Transport for Greater Manchester

TRANSPORT FOR GREATER MANCHESTER COMMITTEE
REPORT FOR RESOLUTION

Sub Committee:	Capital Projects and Policy
Date:	08 November 2013
Subject:	Tram-train Strategy
Report of:	Transport Strategy Director

PURPOSE OF REPORT

To report key study results and recommend an outline tram-train strategy for Greater Manchester.

RECOMMENDATIONS

Members are asked to:

1. approve the recommended way forward, by route, as set out in Table 1 of this report and;

2. note that the long-term transport strategy and LTP4 will reflect the findings of the tram-train strategy and subsequent funding discussions.

BACKGROUND DOCUMENTS

Transport for Greater Manchester Committee report – "Tram-train: TfGM input to forthcoming Network Rail Route Utilisation Strategy" 10 February 2012.

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1. Introduction and Background

1.1 In the context of Greater Manchester, tram-train means extending Metrolink onto the local heavy rail network, sharing track with remaining heavy rail services. Track-sharing between heavy rail trains and LRT with street-running capability is established in continental Europe, especially in Germany. Recently, a tram-train trial was approved in the UK, with services to run between Sheffield and Parkgate (near Rotherham) which is planned to open in 2016.

1.2 As part of its rapid-transit work for LTP3, TfGM identified gaps in the present and future rapid-transit network and then prepared high-level cost-benefit appraisals for a substantial number of rapid-transit options, including tram-train routes. Several tram-train routes were identified as having potential to be taken forward for further development.

1.3 At its meeting of 10 February 2012, TfGMC requested the development of a tram-train strategy for Greater Manchester and at a meeting of the GMCA on 29 June 2012 (report entitled "City Deal: Future Transport Prioritisation"), it was agreed that the following potential tram-train routes would be investigated:

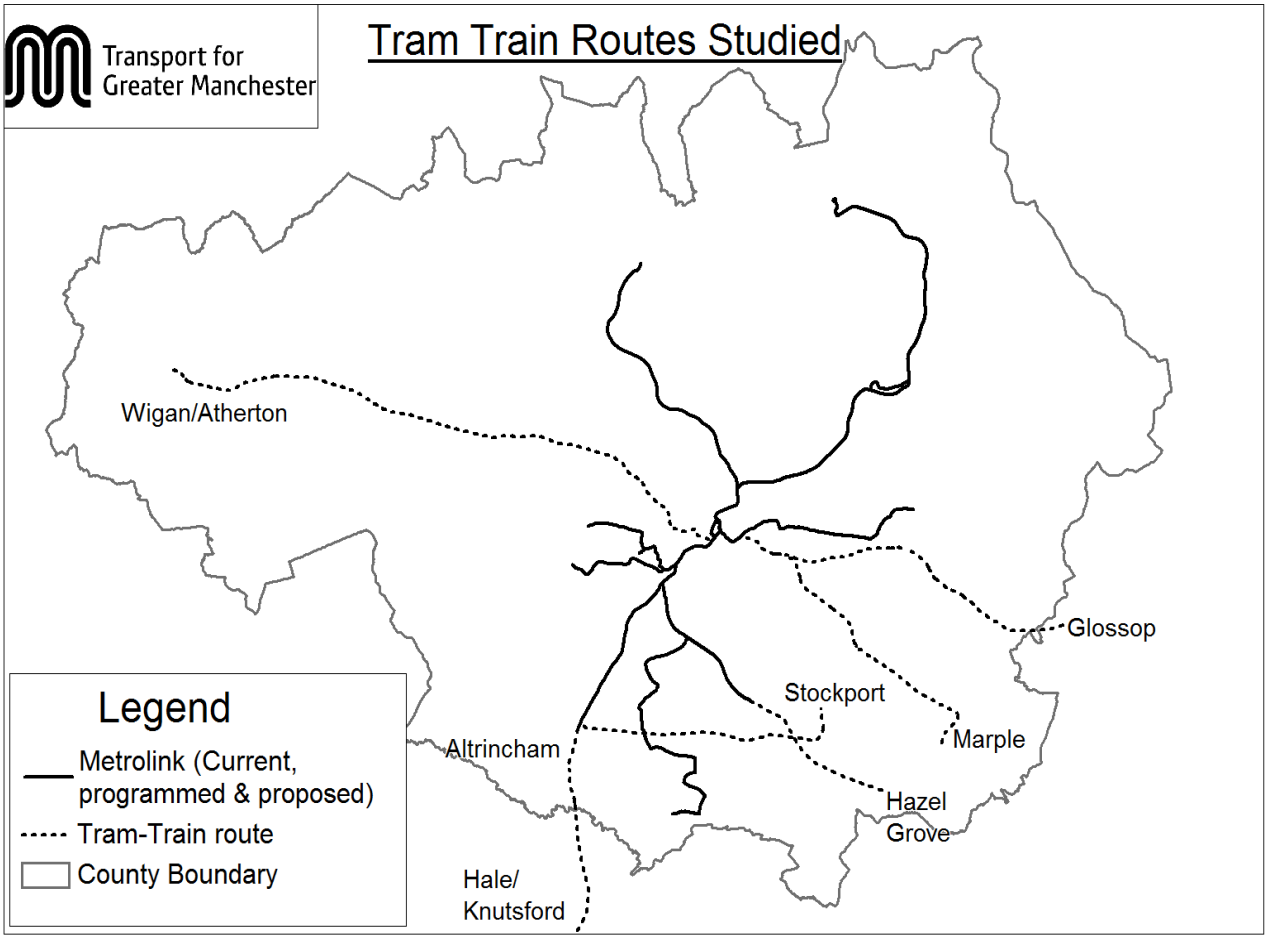
- Manchester – Bredbury – Marple
- Manchester – Glossop
- Manchester – Atherton – Wigan
- Manchester – Sale - Altrincham – Hale/Knutsford
- Manchester – East Didsbury – Hazel Grove
- Stockport – Altrincham.

