Department for Transport

Transport Resilience Strategy



November 2026

Department for Transport
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Contents

Ministerial Foreword 4

Introduction 6
Context 7
The UK transport system 12

Objective 1: Continuously assess how resilient the UK transport sector is, to target interventions and resources effectively 16
Identifying, assessing, and anticipating risk 17
Evaluating resilience capabilities 20
Understanding interdependencies 22
Validating through exercises 26
Learning lessons 29
Measuring resilience 29

Objective 2: Enable the whole of the transport system, including transport users, to take action to increase resilience 30
Ensuring preparedness 31
Critical National Infrastructure 33
System resilience 36
Building networks 38
Working together locally 39
Cooperating with transport users 41

Objective 3: Strengthen government's transport resilience capabilities 44
Lead Government Department model 45
Embedding resilience principles in government 46
Transport crisis response 47
Effective sharing, learning, and collaboration 50

Government activities following publication of the Transport Resilience Strategy 53

Annex A: Glossary 54
Definitions 55
Government transport resilience roles and responsibilities 58
Strategic framework 61

Annex B: Commitments 62

Endnotes 64



Ministerial Foreword

Transport is vital to our way of life. It connects people to family and jobs, goods to industry and supports connectivity, economic growth and health. A secure and resilient transport system is essential to thriving communities and to delivering economic growth across every part of the UK.

The publication of the UK Government Resilience Action Plan in July 2025 set out this government's strategic approach to building resilience in an increasingly volatile and uncertain world. This Transport Resilience Strategy puts that approach into practice for the transport sector, setting our direction for the next five to ten years.

The threats and hazards facing our transport system are becoming increasingly complex and unpredictable. Its interconnectedness means that disruption in one place can quickly have consequences elsewhere, affirming the importance of building resilience within the system overall.

We have seen repeatedly why this matters. The COVID-19 pandemic in 2020 showed how a global event can quickly disrupt the UK's transport system and affect every part of daily life.

In February 2014, storms caused catastrophic damage to the railway line at Dawlish, washing away sections of track and destroying the vital artery that connects communities and businesses in the south-west to the rest of Great Britain. Over a decade later, a £165m package of resilience measures built by Network Rail and funded by the Department for Transport is proving to be effective at protecting the iconic stretch of track from rising sea levels and extreme weather.

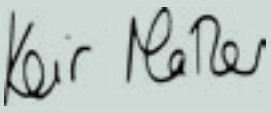
In 2024, Storm Darragh caused damage to Holyhead port, impacting freight movement and supply chains. Spring 2025 saw a fire at an electrical substation which closed Heathrow airport for 23 hours, impacting approximately 200,000 passengers and thousands of tonnes of freight operations. In 2026, periods of extreme heat across the UK provided a further reminder of the growing risks posed by severe weather and climate-related disruption to transport infrastructure and services.

Conflict in the Middle East in 2026 has demonstrated how geopolitical events thousands of miles away can affect the UK transport system, disrupting international travel and impacting fuel supply and the resilience of our supply chains. Together, these events show resilience cannot be treated as an 'optional extra', but as something that is vital to the operations of businesses and transport operators. Preparedness and effective resilience strategy will ultimately benefit people, families, and communities.

But resilient infrastructure and robust plans are only part of the answer. We also need resilient, well-prepared people, with everyone understanding the part they play. I want to thank the millions of transport users, and the thousands of dedicated staff who maintain and operate our network and who play their part in anticipating, preventing, preparing for, responding to, and recovering from the threats and hazards facing us.

Whilst we will continue to embrace automation and advances in digital technology to improve safety and effectiveness, transport remains a people-dependent system. Therefore, it is vital that people within the transport system are equipped with the knowledge, capabilities, and tools necessary to keep transport moving. By ensuring that everyone knows their role and how it impacts the continuing resilience of the transport system, and by ensuring that transport users are prepared and armed with the right information, we can reduce the likelihood of disruption and lessen its impact when it occurs.

Transport resilience is a whole-government, whole-sector, and whole-society endeavour. No single organisation can deliver it alone. As the Minister responsible for transport resilience, I am pleased to present a strategy which sets out how we will work together over the coming years to strengthen the resilience of our transport system, protect the connections on which people and businesses depend, and ultimately improve the everyday experience of those who use our networks.



Keir Mather MP
Parliamentary Under-Secretary of State
Minister for Aviation, Maritime and Decarbonisation

Introduction



Context

UK government defines resilience as: the ability to anticipate, assess, prevent, mitigate, validate, respond to, and recover and learn from natural hazards, deliberate attacks, geopolitical instability, disease outbreaks, and other disruptive events, civil emergencies or threats to our way of life.

The UK's National Security Strategy identifies the main challenges the country faces in an era of radical uncertainty and sets out a new Strategic Framework covering all aspects of national security and international policy.[1] It sets out the need for long-term actions to build national resilience at all levels, against external shocks or threats that could cause disruption to our way of life.

The Resilience Action Plan, published in July 2025, sets out this government's strategic approach to increasing the UK's resilience against the risks it faces.[2] It sets out further detail on the plan to strengthen domestic resilience and how the UK government is investing to protect the nation, defining our objectives on preparedness and whole of society resilience and the actions it will take to become more resilient.

To address resilience, the UK government approaches risk using the resilience cycle, which breaks the management of risk down into distinct but connected stages.[3] This approach deliberately places emphasis on early upstream action, recognising that resilience is built long before a crisis occurs. Whilst effective response remains vital, the resilience cycle makes clear that response is only one phase. Alongside it sits seven other equally important stages: anticipation, assessment, prevention, preparation, validation, recovery, and learning.



This Transport Resilience Strategy applies the principles of the resilience cycle and the objectives of the Resilience Action Plan to provide the strategic direction to improve the resilience of the transport sector over the next five to ten years. It also reflects the conclusions of UK government's review of resilience, conducted in response to the COVID-19 Module 1 Inquiry.

This strategy will follow the approach laid out in the Resilience Action Plan, with corresponding objectives:

Resilience Action Plan

Objective 1

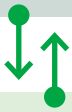
Continuously assess how resilient the UK is to target interventions and resources effectively

Objective 2

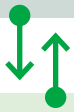
Enable the whole of society to take action to increase their resilience

Objective 3

Strengthen the core public sector resilience system







Objective 1

Continuously assess how resilient the UK transport sector is, to target interventions and resources effectively

Objective 2

Enable the whole of the transport system, including transport users, to take action to increase their resilience

Objective 3

Strengthen government's transport resilience capabilities

Transport Resilience Strategy

Together, these objectives will ensure that resilience principles are embedded within decision-making and planning, and that the UK government's actions are taken in partnership with the whole of the transport sector. This strategy is intended for all those with a role in strengthening the resilience of the UK's transport system, including central government departments, devolved governments, the local tier, infrastructure operators and owners, transport service providers, transport users, and service providers in interdependent sectors.

The local tier: The 38 Local Resilience Forums in England, the 4 Local Resilience Forums in Wales, 12 Local Resilience Partnerships in Scotland, and 3 Emergency Preparedness Group areas in Northern Ireland.

Significant good work is already underway to improve resilience across the transport system. However, this activity is too often undertaken within organisational silos. There is a clear role for government to convene stakeholders within and across transport modes to improve join-up, including strengthening relationships between transport operators and the local tier.

The Transport Resilience Strategy will therefore focus on what can be done to ensure that strong formal and informal networks are in place, that knowledge is shared effectively, that duplication of resilience activities between operators is streamlined and that, across the whole sector, everyone has the skills, capabilities, and capacity they need to improve transport resilience together. It also outlines expectations for the transport industry and articulates the government's offer of support, fostering a shared understanding of roles and responsibilities among all stakeholders involved in safeguarding the continuity and security of the UK's transport networks.

The strategy's scope encompasses the full range of small but significant day-to-day disruptions, emerging and chronic risks, and high-impact acute events. The scale, complexity, and interconnected nature of these risks mean that resilience cannot be delivered by government alone or confined to emergency response. It will truly require a whole-of-society approach.

This document is supported by, and complementary to, the Department for Transport's Climate Adaptation Strategy for Transport which sets out the actions that government is taking to ensure the transport system is prepared for the specific impacts of climate change. Specific measures to increase infrastructure resilience will be taken forward by infrastructure owners and through the UK government's commitments outlined in the 10 Year Infrastructure Strategy.[4]

Transport projects included in the 10 Year Infrastructure Strategy



£24 billion of capital funding between 2026-27 and 2029-30 allocated to National Highways and local authorities to maintain and improve motorways and local roads across the country. This includes investing £1 billion to enhance the road network and create a new Structures Fund to repair major structures like bridges, flyovers, and collapsed roads.



£15.6 billion investment for public transport systems through the Transport for City Regions settlements, which will include enabling construction to start on West Yorkshire's Mass Transit system.



£2.5 billion funding provided at the Spending Review 2025 to support delivery of East West Rail, enabling the delivery of new homes and boosting the local economy by £6.7 billion a year by 2050.



Continuing delivery of the High Speed 2 between London and Birmingham and maximising economic development around key stations along the route at Old Oak Common, Euston, Interchange Station (Solihull) and Birmingham Curzon Street.



Supporting a third runway at Heathrow, inviting proposals to enhance connectivity, reduce travel costs and minimise delays at one of the busiest global airports, whilst meeting legal, environmental and climate obligations.



Driving forward work on the Lower Thames Crossing with an initial £590 million for 2026-27 to deliver the project.


25

The UK transport system

Transport moves people and goods across every part of the country and underpins economic growth, national security, and daily life. It enables access to healthcare and education, supports emergency response, and underpins the resilience of essential systems including food, water, energy, and agriculture. Resilience in transport is therefore not only about keeping networks open, but about preserving socially and economically critical connectivity, including for freight, logistics, and access to essential destinations. It is a key enabler of the effective operation of other critical sectors. Both passenger and freight services rely on resilient transport systems to maintain safe, reliable, and continuous operations.

The UK transport system is a diverse mix of public and private operators, delivery models, and scale of operation; from local authority-maintained roads to the Channel Tunnel Rail Link and Heathrow airport. It is a complex system-of-systems comprising physical assets, digital systems, operational processes, institutions, supply chains, markets, and people. Because of this, disruptions are rarely confined to a single asset or organisation; they can cascade across modes, sectors and geographies, affecting accessibility, economic activity, public services, and wider societal resilience.

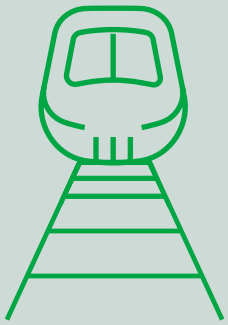
Whilst UK government sets the overall national policy direction for transport and holds responsibility for risks that affect the UK-wide system, each devolved government oversees its own transport arrangements, investment plans, and approaches to resilience, supported by its respective agencies and local structures.

In keeping with the principles set out in the Resilience Action Plan and the Amber Book, decisions about preparing for and managing disruption should be taken at the most appropriate level, with UK government stepping in where risks or impacts extend beyond a single nation or require coordination across the UK.[5] The Department for Transport works closely with the devolved governments to ensure that resilience planning is coherent across administrative boundaries, that any issues affecting the interoperability of transport services are anticipated and addressed, and that best practice is shared.

This strategy recognises the role local partners and strategic authorities, including Mayoral Strategic Authorities, play in planning, funding, and overseeing local transport networks. Government will continue to work with strategic authorities to ensure alignment between national resilience priorities and local transport planning. Local highway authorities also play a vital role as infrastructure owners, responsible for the planning, operation, and maintenance of the UK's extensive local road network.

