

Climate Change, Environment, and Infrastructure Committee

Inquiry on the impact of Storm Bert & Darragh

Briefing paper

Background

In late November and early December of 2024, Powys and the UK were hit by two severe storms, Storm Bert (21st Nov) and Storm Darragh (7th Dec), with further heavy rain over the New Year period. These storms caused widespread disruption to services due to snow, flooding and tree fall. They also caused significant damage to the county's highway infrastructure, including landslides, structural collapse of retaining walls, culvert blockages, scouring of pavements and other extensive damage. The storms directly and indirectly impacted many of our local communities, impacting residents, businesses and visitors.

Powys is a quarter of the landmass of Wales and the sources of the Severn, Wye and Usk are located within Powys, alongside many other designated main rivers.

Recent severe weather has provided tangible evidence of the fragility of both our communities and our highway network in the wake of such storms. It has raised awareness of the financial challenges involved in maintaining an ageing and continually deteriorating highway asset, alongside the wider impacts on our communities.

Powys also works in partnership with North and Mid Wales Trunk Road Agency supporting them in managing the trunk road network across Powys.

In lead up to the two named storms, we experienced heavy rainfall in mid-October where property in Bronllys and Felinfach suffered internal flooding. To note, the UK has again been hit by yet another storm, Storm Éowyn.

A timeline of events for both Storm Bert and Darragh, provided by the Civil Contingency team, is included in Appendix A.

Forecasting and Alert Systems

Powys County Council (PCC) relies on five main sources of information to drive the Local Authority response to weather events:

- the usual Met Office weather warnings;
- the Natural Hazards Partnership updates via Hazard Manager,
- the Flood Guidance Statements issued by the Flood Forecasting Centre;
- the Met Office Advisor updates supplied for Civil Contingencies in Wales by its duty advisor; and
- The Highways winter weather forecast which is predominantly focussed on snow/ice and gritting actions in upholding our statutory duties in relation to the highways act.

These sources are augmented by the flood alerts and warnings issued by Natural Resources Wales (and Environment Agency in some cases). It is understood NRW have flood alerts on most main rivers. Powys has localised flood alerts on some critical infrastructure, such as trash screens.

Forecasting allows the local authority to prepare and put in place its internal command structures and alerts. The highways service, in a proactive approach, ensures trash screens of critical infrastructure are free of debris, and to have appropriate staff on stand-by.

There are various duty officers across the authority, including Civil Contingency officers, highway duty officers alongside other services such as housing and corporate property. Civil contingency officers are generally the first point of contact with community flood groups and interact with other Category 1 responders through the structures of the Local Resilience Forum in line with agreed processes, trigger levels and plans. The highway service and highway duty officers (out of hours) are generally the first point of contact from the general public via the helpdesk / customer services.

Whilst forecasting has improved significantly and proactive approaches adopted to help manage the impacts of flooding, especially at known points, more proactive work is required. Inevitably there will still be a need for a reactive approach across such a large geographic and varying topographic area like Powys, as many of the impacts on our communities will continue to be very localised, very intensive over short durations with little warning.

- There is an opportunity to enhance funding and invest more heavily in a proactive approach to reduce flooding at source and improve property resilience and protection. Larger scale projects such as natural flood management (NFM) within the uplands of mid-Wales to reduce the impacts of both localised (pluvial & blockage) and fluvial flooding.
- There is an opportunity to enhance funding and invest more heavily in a proactive approach to maintaining highway assets, from capacity and more regular cyclic maintenance of drainage systems.

Resilience of Infrastructure

The highway network in Powys is fragile, with most of it not constructed or designed to modern-day standards, and it is therefore susceptible to damage from exceptional weather events. It is clear that the network will face further significant risk as climate change occurs. Funding for the highway's asset is under significant pressure both in terms of revenue and capital, with a substantial backlog of works.

The highway network can be impacted in several ways by storms:

- a) Fluvial flooding can impact the highway network through flooding causing significant disruption and requiring road closures of both the strategic and local road networks.
- b) Overland flow and blockages can cause water to divert along the highway causing severe damage surfacing resulting in potholes.
- c) Landslides occur both above and below the road network, either from saturation or erosion.
- d) Structural damage, including scour to bridges and retaining walls, impact damage of debris to bridges such as cut-waters, and in worst case scenarios collapse
- e) Blockages to trash screens and culverts, both in public and private ownership can cause a surcharge of the system.
- f) Tree fall, either branches or whole trees, fall onto the highway causing disruption, but they can also fall adjacent to the highway where roots uplift and cause damage to the road.
- g) Under-capacity, many structures (bridges and culverts) and drainage systems are historic and do not meet modern-day requirements taking into account climate change, historic development or agricultural drainage of land.