They are shown on Figure 1.

1.4 The work carried out since April 2012 to develop a Greater Manchester tram-train strategy has considered the feasibility, costs, and benefits of these routes, building on the earlier work for LTP3. The outcome of this work is summarised in Section 2 of this report

1.5 A recommended way forward is proposed in Section 3, setting out a recommended tram-train strategy for Greater Manchester, which will need to be taken forward in conjunction with the wider work on future transport priorities and the emerging components of a longer-term transport strategy.

Figure 1


Transport for Greater Manchester
Tram Train Routes Studied
Wigan/Atherton
Glossop
Stockport
Marple
Altrincham
Hazel Grove
Hale/ Knutsford
Legend
Metrolink (Current, programmed & proposed)
Tram-Train route
County Boundary

2. Methodology of determining potential tram-train routes

2.1 Appendix 1 summarises the results by tram-train route. All values incorporate 66% contingency allowance on construction costs; 41% on operating costs; and 20% on vehicle-purchase costs, aiming to reflect DfT Guidance for projects at this early stage of development. To achieve equitable treatment between routes, it is assumed that all tram-train services would begin in 2020, although in reality this will not be the case. It is assumed that vehicles would be purchased as part of an order of at least 20 vehicles.

2.2 The value for money column reflects standard DfT classifications of social benefit to cost ratios. Where a range of value for money ratings is quoted, this reflects a range of demand-growth assumptions. The high end of the range reflects forecasts of background demand-growth equivalent to those that would be used in appraisal of local heavy-rail projects in Greater Manchester. Note that "low" value for money indicates a positive social return on the investment, but not sufficiently positive to normally attract DfT funding.

2.3 The appraisal undertaken to date was directed towards securing a high-level overview of each of the potential schemes that might comprise a future strategy. The values in Appendix 1 will be refined as each option is developed further.

2.4 Social benefit-to-cost ratios do not capture all the benefits of tram-train: other important effects are summarised in Appendix 2, which could be incorporated in estimated benefit-to-cost ratios in further work.

