

Responding to Severe Weather Events as a Road Operator

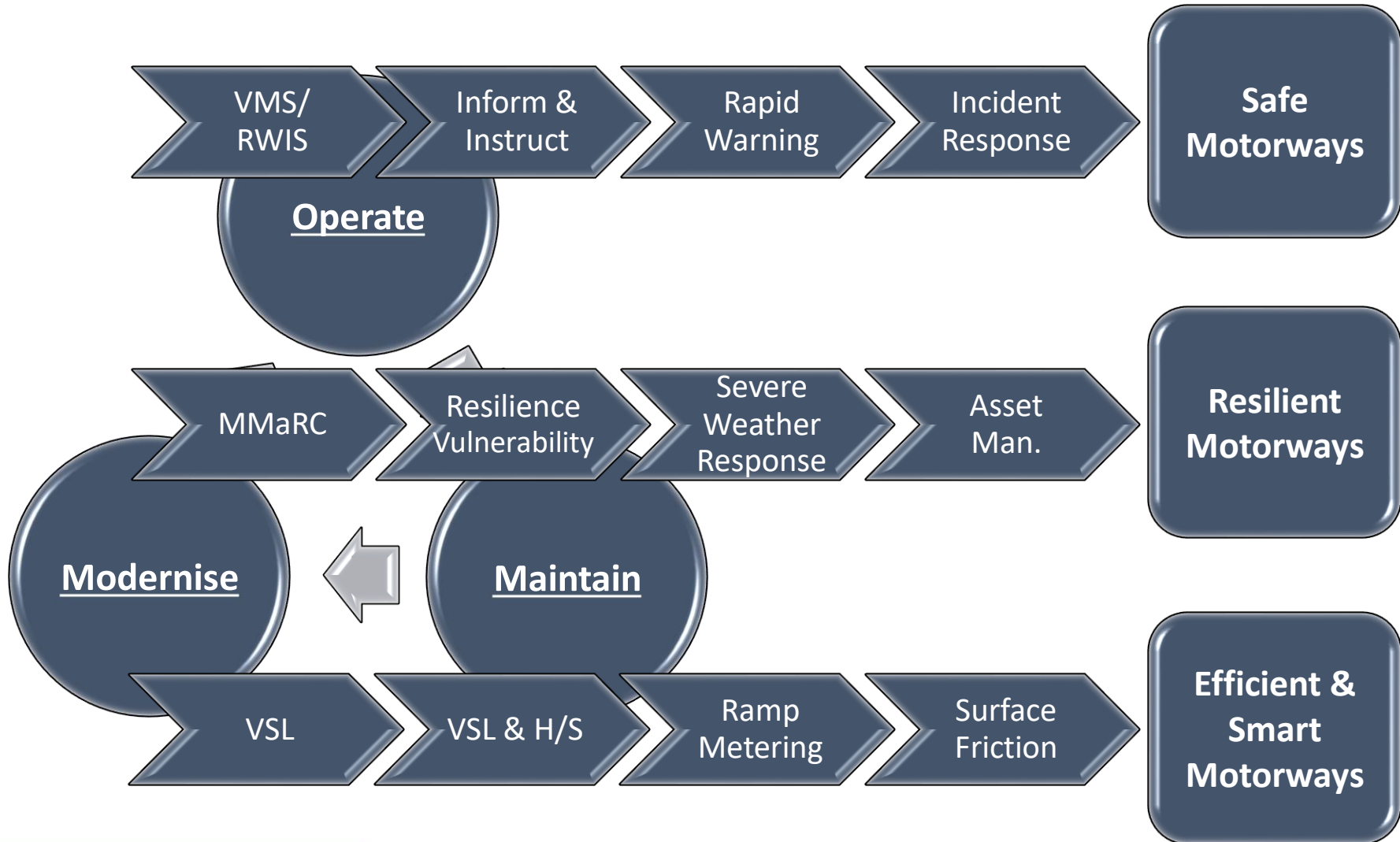
Stephen Smyth

Senior Manager - Pavement Asset Management & Winter Operations

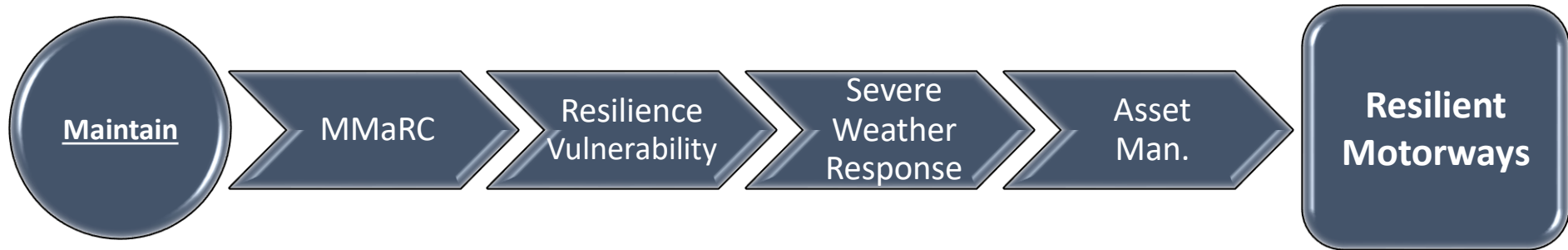
Introduction



Introduction



Introduction



Severe Weather Event – Storm Emma
26th February to 5th March 2018

Introduction

