



Department  
for Transport

# Flooding Mitigation & Climate Change

The Government's approach to flooding and inclement weather events on the local highway

**Gary Kemp, Local Highways Maintenance Policy Officer**

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Official

# Climate Change Adaptation (CCA) and Resilience

As mentioned in my previous presentation to APSE in October last year, climate trend predictions suggest we will experience **warmer wetter winters and hotter drier summers, with more frequent extreme weather events.**

## Adaptation v resilience?

- **Adaptation** is the process of adjustment to actual or expected climate change and its effects. Adaptation seeks to **reduce risks, moderate harm, and exploit beneficial opportunities** from today's changed climate conditions, and to prepare for impacts from future changes.
- **Resilience** is the ability of a system and its component parts to **anticipate, absorb, accommodate, and recover** from the effects of a potentially hazardous event in a timely and efficient manner.



Port of Immingham £7.4m scheme to improve flood defences after tidal surge in 2013.

## What are we working towards?

**A transport network that is flexible, operates safely and is responsive to a changing climate.**

# Transport-related risks

The Climate Change Committee identified 61 risks.  
DfT own seven and contribute to a further two.



*I1 and B6 are cross-economy risks that DfT has a supporting role in addressing.*

**I1** - Risks to **infrastructure networks** (water, energy, transport, ICT) from cascading failures

**I2** - Risks to infrastructure services from **river, surface water and groundwater flooding**

**I3** - Risks to infrastructure services from **coastal flooding and erosion**

**I4** - Risks to **bridges and pipelines** from flooding and erosion

**I5** - Risks to transport networks from **slope and embankment failure**

**I7** - Risks to subterranean and surface infrastructure from **subsidence**

**I12** - Risks to transport from **high and low temperatures, high winds, lightning**

**B2** - Risks to **businesses and infrastructure** from coastal change from erosion, flooding and extreme weather events

**B6** - Risks to business from disruption to **supply chains and distribution networks**

# Relevance of the CCRA and NAP



## CCRA

Provides an assessment of the risks of climate change on the UK based on the latest climate change projections from the Met Office

Published every 5 years:

- CCRA1 – 2012
- CCRA2 – 2017
- CCRA3 – 2022
- CCRA4 – due 2027

Addresses risk across key sectors:

- Natural Environment
- Business and Industry
- Infrastructure
- International Dimensions
- Health and Built Environment

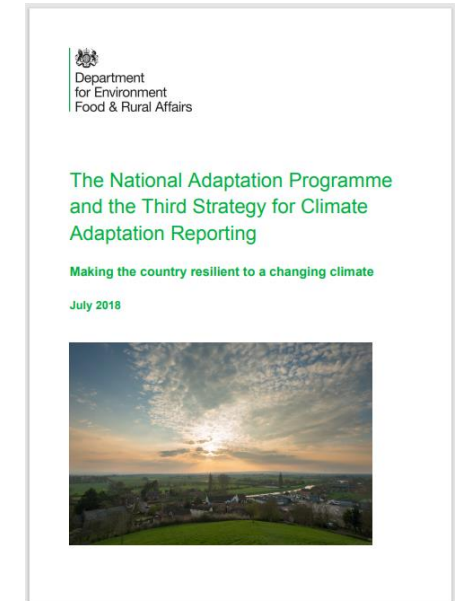
## NAP

Sets the actions that government and others will take to adapt to the challenges of climate change in the UK

Published every 5 years:

- NAP1 – 2013
- NAP2 – 2018
- NAP3 – due 2023

Devolved administrations have their own programmes for adaptation.



