

TransportPlanning*Society*

Submission to the National Infrastructure Commission

Call for Evidence 2: London's Transport Infrastructure

Introduction and Wider Context

TPS supports the principle of greater consistency in the planning and funding of infrastructure at local as well as national level. It also believes that planning for infrastructure needs to have clear and specific quality of life objectives, not just a vague feeling that it must be good for the economy and then, subsequently, for people's lives.

We preface our response by raising three key issues of general application:

- the importance of allowing for the revenue consequences of capital expenditure on infrastructure and the substitution of revenue for capital (for example through demand management)
- the need to integrate transport infrastructure and land-use planning
- the need to ensure that the diverse impacts of new infrastructure for different activities are reflected in the Commission's work

Capital and Revenue

It is important to understand that capital spending in transport in particular produces revenue benefits (much of which is user time savings) rather than direct capital appreciation. This may seem obvious but has important implications for public understanding of the balance between revenue and capital expenditure which is essential if spending is to improve people's lives. Of course there are indirect capital gains from transport, the most obvious being land values.

It is also the case that the distinction between them is not clear cut – for example is the forecasting, planning and policymaking which underpins capital spending counted as revenue? If it is (as is often the case) we are quite likely to build the wrong schemes in the wrong places if the revenue budget is cut. The importance of the skills base in terms of those who commission any transport project should not be underestimated – in local authorities this has been severely weakened and any new governance arrangements must include specific proposals to create the “intelligent clients” that will be needed.

A second complication is the way that revenue schemes can obviate the need for major schemes – those which reduce demand are the obvious example.

For reasons such as these, in the TPS annual survey members place very high priority for transport spending on what are essentially revenue items such as road maintenance and smarter travel choices¹.

Thus it is rare in a developed economy that progress can be made, for example increased connectivity between places, without revenue expenditure relating to:

- The adequate maintenance of existing infrastructure, including its development and improvement
- Expenditure on services to use that infrastructure, particularly important for public transport, walking and cycling
- The provision of programmes such as travel behaviour change or road safety.

¹ The top 5 in order of priority are: Walking and cycling; Non-High Speed Passenger railway capacity improvements; Travel behaviour change (Smarter Choices); Tackling poor air quality; Road maintenance.

Both of the last two items may be supported by new infrastructure but require more direct revenue support, for example travel planning can include paying public transport fares for those returning to work (some local authorities do this but money is now unlikely to be available).

Thus a balance between revenue and capital is needed and this is why we ask the Commission to reflect this throughout its work.

Real impacts of transport spending and the interaction with Land-Use

In reality the benefit from transport investment arises from its interactions with social and economic behaviour, notably locational and modal choices. At a strategic level, these interactions include:

- ‘Compact, liveable cities’ are critical to realising the potential agglomeration benefits of urban concentration, but are undermined by the poor UK record of land-use/transport integration. A focus on large capital schemes, poorly integrated into the urban fabric and not part of an overall transport and spatial plan, has played a major part in this deficiency².
- The balance between public transport, non-motorised modes and road investment is distorted by the disconnected delivery, pricing, appraisal and planning arrangements. Roads that are free at the point of use, together with over-emphasis of road user time-savings in appraisal, rather than changes in behaviour and land values, has led to this strategic imbalance.
- More dispersed locational choices within existing housing and commercial stock are progressively ‘hardened’ by more dispersed patterns of new development. Both factors lead to increased transport demand, particularly for roads, with resultant congestion degrading transport system performance.
- It is our considered view, and has been for some time, that major new road capacity will not solve congestion unless comprehensive demand management (almost certainly by price and including freight) is in place. Indeed it is likely to be counter-productive. Smart motorway programmes, by contrast, can offer a wide range of benefits from better overall management and make better use of existing assets.

Land use and the provision of transport are closely linked and unco-ordinated planning of either, or one seen as subservient to the other, leads not to efficiency, sustainability and economic growth but to unnecessary travel and congestion and equally poor performance in terms of the economy, safety and the environment.

Multi-layered approach to connectivity

The comments above lead to the conclusion that simply connecting places, without defining what those places are and why we want to connect them, will at best lead to inefficient allocation of transport spending and at worst to causing net disbenefits, even though these may fall outside transport, for example personal health and climate change.

In order to identify where connectivity will have a positive impact it is important to understand different spatial geographies – for example journey to work areas need to

² Since the creation of the GLA and TfL this issue is being partly addressed, at least in London, see the London Infrastructure Plan at <https://www.london.gov.uk/file/22098/download?token=XZV8z8Az>

inform commuter travel plans, freight interchanges (sea, air, road and rail) and the consequent demand should help define freight networks. Local businesses need the concentration of urban form referred to earlier, thus walkability is the key. On the other hand, businesses which need bigger catchments (some stretching beyond the boundaries of individual Northern cities) need those cities to be connected with frequent, attractive, fast rail services. One of the key theoretical advantages of linking the Northern cities is that they will provide sufficient catchment for businesses to be able to locate in the North rather than serve Northern businesses from London and the South East or Northern Europe.

