Future Highways Research Group

FHRG Forward Research Programme & Waypoint Meeting (Q1, 2026)

Part 1 of 2

ADEPT / Proving Research Partnership

Agenda

- **Welcome, Introductions and ADEPT update**
  - Hannah Bartram, CEO, ADEPT
- **Local Government Headlines**
  - Dominic Browne, Editor, Highways Magazine
- **Member News and Updates**
  - Open discussion.
- **Carbon Leadership Programme Update**
  - Andy Perrin, Proving Services
- **DfT Climate Change Adaptation Strategy**
  - Myles Smith, Head of Climate Adaptation Strategy, DfT

Agenda
Continued…

- **Impact of Climate Change on Roads and Structures, Research Project**
  - Victoria Walsh, Principal Engineer, Highways Intelligence Group, Devon CC
- **Climate Change Resilience (FRP: Research Theme #3)**
  - Karen Farquharson, Proving Services
- **Comfort Break**
- **Forward Research Programme (FRP)**
  - Theme #1: Assignable & Agentic AI
  - Theme #2: Local Green Energy Generation & Carbon Sequestration
  - Theme #3: Climate Change Resilience
  - Theme #4: UK Labs Network (FHRG Collaboration)
- **AOB & Next Meeting Date**
- **Close**

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Welcome

Hannah Bartram, CEO ADEPT

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Member News & Updates

Open Discussion

Home

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Carbon Leadership Programme: Progress Update

Andy Perrin, Proving Services

Progress To-Date

- **30 LHAs completed to-date.**
  - Best Practice Carbon Assessments
  - Carbon Footprint Assessments
- **30 LHAs in-flight.**
  - Thank you to all participants to-date.
- **Datasets and learning.**
  - We now have representation across all authority types.
  - We are impressed by the quality and consistency of data being provided.
    - Reflecting thoughtful engagement.
  - Participants are finding the process useful in understanding their services and supply chains.
  - We are formulating a detailed report with the DfT.

We will hold a workshop with FHRG members to present and discuss the interim findings.

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DfT Climate Change Adaptation Strategy