Regulators play an important part in strengthening transport resilience by setting and enforcing the standards that operators and infrastructure owners must meet to ensure safe, reliable, and resilient services. Bodies such as the Civil Aviation Authority, the Office of Rail and Road, the Maritime and Coastguard Agency, and relevant safety regulators oversee compliance with statutory duties, and promote improvement through inspections and assurance activity. Commitments in the Transport Resilience Strategy will be proportionate and complementary to existing regulatory regimes.


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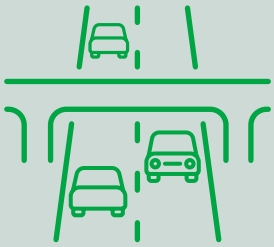


Over 2,550 open mainline stations in the UK

- Between April 2024 and March 2025, there were 1.73 billion journeys made by rail passengers in the UK.[6]
- 16.5 billion net tonne kilometres (10.3 billion net tonne miles) of rail freight were transported between April 2024 and March 2025 in the UK.[7]

International rail

- Over 18 million international rail journeys to and from the UK in 2024.[8]



A strategic road network of more than 8,000 miles across the UK,

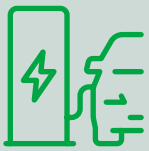
comprising an English Strategic Road Network of more than 4,500 miles of motorways and major 'A roads', over 1,000 miles of centrally managed major roads in Wales, a trunk road network of over 2,000 miles in Scotland, and over 1,500 miles of Northern Irish motorways and A roads.[9,10,11]

- As of December 2024, there were approximately 41.7 million licensed vehicles in the United Kingdom.[12]
- There are over 43 million full driving licence holders in the UK.[13,14]
- Estimated over 300 billion vehicle miles travelled across the UK in 2024.[15]



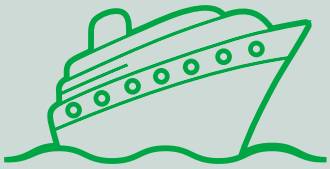
An extensive local road network

- Over 250,000 miles of local roads across the UK.[16]



A growing electric vehicle network

- More than 118,000 public electric vehicle chargers across the UK.[17]



There are currently **around 120 active commercial ports** and many more harbours and marinas in the UK.

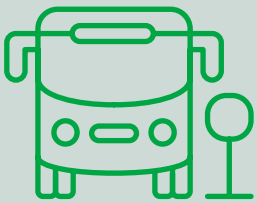
- In 2024, around 85% of imports and exports measured by weight and 55% by value were moved by sea.[18]
- In 2024, 429.7 million tonnes of freight passed through UK seaports.[19]
- There were 56.7 million sea passengers in 2024 (18.4m international and 38.3m domestic).[20]



45+ UK airports

handling commercial flights.

- There were 292 million terminal air passengers in 2024, a 186% increase since 1990.[21,22] This included 256m international travellers and 37m domestic.[23,24]
- 2.5 million tonnes of freight handled at UK airports in 2024.[25]



Bus travel

- There were 3.7 billion local bus passenger journeys in England in the year ending March 2025.[26]
- Over 1 billion bus service miles were operated across the UK in the year ending March 2025.[27]



Active travel

- The National Cycle Network comprises over 12,000 miles of signed paths and routes for walking, cycling, wheeling, and exploring outdoors across the UK.[28]
- 81% of very short trips of up to a mile were walked in 2024, whilst only 36% of trips of slightly longer than this (1–2 miles) were walked.[29]

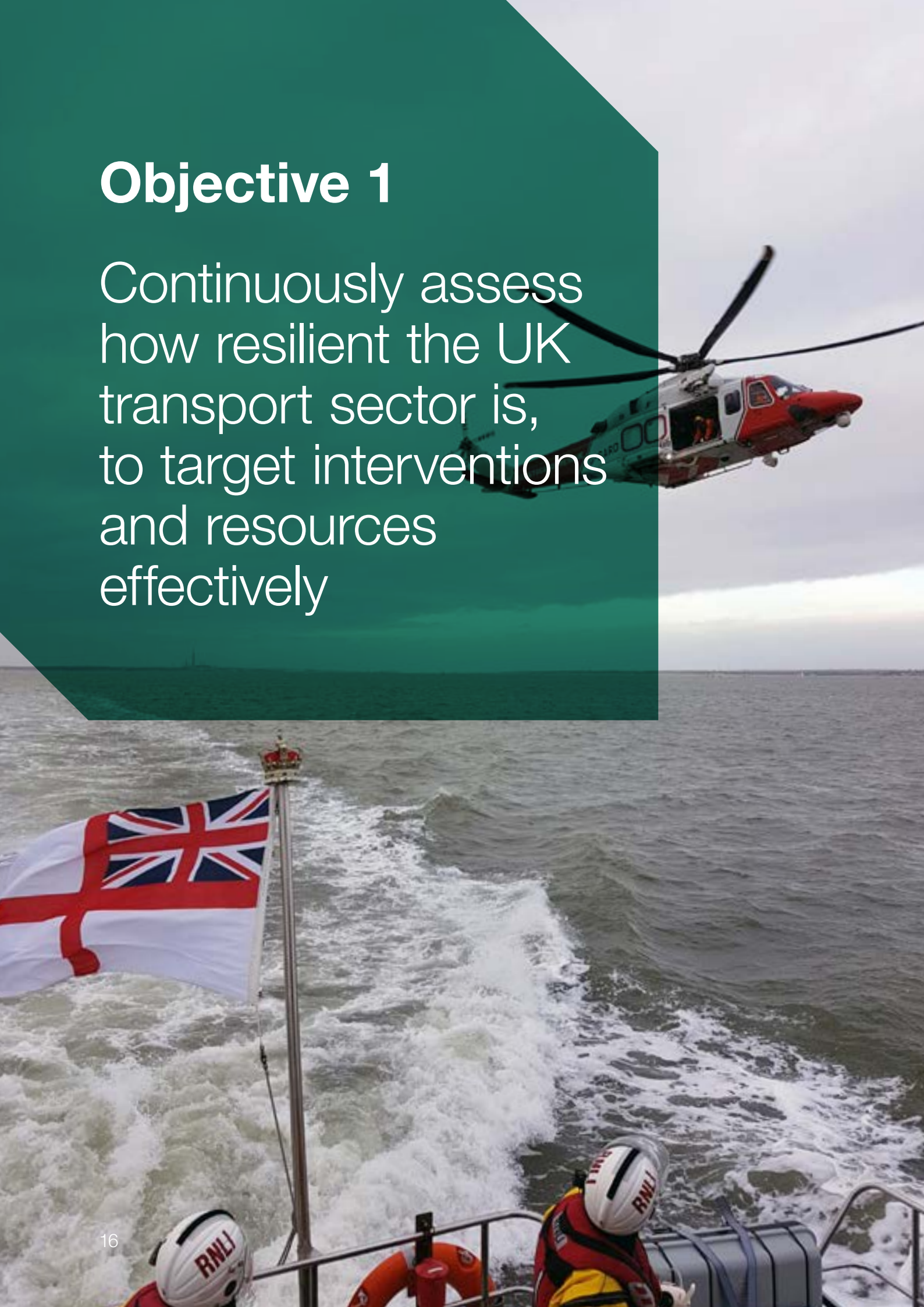


Transport interconnectivity

- Around 7% of trips were multi-modal (involving more than one transport mode) in 2024. The proportion of trips using more than one transport mode varies by region. This ranges from 3% in the North East of England to 16% in London.[30]

Objective 1

Continuously assess how resilient the UK transport sector is, to target interventions and resources effectively



Identifying, assessing, and anticipating risk

Resilience starts with a comprehensive and shared understanding of the risk picture. This means developing a clear, evidence-based assessment of the threats, hazards, and capabilities across the transport system so that government and industry can target interventions to where they will have the greatest impact.

The evolving and changing environmental, geopolitical, societal, and technological picture means it is not possible to eliminate every threat and hazard to the transport system. But threats and hazards can be anticipated through robust horizon scanning, assessed for the likely impact, with appropriate measures put in place to reduce disruption when incidents occur.

To assess the risks to the UK, the UK government produces the National Security Risk Assessment, along with its public facing version - the National Risk Register.[31] Developed and refined over two decades, it provides the government's assessment of the most serious acute risks facing the UK, including their likelihood and potential impact. It also includes a reasonable worst-case scenario for each risk to inform planning.

Risk assessment should not only consider the local impact, but also how localised failures can trigger network-wide consequences, and how the same disruption can have different impacts depending on the availability of alternative routes, modal options, user needs, and the strategic importance of affected passenger and freight flows.

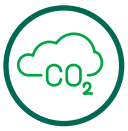
To complement the acute risks set out in the National Security Risk Assessment and National Risk Register, the UK government published the Chronic Risks Analysis in 2025.[32] Chronic risks are longer-term challenges that can erode the economy, way of life, and the integrity of the transport systems by causing their own harms and increasing the likelihood and impacts of acute risks. The primary purpose of the Chronic Risks Analysis is to assist government and organisations to prepare for long-term changes in the risk landscape. It is designed to complement, not replace, existing plans or strategies.

The transport system is particularly vulnerable to chronic risks. In England alone, 37% of railways and 38% of roads are in areas currently assessed as at risk from one or more sources of flooding. This is expected to rise to 54% and 46% respectively based on climate change projections by the middle of this century.[33]

Many of the risks set out in these assessments are not specific to transport, but nearly all have the potential to affect transport services, whether directly, including where transport is a primary target, or indirectly through second-order effects such as utility failures, behavioural change, or wider societal disruption. These risks range from routine service disruptions, to industrial action and severe weather events, to the catastrophic (very high impact, cross-cutting risks), including pandemics and national power outages.

The threat and hazard context for the transport sector is complex, interconnected, and rapidly changing. Structural forces such as geopolitical and transnational challenges, rapid technological changes, and domestic challenges all significantly influence the acute and chronic risk picture.

This includes risks, such as:



Climate change, including changes to severe weather



Workforce disruption, including through industrial action



Rapid technological changes including increasingly interconnected digital systems subject to failure or cyber attacks



The rising threat of confrontation and conflict from hostile states, and changing nature of malicious threats including terrorists and criminals



Challenges associated with global instability, affecting supply chains



Power outages and disruption to critical utilities affecting transport operations



A higher maintenance requirement due to ageing infrastructure across the road and rail sectors



Biological risks including novel high consequence diseases and pandemics

Whilst we can prepare for specific risks, we must also plan for the common consequences of risk scenarios. Common consequences are the shared or widespread impacts that various risks can have, regardless of the specific cause of the disruption. For example, a mass evacuation plan could be needed for a variety of issues, so we plan for the capability rather than the cause.

When risks materialise, the impact is often felt beyond a single organisation. Therefore, risk assessment can be improved by transport operators looking beyond organisational or modal boundaries to carry out planning together. There are examples where this is already happening. The Freight Safe Programme enhances rail freight safety through a collaborative approach to identifying and anticipating emerging risks, supported by a horizon scanning service developed by the Rail Safety and Standards Board. Aviation operators are increasingly taking advantage of joint, modal sector-wide risk assessment. National Highways routinely undertakes sector-wide horizon scanning, coordinating major roadworks and diversion routes with Network Rail and other operators to minimise combined disruption across the transport system.

These examples demonstrate the value of collaboration, but there is greater scope to undertake multi-sector risk assessment through joint planning at the local tier, where transport operators and wider stakeholders are best placed to build a shared understanding of the local threat and hazard picture.

