

Keeping the trains running

System complexity

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A day in the life of Network Rail



Every day, 22,000 passenger trains and 2,000 freight trains use the rail network.

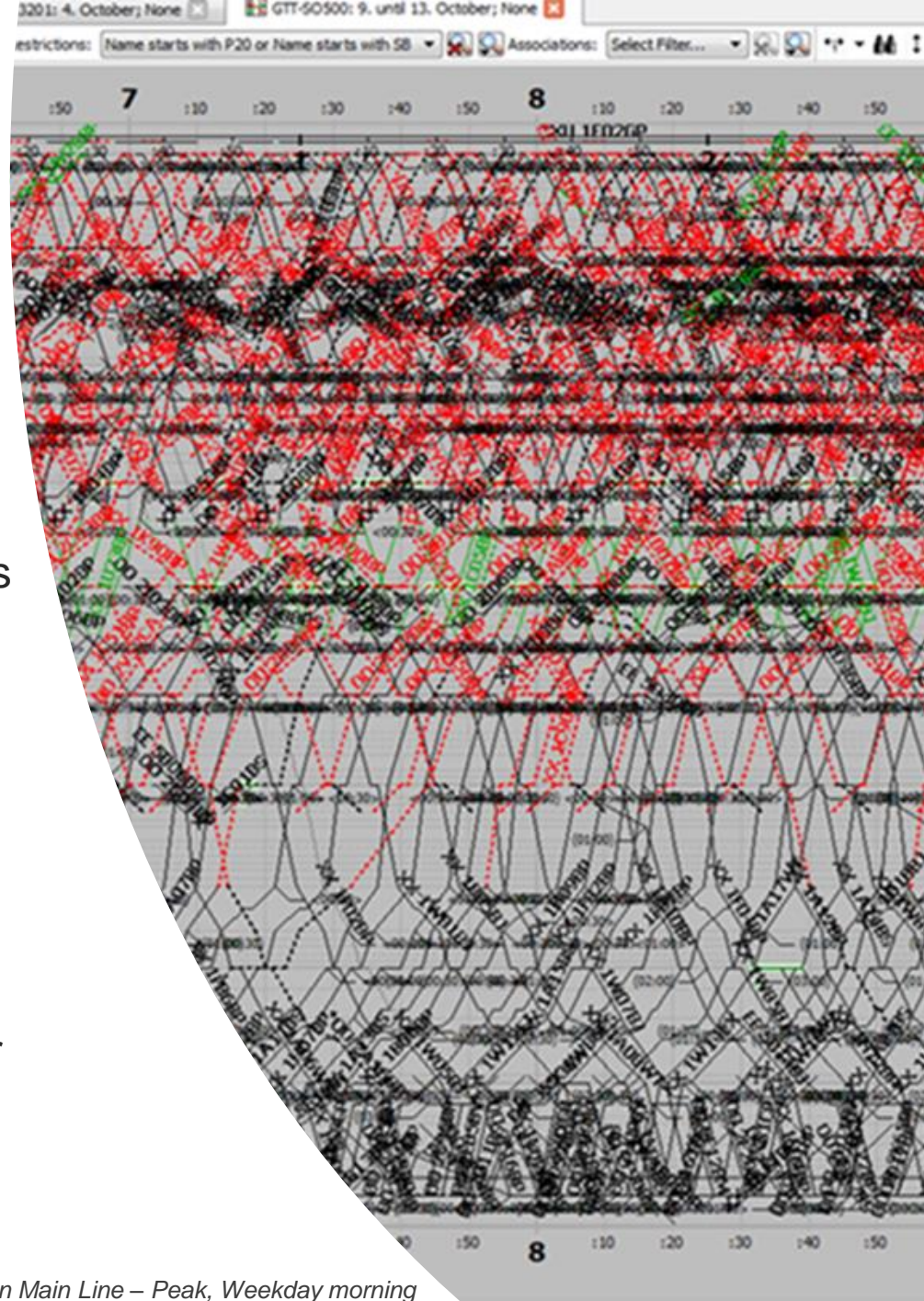
At peak times, critical parts of the network now run at close to **100 per cent capacity**.

The railway network has over 20,000 miles of track, 30,000 bridges and tunnels, 40,000 signals and almost 6,000 level crossings.