Myles Smith, Head of Climate Adaptation Strategy, DfT

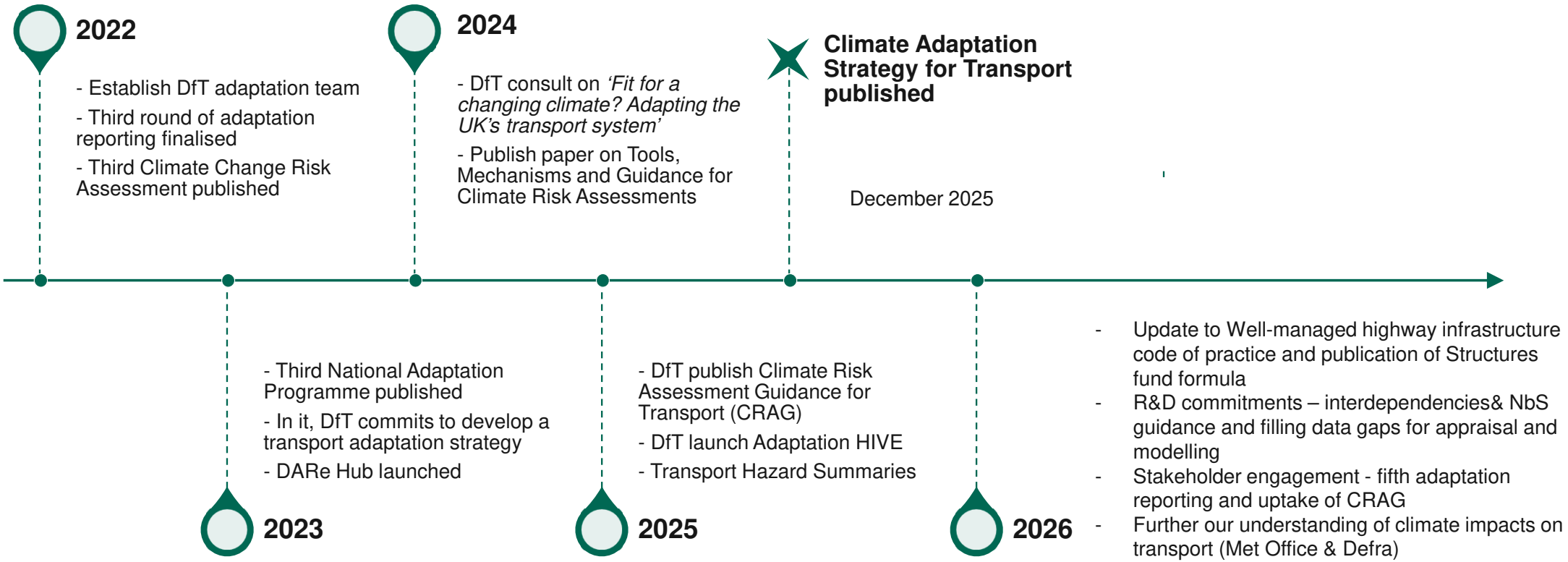
Department
for Transport

Climate Adaptation Strategy for Transport

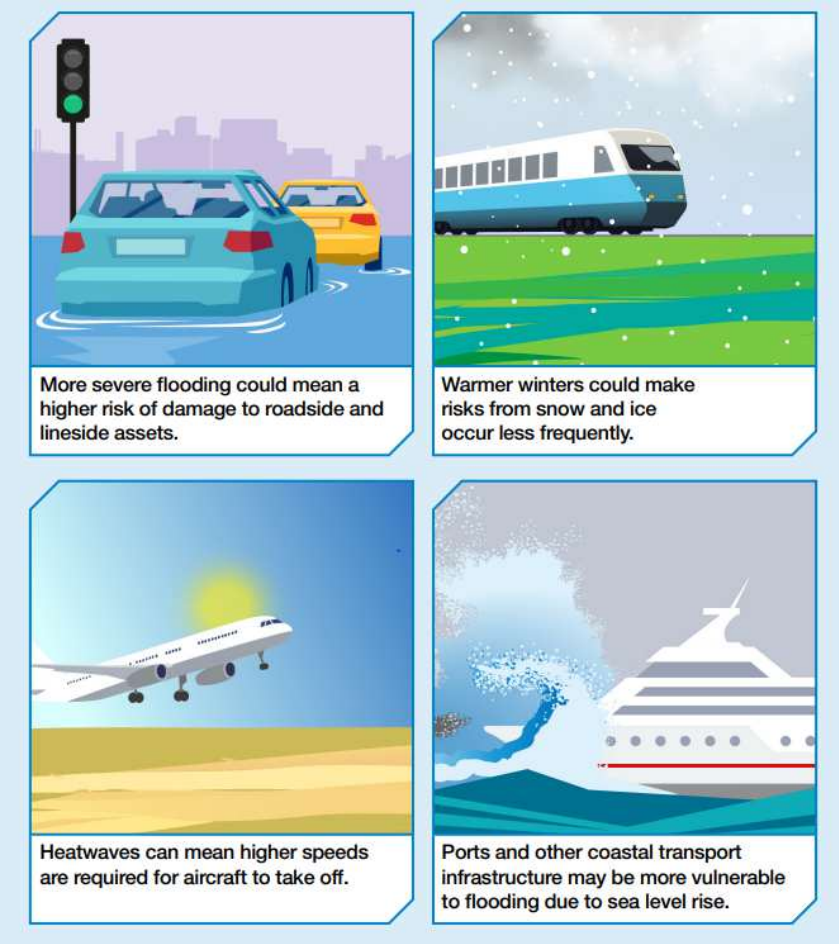
Myles Smith, Head of Climate Adaptation Strategy:
Environment and Adaptation Strategy Team

26 February 2026

Timeline


2022
- Establish DfT adaptation team
- Third round of adaptation reporting finalised
- Third Climate Change Risk Assessment published
2024
- DfT consult on *'Fit for a changing climate? Adapting the UK's transport system'*
- Publish paper on Tools, Mechanisms and Guidance for Climate Risk Assessments
Climate Adaptation Strategy for Transport published
December 2025
2023
- Third National Adaptation Programme published
- In it, DfT commits to develop a transport adaptation strategy
- DARe Hub launched
2025
- DfT publish Climate Risk Assessment Guidance for Transport (CRAG)
- DfT launch Adaptation HIVE
- Transport Hazard Summaries
2026
- Update to Well-managed highway infrastructure code of practice and publication of Structures fund formula
- R&D commitments – interdependencies& NbS guidance and filling data gaps for appraisal and modelling
- Stakeholder engagement - fifth adaptation reporting and uptake of CRAG
- Further our understanding of climate impacts on transport (Met Office & Defra)

Climate change is disrupting our transport system



Graphics from: [Transport hazard summary: changing climate - GOV.UK]

Widespread damage as Storm Amy 'hit harder' than expected

A derelict building collapsed on the Broomielaw in Glasgow, crushing a car

Derailed train investigation to look at drainage

The Rail Accident Investigation Branch said its investigation will look into the design of the drainage channel

Local Roads & Climate Risk

38% of roads in England are at risk of flooding from rivers, the sea or surface water; increasing to 46% by 2050 under current climate projections.

