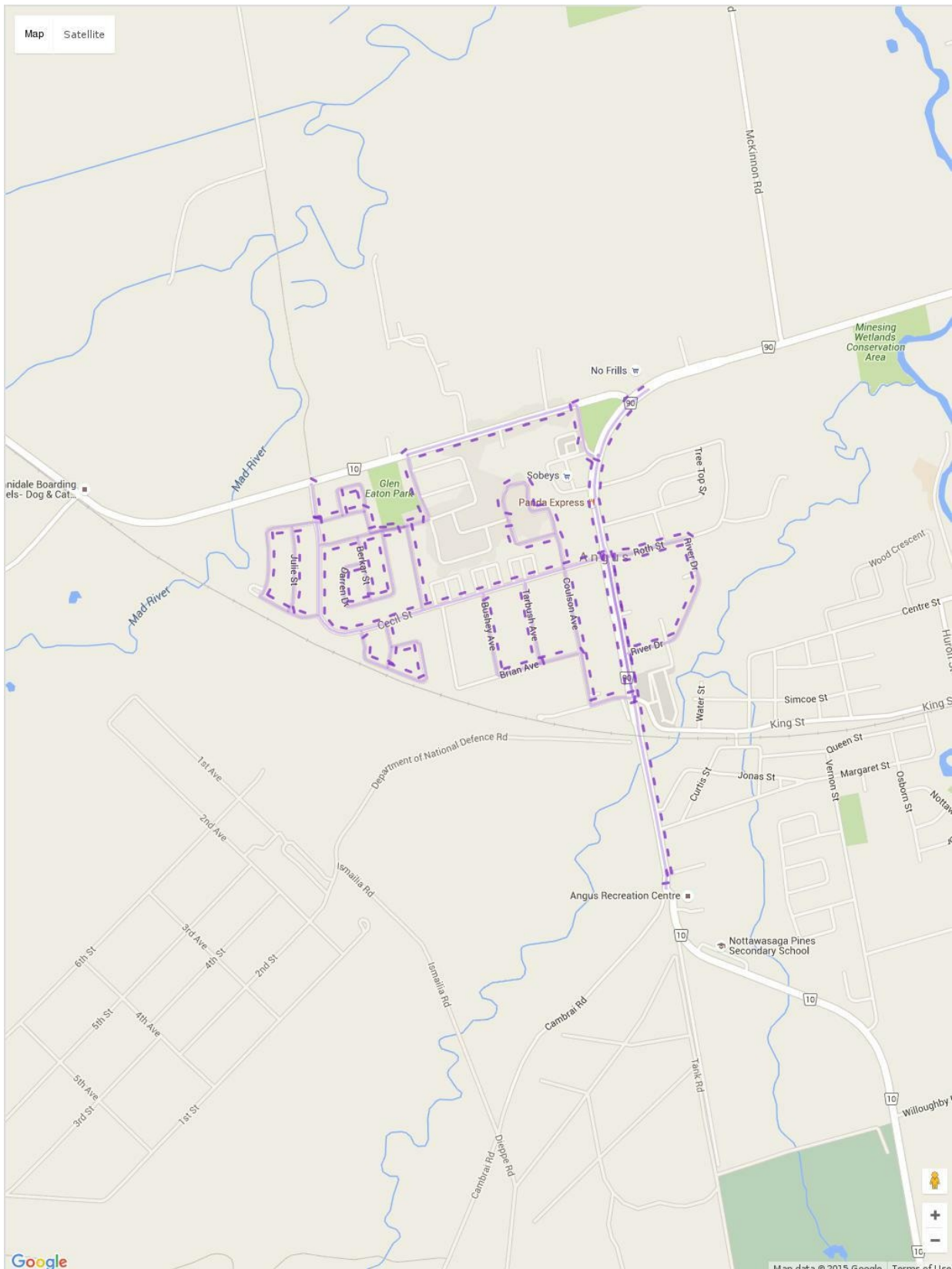
25.69 Sidewalk  
KM



**WEST ANGUS  
SIDEWALK ROUTE**

0.0 Lane KM

13.94 Sidewalk  
KM



## Appendix 3 - Vulnerable Areas

### Appendix 3A - Equipment

Equipment	Equipment Type	Electronic Controller	Calibration Date	Pre-wet Capability	Anti-icing capability	Liquid Capacity (L)	Infrared thermometers
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## Appendix 4 - Media Release Road Closed



### Township of Essa

Date \_\_\_\_\_

Time \_\_\_\_\_

#### Media Release

Due to a severe winter storm **Nottawasaga OPP** advise that the following roads in **Township of Essa** are impassable due to drifting and blowing snow and have been closed to traffic.

Street Name	From	To

**Nottawasaga OPP** advise that these roads will remain closed until the storm subsides and driving conditions improve.

## Appendix 5 - Media Release Severe Weather



### Township of Essa

Date \_\_\_\_\_

Time \_\_\_\_\_

#### Media Release

Due to a severe winter storm **Nottawasaga OPP** advise that many roads in **Township of Essa** are impassable due to drifting and blowing snow. **Nottawasaga OPP** advise that you do not drive until the storm subsides and driving conditions improve.

## Appendix 6 - Record of Training



**Township of Essa**

This statement certifies that the below named individual has successfully completed the in-house Winter Operations Training program as required by **Township of Essa** Winter Operations Plan.

The Winter Operations Training program is comprised of the following modules:

- Equipment Circle Check
- 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 rates, storage and handling
- Identification of road salt vulnerable areas and the procedures to follow in those areas
- Yard and Equipment maintenance

Employee Name \_\_\_\_\_

Print Name

Employee Signature \_\_\_\_\_

Date \_\_\_\_\_

Trainer Signature \_\_\_\_\_

Supervisor Signature \_\_\_\_\_

**Appendix 7 - Record of Training - Night Patroller**



**Township of Essa**

This certifies that \_\_\_\_\_ (employee name) has successfully completed the in-house Winter Operations - Night Patroller Training as required by **Township of Essa** Winter Operations Plan.

The Winter Operations - Night Patroller Training workshop includes the following modules:

- Weather monitoring and forecasting results including: Road Weather Information System, Value Added Meteorological Service, eutectic temperature, pavement temperature, dew point
- Winter Schedules



- 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

Employee Name \_\_\_\_\_

Date of Training \_\_\_\_\_

Location of Training \_\_\_\_\_

Trainer Signature \_\_\_\_\_

Supervisor Signature \_\_\_\_\_

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