



Advice Note for promoters considering a light rail scheme

April 2012

Chapter 1 - Introduction

1.1 Purpose of Advice Note

This Advice Note is intended to provide practical help to promoters considering a light rail scheme and highlights certain detailed issues they will need to consider. The guidance provides signposting to other assistance and information which will be of interest to promoters.

We recommend that promoters first should refer to the ***Guidance Note for Light Rail, Ultra Light Rail and Personal Rapid Transit*** which provides general guidance on the preparation and evaluation of major scheme business cases. This is the first important step to be taken in seeking funding for any scheme.

This Advice Note is intended for promoters in England outside London. However, much of its contents may also be of interest to potential promoters of schemes in London, Scotland, Wales and Northern Ireland.

This Advice Note focuses on light rail schemes. Other Advice Notes are available for ultra light rail and personal rapid transit modes.

We would also recommend that promoters should consult UK Tram, the Light Rail Committee of the UITP (International Public Transport Association), and the Light Rapid Transit Forum for advice as to the most effective ways of developing local transport proposals. The American Public Transport Association (APTA) also has useful data from North America.

1.2 What is light rail?

The terms 'tramways' and 'light rail' cover a range of electrically powered and rail-guided passenger transport systems. The important considerations are that the systems are for local passenger movement and that all tramway systems have a significant element of their operation (measured either as a percentage of the system length, or as a significant economic element of the scheme) in the highway. As a system is given increasing levels of separation from, and priority over, other traffic it moves from being considered a tramway to being a light rail system. The systems can range from operations where the trams run on tracks in the highway, through systems with some street running with traffic priority, to a point where the system is segregated from other traffic. Some systems, such as the Tyne and Wear Metro and the Docklands Light Railway, may be fully segregated from the highway. All modern systems will be fully DDA-compliant, and where possible will have level boarding from platforms of appropriate height at all stops.

The flexibility of tramways and light rail allows a variety of alignments to be used. These can range from pedestrian precincts, use of parts of the public highway, newly constructed segregated routes and converted conventional heavy railways to viaducts and tunnels. Existing UK systems demonstrate all of these forms of operation.

In this guidance, the term "light rail" should be taken to include 'tramways'.

1.4 Structure of this Document

The remainder of this document is structured around the following key chapters:

- **Chapter 2: Light Rail Schemes** –setting out the attributes of light rail and listing the current systems in the UK
- **Chapter 3: Optimising a light rail scheme** – providing advice on how promoters should decide whether light rail is the most appropriate mode and setting out the issues that should be considered in optimising a scheme.
- **Chapter 4: Other salient features** – summarising a number of particular features that need to be considered when promoting a light rail scheme.
- **Chapter 5: Transport and Works Act approval process** – providing an overview of the Transport and Works Act approvals process for major rapid transit schemes
- **Chapter 6: Guidance Notes and Standards** – providing a summary of the Guidance and Standards available on light rail and other work that is ongoing regarding establishing best practice
- **Annex A:** Wider light rail interests
- **Annex B:** Useful contacts
- **Annex C:** picture credits

Chapter 2 - Light Rail Schemes

2.1 Introduction

This chapter offers advice to promoters on the guidance and standards that are available through the UK tram website

2.2 Attributes of Light Rail

Light Rail or trams have many benefits over other public transport modes, when used in the appropriate context. Whilst trains are suited to moving lots of people quickly over a long distance, light rail is more flexible, low cost and frequent. Buses are suited to moving smaller numbers of people over shorter distances but trams are faster and more reliable. Furthermore:

- Trams are environmentally friendly – travel by tram produces 1/3 the amount of CO₂ as travelling by car (Defra, 2007). They can also reduce congestion in city centres.
- Trams are popular and can improve the image of a city
- Trams are quiet and safe and
- Perception of permanence.

In addition there are a number of quality attributes associated with Tram schemes which are considered to make the schemes successful including the following,

- Enhanced waiting environment; provision of seating and quality of shelters, security, adequate signage and information provision;
- staff and security; helpfulness of staff, safety and security throughout the journey;
- service reliability, including reliability at the origin (wait time) and at the destination;
- vehicle quality; smoothness of ride, accessibility, multi-door boarding, on board facilities, cleanliness; level of crowding, air conditioning, CCTV;
- ticketing systems, including simplified fares schemes;

2.3 Current systems

Listed below are the eight light rail systems currently operating in England (including London). They vary a great deal in the way they were procured, in their specifications and in their operating environments.

For each system, details of a lead contact person are provided. These people have said that they would be happy to discuss the characteristics of their light rail systems with promoters considering whether to develop a new scheme.



Blackpool Tramway

Opened: 1885

Route length (km): 18

Passenger journeys (millions)*: 3.6

Contact: Paul Grocott, Transport Policy Section, Planning & Transportation Division, Blackpool Council, PO Box 17, Corporation Street, Blackpool, FY1 1LZ paul.grocott@blackpool.gov.uk



Croydon Tramlink

Opened: 2000

Route length (km): 28

Passenger journeys (millions)*: 24.6

Contact: Philip Hewitt, Head of London Trams, Transport for London, 4th Floor South Wing, Parnell House, 25 Wilton Road, London SW1V 1LW PhilipHewitt@tfl.gov.uk



Docklands Light Railway

Opened: 1987

Route length (km): 27

Passenger journeys (millions)*: 52.0

Contact: Richard De Cani, Dockland Light Railway Ltd, PO Box 154, Castor Lane, Poplar, London E14 0DS Richard.DeCani@dlr.tfl.gov.uk



Manchester Metrolink

Opened: 1992

Route length (km): 39

Passenger journeys (millions)*: 19.9

Contact: Tom Beamon, Greater Manchester Passenger Transport Executive, 2 Piccadilly Place, Manchester M1 3BG tom.beamon@gmpte.gov.uk



Midland Metro

Opened: 1999

Route length (km): 20

Passenger journeys (millions)*: 5.1

Contact: Peter Adams, Centro, Centro House, 16 Summer Lane, Birmingham B19 3SD PeterAdams@centro.org.uk