(National assessment of flood and coastal erosion risk in England 2024)

Highways sector responses to DfT's 2024 consultation: Transport Adaptation Strategy, cited the following challenges which impact their ability to be resilient to the impacts of climate change: **lack of funding and resource, competing urgent priorities, not a strategic organisational priority, difficulties in sharing cross-organisational data and the costs and benefits of adaptation are not understood.**

How much has extreme weather cost the highways sector so far?

- In the UK and Northern Ireland repair costs related to floods and heavy precipitation were estimated at £50 million per year in 2010, increasing at £500 million per year by the 2040s.
- The cost of bridge repairs from extreme weather can be between 2 and 10 times the actual cost of the bridge.
- Local highway authorities reported more than £250 million in damages to roads, bridges, public rights of way, and drainage systems following the 2015–2016 winter floodings.

The costs and data mentioned cover the period from 2010 onwards. Readers should note that costs are now higher due to inflation.

CIHT, Delivering a resilient transport network, 2024

Why we need a strategy

Extreme weather reduces the efficiency of the transport network through damage to infrastructure and delayed journeys.

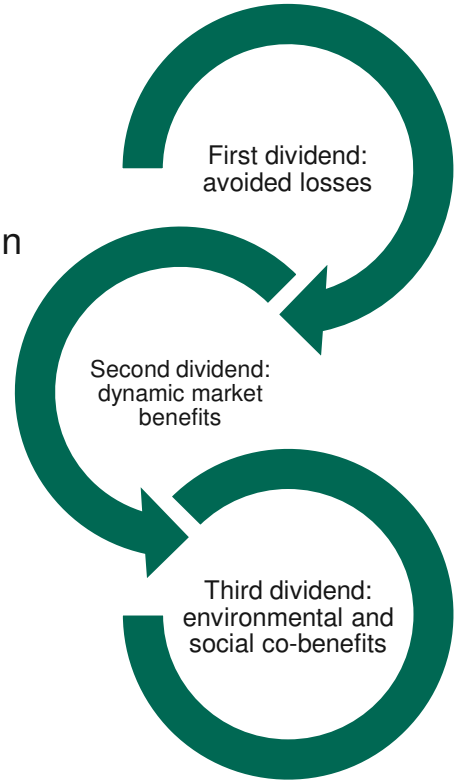
Economic growth is the number one mission of the government. Early investment in climate adaptation can help reduce costs and induce wider growth benefits.

Climate Change Act 2008 sets a framework to drive adaptation.

Transport is seen as a leader in adaptation however this is not being translated into action at sufficient pace.

Heavy storms in 2014 resulted in 8-week closure of the Dawlish railway line, leading to over £35m repair work and £80m on a new sea wall.

Dawlish Railway: Before and after repairs, 2014



Climate Adaptation Strategy for Transport

Vision of the strategy: A well-adapted transport system that is resilient to the changing climate

Even as the climate changes, when extreme weather and associated impacts are experienced, our transport system continues to operate, wherever possible.

The strategy supports the transport system to prepare for the impacts of climate change by:

- **Setting a long-term strategic direction**
- **Mainstreaming adaptation**
- **Strengthening the evidence base**

The Transport Adaptation Strategy builds on sector progress, focusing on long term direction, mainstreaming adaptation and strengthening the evidence base

Vision of the strategy: A well-adapted transport system that is resilient to the changing climate

People can travel with confidence and goods reach their destination on time, enabling the economy to grow. This requires a network that is flexible, responsive, reliable and operates safely. To achieve this, transport operators understand and manage the immediate and long-term climate-related risks and vulnerabilities of the transport system.

Systems thinking approach:

To set **long term strategic direction** for adapting the transport sector, we are:

- 🧭 Providing assurance and confidence through stronger objectives for climate adaptation.
- 📄 Implementing climate resilience standards by 2030 as committed to in 10Y Infrastructure Strategy.

