Network Rail and Adaptation

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Climate Change Adaptation: Reality and prospects for the rail sector

Network Rail in GB

- Network Rail in UK

    - GB Rail Infrastructure owner

    - Regulated

    - 5-year Control Periods

    - 30-year Technical Strategy

    - Many players

    - Complicated interfaces

  Currently working towards CP5 (2014 -2019)

Department for Transport — SCOTTISH EXECUTIVE

Specify and fund rail services in England/Wales and Scotland

Funding & franchise obligations

Work together

Network grant

Revenue from passengers and freight users

ORR

Regulates infrastructure monopoly, and health and safety

Rail Operators

Network Rail

Access charges / network code
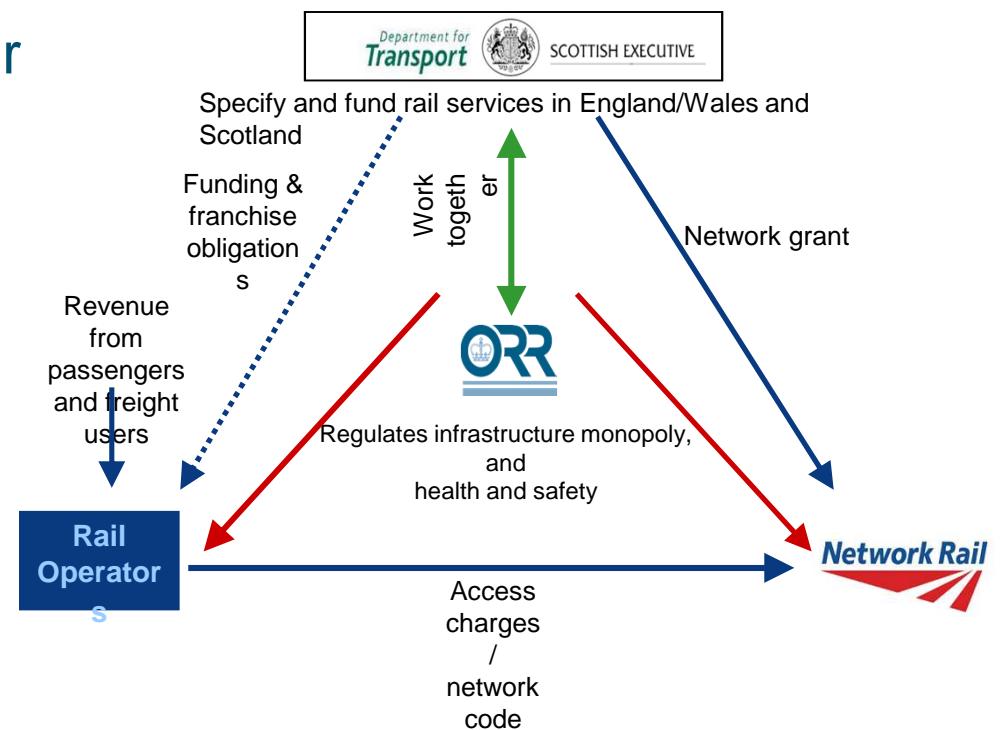
Rail CCA studies - TRaCCA

- 'Business as usual' is not an option (2006 Stern Review etc)

- Flooding costs £50M pa – this could be £500M by 2040s

  – Track buckle risk management – c.£40M

- Weather delay budget is 500,000 minutes per year

- TRaCCA initiated - aimed to provide tools and knowledge to improve the reliability of the railway

