



Comhairle Chontae Uíbh Fhailí
Offaly County Council

Offaly County Council
Winter Service Plan 2020 - 2021

October 2020

Document Control

Revision	Status	Revision by	Date
1	Draft	Hugh McConnell	9/9/2020
2	Final	Jean Ryan	12/10/2020

Approval List

Role	Name	Date
Winter Service Engineer	Hugh McConnell	12/10/2020
Senior Engineer	Jean Ryan	12/10/2020
Director of Services	Tom Shanahan	12/10/2020

Distribution List

Issue To	Organisation	Location
Duty Engineers		
John Mitchell	Birr Municipal District	Civic Offices, Birr
John Connelly	Tullamore Municipal District	Town Hall, Tullamore
Mark Mahon	Edenderry Municipal District	Town Hall, Edenderry
Willie Ryan	Offaly County Council	Áras an Chontae, Tullamore
Hugh McConnell	Offaly County Council	Áras an Chontae, Tullamore
Brendan O'Brien	Offaly County Council	Machinery Yard, Tullamore
General Service Supervisors		
Joe Mannion Billy Dooley	Birr Municipal District South	Civic Offices, Birr
Colm Heeney Gerry Gannon	Tullamore Municipal District	Machinery Yard, Tullamore
Bernard Kennedy Micheal Spain	Birr Municipal District North	Civic Offices, Birr, Ferbane
Brendan Kelly John O' Reilly	Edenderry Municipal District	Town Hall, Edenderry
Health and Safety Adviser		
Dennis Gibbons	Offaly County Council	Áras an Chontae, Tullamore
TII		
Stephen Smyth	TII	Park Gate Street Dublin

Purpose and Scope

The purpose of this document is to identify the processes, procedures and key personnel employed by Offaly County Council, to deliver the winter service operation for County Offaly.

Review of Winter Service Plan for Roads 2019 – 2020

A full review of last season's plan was undertaken. A review of the actual journey times taken as per GPS trackers vs calculated times were also completed.

All engineering areas for the forthcoming season will have dedicated salting units (1x12.5m³ unit in the Edenderry Municipal District and 3x9m³ in other regions).

The 3 Municipal Districts will be serviced from 2 depots – Birr servicing the Birr Municipal District (Birr North & Birr South) and Tullamore Servicing the Tullamore & Edenderry Municipal Districts. Brine manufacture and storage facilities are located at both depots alongside dedicated salt barns. The use of Brine ensures that all salt is now pre-wet and thus the volume of salt needed is significantly less than that of a dry salt operation (up to 30%).

The salting routes have been selected to remove (in a typical pre-salt operation) the requirement for refilling midway through the salting operation and to ensure that all 4 routes are completed within 4 to 5 hrs. All routes salted in 2019-2020 will continue to be salted.

Following agreement with Tipperary County Council some changes were made to the Birr North and Birr South Routes. Tipperary Co. Co. have agreed to treat the stretch of the R445 which is within County Offaly running south west towards Moneygall as indicated in purple on route map.

Offaly Co. Co. will in turn treat the sections of the N62 and R491 which are within Co. Tipperary North West of Roscrea and the section of the R438 from the Offaly/Tipperary County boundary to its junction with the R489 all shown in green on the route map. This change will assist better route efficiencies for both counties.

The treatment of the R440 and R441 from Birr to Cadamstown County boundary via Kinnitty which was previously in the Birr North route map has now been included in the Birr South route map in an effort to harmonise the overall travel times of the 4 routes within the County.

For 2019 – 2020 winter maintenance season, the R421 Killurin to Laois/Offaly County boundary was added to Tullamore salting route. Laois County Council agreed to salt from Coolagh Cross at R421/R422 junction to Laois/Offaly County boundary along the R421 as part of their northern route.

In addition, in 2018 we received a number of requests from emergency services to salt the R490 from Cloughjordan to Moneygall. The R490 was identified as an important emergency corridor to the M7 during Storm Emma in 2018. Following discussions, Tipperary County Council have agreed to treat the R490 from Cloughjordan to Moneygall and Offaly County Council will treat the R489 from Rockview to Riverstown as it would be mutually beneficial to both local authorities.

Traffic Counts

Traffic counts were undertaken on all Regional Roads in the County in May 2012 and subsequently in May 2019 on selected routes of our network. Changes to the 2013 – 2014 Winter Maintenance Plan resulted. The 2019 – 2020 Winter Maintenance Plan included 2 no. additional routes from Killurin to Laois/Offaly County boundary in addition to R489 from Rockview to Riverstown as mentioned in review above. This Traffic Data has been subsequently used to prioritise the addition of new routes since then.