Mainstreaming adaptation:

To enable transport operators to **mainstream climate adaptation**, we are:

📊 Updating Transport Analysis Guidance to consider climate risk.

➡️ Co-sponsoring a new publicly available standard that will set out how to undertake climate adaptation pathways for infrastructure.

🔗 Developing guidance to support the transport sector to identify interdependent risks and implement climate resilience measures that enhance natural habitats and biodiversity.

Robust evidence:

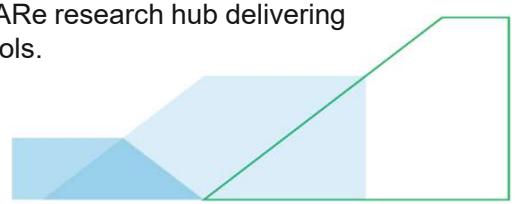
To **strengthen the evidence base** which underpins decision making, we are:

🧮 Exploring what data exists and how to improve it through a climate risk data plan.

📈 Understanding future vulnerabilities by assessing the climate resilience of the transport network and identifying actions to fill gaps.

🌍 Setting direction for wider research community through a climate resilience research programme to accelerate solutions to climate-related risks and vulnerabilities.

🏛️ Co-funding the DARe research hub delivering research, data and tools.



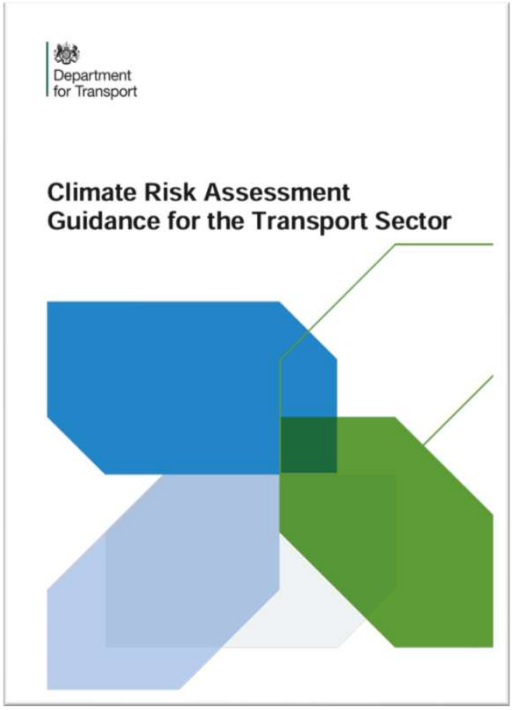
Strengthening the evidence base

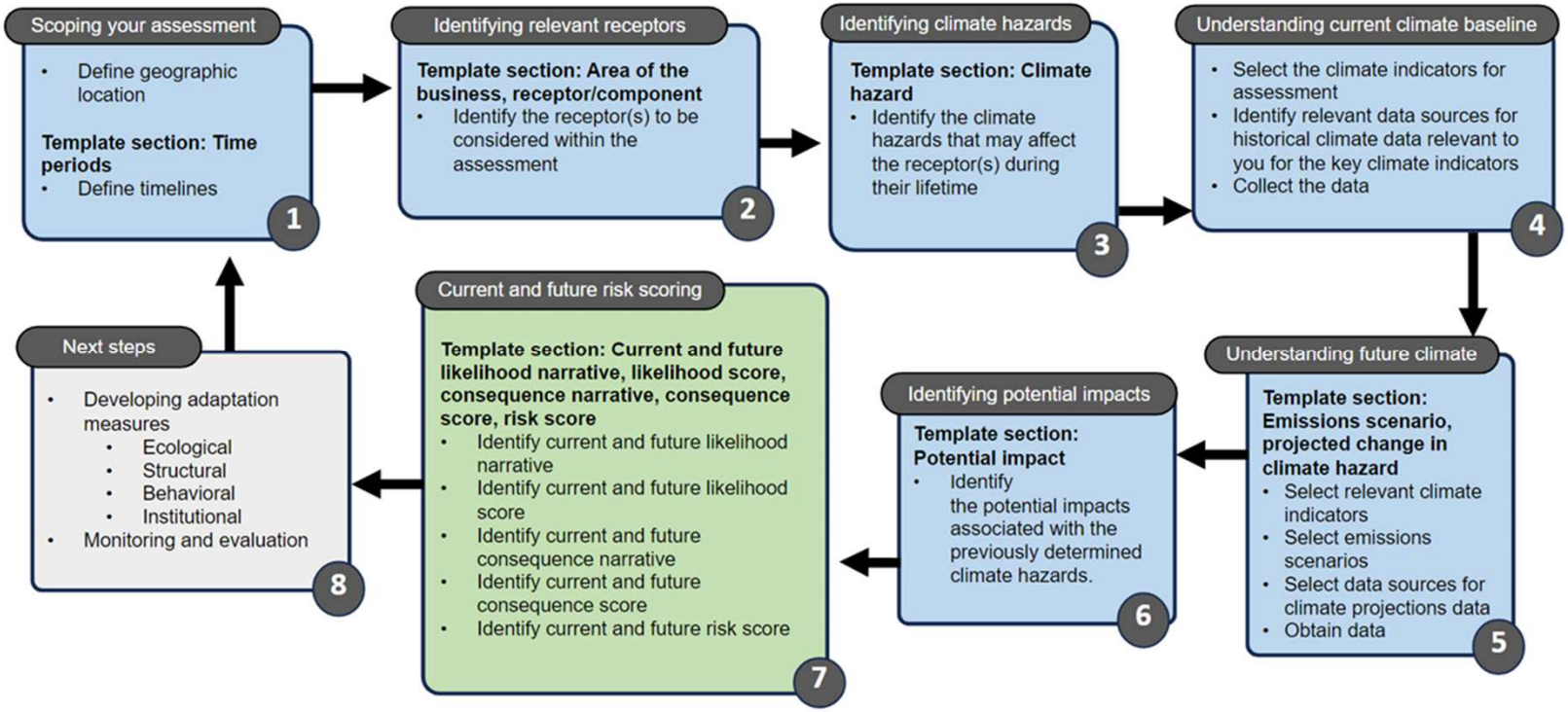
Utilise data from WS1 to support subsequent workstreams