The ability to look ahead and anticipate future disruptors helps the transport sector stay ahead of the changing threat and hazard landscape so that plans, investments, and operational decisions are based not only on today's risks, but on how those risks may evolve over time. New technologies, including predictive maintenance and real-time monitoring, can strengthen horizon scanning by identifying emerging risks earlier and enabling preventative action. For example, Network Rail's 'Intelligent Infrastructure' system uses data from trackside sensors and train-borne monitoring equipment to predict and prevent failures before they occur. This system helps to reduce delays and improve the reliability of rail services.

Risk anticipation can also be supported with foresight tools and horizon-scanning, including through Futures thinking.[34] Futures thinking is a structured approach to explore a range of possible long-term futures and their implications, to inform decisions taken today so they remain effective through uncertainty. The Department for Transport will support the sector's future risk anticipation by sharing insights from an upcoming transport resilience Futures project. This project will investigate how chronic risks and the changing nature of both the transport system and other interdependent infrastructure sectors, including energy and communications, will impact transport resilience.

A Futures course for senior government officials is in development to ensure that they are equipped with the skills needed to apply the approach to policy planning. Specific tailored training around futureproofing has also been piloted, with the potential to expand the offer to the wider transport sector.

To support preparedness, government will complement existing sector resources by providing clear and practical guidance, standards, and toolkits for organisations to ensure consistency of approach where it is needed. Most recently, the Department for Transport, in conjunction with the Met Office, published a suite of Transport Hazard Summaries, providing sector-specific information about hazards that can impact UK transport to support industry with risk anticipation and forward planning.[35]

The Department for Transport will:



- improve and standardise risk assessment by promoting best practice, tools, and the creation and standardisation of inter-modal transport industry risk registers.
- improve understanding of future transport risks by expanding risk products, including Transport Hazard Summaries, and providing regular threat and hazard briefings through existing industry forums.
- enhance horizon-scanning capabilities through sharing of assessments and targeted training.

Evaluating resilience capabilities

Understanding resilience capabilities is vital to understanding the resilience of the transport sector. Resilience capabilities mean the organisations, tools, data, legislation, or resources required to respond to risks. These can include specific capabilities which are needed to manage specific risks, such as equipment used to pump water or measure water speed during flood events. There are also generic capabilities which can be deployed flexibly across a wide range of risks, such as evacuation and shelter capability, and the emergency services.

Government regularly asks transport stakeholders and local partners to self-assess their resilience capabilities. This complements existing licensing, regulatory, and internal assurances practices.

An assessment carried out prior to this strategy reported strengths including:

- strong and mature incident response capabilities
- positive local and site-specific resilience planning
- organisational flexibility to pivot and adapt during incidents
- deep integration of regulators and safety bodies

Transport sector respondents also highlighted several areas where further action would help to strengthen the sector's overall resilience, including efforts to:

- build understanding of resilience more widely in organisations, including senior-level ownership
- develop more cohesive systems to support effective resilience building: within organisations, between national/local tier, across the transport system, and with dependent sectors
- enhance horizon-scanning approaches and improve the identification and communication of emerging risks, to better support subsequent planning and investment decisions
- improve coordination and accountability in cross- and inter-sector planning, exercising, and lesson-learning by ensuring that roles and responsibilities are clear, lead organisations are identified, and responsibility for acting on lessons learned is clearly assigned and tracked
- develop clearer, more practical sector-specific guidance, standards and metrics, coupled with improving knowledge and skills to aid decision making

Building on the insight gathered from this initial assessment, we will formalise this approach into a continuous assessment function. This continuous assessment will ensure that government and industry focus efforts where they are most needed, guiding the prioritisation of government exercise themes and targeted resilience improvements. It will link into wider government challenge functions under development.

The Government Office for Science is establishing a red teaming function to test and improve strategic plans and decision-making. This will complement the Cabinet Office commitment in the Resilience Action Plan to convene expert panels to scrutinise plans and preparedness for whole-system civil emergencies across the UK. As part of this, transport experts will be included to ensure transport interests are considered.

The Department for Transport will:

- assess resilience capability across the sector by working with regulators and partners to strengthen assurance.
- improve scrutiny of risks by establishing an expert transport resilience red teaming panel.



Understanding interdependencies

Transport does not operate in isolation; it is part of an interconnected system. Disruption in one part of the transport system can rapidly trigger knock-on effects across other routes, modes, and sectors, demonstrating how risks and impacts can cascade through the wider network and amplify overall disruption. A resilient transport system is not simply one that avoids failure, but one that limits the spread of disruption and enables rapid, prioritised recovery of critical flows.

Transport faces many internal interdependencies: between assets and operations, transport operators and infrastructure owners, passenger and freight services, strategic and local networks, and physical and digital control systems. Within the rail system, the creation of Great British Railways, bringing track and train back together under public ownership, proposes to mitigate some of these challenges.

Transport resilience can be impacted by the built environment and change in land use, with flood risk to the road and rail network exacerbated if, for example, effective drainage and water capture measures are not designed into new development from the beginning or are not renewed. An increasing population and ambitious house building targets also put pressure on the transport system. Conversely, well-planned development can actively support transport resilience. Integrating active travel infrastructure, mixed-use development and good connectivity into new and existing communities can reduce congestion, provide people with a wider range of travel options, and improve the system's ability to withstand and recover from shocks.

The transport system is also increasingly reliant on the resilience of other sectors, such as energy infrastructure, particularly as greater electrification is adopted across rail and road transport. As of March 2024, 71% of the UK passenger rail fleet was electric and, by 2030, it is projected that between 8 million and 11 million hybrid or electric cars will be on UK roads, if uptake aligns with government targets.[36] By 2040, this could rise to 25.5 million hybrid or electric cars.[37] Forecasts suggest up to 21,000 zero emission buses will be ordered across England, Scotland and Wales by 2035.[38]

In March 2025, the North Hyde Substation fire resulted in the closure of Heathrow airport, causing around 1,300 flight cancellations. This incident further demonstrated the interdependency of Critical National Infrastructure, specifically energy, and the resultant impact on transport systems.

The transport sector has a vital role to play in the UK's transition to net zero. Decarbonisation of transport provides significant opportunities to increase resilience, including reducing exposure to international energy shocks. It can also improve air quality and public health, create better places to live and travel in, and drive clean economic growth through cleaner technologies including electric vehicles, alternative fuels, and modernised infrastructure. Transport electrification also has the potential to drive down costs.

Impacts of damage to the Plessey Viaduct

The Plessey Viaduct, near Newcastle, carries the East Coast Main Line railway over the river Blyth. In 2023, this viaduct suffered structural damage to its parapet. An academic research team has recently investigated how this structural damage caused cascading delays far beyond the immediate location, triggering widespread, system-level disruption across the rail network.[39]

Analysis shows that many of the longest delay times were experienced by LNER services on the East Coast Main Line route. However, a nexus was also observed in the region of York, Leeds, and Doncaster, from which bands of disruption ran west towards Manchester and Liverpool and southwest towards Bristol. Aggregated delay data show that other Train Operating Companies and freight operators also experienced high numbers of delays.

Although it was possible to reopen one line over the viaduct, meaning that network performance never dropped below ~90%, it took approximately one month to return to normal. In this time, total passenger delay costs reached an estimated £7-9 million. This does not include the costs of repairs to the viaduct.

This research shows how even localised failures can produce network-wide consequences, underscoring the importance of investing in resilient infrastructure, understanding interdependencies, planning for common consequences, and strengthening resilience to prevent individual asset failures from escalating into system-wide disruption.





However, a decarbonised transport system will also present some risks, and careful management will be required to ensure that the transport system remains resilient in the face of increased use of electricity networks and the need to adapt legacy assets – for example port infrastructure to enable future fuels.

An Energy Resilience Strategy is currently in development, being led by the Department for Energy Security and Net Zero. It will set out Government's strategic priorities for a secure and resilient energy system, now and in the future and how they will work with industry, the regulator and wider society to deliver that.

The Department for Transport will manage cross-sector interdependencies by providing guidance on upstream risks and aligning transport and energy resilience planning.





Future Electric Vehicle Energy networks supporting Renewables (FEVER)

Constraints in electricity grid capacity can limit the rollout of Electric Vehicle charging infrastructure, particularly harder-to-serve locations such as rural areas. Funded by the Engineering and Physical Sciences Research Council Programme Grant, the 'FEVER' research project is delivering solutions based on the use of a novel hybrid energy storage system, providing a lower cost, longer duration and more sustainable energy store for 100% renewable powered, off-grid Electric Vehicle Charging Stations. The FEVER project will deliver four Electric Vehicle Charging Station demonstrator systems in 2026 evidencing secure, clean, resilient, commercially viable grid independent operation.

In November 2025, the Department for Transport announced £10 million for technologies enabling off-grid or low-grid Electric Vehicle charging, targeting grid constrained locations across England's strategic road network.[40]

Validating through exercises

Having plans and guidance in place to mitigate transport risks is important but, to ensure these plans are robust, they must be regularly reviewed and exercised. Exercises enable organisations to test their plans in a safe space and, together with partners, pinpoint strengths and areas that need improvement across their organisation or the wider system.

Under UK government's National Exercising Programme, Exercise Pegasus tested the UK's ability to respond to a pandemic, including active consideration of transport. Undertaken between September and November 2025, with an additional phase in summer 2026, the exercise was led by the Department of Health and Social Care and delivered with the UK Health Security Agency, but required active participation from multiple government departments, with representation from arm's length bodies and local tier resilience forums. The exercise included planning and preparation work on transport implications, including maintaining operations in the context of workforce disruption and developing clear, timely guidance for transport sector stakeholders.

In addition to supporting the National Exercising Programme, the Department for Transport also develops a multi-year exercise and assurance programme for transport, including joint exercises with key partners, structured debriefings, identification of key exercise outcome themes to inform further risk planning, and follow-up on lessons learned. This programme continues to evolve in line with the principles of the UK Resilience Academy Exercising Best Practice Guidance.[41]

As part of each exercising cycle, government will ensure a balance of high-likelihood, low-impact and low-likelihood, high-impact future threats and hazards – as well as considering concurrency of incidents and variation in stakeholders. This will support the sector to have strategic flexibility for a range of emerging risks, and ensure that common consequences are tested, including common catastrophic consequences.

Transport sector stakeholders also carry out a range of business continuity and transport resilience exercises. Each mode should maintain a clear picture of the exercises being undertaken within its part of the sector and, where possible, this should be shared and coordinated across modes to reduce duplication. Where practicable, these should also be widened to bring in cross-sector stakeholders, and stakeholders from other critical sectors, with lessons identified, captured, and shared. Transport sector stakeholders should also consider active participation in local tier planning activities and advocate for specific transport aims and objectives to be tested in local tier exercises.

In March 2026, teams from across the emergency services and the railway played out a full-scale simulated emergency at the Severn Valley Railway's Kidderminster station. The exercise, led by Network Rail and West Mercia Local Resilience Forum, involved a huge range of partner organisations including West Mercia Police, British Transport Police, West Midlands Ambulance Service, both Hereford & Worcester and Shropshire fire and rescue services, the Severn Valley Railway, and West Midlands Railway.



Birmingham Rail Resilience Hub

To prepare multi-agency responders for rail incidents, Network Rail opened a world-leading emergency training centre in September 2025. The Birmingham Rail Resilience Hub has been created to train and develop teams alongside train operators, the police, fire, ambulance services, and wider partners.

The true-to-life training ground includes tracks, trains, level crossings, and all the other equipment and hazards found on the railway. It has been mocked up in a purpose-built facility so that teams involved in managing emergency situations are prepared and ready to deal with them.