	Normal Resources		
MMaRC Network	A	B	C
No of gritters	14	17	20
No of Snow Ploughs	20	26	26
Additional winter fleet	8	7	12
Totals:	42	50	58
Salt (tonnes)	4,500	9,000	11,000

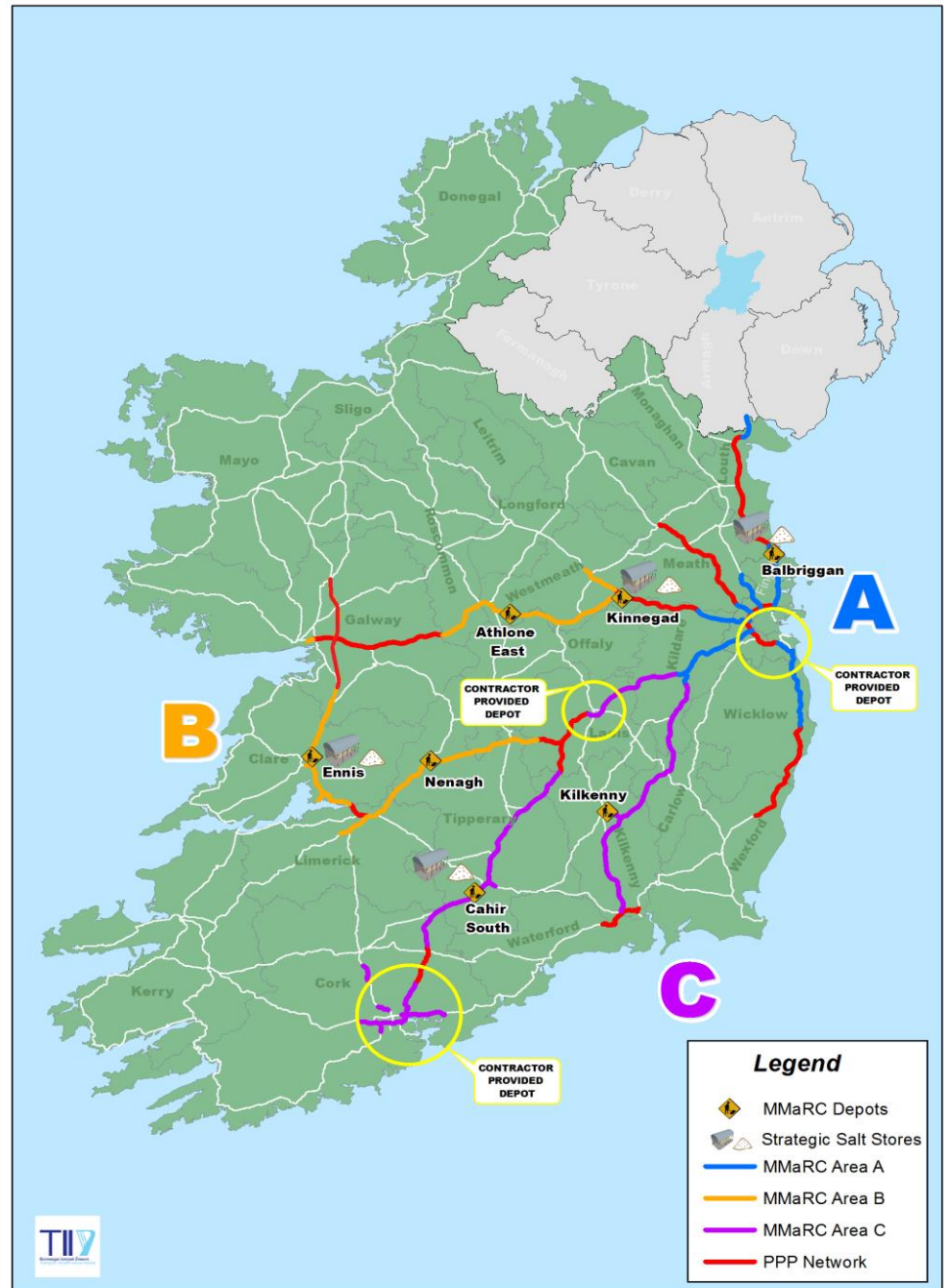
- Response time 1 hour.
- Treatment time 2.5 hours.
- Operational salt stockpile sufficient to cover 63 runs at 25g/m².