Route Priorities

The Tullamore to Edenderry route via the R402 had been included as a priority 1 route in 2018/2019 plan.

The R420, Clara to M6 motorway had been included as a priority 1 route in 2018/2019 plan.

Priority zero routes have been included during extreme weather events following the experiences of Storm Emma in 2018. These are emergency corridors which must be kept open at all times and include:

- Shannonbridge Power Station on the L-90357-1
- Edenderry Power Station on the R401

The responsibility for the M7 Motorway was changed to the NRA (Now the TII) in 2013, but it still retains Priority 1 status.

Treatment Matrix

The treatment matrix was previously modified as the bulk of Offaly's operation incorporates prewet salt and thus a reduction in the salt requirement for prewet operations is now the norm incorporated in the matrix.

Policy

It is the intention of Offaly County Council to deliver a coordinated programme of winter service operations on routes of given designated priority. Routes are designated a priority rating of between 1 and 3 based upon the particular class of public road, traffic volumes carried and the importance of the route on a national, regional or local level. The priority rating assigned to a particular route also has an associated stated level of service to be delivered on the route. This Year in terms of traffic volumes the following rationale generally applies: -

Priority 1 - All National Roads & Regional Roads >5000 AADT

Priority 2 - All Roads 3000 - 5000 AADT

Priority 3 - All Regional Roads >1100 - 3000 AADT

The table below details the Routes of Designated Priority for inclusion in winter service operations: -

Route	Description	Level of Service
<p>Priority 1</p>	<p>Those routes which are essential to be kept serviceable in all weather conditions as far as reasonably practicable.</p> <p>Tullamore Municipal District M6 Motorway section thru Offaly Section* N52 Tullamore – Kilbeggan N52 Tullamore By Pass – Blueball N80 Charleville Roundabout – Killeigh Co Bdy R420 (Old N80) Clara -Tullamore R420 Bachelors Walk – Cloncollig Roundabout – Ballina X R420 Clara to M6 motorway</p> <p>Birr Municipal District M7 Motorway section thru Offaly Section* N62/N52 Roscrea - Kennedys Cross *** N52 Birr-Riverstown N52 Kennedys Cross-Fivealley N52 Fivealley – Blueball N62 Ballinahown - Cloghan N62 Cloghan - Galross Cross N62 Galross Cross-Kennedys Cross R445 Roscrea – Borris in Ossory**</p> <p>Edenderry Municipal District R402 Edenderry - Enfield R402 Edenderry - Ballina Cross</p> <p>* These Sections of Motorway now form part of TII MMARC Contracts</p> <p>**A short Section of this Route Transverses Offaly and is treated by Laois Co. Co.</p> <p>*** 2.5km of this section of Roadway is in Tipperary but will be treated Offaly Co. Co</p>	<p>To be treated during all weather events</p>

<p>Priority 2</p>	<p>Those routes which are desirable to be kept serviceable in the normal winter weather conditions, as far as reasonably practicable.</p> <p>Tullamore Municipal District R421 TTC Office – Arden Jn on By Pass</p> <p>Birr Municipal District R438 Cloghan – Taylors Cross R439 Taylors Cross to Birr</p> <p>Edenderry Municipal District R420 Ballina Cross - Portarlinton R419/R442 Portarlinton – Clonbullogue</p>	<p>To be treated as part of the normal winter service but may be dropped if salt supply is low / Interruptions to treatment in severe weather events</p>
<p>Priority 3</p>	<p>Those routes that could be kept serviceable once Priority 1 and 2 routes have been treated, if resources allow</p> <p>Tullamore Municipal District R436 Clara – Kilbeggan Mucklagh Village R421 Ballard Roundabout – Laois/Offaly County boundary via Killurin R446 (Old N6) Moate – Horseleap* L02025 Tullamore to Ballinagar</p> <p>Birr Municipal District R356 Wynnes Cross - Banagher R436 Ferbane – Clara R439 Taylors Cross to Banagher (County Bounds) R440 Birr – Kinnitty – Cadamstown (County Bounds) R357 Blueball – Shannon Bridge R438 Taylors Cross to junction with R489***** R489 Rockview to Riverstown***** R445 (Old N7) – South of Moneygall (County Bounds) – Roscrea North of Dunkerrin (County Bounds)**** R491 Shinrone – Roscrea ***** R491 Shinrone – Cloughjordan (County Bounds) R492 Sharavogue – Shinrone R490 Cloughjordan-Moneygall*****</p>	<p>To be treated as part of the normal winter service but may be dropped if salt supply is low / Interruptions to treatment in severe weather events</p>