The event included 200 volunteers playing passengers and other members of the public. It simulated the collision of a hydrogen train and a diesel train, testing the interoperability of responders across control, on-site response, and multi-agency command. This type of exercise demonstrates how cross-sector collaboration at the local level can strengthen coordination, improve shared understanding of risks, and enhance the ability to respond effectively to complex incidents.

The Department for Transport will strengthen preparedness by delivering a coordinated, multi-year exercise programme and encouraging wider partner participation.



Learning lessons

Through exercising, or when incidents occur, it is vital that lessons and gaps are identified and the learning applied and fed back into the resilience cycle, including by informing risk assessments and future planning. This need for continuous learning and improvement has also been reinforced by the COVID-19 Inquiry, which highlighted the importance of clear risk ownership and the regular exercising of plans. Actions and best practice should be implemented as far upstream and as soon as possible to minimise the impact of reoccurring incidents. For example, following the derailment of a passenger train after a landslip at Shap in November 2025, the Department for Transport immediately encouraged all rail operators to proactively check track drainage infrastructure to reduce the risk of further incidents during subsequent storms.

Accident Investigation Branches also provide a valuable role in learning lessons from serious incidents and providing recommendations on improving the transport system's resilience and safety. However, there are areas across government and the transport sector where that fuller debrief process is less embedded, and in many cases, lessons are identified but not learned, tracked, and implemented.

The Department for Transport will embed continuous learning by supporting the transport sector to review incidents and action lessons identified, whilst doing the same within the department, including agencies and arm's length bodies.



Measuring resilience

Measuring the impact of resilience interventions is complex and challenging. But clear metrics are vital to drive up standards and increase capabilities. Identifying and embedding good practice, setting ambitious targets, and clearly tracking progress will improve the transport system's ability to mitigate and manage risk.

UK government will work with the sector to embed expectations for service providers on levels of resilience. As part of mapping resilience standards across the Critical National Infrastructure landscape, opportunities to introduce or enhance standards across the transport sector will be identified and applied. This may include customer outcome standards, system performance standards, and system recovery standards. Complementing existing regulatory regimes, these standards will further set out what good looks like for transport operators in relation to resilience.

The Department for Transport will set expectations, and improve visibility, of system resilience by developing, establishing, and monitoring transport resilience standards for the sector.



Objective 2

Enable the whole of the transport system, including transport users, to take action to increase resilience



Ensuring preparedness

With a strengthened understanding of risk and capabilities, government will support the transport sector to act. Closer collaboration between government, transport operators, interdependent sectors, and the local tier will allow practical improvements in transport resilience to be shared and delivered across the system. This means encouraging the shift from resilience as a compliance exercise towards resilience as an embedded capability in planning, operations, maintenance, investment, and recovery.

There are already a range of resilience requirements placed on transport operators and infrastructure owners, designed to ensure a baseline level of resilience across the system. As a condition of their licence to operate, transport operators are required to demonstrate arrangements for ensuring the resilience of services and infrastructure. This includes maintaining effective risk management and business continuity plans, complying with all relevant safety and security regulations, and ensuring that vehicles and assets are kept in a fit and serviceable condition.

Operators must regularly assess and mitigate risks to operations, including those arising from natural hazards, cyber threats, and other disruptive events, and must cooperate fully with relevant authorities and local partners as set out in the Civil Contingencies Act 2004.[42] Failure to uphold these responsibilities (for example by neglecting maintenance, failing to plan for emergencies, or not sharing information with authorities) may result in regulatory action, including suspension or revocation of the operator's licence. These requirements are designed to safeguard public safety and protect the resilience of the transport system.

Due to their ability to provide cross-sector oversight, there is an opportunity for regulators and government to appropriately test and challenge compliance with existing regulations, review business continuity planning, and assess resilience capabilities across the transport system.

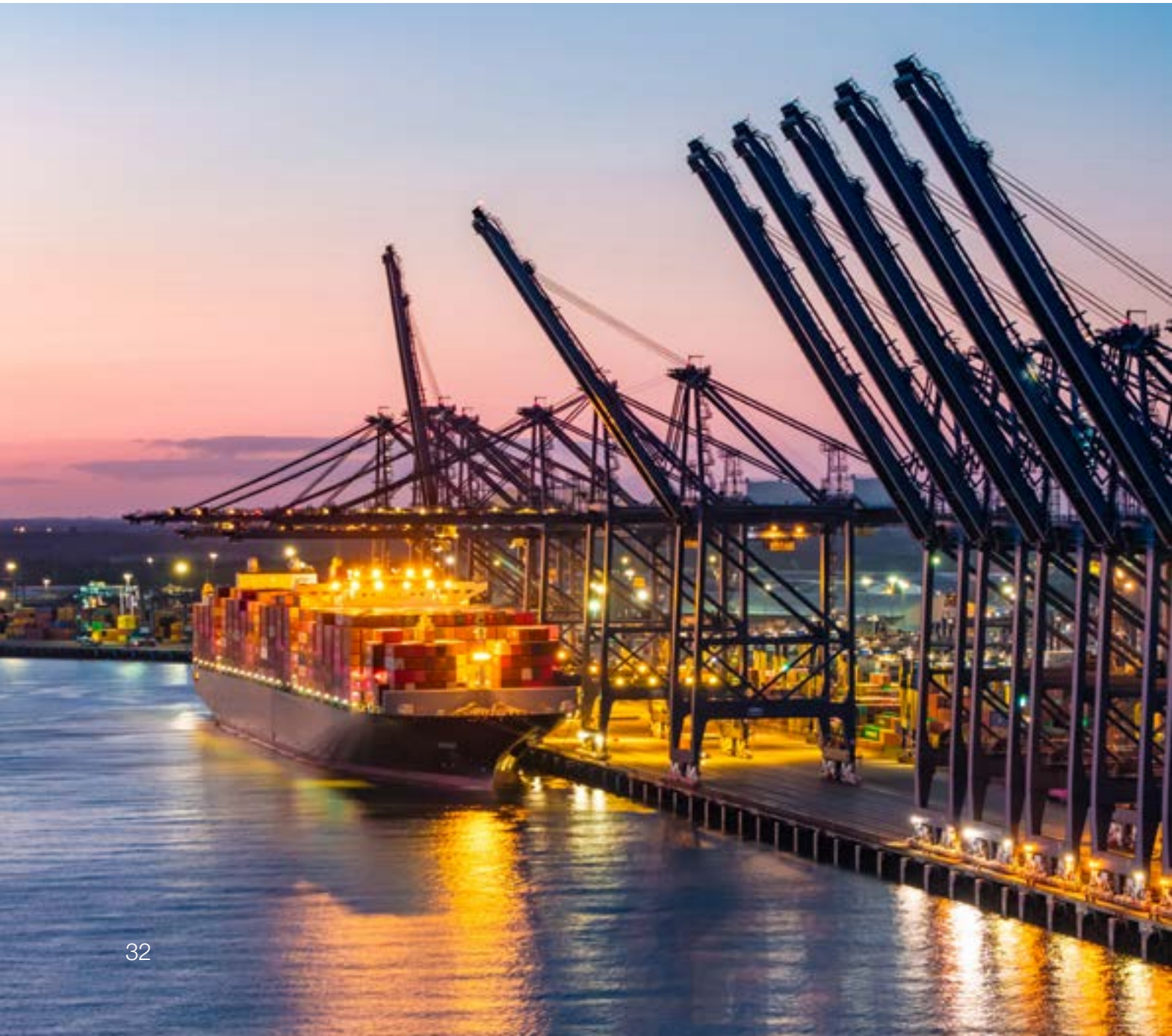
As well as regulatory considerations, the financial business case for transport operators to invest in resilience is clear. Reducing disruption limits operational downtime and the wider costs that follow. Preventing failures is typically more cost-effective than responding after they occur, making resilience a sound commercial investment as well as an operational necessity.

Organisations must also undertake their own comprehensive internal business continuity planning, ensuring that they are prepared to mitigate and manage the risks that may affect them. To be effective, this requires both a well-trained and well-connected network of resilience professionals, and a resilience culture. This starts with commitment from executive leadership, and a commitment to embedding resilience practices across the organisation.

Cyber resilience and preparedness must form an integral part of that business planning. Independent research on the economic impact of a hypothetical systemic cyber incident to the rail network suggested a total economic cost of approximately £1.8 billion over a one-week period of disruption due to lost productivity, recovery costs, and cascading disruption across critical services.[43]

Whilst cyber risks can manifest as malicious threats, they can also manifest as non-malicious threats. Organisations must consider cyber standards to ensure the operation of essential services, including identifying vulnerabilities and mapping internal critical interdependencies for targeted resilience-building efforts, as well as establishing robust response and recovery plans. Government is publishing a National Cyber Action Plan, which will set out concrete actions to strengthen the UK's cyber security and resilience. The Department for Transport will work with industry to improve cyber security across the transport sector, including arm's length bodies.

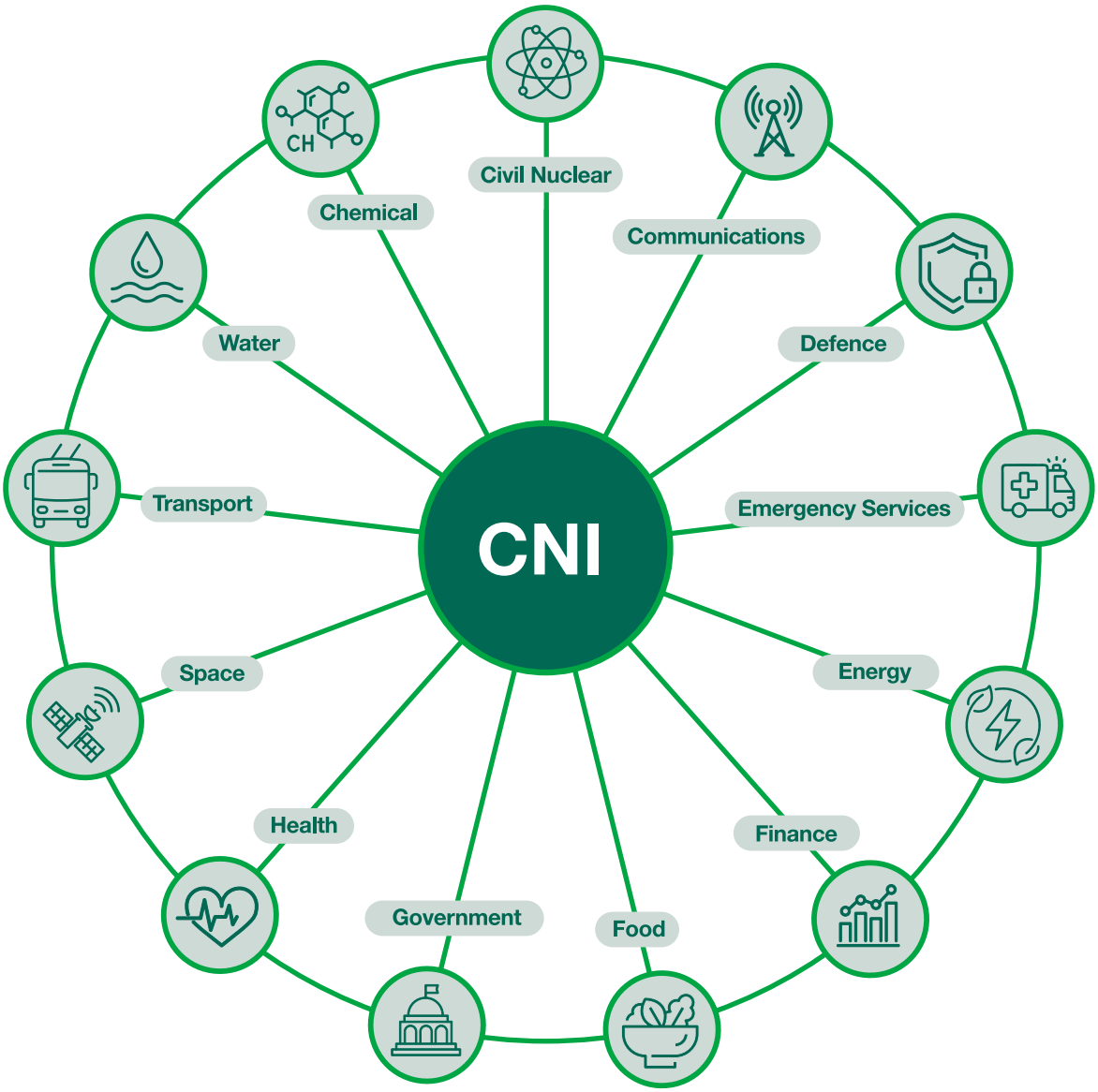
The Department for Transport will improve sector preparedness by enhancing assurance and expanding business guidance (for example via GOV.UK Prepare).



