



Railways: light rail schemes

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The heyday of light rail in the UK was in the 1980s-90s when light rail systems were planned for dozens of areas across the country. For one reason or another most of these failed to materialise. Nevertheless, light rail or tram schemes were opened in London and other metropolitan areas such as Manchester, the West Midlands, Nottingham, Tyne and Wear and Sheffield between the late 1970s and 2004.

Although all of these systems have expanded since then there has been no significant, new light rail scheme proposed in recent years and there has long been a debate about the high cost of this type of scheme. In September 2011 the Conservative-Liberal Democrat Coalition Government published new guidance aimed at encouraging the development of light rail schemes. It remains to be seen how successful this will be.

This note looks at the policies of successive governments towards light rail and provides information about reports that have been published about the same over the past eight years.

This note does not cover devolved schemes, such as the controversial Edinburgh tram, or the Docklands Light Railway (DLR). Information on the DLR can be found in HC Library note [SN415](#), available on the [Railways topical page](#) of the Parliament website.

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1 Background

The origin of the tramway can be traced back to the plateways used in mines and quarries to ease the passage of horse-drawn wagons, but the first street tramway in a city was the New York Harlem Line built in 1832. The first tramways built in Europe were in Paris (1853), Birkenhead (1860), London (1861) and Copenhagen (1863).

Siemens & Halske opened the first electric tramway to provide public service in Berlin in 1881, using a 180 volt current fed through the running rails.¹ The first lines in the United Kingdom were the Portrush and Bushmills (later Giant's Causeway) tramway in Northern Ireland, and Volks Railway at Brighton in 1883. Electrified running rails were, however, considered unsuitable for a street environment: the most common system used in cities was an overhead wire with trolley pole collection. Siemens later developed the bow collector as an alternative to the trolley pole, and this led in turn to the pantograph which is most common today.²

Before the end of the nineteenth century electric tramways had appeared around the world but by the 1920s they were beginning to face real competition from the mass production of motor cars and readily-available, reliable motorbuses. The depression that followed the Wall Street Crash of 1929 saw a rapid collapse of many systems that operated at marginal profitability such as small town tramways and most inter-urban systems. The Second World War hastened the decline of tramways in the UK and France, but provided the opportunity for tramway reconstruction and reinvestment in the Benelux countries, Germany and Eastern Europe. In Britain, some city systems, such as those in Glasgow and Liverpool, enjoyed a post-war renaissance, with fleets of new trams and reserved-track extensions, but never enough to ensure they became a dominant part of the network. Glasgow was the last British city to close its tram system in 1962.

Changes in the 1960s saw the introduction of Passenger Transport Authorities to big cities to take over responsibility for the operation and development of the local transport network.³ Britain's first light rail system had its genesis in the Tyneside PTA's 1973 public transport plan. The initial system was opened in stages from 1980 to 1984 and it currently carries over 40 million passengers per year. The scheme in Tyneside was followed by the Docklands Light Railway (DLR) in East London in 1987, the Manchester Metrolink in 1992, the Sheffield Supertram in 1994-95, and other schemes in the West Midlands, Croydon, Leeds, Nottingham, South Hampshire, North Kent, Bristol and Edinburgh.

The first light rail system in mainland Europe was in Gothenburg, Sweden. Many other cities chose to follow the same path including Graz and Linz in Austria, Amsterdam in the Netherlands, Basel and Zurich in Switzerland, and Gent in Belgium. Street cars and trams (usually under the guise of light rail) have also been revived in cities across the United States from Portland and Baltimore on the East Coast through Dallas and Denver to Sacramento and Los Angeles on the West Coast.

Although light rail is a modern mass transit system for cities, trams are being used increasingly for leisure purposes. Heritage tramways have boosted the economies of cities across Europe and the United States and many established tramway systems run tourist-

¹ electric traction worked by generating power at a fixed point and supplying it to a line by conducting rail or overhead wire.