		Complete	Underway	Longer term
WS1	**Baselining & monitoring**	Conduct research to: - Assess existing data & gaps - Identify metrics required	Develop data improvement plan	Identify metrics to prioritise and explore need for new guidance & methodologies
WS2	**Appraisal**	Develop Climate Risk Assessment Guidance. Introduce concepts into Transport Analysis Guidance (TAG)	Research to explore how resilience impacts can be appraised	Develop options to develop climate scenarios & appraisal guidance for valuation Develop sector case studies
WS3	**Trends & forecasting**		Develop modelling tools (e.g. co-funded through DARe and Digital Twin programme)	Share learning and iterate tools
WS4	**Evaluation**			Use data improvements from WS1 to support evaluation projects Develop sector case studies

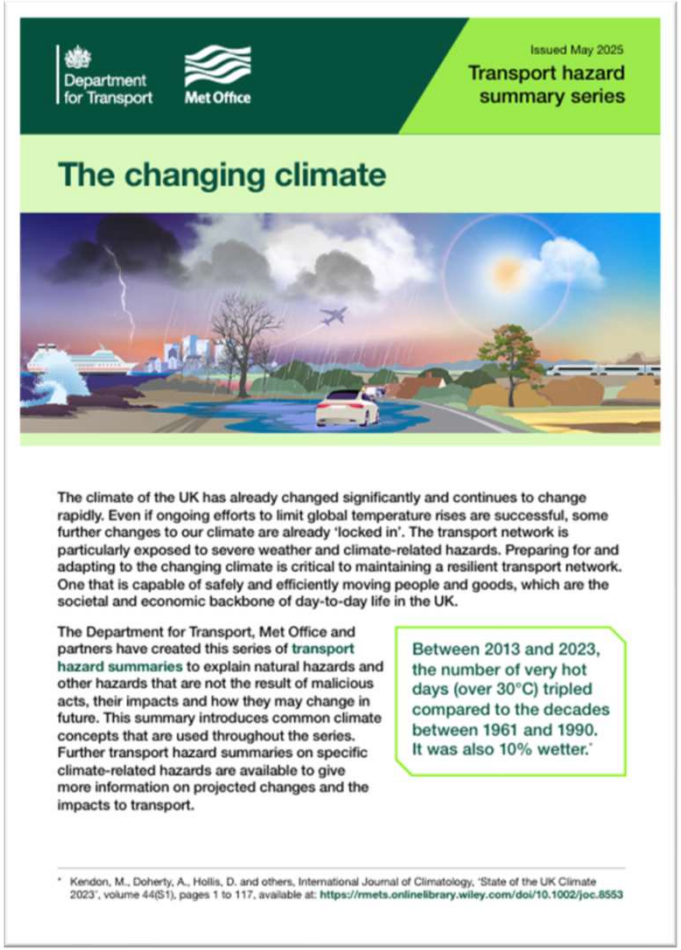
WS: Workstream

What else are we doing?