Critical National Infrastructure

Critical National Infrastructure comprises of infrastructure (including individual assets and facilities, as well as broader systems, and networks) whose loss or compromise could severely impact the delivery of essential services or have significant impact on national security, national defence, or the functioning of the state. Enabling operators to protect their Critical National Infrastructure is therefore a clear priority of the government's security and resilience strategies. As transport is one of the 13 Critical National Infrastructure sectors, every part of the transport sector forms part of the wider Critical National Infrastructure ecosystem and so needs an acceptable baseline of resilience in place.

However, specific Critical National Infrastructure sites or systems in the transport sector may require additional support to ensure high levels of resilience. This may require prioritising interventions in high impact areas, for example regions with a high concentration of transport-specific or transport-dependent Critical National Infrastructure.



The Resilience Action Plan committed the UK government to further developing CNI Knowledge Base, the UK government's world-leading tool which creates an interactive map of all CNI in the UK. Further work, led by Cabinet Office, will improve understanding of interdependencies between the 13 Critical National Infrastructure sectors, identify areas of UK vulnerability, and help target interventions to address the risks.

Vital to increasing transport Critical National Infrastructure resilience is engagement with key parts of industry to understand the challenges of building resilience across critical systems and support effective responses to disruption. Government representatives from the Department for Transport, the National Cyber Security Centre, the National Protective Security Authority, and others as appropriate, will continue to meet with Critical National Infrastructure representatives to offer insight and encourage collaboration.

As a Critical National Infrastructure sector and critical enabler of other sectors, transport will play a crucial role in the UK's new Home Defence Programme. The Home Defence Programme brings together government, industry, and wider society to prepare for the risk of a major conflict impacting the UK. The programme will aim to strengthen alignment between civilian and military planning. By ensuring the sector is prepared for disruption during periods of heightened tension or conflict, we can help safeguard essential services, enable military activity where required, and contribute to whole-of-society resilience that underpins national security and the UK's wider NATO commitments. The interoperability of the UK transport system with international partners will also be considered in line with this work.

The Department for Transport will strengthen Critical National Infrastructure resilience by improving CNI mapping and formalising engagement with operators.





National Highways Battery Back-Up Trial

Many of our motorways make use of sophisticated roadside technology to enhance safety and reduce congestion by automatically detecting hazards, setting variable speed limits, and providing real-time information to drivers. These systems depend on a continuous electrical supply and even short interruptions can compromise both safety and network management.

To strengthen resilience, National Highways is trialling the use of Uninterruptible Power Supply batteries across key sites. These systems are designed to instantly and automatically deliver continuous power to gantry-mounted signs if the mains supply fails. As electrical providers continue to invest in and upgrade national infrastructure, the Uninterruptible Power Supply solution ensures that the technology remains reliable even during localised disruptions. In the event of a fault or outage, critical signs such as variable speed limits, lane closures, and red-X signals remain active, reducing the risk of collisions and helping traffic controllers manage incidents effectively. This ensures drivers continue to receive the information they need.

The Uninterruptible Power Supply systems also provide strategic resilience during major national incidents. Even in the event of widespread power issues, National Highways can continue to set and maintain tactical signs, enabling coordinated traffic management and supporting emergency response operations. This continuity helps keep the network moving and ensures motorists remain informed during the most challenging circumstances.

System resilience

By its nature, the transport system is made up of largely immovable, costly, physical infrastructure (ports, airports, motorways, railway stations). There may often only be a single viable route between fixed points. This means that it is susceptible to single points of failure. To build new, or replace ageing transport infrastructure, there are long and costly lead-in times to clear planning, procurement and construction hurdles. It is vital that resilience is designed into projects and assets from the outset rather than added later at greater cost and disruption.

Improved, targeted maintenance of existing infrastructure is one of the most effective tools available. Road maintenance and renewal provides very high value for money, with approximately £7 in benefit for every £1 spent on local roads.[44] Well-planned and preventative maintenance of infrastructure ensures continued efficiency of the transport network, reduces the risk of unplanned closures, and supports long-term economic growth by protecting critical assets against emerging challenges. Noting the substantive requirements for maintenance and renewals across the transport network, almost £25 billion has been committed to operating, renewing, and enhancing the strategic road network between 2026 and 2031, £7.3 billion is being made available for local highway maintenance between 2026 and 2030.[45,46]

Technology can also improve transport resilience at different levels, from operational response through to strategic planning. During emergencies, resilient communications devices and platforms can enable responders to maintain reliable, real-time information sharing.[47] They reduce the risk of communications disruption and support more effective coordination, decision-making, and response across organisations and locations.

At a more strategic level, new capabilities are being unlocked by data, AI, and the use of digital twins. Digital twins are virtual representations of the transport system allowing timely monitoring, simulation, and analysis to effectively target resilience interventions. They can support risk assessment, coordination, crisis response, recovery, and improvement over time. The Department for Transport has a digital twin programme delivering on use cases such as multimodal network management, resilience planning, and situational awareness during crises. The programme includes academic research, developing a ‘Crisis Response and Resilience Digital Twin’, funding innovation through the Transport Research Innovation Grants, and supporting local and strategic authorities to improve integration and resilience through ‘Integrated Transport Digital Twin’ trials.

Infrastructure investment, automation, and advances in digital technology have improved the safety and effectiveness of the transport system, but ultimately, no matter how much new infrastructure is built or how well assets are maintained, things will still break. Weather events, asset failure, unexpected incidents, and external shocks will continue to impact the transport system. Transport resilience relies not only on physical assets, but on the people and organisations who operate, manage, and support them. Ensuring a well-trained and well-connected network of transport operators is a key objective of this strategy to ensure interventions are delivered across the resilience cycle. Part of that is ensuring that organisations’ resilience culture starts with commitment from the top; not just resilience professionals.

The Department for Transport will:

- enhance system-wide resilience capability by developing digital twins.
- assess existing resilient communications provision, identify business needs, and explore viable tools and technologies to further support the sector.



Building networks

Transport does not operate in isolation. Each transport mode and each critical sector are dependent on each other. Through the establishment of a Transport Resilience Network, we will bring resilience professionals together to share experience, build relationships, and develop a shared understanding of risk, supporting more coordinated action and stronger resilience capability across the transport system. Through it, interventions can be better targeted, best practice shared, and interconnectivity better understood to improve collective and organisational resilience maturity and resilience capabilities.

Transport Resilience Network



The Department for Transport will build on existing regional forums to bring together practitioners and experts from across academia and the transport system as part of a critical friend network to test, challenge, and provide advice on resilience planning.

The ambition is to expand the Transport Resilience Network to include experts and leaders from beyond the transport sector. The experts would be drawn from other government departments, local partners, voluntary and community groups, and utility providers to improve collaboration and cross-sector understanding.

Once established, the network could then expand to deliver a peer review function, giving members the opportunity to benefit from, or deliver, a structured, sector-led assessment, providing independent feedback, guidance, and recommendations to support continuous improvement.

Given the diverse and disparate nature of the transport sector, it can be difficult to gain a full picture to enable effective assessment of resilience capabilities. The UK government adopts a world-leading ‘transparent by default’ approach, by publishing a National Risk Register and by declassifying and sharing information from the National Security Risk Assessment, except in a small number of highly sensitive areas. Government will keep under review the approach to security clearances across the transport sector, exploring options to strengthen appropriate access to sensitive information for industry partners where possible.

The Department for Transport will strengthen collaboration across the transport sector and other key local and industry partners, by securing senior resilience sponsors across transport operators, and creating a Transport Resilience Network.



Working together locally

Depending on the scale of a given risk or event, an intervention may need to be strategically co-ordinated beyond any one transport operator. The UK's approach to resilience works on the subsidiarity principle: that decisions should be taken at the lowest appropriate level, with co-ordination at the highest necessary level.

In practice, this means that whilst the UK government and devolved governments have an important role to play in risk assessment, prevention, planning and, where necessary, response coordination and recovery, the local tier and industry are critical to resilience improvement. Through local resilience arrangements, the local tier brings together responders such as emergency services and transport operators to plan for risks and coordinate responses to more complex emergencies.

Category 1 responders, as defined under the Civil Contingencies Act 2004, are the organisations at the core of local emergency response. They are responsible for assessing risks, planning for and responding to emergencies, maintaining business continuity, and warning and informing the public.[48] The Maritime & Coastguard Agency and the British Transport Police have statutory responsibilities as Category 1 responders. Local authorities are also Category 1 responders, including in their capacity as local highway authorities responsible for local road networks.

However, most transport organisations have statutory responsibilities as Category 2 responders under the Civil Contingencies Act 2004; specifically the duty to cooperate with Category 1 responders and share relevant information to enhance joint preparedness and response. Transport operators are expected to participate in local resilience forums alongside other Category 1 and Category 2 responders to support risk assessment, planning, and information-sharing arrangements that ensure coherent multi-agency coordination at the local level.

Resilience activities often fall to a small cohort of resilience and crisis management professionals, with training and development often bespoke to the organisation, mode, or sector. To improve organisational and system-wide resilience, there will be a focus on building capability across government, industry, and the local tier. There is a huge opportunity, including through establishing a Transport Resilience Academy, for government and industry to work more closely together, share insight, build collective understanding, and strengthen assurance of capabilities.

Transport operators frequently span multiple local tier areas, creating challenges in maintaining consistent engagement and information-sharing across differing local structures. There is scope to improve coordination in cross- and inter-sector planning and enable stakeholders to align their emergency planning, exercise participation, and resilience arrangements with the multiple local tier forums; each operating with its own governance and approaches.

The creation of a new, groundbreaking Transport Resilience Academy will help address this challenge by providing a consistent, structured mechanism for supporting local tier areas and transport operators. Working on a regional footprint, the academy will support areas with their resilience capabilities, address gaps in capability, and improve links and engagement with Category 2 responders in the transport sector. Forging those links is key to ensure that transport knowledge and experience is designed into local response planning, and that the first phone call to a transport operator is not at a time of crisis but well in advance of one.