2.5 Figure 2 illustrates a possible future tram-train network with potential to offer good value for money. A phased approach to implementation looks appropriate, with potential for the first phase to open around 2020. The total construction cost (excluding vehicle acquisition) of the whole network illustrated in Figure 2 is estimated at approximately £650 million (if built now) including 66% contingency allowance.

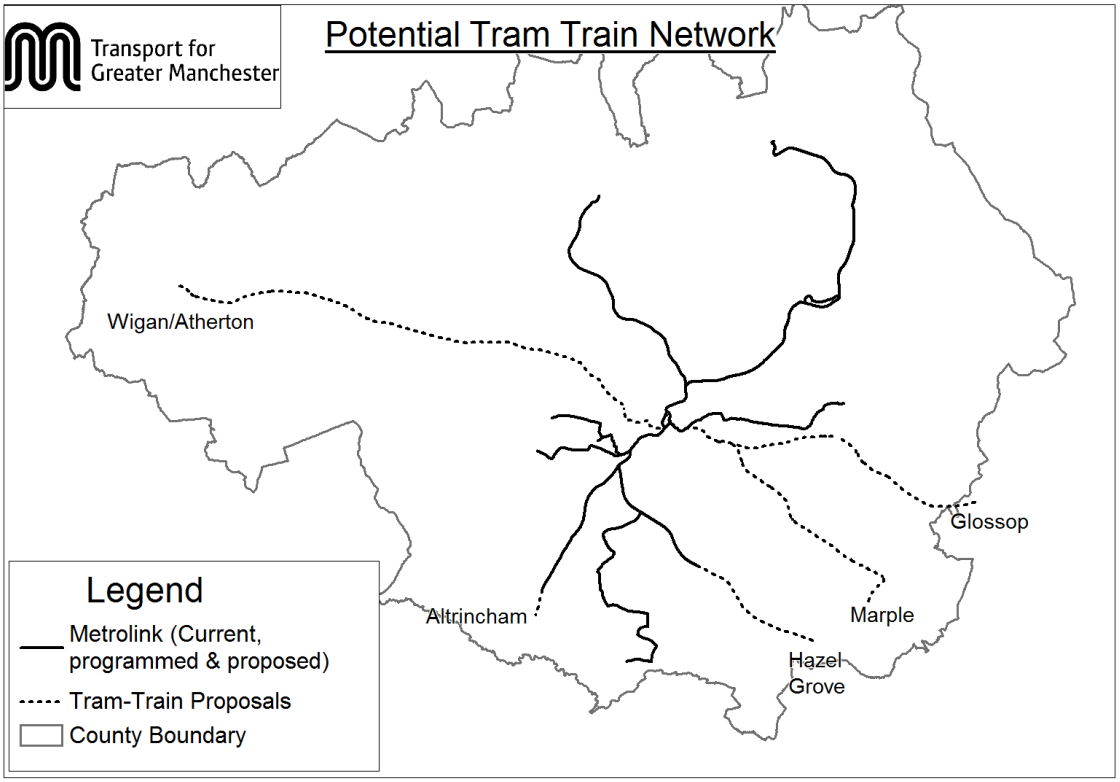
2.6 While tram-train requires a substantial capital outlay, the ongoing costs of tram-train routes are in most cases forecast to be exceeded by fares revenue. Therefore after the initial capital cost is incurred, tram-train services can be expected to be financially self-supporting, covering both their operating and renewals costs.

2.7 Tram-train offers the prospect of extending the transport benefits of fast and frequent Metrolink service, with excellent city-centre access, onto the local rail network. The potential network shown in Figure 2 is estimated to increase the carrying capacity of Metrolink into Manchester City Centre in the am-peak-hour by approximately 50% over that which would otherwise be provided in the future, after allowing for currently planned Metrolink extensions.