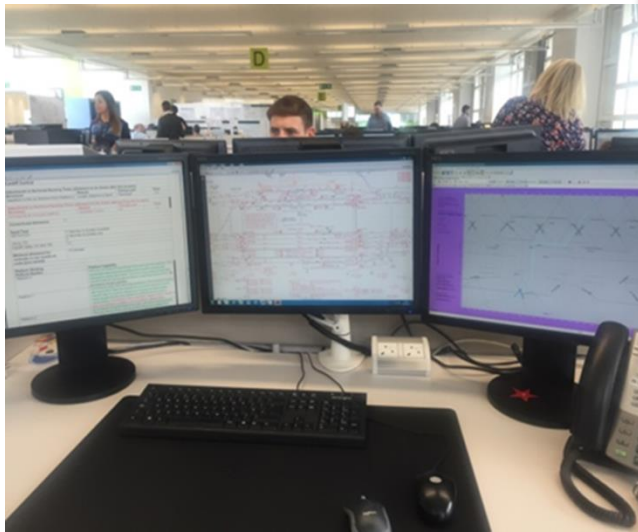
Trains run 24 hours a day, 365 days a year

Timetable in numbers

- 24,000 trains
- delivering over 4.5 million passengers
- travelling over 900,000 track miles
- to pass over 1.5 million signals on green
- to arrive at 220,000 station stops
- to arrive at the advertised minute
- 23 franchised Train Operating Companies
- 4 main freight operating companies
- 1000s of NR access requirements for maintenance, renewals and enhancements



Validating a single Junction



Source texts for 1 validation:

- What has been bid by the operator and has been uploaded into TPS
- Train planning rules
- National sectional appendix (line speeds)
- Signalling diagrams
- 5 Mile diagrams
- Stock Diagrams (train formation)
- Trust (TOPS)
- Network Code Part D



Edinburgh-Glasgow Improvement Programme (EGIP)

The Edinburgh Glasgow Improvement Programme (EGIP) is a comprehensive package of improvements to Scotland's railway infrastructure. A Scottish Government priority, the £742m EGIP is being delivered by Network Rail and includes modernisation and upgrades to...



Crossrail

With the Elizabeth line open fully in 2019, 1.5 million more people will be able to get to central London within 45 minutes Crossrail is a very important and exciting project for rail users in...



Derby resignalling project

£200m has been invested in the railway in Derby This project was the biggest rail investment in Derby station for decades and is a key part of the Midland Main Line upgrade which will improve journeys...

Enhancement programmes in numbers

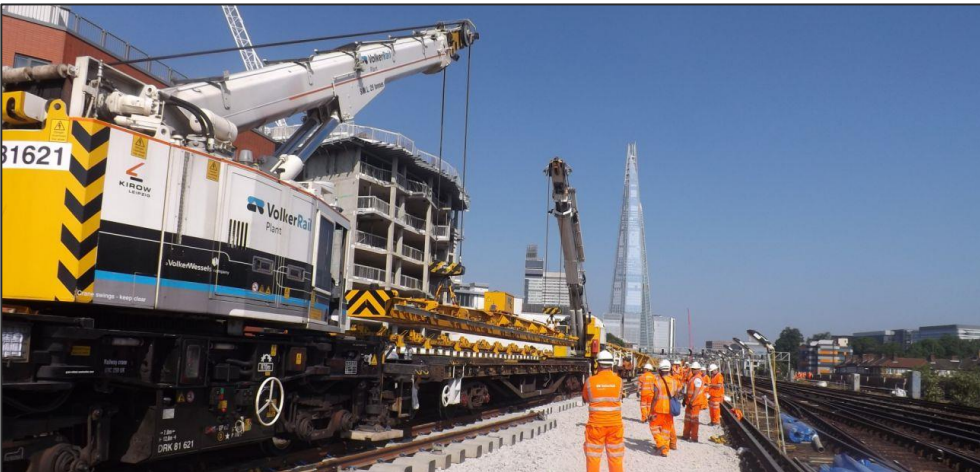
In 2017 we delivered over
£6bn
in new infrastructure.

This equated to:
22%
of UK infrastructure

Around **5000**
Projects across the UK



Sources of Complexity for Capital Delivery



Department
for Transport



TRANSPORT FOR THE
NORTH

Managing Complexity Risk



Risk Registers



Quantitative
Risk Analysis



Risk Reporting
and Oversight



Lessons
Learned



Peer Reviews

02:48 - An incident near Cheltenham closes the line



08:48 - Six hours later, the impact is being felt around the area



15:18 - 12 hours after the incident, much of the network is affected



22:48 - 20 hours on and the effects are being felt across the country



How impact spreads