Transport Resilience Academy



To train and develop all those with a role in transport resilience, a Transport Resilience Academy will be launched. The academy will provide tailored learning to enhance resilience capabilities, in line with the now-published National Occupational Standards for Resilience and Emergencies.[49] This will start as a pilot programme with a small number of local tier areas. This will likely be targeted at areas with the highest impact and likelihood of transport risks, or a high concentration of transport-specific or transport-dependent Critical National Infrastructure.

The Transport Resilience Academy will be developed in conjunction with transport industry stakeholders and will consider the need for sectoral or cross-sectoral training curricula. This will include in-person workshops and events, draw on domestic and international best practice, and end with an exercise to apply learning. The programme will work with a pilot cohort to test and develop the content and approach with a view to rolling out a wider offer following its successful completion.

The Department for Transport will:



- improve mutual aid and local coordination by convening operators, regulators and responders to mobilise assets during disruption.
- raise professional resilience skills by promoting National Occupational Standards and launching a Transport Resilience Academy pilot.

Cooperating with transport users

A primary goal of improving transport resilience is to make the experience of transport users better. Plans to improve connectivity between modes have been set out in the Department for Transport's Better Connected Strategy.[50] It includes commitments on integrated ticketing, improved real-time information, and strengthened maintenance and reliability regimes. It seeks to deliver more dependable, better-coordinated journeys and reduce reliance on any single mode, thereby supporting the more effective management of disruption across the network.

Supporting those who may be less able to help themselves during disruption must also be factored into transport resilience planning. Vulnerability may arise from personal circumstances, health, access to information, or the situation itself, and can change over time. Building on recommendations outlined in 'Identifying and supporting persons who are vulnerable in an emergency: supporting guidance for Local Resilience Forums in England', Government will conduct analysis on the specific risks to vulnerable transport users and, where appropriate, provide transport-specific guidance to operators on supporting vulnerable users, and ensure that the transport sector is well-informed on best practice.[51]

In any national or local response, an inclusive, person-centred approach is essential to effective recovery from transport disruption. This ensures that the needs and wellbeing of affected individuals and communities are prioritised alongside the restoration of services. By addressing humanitarian impacts including access to information, welfare support, and practical assistance, government and transport operators can deliver recovery that not only rebuilds infrastructure but also supports people in returning to normality. This fosters confidence in the transport system which, in turn, supports greater use and investment over time, reinforcing overall resilience.

In the event of a major transport incident, UK government has a legal, moral and ethical duty to safeguard the welfare of those affected, and their families, to ensure that their needs are being met. This commitment is reflected in ongoing work to strengthen support arrangements. For example, the Department for Transport is due to publish guidance for airlines operating in the UK on the levels of support that should be provided to victims and their families in the event of an accident in UK airspace. In the rail sector, the Incident Care Team initiative has been established, delivering trained humanitarian support to those affected by rail incidents, ensuring their needs are met and supporting recovery following disruption. There are opportunities to embed and enhance the role of Incident Care Teams as part of the transition to Great British Railways.

Effective cooperation with transport users can also be facilitated through the voluntary, community and faith sector. The transport sector already works actively with voluntary community and faith sector groups; whether that is the Maritime and Coastguard Agency working routinely with the Royal National Lifeboat Institution, engagement with community transport organisations via the local tier; or passenger welfare and evacuation support during transport disruption via voluntary sector organisations such as the British Red Cross and St John Ambulance. In line with VCS Emergencies Partnership guidance, government will continue to integrate the voluntary and community sector in planning for, responding to, and recovering from transport incidents.[52]

Recent inquiries have reinforced the importance of these partnerships and the need for clear, sustained collaboration with voluntary organisations. This includes the Grenfell Tower Inquiry, which recommended amending existing regulation to require Category 1 responders to establish and maintain partnerships with voluntary organisations, through changes to Regulation 23 of the Civil Contingencies Act. The Department for Transport will assess implications of any proposed changes to the Civil Contingencies Act for the Maritime and Coastguard Agency, the British Transport Police, and broader transport sector operations.

The Department for Transport will:

- improve user preparedness by embedding humanitarian considerations in resilience approaches.
- improve support for vulnerable users by assessing the need for further transport-specific guidance and training.





Exercise Eris

In February 2025, Virgin Atlantic delivered a major crisis simulation designed to strengthen the airline's ability to meet its humanitarian, legal and ethical obligations in the aftermath of a crisis. Centred on a mass-fatality aircraft accident, the exercise brought together more than 250 participants and fully activated the airline's crisis structure, spanning strategic, tactical, and operational teams.

The scenario replicated the extreme complexity and human impact of a real-world disaster: distressed families arriving at airports, surging call volumes, intense media pressure and urgent coordination with the Department for Transport, the Foreign, Commonwealth & Development Office, the Air Accident Investigation Branch and US authorities including the US National Transportation Safety Board and the American Red Cross. Virgin Atlantic also tested its Emergency Call Centre to ensure families could rapidly contact the airline and access support.

Central to the exercise was a person-centred approach prioritising welfare, timely communication, and the dignity of victims and families. The teams practised preparing for Family Assistance Centre operations and managing sensitive information across key humanitarian partners.

Objective 3

Strengthen government's transport resilience capabilities



Lead Government Department model

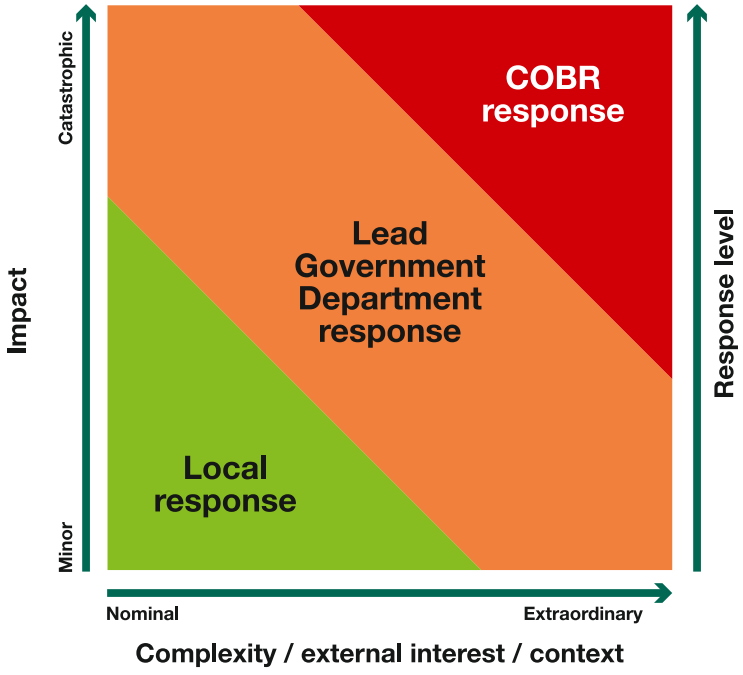
As industry and the local tier work more closely to improve resilience across the system, government must in turn strengthen its own capabilities; ensuring that national-level planning, coordination, and crisis response are robust to support the transport sector.

The UK uses a Lead Government Department model to cover all phases of emergency planning, including response. Usually, the Lead Government Department is the department with the primary policy responsibility.

The Department for Transport, as the Lead Government Department for transport risks, is responsible at a national level for anticipating, assessing, preventing, and mitigating those risks, with support from other departments and bodies. Those responsibilities include conducting internal planning, exercising, monitoring, and assurance of government and transport sector capabilities.

The Department for Transport is supported by the Cabinet Office in planning for cross-system impacts, particularly catastrophic risks. Whilst most incidents in the UK are managed at the local level, because of the scale and complexity, some need a degree of central government co-ordination and support. For whole-of-system crises, such as national power outages or pandemics, Cabinet Office (in its role as the department which supports the Prime Minister and the effective running of government) takes on a leadership role for the response. For this category of risks, the Cabinet Office co-sponsors the planning phase with the Lead Government Department responsible for that risk.[53]

Cabinet Office also provides internal scrutiny of response capabilities across the UK government through the National Capabilities Assessment, which includes assessment of Category 2 transport operators and complements the Department for Transport's more targeted assessment programme of transport capabilities.



Embedding resilience principles in government

The Department for Transport will also play a broader role to ensure that resilience is being considered as part of long-term legislative, strategy, policy, and investment decisions to formally embed resilience principles as part of transport appraisal processes, business cases, contracts, and major projects.

HM Treasury's new Green Book (the government guidance on appraising spending decisions) advises that where an investment may increase a system's resilience, it should be factored within risk appraisal through risk prevention.[54] The guidance also highlights the need to account for the effects of climate change within appraisal.

The Department for Transport has commissioned ongoing research to develop a framework for understanding and identifying resilience impacts in transport appraisal more specifically. The use of digital twins and improved modelling to support and refine the process of business case selection for major investments and projects could also be hugely valuable to make informed decisions, ensuring that whole society resilience is considered as a key component of future intervention.

As the transition to Great British Railways takes place, embedding resilience principles in the structure and aims of the organisation is vital. This will ensure that staff have resilience capabilities in place and that preparedness is built into the business-as-usual operations of the organisation. Best practices and learning from constituent operators must be drawn on as they join.

The Department for Transport will:



- embed Lead Government Department responsibilities by ensuring accountable leaders and their responsible teams understand and can fulfil their roles in mitigating and managing civil contingency risks to transport.
- improve strategic decision-making by publishing an Appraisal, Modelling and Evaluation Strategy and formally embedding resilience in arm's-length bodies through governance, guidance, and assurance arrangements.

Transport crisis response

Within the Department for Transport, crisis management is delivered through the Transport Security Operations Centre. This is the department's central coordinating function for responding to civil emergencies and security incidents impacting the UK transport network, UK passengers, and wider UK government interests. During a crisis, the Transport Security Operations Centre stands up a Departmental Operations Centre. Every government department is expected to have a central co-ordination hub that is stood up in a response, as stipulated in the UK Government Amber Book.[55]

To ensure there is capacity to respond to concurrent and enduring incidents, government requires a well-trained cadre of crisis management specialists. An effective, cohesive incident response function also relies on the expertise of wider departmental policy teams and enabling functions, including communications and legal teams, maintaining their skills and understanding.

The Department for Transport will continue to utilise expert science and engineering advice to support policymakers to understand, mitigate, and respond to transport resilience issues. For example, during the COVID-19 pandemic, the Department for Transport's Chief Scientific Adviser participated in the Scientific Advisory Group for Emergencies, providing expert science advice to decision-makers.

In major emergencies, government has a range of powers that can be activated to protect the public and maintain essential transport services. These may include the use of emergency powers to manage severe disruption, mutual aid arrangements that enable organisations to share resources across regions and sectors, and Military Aid to the Civil Authorities where the Armed Forces provide specialised support when civilian capabilities are stretched.

Transport considerations frequently feature in unexpected ways, given the system's reach and the unique levers it can provide during a response. For example, the Department for Transport has previously used temporary relaxations of drivers' hours rules in exceptional circumstances to help keep essential goods moving when supply chains have come under acute pressure.

The Department for Transport will maintain strong internal crisis capability by training staff and providing a tailored resilience learning and development offer.





North Sea vessel allision

On 10 March 2025, the container ship MV SOLONG allided with the anchored oil tanker MV STENA IMMACULATE approximately 13 nautical miles off the coast of East Yorkshire. Both vessels caught fire and their crews were evacuated. Tragically, there was one fatality and pollution implications for the coastline between Humberside and Norfolk from plastic nurdles (small plastic pellets).

The Maritime and Coastguard Agency rapidly deployed counter-pollution assets, in coordination with the Secretary of State's Representative for Maritime Salvage and Intervention. The Department for Transport worked across both operational and UK government partners to ensure join-up between those managing the primary collision response and secondary response in relation to disruption of fuel imports and pollution implications, with regular updates provided to Ministers and the public. This required a coherent, whole-system response, delivered through strong partnership working with the Department for Environment, Food & Rural Affairs and its arm's length bodies.