Nottingham NET

Opened: 2004

Route length (km): 14

Passenger journeys (millions)*: 9.8

Contact: Chris Deas, NET Development Manager, Nottingham City Council, Lawrence House, Talbot Street, Nottingham NG1 5NT chris.deas@nottinghamcity.gov.uk



Sheffield Supertram

Opened: 1994

Route length (km): 29

Passenger journeys (millions)*: 13.1

Contact: Head of Strategic Planning, South Yorkshire Passenger Transport Executive, P.O. Box 801, Exchange Street, Sheffield S2 5YT



Tyne and Wear Metro

Opened: 1980

Route length (km): 78

Passenger journeys (millions)*: 35.8

Contact: Ken Mackay, Nexus House, St James' Boulevard, Newcastle Upon Tyne NE1 4AX ken.mackay@nexus.org.uk

*Year at 31 March 2008

Chapter 3 - Optimising a light rail scheme

3.1 Introduction

This chapter offers advice to promoters on deciding whether or not light rail is the most appropriate mode and sets out the issues that should be considered in optimising a scheme.

3.2 Scheme Optimisation



In deciding whether light rail is the most appropriate mode, promoters will need to think about how to optimise the scheme they intend to consider. Promoters should talk to those who have already developed and delivered light rail systems (see the contact list in chapter 1) and look at the measures they have taken to optimise their schemes.

Promoters should take note of the published and anticipated work of UKTram. Promoters might also like to consider the *pteg* (Passenger Transport Executive Group) report *What light rail can do for cities*¹ which was published in February 2005 and takes a look at existing UK operational light rails systems.

3.3 Transport integration

The National Audit Office (NAO) report *Improving Public Transport in England through Light Rail*² recognised (summary page 5) that:

¹ Available at <http://www.pteg.net/PolicyCentre/LightRail/Whatlightrailcandoforcities.htm>

² Available at http://www.nao.org.uk/publications/0304/improving_public_transport.aspx or in hard copy (ISBN 0-10-292787-1) from The Stationery Office at <http://www.tsoshop.co.uk/bookstore.asp>

“Public transport systems are more likely to be regarded as attractive alternatives to the car if they operate in a joined-up, integrated way. Integration involves co-ordination between the services, physical proximity allowing ease of interchange at stations, and through ticketing and widespread availability of passenger information about routes, fares and timetables. Passengers consider the level of integration to be the least satisfactory aspect of light rail. Integration with bus services has been poor to moderate on many lines, and bus and light rail services have been in competition with one another on the same routes.”

*The Future of Transport White Paper*³ endorsed this. It said (paragraph 4.29) that:

“Authorities need to ensure that they are taking appropriate measures to attract people to use the new services. For example, schemes can be enhanced by better integration with other forms of transport – through integrated ticketing and bus Quality Contracts, and the provision of park and ride facilities and complementary parking policies. The involvement of local transport planners and practitioners in the heavy rail system will also facilitate better integration and sensible decisions on the balance of funding between different forms of transport.”

3.4 Park and Ride

Park and Ride facilities increase patronage. They are particularly appropriate when the objective is to reduce car trips along the main corridors leading into city centres. Experience suggests that substantial Park and Ride provision is a factor which strongly influences the success of a light rail scheme.

Promoters should therefore consider providing Park and Ride where appropriate. The Government will challenge promoters on the adequacy of their park and ride provision and will expect strong justification for not including Park and Ride provision in any light rail proposal. The NAO found that park and ride sites have sometimes been missed out or delayed to save money – thereby reducing the benefits of the scheme.

3.5 Interchange at stations

Physical integration, involving the location of light rail stations near other public transport hubs such as train, underground and bus stations, can encourage greater use of all forms of public transport. By contrast, people may be discouraged from using light rail systems if changing to other modes is confusing or involves walking some distance. The Government will expect promoters to demonstrate how they have maximised physical integration.

³ <http://www.dft.gov.uk/about/strategy/whitepapers/previous/fot/>

Valuable guidance on optimising integration at stations can be obtained from reports by the Chartered Institute of Transport⁴ (now the Chartered Institute of Logistics and Transport) and the Institution of Civil Engineers⁵.

3.6 Integration between bus and light rail services

Integration between bus and light rail systems is not always straightforward given the deregulated bus system in England outside London. However, the Government will expect promoters to demonstrate that they have considered all practicable ways of maximising integration with local bus services.



Ideally, the proposed light rail scheme should be designed so that light rail and bus services are complementary, with light rail offering faster, more reliable journeys along a corridor and bus services offering better access to the local area. In these circumstances, local bus operators will be encouraged to provide integrated services which benefit users of both modes.

Complementary bus services can help to ensure that passengers are able to get to and from light rail stops, and to provide links to key destinations (eg employment or shopping sites) which cannot be reached directly by light rail. Promoters should consider whether their light rail scheme would benefit from the provision of complementary bus services.

The regulatory regime allows local authorities some possible options for delivering greater integration with bus services, which include:

a) a **voluntary quality partnership agreement (QPA)**, which could include an agreement with a bus operator to provide a complementary service to a minimum frequency and quality. Care is needed where two or more bus operators (or a bus and light rail operator) are involved, since generally speaking any agreement which led them to share a market could be contrary to the Competition Act 1998;

b) a **statutory quality partnership scheme (SQP)**, made by the local transport authority, which could ensure that a high quality bus service was delivered in conjunction with the light rail scheme. A SQP scheme would require bus operators to provide services to a

⁴ Passenger Interchanges: report by the CILT Passenger Interchanges Working Party (Nov 1998)

⁵ Passenger Interchange, ICE (2000)

certain standard in order to use the facilities provided by the local authority under the scheme. Guidance is available on the Department's website⁶.

c) a **quality contracts scheme (QC)**, which would give a local transport authority maximum control over the operation of buses in the scheme. It is essentially a procedure whereby, after competitive tender, an operator is given exclusive right to operate services in a specified area, such as corridors where feeder routes could serve light rail services. The authority has the right to determine the network, fares, tickets, frequencies and timings, though contracts can, if desired, allow the operator a degree of discretion over these matters. Promoters should avoid plans to reorganise bus networks to maximise patronage on light rail regardless of the preference of users (for example, by removing through bus services and replacing them with journeys requiring interchange). Guidance on quality contracts schemes is available on the Department's website⁷.