What else are we doing?



Department for Transport | Met Office

Issued May 2025

Transport hazard summary series

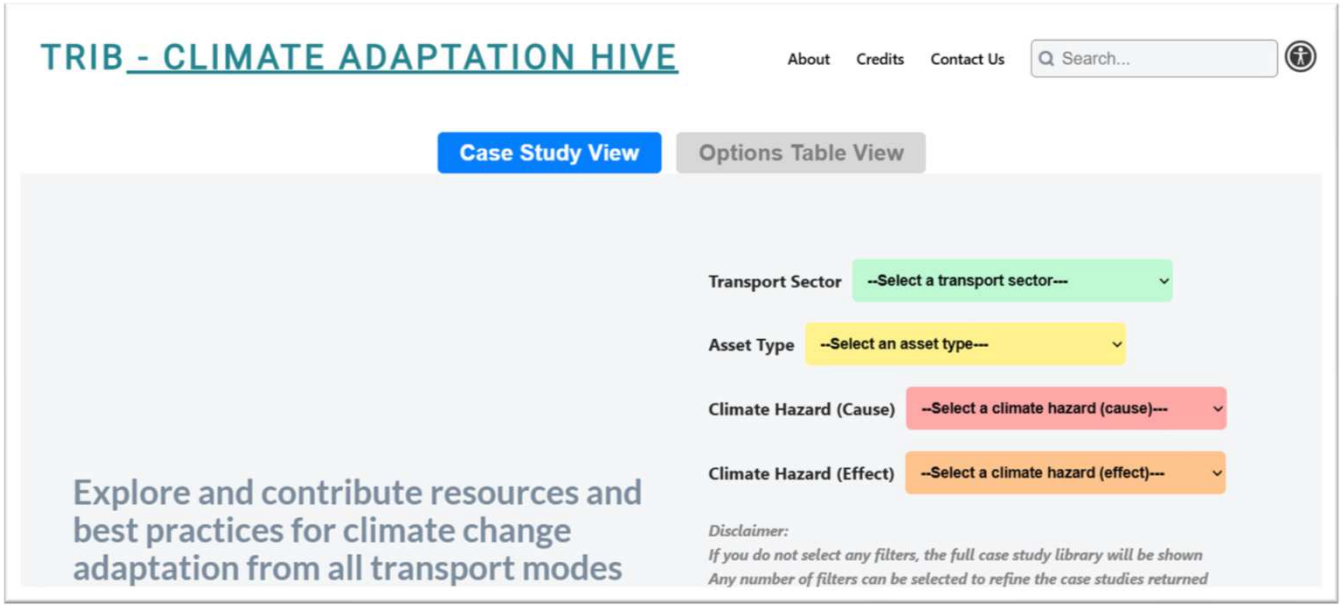
The changing climate

The climate of the UK has already changed significantly and continues to change rapidly. Even if ongoing efforts to limit global temperature rises are successful, some further changes to our climate are already 'locked in'. The transport network is particularly exposed to severe weather and climate-related hazards. Preparing for and adapting to the changing climate is critical to maintaining a resilient transport network. One that is capable of safely and efficiently moving people and goods, which are the societal and economic backbone of day-to-day life in the UK.

The Department for Transport, Met Office and partners have created this series of transport hazard summaries to explain natural hazards and other hazards that are not the result of malicious acts, their impacts and how they may change in future. This summary introduces common climate concepts that are used throughout the series. Further transport hazard summaries on specific climate-related hazards are available to give more information on projected changes and the impacts to transport.