	<p>Edenderry Municipal District R423 Portarlinton – Mountmellick (County Boundary) R401 Clonbullogue - Edenderry R401 Edenderry towards Kinnegad** R401 Clonbullogue to Rathangan*** R400 Rhode - Motorway interchange***** R400 Rhode - Mountlucas R441 Edenderry to Rhode R401 Edenderry-Kildare Co Boundary</p> <p>*This Section of Roadway is to be treated by Westmeath Co. Co.</p> <p>**6km of this Section of Roadway is in Kildare but will be treated by Offaly Co. Co.</p> <p>***This section of Roadway is to be treated by Kildare Co. Co. 3km in Co. Offaly</p> <p>****This Section Treated by Tipperary Co. Council 11.4km</p> <p>***** Part of this section of Roadway is in Tipperary but will be treated Offaly Co. Co.</p> <p>*****1.2km of this stretch is in Westmeath but treated by Offaly Co. Council</p> <p>*****This section of Roadway is to be treated by Tipperary Co. Co. 6.5km in Co. Offaly</p>	
<p>Priority 0</p>	<p>Priority zero routes have been included as a result of extreme weather events following the experiences of Storm Emma in 2018. These are emergency corridors which must be kept open at all times and include:</p> <ul style="list-style-type: none"> • Shannonbridge Power Station on the L-90357-1 • Edenderry Power Station on the R401 	<p>To be treated in extreme weather events only.</p>

Note 1: Locations other than those listed above may be treated as the need arises and this will generally be carried out during normal working hours and is very much dependent on the generally limited resources which are made available at a local level.

Note 2: It should be noted that the R440 Kinnitty to Mountrath Road is not included for winter service treatment and in the event of severe weather conditions this route may require to be closed to the public.

Treatment Route	Priority 1	Priority 2	Priority 3	Priority 0
Mobilisation Time	1 hr	1 hr	When possible	When necessary
Target Treatment Time	2 hr	4 hrs	When possible	When necessary

Community Involvement during Severe Weather Events

Individuals

Where possible, elderly and vulnerable members of the community should be visited by neighbours during the winter period and more importantly during periods of severe weather, to ensure that they have an adequate supply of fuel, food and provisions to sustain their wellbeing.

Appropriate clothing & suitable footwear with adequate grips should be purchased and available for use when required.

Unnecessary travel during periods of severe weather should be avoided if at all possible. Those taking to the roads should do so with due care and attention considering the conditions to be encountered. Road users should **not** assume that roads included in the winter service plan have been treated and are free of ice at all times. Motorists and pedestrians are requested to make themselves aware of the Road Safety Authorities guide to driving in winter conditions.

Regular updates will be available during severe weather periods on www.offaly.ie, Offaly social Media platform and through local broadcast media.

Individuals are referred to the Householders Guide for Emergencies which can be found at www.offaly.ie for additional helpful information on managing in severe weather events.

Schools and Community Groups

Schools and Community Groups are advised to plan ahead for severe weather events and to make the necessary arrangements to have sufficient supplies of materials, plant and equipment in storage or available to them to cater for their anticipated needs during such events. Materials and equipment should be acquired in a timely manner in advance of the winter season while stocks are readily available.

Business Sector

People are requested to assist efforts in periods of severe weather by clearing snow and ice from footpaths in front of their homes & business premises. Legal opinion on the matter states that no legal liability exists to those carrying out such works once they are executed in a safe manner. It should be noted that the application of hot water to remove snow and ice from footpaths is not a safe or an acceptable method as more often than not the water freezes and exasperates the initial problem.

Agricultural Sector

The Local Authority will endeavour to work with rural communities & the IFA where possible. The treatment of rural roads by third parties should be carried out in accordance with national policy once published.

Map of the Service Plan Area

A map of the area covered by the Winter Service Plan is attached in Appendix A.

Rosters

Rosters have been prepared & distributed to relevant personnel involved with the delivery of winter service operations.

Contact Details

Shown below are the contact details for the individuals named in the plan.