Contractors

GSJ Ltd – Network A.

Colas Roadbridge – Network B.

Egis Lagan – Network C.



Forecasts

- **Wednesday 21st February - Met Éireann predicted potential snow for mid next week.**

Operational Response

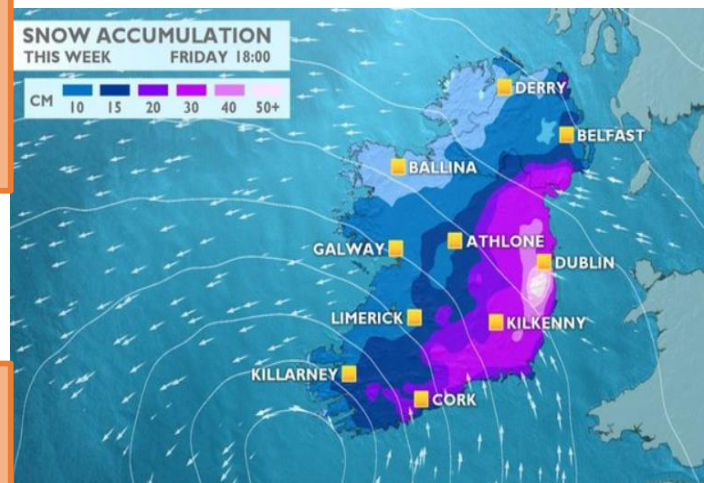
- **Friday 23rd February all planned maintenance stopped.**

- **Saturday 24th Feb – YELLOW weather warning.**

Operational Response

- **Monday 26th February Winter Snow Desk mobilised.**

- **Tuesday 27th Feb - ORANGE Weather warning. Snow/ice on that night.**
- **Wednesday 28th February(05:00) - RED Weather warning issued at 5am.**



Forecasts

Home MET Éireann **Refresh**

National Warnings

STATUS RED

Snow-ice Warning for Dublin, Kildare, Louth, Wicklow and Meath

Heavy overnight snowfall has led to accumulations of snow between 5 and 10cm. Snow showers will continue to occur during today and again tonight with further accumulations. Total snowfall up to midday Thursday may reach 25cm.

Issued: 28 Feb 2018 - 05:00
Valid: 28 Feb 2018 - 05:00 to 01 Mar 2018 - 12:00

STATUS ORANGE

Snow-ice Warning for Dublin, Carlow, Kildare, Laois, Louth, Wicklow and Meath

Scattered snow showers later Tuesday and Tuesday night will lead to accumulations of 4 to 6 cm by Wednesday morning. Widespread frost and icy conditions also. Updates to follow. Please see Weather Advisory

News

5-10cm in the east of the country.

STATUS RED

Snow-ice Warning for Dublin, Kildare, Louth, Wicklow and Meath

Heavy overnight snowfall has led to accumulations of snow between 5 and 10cm. Snow showers will continue to occur during today and again tonight with further accumulations. Total snowfall up to midday Thursday may reach 25cm.

