



An Roinn Iompair
Turasóireachta agus Spóirt

Department of Transport,
Tourism and Sport

ROADS Services Training Group

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2017

SAFER ROADS

Radisson Blu Hotel, Rosses Point Road, Sligo, May 2017.

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2017 SAFER ROADS

Managing Road Drainage

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Roads Asset Management – Donegal



Non-National Roads Donegal

- Approx. 6000km
- 5 Municipal Districts
- Stranorlar Municipal District
- Approx. 1000km roads
- Located in east of county
- Rich agricultural land
- 76% land intensively farmed
- Densely populated (Relative)

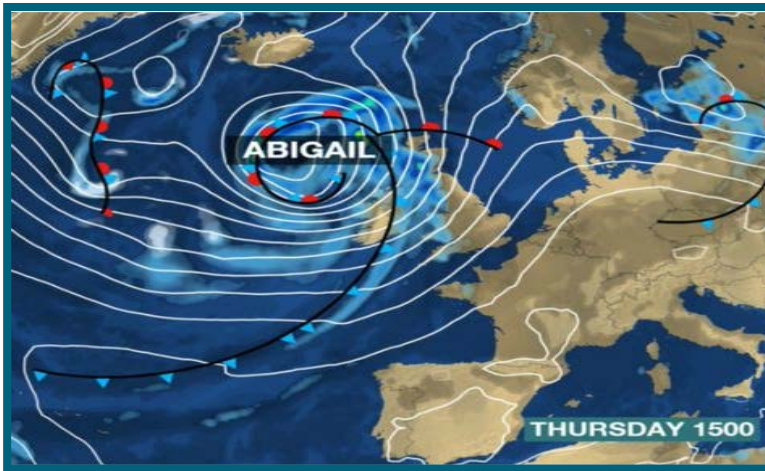
Managing Road Drainage - Funding Context

- Significant reduction in funding grants from Department – Nationally
- Own Resources funding competing with other services – Locally
- 2.5% of roads network - Restoration Improvements (RI)
- Disproportionate focus on Road Pavement rather than Road Drainage
- Return maintenance period (Pavement & Drainage) inadequate
- Reactive rather than Proactive



Exceptional Weather Events Winter 2015

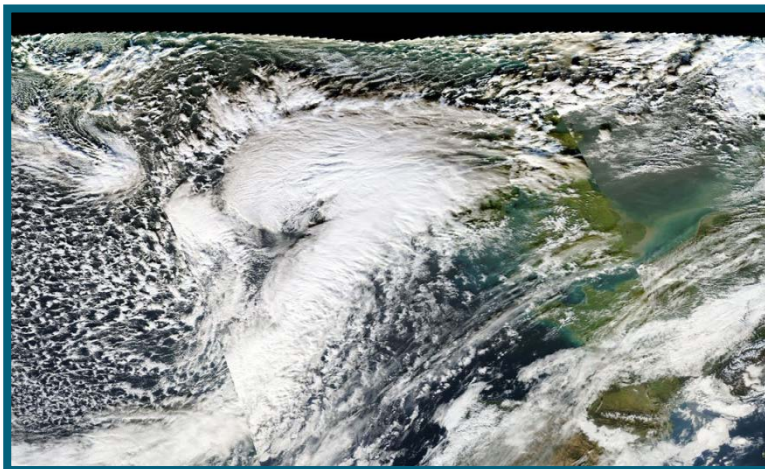
Wettest December since 1885 – 226% of long term average rainfall