2.8 The capacity increase can be achieved by extending existing or planned Metrolink services that would run through the city centre, terminating at either Piccadilly or Victoria. Hence tram-train does not require any additional flows of vehicles through the capacity constrained sections of the city centre Metrolink network.

2.9 Therefore tram-train in Greater Manchester offers the prospect of investing now to create a future stream of both transport benefits and public-sector cost savings. This combination makes it a potentially attractive candidate for funding by central government, since very few transport investments offer that combination.

Figure 2



3. Recommended way forward

Altrincham

3.1 The Altrincham route would involve tram-train operation of the existing Manchester – Altrincham Metrolink service on the section of route through Navigation Road Station, where heavy-rail and Metrolink services currently run on parallel single-line routes, causing a bottleneck on the Metrolink network.

3.2 The cost-benefit case for tram-train operation through this section of double track is only moderate. However, there could be as yet unquantified benefits in the form of increased flexibility of operation for the Metrolink network as a whole through unblocking the present bottleneck at Navigation Road (see "Metrolink network opportunities created" in Appendix 2).

3.3 The case for this route depends on whether and to what extent the benefits that can be expected to be delivered by the TMS signalling system allow for an increase in frequency that otherwise could be achieved through Tram Train operation.

Glossop

3.4 This route could form part of Phase 2 of a tram-train strategy. To achieve that would require working with Network Rail to preserve the four-track rail alignment between Ashburys and Guide Bridge and to preserve the possibility of tram-train access to the alignment following track remodelling in the Ashburys area. The rationale for not proposing inclusion of Glossop in Phase 1 of the tram-train strategy is:

- there is insufficient city-centre capacity to accommodate both Marple and Glossop routes at 10tph (although it may well be feasible in the long term to accommodate both routes either through terminating certain services at Piccadilly Station or through operating each route at a 6tph frequency); and

- Marple outperforms Glossop both in terms of social cost-benefit analysis and whole-life financial cost to the public sector.

Hale and Knutsford

3.5 Extending an Altrincham tram-train service to Hale leads to reduced value for money. Therefore no further development work is recommended for an extension to Hale.

3.6 The capital and operating costs of an extension to Knutsford appear too high for a worthwhile business case to be made in the foreseeable future. It is recommended that the appraisal of the route be reviewed to confirm

that its conclusions are robust, but subject to that, it is recommended that no further tram-train development work be carried out for the Mid-Cheshire line south of Altrincham. Heavy rail based options may need to be investigated to make better use of the Mid-Cheshire line.

Hazel Grove

3.7 This route could form part of Phase 2 of a tram-train strategy as such it could form the first stage in development of a tram-train network serving Stockport, Altrincham, and the Manchester Airport area. This would require working with local authorities (mainly Stockport but also Manchester City Council) to protect the alignment between East Didsbury and the Adswood freight line. Although the stand alone cost benefit case for Hazel Grove tram-train is only moderate, there are opportunities for generating network benefits not counted in the appraisal.

Marple

3.8 In view of its strong performance, develop further as a potential first full tram-train line in Greater Manchester, subject to:

- confirming that an acceptable route between Piccadilly Station and Ashburys looks to be achievable (several options are currently under consideration); and
- confirming that the longer tram-train vehicles can be introduced into the city centre without creating substantial delays to existing Metrolink users.

3.9 It is recommended that Marple be developed as a potential Phase 1 of a Greater Manchester tram-train strategy, comprising the best-performing routes. For a six-minute headway service in which Marple services operated alternately to Altrincham and Bury, it is estimated that approximately 24 new tram-train vehicles would be needed, although many other service patterns would be possible, and so vehicle requirements at this stage are uncertain.

3.10 The early implementation of the tram-train route with the strongest business case is expected to improve the case for implementing the other routes in the proposed network, which will benefit from shared infrastructure.

Stockport - Altrincham

3.11 In view of its poor performance as a stand-alone scheme, but its potential as a component of a rapid-transit network serving the rapidly-expanding Manchester Airport area, it is recommended that this route be considered as part of a possible future separate study of transport to the Manchester Airport area, which would take into account (among other things) the transport requirements of the Airport City Enterprise Zone and the proposed Manchester Airport HS2 Station. An interchange at Baguley

could be a key element in such a network, together with the Western Loop section of the Metrolink Airport Extension not included in the current Phase 3 Programme.