Issued: Wednesday 28 February 2018 05:00
Valid: Wednesday 28 February 2018 05:00 to Thursday 01 March 2018 12:00

Met Éireann @MetEireann

Severe Weather Warning issued for Snow/Ice
Status: RED
Location: Dublin, Kildare, Louth, Wicklow and Meath
Valid: Wed 5am to Thurs 12pm
Warning updates will be issued in due course
Latest information here:bit.ly/1kqplkf

5:50 AM - Feb 28, 2018

365 595 people are talking about this

Further snow is forecast throughout the day with the heaviest and most frequent showers in the east.

Home MET Éireann **Refresh**

National Warnings

STATUS RED

Snow-ice Warning for Ireland

Further heavy snow showers will bring accumulations of significant levels with all areas at risk.

Blizzard conditions will develop from the south Thursday afternoon and evening as heavy snow and strong easterly winds bring snow drifts northwards over the country. Eastern and southern coastal counties will be worst affected.

Issued: 28 Feb 2018 - 23:00
Valid: 28 Feb 2018 - 23:00 to 02 Mar 2018 - 15:00

Storm Severity

[www.met.ie/
warnings](http://www.met.ie/warnings)

	STATUS YELLOW Weather that does not pose a threat to the general population but is potentially dangerous on a localised scale.	STATUS ORANGE Infrequent and dangerous weather conditions which may pose a threat to life and property.	STATUS RED Rare and very dangerous weather conditions from intense meteorological phenomena.
Snow/Ice Heavy rain can turn to snow when temperatures are around zero (up to around +4C)	Guidelines only 3cm or greater in 24hrs.	Guidelines only 3cm or greater in 6 hrs 5cm or greater in 12 hrs 10cm or greater in 24 hrs	Guidelines only 10cm or greater in 6 hrs 15cm or greater in 12 hrs 30cm or greater in 24 hrs

