Tram Train Trial Project

All Party Parliamentary Light Rail Group

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Why Trial Tram-Trains

Department for
Transport

Background

- Executives from DfT, Network Rail and NedRailways visited Kassel in Germany.

- They perceived potential for Tram Train operations in GB

- Rail Minister Tom Harris visited Karlsruhe

- Potential service options

  - Urban light metro services linking into existing tram lines

  - Light rural branch lines

Advantages of Tram Train

- Development of a new service to rail users

    - Providing new journey opportunities

    - Taking the railway to where people want it, both origin & destination

    - Providing easier access to trains

- Ongoing reduction in maintenance cost base

- Increasing overall capacity of the network through reduced demand for city centre station access.

Strategic approach

- Simplified operating procedures

- Infrastructure appropriate for use

- Lighter trains

- Adopt best practice from other networks

- Flexible approach, managing system risk

- Appropriate Standards

- Use of a standard European Tram Train

Main Benefits

- Simpler operating methods

- Light rail station design

- Capable of running on line of sight

- Inter-working with conventional trains

- Frees up capacity at main stations

Why a trial?

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…and not a desktop exercise?

- A physical trial will identify the issues

- Appropriate standards need to be agreed with industry and tested in practice

- Available technologies should be trialled in UK to quantify benefits and identify barriers to development

- Policy will be evidence based

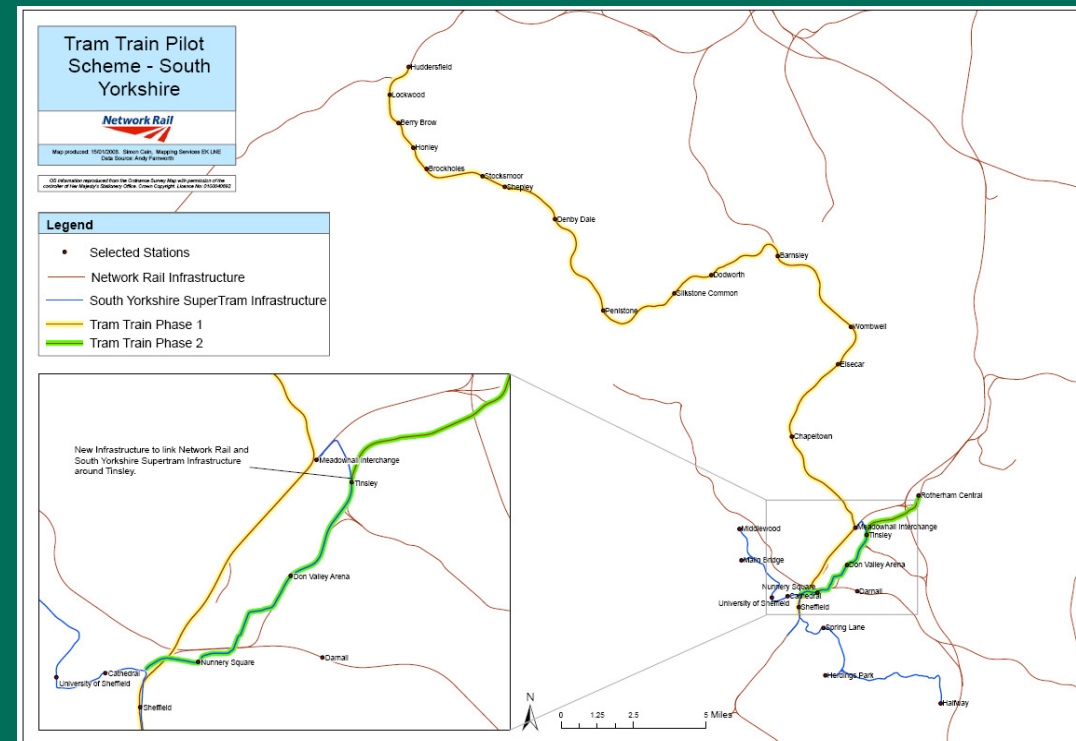- Minds will be focused on real, not perceived risk

Project objectives

- Determine change to industry cost

- Understand changes required to industry standards (including testing the industries ability to respond in a constructive way to tram train technology).

