

Constraints

- The road weather forecasts are 85% accurate. This can mean that there are 10 days in a winter when frost is not forecast, but actually occurs. There are also significant local weather variations that are difficult to forecast.
- Salt is ideally spread before the road becomes icy or snow starts to fall. However, salt is NOT normally spread during rain, as the salt will simply wash away. Salt is also not spread on roads expected to remain dry when the temperature falls below zero.
- It can often take 2 hours for spreaders to salt a route. It will therefore be 2 hours before some roads are treated.
- Even when an accurate forecast is available, there are situations where a local authority may not be able to prevent ice forming:
- On a wet night followed by rapidly clearing skies, salting will normally start after the rain has stopped. The temperature may fall rapidly and roads freeze before arrival of a salt spreader.
- “Dawn frost” – On a dry road, this involves the development of an early morning dew that falls on a cold road and freezes on impact. This situation is impossible to forecast accurately at present.
- Rush hour – When ice or snow formation coincides with rush hour traffic and early salting has not been possible e.g. due to rain, the salt spreaders cannot achieve adequate coverage of the network due to traffic congestion.
- Snow can be more difficult to forecast and counteract than ice.
- When snow is forecast, salt is spread before the event. However salt alone has limited effect on snow. If snow starts to accumulate, there is little that can be done until it becomes deep enough to plough. The actions of ploughing, spreading of salt and vehicles running on the snow help to clear the roads.
- Snow clearance is a much slower operation than ice removal. Whereas a salter can treat a full road width in a single pass a snow plough needs to travel in both directions. Also the speed of a plough is much less as it is subject to delay from parked or abandoned cars, snow drifts etc. Plant can be delayed getting to where it is needed in snow.
- Salt does not act immediately when it is spread on existing ice or snow (Hence the need for precautionary salting). The ice or snow surrounding each salt granule has to be turned into a saline solution. The action of traffic is essential by moving the salt granules around and eventually melting all the ice or snow. On more lightly trafficked roads the surface will remain icy for some time after salting.

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Safe Driving Tips

Play your part

Despite everyone's best efforts, there is no guarantee that roads will always be completely free of snow and ice. Although forecasting systems have improved, unexpected weather changes still occur. In adverse weather, difficult and dangerous driving conditions should be anticipated. The following advice is given for those driving during the winter months and especially during periods of severe weather:

Make sure you can see

- Ensure your windscreen and all windows are clear and unobstructed
- Windscreen wipers and washers are working effectively
- Washer bottle is topped up with screen wash suitable for the time of year
- All lights and indicators are clean and working properly
- You have a screen scraper and de-icer

Make sure you can be seen

If visibility is poor during the day due to heavy rain, snow, fog or mist, turn on your headlights so that your vehicle can be seen.

If visibility is seriously reduced, turn on your rear foglights. But remember to turn them off when the visibility improves so as not to dazzle other road users.

Get a grip on the road surface

In wet and freezing conditions the grip between your tyres and the road is severely reduced.

Make sure your tyres (including the spare) have plenty of tread depth, are in good condition and are inflated to the correct pressure.

Avoid breakdowns

- Ensure your vehicle is well maintained and serviced for winter conditions.
- The cooling system contains sufficient anti-freeze
- The battery is in good condition, topped up and fully charged

Before commencing your journey

- Check the weather forecasts;
- Consider if the journey is necessary;
- Consider alternative routes;
- Allow sufficient time for the journey taking account of the weather conditions.

During your journey

- Watch your speed. Drive with regard to the road conditions and the speed limit.
- Watch for cold shaded spots and road bridges.
- Be aware that in poor weather conditions it may be difficult to read information on road traffic signs.
- Avoid harsh braking and acceleration.
- Travel in the highest gear possible in icy conditions.
- Maintain a safe stopping distance at all times, remembering to increase this in wet or icy conditions.
- Salting vehicles spread salt across the full width of roads. Give space to salt spreaders and to snow ploughs. Do not overtake.
- Watch out for other road users – motorcycles, cyclists, pedestrians and horse riders.
- Use dipped headlights in poor visibility.
- Take breaks every 2/3 hours. In adverse conditions driver fatigue can be increased and frequent breaks are required.

Equipment to carry on long journeys

mobile phone

additional warm clothing

torch

rug or blanket

shovel

flask of hot drink or food

radio

If stranded

- If your vehicle breaks down, pull as far off the road as possible. Your greatest personal danger at this point is that of being hit by passing vehicles.
- Try to ensure that your vehicle will not block access for emergency vehicles. (Abandoned and stationary vehicles are the main causes of salt spreaders being obstructed).
- Remain with your vehicle unless shelter is nearby.
- Maintain your circulation by moving your body.
- Use the engine to keep warm, unless the exhaust cannot vent in which case switch off the engine.
- Ensure that airway is maintained if snowed over.