Between 2013 and 2023, the number of very hot days (over 30°C) tripled compared to the decades between 1961 and 1990. It was also 10% wetter.*

* Kendon, M., Doherty, A., Hollis, D. and others, International Journal of Climatology, 'State of the UK Climate 2023', volume 44(S1), pages 1 to 117, available at: https://rmets.onlinelibrary.wiley.com/doi/10.1002/joc.8553



Q&A

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Impact of Climate Change: Roads and Structures

Victoria Walsh, Principal Engineer, Highways Intelligence Group, Devon CC

Our Project

Interrogating resilience of the Devon highway asset by combining asset data with predicted future climates

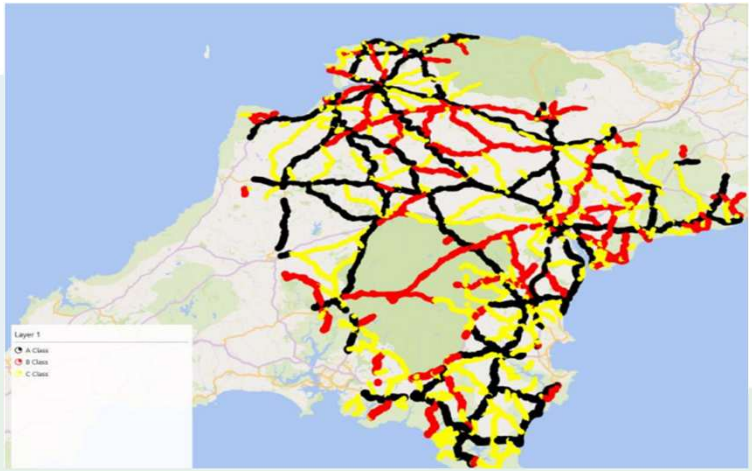
Focused on Bridges and Roads Only

1. Interrogating National Standards

- National adaptation programme and climate adaptation risk assessment – high level
- Focused on planning and capital builds

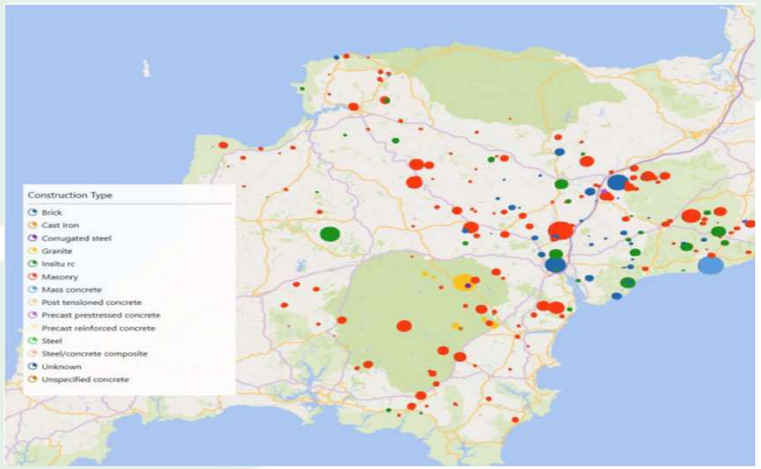
2. Data Sources

- SCANNER data (A, B, and C roads)
- 3000 structures

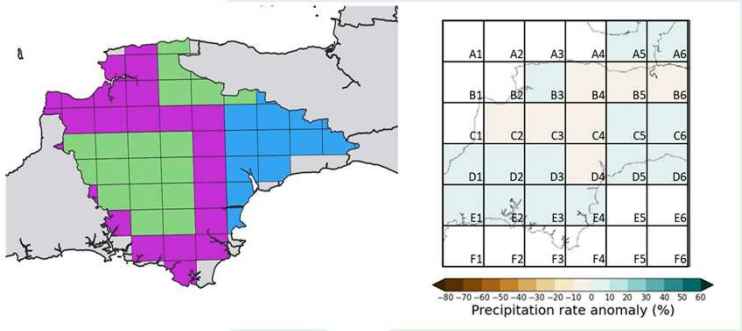


Conditions reviewed using:

- Inspection data
- Maintenance Records



3. Combining with Climate Data



Rainfall

Flood Maps *(Overlaid on Devon Network)*

Accident Data *(Ice)*

Temperature (air and surface)