Between 2020/21 and 2023/24, Welsh Government has supported Powys financially with £3.99M in its recovery from Storm Dennis and other storms. Reactive and emergency response for these two storms has cost the local authority an estimated £320,000 and it is also estimated that there is at least circa £1.1m of additional recovery works needed to repair the damage sustained to the highway network.

It should be noted that while many parts of Powys saw extreme flooding during Storm Dennis, Storm Bert and Darragh affected several other communities that have not experienced flooding previously.

There are many culvert systems that are privately owned and are not the responsibility of the local authority but the riparian owner. Many storms since Storm Dennis have suggested there is a significant gap in managing this, often historic, infrastructure, with much of it hidden and often not known about by land or property owners.

As part of PCC's response to flooding, we identify and visit all properties reporting internal flooding. Wherever possible, residents are encouraged to form community flood groups.

Both the highways and privately owned infrastructure are fragile and susceptible to the effects of climate change and exceptional weather events.

- There is an immediate need for £1.1m of funding to undertake the recovery works needed to the highway infrastructure.
- There is an opportunity for enhanced funding for highways capital to increase the resilience of the network through raising roads and improving infrastructure.

- There is an opportunity for WG to take more of a strategic lead in privately owned drainage systems and culverts; and the general responsibilities of riparian owners.

Impacts on Communities

Powys is a vast rural county supported by a network of small market towns and rural settlements dispersed across the area. Most issues that are encountered are localised, either through cloud bursts, blockages of drainage systems, fluvial flooding or tree fall. Given the uplands of Powys and its topography, flooding tends to be short lived, lasting only a couple of days.

Many properties were inundated by flooding during storm Bert and Darragh. Road diversions and temporary traffic management are still in operation at several locations on the highway network, causing disruption to local communities.

Below are case studies where proactive action has demonstrated a higher level of resilience to the impacts of exceptional weather.

Case Study – Crickhowell and Knighton

The community of Crickhowell was devastated by the flooding during Storm Dennis in 2020, with significant flooding to properties in the lower part of the town. This prompted the establishment of a local flood group and the development of a mobile pumping plan to protect the town. Pumps have been deployed on approximately three or four times each winter, generally during named storms.

The town of Knighton has been blighted by flooding from both the River Teme and the Wylcwm brook on several occasions since Storm Dennis. An active community flood group has been created, well supported by NRW and the Local Authority. The group has facilitated the installation of property-level protection in many properties, a full survey of the river by NRW that may lead to the introduction of flood defences by NRW, and a mobile pumping scheme supported by sensor gauges on the Wylcwm Brook. Despite some subsequent weather events reaching similar levels to Storm Dennis, the number of properties flooded has declined.

Dedicated mobile pumps at Crickhowell and Knighton have significantly reduced the number of properties experiencing repeat flooding, even during weather events of similar magnitude and river levels. Storm Bert providing the greatest test since Storm Dennis. This is an interim position whilst we work with Welsh Government for funding a permanent scheme. It is noted that pumps (temporary or permanent) will only provide protection for trapped accumulating floodwater and does not remove the risk of flooding from overtopping of the river itself.

During Storm Darragh, the deployment of pumps and requisite crews to Crickhowell was seriously delayed by several fallen trees on the A40. Whilst the pumps coped with the

threat of flooding during Storm Darragh, the plan could easily have been thwarted by lack of access to the town. To further complicate the situation, a loss of power to the area took the river gauges at Crickhowell offline, meaning that responders were effectively blind to the local picture.

Case Study – Ystradgynlais

The six permanent floodgates along the River Tawe around Ystradgynlais are regularly closed as a precautionary measure ahead of severe weather. This is very much welcomed by local communities. The joint activation plan between Natural Resources Wales and Powys County Council covers unexpected weather events in what is a very rapid reacting catchment.

Since the installation of the Ystradgynlais floodgates by Natural Resources Wales, residents who previously lived with the risk of fluvial flooding are now more confident that their properties are protected. Residents largely welcome the precautionary closure of the gates, and there have been no complaints of lack of access to footpaths or bridges.