Offaly County Council Duty Engineers		
John Connolly	057 9352470	Area Engineer Tullamore
John Mitchell	057 9124900	Area Engineer Birr
Mark Mahon	046 9731256	Area Engineer Edenderry
Willie Ryan	057 9346816	A/Senior Executive Engineer Roads
Hugh McConnell	057 9346751	Winter Service Manager
Brendan O’Brien	057 9325104	Machinery Yard Supervisor
Jean Ryan	057 9346808	A/ Senior Engineer Roads
Met Eireann		
01 8065550 / 01 8064219 / 01 8064255		
Technical support for the Bureau Weather Service		
0044 121 683 1269		
Garda Stations		
Tullamore	057 9327600	
Birr	057 9169710	
Edenderry	046 9731090	
Adjoining Local Authority Winter Service Managers		
Edmond Kenny	Laois County Council	
Damien Grennan	Westmeath County Council	
Tom O’Donnell	North Tipperary County Council	
Brendan J. Sinnott	Kildare Laois County Council	
Ambulance and fire department		
Dial 999 or 112		
Emergency out of hours contact		
1890 750 750		

Decision Matrix

The table below indicates the decision matrix used by the Duty Engineer when deciding on a winter service call out

Road Surface Temperature	Precipitation	Predicted Road Conditions		
		Wet	Wet Patches	Dry
May fall below 1°C	No rain No hoar frost No fog	Salt before frost	Salt before frost (see note a)	No action likely monitor weather (see note a)
Expected to fall below 1°C	No rain No hoar frost No fog			
	Expected hoar frost Expected fog			
	Expected rain before freezing	Salt after rain stops (see note c)		
	Expected rain during freezing	Salt before frost, as required during rain and after rain stops (see note d)		
	Possible rain Possible hoar frost Possible fog	Salt before frost	Monitor weather conditions	
Expected Snow	Salt before snow fall			
<p>The decision to undertake precautionary treatments should be, if appropriate, adjusted to take account of residual salt or surface moisture.</p> <p>All decisions should be evidence based, recorded and require careful monitoring and review.</p>				

Notes:

- (a) Particular attention should be given to the possibility of water running across carriageways and other running surfaces e.g. surface water off adjacent fields after heavy rains, washing off salt previously deposited. Such locations should be closely monitored and may require treating in the evening and morning and possible other occasions. Ideally the source of the run-off should be diverted from the roadway.
- (b) When a weather warning contains reference to expected hoar frost, considerable deposits of frost can occur. Hoar frost usually occurs in the early morning and is difficult to cater for because of the probability that any salt deposited on a dry road too soon before its onset, may be dispersed

before it can become effective. Careful monitoring is required under this forecast condition which should ideally be treated just as the hoar frost is forming. Such action is usually not practicable and salt may have to be deposited on a dry road prior to but as close as possible to the expected time of the condition. Hoar frost may also be forecast at other times of the day, in which case the timing of salting operations should be adjusted accordingly.

- (c) If under these conditions, rain has not ceased by early morning, crews should be called out and action initiated as rain ceases.
- (d) Under these circumstances rain will freeze on contact with running surfaces and full precautionary treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and carefully throughout the danger period.

Treatment Matrix

The following table illustrates the treatment matrix to be used for dry unmodified salt. If using materials other than dry unmodified salt, a modified version of this table should be prepared and included in this Winter Service Plan which shall be based on documented evidence and the specification of suppliers.

Treatment Matrix Guide for Salt

Weather Conditions Road Surface Conditions Road Surface Temperature (RST)	Treatment				
	Air Temp	Dry Salt Spread Rate (gm/m ²)	Prewet Salt Spread Rate (gm/m ²)	Brine Salt Spread Rate (gm/m ²)	Ploughing
Frost or forecast frost RST at or above -2°C on dry or damp road conditions		10 Also refer to Note (b)	7.5 Text instruction to drivers: 10grms/m ² prewet	15gm/m ² on dry or damp roads 18gm/m ² on wet roads	No
Frost or forecast frost RST below -2°C and above -5°C on dry or damp road conditions		20	15 Text instruction to drivers: 20grms/m ² prewet	27gm/m ² on dry or damp roads 48gm/m ² on wet roads	No
Frost or forecast frost RST below -5°C and above -10°C and dry or damp road conditions		20	15 Text instruction to drivers: 20grms/m ² prewet	N/A	No
Frost or forecast frost RST below -5°C and above -10°C and wet road conditions existing or anticipated		2 runs X 20	2 runs X 15 Text instruction to drivers: 2 x 20grms/m ² prewet	N/A	No

Weather Conditions Road Surface Conditions Road Surface Temperature (RST)	Treatment				
	Air Temp	Dry Salt Spread Rate (gm/m ²)	Prewet Salt Spread Rate (gm/m ²)	Brine Salt Spread Rate (gm/m ²)	Ploughing
Light snow forecast (<10mm)		20	15 Text instruction to drivers: 12grms/m ² prewet	N/A	No
Forecast for Medium/heavy snow or a freezing rain forecast		2 runs X 20	2 runs X 15 Text instruction to drivers: 2 x 20grms/m ² prewet	N/A	No
Ice formed	Above -5°C	20	15 Text instruction to drivers: 20grms/m ² prewet	N/A	Not possible
Ice formed	At or below -5°C	2 runs X 20	2 runs X 15 Text instruction to drivers: 2 x 20grms/m ² prewet	N/A	Not possible
Snow covering exceeding 30mm		20 to supplement ploughing, up to 40 if temperatures are falling	20 to supplement ploughing, up to 40 if temperatures are falling	N/A	Required
Snow accumulations due to prolonged falls		20 to 40 to supplement ploughing	20 to 40 to supplement ploughing	N/A	Required