² aH [pantograph](#) is a folding device that can be mounted on the roof of a light rail vehicle; in effect, a set of contacts that could be raised to meet the overhead power wire

³ for more information about local transport governance, see HC Library note [HSN5735](#)

orientated services, such as the very successful Melbourne City Circle line. Others are stand-alone, such as the heritage line built in 1995 for Birkenhead in England, which uses replica double-deckers built in Hong Kong.⁴

2 Policy of the Coalition Government, 2010-

The position of light rail in the UK is currently as follows:

As of September 2011, there are a number of extensions to the Manchester Metrolink system under construction, funded with Central Government support and which will see Metrolink extended to Oldham and Rochdale, as well as Ashton-Under-Lyne and East Didsbury. Further extensions to the system are under active consideration by Transport for Greater Manchester, the local transport authority, using local sources of funding. In addition, the upgrade to the Blackpool and Fleetwood tramway is well underway and is nearing completion, as well as work commencing on the modernisation of the Tyne and Wear Metro.

Further extensions to existing networks are also close to final approval. These include extensions to the Midland Metro Line One into Birmingham city centre and to the Nottingham Express Transit system. In addition a new tram system in Edinburgh is being developed.⁵

The capital costs for English light rail schemes vary from a construction cost per mile (in 2010-11 prices) of between £10.4 million for the Sunderland extension of the Tyne and Wear Metro in 2002 to £77.4 million for the London Docklands Light Railway Beckton extension in 1994. The most expensive cost per mile outside London was £41.6 million for phase 2 of the Manchester Metrolink in 2000. The average of all schemes is £25.4 million.⁶

There was no mention of light rail policy in the manifestos of either the Conservative or Liberal Democrat parties going into the 2010 General Election; and it was not mentioned in the Coalition Agreement signed in May 2010.⁷ The first major policy document to mention light rail was the local transport White Paper, published in January 2011. This stated:

Light rail, trams and other rapid transit systems can play a significant part in improving the attractiveness and quality of public transport in major conurbations. Not only is this mode of transport good for passengers but also for local economies and in the right circumstances can be an effective and efficient means of moving a large number of people directly into the heart of a city or town.

There are currently six light rail systems in operation outside London. Since May 2010 we have supported a number of proposed extensions and refurbishments to existing light rail systems in operation in Tyne and Wear, Birmingham and Nottingham.

Building light rail systems is, however, expensive. That is why we have implemented a study into how construction could become more cost effective in the future. The Department is working closely with the light rail industry to identify ways in which main scheme costs could be reduced, to develop common standards and move to

⁴ for a more extensive survey of the history of light rail, see: Taplin, Michael, H*The History of Tramways and Evolution of Light Rail*H, 1998

⁵ DfT, H*Green light for light rail*H, September 2011, paras 2.16-2.17

⁶ *ibid.*, table 4.1, p26

⁷ Conservative Party, H*Invitation to join the government of Britain: General Election Manifesto 2010*H, April 2010; H*Liberal Democrat Manifesto 2010*H; and HM Government, H*The Coalition: Our Programme for Government*H, May 2010

standardise approach to developing light rail systems so that future generations can enjoy the benefits.⁸

In September 2011 the Department for Transport published the review mentioned above, *Green light for light rail*. The press notice accompanying the review stated that “light rail has a future in this country if capital costs can be reduced”.⁹ The paper concluded that action was needed in several areas if light rail is to revive as a viable and cost effective means of local public transport. Recommendations were, by and large, directed at UKTram¹⁰ and include the following:

- **Sector coordination to reduce duplication and increase effectiveness** – UKTram should work with industry and European partners to share best practice and identify further initiatives for cost reduction, and cost effective approaches to procurement as well as design standards in the UK and elsewhere.
- **Standardisation and Uniform Design** – UKTram should complete its report on standardisation and harmonisation as soon as possible including estimates for cost reductions that should flow from standardisation. This should form the basis of an implementation plan for a new uniform basis for project design of light rail systems. The Department would not expect any funding to be provided for any light rail system unless it follows a more standard and uniform core design taking advantage of lower cost specifications.
- **Improving capability of promoters** – UKTram should set up a “centre of procurement excellence” to develop improvements to procurement methodology which can advise future promoters of the best procurement options for their project.
- **Reducing the costs of utility diversions** – the Department for Transport will commence a consultation exercise inviting views from all parties on the interface between utilities and light rail.
- **Transport & Works Act (TWA) process** – light rail promoters should share best practice on TWA applications to help minimise delays and costs.
- **Alternatives to conventional light rail** – UKTram should extend its remit to incorporate Ultra Light Rail and Personal Rapid Transit modes. It should work with the developer of these systems on producing a business case to see whether these modes offer value for money and have a future in England.¹¹

The Department is proposing to discuss the issues and recommendations in the report with UKTram and other interested parties, “in order to develop a sector-led implementation plan for getting light rail on the right track”. As part of this work, a high level ‘tram summit’ of all interested parties will be held, hosted by the Department for Transport and chaired by the Local Transport Minister, Norman Baker.¹²

⁸ DfT, *Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen*, Cm 7996, January 2011, paras 6.35-6.37

⁹ DfT press notice, “*Green light for trams*”, 20 September 2011

¹⁰ UKTram represents the interests of the tram industry in its dealings with government and other agencies

¹¹ *op cit.*, *Green light for light rail*, paras 7.10-7.18

¹² *ibid.*, para 7.19

3 Policy of previous governments

3.1 Labour, 1997-2010

In May 2000, the Environment, Transport and Regional Affairs (ETRA) Committee published a report on light rail systems, focusing on their fortunes since the election of the Labour Government in 1997. The report stated that government support for light rail had ‘fluctuated’ over recent years and that while government and private sector money was going into developing and extending light rail systems in Tyne & Wear, East London, Manchester and Nottingham, there remained reservations about the high capital costs of light rail compared with bus-based schemes.¹³ For example, the 1998 White Paper *A New Deal for Transport: Better for Everyone* stated:

In due course, we shall expect local authorities wishing to develop light rail systems, to use revenues from new congestion charging schemes or parking levies as a source of funding for such systems... In the meantime we believe that resources available for funding local authority capital expenditure on transport can, in general, be used more productively supporting packages of more modest measures which spread benefits more widely. Funding for new major light rail schemes will therefore not be a priority and schemes will be supported only if they represent good value for money and form an integral and necessary part of a strategy in a *local transport plan* – demonstrating that the objectives of the plan cannot be met in alternative ways. We would also expect local authorities to develop public-private partnerships to take forward such schemes wherever it is sensible to do so.¹⁴

Similarly, in Evidence given to the ETRA Committee, the then Minister for Transport, Keith Hill, stated: “...we have to bear in mind that the capital costs of light rail systems are high when compared with bus priority measures... it will continue to be essential to demonstrate in each case that light rail is the best solution for a particular area”.¹⁵

The Committee recommended that the government end its prevarication regarding light rail, and pursue such schemes where appropriate.¹⁶

Consequently, the government’s *Ten Year Transport Plan*, published in July 2000, was more positive about light rail, stating:

We will fund a substantial increase in the role of light rail in our larger cities and conurbations over the next ten years, backing schemes that offer good value for money as part of integrated transport strategies.¹⁷

Labour published a further Transport White Paper in July 2004. This gave a brief overview of the successful light rail schemes that had been implemented to date (London, Manchester) and the not so successful ones (Sheffield, Croydon, the Midlands). The government’s view was that that light rail schemes should undergo “rigorous assessment” and that local authorities “reassure themselves of the realism of forecasts of passenger numbers, and ensure that they are taking appropriate measures to attract people to use the new services”.¹⁸ This was followed in June 2005 by a speech by the then Railways Minister,