- Detailed climate impact analyses on selected priorities

Seasonal delay minutes per annum
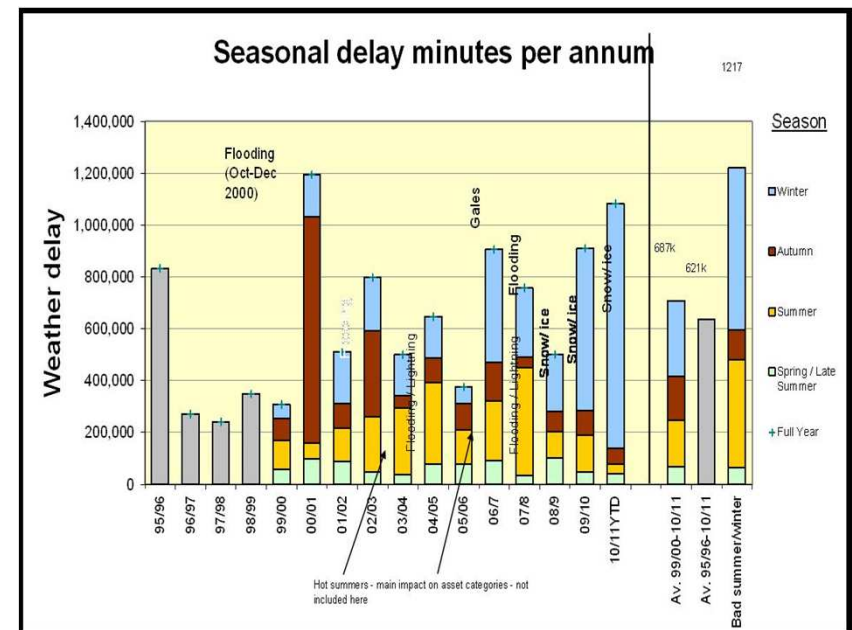
What we've learned – some Headlines

- A marked difference in climate north/ south is likely

- Cold winters will become increasingly rare

- Track buckle risks increase

  - Following today's processes means reduced *System Reliability*

  - Major floods become 6x more frequent by 2080s

- Adaptation activity can foster wider benefits

- Asset lifecycle important

 - Adapt at Routine Renewal stage = a low cost high impact strategy
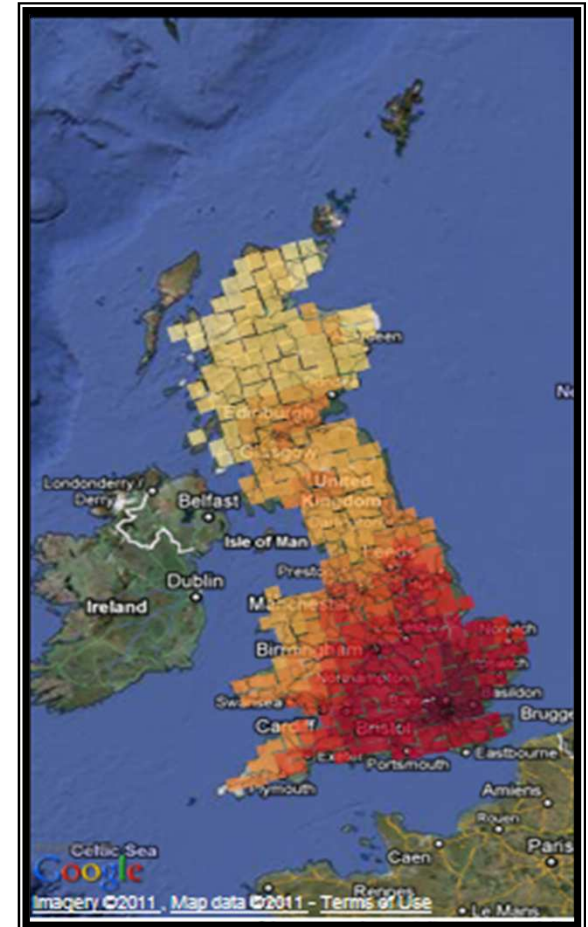
Heat related non-work days – 2040s

Going forward…

- TRaCCA was a defined *project* and has led the way

- Many benefits in being more ambitious:

  - Broader scope (in terms of participation, activities and time, with a *systems approach*)

  - Build on external to Rail Research and Science

  - Improve Railway Asset data/ Invent new metrics

  - 'Fast-track' packages to bring early benefits (especially in 'local weather management')

  - Bring other countries' experiences **now** to help show the **future for the UK** and vice-versa