Weather Conditions Road Surface Conditions Road Surface Temperature (RST)	Treatment				
	Air Temp	Dry Salt Spread Rate (gm/m ²)	Prewet Salt Spread Rate (gm/m ²)	Brine Salt Spread Rate (gm/m ²)	Ploughing
Hard packed snow/ice	Above -8 °C	Successive treatments at 20 to 40 repeat as needed	Successive treatments at 20 to 40 repeat as needed	N/A	Not possible
Hard packed snow/ice	At or below -8 °C	Successive treatments at 20 to 40, supplemented by abrasives repeat as needed	Successive treatments at 20 to 40, supplemented by abrasives repeat as needed	N/A	Not possible
Sustained low temperatures	Below -1 0°C	Successive treatments at 20 to 40	Successive treatments at 20 to 40	N/A	Not possible

Notes

- (a) Rate of spread for precautionary treatments may be adjusted to take account of variations occurring along the route such as residual salt, surface moisture in the air or on the road surface) and traffic density.
- (b) All decisions should be forecast based, recorded and require careful monitoring and review.
- (c) Ice refers to all ice on the road surface, including black ice.
- (d) Brine only spread rates received from TII via email 10th October 2019.
- (e) Boschung brine unit spread rates are in g/m². The density has been taken as the value of 1.2 g/ml³ which is correct for a fully saturated Sodium Chloride brine at 0°C and within 3% for any concentration over 22% at temperatures between 0°C and 10°C Bunce, 11th November 2019.
- (f) Spread Rates are for dry road conditions unless indicated otherwise.
- (g) Spread Rates for Brine salting are for brine of concentration between 20% to 23%.

Target Spread Rates by Location

Location	Salt Spread Rate
Carriageways	As described in the Treatment Matrix Guide
Hard shoulder or carriageway marginal strips	50% of selected treatment
Porous Surfacing	<u>Plus</u> 25% of selected treatment
Footways, cycle tracks and pedestrian areas	25 gm/m ²

Plant, Vehicles and Equipment

The table which follows details the plant and equipment available to Offaly County Council to delivery winter service operations

Gritters

De-mountable / dedicated gritter	Age	Capacity	Speed Related Spreading	Spreading Rate Range	Using GPS or GPS Enabled
	Years	m ³	Y/N	Y/N	Y/N
No.1 Tullamore demountable gritter	3	11.55	Y	Y	Y
No.2 Birr demountable gritter	8	9	Y	Y	Y
No. 3 Ferbane demountable gritter	10	9	Y	Y	Y
No. 4 Edenderry Hired dedicated gritter	10	9	Y	Y	Y
Spare Lorry 12 with demountable gritter	3	9	Y	Y	Y
Spare Lorry 7 dedicated gritter	8	12.5	Y	Y	Y
Spare Lorry 4 demountable gritter	10	6	Y	Y	Y

Notes: Gritters are to be permanently mounted during holiday periods. 4nr. 5m³ Demountable Gritters are on standby for breakdowns or severe weather events.

Mini Tow Gritters	Age	Capacity	Speed Related Spreading	Spreading Rate Range	Using GPS or GPS Enabled
	Years	m ³	Y/N	Y/N	Y/N
5	18	1	N	Y	N
6	18	1	N	Y	N
7	18	1	N	Y	N
8	18	1	N	Y	N
Mini Demountable Gritters					
9	18	1	N	Y	N
10	9	1	N	Y	N
11	9	1	N	Y	N

Snow Ploughs

Plough Name & Location	Age	Automatic/Manual Loading
	years	
No.1 Tullamore	12	Automatic
No.2 Birr	7	Automatic
No.3 Ferbane	12	Automatic
No.4 Edenderry	12	Automatic

Note: - 1 additional Snow Plough is on Standby for breakdowns or severe weather events.