¹³ ETRA Committee, *Light Rapid Transport Systems* (eighth report of session 1999-2000), HC 153, 24 May 2000, paras 1-2

¹⁴ DETR, *A New Deal for Transport: Better for Everyone*, Cm 3950, July 1998, para 3.38

¹⁵ op cit., *Light Rapid Transport Systems*, Q339

¹⁶ *ibid.*, para 55

¹⁷ DETR, *Transport 2010: The 10 Year Plan*, July 2000, p59

¹⁸ DfT, *The future of transport: a network to 2030*, Cm 6234, July 2004, para 4.29

Derek Twigg, outlining the government's strategy for making light rail affordable; the theme of the speech was that light rail should be developed only as part of an integrated local transport solution: "No future light rail system can be developed in isolation. A local tram strategy does not constitute a local transport strategy".¹⁹

In December 2006 the government published new draft guidance to local authorities on how to decide whether to proceed with a light rail scheme.²⁰ A final draft was never published, and subsequent general guidance to local authorities on major transport schemes indicated that the draft guidance should be used when looking at a light rail scheme. Further:

Authorities should consider all rapid transit solutions including whether a bus based solution or an alternative mass rapid transit system would be more appropriate. The Department is unlikely to approve funding for a light rail scheme if it considers that an alternative transport mode would provide a better solution. Authorities should include, within their business case, their methodology and evidence for ruling out alternative modal solutions.

There are no absolute limits as to what levels of traffic and passenger flows would justify a light rail scheme, as the particular characteristics of each scheme will need to be taken into account. However, the Department will expect authorities to provide details of passenger flows each way in the peak hour as a sense check on whether light rail is likely to be the best solution.²¹

In March 2010 the then Secretary of State for Transport, Lord Adonis, set out the outgoing Labour Government's view of light rail schemes as follows:

My department has not undertaken any specific studies on the costs of constructing light rail systems in Great Britain compared with the rest of Europe. However, the National Audit Office in its report titled *Improving Public Transport in England through Light Rail* published in April 2004 did consider European systems against those in operation in England.

There are crucial differences in urban geography which make light rail ideally suited to some French and German cities. Trams are most cost-effective in corridors of very heavy passenger demand. These can support frequent services and closely spaced stops, and generate high patronage per route kilometre. Broad avenues leading to French/German city centres make it relatively easy to accommodate street-running trams without conflict with motor traffic whilst narrower city centre streets have often been pedestrianised. Both these sorts of conditions are relatively rare in English cities. In addition population density in catchment areas of our existing tram systems tends to be much lower than in continental cities, with less frequent services and stops.

Any proposed light rail transit system that is seeking funding from the Department for Transport is assessed using the new approach to appraisal (NATA) process. The NATA process ensures that all impacts are considered when taking a decision about whether to fund a particular system. This includes an assessment of the impact on all transport users including light rail passengers. The NATA process uses the same approach to assessing benefits across all modes of transport.²²

¹⁹ [HSpeech by Derek Twigg MPH, 22 June 2005](#)

²⁰ [DfT, HDraft Guidance for Local Authority Promoters Considering a Light Rail SchemeH, December 2006](#)

²¹ [DfT, HGuidance for Local Authorities seeking Government funding for major transport SchemesH, 2007, paras 2.8.2-2.8.3](#)

²² [HHL Deb 23 March 2010, c286WA](#)

3.2 Conservatives, 1979-1997

Light rail (or rapid transit) found renewed popularity with urban transport planners in the early 1980s as schemes in Tyne and Wear and East London were established, and other urban centres such as Manchester and Sheffield developed substantive plans to build their own transit systems. In 1987, the House of Lords Select Committee on Science and Technology produced a report on surface transport in the UK. In the course of the report, the Committee reflected on this emerging trend and urged the Government to look at light rail options for urban transport, stating:

The Committee have taken note of the potential of light rail systems as a means of enhancing an urban public transport network and by the contribution they can make to the regeneration of inner cities. They note that clear arrangements exist on the Continent for promoting and funding such projects; they would like to see better arrangements in the United Kingdom.²³