Current proposal
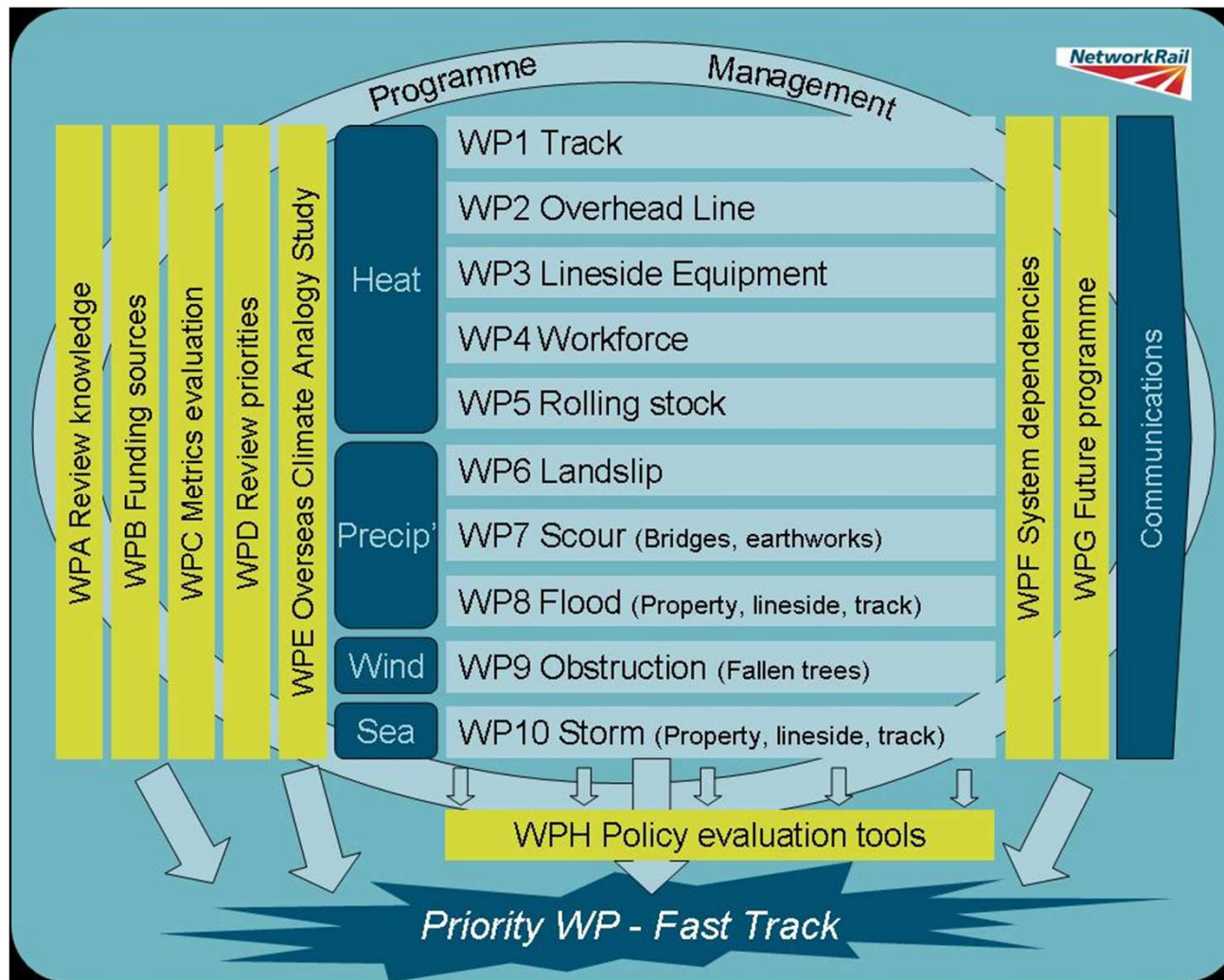
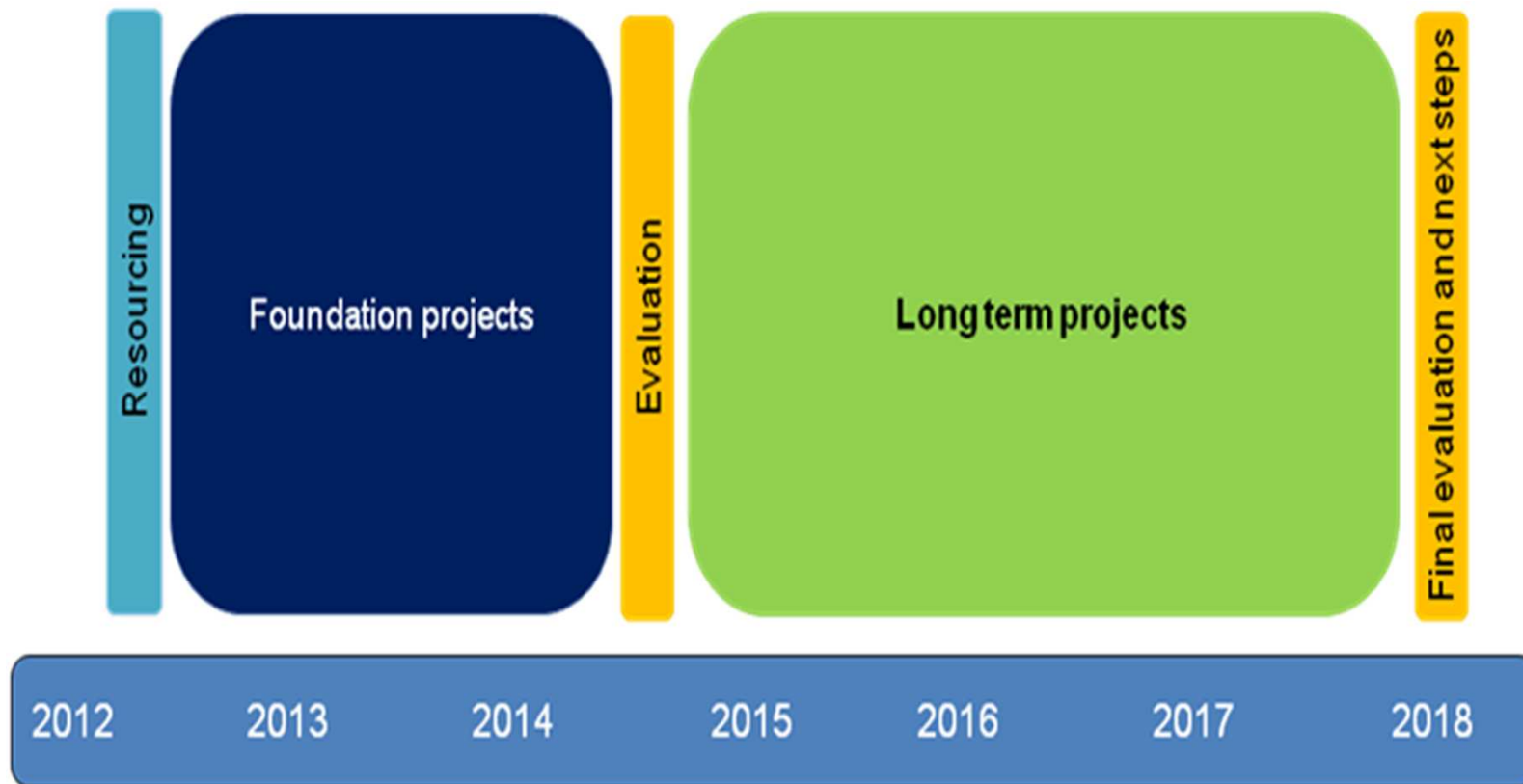Estimated Cost to Rail: £1.7M for Foundation projects (2 years)

