

The case for investment in Light Rail in London

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The National Infrastructure Commission has called for evidence on three major national challenges:

- Improving connectivity between cities in the north of England,
- Large scale transport infrastructure improvements in London,
- Improving how electricity demand and supply are balanced.

This paper addresses the second of these challenges and examines the case for investment in light rail and modern tramway systems in London.

What light rail can do

Light rail, and in particular a street-running modern tramway, is a modern transport mode which uses vehicles which run on rails but which are lighter than traditional rail vehicles. This enables higher acceleration and deceleration, steeper gradients and sharper curves than on a railway. Hence stops and stations can be closer together, providing a better urban public transport service. The capability of running in the street, either on its own right of way or mixed with road traffic, means the infrastructure can be lighter and less intrusive, requiring less in the way of bridges and tunnels which, of course, makes it less expensive. Light rail is normally driven by electricity, making it non-polluting at the point of use and able to use power generated from sustainable sources. Also, modern trams generally allow level boarding, which makes boarding easier for people with disabilities.

A modern tramway can carry between 4000 and 10,000 passengers per hour in each direction (pphd). This means it has a much greater capacity than a bus service, which is limited to about 3000 pphd by the need to stop, start, load, unload, accelerate and decelerate. In a large city, buses do not provide adequate capacity.

Several cities in the British Isles, including Manchester, Sheffield, Dublin and Edinburgh, have installed modern tramways. They are successful at carrying large numbers of passengers, attracting car drivers, and promoting urban regeneration. In London, the tramway in Croydon and the Docklands Light Railway (which does not run on-street but is classed as light rail) have both produced similar benefits.

The case for light rail in London

In this paper we look at the scope for light rail investment in London.

Currently, London is experiencing a great deal of investment in its rail services. Crossrail is being built and will carry passengers between Paddington in the west and Liverpool Street in the east from 2019. Crossrail 2, linking the north-east and south-west, is under development. Extensions are planned to the Bakerloo and Northern lines, and the Docklands Light Railway undergoes continuous development. In recent years, sections of underused rail lines have been linked together to form the Overground network, serving mostly circumferential routes. These improvements have been, or have the potential to be, very successful.

Of course, rail improvements are enormously expensive, and, as this paper shows, do not serve all needs. We believe that public transport investment can also be effective at a more local level, providing short-distance, readily accessible, public transport both in central London and in district centres in the London area.

Why London needs efficient rail transport

We start with the observation that London is a large city. This is obvious, but London is by far the largest city in the United Kingdom, and can be classed as a world-class mega-city, one of only two in Europe (Paris being the other).

Large cities depend on rail transport to bring people and goods into their city centres. One has only to see what happens when rail services in London are disrupted by strikes or weather: people cannot get to work and the city could not operate for long. Of course, London already has a good many rail lines. The Underground brings 3 million people into the capital every day, and the suburban railway brings another 1 million. In the course of a year, the Underground carries more than 1 billion passengers, as many as the whole of the national rail network.

Large cities also depend on rail to carry passengers within their city centres. The city centre of London – defined broadly as Zone 1 or the area within the Circle Line – is too large for walking. This makes London different to other large cities such as Birmingham or Manchester, where it is possible to walk across the centre in 15 minutes or so. London needs an efficient public transport network within the city centre.

Central London is of course served by the Underground, but even with the fairly dense network of lines in the centre, it does not serve all the major corridors. Furthermore, the time taken for a passenger to descend to the platforms and back to the surface makes the Underground inefficient for short journeys. Hence, many central area journeys are made by bus, and there are many intensively-used bus routes. But buses get delayed in traffic, and on some busy corridors they struggle to cope with the demand, as a bus corridor cannot operate at more than about 30-40 buses per hour.

Another feature of the size of London is that it encompasses a number of district centres which are sizeable centres in themselves. The London Borough of Croydon claims that if Croydon were not “embedded” in London, it would be Britain’s 8th largest city, surpassing Coventry and Wakefield. It is not alone; there are other

district centres such as Stratford or the Richmond-Kingston area which could make a similar claim. Such centres need their own public transport networks, and the density of their transport corridors means that buses alone will not suffice.