Storm Severity



N18 Bunratty caml 2018-03-02 GMT 09:48:11

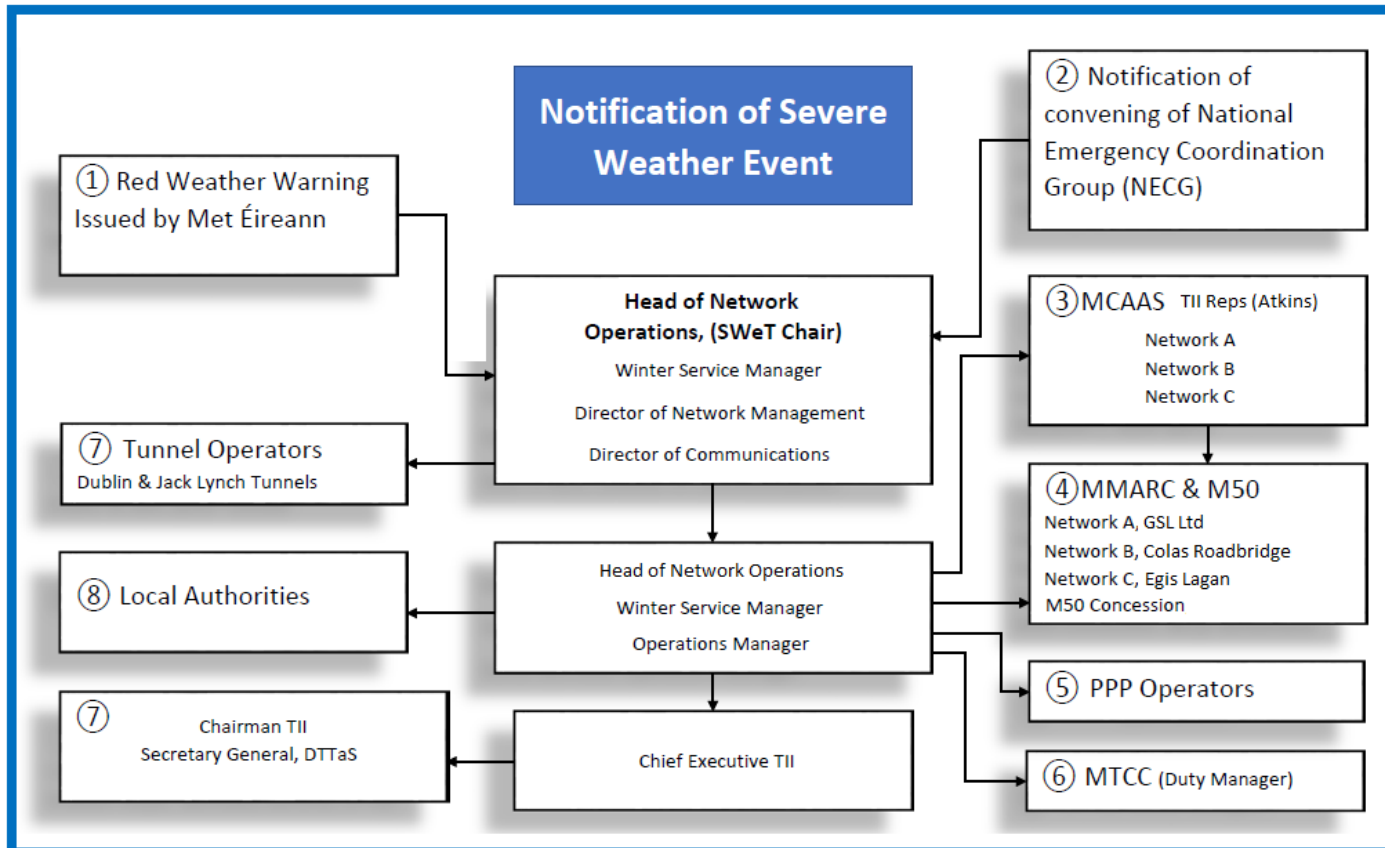


N20 Rathduff 2018-03-02 GMT 09:20:10



Planning

- National Emergency Coordination Group (NECG) convened on the Monday 26th February 2018.
- TII attend at DTTaS request.
- TII Severe Weather Team convened (SWeT) Monday 26th Feb.



Planning

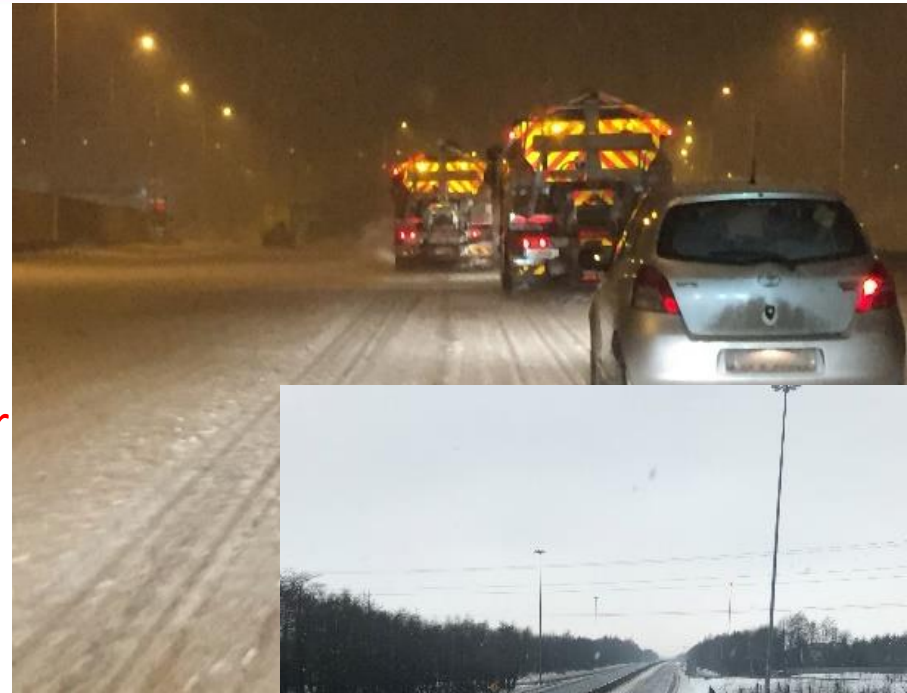
Friday 23rd February all planned maintenance stopped.

Monday 26th February Winter Snow Desks mobilised:

- Maintain resource levels for 24 hours working for a sustained period via shift work.
 - Provision of food, sleeping and welfare facilities in local hotels and at maintenance depots for operatives.
 - Engage all standby labour and plant (supply chain).
 - Provision of welfare materials (food, water, blankets) in the Incident Support Units.
 - Clearing footpaths and cycleways.
-

Operations

- Network continuously treated between 26th February to 4th March.
- Network remained open during heavy snowfall (250mm at M50 J9) on 28th February - 1st March.
- **Thursday 1st March 2018 – NECTG advise public to stay in doors due to Red Weather Warning.**
- Snow ploughing and salt spreading continued on Friday 2nd and Saturday 3rd March.
- **Friday 2nd March 2018 – NECTG travel advisory ban withdrawn.**
- Sunday 4th March – removal of snow drifts from verges and hard shoulders (clean up).
- Network available for morning peak traffic on Monday 5th March 2018.