Storm Éowyn mutual aid

During the cross-government response to Storm Éowyn in Northern Ireland, the Department for Transport played a significant role in coordinating support from across the transport system. Working with industry partners, the Department for Transport helped facilitate access to critical assets including two helicopters made available by Network Rail and the General Lighthouse Authority, to support inspection and response activity.

Discussions with HS2 Ltd enabled contact with specialist generator suppliers, helping the Northern Ireland Executive rapidly engage firms able to provide both equipment and the operational support required for deployment.

The Department for Transport also advised on accessing tree cutting services, drawing on National Highways' contracted arrangements. The Department for Transport and National Highways directed the Northern Ireland Executive to the appropriate contractor and provided contractual mechanisms to ensure rapid procurement and deployment of assets.

Effective sharing, learning, and collaboration

Government works in close partnership with the National Hub for Decarbonised, Adaptable and Resilient Transport Infrastructures (the DARe Hub). Funded by the Department for Transport and UK Research and Innovation Engineering and Physical Sciences Research Council, the DARe Hub works to advance research and innovation for a resilient, net zero transport system.[56] Through a collaborative programme, the DARe Hub brings together academic, industry, and public sector expertise to address critical challenges such as climate adaptation, infrastructure decarbonisation, and system interdependencies. Current initiatives include developing resources (including a Transport Performance & Risk Analysis Framework) to support resilience decision-making in the transport sector.

Government is committed to fostering innovation across the transport sector to strengthen resilience against current and future challenges. Through the Transport Research and Innovation Grants programme, delivered with the Connected Places Catapult, the Department for Transport provides targeted funding to turn early-stage ideas into practical solutions. By supporting proof-of-concept projects, Transport Research and Innovation Grants help to de-risk new technologies and approaches, accelerating the development and adoption of innovations that enhance the resilience of the UK's transport system.

The UK government, Scottish Government, Welsh Government, and Northern Ireland Executive will work closely together across all four nations to promote consistency, share best practice, and strengthen collective capability in relation to transport resilience. Enterprise services between Belfast and Dublin also cross the border between Northern Ireland and Ireland, thus crossing the EU border. Therefore, collaboration with close international partners is vital to improve the interoperability of cross-border services.

The UK is world-leading in many areas and can also learn from the experience and expertise of international partners. With close relationships spanning the globe, the UK can build on partnerships to deliver shared objectives, collaborate on mutual policy issues, and develop best practice. In particular, the UK will leverage its membership of NATO Transport Group, the International Transport Forum, the International Maritime Organization, the International Civil Aviation Organization, and the working groups within the United Nations Economic Commission for Europe including its Inland Transport Committee, its subcommittee on Dangerous Goods, and its technical subgroups.

The opportunity to learn from international partners is particularly important in the context of real-world crises. For example, Ukraine's experience during the ongoing illegal Russian invasion of Ukraine highlights the critical importance of transport system resilience under extreme disruption. Reflecting this, and as part of the 100-Year Partnership signed between the Prime Minister and President Zelenskyy on 16 January 2025, the UK is committed to supporting Ukraine's transport recovery and drawing on lessons from Ukraine to strengthen our own approach to transport resilience, in line with the objective of the UK government's Strategic Defence Review.

Key lessons include the importance of rapid reconstruction planning so that transport continues to support wider recovery. It also highlights the need for clear public communication to maintain confidence and support infrastructure modernisation. In addition, Ukraine's experience underlines the value of strong governance to prioritise activity and coordinate international support. More broadly, it demonstrates the role of public–private partnerships in supporting reconstruction and strengthening resilience. The UK–Ukraine Transport Partnership highlights the potential to apply similar approaches more widely.

The Department for Transport will improve national and international collaboration by strengthening UK-wide partnerships, driving innovation (for example through Transport Research and Innovation Grants), and sharing learning globally.





Critical ageing infrastructure in the north east (DARe Hub project)

DARe's Transport Performance & Risk Analysis Framework is being tested in a number of case studies. One example is the north east of England. Within this study, DARe is investigating the resilience of a multi-modal transport system, looking at how the loss of capacity due to accelerated performance degradation at key ageing infrastructure assets impacts transport demand and system performance. The study also explores a range of intervention strategies to address these impacts.

Government activities following publication of the Transport Resilience Strategy

This strategy has set out the key issues and transport resilience objectives for the UK over the next five to ten years. Delivery will now be taken forward through a programme of coordinated activity across government, industry, local tier, and wider stakeholders, aligned to the objectives and commitments set out in this strategy.

The Department for Transport will work with partners to translate these commitments into a clear delivery plan, including identifying priority actions, sequencing activity, and ensuring that roles, responsibilities, and accountabilities are clearly defined. This will be supported by ongoing engagement with sector stakeholders to maintain momentum, share learning, and adapt delivery in response to emerging risks and evolving priorities. Progress will be subject to regular monitoring and review.

On an annual basis, and taking into account changes in the transport landscape, Transport Resilience Strategy implementation progress will be fed into the Cabinet Office's wider Annual Statement to Parliament on risk and resilience. As appropriate, progress will also be reported to the National Security Council sub-committee on resilience, the senior cross-government ministerial committee responsible for overseeing the UK's strategic approach to resilience.

Through this approach, the strategy will remain a live framework - allowing the transport sector to respond to new challenges, embed continuous improvement, and ensure that resilience is strengthened over time.

Annex A
Glossary



Definitions

Acute risk	Time-bound, discrete events. For example, a major fire or a terrorist attack. Contrast with Chronic risks.
Adaptation	The process of adjusting systems, operations, or behaviours to better cope with current or anticipated risks and changes.
Capabilities	The equipment, tools, data, legislation, and resources an organisation uses to mitigate and manage risk.
Cascading impacts	Impacts in one or more parts of an interconnected system may trigger impacts in other parts of the system. For example, flooding can cause direct damages to power infrastructure which then cascades through to transport, increasing risk across the system.
Catastrophic risks	Significant and extreme events that can cause widespread damage, loss of life, or destruction.
Category 1 responder	A person or body listed in Part 1 of Schedule 1 to the Civil Contingencies Act. These bodies are likely to be at the core of the response to most emergencies.
Category 2 responder	A person or body listed in Part 3 of Schedule 1 to the Civil Contingencies Act. These are cooperating responders who are less likely to be involved in the heart of multi-agency planning work but will be heavily involved in planning for and responding to emergencies that affect their sector.
Chronic risk	Continuous challenges which gradually erode our economy, community, way of life and/or national security (for example changes in the nature of cyber security threats; the impact of demographic change; pollution and environmental degradation). Contrast with Acute risks.
Civil Contingencies Act 2004	The framework for civil protection in the UK. It identifies and establishes a clear set of roles and responsibilities for those involved in emergency preparation and response at the local level. It also allows for the making of temporary special legislation (emergency regulations) to help deal with the most serious of emergencies.
Common consequences approach	An approach to transport resilience that focuses on preparing for and mitigating the shared or widespread impacts that various risks can have on the transport system, regardless of the specific cause of disruption. This enables planning and response measures that address the effects, rather than only the individual hazards.

Definitions

Digital Twins	Virtual models of physical assets or systems that enable real-time monitoring, simulation, and analysis to support decision-making and resilience planning.
Exercise	A simulation designed to validate organisations' capability to manage incidents and emergencies, training undertaken, and the procedures and systems within emergency or business continuity plans.
Hazard	Accidental or naturally occurring (i.e., non-malicious) event or situation with the potential to cause death or physical or psychological harm, damage or losses to property, and/or disruption to the environment and/or to economic, social and political structures. Contrast with threat.
Interdependency	A relationship in which systems or sectors rely on each other for their operation, such that disruption in one can directly affect the functioning and resilience of others.
Local Resilience Forum	Process for bringing together all the Category 1 and 2 responders within a police force area for the purpose of facilitating co-operation in fulfilment of their duties under the Civil Contingencies Act.
Local tier	The 38 Local Resilience Forums in England, the 4 Local Resilience Forums in Wales, 12 Local Resilience Partnerships in Scotland, and 3 Emergency Preparedness Group areas in Northern Ireland.
Mode	A mode refers to a specific form of transport, such as road, rail, aviation, maritime, bus, cycling, or walking. Modal is used to describe activities, planning or impacts relating to one or more transport mode. For example, "modal disruption" refers to disruption affecting a particular mode, while "inter-modal" refers to interactions between different modes.
Red Teaming	A structured challenge process where independent teams simulate adversarial threats to test and improve strategic plans and decision-making.
Resilience	The ability to anticipate, assess, prevent, mitigate, validate, respond to, and recover and learn from natural hazards, deliberate attacks, geopolitical instability, disease outbreaks, and other disruptive events, civil emergencies or threats to our way of life.

Definitions

Resilience Cycle	A conceptual model that breaks the management of a risk down into stages at which different preparatory actions can be taken. The UK government is using eight stages: anticipation, assessment, prevention, validation, preparation, response, recovery and learning.
Risk	An event, person or object which could cause loss of life or injury, damage to infrastructure, social and economic disruption or environment degradation. The severity of a risk is assessed as a combination of its potential impact and its likelihood. The UK government subdivides risks into: hazards and threats.
Scientific Advisory Group for Emergencies (SAGE)	Advisory group convened to provide independent scientific advice to support decision-making in the Cabinet Office Briefing Room (COBR) in the event of a national emergency.
Sector	A sector is a broad area of the economy or public service with shared functions and responsibilities. In this strategy, the transport sector encompasses multiple modes and organisations involved in the movement of people and goods, whilst reference to other sectors (such as voluntary, energy or health) recognise interdependencies that affect transport resilience.
Threat	Malicious risks such as acts of terrorism, hostile state activity, and cyber crime. Contrast with hazard.
Upstream interdependency	Where impacts from other sectors cascade to impact transport. For example; power supply, telecommunications, water supply, wastewater services and supply chains. If these are vulnerable to threats and hazards, then transport operations and infrastructure will also be affected.
Validation	In a resilience context, validation is the process of testing and checking whether plans, capabilities, and assumptions will work as intended. This is often done through activities such as exercising, assessments, or audits and helps identify gaps, weaknesses, and areas for improvement before an incident occurs.
Vulnerable	People who are less able to help themselves in the circumstances of an emergency, who must be given special consideration in plans.

Government transport resilience roles and responsibilities

Air Accidents Investigation Branch (AAIB), Rail Accident Investigation Branch (RAIB) and Marine Accident Investigation Branch (MAIB) are independent units within the Department for Transport that investigate accidents and serious incidents to improve transport safety by conducting impartial, no-blame inquiries to identify causes and prevent future occurrences.

Cabinet Office provides strategic leadership and coordination across the UK resilience system, as well as leading the Cabinet Office Briefing Rooms (COBR) crisis function to coordinate government's response to acute emergencies, including on transport, where cross-government coordination is required. Cabinet Office also leads on the new Home Defence Programme, ensuring coordination across departments and agencies in the event of major conflict impacting the UK.

Civil Aviation Authority (CAA) is the UK's independent aviation regulator, responsible for ensuring the safety, security and resilience of the aviation system by setting standards, overseeing compliance, and supporting industry preparedness for disruption.

Department for Business, Innovation, Science and Trade (BIST) promotes resilient supply chains, facilitating international trade, and ensuring the continuity of critical goods and services during disruptions.

