

Impacts of Storm Bert (23-24 Nov 2024) and Storm Darragh (6-7 Dec 2024) on the Strategic Trunk Road Network in Wales

Introduction

Storm Bert was a multi-hazard storm which brought heavy rain and strong winds across many parts of Wales. Wales was particularly badly affected and experienced a month's worth of rainfall in just a few hours. The bad weather triggered landslides in many areas.

Storm Darragh followed Storm Bert 12 days later and brought very strong winds across all of Wales. A red weather warning (danger to life) for wind was issued for the majority of the Welsh Coastline. Storm Darragh also brought more heavy rain to areas previously affected by storm Bert. Several roads and bridges were closed due to the high winds and storm damage impacts.

The Welsh Government Strategic Road Network Division, its Trunk Road Agents: South Wales and North and Mid Wales and Traffic Wales (SWTRA and NMWTRA) work together in partnership to ensure the safety and resilience of the Strategic Motorway and Trunk Road Network (SRN) during severe weather events. SWTRA and NMWTRA operate and maintain the SRN on behalf of Welsh Ministers 24/7 365 days a year and Traffic Wales manage the operational communications services.

Lessons learnt from Storm Dennis and previous storms

There have been several lessons learnt from previous storms, including for Storm Dennis which in February 2020 brought heavy rainfall, flooding and strong winds across Wales. This led to several road closures, flood damage and landslides on the SRN.

Following storm Dennis, the Welsh Government alongside our agents have implemented a more robust and targeted system of inspection of drainage assets and at-risk flooding sites on the SRN. This includes proactive clearance of culverts owned by the Welsh Government when heavy rainfall is expected. During the more recent storms there were no incidents of blocked Welsh Government SRN culverts leading to flooding properties.

Storm Eunice which struck Wales in February 2022 had a major impact due to extremely high winds and red weather warnings. As a result, several bridges needed to be closed, and road restrictions put in place. Lessons learnt from this storm led to an Adverse Weather Plan being drafted to recognise the various weather warnings and storm types and help guide communication messaging and advice to SRN road users. Following this storm, the Welsh Government clarified the management responsibility of the areas around the Prince of Wales Bridge in south east Wales.

The Prince of Wales Bridge is owned, operated and maintained by National Highways. Storm Eunice led to the bridge being closed and at the time it was not clear who should be responsible making a decision to reopened it on the Welsh side. It was later established National Highways hold this responsibility providing clarity for its management and for future storm events.

Actions taken before Storms Bert and Darragh

Traffic Wales ensured there were effective communications to keep the public well informed before the storms including actions road users should consider taking. This continued during the storms providing up to date information of road closures and flooding issues as and when they happened. Variable Message Signs across the network were used to provide advance warning of adverse weather.

Multiagency Strategic and Tactical Co-ordination Groups (SCG & TCG) Gold, Silver and Bronze command levels were stood up in advance of the storms. This ensured Situation Reports could be prepared and “battle rhythm” established before the storms commenced in earnest.

Britannia Bridge has a weather monitoring system which includes a number of strategically located anemometers, providing live wind speed data allowing a dynamic contingency plan to be employed. This ensures stages of the contingency plan, including full closure (Stage 4), are only activated once wind speeds reach predetermined thresholds. To safely close the bridge traffic management must pre-laid reducing the approach dual carriageways to single lanes, this must be completed in wind speeds less than 30mph which we plan using weather forecasts.

As forecast predicted Storm Darragh was likely to reach the closure threshold impacting the Menai Straits in the middle of the night when the Welsh Government Traffic Officer service was out of hours, it was decided by the Tactical Coordination Group (TCG) that a pro-active closure of the Britannia Bridge would take place in this instance as the Police were able to release resource to assist with the closure.

SWTRA also closed parts of the M4 between Junctions 37 to 42 due to the vulnerable structures in the area. Taking the decision to close the bridges before the red/amber weather warnings commenced helped avoid dynamic closures in real time thus reducing the risk to operatives and allow pre-planned resource allocation.

Although the Severn Bridges are not the responsibility of the Welsh Government the South Wales Trunk Road Agents (SWTRA) were in close contact with National Highways in advance of both storms to coordinate the potential closure of the bridges. During the storms, messages were shared via the Traffic Wales website and social media channels to inform the public about any intended closures.

During the Storms

Traffic Wales website and VMS signs kept the public and road users updated on road closures and diversion routes. During Storm Darragh on the Saturday (7 Dec 2024) over 42,000 people accessed the Traffic Wales website, substantially more than on an average Saturday.

There were excellent communications across the Agencies which led to enhanced teamwork and reduced siloed operations compared to previous events. Staff who were not on call came forward willingly to step in and help to ensure others had rest periods. On the road network there were timely responses and action taken on fallen trees, landslides blocking roads and flooded roads (when deemed safe to do so).

After the Storms

After Storm Darragh a number of major roads were closed due to landslides caused by the volume of rainfall following on closely after Storm Bert: A487 Rhiw Gwgan landslide near Corris and the A470 at Cross Foxes.

On the 11 December 2024 the A487 at Rhiw Gwgan, Corris in Gwynedd was closed immediately due to the safety concerns and potential risk to road users from the embankment above the A487. A local diversion via the A470 was implemented (32miles) but the local impact was more limited with a 7-mile diversion. Communications were issued, press statements and local elected members were informed.

NMWTRA and their supply chain mobilised a design at pace and a contractor to undertake the necessary works to reopen the road. Normally the industry has a shut down over the Christmas period, but personnel were made available to deal with the issue. On the 29 December 2024 the road was reopened under traffic signals and single lane operation. The more permanent works are being designed to fully address the issue.

Due to the continued rainfall, the A470 at Cross Foxes just north of the above landslip was closed on the 31 December 2024 due to a localised landslip. Fortunately, this was not as severe as the A487 landslip and reopened under traffic signals on the 1 January 2025.

A debrief was held with all partners after the storms and actions have been identified to further improve processes for future weather events. These are being actively addressed by the relevant parties. The primary action being taken forward are risk assessments, as the current ones are not well-suited for red weather warnings, resilience of individuals and rotas – welfare breaks were unable to be taken during storm Darragh due to its intense nature and timing. Further work is taking place with Natural Resources Wales to ensure river levels and the likelihood of flooding on the SRN is better understood.