The idea of a layered approach with different networks has been explored in several of the TPS sponsored research bursaries, for example in the 2012 “Flexible geographies and what ‘localism’ could mean in the context of transport planning”³ which said it would be possible: *“to move from notions of ‘local communities’, ‘local transport consortia’ and LEPs based on ‘functional economic space’ to a conception of ‘flexible local geographies’ which facilitate public service delivery at the most appropriate level possible and which are responsive to a plurality of requirements.”*

In a developed country such as the UK such a sophisticated approach is essential, and is easily within our current analytical techniques⁴, indeed could be simpler than many existing major scheme road traffic models.

Thus the different networks which would meet the different connectivity requirements (city to city, suburb to city, port to distribution centre, airport to airport, airport to city etc.) should be identified individually first. Scale of use can be assessed – not necessarily a precise forecast. The impact of improved connectivity by definition has no existing pattern of use from which the future can be extrapolated.

The networks can then be aggregated so that multi-use infrastructure can be designed. This more precise targeting would have a major impact on the design of road and rail schemes. Two examples on rail would be the mixing of commuter and city to city services and ensuring the needs of freight could be better accommodated. The creation of freight train paths through a busy passenger network is already a major problem in corridors including the two which are the subject of this consultation (Connecting Northern Cities and London).

Key points for the Commission’s work

We therefore ask that the Commission’s work avoids the traditional “pay and walk away” attitude and always includes:

- consideration of future land use impacts from new infrastructure and patterns of connectivity
- an estimate of the revenue required for the most efficient use of new infrastructure and its maintenance (including smart use and intelligent mobility)
- consideration of revenue based solutions to the identified problems which change the nature or extent of the planned infrastructure projects, and of “big cap versus small cap” – particularly important for smart technologies versus large scale fixed infrastructure

³ Author James Beard, paper based on his bursary presented to the annual Transport Practitioners Meeting in 2012

⁴ For example layered network accessibility mapping

- use of a multi-layered approach to building up connectivity requirements and subsequent initiatives (revenue or capital)

In addition, improving connectivity is very uneven in its impacts, varying by:

- Mode of travel (including walking and cycling)
- Purpose of travel (not just for personal travel but including freight)
- Different physical geographies
- Different patterns and types of land use (including availability of land for housing, employment, education, culture and leisure)
- Distribution of human capital in the areas which are being connected – most obviously skills and how they match demand, but also culture, leisure and social capital
- Nature of businesses in the area affected – for example different types of businesses may need access to only one or several of the following and a single piece of infrastructure is unlikely to achieve them all:
 - wider labour markets
 - higher quality travel (especially locally)
 - more international connections
 - large scale multi-modal freight services
 - collaborative research bodies (for example universities)
 - proximity benefits through dense development and social walkability (for example London’s “Silicon Roundabout”).

Impacts of any single piece of infrastructure can be positive for some of these requirements and neutral or negative for others. Again this is not a situation where there is a blank canvas and there are high risks of unintended consequences – the M25 is a famous example. While a new piece of infrastructure may be intended to produce a primary benefit, its other impacts should not be ignored.

This argues for clarity of purpose, respect for what is already available and a deeper understanding of the way in which transport creates or facilitates change.

The TPS Response to the NIC’s questions

We welcome the opportunity to respond to the National Infrastructure Commission on the pressing issue of London’s transport requirements over the next 20 to 30 years. We have kept our response brief and focused on the key points referred to in the NIC’s call. Our members have much to offer in terms of expertise and would welcome the opportunity to further assist the Commission in its work.

1. What are the major economic and social challenges facing London and its commuter hinterland over the next two to three decades?

The major challenges facing London and wider South East are undoubtedly the anticipated population growth and related job creation, the related problems of capacity constraints across infrastructure types and a long term problem of building too few homes to accommodate the growth in households.

The London Infrastructure Plan 2050 (LIP 2050) sets out a projected population growth of over 40% by 2050, bringing London’s population to over 11 million.

Much of London's infrastructure is already at or close to capacity, with London and surrounding areas facing real possibilities of experiencing water shortages and power blackouts. Commuter lines into London and the tube network frequently experience potentially dangerous levels of overcrowding. Significant parts of the Capital's main highway network are already stretched to and beyond their practical capacity with the result that whole areas can become gridlocked with the slightest of incidents.

Housing regularly tops Londoners lists of concerns, based on exceptionally high selling and rental prices, as well as over-occupation. An estimated 50,000 homes are required per year to 2050, significantly more than has been built in London in previous years.