Details of Depots

Map Ref.	Salt Depots	Routes Serviced	Indoor or Outdoor	Max Capacity	Minimum salt levels at:		
					1 st Oct	15 th Dec	1 st Mar
SD 1	Machinery Yard Ballydrohid Tullamore	N52 N80 R420 R421 R423 R436 R446 R400 R401 R402 R419/R442 R441 L2015	Indoor	800	800	TBC	TBC
SD 2	Croghan Road Birr	N52 N62 R356 R357 R436 R438 R439 R445 R491 R492 R489	Indoor	1000	1000	TBC	TBC
TOTALS				1800	1800	TBC	TBC

Materials and Spares

Salt

The salt for Winter Service Operations is now supplied by the TII & the Department of Transport through a framework agreement for the supply of de-icing materials. Orders for de-icing materials are to be sent to salt@nra.ie and shall be coordinated through Offaly County Council Machinery Yard Supervisor. Contact details are as follows: Phone: 057 9325104 Email: bobrien@offalycoco.ie

Fuel

Fuel for the winter service period is stored in the Machinery Yard Depot in Ballydrohid & the yard in Birr. The Municipal Districts Depots have standby supplies which could be used as required. The minimum level of fuel to be maintained at any supply source is 50% of its capacity. The Machinery Yard Clerical Officer is responsible for re-ordering of fuel and should be contacted when fuel reserves are approaching 50% of capacity. Contact details are as follows: Phone: 057 9325102 Email: jotoole@offalycoco.ie

Spares

Spare parts for winter service machinery are stored at the Machinery Yard, Ballydrohid, Tullamore. Mr. Brendan O'Brien Machinery Yard Supervisor is responsible for the ordering of all parts associated with the maintenance or repair of Offaly County Councils Winter Service Fleet. The Machinery Yard Supervisor should be contacted immediately in the event of a failure or breakdown of any piece of winter service plant or equipment. Contact details for Mr. Brendan O'Brien are as follows: Phone: 057 9325104 Email: bobrien@offalycoco.ie

Route Cards and Treatment Routes

The route cards and treatment maps below have been calculated and structured based on route priorities and traffic counts. In general, the direction and order of treatment will follow the Route cards below unless specific circumstances or unforeseen instances dictate otherwise.

ROUTE CARD FOR PRECAUTIONARY TREATMENT ROUTES IN BIRR MUNICIPAL DISTRICT – BIRR NORTH

Road	From	To	Action	Free run km	Spreading Distance km	Average Speed km/hr	Time mins
L-1077 R439 N52	Birr Depot	Kennedys Cross	Travel	3.1	--	35	5.3
N62	Kennedys Cross	Ballinahown	Salt	--	27.9	41.85	40
N62	Ballinahown	Ferbane	Travel	10	--	49	12.3
R436	Ferbane	Bridge Street Clara	Salt	--	17.5	35	30
R436	Bridge Street Clara	Ferbane	Travel	17.5	--	35	30
N62 R357	Ferbane	Shannonbridge County Boundary via Cloghan	Travel / Salt	6.4	13.1	41	28.4
R357	Shannonbridge County Boundary	Cloghan	Travel	13.1	--	42	18.7
R356	Cloghan	Wynnes Cross	Travel	2.5	--	43	3.5
R356 / R439	Wynnes Cross	Banagher Corrigan's Corner	Salt	--	5.8	42	8.3
R439	Banagher Corrigan's Corner	East End of Relief Road	Travel	1.2	--	34	2.1
Local / R439	East End of Relief Road	Banagher County B via relief road	Salt	--	2.9	42	4.1
R439 / L-01077	Banagher County Boundary	Birr Depot	Travel / Salt / Travel	0.85	11.45	42	17.6
Totals				54.7	78.7		200
Route Efficiency				59%			

Note: Time taken to reload not included

ROUTE CARD FOR PRECAUTIONARY TREATMENT ROUTES IN BIRR MUNICIPAL DISTRICT – BIRR SOUTH

Road	From	To	Action	Free run km	Spreading Distance km	Average Speed km/hr	Time mins
R439	Birr Depot	Emmet Square	Travel/Salt	0.25	0.75	20	3
N52	Emmet Square	Blueball	Salt	--	25.7	48	32
R357	Blueball	Cloghan	Salt	--	18.4	42	26
R438 / R356	Cloghan	Junction R438 with R489 Tipperary	Salt	--	16.3	43	23
R489	Junction R438 with R489 Tipperary	Junction R489 with N52	Travel	--	6.1	41	9
N52	Junction R489 with N52	Junction with N62 Tesco Roundabout	Salt	--	1.5	35	2.6
N62	Junction with N62 Tesco Roundabout	N62 Junction with Mains street Roscrea	Salt	--	18	42	26
R421/ R491	N62 Junction with Main Street Roscrea	Shinrone	Travel/ Salt	0.8	9.5	41	15
R491	Shinrone	R491 Derrinclare, Cloughjordan rd County B	Salt	--	5.2	42	7.5
R491/ R492	R491 Derrinclare Cloughjordan Road County B	Juction R492 with N62 at Sharavogue	Travel/ Salt	5.2	6.2	41.5	16.5
N62	Junction R492 with N62 at Sharavogue	Junction with N52 Tesco Roundabout	Travel	6.5	--	41	9.5
N52/R440/ R421	Junction with N52 Tesco Roundabout	Cadamstown County Boundary via Kinitty	Salt	--	21.5	50	26
R421/ R440/N52	Cadamstown County Boundary via Kinitty	Birr Depot	Travel/ Salt/T	21.4	0.15	46	28
Totals				34.15	129.3		224
Route Efficiency				79%			

