

Tram Train – opportunities for the future

A presentation to APPLRG by
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Key objectives

- Development of a new service to rail users
 - Providing new journey opportunities
 - Taking the railway to where people want to access it
 - Providing better access to trains
- Continuous improvement in safe efficient sustainable operation leading to e.g.
 - Reduced car usage
 - Reduced carbon emissions
- Continuous reduction in maintenance cost base
- Continuous reduction in operating costs through energy efficiency
- Increasing overall capacity of the network



— tram trains in Karlsruhe Market Place

- Standards revised to support processes
- Simplified operating procedures
- Infrastructure appropriate for use
- Lighter trains
- Adopt best practice from other networks
 - Taking the train onto the tramway?

Benefits

Potential solutions for new urban, developing suburban and community railways are:

1. Lightweight conventional trains
2. Conversion to light rail
3. Tram train shared running
4. Ultra light rail

...all by various power supplies including hybrid power trains

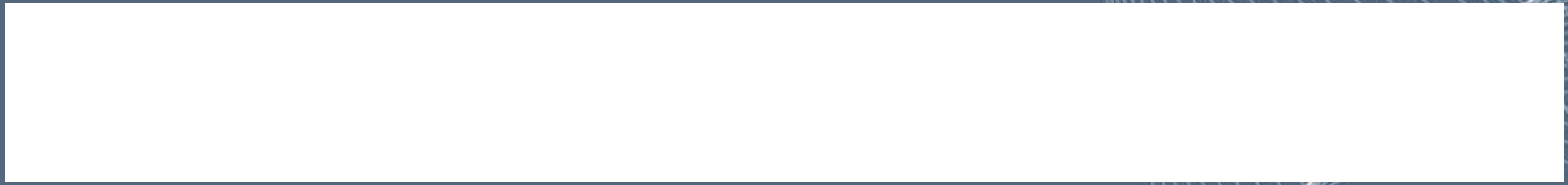
| | Lightweight conventional Trains | Conversion to light rail | Tram train shared running |
|--|------------------------------------|--------------------------|------------------------------|
| Reduce wear and tear on track | X | X | X |
| Take advantage of simpler operating methods | X | X | X |
| Take advantage of “light rail” station design | X | X | X |
| Capable of running on line of sight if fitted with track brakes | X | X | X |
| Capable of operating on same tracks as conventional trains | X | | X |
| Only suitable for segregated routes | | X | |
| Capable of being extended into town centres as on street or segregated tramways | | X | X |
| Line of sight operation removes need for conventional signalling systems | | X | |
| Single line operation controlled by axle counters | X | X | X |
| Frees up capacity at congested main line stations | | X | X |

Benefits



- Light Rail designed stations used successfully on DB branch lines – 50% cheaper than heavy rail equivalent
- No bridges or underpasses required for light rail stations
- Sits alongside existing plans by Network Rail to reduce station design & build costs.













Network Rail

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- Appropriate crashworthiness standards
 - Low floor v. high floor for vehicles and stations
 - Train stop system for shared running
 - Station arrangements for shared running
 - Adoption of mainland Europe principles for shared running
 - Diesel/hybrid tram train vehicles now available eliminating need to electrify
 - Heavy rail/ on-street interface



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- ‘Think rail’ using appropriate technology rather than tram or train
 - More flexible standards need to be agreed with industry and supported by DfT and ORR (HMRI)
 - Generic vehicle specification beneficial to industry
 - Available technologies should be trialled in UK to quantify benefits and identify barriers to development
 - In conjunction with trials, need to engage with scheme promoters to identify best rail based solution
 - Policy will be evidence based

- Is inter-running on network and street tramways possible
- Does it provide the right transport solution for stakeholders
- Does it offer the best value for money option from a whole life cost perspective
 - Operation and maintenance savings
 - Revenue growth
- Are required infrastructure changes manageable
 - e.g. low floor platforms, simplified signalling, line of sight operation
- Does it enable passengers to travel from preferred point of origin to preferred destination

- Trial between Network Rail, Northern Rail and DfT
- Work could establish tram train as a new rail based transport option for the UK
- Risk analysis of tram train operation
 - Acceptable crash worthiness
 - Acceptable train detection system
 - Acceptable wheel profile
- Work with UK Tram and ORR (HMRI) to establish standards for tram train operation
- Ensure Network Rail Route Enhancement teams engage positively with all promoters of tram train schemes
- This will enable guidelines for the suitability of the tram train offering to be produced



Conclusion

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

