

# Climate change adaptation costs set to soar on the railway

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Credit: University of Birmingham

Britain's railway is facing a dramatic increase in the cost of dealing with

extreme weather over coming decades unless it starts taking pre-emptive action now, according to new research released by RSSB today.

Climate change is forecast to have a significant and damaging impact on the [railway](#) network, through a combination of higher average temperatures; rising sea levels; more frequent floods and heat waves; wetter winters and dryer summers. The Tomorrow's Railway and Climate Change Adaptation report, prepared in close collaboration with Network Rail, predicts that, without mitigation, climate change will present a significant increased risk to the railway network, to passengers and railway workers.

"The [rail industry](#) has already introduced wide-ranging measures to combat the effects of climate change," said Mark Phillips, RSSB's Interim Managing Director. "But more investment and support will be needed to maintain an effective rail network, which is prepared for the potentially damaging impact of [extreme weather](#)."

The report presents a number of recommendations to improve the network's resilience including; improved mapping of vulnerable assets, accurate logging of the location of incidents and the weather, revising rail industry standards to take account of future climate predictions and developing a 'journey availability' metric to assess the long-term availability across UK transport networks during extreme weather.

"The project has developed our understanding of the scale of the challenge and helped us to shape long-term investment plans for the infrastructure", said Network Rail Principal Engineer, Caroline Lowe. "It is clear that there is an immediate imperative for government agencies, infrastructure operators and transport providers to work together. NR is committed to implementing many of the recommendations of the research and collaboratively working to deliver a resilient railway service to customers today and in the future.

"We found strong evidence that Britain's railway will be affected by changes in weather conditions caused by climate change", said climate change expert and project team member John Dora. "By improving understanding of where the network is most vulnerable and by taking action now, the future impact of climate change can be significantly reduced."

The lead academic on the project, the University of Birmingham's Dr Andrew Quinn, from the Department of Civil Engineering, said: "The Tomorrow's Railways and Climate Change Adaption project is a major step forward for the GB rail sector in adapting to the changing climate and extreme weather events. It has consolidated existing knowledge and highlighted critical developments that are needed to improve the reliability and resilience of the future railway."

Dr Quinn's team led ground breaking work on new metrics for adaptation and resilience, which showed how these can improve decision making for adaptation investments for rail services. The team also conducted interviews with overseas railway organisations to build a compendium of adaptation actions and illustrated how a holistic view of the railway system is a requirement for good management decisions and how different organisations both inside and outside the rail industry need to work together to achieve resilience.

The report also found that some climate change adaptation and resilience projects often fail to gain the funding they need owing to the wider economic and social impact of disruption to rail services not being taken into account.

A potential major disruption to the rail network caused by adverse weather conditions, as happened at Dawlish in February 2014, could have a range of impacts on other transport modes and the wider economy, the report found. Any assessment of the relative merits of

[climate change](#) adaptation or resilience projects should take into account the wider socio-economic benefits and the knock on effects it has on other networks.

"The true cost of the collapse of the railway at Dawlish is far higher than just the bill for repairs and compensation payments. When you take into account the impact on local businesses and communities, the case for building alternative routes becomes much more compelling", said Tim Armitage of Arup who led the consortium which produced the report.

RSSB is also launching a new video today to help the rail industry to understand the associated carbon emissions with their activities and identify where reductions can be made by using our industry-approved Rail Carbon Tool. The tool now has more than 100 users and is being utilised on several large infrastructure projects, such as Great Western Electrification, East West Rail 2 and Bank Station Upgrade. Please visit the sustainable development pages on RSSB's website for more.

**More information:** The Rail Carbon Tool is a web-based tool that allows you to calculate, assess, analyse, report and reduce your rail project carbon footprint by evaluating low-carbon options using verified, centrally-available carbon factor data. Please click here for more details: [www.railindustrycarbon.com](http://www.railindustrycarbon.com) .

Provided by University of Birmingham

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