Note: No account made for time taken to reload gritter

ROUTE CARD FOR PRECAUTIONARY TREATMENT ROUTES IN TULLAMORE MUNICIPAL DISTRICT

Road	From	To	Action	Free run km	Spreading Distance km	Average Speed km/hr	Time mins
R443 / R414	Machinery Yard	Arden Roundabout	Salt	--	2.7	24	6.7
N52 / R389	Arden Roundabout	Kilbeggan	Salt	--	10	50	12
R446 Old N6	Kilbeggan	Clara Road Junction	Travel	0.7	--	32	1.3
R436	Clara Road Junction	Bridge Street, Clara	Salt	--	7.8	50	9.3
R420 Old N80	Bridge Street Clara	County Boundary Junction R446	Travel	9	--	45	12
R420	County Boundary R446	Junction R420 with R421	Salt	--	19	48	24
R421	Junction R420 with R421	Arden Junction on Bypass	Salt	--	1.7	50	2.7
N52	Arden Junction on Bypass	Arden Roundabout	Travel	1.91	--	38	2.7
N52	Arden Roundabout	Blueball	Salt	--	15.4	50	18.6
N52	Blueball	Mucklagh Junction	Travel	3.7	--	56	4
L2030	Mucklagh Junction	Mucklagh Roundabout via Mucklagh	Salt	--	2.4	36	4
L2030	Mucklagh Roundabout	Screggan Junction Mucklagh	Travel	1.8	--	27	4
L2011 / L2007	Screggan Junction Mucklagh	Ballydrohid via Rahan	Salt	--	12.7	25	30
R443 / R441	Ballydrohid	Charleville Roundabout	Salt	--	4.9	32	9.3

Road	From	To	Action	Free run km	Spreading Distance km	Average Speed km/hr	Time mins
N52	Charleville Rndbt	N52/N80 Roundabout	Travel	3	--	45	4
R421	N52/N80 Roundabout	County Boundary at Black River	Salt	--	12.9	52	15.3
R421 / L2002 / N80	County Boundary at Black River	Killeigh Co. Boundary	Travel	15.2	--	43	20.6
N80 / R443 / R421	Killeigh County Boundary	Harbour St via High St. Rndbt)	Salt	--	10.9	41	16
R420	Harbour Street	Ballina Cross	Salt	--	9.7	49	12
R402	Ballina Cross	Ballinagar	Travel	3.4	--	51	4
L02025 /R420 / L02026 / R443	Ballinagar	High St. Roundabout salt Bachelors Walk)	Salt / Travel / Salt / Travel	0.9	10.8	44	16
R421	High Street Roundabout	Kilcruttin Junction	Salt	--	0.4	18.5	1.3
R443	Kilcruttin Junction	Machinery Yard	Travel	2.4	--	36	4
Totals				42.01	121.3		233.8
Route Efficiency				74.2%			