Promoters should be aware of the provisions of the Local Transport Act which was given Royal Assent in November 2008. The Act will give local authorities some new powers to improve the quality of bus services in their areas. Further information about the provisions of the Local Transport Act can be found on the Department for Transport website⁸, in addition a useful summary of the implications of the Act is also available on the *pteg* website⁹

3.7 Track sharing and conversion

Where a suitable alignment exists, promoters should consider at an early planning stage the scope for track sharing with heavy rail, as currently exists on the Tyne and Wear Metro, and, where possible, conversion of existing heavy rail lines to light rail.

Converting existing heavy rail lines to light rail can improve access to city centres, increase capacity, and provide more frequent services and stops compared to previous heavy rail services. It also allows higher speeds and therefore a more attractive service compared with an alignment on-street. Manchester Metrolink Phase 1 and Tyne and Wear Metro were both heavy rail conversions. Converting an existing line can also be cheaper than a new alignment.

Track sharing implies both light and heavy rail vehicles using the same alignment. This can take various forms, as defined in Railway Group Standard GE/GN8502:

- **Parallel running**, where light and heavy rail vehicles operate on the same alignment but on completely separate tracks, sharing facilities such as bridges and level crossings. Examples of this occur on Manchester Metrolink;

⁶ <http://www.dft.gov.uk/pgr/regional/buses/quality/guidance/anceonqualitypartnership3574.pdf>

⁷ <http://www.dft.gov.uk/pgr/regional/buses/quality/qualitycontractsforbusservice3577>

⁸ <http://www.dft.gov.uk/pgr/regional/localtransportbill/>

⁹ <http://www.pteg.net/PolicyCentre/LocalTransportAct/>

- **Exclusive running**, where light and heavy rail vehicles operate on a common section of route but at different times. The operation of the Stourbridge line by light rail vehicles on Sundays is an example;
- **Mixed running**, where light and heavy rail vehicles are interspersed on a common section of route. An example is the shared use of the Sunderland line on Tyne and Wear Metro.

In considering the scope for track sharing a number of technical and organisational issues need to be considered and promoters should engage support from heavy rail stakeholders and relevant safety bodies. Issues include impacts on capacity, vehicle gauge, preventing collisions between trains and light rail vehicles, the implications of different types of vehicle using the same platforms, communications and signalling. There is also experience to be gained from track sharing elsewhere in Europe.

In 2002, **pteg** formed a joint task group with the Strategic Rail Authority to conduct an initial review of track sharing. It looked at the scope and forms of track sharing and examined the technical, policy, commercial and procurement issues that need to be addressed. Further information on this work can be obtained from **pteg** (see contact details in Annex B).

3.8 Through-ticketing

Tickets that are easy to buy and allow passengers to move easily from one form of public transport to another can encourage people to use light rail.

In London, there is a high degree of through-ticketing where travel cards can be used on buses, trains, the underground and light rail systems. Pre-payment Oyster Cards can be used on buses, the underground and the light rail systems, but currently not on the rail network. Many heavy rail passengers buy travelcards which include travel on light rail in the price of their ticket.

Outside London, through-ticketing between services of different operators may be arranged through use of the Block Exemption for Public Transport Ticketing Schemes¹⁰. This makes special provisions for multi-operator through tickets and travelcards covering one or more of bus, rail, light rail and ferry services. Such tickets are not subject to the prohibition on anti-competitive agreements under the Competition Act 1998, provided they meet certain conditions. Commercial bus operators are still free to set their own single fares (and are debarred from agreeing them with competitors) and to sell their own multi-ride tickets.

In addition, under the Transport Act 2000, local transport authorities can oblige bus operators to make ticketing schemes under similar conditions. The local transport authority can act as “honest broker” for operators of all modes, but essentially the price of the product needs to be agreed between the participating operators.

¹⁰ http://www.ofg.gov.uk/shared_ofg/business_leaflets/ca98_guidelines/ofg439.pdf

Despite some misconceptions in the industry, it is not normally regarded as anti-competitive to issue through-tickets between connecting routes (eg one operator runs a bus between A and B and another runs one between B and C) because these are not in competition with each other. This will often also apply to a ticket combining light rail with a connecting bus service.

The Government will expect promoters, as a condition of approval, to specify the acceptance of through-ticketing in the concession agreement or operating contract.

3.9 Car restraint measures

The Department's *The Future of Transport*¹¹ put a new emphasis on car restraint measures as a complement to public transport improvements. The Government will expect promoters to have considered all possible ways of getting the most out of their scheme by encouraging reductions in car use. Examples include parking charges, parking restrictions, pedestrianisation and congestion charging.

3.10 Priority over road vehicles

Fast and punctual light rail services can be secured by giving priority to light rail vehicles over road vehicles at key junctions. All existing UK systems have some priority at junctions, although the amount varies depending on local circumstances. Local politics often restrict the amount of priority given to light rail over cars. The Government will expect promoters to demonstrate commitment to making their light rail proposals work by providing appropriate priority, in co-operation with the local Highway Authority.

3.11 Passenger information

In order to maximise the number of passengers, promoters should consider all possible ways of providing information on routes and timings. This can include:

- ensuring adequate information at light rail stops;
- providing information at key places served by the service, such as main line railway stations and public transport interchanges, hospitals and doctors' surgeries, educational establishments, sporting, entertainment and recreational venues, etc;
- providing web based information;
- ensuring a high level of training is given to those promoting and advising on transport options;

¹¹ <http://www.dft.gov.uk/about/strategy/whitepapers/previous/fot/>

- providing a timetable service, including light rail and bus times, directly to passengers' mobile phones;
- internet-based facilities like Transport Direct which allows passengers to plan multi-modal public transport journeys throughout Britain, and has links to ticket retailers.