Case Study - Llanelwedd

At Llanelwedd the residents' flood group were successful in securing property level protection from NRW. The recent storm has revealed issues with that protection and NRW are re-investigating.

Case study – PCC Property Flood Protection

PCC, through the Shared Prosperity Fund secured funding for bespoke property resilience and has implemented measures to 114 properties across the county.

Property Flood Resilience (PFR) encompasses a range of behaviours, actions and measures designed to help people become more resilient to flooding impacts and reduce recovery time if flooding reoccurs. PFR Resistance involves using materials and approaches to keep water out of the property.

Resistance measures include:

- Full flood doors
- Airbrick cover
- Anti-back flow valves for drains, sinks, showers
- Flood walls and barriers
- Exterior waterproof coating to bricks
- Household flood alarms

It is important to note that this has allowed PCC to help/assist communities affected by 'designated' main river source of flooding. This would not be possible under conventional grant aid programmes due to the source of floodwater. PCC can only secure grant for ordinary watercourse, surface water and groundwater sources of flooding. NRW are lead authority for 'designated' main river flooding.

There is an opportunity to expand and develop the flood group approach supported by the Flood Forum and improve self-help. Consideration should be given to how best to help and support properties at risk of flooding?

Temporary mobile pumping solutions have points of potential failure and require high labour input. It is important that permanent solutions are progressed at pace for the communities of Crickhowell and Knighton.

It is recognised that there is a funding gap, and consideration is needed to look at schemes such as Property Flood Resilience, to help support residents and businesses who have been flooded, increase their resilience.

Appendix A

Looking at the timeline for **Storm Bert**, the first indication of heavy rain and strong winds was given by the Met Office advisor on Monday 18th November. The Flood Guidance statement indicated an increased risk of flooding for both Saturday 23rd and Sunday 24th November. The first yellow warning for Storm Bert was issued at 11:04 on Wednesday 20th November and was accompanied by an update from the Met Office advisor.

This triggered the regular response from the Civil Contingencies office, ensuring that the requisite officers were aware and any relevant preparatory work was scheduled, such as the precautionary closure of floodgates in Ystradgynlais.

Further updates followed with the Flood Guidance statement being regularly updated, and communications from the Met Office being issued, including the naming of the Storm. As these later messages confirmed the anticipated impact of Storm Bert, so the preparatory work within the Authority intensified, with additional resources being identified, senior managers being notified and local flood groups being contacted. Contact with the Met Office continued into the weekend.

At 10:05 on Saturday 23rd November, NRW issued the flood alert for the River Usk in Powys. This was followed throughout the day with a number of other flood alerts for all of the major river catchments in the County, and a number of flood warnings along the Severn, the Vyrnwy and the Tawe.

There were no flood warnings issued for the Usk until the following morning, however at 14:16 on Saturday 23rd November, the Flood Incident Duty Officer for Natural Resources Wales (Usk catchment) contacted the duty Civil Contingencies Officer with a view to activating the current plan to deploy mobile pumps to Crickhowell to prevent localised flooding in the town. This plan is normally triggered following the issuance of flood warnings on the Usk. During this contact, NRW stated that they anticipated two peaks for the Usk at Crickhowell, the first being at approximately 20:00 hrs that evening, the second at approximately midday the following day.

Pumps were deployed by Powys County Council Highways and were then operated continuously until river levels fell late on the evening of Sunday 24th . The information in respect of the second peak was shared with all interested parties, including the flood groups for Crickhowell and Llangattock.

At 03:34 on Sunday 24th November, flood warnings were issued the River Usk from Brecon to Glangwryne and the River Usk at Brecon. Given that the pumping plan had already been activated this did not prompt further action from Powys County Council.

At 04:37 on Sunday 24th November, a new yellow warning for rain was issued for Powys and South Wales, coming into effect from 06:00 to 13:00 that same day. This is a slightly unusual time for such a warning to be issued and was not immediately picked up by the duty Civil Contingencies Officer. Had it been picked up however there would have been

no additional response provided as all flooding counter measures for the catchments had already been activated (i.e. pumps, gates and flood groups).