- Gauge passenger perception

- Understand issues with operating from main line onto tramways.

Project Phasing

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- Phase 1 - scheduled service Sheffield - Meadowhall - Barnsley - Huddersfield (2011 to 2013), which includes:

    - part of a TENs route

    - Non-TENs route with shared running

    - a tram train only section of the route

- Phase 2 - Rotherham Central into Sheffield City Centre (2013 to 2014)

Tram Train Pilot Scheme - South Yorkshire
Network Rail

Legend
- Selected Stations
- Network Rail Infrastructure
- South Yorkshire SuperTram Infrastructure
- Tram Train Phase 1
- Tram Train Phase 2

Risks to be understood

- Interaction of light weight rail vehicles on conventional infrastructure

    - Signalling

    - Managing crash-worthiness

    - Platform heights

    - All aspects of vehicle accessibility

    - Wheel Rail interface

- Frequent transition between heavy rail network and street running

- Drive-on-sight

Standards Issues (rolling stock)

- Crashworthiness

- Train detection and protection

- Wheel profile

- Vehicle end lighting

- Platforms

- Track Components

Compatibility

- Structure gauging

- Wheel/rail interface

- Train detection and protection

- EMC

- Ride quality

- Noise/Vibration

Rolling stock

- "Standard" low floor tram train vehicles

- Dual powered (diesel-electric and 750v dc overhead current collection)

- Roof mounted diesel engine

- Track brakes

- Approximately the same capacity as a Pacer

Infrastructure works

- Provision of low platforms

- Any associated access improvements

- Structure gauge clearance

- Track modification to accommodate chosen wheel profile – Raised check rails

- Track improvement (as required)

- Signalling modifications (e.g. Additional TPWS)

Figure 3.1 – Cross-section of selected wheel profiles
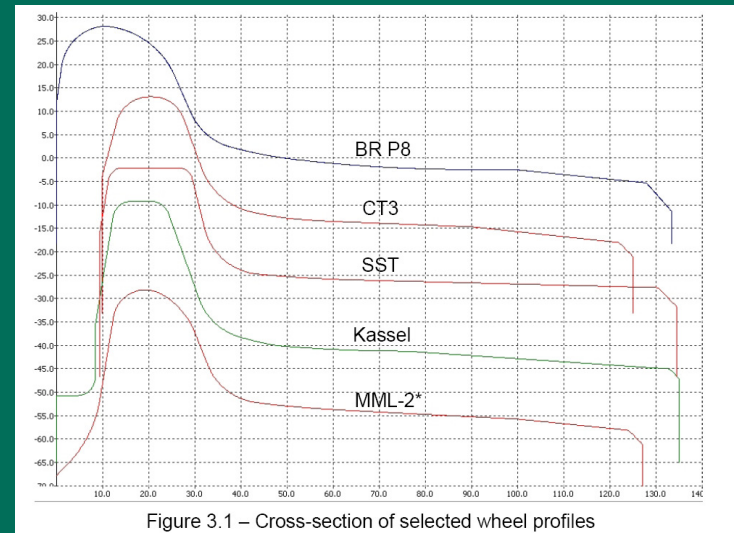
Outputs

- Of the trial between Network Rail, Northern Rail and DfT

  - Standards for Tram Train operation established with UK Tram and ORR (HMRI)

  - Benefits of Tram Train operation quantified to inform promoters of Tram Train schemes

  - Guidelines on the suitability of Tram Train for potential applications produced

Conclusion

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- Tram Train has the potential to provide a new passenger rail transport offering whilst reducing overall costs to UK plc

- May drive upfront costs but deliver lower whole-life costs

- It will only be delivered if the wider industry work in partnership to make it happen