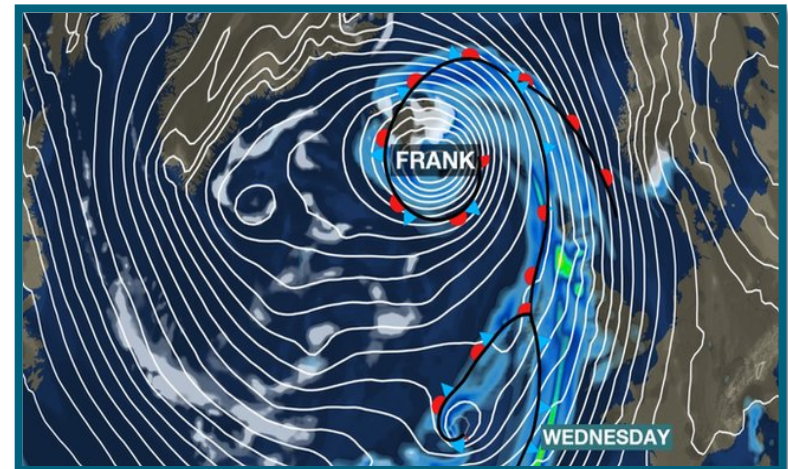
Storm Abigail 12th – 13th Nov. 2015



Storm Desmond 4th – 6th Dec. 2015



Storm Eva 23rd – 24th Dec. 2015



Storm Frank 29th – 30th Dec. 2015

Fluvial & Pluvial Flooding

Drainage issues highlighted by immersion & flowing storm water



Resultant Damage to Roads Network



Sub-Base Saturation



Road Pavement Erosion



Subsidence

Severe Weather Allocation

- €90 Million for Regional & Local Roads
- €9 Million allocated to Donegal County Council Roads
- €2.2 Million allocated to Stranorlar Municipal District Roads
 - **Repair** - works in respect of roads, bridges and drainage
 - **Preventative** – works to address repeated flooding on roads
- Reprioritise Drainage Works
- Something more than RI prep.
- Formalised scope & delivery



Formalised Process

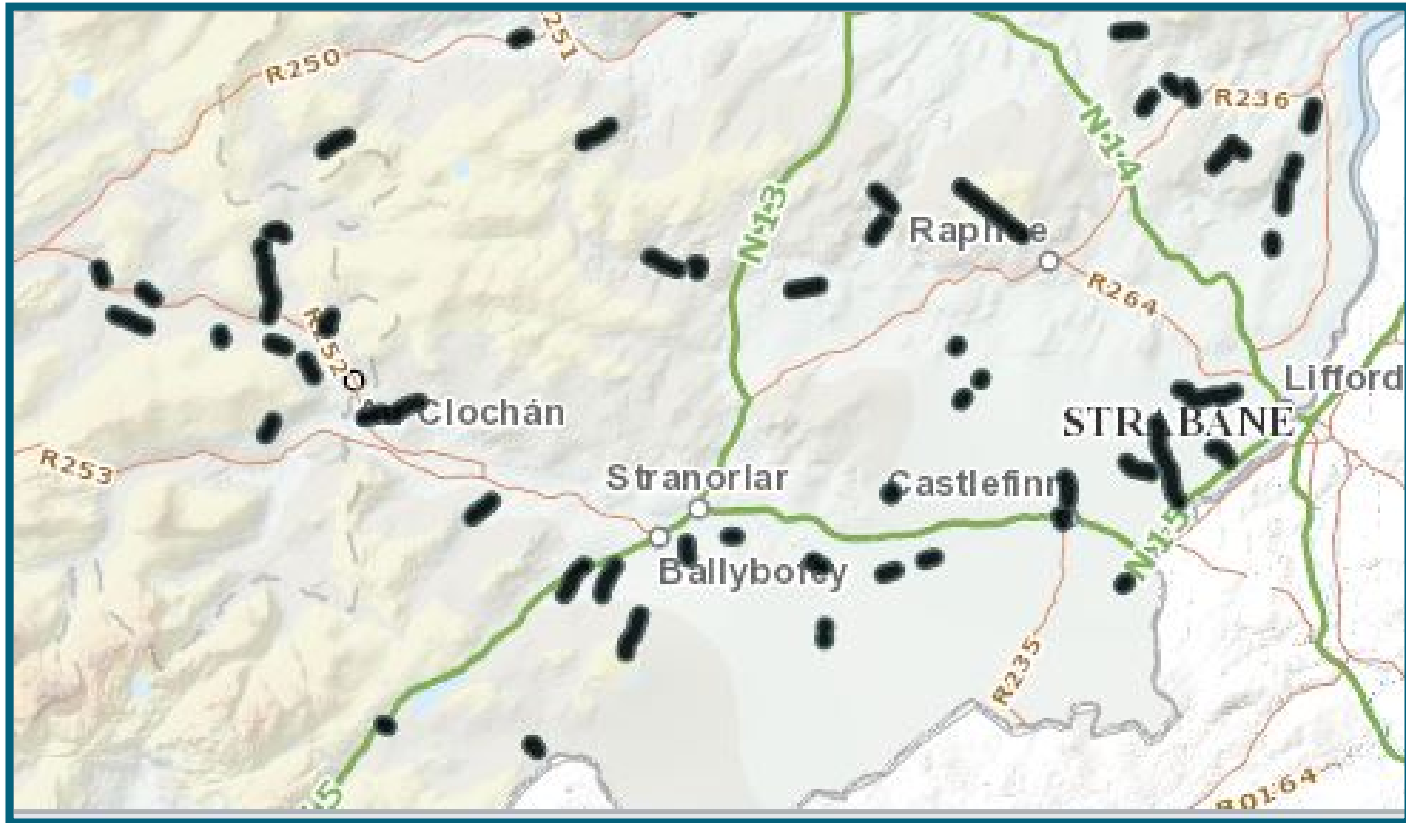
1. Map Locations
2. Identify Failure Mechanisms
 - Sub-Base Saturation
 - Road Pavement Erosion
 - Subsidence
3. Determine drainage solutions
4. Scope works to solve underlying drainage issues
5. Deliver Drainage Works & Road Works Programmes
6. Post drainage works survey – further drainage works if required