On the morning of Sunday 24th November, the level of the River Usk continued to rise and it was feared would at some point likely overtop the river defences. Whilst the pumping operation instigated in Crickhowell post Storm Dennis had successfully dealt with all weather events since it was introduced, it is recognised that it cannot deal with overtopping of the defences as occurred in Storm Dennis. A decision was made to request further pump capacity from Mid & West Wales Fire & Rescue to supplement the pumping operation and to prepare the area for evacuation if necessary. Flooding in Crickhowell was averted, but unfortunately several properties south of the river in Llangattock experienced serious flooding when the Onneu and Onneu Fach watercourses breached their banks, rather than by flooding from the Usk.

The timeline for **Storm Darragh** followed a similar pattern of notifications from the various agencies. The weather system seemed to come in two parts. On Wednesday 4th December, a Yellow warning was issued for wind and rain for the weekend ahead. This was accompanied by advice from the Met Office advisor. Again, this prompted the scheduling of the precautionary closure of the floodgates at Ystradgynlais.

At 02:37 on Thursday 5th December, the yellow warning was updated with a separate yellow warning issued for wind for later that afternoon. At 04:22 this was followed by a yellow warning for rain again for later that afternoon. Due to the timing of the warnings, neither was picked up until later that morning.

At 09:41 on Thursday 5th December, the yellow warning for wind was updated and an amber warning for wind issued covering coastal areas and part of Powys for Saturday 7th December.

At 10:09, the Met Office advisor issued an updated advice, which was followed by a further yellow warning for rain and notice of an increased risk of flooding was issued in the Flood Guidance statement. At 15:45, Natural Resources Wales issued a collated synopsis of anticipated flooding forecasts to partners.

From 15:53 onwards on the afternoon/evening of Thursday 5th December, a series of flood alerts for the rivers Severn, Tawe, Wye and Usk were issued with these turning to Flood Warnings for the Vyrnwy.

On the morning of Friday 6th December, the Met Office advisor joined a regular scheduled teleconference of Civil Contingencies and other Local Resilience Forum partners. The advisor warned of the imminent issue of a red warning for wind which would come into effect from 03:00 on Saturday 7th. The red warning and an updated amber warning were both issued at 09:41. At 10:50 a further amber warning for rain was issued. These increased warnings triggered multi-agency pre-emergency assessment teleconferences (PEAT) which, during the course of the response, became both Tactical and Strategic Coordinating Groups. Alongside those multi-agency meetings, a separate internal series

of Team meetings and communications ensured that the Local Authority response was appropriate managed and communicated.

On the evening of Friday 6th, flood alerts were again issued for the Tawe, the Usk, the Upper Severn and Dyfi catchments. These were followed the following morning from 05:41 onwards with a string of Flood warnings along the Severn, the Vyrnwy, Wye, and Usk. Powys sat outside of the red warning area but was nevertheless impacted severely. The impact of the wind brought down trees across the County, cutting off communities, blocking roads, damaging infrastructure and power lines. In turn the loss of power impacted communication systems including mobile telephony and police communications. Power cuts left many homes and businesses without power.

At 08:48 on Saturday 7th, the Flood warning was issued for the Usk from Brecon to Glangwynne which initiated the activation of the Crickhowell pumps. However subsequent to that, the gauges on the River Usk at Crickhowell went offline meaning that river levels had to be observed in person. This fell to the Community Flood Group in Crickhowell. Unfortunately, access to the town was impossible due to fallen trees and it took several hours for those to be cleared sufficiently to get the pumps into place. Parts of the town were once again prepared for evacuation.

In the north of the County the River Severn overtopped its banks at Llandrinio, but this did not result in any flooding to properties. In the centre of the County the River Wye burst its banks at Builth Wells causing extensive flooding in residential properties and businesses at Llanelwedd. Flooding was again averted in Crickhowell.

Attention then turned to the issue of those affected by power cuts. Working through the Local Resilience forum the power companies were asked to share their Priority Service Registers with local authorities, as there were potentially thousands of vulnerable customers who could not be contacted. There were some difficulties with this, and reasons put forward why it could not happen including GDPR. Eventually some details were shared allowing colleagues from Powys Teaching Health Board, via their District Nurses, and Social Care, via their social workers and commissioned services, to carry out welfare checks, either in person, by phone or via authorised named carers.

On the evening of Sunday 8th December, Powys County Council established two warm spaces at its leisure centres in Welshpool and Brecon in order to provide support to those who may need it. Three persons attended the Brecon centre, none of whom were identified as needing further support. The scheme was extended to all leisure centres on Monday 9th during normal opening hours. Again, take up was very low.