This report was followed four years later by a more substantive investigation of light rail by the House of Commons Transport Committee. In its April 1991 report, the Committee acknowledged that “the movement behind the light rail renaissance is a powerful one” and that “light rail systems attract much support from local politicians and planners”.²⁴ The report pointed to six main advantages of light rail:

- it reduces traffic congestion;
- has positive environmental impacts and conserves energy;
- is generally seen as providing a high quality service;
- assists urban regeneration;
- is often conducive to better access for disabled persons; and
- has a ‘prestige value’ for a host city.²⁵

The Transport Research Laboratory (TRL) produced a report of its own on light rail at about the same time as the Transport Committee report was published. It gave four reasons for the ‘rapid transit renaissance’ of the 1980s:

Demand for public transport has grown in some areas over recent years, especially in south-east England, as the economy recovers from the recession of the late 1970s and early 1980s;

Increasing traffic congestion affects buses as well as cars, and has led to a renewed interest in rail-based public transport;

The opening in 1987 of the London Docklands Light Railway has focused attention on light rail – although in fact the DLR serves an area which has many unique features not found in other cities;

²³ Science and Technology Committee, *Innovation in Surface Transport* (session 1986-87), HL 57, 28 January 1987, para 6.58

²⁴ Transport Committee, *Urban Public Transport: The Light Rail Option* (session 1990-91), HC 14, 18 April 1991, para 9

²⁵ *ibid.*, paras 10-18

The experience of new rapid transit systems in other countries, especially France and North America, has made it a more attractive proposition for British cities, helping to dispel the image of the old-fashioned trams.²⁶

The government of the day was able to count approximately 50 light rail schemes throughout the UK which were either in operation, were being considered by the government or of which the government was 'aware'. Of these, the then Minister for Transport, Roger Freeman, considered that "...it must be fair to draw the conclusion that within ten years, based upon the track record so far, we may be looking perhaps at up to a dozen schemes in operation".²⁷ In response to the number of potential schemes involved, the Transport Committee felt that: "If there is a significant number of new schemes which can be soundly justified under the current rules, then the Department of Transport should be prepared to increase the allocation of finance for them".²⁸ Further, the Committee believed that the evidence that it had heard "demonstrated the widespread support for a major expansion of light rail and related systems".²⁹ The Minister, however, was more reserved in his evidence to the Committee, stating:

...there is no question that light rail systems... have an important role to play in urban transportation. There is no question in the Government's mind about that. However, I think it is still relatively early days... as to the precise form in which that will happen, I am still reluctant to reach too dogmatic a conclusion.³⁰

The comparison with light rail in other European countries was often raised. For example, in 1987, the House of Lords Select Committee on Science and Technology stated in a report on innovation in surface transport that (West) Germany, France and the Netherlands all "gave transport a higher priority than did the United Kingdom".³¹ The Committee also praised the commitment of continental countries to light rail, in particular in terms of promotion of and funding for such projects.³² A 1991 TRL report, which looked at light rail systems in North America and France, posited lessons that the UK could learn from the French experience.³³

4 Further reading

- National Audit Office, *Improving public transport in England through light rail* (session 2003-04), HC 518, 23 April 2004; and: Public Accounts Committee, *Improving Public Transport in England through Light Rail* (eleventh report of session 2004-05), HC 440, 9 March 2005

In April 2004 the NAO produced a report which looked into the DfT's work in funding the construction of light rail systems to improve public transport in England. The report's conclusions were mixed as to the future of light rail.