Overall Timeline: 5 Years

Size of problem worth in excess of £4.6Bn over 30 years

Proposed Programme

Resourcing | **Foundation projects** | **Evaluation** | **Long term projects** | **Final evaluation and next steps**

2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018

The proposed work will be sponsored by RSSB's Research Programme – currently this is subject to approval

Project Deliverables include:

2 YEAR FOUNDATION PROJECTS

- **Economics of the benefits of climate change adaptation**

  – Report on economics of the benefits of CCA

- **Overseas analogy study**

  – Comparative report of rail systems currently operating within similar weather thresholds to those predicted for future GB

- **System, Sub-system and Local Decision tools**

  – To aid decision making for long term Policy, medium term Asset investment and local Management operations

Conclusions

- GB Rail has undertaken research into climate change impacts up to the 2040s

- This has identified positive benefits

- Improvements into data and science have been identified

- £1.7M sought to build on TRaCCA work

  - 2 years' Foundation projects within 5 year programme

  - Engage across academia

- Asset lifecycle very important - adapt during routine renewals

- **Multi £Bn 'Prize'**

Links

Network Rail: www.networkrail.co.uk

Rail Industry CP5 Plan: www.networkrail.co.uk/iip.aspx C:\Documents and Settings\Jdora\Local Settings\Temp\wz4c20\Buckled track.jpg

RSSB Research: www.rssb.co.uk ;
http://www.rssb.co.uk/SiteCollectionDocuments/pdf/reports/Research/T643_rb_final.pdf

TRaCCA: www.rssb.co.uk/SiteCollectionDocuments/pdf/reports/Research/T925_rpt_phase3.pdf

Adaptation and Resilience Research www.ukcip-arcc.org.uk/; www.arcc-futurenet.org;
www.itrc.org.uk

UK Government Adaptation Reports: www.defra.gov.uk/environment/climate/adapting

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