Safe Winter Driving

NRA
National Roads Authority
An tÚdarás um Bóithre Náisiúnta

Keeping Traffic Moving

The winter maintenance service

The NRA in conjunction with the local authorities is responsible for over 5000 km of National Primary and Secondary Roads. A key aim is to keep these roads safe and as free as possible from wintry hazards. For every Euro spent on the winter service approximately 8 Euro is saved in reduced accidents, traffic delay and production costs.

The local authorities therefore spread salt before ice or snow is expected. The timing of the salting is carefully judged to be completed before freezing occurs (called Precautionary Salting). If snow accumulates, then snow blades are required to help keep the roads clear.

The NRA is constantly striving to improve the winter maintenance service. However the NRA and local authorities have no statutory obligation to salt the roads.

Priority is given to the most heavily trafficked roads in carrying out salting operations i.e. salting resources are first focused on the busiest roads; motorways, dual carriageways and other National Primary Routes followed by the National Secondary Routes to maximise benefits to road users.

The winter maintenance season usually lasts from November to April but the service is provided outside this period when necessary.

Delivery of the service depends on receipt of weather forecasts. Accurate forecasting of road surface temperature and humidity is critical when conditions are marginal i.e. when temperatures are close to zero. A forecasting error of 1°C is unimportant when the temperature is at 5°C but it is significant when the temperature is near zero. Unfortunately Ireland has a high proportion of nights in the latter category.

Weather forecasts are only a guide. Local authority expertise is vital in deciding when to apply salt.



Road temperature

You may wake to find frost on your car and that the road has not been salted. This may be because the decision to salt is based on road temperature not air temperature.

Air temperature is not a good indicator of road temperature. In the autumn, the road pavement is often kept warmer than the air by the earth below which retains the summer heat. In spring the reverse is true. The road temperature can be colder than the air temperature because the ground below is still cold from winter.

The sun also has a strong influence. Dark coloured pavement absorbs the sun's heat quickly by day. This helps the melting process.

By night a dark road exposed to a clear sky radiates heat and cools quickly.

Air and road temperatures can differ by as much as 10°C.

Road bridges tend to cool before roads because they are exposed underneath and deprived of ground warmth.

Watching for ice and snow

The NRA operates a Road Weather Information System; <http://www.nra.ie/RoadWeatherInformation/>

This provides local authorities with real time weather data for their area and road weather forecasts that assist them in making informed decisions about salting. Fifty-four Road Weather Stations collect local meteorological data. This data and special road weather forecasts produced by Met Éireann are conveyed electronically to operational staff at each local authority.

Using forecasts

The local authority computers display thermal maps giving the variation in predicted road surface temperatures and condition (frost, ice, snow etc.) across the network of roads. The engineers can also view the road weather station data, providing them with actual real time information on weather, road surface temperature, road wetness and salt concentration, 24 hours a day. They also access weather radar to see locations of precipitation.

These facilities enable engineers to decide on the appropriate action for the salt spreader vehicles and for snow ploughing.

Arrangements

Precautionary salting may be carried out during the evening or early the next morning. Salting crews are normally held on alert at home and if ice or snow occur, are brought in early to do the precautionary salting and then to deal with problems as they arise.

In emergency conditions, considerable additional resources are mobilised. The list is extended when snow and ice persist.

Salt spreaders are used to distribute salt across road surfaces. Once the driver sets the rate of spread, it is maintained electronically irrespective of vehicle speed.

In the event of heavy snowfall, spreaders are transformed into snowploughs with special blade mounting equipment on the front of each spreader vehicle.

Resources

In severe weather, up to 200 spreaders can be mobilised. The local authorities have over 150 snowblades and blowers and have arrangements with private contractors that are implemented where appropriate.

Maximum salt storage is 20,000 tonnes of which 10,000 tonnes is in buildings (Salt Barns). This is regularly topped up during winter. Annual consumption is about 50,000 tonnes. The service costs about € 6 million annually.

About salt

Salt lowers the freezing point of water. Much of the salt used is of a type known as Rock Salt that comes from a mine at Carrickfergus. Marine Salt is also used. It is made by evaporation of sea water in warmer climates.

All salt is used responsibly with consideration given to minimising any possible impact on the environment. Spread rates vary between 10 grams/m² for precautionary treatment to 40 grams/m² on snow.



SPREADING OF SALT DOES NOT MEAN THAT THE ROAD SURFACE WILL NECESSARILY BE ICE-FREE. IN FREEZING CONDITIONS, ALWAYS DRIVE WITH GREAT CARE EVEN IF THE ROAD HAS BEEN SALTED!