The Department undertook a review of real time information (RTI) in 2005 on existing and proposed light rail systems. The report *Light Rail and Trams in England: Use of RTI*¹² evaluates the different approaches to RTI used on individual schemes at that time and provides an insight into the issues which had arisen during RTI implementation.

The Government will expect promoters to demonstrate that they have considered all practicable ways of providing travel information to passengers.

3.12 Cycling and Walking

Integrating cycling and light rail can provide additional passengers for light rail schemes and help meet other local and national targets. Cycling should be considered as a mode of access in its own right, and access routes should be planned and suitable storage facilities provided at key stops. Developing light rail schemes have a long lead-time so in order to facilitate optimal cycle integration with light rail, these facilities need to be planned for at the start of scheme development.

Walking should be similarly considered as an important mode of access (all passengers have to walk to some extent). Walking routes should be provided to stops from key locations such as bus stops and car parks. Where possible, walking routes should be on the level, under cover, well-lit at night and not involve crossing busy roads.



¹² Available at <http://www.dft.gov.uk/transportdirect/research/realtimeinfo/research>

Chapter 4 – Other salient features

3.1 Introduction

This chapter offers advice to promoters on a number of important characteristics that are important in making a light rail scheme safe and accessible.

4.2 Physical Accessibility

The proposed design of new light rail vehicles will need to comply fully with the Rail Vehicle Accessibility Regulations 1998 (as amended), whilst the infrastructure elements would be expected to follow the principles laid down in the Department's publication, "Inclusive Mobility", as far as reasonably practicable. In addition, under the Disability Discrimination Act (DDA) 2005, suppliers of transport services have a duty, as far as reasonably practicable, not to discriminate against disabled people and must design their policies and procedures to comply with this requirement.



Early contact with the Department's Accessibility and Equalities Unit is advisable. Their early input can help to ensure that all accessibility issues are addressed for the whole scheme. Whilst the above Acts and Regulations set the minimum framework standards for access to public transport, the promoter will need to pay careful consideration to determine the full extent of the DDA provision for each scheme.

4.3 Safety Regulation

As noted earlier in the document Her Majesty's Railway Inspectorate (HMRI), a part of the Office of Rail Regulation, is responsible for the regulation of safety on railways, tramways and certain other modes of guided transport in the United Kingdom.

The scope of HMRI's enforcement is set out in The Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006, (statutory instrument 2006 No. 557).

In normal circumstances the Inspectorate is the enforcing body on light rail systems for all aspects of the Health and Safety at Work etc Act and its subsidiary legislation. The scope of the Enforcing Authority Regulations is complex however and the inspectorate must be consulted if there is ambiguity on whether they, the Health and Safety Executive or the local authority has jurisdiction in particular circumstances.

At present the regulatory system for new and modified works is in transition from the Railways and Other Guided Transport Systems (Approval of Works, Plant and Equipment) Regulations 1997, (ROTS), which requires HMRI to approve light rail works before they are brought into service, to a new system under the Railways and Other Guided Transport Systems (Safety) Regulations 2006, (ROGS), in which HMRI takes a less detailed regulatory role. The transition period for tramways allows new applications under ROTs up until the end of September 2008, and all works under those Regulations must be approved by the end of September 2010; if those dates cannot be achieved then schemes must progress under the ROGS system.

Under either system the Inspectorate expects that risks are reduced to as low as is reasonably practicable and will look for this whether they are assessing schemes for approval under ROTs or carrying out checks on the application of a safety management system under ROGS.

Under the new ROGS system it is the responsibility of the promoters of new schemes to decide whether their scheme represents one with 'significant risk' as defined in the Regulations and if so to develop and apply the relevant system for safety verification including the appointment of a competent person (or persons) for that process. The ROGS system requires no submissions to be made to HMRI for the granting of consents and or approvals to the proposed system safety verification process including the granting of approvals for trials, testing or bringing into operation of any works.

Guidance on ORR and HMRI policy and procedures can be found on their website www.rail-reg.gov.uk and HMRI encourages current dutyholders and the promoters of new systems to contact them as early as possible in the development process and then maintain regular dialogue throughout this process so that they can discuss relevant safety issues before designs become fixed. HMRI's guidance note on Tramways can also be downloaded from their website.

4.4 Passenger and Staff Security

In developing a scheme, promoters will need to consider ways to reduce crime and the fear of crime for both passengers and staff. Local



police Architectural Liaison Officers will be able to advise on 'Secured By Design' standards¹³.

The Secure Stations Scheme¹⁴ covers all rail and underground networks which are policed by the British Transport Police (BTP). It establishes standards of good practice to improve security and provide reassurance to passengers and staff. It accredits individual stations which have worked with the BTP and other local partners to implement security measures. Light rail stops and stations not policed by the BTP may participate in the Scheme if suitable arrangements can be made in liaison with the BTP and the local police force.

Promoters and operators will need to consider the arrangements for policing a light rail system. The choice will normally be between BTP and the local Home Office police force. Ultimately this will be a commercial decision based on the services provided against the costs involved, local circumstances and advice from the police.

Factors to be considered will include:

- whether there is significant interaction with the national rail network (favouring BTP);
- whether there is significant on-street operation (favouring the local force);
- the number of officers required;
- whether to provide a dedicated team of officers stationed on operators' premises or to provide policing from the local force's general resources;
- the ability to call on additional back-up when required and the response times involved;
- levels of anti-social behaviour and vandalism; and
- catering for sports/social events.

It should also be noted that, irrespective of which police force is chosen to provide policing services, in the event of an incident such as a road traffic accident it will often be the local police who are first on the scene.

Arrangements will also need to be made with local fire and rescue and ambulance services to provide cover in the event of an incident. The fire and rescue services, in particular, may be unfamiliar with light rail vehicles and infrastructure, and will need training in dealing with incidents, including isolating the power supplies and lifting a vehicle to release a casualty. It would be very prudent to liaise with the local emergency services early in the design

¹³ Available at www.securedbydesign.com/

¹⁴ Available at www.dft.gov.uk/stellent/groups/dft_mobility/documents/page/dft_mobility_036931.hcsp

development process to cater for any special measures/requirements that may be identified to improve passenger, public and operational safety.

