Making our transport systems more weather resilient

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Why is resilience important?

• UK transport networks amongst most intensively utilised in the world
• Just-in-time operations increasingly prevalent
• Increasing dependence of transport operations on IT systems
• Current levels of extreme weather are already disruptive
And we should expect more extreme weather events in future

• More rainfall over sustained periods in winter
• More intense localised rainstorms
• More hotter, drier summers
• Rising sea levels

Three layers to resilience

• Physical resilience, so transport can keep people and goods moving
• Recovery processes to restore normal operations ASAP
• Effective communications to users and passengers to minimise impact of disruption
Some core principles in ensuring higher resilience

- Clear economic rationale to judge what to spend
- Prioritise according to intensity of use
- Protect single points of failure
- Agree and prioritise "resilient networks" locally and nationally
- Look at end-to-end journeys

Resilience should be a core part of good asset management

- Opex and maintenance more important than capex
- Road and rail line deterioration is driven by weight of usage and weather
- Resilience should be an integral part of Asset Management Plans
Principal resilience risks to transport networks

• All modes
  - Protecting IT and electricity installations
  - Liaison with non-transport agencies on flood prevention

• Strategic roads
  - Snow and ice biggest risk
  - Managing traffic to reduce accident/incident risk
  - Ensuring swift response and clearance of incidents

Local roads

• Biggest area of challenge
• 183,000 miles of roads, 152 Local Highway Authorities
• Drainage both of the road and surrounding land
• Highly variable asset condition, significant backlog of work
Principal resilience risks continued

- Rail
  - 150 year old embankments
  - Trees and vegetation management
  - Protection of signalling systems from water/flooding

Ports and Airports

- Ports
  - Rising sea levels

- Airports
  - Snow and ice biggest risk
  - Protection from flooding
  - Better contingency planning with airlines
Conclusions

• Much good practice already
• Much exceptional and commendable work in handling recovery
• Should share and learn lesson from others more widely
• Multiple organisations involved in flood prevention
• Ensure we don't take our eyes off the ball after one or more "quiet" seasons