Operations

- Contractors also assisted local authorities and hospitals in ensuring emergency routes were treated and ploughed where required.

Examples include:

- Access to James Connolly Hospital intervention from Monday 26th.
- Towing of ambulance to Tullamore Hospital.
- Luas at Sandyford, Red Cow and Saggart depots.
- Westmeath: snow ploughing N4 north of Mullingar to Ballinalack.
- Fingal: R135 Ashbourne to Finglas.
- Kildare: extensions from N7.



Operational Resources

Resource Details	MMaRC Network A		MMaRC Network B		MMaRC Network C	
	Normal Week	Storm Emma	Normal Week	Storm Emma	Normal Week	Storm Emma
Labour Resources						
Snow Desk Manager	0	1	0	4	0	1
Winter Duty Officer	2	8	1	6	4	10
Winter Fleet Drivers	12	53	14	34	15	45
Winter Maintenance operatives	2	44	0	44	1	14
Totals:	16	106	15	88	20	70
Plant Resources						
No of gritters	14	14	17	17	20	20
No of Snow Ploughs	20	27	26	28	26	26
Additional winter fleet	8	38	7	28	12	26
Totals:	42	79	50	73	58	72
Salt Resources						
Salt used (tonnes)	370	2600	250	2257	222	2502
Totals:	370	2600	250	2257	222	2502
Fuel Resources						
Fuel used (ltrs)	7500	50000	2250	22000	3650	20460
Totals:	7500	50000	2250	22000	3650	20460

Outcomes

- Operations undertaken between Monday 26th February to Monday 5th March by GSJ, Colas Roadbridge and Egis Lagan successful.
- Reduced lane availability.
- Salt Stocks.
- Resilience level.
- Resources.
- Supply chain.
- Around the clock operations during the period.
- Keep going for how long?



Outcomes

- Friday 2nd March 2018 – NECG travel advisory ban withdrawn.
- Saturday 3rd March
 - 200mm snow on M7 Friday Night.
 - Cars abandoned from J2 to J9.
- Interpretation?

Update from the National Emergency Coordination Group (NECG) at 12.30hrs on 2 March 2018

Published on Friday, 02 Mar 2018



- However, Met Eireann has advised that the blizzard conditions have passed and the public safety advice to shelter indoors was withdrawn at 6.20 this morning.
- It is emphasised that conditions are and will remain very difficult and dangerous and the public are advised not to travel, TO KEEP OFF THE ROADS AND TO CONTINUE TO EXERCISE HIGH LEVELS OF CAUTION for their own safety in the extreme cold, accumulated snow and icy conditions underfoot.
- The message remains to keep off the roads. It will take some time to get roads open again and people can assist the response effort by avoiding travel and should listen for local updates on road conditions.

Laura Larkin, Caoimhe Armstrong
2 March 2018 5:51

Outcomes

Checked
for
Occupants



Outcomes

www.met.ie/warnings	STATUS YELLOW Weather that does not pose a threat to the general population but is potentially dangerous on a localised scale.	STATUS ORANGE Infrequent and dangerous weather conditions which may pose a threat to life and property.	STATUS RED Rare and very dangerous weather conditions from intense meteorological phenomena.
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- Around 15 counties confirmed winter operations would stop at approximately 3pm on Thursday 1st March 2018 due to the red weather warning issued.
- Interpretation?