Freeze-Thaw Cycles

Wind

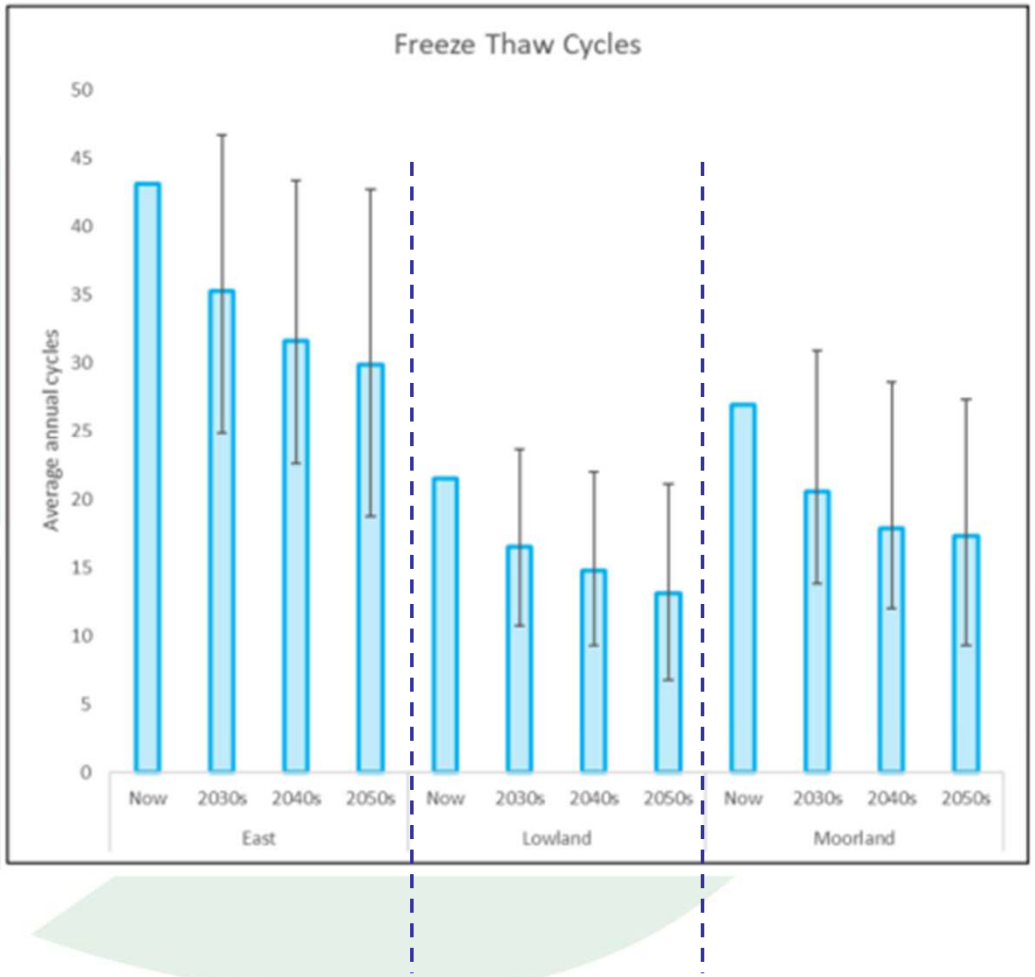
4. Analysation Phase

Climate Indicator	\/ Hazard, Receptor >	Bridges/structures	Road surface	Road surface & End users	Workers	Drainage	End users	Roadside	Signage Lighting and barriers	TOTAL
Temperature	Changing temperatures (extreme shifts) Freeze-thaw	1	0	0	0	0	0	0	0	1
	Changing average temperatures Heatwave	1	1	0	0	0	0	0	0	2
	Cold wave/frost	1	4	1	1	0	0	0	0	7
	Heatwave	1	2	0	1	1	1	0	0	6
	Wildfires	0	0	1	0	0	0	0	0	1
Preciptitation	Extreme rainfall	1	1	0	0	0	1	1	0	4
	Extreme precipitation	0	0	0	0	0	1	0	0	1
	Flooding	1	2	0	0	3	3	0	0	9
	Snow	0	0	0	0	0	1	0	0	1
Wind	Storm events	0	0	0	1	0	0	0	1	2
	Extreme gusts	0	1	1	0	0	2	0	0	4
Sea/Ocean	Sea level rise	1	1	0	0	0	0	0	0	2
Ground/solid mass	Subsidence	0	3	0	0	0	0	0	0	3
	TOTAL	7	15	3	3	4	9	1	1	43

5. Data Modelling

Modelled over following years:

- 2020
- 2030
- 2040
- 2050



6. Interpretation

Pros	Cons
Freeze–thaw cycles reduce	More Water Damage
Icy road accidents to reduce	Scour related damage on bridges to increase
Pothole damage/cracking may reduce	Landslides to increase
Winter maintenance cost savings	Flooding increasing
Reactive costs could adjust	

Rising air temperature may be the biggest threat

What could be our next step?

- Develop detailed modelling frameworks
- Conduct deeper modelling
- Add mitigation scenarios and re-run predictions.

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End of Part I

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