Note: No account made for time taken to reload gritter, travel time only

**ROUTE CARD FOR PRECAUTIONARY TREATMENT
ROUTES IN EDENDERRY MUNICIPAL DISTRICT**

Depot: Council Depot, Edenderry

Drivers/Teams: As Per Roster

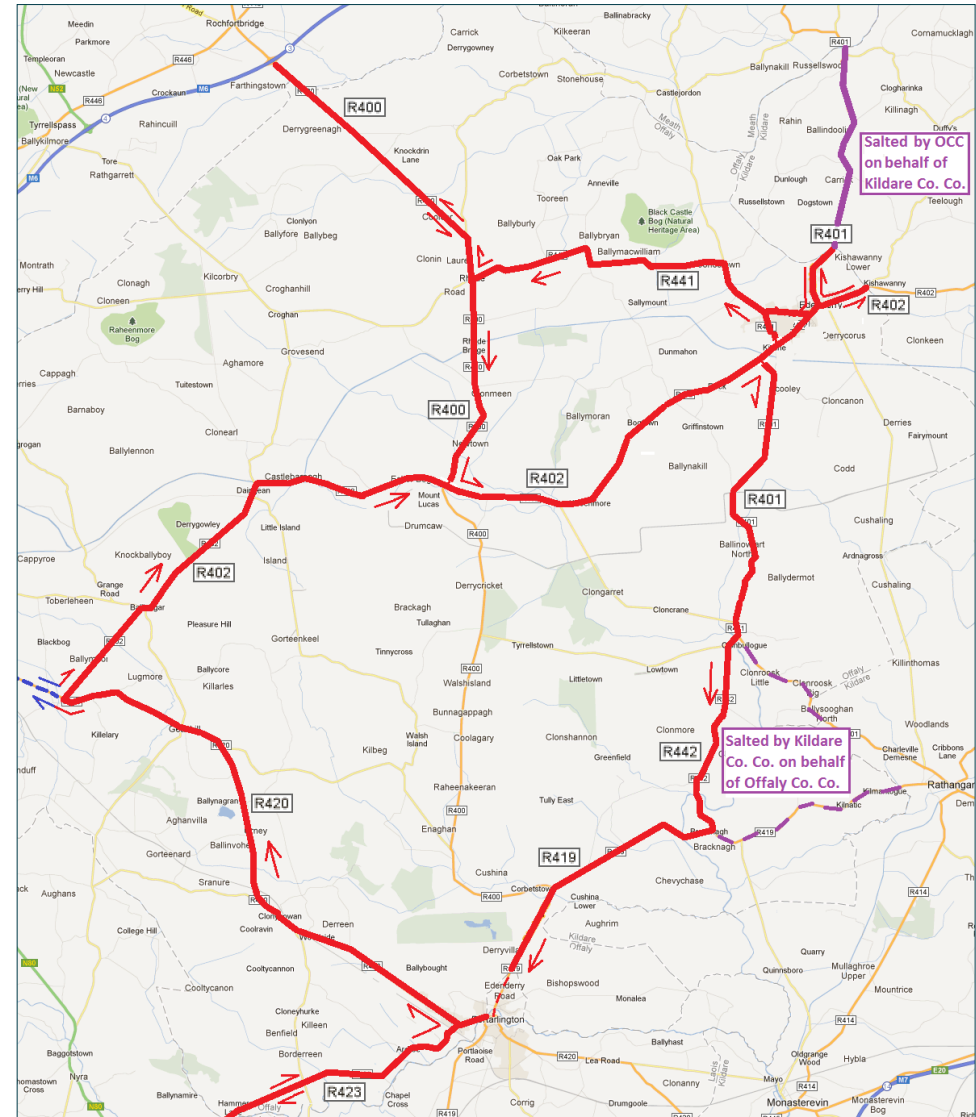
Vehicle: 16.25 Tonne Lorry & Gritter 12.5m³

Average Speed for route: 51 km/hr

Average spread width for the route: 7.5 m

Route Tonnage at 7.5 / 10 / 15 / 20 / 25 / 40 gms/m²

6.2 / 8.22 / 12.3 / 16.44 / 20.55 / 32.88 tonnes



ROUTE CARD FOR PRECAUTIONARY TREATMENT ROUTES IN EDENDERRY MUNICIPAL DISTRICT

Road	From	To	Action	Free run km	Spreading Distance km	Average Speed km/hr	Time mins
R420 / N52 / R420	Machinery Yard	Ballina Cross	Travel	12.4	--	50	16
R402	Ballina Cross	County Boundary Kildare Kishawanny	Salt	--	28.4	60	30
R402 / R401	County Boundary Kildare Kishawanny	County Boundary Meath R401	Travel / Salt	1.5	8	40	12.3
R401 / R402 / R441 / R400	County Boundary Meath R401	M6 interchange north of Rhode via Rhode	Travel / Salt	8.5	19.5	50	35.3
R400 / R402	M6 interchange north of Rhode	Edenderry Junction with R401 via Mountlucas	Travel / Salt / Travel	19.3	6.2	60	27.3
R401 / R442 / R419	Edenderry Junction with R401	Cushina County Boundary Portarlinton via Clonbullogue / Bracknagh	Salt	--	22.7	50	29.5
R419 / R420 / R423	Cushina	County Boundary R423 via Garryhinch Cross	Travel / Salt	1.6	8.4	50	12.8
R423 / R420	County Boundary R423	Ballina Cross via Portarlinton	Travel / Salt	7.6	16.4	60	25.7
R420 / N52 / R420	Ballina Cross	Machinery Yard	Travel	12.4	--	50	16
Totals				63.3	109.6		205
Route Efficiency				63.39%			

Note: No account made for time taken to reload gritter, travel time only