Outcomes

www.met.ie/warnings	STATUS YELLOW	STATUS ORANGE	STATUS RED
Heavy rain can turn to snow when temperatures are around zero (up to around +4C)	Weather that does not pose a threat to the general population but is potentially dangerous on a localised scale.	Infrequent and dangerous weather conditions which may pose a threat to life and property.	Rare and very dangerous weather conditions from intense meteorological phenomena.
Snow/Ice	Guidelines only	Guidelines only	Guidelines only
	3cm or greater in 24hrs.	3cm or greater in 6 hrs 5cm or greater in 12 hrs 10cm or greater in 24 hrs	10cm or greater in 6 hrs 15cm or greater in 12 hrs 30cm or greater in 24 hrs

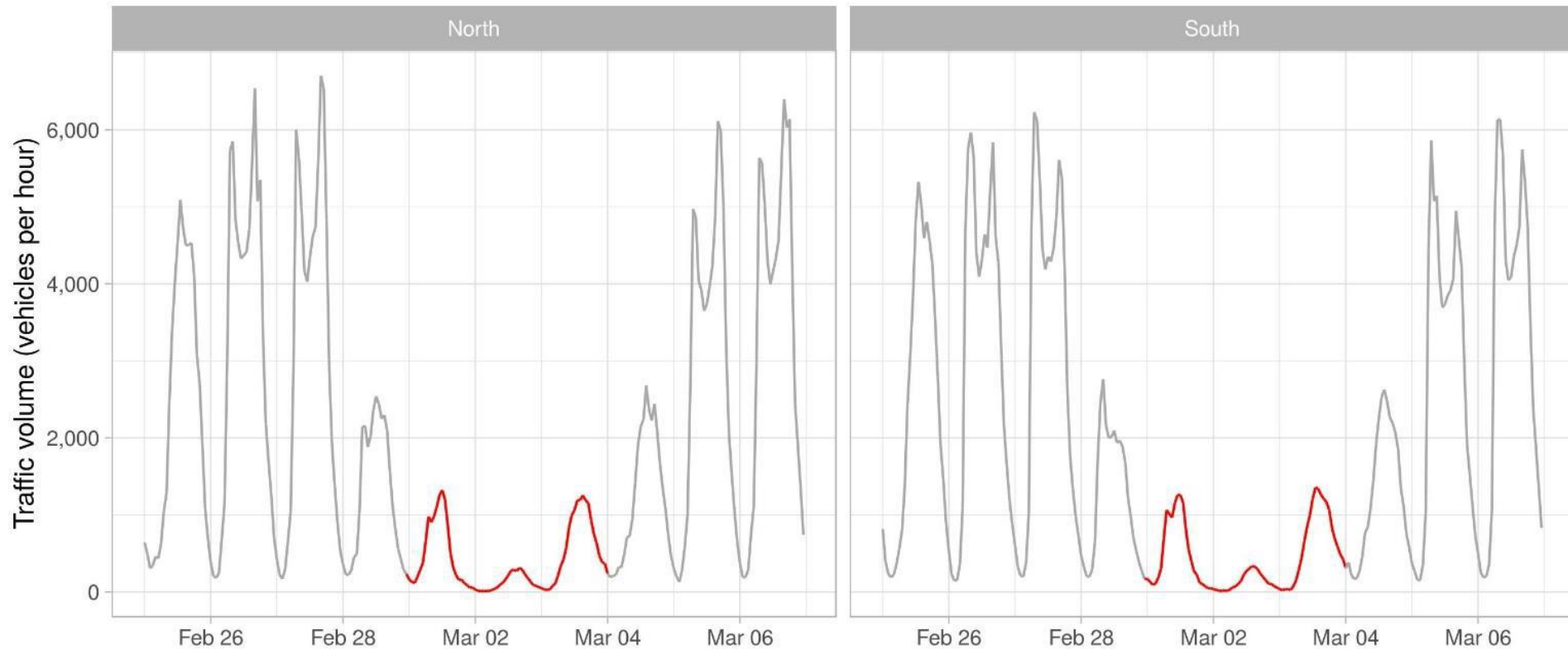
- Full night of snowfall Thursday night/ Friday morning.
- Operations now focus on snow removal rather than preventative action.

Outcomes

- Operations now focus on snow removal rather than preventative actions.
- Thursday 1st and Friday 2nd March both defined as frost days.
- Max temperature for the day does not rise above zero.
- The only March frost days on record.
- Several days, weeks in some areas, to remove snow.