<https://www.gov.uk/government/publications/climate-change-adaptation-policy-information/climate-change-adaptation-policy-information>

# Lessons learned from extreme-weather

Independent 'Deeming Review' commissioned by DfT to identify sector learning from extreme events, published last winter. Builds on previous reviews in 2010 (Quarmby) and 2014 (Resilient Network review) and published in 2021 -

## Key Recommendations

1. Highlighted that Highways Operations and Senior Management Teams need to be trained and to be tested through formal exercising for all types of major incidents; and
2. Consistent Rapid Impact Assessments (RIA) are essential to create shared situational awareness - and to underpin the programming of repairs and funding priorities:

## Progress to Date - DfT actively supporting the implementation of this:

- TRIG award to Stormchain RIA: <https://lcrig.org.uk/news/rapid-impact-assessment-system-stormchain-awarded-trig-funding>
- successful Government / multi-agency **East Coast Flood Exercise (FX22)**
- New Board established at UK Roads Leadership Group looking at Adaptation Biodiversity and Climate
- Please do take some time to read the report at: <https://www.gov.uk/government/publications/lessons-learned-from-extreme-weather-emergencies-on-uk-highways>



# Overview from the Deeming Review



## Summary:

- The traditional focus on snow and ice is in marked contrast to wider impacts most councils are now witnessing, most notably in the increase in flooding events
- Level of preparedness is based around having an excellent team and structure, reacting as best they can
- Local highway networks in the UK should now be seen as critical 'Lifeline' infrastructure
- New *competencies* are needed to *empower* the sector as a partner in collaborative Integrated Emergency Management.
- *Sharing situational awareness* of highway impacts, underpinned by redefined *risk-based approaches* during major incidents is critical to post-incident network recovery



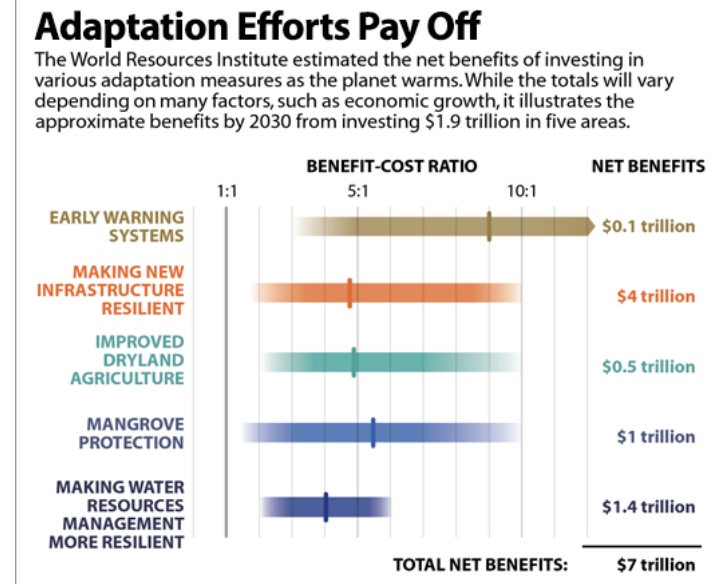
# Rapid Evidence Assessment (REA)



National  
Situation  
Centre

- The Government's National Situation Centre undertook an REA to explore the costs and benefits of considering adaptation when planning and maintaining transport infrastructure.
- Most discussed threats to transport infrastructure in the reviewed literature were flooding, heavy precipitation, and extreme heat.
- Most of the evidence reviewed related to **road** and **rail** infrastructure (as this is where most information exists.)
- There was a **consensus in the literature that the economic benefit of adaptation outweighs the cost.**

Thames barrier is perhaps the most high-profile adaptive piece of infrastructure in the UK. In October 2021, Thames Barrier raising hit the 200 mark for flood defence purposes since 1982.

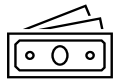


SOURCE: World Resources Institute/Global Commission on Adaptation

InsideClimate News

# Highways goals and actions

Across the 9 transport risks, the **proposed risk reduction goals** for highways:



Maintaining a resilient highway network through long term investment and management



Ensuring the network is safe for users



Having effective plans in place to respond to adverse weather events

FLOOD FORECASTING CENTRE

Corporate report  
Flood Forecasting Centre: strategic plan  
2021 to 2024  
Published 9 May 2022

## Themes emerging from the proposed actions for the highway network:



Investment that is aligned, coordinated and acknowledges the increasing impact from climate change.