4.5 System Security

Promoters are encouraged to talk to system security specialists like the Department's Transport Security and Contingencies Directorate, TRANSEC, about security arrangements in respect of light rail systems. TRANSEC's role in respect of light rail systems is currently advisory. However, they can give advice at an early stage which could save costly changes at a later stage. At the time of issue TRANSEC is in the process of finalising guidance on security issues for light rail operators and promoters.

Chapter 5 – Transport and Works Act Approval Processes

5.1 Introduction

This chapter provides an overview of process of obtaining powers under the Transport and Works Act.

5.2 Applying for powers under the Transport and Works Act (TWA)



For any new light rail project, promoters are likely to require a wide range of statutory powers – e.g. to construct, maintain and operate the system, to acquire land compulsorily, to stop up streets etc. These can be obtained by applying to the Secretary of State (via the Department’s TWA Orders Unit) for an Order under Part I of the Transport and Works Act 1992. An applicant can, when applying

for a TWA Order, also ask the Secretary of State to direct that planning permission be deemed to be granted for any development provided for in the Order.

TWA Orders are usually long and complex documents which, if approved, are made by way of a Statutory Instrument. Draft Orders are scrutinised by the Department with a view to ensuring that the powers sought are necessary, appropriately drafted and justified in the public interest. But the onus is on promoters and their legal advisers in the first place to ensure that they are seeking all the powers they need to implement their scheme properly.

Any prospective applicant for a TWA Order should obtain a copy of the Department’s *Guide to TWA Procedures*¹⁵, as this gives comprehensive guidance on the whole process, including work that should be undertaken before an application is submitted. The Department's web site also gives good practice tips for TWA applicants¹⁶. Furthermore, there are model clauses for TWA Orders relating to railways and tramways, which cover the provisions which are typically

¹⁵ Available at www.dft.gov.uk/strategy/twa

¹⁶ Available at www.dft.gov.uk/pgr/twa/guidance/twagoodpracticetipsforapplicants

required for such Orders. These are set out in a Statutory Instrument (SI 2006 No. 1954) made by the Secretary of State, and should be incorporated into a draft Order wherever possible.

Promoters who are new to the TWA process may also wish to talk to other promoters who have experience of it and, if necessary, to seek guidance from the TWA Orders Unit. The Unit will not be able to discuss the merits of a proposed application, or to receive any presentation about it, in order not to compromise its impartial role in the quasi-judicial TWA process. But it would be able to give guidance, if required, on procedural and timing matters. The Unit would, in any event, welcome early forewarning of a proposed application to assist in forward planning.

The process for considering TWA Order applications is entirely separate from the Department's assessment of requests for funding. Any decision to give a project Programme Entry status will therefore be without prejudice to consideration of any TWA Order application which may be made. Similarly, any decision to make a TWA Order will be without prejudice to subsequent decisions on whether to give Conditional and Full Approval for funding.

Chapter 6 – Light Rail Guidance and Standards

6.1 UK Tram Guidance Notes

UK Tram seeks to promote efficiencies in the design, specification, procurement, and operation of light rail aimed at making tram schemes more efficient, affordable, and better value for money. UK Tram has therefore undertaken a number of Activity workstreams which seek to address factors that had led to cost escalation and to promulgate advice on how to contain costs in the future. The output from each Activity workstream is a Guidance Note which has been signed off by the industry as best practice.

The aim of UKTram Guidance Notes is therefore to deliver significant benefits to the promoters and operators of tramway schemes by reviewing current practices, proposing best practice guidelines and facilitating stakeholder acceptance. The recommendations set out in the Guidance Notes (GN's) address required changes to the existing legislative framework e.g. the TWA or existing codes of practice. In addition, they facilitate the standardisation of industry practices e.g. GN 2A: Tram Design Standards (approvals & acceptance process), GN 9: Operational Performance Measures (standard performance measures in tram procurement documentation) and GN8: Standard Tender Documentation.

The following UK Activity workstreams have been or are being undertaken and their status is set out in the table below:

Activity workstream	Description	Status
Activity 1	Protection and Diversion of Utilities	GN 1
Activity 2	Tram Design Standards and DDA/RVAR	o/s
Activity 3	Tram Signage and Highway Interface	o/s
Activity 4	Operational Noise and Vibration	GN4
Activity 5	Network Rail Interface	o/s
Activity 6	Trackform Design	GN6
Activity 7	Benefits included in the Appraisals Process	GN7
Activity 8	Commercial Structures	GN 8
Activity 9	Operational Performance Measures	GN9
Activity 10	Tender Documentation	
Activity 11	Wheel/ Rail Interface Stage 2	
Activity 12	Traction Power Supply	
	Operations & maintenance competence	

Whilst some activities e.g. Activity 7 & 8 are characterised by strategic issues with inherently long-term payback periods, other activities are of a more technical or operational level; these include Activity 1: 'Protection & Diversion of Utilities', Activity 4: 'Operational Noise and Vibration' and Activity 11: 'Wheel Rail Interface'.

A brief description of the scope of each activity follows:

Activity 1 Protection and Diversion of Utilities

This Guidance Note provides tramway promoters with a better understanding of the legal framework governing the diversion of utilities' apparatus, and why utilities may reasonably require their removal from the immediate vicinity of the tramway. It also aims to provide an understanding of how the costs of the diversion work are to be apportioned between the two parties.

