Western Route

NetworkRail

North Devon Update

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Devon & Cornwall Local Railway

The Route

River Taw

At 45 miles long, the Taw is one of the larger Devon rivers stretching from the slopes of Dartmoor all the way to Barnstaple and into the Bristol Channel.

The Taw provides habitat for a wide range of animals and plants alike, resulting in many stretches of the river being protected as Sites of Special Scientific Interest (SSSI).

The River Taw became immortalised in 1927 with the publication of Henry Willamson's 'Tarka the otter'. Since then, the name 'Tarka' is now synonymous with The Taw and Torridge district and is used as a badge of honour in that area.

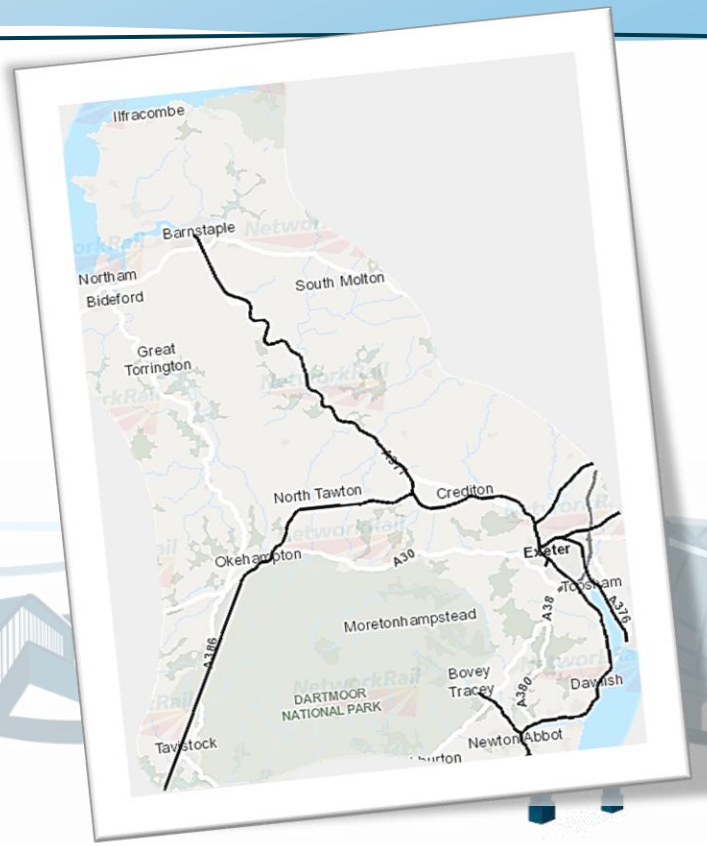






As a result, Network Rail has **81 assets** over water along the **Barnstaple line** between Crediton and Barnstaple with a further **49 assets** on the **Okehampton line** between Exeter and Okehampton.

Of these, **38 are being managed for scour on the Barnstaple line and 14 on the Okehampton line**

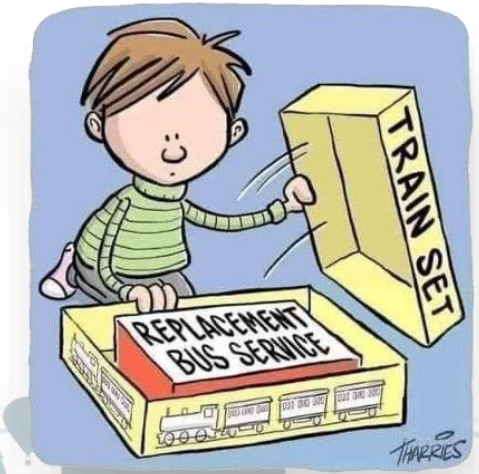


Our Resilience

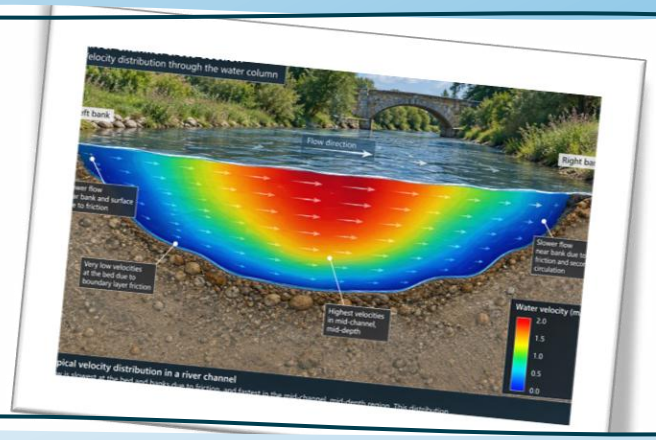
There are 8 assets that score over 16 along the NDN line with a further 4 on the DAC line.

Of these, **10 are confirmed as high risk following detailed assessments**

- The high-risk assets are fitted with a **closure marker** which signifies the water level at which the bridge is then closed to traffic
- These are calculated using the 1D hydraulic model using **average velocities**
- Is it that these bridges are **closing too soon** during high flow events?



- We are now able to **measure real time velocity** at the bed where scour happens
- Use **3D CFD** models to calculate the **critical velocity** required to start the scour process
- Set **alerts from the sensors** as to when this critical velocity is reached and only close an asset when there is a real risk



- System could **reduce closures –** not remove closure requirement
- Shorter closures when they are still required
- Ability to understand when **safe for divers** to inspect foundations following high flows to reduce wasted site visits
- Allow predictions over time with historical data being reviewed to predict future closures based on predicted rainfall

Flow Sensors

- These have been **tested** at 3no. Sites around Western Route over last 18 months
- **Placement and location** of the sensor is **critical** to the accurate measurement
- Renewable energy – **solar and battery** system provides power
- Site visits have been carried out on 10no. assets identified
- Additional 2 assets have been identified to add to the system in future



- Last winter, Western Route experienced over 60 days of rain and extreme weather
- This resulted in repeated closure of the NDN, DAC and LOO lines
- 26 Day closures of NDN line
- 22 Day Closure of DAC line
- 4 month closure of LOO line
- £1.89M of costs





- As an additional remediation, we are using **UltraBeam** to access the watercourse earlier than divers would be able in order to 3D scan the riverbed to check for scour damage
- This will allow any assets that are closed to be reopened sooner and removes risk of requiring divers to enter the watercourse
- Pricing is in progress for this

Storm Austen







- Storm Austen - First named storm of season bringing an amber warning for wind.
- Good preplanning across the route.
- High likelihood of trees falling.
- Teams proactively deployed across the route with chainsaws.
- Lessons learned from our planning and delivery already completed.
- The North Devon area remains vulnerable.



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Thank you



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