Department for Digital, Culture, Media and Sport (DCMS) supports transport resilience through its responsibilities for data and digital infrastructure. DCMS plays a crucial role in ensuring the security, reliability, and continuity of digital systems that underpin modern transport networks, including communications, data sharing, and cyber resilience.

Department for Environment, Food and Rural Affairs (Defra) leads the UK's climate change adaptation agenda and provides guidance on managing environmental risks that affect transport infrastructure. Defra coordinates the National Adaptation Programme, which brings together departmental objectives, policies and actions to address climate risks, including the development of climate resilience standards.

Department for Energy Security and Net Zero (DESNZ) is the lead government department for energy resilience. DESNZ is responsible for working with the energy sector to anticipate, assess, prevent, and mitigate risks to the sector including through the publication of the upcoming Energy Resilience Strategy. DESNZ also works closely with other government departments to identify and manage interdependencies between sectors including transport.

Department of Health and Social Care (DHSC) leads on pandemic preparedness and public health emergencies that can impact the transport system.

Department for Transport (DfT) is the Lead Government Department for transport resilience in the UK, responsible for anticipating, assessing, preventing, and mitigating risks to the transport sector at a national level. DfT works with a range of other public transport bodies and regulators that collectively contribute to the resilience of the transport network.

Foreign, Commonwealth & Development Office (FCDO) supports international collaboration, knowledge exchange, and capacity building across borders. FCDO strengthens the UK's ability to anticipate, manage, and recover from transport-related risks that have international dimensions, including those arising from climate change, supply chain disruptions, and geopolitical events.

General Lighthouse Authorities (GLA) are arm's-length bodies of the Department for Transport, responsible for providing and maintaining marine aids to navigation, including lighthouses, buoys, and beacons.

Government Office for Science (GO-Science) is UK government's central science advisory body. It ensures that science advice underpins resilience policy, strategy, planning and crisis response and that the Scientific Advisory Group for Emergencies (SAGE) is ready to stand up in the event of an emergency.

HM Treasury (HMT) shapes the UK's transport resilience landscape by setting strategic investment priorities and funding mechanisms that underpin long-term infrastructure planning, including the delivery of the 10-Year Infrastructure Strategy.

Home Office has key responsibilities for security issues and policing. It provides strategic oversight and coordination for the security of the transport system, including counter-terrorism measures, crime prevention, and the protection of Critical National infrastructure.

Local tier forums (including the 38 Local Resilience Forums in England, the 4 Local Resilience Forums in Wales, 12 Local Resilience Partnerships in Scotland and 3 Emergency Preparedness Groups in Northern Ireland) coordinate local risk assessment, emergency planning, and response for transport disruptions. They bring together local authorities, emergency services, and transport operators to ensure transport resilience measures are integrated with wider civil contingency planning.

Maritime and Coastguard Agency (MCA) protects the resilience of the UK's maritime domain by overseeing safe and secure shipping, responding to emergencies at sea, and coordinating activity that helps ports and coastal transport networks withstand and recover from disruption.

Met Office is the UK's national meteorological service, providing weather and climate expertise that underpins transport resilience by supplying hazard forecasts, analysis and guidance used to anticipate and prepare for disruption.

Ministry of Defence (MoD) has the capacity to provide Military Aid to the Civil Authorities (MACA) during emergencies and disruptive events.

Ministry of Housing, Communities and Local Government (MHCLG) supports local authorities and Local Resilience Forums (LRFs) in planning, preparing for, and responding to risks that affect transport networks and communities.

National Cyber Security Centre (NCSC) provides expert guidance, tools and support to help the transport sector strengthen its cyber resilience, including through the Cyber Assessment Framework and specialist advice during cyber incidents.

National Highways plans, operates, maintains, and improves England's strategic road network, ensuring it remains safe, reliable, and able to withstand and recover from disruption.

National Protective Security Authority (NPSA) provides specialist guidance and support to help the transport sector protect infrastructure, people and assets from terrorism, state threats and other malicious activity, strengthening overall protective security and resilience.

Network Rail is the owner and operator of the majority of Britain's rail infrastructure and is responsible for strengthening the railway's resilience by assessing risks, setting and maintaining standards for managing disruption, and planning network upgrades and adaptations.

Northern Ireland Executive, primarily through the Department for Infrastructure, sets strategic direction, policy, and investment priorities for Northern Ireland's transport networks – including roads, rail, ports, and public transport.

Office of Rail and Road (ORR) is the independent safety and economic regulator for Britain's railways and the monitor of National Highways.

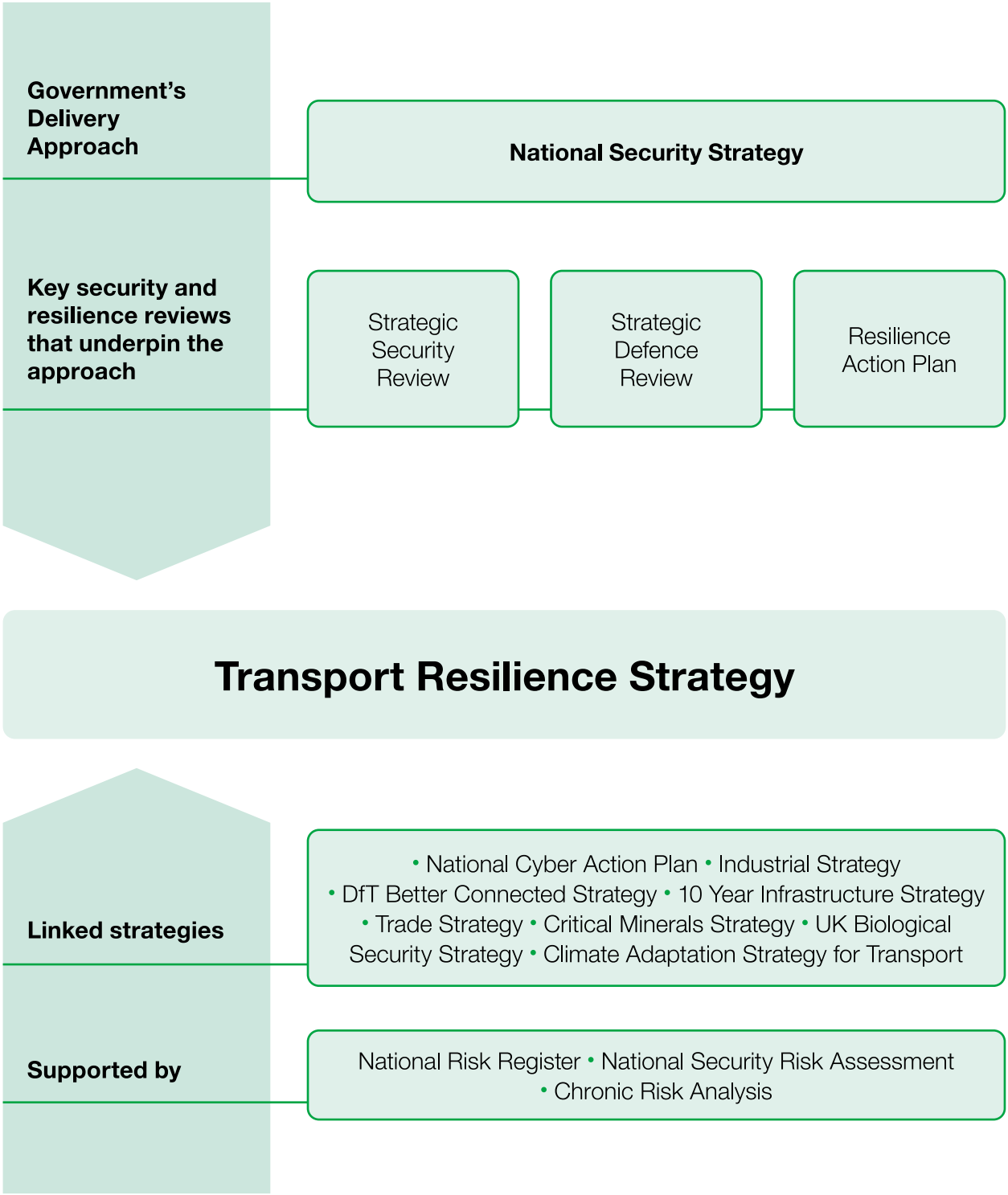
Scottish Government's transport policy is overseen by Transport Scotland, which is the national transport agency for Scotland. The agency delivers the Scottish Government's vision for transport and is responsible for the delivery of transport infrastructure projects.

Strategic Authorities are the Local Transport Authority for their area, with responsibility for preparing and publishing a local transport plan and powers to secure the provision of passenger transport services where not otherwise provided.

UK Resilience Academy (UKRA), part of the Cabinet Office, is the national centre for resilience learning and development. It provides accredited training, exercises, and best practice guidance to strengthen skills and standards across government and the wider resilience sector.

Welsh Government sets policy and funding, and provides oversight of, the operation and maintenance of Welsh transport networks, including trunk roads, rail, ports, and public transport. Through Transport for Wales and collaboration with local authorities, it leads on resilience planning, risk assessment, and response to major incidents, severe weather, and other disruptions.

Strategic framework



Annex B
Commitments

Objective 1

The Department for Transport will:

- improve and standardise risk assessment by promoting best practice, tools, and the creation and standardisation of inter-modal transport industry risk registers.
- improve understanding of future transport risks by expanding risk products, including Transport Hazard Summaries, and providing regular threat and hazard briefings through existing industry forums.
- enhance horizon-scanning capabilities through sharing of assessments and targeted training.
- assess resilience capability across the sector by working with regulators and partners to strengthen assurance.
- improve scrutiny of risks by establishing an expert transport resilience red teaming panel.
- manage cross-sector interdependencies by providing guidance on upstream risks and aligning transport and energy resilience planning.
- strengthen preparedness by delivering a coordinated, multi-year exercise programme and encouraging wider partner participation.
- embed continuous learning by supporting the transport sector to review incidents and action lessons identified, whilst doing the same within the department, including agencies and arm's length bodies.
- set expectations, and improve visibility, of system resilience by developing, establishing, and monitoring transport resilience standards for the sector.

Objective 2

The Department for Transport will:

- improve sector preparedness by enhancing assurance and expanding business guidance (for example via GOV.UK Prepare).
- strengthen Critical National Infrastructure resilience by improving CNI mapping and formalising engagement with operators.
- enhance system-wide resilience capability by developing digital twins.
- assess existing resilient communications provision, identify business needs, and explore viable tools and technologies to further support the sector.
- strengthen collaboration across the transport sector and other key local and industry partners, by securing senior resilience sponsors across transport operators, and creating a Transport Resilience Network.
- improve mutual aid and local coordination by convening operators, regulators and responders to mobilise assets during disruption.
- raise professional resilience skills by promoting National Occupational Standards and launching a Transport Resilience Academy pilot.
- improve user preparedness by embedding humanitarian considerations in resilience approaches.
- improve support for vulnerable users by assessing the need for further transport-specific guidance and training.

Objective 3

The Department for Transport will:

- embed Lead Government Department responsibilities by ensuring accountable leaders and their responsible teams understand and can fulfil their roles in mitigating and managing civil contingency risks to transport.
- improve strategic decision-making by publishing an Appraisal, Modelling and Evaluation Strategy and formally embedding resilience in arm's-length bodies through governance, guidance, and assurance arrangements.
- maintain strong internal crisis capability by training staff and providing a tailored resilience learning and development offer.
- improve national and international collaboration by strengthening UK-wide partnerships, driving innovation (for example through Transport Research and Innovation Grants), and sharing learning globally.

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