Life-time costs of the scheme will be minimised if the scope of diversion works is correctly identified. This does not necessarily mean either that the maximum amount of apparatus should be diverted before the tramway construction begins, or that no apparatus should be moved. Both options imply a cost. In the first case, the capital cost of construction will be greater, while the second case may lead to major and frequent disruption to tram services, resulting in loss of revenue. This study therefore presents the issues that should be considered when attempting to reach the most beneficial balance of work. *It must always be appreciated, however, that the utility companies are an integral part of the decision process, as it must continue to be practicable for them to operate and maintain their services.*

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 2 Tram Design Standards and DDA/RVAR

Activity 3 Tram Signage and Highway Interface

The signing and marking of tramways in the UK is not as distinct as it could be, with the result that there are more incidents with motorists and pedestrians than there should be. The inability to use standard "No entry" signs on tram-only streets, vehicles parking within the swept path, and motorists and pedestrians failing to see approaching trams are particular areas of concern. "Tram Lanes" do not really exist in the way that bus lanes do.

This guidance Note identifies best practice from the UK and Europe and make recommendations to the DfT to change current practice / amend the law and update road traffic regulations (eg: Chapter 5 and Chapter 8) as necessary in order to standardise tramway signage and road markings nationally.

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 4 Noise and Vibration

This report is the first output from Phase 2 of the UK Tram Activity Group 4 Operational Noise and Vibration project. It takes account of the output of Phase 1 of the study, ie the reports “Phase 1a Information Gathering – Peer Review of Existing and Proposed UK Schemes” and “Phase 1b – Peer Review of Existing Noise and Vibration Legislation, Standards and Guidelines”, and presents the basis for the Phase 2b Best Practice Guides on environmental noise and vibration. The elements of tramway systems responsible for noise and vibration emission are identified, followed by a schedule of acceptable levels of noise and vibration emission by system and, where appropriate, sub-system

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 5 Network Rail (NR) Interface

There are a wide range of issues concerning Network Rail, eg : the costs of stray current protection, Electro-Magnetic Interference (EMI) protection, problems of track and signalling maintenance where there is parallel running, and various issues concerning the sharing of station facilities and access to NR land and property generally. There are two distinct elements emerging that will need consideration as this work develops further. The first of these concerns the input necessary at the earliest stages of a project where the promoter needs to establish clear requirements as to the level of involvement of the Network Rail organisation in the feasibility and planning stages. The work of this activity group has highlighted that the NR organisation draws a clear distinction between this phase in a tramway project and that of design approval and delivery of the systems and infrastructure. There is a clear need to separate these issues and the activity group will now look to develop both elements in parallel.

Activity 6 Trackform Design

There is an on-going debate in the industry over the best trackform design and the effect on the highway. Different designs have been used on UK systems, and there is concern that these may have been over-engineered in order to meet unrealistic utility company requirements. The result has been to make trackform designs difficult and time-consuming to install and maintain, causing extensive track closures and significant service and traffic disruption. There is also concern that the trackforms used in the UK may result in sub-optimal highway design, with potential impacts on insurances for all concerned with tramway development. This activity reviews applications in the UK for both highway and segregated running. What has been used where and why?

Review practice in France, Germany, and the USA. Establish best practice (ie: embedded rail or coated rail), and recommend a choice of 2 or 3 designs depending on the prevailing ground conditions, highway surface, topography, etc. Ensure that recommendations are consistent with the findings of Activity 1 re stray currents,

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 7 Benefits included in the Appraisal Process

The overall purpose of this Guidance Note is to identify the important quality attributes which comprise a measure of quality of journey experience on trams, making it distinct from other modes. Its conclusions are based on a study which had three main aims:

Firstly, to identify the extent of modal preference for tram over other modes captured in the mode specific constant.

Secondly, where possible to identify the importance of the various components of the modal preference.

Thirdly, to identify gaps in knowledge and suggest possible avenues for future research.

The GN identifies quality attributes which are not captured in time or cost related estimated parameters from Stated Preference (SP) or Revealed Preference (RP) exercises.

Its findings include

- A critical review of the available literature on public transport quality attributes, and the approaches used to collect the valuations of these.
- Analysis of the Tram Modal constants available from a range of relevant studies, segmented where appropriate
- A ranking of quality attributes and a discussion of those quality attributes identified as being significant contributors to modal preference
- Comparisons of valuations with those from studies into Bus Rapid Transit type schemes.

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 8 Commercial Structure

The purpose of this workstream is to assess why recent procurement routes have not resulted in value for money market responses, the challenges of systems integration and the need to balance risk transfer to ensure proposals are realistic.

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 9 Operational Performance Measures

There are no standard performance measures in the UK tram procurement documentation. Some schemes define large numbers of performance targets, each with their own bonus/penalty regime. These can be badly specified and impractical, leading to time-consuming re-negotiation by bidders, and adding cost and complexity to schemes with little real benefit to the promoters. This Guidance Note reviews recent procurement documentation for UK

Schemes and asks which performance measures were easiest to understand, and worked best in practice? The GN sets out a standard performance measure consisting of key performance indicators (KPIs) which are easy to understand, and which are measurable, manageable, and objective.

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 10 Standard Tender Documentation

This activity was completed in xxx and both a summary and more detailed report are available on the UKTram website.

Activity 11 Wheel / Rail Interface Stage 2

This Activity is inter-related to Activity 4 Noise and Vibration, and both Activities are precursors to progress with Activity 6 Trackform Design. It will also provide useful input to Activity 2 Tram Design Standards.

Potential benefits include reduced maintenance costs, less risk of derailments, and reduced noise and vibration. It has been estimated that the value of reduced track and wheel maintenance costs alone could be worth up to £200,000 pa on a currently poorly performing system.

Activity 12 Traction Power Supply

6.2 UK Tram Action Plan

UK Tram continues to undertake further work to achieve efficiencies in the design, specification, procurement, and operation of light rail. To further this aim UK Tram has agreed the Action Plan set out in the table below.