Data and evidence of assets and environment



Highways asset management and renewals



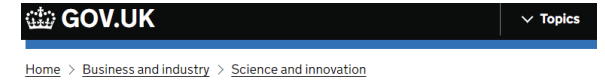
R&D



Collaboration and information sharing



National Underground Asset Register



News story

### Government awards nearly £2 million to innovative transport proposals

More efficient and greener transport systems one step closer as entrepreneurs and innovators awarded government funding to develop their projects.



News story

### Government invests in innovation with £30 million for cutting-edge highway decarbonisation projects

Funding will support pioneering projects to decarbonise local highways infrastructure across the UK.



Press release

### Forum focuses on bolstering UK's future resilience

Figures from across the public, private and voluntary sector met to discuss how to bolster the UK's resilience.



# National Underground Asset Register (NUAR)

## About NUAR – A request please, to help improve resilience!

- The Geospatial Commission is building a digital map of underground pipes and cables that will revolutionise the way we install, maintain, operate and repair our buried infrastructure - the **National Underground Asset Register (NUAR)**.
- NUAR will improve the efficiency and safety of underground works by creating a secure, auditable, trusted and sustainable platform.
- It will provide a consistent, interactive digital map of buried asset data, accessible when, where and how it is needed by those planning and executing excavations on behalf of underground asset owners.
- It will also lead to enhanced communication between parties and improve data quality.



**£350m pa economic benefits**

- The estimated economic cost of accidental strikes on underground pipes and cables is £2.4 billion a year
- The economic benefits of NUAR are estimated to be £350m per year
- This consists of benefits in efficiencies, reduced asset strikes and reduced delays to the public and businesses
- We have published the approach taken to estimate the relevant benefits

be used to complement your existing processes, plan for future adoption, and provide valuable insights to practices as outlined in HSG47 should ALWAYS be followed.

Area Bookmarks and sharing

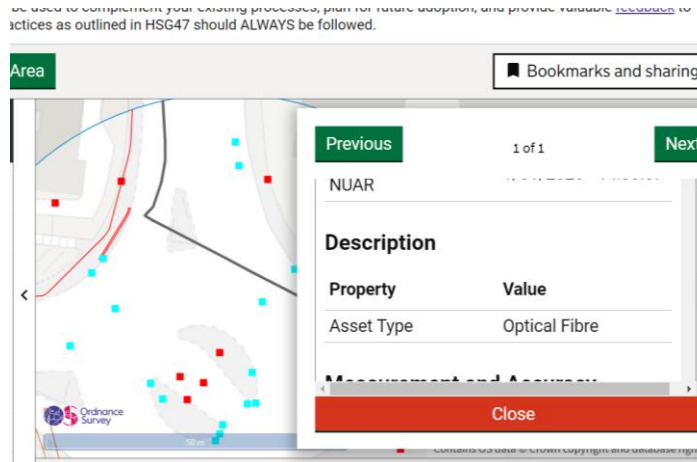
Previous 1 of 1 Next

NUAR

Description

Property	Value
Asset Type	Optical Fibre

Close



## Benefits for a wide range of users

- Asset Owners - efficiencies in sharing data
- Excavators - reduced risks of asset strikes
- Data managers - improved data quality
- Planners - efficiencies in sourcing data and reduced risks of asset strikes
- Plant protection officers - greater knowledge of activity near assets
- General public and businesses - reduced delays from accidental strikes

# Recommendations

- DfT encourages that all LAs, if not already doing so, do continue to take adaptation and resilience seriously – looking for LAs to describe what they have done /intend to do to highlight best practice (maybe as part of yearly self assessment).
- **There's more opportunities when LA's collaborate across Highway, Transport and Flood authorities (ie: internally!).**
- Aware that other authorities have taken the opportunity to use Defra Grant-in-Aid to enhance public realm and highway assets whilst undertaking coastal and de-culverting schemes, building more resilience into surface water drainage assets.
- There is also an important link to be made in relation to development and to ensure that the HA's are influencing and ensuring resilience is built into their future infrastructure.
- **UK Roads Leadership Group:** New Adaptation and Climate Board is now established – tasked with setting new cross cutting approaches and driving up standard and supporting councils

***QUESTION around guidance: Further guidance through UKRLG Well managed highways – what is needed?  
What other help and support can the Department give?***