Wigan via Atherton

3.12 This scheme would create a network of tram-train-based Metrolink extensions that would be more balanced between the north and south of the county. Of the routes considered in this report, it also presents the greatest scope to refine the alignment proposals and to better capture appraisal benefits. There are also opportunities (yet to be explored) to exploit synergies with the existing and planned Metrolink network in the city centre.

3.13 It is recommended that the existing appraisal be reviewed and alternative routes and service-options considered.

Summary of recommended tram-train strategy

3.14 The recommended tram-train strategy is summarised in Table 1 below.

Table 1: Summary of recommended tram-train strategy

Proposed route	Recommended way forward
Altrincham (tram-train operation on the existing route)	Review scope for delivering the same benefits through implementation of TMS signalling.
Glossop	Safeguard as part of potential Tram-train Phase 2.
Hale and Knutsford	Do not develop further at present.
Hazel Grove	Review existing appraisal and safeguard alignment as part of potential Tram-train Phase 2 and as a potential first stage in development of a Tram-train network serving Stockport, Altrincham and Manchester Airport.
Marple	Develop as a potential first full Tram-train line in Greater Manchester, possibly as part of a Phase 1 network comprising Marple and Altrincham.
Stockport - Altrincham	Consider as part of a possible future study of transport to the Manchester Airport and LEZ area – including implications of a HS2 station at the Airport.
Wigan via Atherton	Review existing appraisal and consider alternative routes and service-options.

4. Recommendations

4.1 Please see front sheet of report.

Dave Newton
Transport Strategy Director

Appendix 1: Summary of results by tram-train route

Route (all from Manchester unless stated otherwise)	Service pattern	Capital cost if built now (£m with 66% contingency allowance and including vehicle purchase)	Value for money
Altrincham	10tph to Altrincham only	46	Low to Medium
Altrincham / Hale	10tph to Altrincham, of which 5tph continue to Hale	81	Low
Altrincham / Hale compared with Altrincham only	10tph to Altrincham, of which 5tph continue to Hale	35	Poor
Altrincham / Hale / Knutsford	3tph to Hale; 3tph to Knutsford	160	Poor
Glossop	5tph	210	Medium
Hazel Grove	5tph	130	Low
Marple	5tph	170	High
Marple	10tph	200	High
Stockport – Altrincham	5tph	150	Poor
Wigan via Atherton	5tph (10tph to Walkden)	280	Low

Appendix 2: Other potential effects of tram-train routes

Unquantified effect	Route	Altrincham /	Altrincham / Hale	Altrincham / Hale / Knutsford	Glossop	Hazel Grove	Marple	Marple	Stockport - Altrincham	Wigan via Atherton
	Service-pattern	10tph to Altrincham	10tph to Altrincham, 5th to Hale	12ph to Altrincham, 6tph to Hale, 3tph to Knutsford	5tph	5tph	5tph	10tph	5tph	5tph (10tph to Walkden)
Crowding		○	○	○	●●		●●			
Rail network opportunities created				○	○	○	○	○		○
Rail network opportunities lost			●●	●●	●	●	●	●●	●●	●
Agglomeration benefits to businesses in Manchester City Centre		○	○	○	○	○	○	○		○
Urban regeneration					○		○	○○		○○
Benefits to deprived residential areas					○○		○	○	○	○○
Safety and security benefits to users of lightly used stations					○		○	○		○
Possible loss of through fares to national rail network					●		●	●		●
Through fares to Metrolink network			○	○	○	○	○	○	○	○
Metrolink network opportunities created		○○○	○○○	○○○	○	○○	○	○	○○	○

○ = positive expected effect (strongest effect denoted by ○○○)

● =negative expected effect (strongest effect denoted by ●●●).