Action No.	Description
8.	Provide a summary of the Activity Outputs with an indication of potential cost savings for use by future scheme promoters.
9.	Develop a standard implementation plan for a new uniform basis for project design of light rail systems which can be utilised throughout the UK in the future.
10.	Investigate in detail opportunities for lower cost through examination of schemes such as Besançon and Portland and provide a checklist for future UK schemes.
11.	Develop a “centre of procurement excellence” within UKTram which can advise future promoters of the best procurement options for their project. The objective is to make scheme procurement more efficient and less costly, not least by ensuring that each new scheme learns from its predecessors through following best practice rather than reinventing the wheel each time.
12.	The Department for Transport will commence a consultation exercise inviting views from all parties on the interface between utilities and light rail.
13.	Collate best practice on TWA applications to help minimise delays and costs. In addition, the Department would welcome any feedback from promoters on improving the TWA process and the Department’s guidance on best practice.
15.	Collate existing promoter information on costs of light rail projects.
16.	Utilising construction industry expertise, examine the specific opportunities for reduction of construction costs.
17.	Review the opportunities for new technologies to bring about cost savings in future schemes eg: super capacitors, fuel cells, etc.
18.	Review the opportunities for light rail and open dialogue with Network Rail regarding future conversions.

National Audit Office/Public Accounts Committee/Transport Select Committee

The National Audit Office (NAO), the Public Accounts Committee (PAC) and the Transport Select Committee (TSC) have all taken an interest in light rail in recent years.

The NAO report *Improving public transport in England through light rail*¹⁷, noted that, whilst there has been significant patronage growth, patronage has fallen short of expectations in some cases and potential benefits have not been fully exploited. It further noted that the forecast costs of schemes under development have risen in recent years.

The findings of the NAO were backed up by the Public Accounts Committee (PAC) in its report *Improving public transport in England through light rail*¹⁸ and the Transport Select Committee in its report on the *Future of Light Rail and Modern Trams in the United Kingdom*¹⁹.

Her Majesty's Railway Inspectorate (HMRI)

Her Majesty's Railway Inspectorate (HMRI), a part of the Office of Rail Regulation (ORR), is the body that enforces health and safety and associated legislation on railways, tramways and other modes of guided transport excluding guided bus systems.

The role of HMRI is to secure the proper control by dutyholders²⁰ of risks to the health and safety of employees, passengers and others who might be affected by the operation of Britain's railways and related modes of transport. They do this within an overall strategy set by ORR. They have inspectors and policy advisors who work together to develop and deliver this strategy.

HMRI also enforces the Level Crossings Act and Regulations, though proposals for 'crossings' on tramways should always be discussed in detail with the inspectorate to determine how legislation might apply in each particular case.

In addition to its role in relation to new works HMRI has ongoing responsibility for the enforcement of the Health and Safety at Work etc Act and subsidiary legislation in all respects

¹⁷ Available at http://www.nao.org.uk/publications/0304/improving_public_transport.aspx or in hard copy (ISBN 0-10-292787-1) from The Stationary Office at <http://www.tsoshop.co.uk/>

¹⁸ Available at www.publications.parliament.uk/pa/cm200405/cmselect/cm Pubacc/440/440.pdf or in hard copy (ISBN 0-10-166092-8) from The Stationary Office at <http://www.tsoshop.co.uk/>

¹⁹ Available at www.publications.parliament.uk/pa/cm200405/cmselect/cmtran/378/378i.pdf or in hard copy (ISBN 0-215-02377-3) from The Stationary Office at <http://www.tsoshop.co.uk/>

²⁰ The dutyholder can be a promoter or, once a contract has been let, the operator and/or infrastructure provider etc. If in doubt, HMRI can provide advice.

where they are related to the operation of light rail systems, this includes matters of occupational health and workshop safety for example.

HMRI always encourages early contact from promoters of schemes and an open discussion of the safety matters surrounding design and operational proposals. The Inspectorate generally works through a series of regional teams, but in the first instance contact should be through their head office and their National Expertise Team for tramways, metros and heritage railways.

Transport for London

Transport for London (TfL) is responsible for the development and funding of new tram and light rail schemes in Greater London. TfL is a functional body of the Greater London Authority. It is responsible for implementing the Mayor of London's Transport Strategy and managing transport services across the Capital. TfL is responsible for London's buses, the Underground, the Docklands Light Railway (DLR) and the management of Croydon Tramlink and London River Services.

Devolved Administrations

Responsibility for transport in the UK outside England has been transferred to the Devolved Administrations. As such the Department does not have any direct dealings with light rail schemes outside England. The Devolved Administrations will have their own procedures, which may differ in detail but are likely to follow the same general principles for assessing value for money. Annex B gives contact points in Scotland, Wales and Northern Ireland.

European Union interests

Whilst the Department sets the policy for light rail in England outside London, it does so within the context of European Community legislation. For example, when considering how to procure and operate a light rail scheme, promoters must follow community rules on procurement and the award of public service contracts. The Department liaises with the European Commission and other member states on the introduction of all new Regulations and Directives which might have an impact on the light rail sector.

UKTram

UKTram Limited was formed in 2004 to represent designers, operators, promoters and suppliers of tramway systems in the UK. It brings together representatives from: Confederation of Passenger Transport UK, Transport for London, **pteg** light rail group and the Light Rapid Transport Forum (private sector industry body including contractors, suppliers and advisers).

UKTram seeks to promote efficiencies in the design, specification, procurement and operation of tramways aimed at making tram schemes more efficient, affordable and better value for

money. Its purpose is to produce various forms of output of benefit to the United Kingdom's tram industry, promoters and transport users as a whole. UKTram is seeking to find ways of addressing the factors that led to previous costs escalations in tramway/light rail projects, and to disseminate advice to help contain costs in the future. In tackling this key issue, UKTram expects to commission research, publish documentation and to work in other ways to assist all parts of the industry in improving value for money.

The Department will continue to work closely with UKTram as their work programme develops. As mentioned above, the outputs of this work programme will inform future versions of this guidance.

***pteg* Light Rapid Transit Group**

pteg - the Passenger Transport Executive Group - brings together and promotes the interests of the six Passenger Transport Executives (PTEs) in England. Strathclyde Partnership for Transport and Transport for London are associate members.

pteg has two main tasks:

- the exchange of knowledge and good practice within the PTE network, and
- raising awareness nationally about the key transport challenges which face the city regions, and the public transport solutions which PTEs are implementing.

pteg strategy and policy is determined by the Directors General of the six PTEs, who meet at least quarterly. ***pteg*** also runs a number of task groups and committees which bring together professionals from across the PTE network to focus on specific policy areas, and to share expertise and good practice. The ***pteg*** Support Unit, based in Leeds, coordinates ***pteg***'s activities and acts as a central point of contact.