**Project Level
Pre-Works
Survey**

Map Locations

Identified 30 locations for Repair and Preventive Works



Mapped on MapRoad PMS

Identify Failure Mechanisms



Sub-Base Saturation



Road Pavement Erosion



Subsidence

Fluvial Flooding

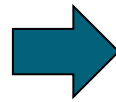


- Over bank fluvial flooding
- Roads constructed in floodplain

- Preventive works not feasible
- CFRAMS proposals
- Repair works completed



Pluvial Flooding



Project Level - Drainage Works Pro Forma

Stranorlar Municipal District Roads Office - Severe Weather Funding - Project Completion Certificate

PROJECT NAME: Ardnaglass				
Activity	Scope of Works	Works Complete		
		RSS	er	Date
Removal of Vegetation				
Removal of vegetation from culvert inlet/outlet	Remove vegetation from all inlets outlets			
Hedge/Tree/Verge Cutting	Hedge cutting to be carried out as agreed on site prior to commencement of paving works			
Longitudinal Drainage Improvements				
Cleaning/Improvement of existing drains	All existing drains to be cleaned and all existing piped drains to be Jetted			
Creation of new road side drains	Provide new road side drains at locations as marked on site. 143m new piped drains at locations marked on site.			
Removal of road edge ledging	Entire length of proposed works to be Ledged on both sides of the road			
Opening of road edge drainage outlets	New drainage outlets to be made as marked on site			
Provision of new gullies	5 New gullies to be provided at locations as marked on site			
Transverse Drainage Improvements				
Cleaning/Improvement of existing culverts	All existing culverts to be Cleaned/Jetted			
Replacement of existing culverts	Replace all damaged and under sized culverts, 3 road crossings replaced (36m).			
Provision of additional new culverts	Provide 2 new culverts (40m) at agreed locations as marked on site			
Surface Preparation				
Pothole Filling & Patching	Potholes to be filled/Patched prior to commencement of paving works			
Making good existing surface	Existing surface to be maintained patched until paving works are carried out			

Delivery of Works Programme

- Approx. 100 road crew days of drainage works required
- Delivered by a combination of direct labour & contract
- 15% to 20% expenditure on drainage works 'vs' approx.10% normal RI
- Pavement Strengthening – Asphalt Concrete 'vs' CI.806 (Wetmix)



Drainage Programme



Increase Capacity Existing



Improve Existing



Create New



Landowner Cooperation

Pavement Strengthening Programme



Bound Base – Improved Camber



Bound Base – Improved Cross Fall



Double Surface Dressing

Conclusion / Further Consideration

- Benefit in formalised approach to project level drainage works (planned)
- Benefit in formalised approach to network level drainage works (routine)
- Asset Management role for MapRoad PMS at project and/or network level?
- Going 'the extra mile' on drainage requires increased funding & resources
- Difficult to achieve at current funding levels
- Specific Funding - Improvement/Maintenance?
- Proactive rather than Reactive?