We would argue that there are busy corridors, both in central London and in district centres, which would be better served by a modern tram service, with vehicles that can carry up to 200 passengers and, given the right priorities, can provide a shorter end-to-end journey time. A modern light rail or tramway system would provide a more efficient transport system, less costly than Underground or suburban rail improvements, but able to cater for busier corridors than buses can.

Suggestions for where light rail should be considered

Where would such corridors be located? It would of course be for Transport for London to look at current flows, do the modelling and identify corridors for improvement, but we make some suggestions here.

Light rail in Central London

Firstly, in central London, the corridor from the **Euston-Kings Cross area to Waterloo** station is one of the busiest, but it is not well served by the Underground. A few years ago there were well-developed plans for a tramway called the Cross-River Line to serve this corridor. It would run from Waterloo, across Waterloo Bridge, and then follow Kingsway and Southampton Row to Euston before turning right along Euston Road to St Pancras and Kings Cross. North of Kings Cross, the line would serve Camden Town, and south of Waterloo it could be extended to Peckham or to Clapham Junction, relieving the overcrowded rail lines into Waterloo. The line was forecast to carry about 70 million passengers per year, more than any other tramway in Britain. **We recommend that the plans for the Cross-River Line should be re-instated.**

Secondly, **Oxford Street** has been identified as one of the busiest corridors in London. It is served by many bus routes, but there are so many buses that progress is slow – very often, it is quicker to get off the bus and walk. It is also served by the Central Line and will be served by Crossrail, but with only 4 Underground stations and 2 for Crossrail this hardly constitutes an efficient local service. A tram service between, say, Holborn and Marble Arch would provide better connectivity for Oxford Street shoppers, and it could be extended to Paddington to serve the mainline terminal. One drawback to the earlier Oxford Street tram plans was where to locate a depot, but that could be accommodated by integrating the Oxford Street tram line with the Cross-River Line and using a joint depot south of the river or in the Kings Cross area. **We recommend that the plans for an Oxford Street line should be re-examined.**

Thirdly, there are no Underground lines serving travellers between **Victoria and Paddington**, via Hyde Park and Marble Arch. Another heavily used bus corridor is that between **Victoria and the City**, via Parliament Square, Trafalgar Square and

the Strand. These corridors could benefit from light rail investment. **We recommend that TfL should examine the case for light rail investment on these and other densely-trafficked routes in central London.**

District centres in London

Among district centres outside central London, Croydon and Stratford are just two examples where investment in light rail could improve local transport. Neither is a rich area, and there are many people in these areas who are not well-off, or are even deprived. Their lives are far removed from those of the well-paid people who work in the City or shop in the West End, areas which they seldom visit. People in east and south London depend on public transport for access to employment, shops, schools and leisure facilities, and businesses depend on it for their employees and customers. Investment in public transport would be beneficial on many levels.

We have already identified **Croydon** as a centre which requires good public transport. There is an existing tramway in Croydon which links Addiscombe and Beckenham Junctions to Central Croydon and on to Wimbledon, carrying large numbers of passengers. **We recommend that the various plans for extensions to this system, including one to Crystal Palace, should be pursued vigorously.**

In east London, **Stratford** is a rapidly developing area with a large shopping centre. It is already well-linked to central London and other centres by public transport, with suburban rail, two Underground lines and two Docklands Light Railway lines. But Stratford depends heavily on buses in several corridors, notably eastwards along Romford Road and to the north-east towards Leytonstone. **We recommend that these corridors serving Stratford be examined with a view to installing light rail lines.**

In addition, there are other district centres within the London conurbation which have similar needs. Examples could include the Tottenham-Wood Green area, the Wembley area, and Kingston-upon-Thames and Richmond where a tramway could be developed to link with Croydon. **We recommend that all such areas which are currently served by heavily-used bus routes should be examined for possible light rail investment.**

Conclusion

In this paper we have suggested some areas, both in central London and in other centres within London, which should be considered for transport investment. Grand projects such as Crossrail and Underground extensions are fine, but they are expensive and take many years to develop; also, they do not necessarily provide the local accessibility that public transport needs. A modern tramway can provide high capacity transport which is safe, reliable and readily accessible to passengers, at a much lower cost than heavy rail or Underground investment. **We recommend that TfL examine the options described in this paper and others where light rail would be beneficial.**