The ***pteg*** Light Rapid Transit Group is a specialist committee within ***pteg*** that considers all matters relating to the planning, design and implementation of Light Rail and other rapid transit systems. The group's membership comes from the six PTEs together with other public bodies with a strong commitment to developing and implementing Light Rapid Transit schemes.

The Department has embarked upon a programme of workshops with ***pteg*** covering subjects including:

- realising the benefits for passengers and improving financial viability of schemes;
- evaluating light rail schemes;
- procurement strategies;
- Transport and Works Act process; and

- safety issues and potential for track-sharing and parallel running with Network Rail.

The output from these workshops has informed this guidance. Further workshops may be held on other relevant issues.

Confederation of Passenger Transport UK

The Confederation of Passenger Transport (CPT) is the UK trade association for the bus, coach and light rail industries. CPT represents the owners and operators of the principal light rail and tramway systems in the UK. Its members include the operators of the Tyne and Wear Metro, Docklands Light Railway and all the modern tramways, as well as the Blackpool tramway and several minor tramways. It also represents the promoters of new lines such as the proposed Edinburgh tramway.

CPT works with the Department, the Office of Rail Regulation, HM Railway Inspectorate, the Rail Accident Investigation Branch and other bodies to ensure effective working of the regulatory regime for light rail, and provides a forum for light rail operators to exchange information on operational and safety matters.

Light Rapid Transport Forum

The Light Rapid Transit Forum (LRTF) represents private sector suppliers to the LRT (including tram) industry in the UK. It is a founder member of UKTram. Membership includes organisations and individuals involved in the design, construction, supply, financing, insurance, technical, legal and economic support for and operation of trams and light rail schemes in the UK and throughout the world. Its objective is to secure wide support from Government and other policy makers towards the development and delivery of more LRT systems in our urban areas.

Commission for Integrated Transport

The Commission for Integrated Transport (CfIT) is an independent body advising the Government on integrated transport policy. CfIT was established in the 1998 Integrated Transport White Paper 'to provide independent advice to Government on the implementation of integrated transport policy, to monitor developments across transport, environment, health and other sectors and to review progress towards meeting our objectives'.

CfIT has produced guidance on affordable mass transit systems²¹ which is referred to in Chapter 2 of this guidance.

²¹ Available at www.cfit.gov.uk/docs/2005/amt/index.htm

Useful Contacts

Annex B

<p>DfT - general advice on light rail issues Bob Collins Department for Transport Zone 3/18 Great Minster House 76 Marsham Street London, SW1P 4DR Tel: 020 7944 2569 bob.collins@dft.gsi.gov.uk</p>	<p>DfT advice on economic issues Mark Ledbury Economics of Regional and Local Transport Division Department for Transport Zone 3/14 Great Minster House 76 Marsham Street London, SW1P 4DR Tel: 020 7944 2286 mark.ledbury@dft.gsi.gov.uk</p>
<p>DfT advice on bus issues Peter Openshaw Buses and Taxis Division Department for Transport Zone 3/11 Great Minster House 76 Marsham Street London, SW1P 4DR Tel: 020 7944 2284 peter.openshaw@dft.gsi.gov.uk</p>	<p>DfT advice on Mobility issues John Bengough Department for Transport Zone 4/23 Great Minster House 76 Marsham Street London, SW1P 4DR Tel: 020 7944 5035 john.bengough@dft.gsi.gov.uk</p>
<p>DfT advice on security issues Gill Bramham 5/08, Southside 105 Victoria Street London, SW1E 6DT Tel: 020 7944 6707 gill.bramham@dft.gsi.gov.uk</p>	<p>DfT advice on TWA procedures 9/09 Southside, 105 Victoria Street, London, SW1E 6DT, tel 020 7944 4506/3293/2487 transportandworks@dft.gsi.gov.uk</p>
<p>HMRI Light Rail / Metro / Heritage National Expertise Team HM Railway Inspectorate Office of Rail Regulation One Kemble Street London, WC2B 4AN Tel: 020 7282 3937 Permissioning.team@orr.gsi.gov.uk</p>	<p>CfiT Peter Hendy 1/F16, Ashdown House, 123 Victoria Street, London SW1E 6DE cfit@dft.gsi.gov.uk</p>
<p>Light Rail in Northern Ireland Mike Thompson</p>	<p>Light Rail in Scotland John Ramsay</p>

<p>Clarence Court Adelaide Street Belfast, BT2 8GB Tel: 028 90 540 373 e-mail: mike.thompson@drdni.gov.uk</p>	<p>Transport Scotland Victoria Quay Leith Docks Edinburgh, EH6 6QQ Tel: 0131 244 0736 john.ramsay@transportscotland.gsi.gov.uk</p>
<p>Light Rail in Wales Colin Eaketts Transport Planning and Administration Division Department for Enterprise, Innovation and Networks Welsh Assembly Government Cathays Park Cardiff, CF10 3NQ colin.eaketts@wales.gsi.gov.uk</p>	<p>UKTram and TfL contact point Phil Hewitt Head of London Trams Transport for London 5th Floor North Wing Parnell House 25 Wilton Road London, SW1V 1LW Tel: 020 7027 9362 LondonTrams@tfl.gov.uk</p>
<p>CPT contact point David Walmsley CPT Fixed Track Executive Drury House 34-43 Russell Street London WC2B 5HA Tel: 020 7240 3131 walmsleyd@cpt-uk.org</p>	<p>pteg light rail group contact point Dave Haskins West Yorkshire PTE (Metro) Wellington House 40-50 Wellington Street Leeds LS1 2DE Tel: 0113 348 1701 Dave.Haskins@wypte.gov.uk</p>
<p>LRTF contact point Mary Bonar Stephenson Harwood Tel: 020 7809 2061 LRT.Forum@shlegal.com</p>	

Picture credits

Annex C

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