The NAO report identified five barriers hindering the wider take-up of light rail – cost; poor financial performance of some light rail systems; local authority funding; time and uncertainty factors; and expertise – and a range of issues that needed to be tackled if future systems

²⁶ TRL, *The Effects of Rapid Transit on Public Transport and Urban Development* (Research Report 258), 1991, p1

²⁷ op cit., *Urban Public Transport: The Light Rail Option*, Q684; the actual number built in the ten years after 1991 was five

²⁸ ibid., para 109

²⁹ ibid., para 110

³⁰ ibid., Q659

³¹ op cit., *Innovation in Surface Transport*, para 5.3

³² ibid., para 6.58

³³ op cit., *The Effects of Rapid Transit on Public Transport and Urban Development*, p13

were to be improved. The report recommended that the Department should, amongst other things, require local authorities to integrate light rail with other modes of transport and encourage local authorities to promote light rail and encourage passenger take-up.

It was also critical of UK light rail projects compared to those in France and Germany. It did, however, also make clear that light rail systems in the UK face problems and barriers that their counterparts in Europe traditionally have not. In the course of preparing its report, the NAO visited light rail systems in Lyon and Grenoble in France, and Freiburg and Karlsruhe in Germany that revealed several key differences in the design of continental light rail systems compared with systems in England. These were:

- Light rail lines are usually segregated from, and given priority over, other forms of traffic at junctions
- Systems are fully integrated with other forms of public transport
- In France, street improvement is an integral part of any light rail scheme

The NAO report concluded that these differences helped to improve the delivery of benefits to passengers and local communities on the continent. It also found that fares on the continent were heavily subsidised by local government – to the tune of 70 percent and 40 percent in Grenoble and Freiberg respectively.

In March 2005, the House of Commons Public Accounts Committee published its follow-up report. Amongst other things, it concluded that the government should develop a strategy for the development of light rail as part of an integrated transport network and criticised the lack of standardisation in the design of vehicles and systems that drove up costs.

- Passenger Transport Executive Group & Steer Davies Gleave, [What light rail can do for cities](#), February 2005

In February 2005 the Passenger Transport Executives Group (pteg) published a review of the evidence for light rail in the major metropolitan areas outside London. The report found that the case for light rail was strong and that it supported key hypotheses of efficiency, cost, social inclusion and environmental improvement. The report concluded that in order to be successful, light rail projects must be clear about their objectives from the start; development of schemes should be focused where there is demand; and each area's requirements would be different.

- Transport Committee, [Integrated Transport: the Future of Light Rail and Modern Trams in the United Kingdom](#) (tenth report of session 2004-05), HC 378, 1 April 2005

The House of Commons Transport Committee published a report into light rail in April 2005. The Committee concluded that it was “in no doubt” that “light rail has the potential to be an important part of the transport mix”, but that it would not meet all transport needs in the UK.

Nonetheless, the Committee also concluded that the Department for Transport had “failed to give a strategic lead” in the development of light rail and that to remedy the situation the Department should: build up its own expertise on light rail, and share that expertise with promoters; engage wholeheartedly with bodies such as UKTram; and give clear guidance about the circumstances in which it is prepared to consider light rail schemes. It should also accept that the time it takes to consider schemes, and the fact that even once approval in principle is given funding remains uncertain, itself adds considerably to project costs. The

Committee asked the government to urgently reconsider the contribution utilities make to the diversion of their services; and give local authorities more powers over their bus services.

- All Party Parliamentary Light Rail Group/pteg, [Light Rail & the City Regions Inquiry: Final Report](#), February 2010

The All Party Parliamentary Light Rail Group (APPLRG), supported by pteg, published a report on light rail in February 2010. It found that light rail and modern tram schemes can help transform urban transport systems as well as the wider urban realm, promoting greener, smarter economic growth in the process. However, to bring back the tram to more city streets there needed to be a clearer lead from government, less bias against these schemes in the appraisal processes, and for ways to be found of further cutting the costs of new schemes.

The report found that the DfT lacked an overall light rail strategy or centre of expertise. It did not treat light rail proposals in the same way as other modes, and had a tendency to 'micro-manage from the centre'. It highlighted utility costs as a potential 'quick win' in bringing down the costs of new tram schemes.