Outcomes

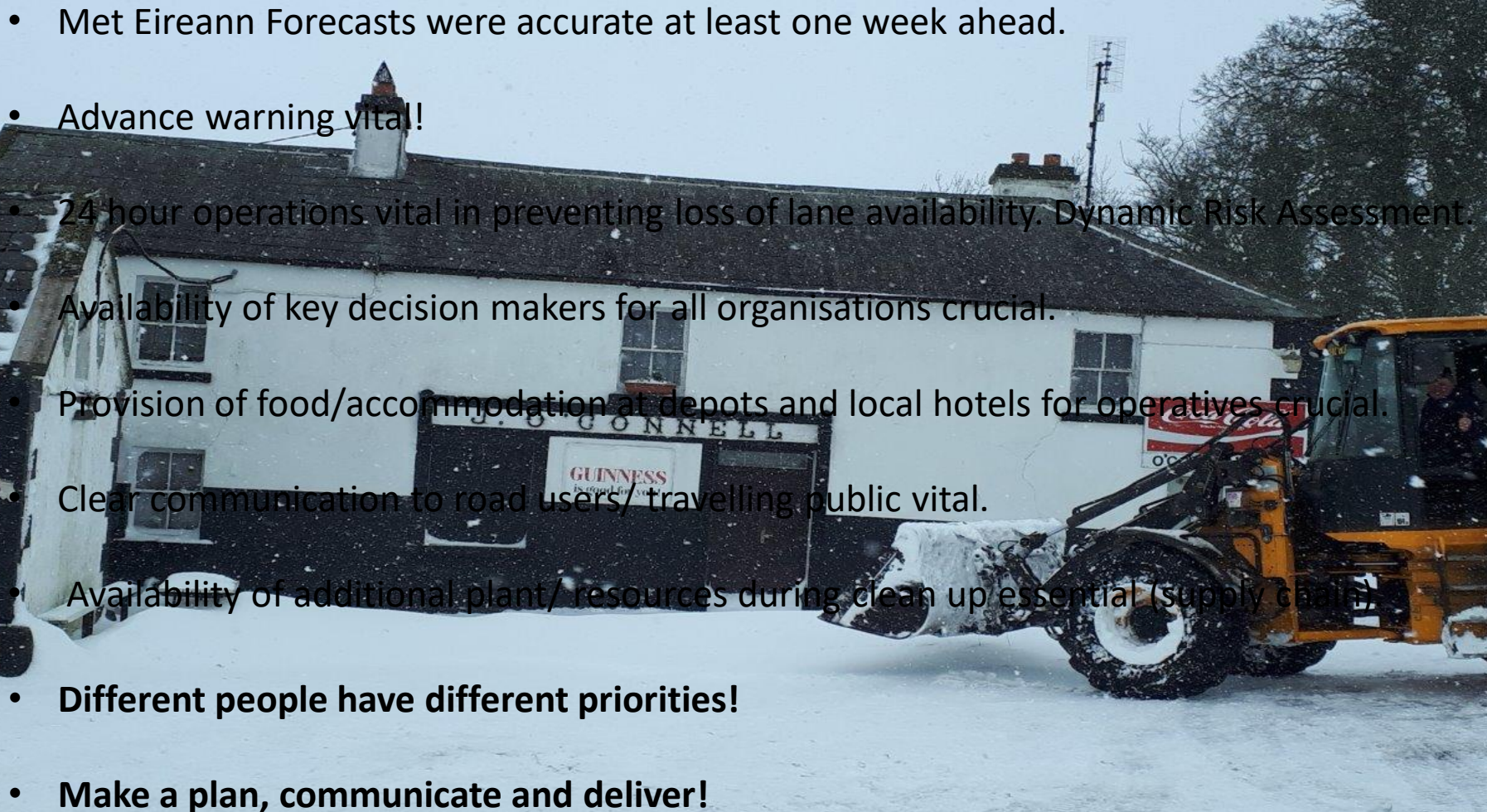


Hourly traffic volumes on M50 at eflow in late February and early March 2018

annual traffic growth rates.

- 2016-17 – 3.1%.
- 2017-18 – 0.5%.
- If impacts of Storm Emma ignored – 2% to 2.5%.

Lessons Learned

- Met Eireann Forecasts were accurate at least one week ahead.
 - Advance warning vital!
 - 24 hour operations vital in preventing loss of lane availability. Dynamic Risk Assessment.
 - Availability of key decision makers for all organisations crucial.
 - Provision of food/accommodation at depots and local hotels for operatives crucial.
 - Clear communication to road users/ travelling public vital.
 - Availability of additional plant/ resources during clean up essential (supply chain).
 - **Different people have different priorities!**
 - **Make a plan, communicate and deliver!**
- 



Thank You!