A lack of affordable housing and the potential for infrastructure failures have obvious impacts on Londoner's quality of life. Whilst London still remains an attractive place for young professionals, high house prices could soon see young skilled and essential but still lower paid workers moving out of the city to areas where they can buy or afford to rent a property. When this happens on a large scale as is now most likely, London could experience a skills and worker shortage that would significantly effect London's economy. This would also apply further pressure on radial transport links (both road based and rail). **Transport operational staff in particular need to live close to their workplaces.**

Businesses are unlikely to choose to locate in a city that experiences power outages or one where their workforce cannot afford to live.

2. What are the strategic options for future investment in large-scale transport infrastructure improvements in London - on road, rail and underground - including, but not limited to Crossrail 2?

There are parts of London with significant space for house building that are currently not being built on. In many cases the reason is simple; these areas do not have effective transport connections. Barking Riverside is a prime example, where brownfield land has the potential for over 10,000 new homes to be built. In the absence of the proposed extension of the London Overground to Barking Riverside, no more than 1,500 new homes are permitted. Such development will bring jobs and economic growth to the area. ***The provision of additional housing and related employment should be planned in tandem with upgraded and new transport provision and this must be placed at the top of any prioritisation assessment.***

A strategic long term approach is required that maps out London's key transport requirements. A project by project approach will not provide London with the best outcome; it is the combined impact of transport, housing and infrastructure investments that will realise the highest benefits for London.

The LIP 2050 sets out a strong plan for London's transport investment to 2050, albeit with the need for further prioritisation and an update when the Government makes its decision on airport capacity. The need for future reviews and updates, should not delay implementation of the projects identified as necessary in the nearer term. **With regard to additional airport capacity, we believe that it is essential that this review of London's infrastructure needs actually addresses the important strategic connections between the location of this additional capacity and other planned and putative rail and road schemes. The exclusion of this most important aspect from the NIC's current remit leaves a major gap in the exercise.**

Better transport links to the wider South East must also be a high priority. The proposed Crossrail 1 extension to Ebbsfleet and giving Transport for London control of more South East rail routes are crucial in ensuring the wider region is also able to unlock housing. Equally, Crossrail 2 could include a new link to Gatwick airport via Clapham Junction, Wimbledon, Epsom and possibly Dorking providing greater overall resilience to the strategic links serving this growing traffic generator. Through North London, Crossrail 2 could provide an additional link to Stansted and TfL should consider how this project can help strengthen access to the airport and how it impacts on airport capacity needs. The 4-tracking in the Lee Valley needed for Crossrail 2 would enable improved and more resilient access.

Transport for London has identified a wide range of interventions which have strongly positive business cases. We do not propose here to rank individual projects but see a pressing need for two projects in particular, namely Crossrail 2 and the Silvertown Tunnel.

Given its forecast beneficial impacts on transport relief and economic development, Crossrail 2 must be a priority and TPS is pleased to see a growing consensus from local, regional and national government on the need for the scheme. Many of the benefits of Crossrail 1 have already been seen in terms of unlocking housing growth and the TPS believes that similar gains will be accrued from Crossrail 2. Crossrail 2 should be a catalyst for directing and intensifying housing and employment along its route. It has the potential to distribute new employment growth outside the congested central London area.

Similarly, the Silvertown Tunnel is a major scheme to alleviate congestion on the Blackwall Tunnel. The overall crossing requirements of East London urgently need to be considered in the manner set out in the introduction, bearing in mind the differences between West London and the Thames Estuary, where there will be fewer opportunities for walking and cycling to create genuine cross river communities. Silvertown Tunnel should be considered in the context of new river crossings, road, bus, tram or rail to the east of Tower Bridge. We also think there are opportunities for new technologies to be explored in the spectrum between bus and traditional heavyweight trams. Such infrastructure would open up opportunities for housing and employment growth at London Riverside and Royal Docks Opportunity Areas. Such schemes have long been regarded by existing employers and potential inward investors as being absolutely top priority.

The road component of any infrastructure plan should be accompanied by user charging, in this case tolls are already part of TfL's plans but these must be set sufficiently high to control traffic, including that diverting from Dartford.

3. What opportunities are there to increase the benefits and reduce the costs of the proposed Crossrail 2 scheme?

The Government has the ability to significantly reduce the costs of infrastructure build in London by clearly committing to a long term programme of work. This program should not be changed at political whim, but revisited periodically and adjusted to reflect changes in the way the city functions or technological advances.

A clearly set out programme of work, that sets out the timeline for major project delivery and commits to funding, will allow the construction industry to reduce costs:

- Planning for their workforce now – this will ensure there are adequate numbers of skilled workers, and avoid the need to pay excessive wages to those with skills in short supply. It will also reduce delays.
- Planning their supply chain now – this will reduce delays and the cost of sourcing materials and component parts. This will have the added benefit of allowing firms around the UK to gear up to supplying projects such as Crossrail 2, avoiding the need to source materials from abroad.
- Certainty will enable greater investment, which will require a lower rate of return due to the lower risks of the project being stalled or abandoned.
- A long term plan will enable effective sequencing of projects, to either remove clashes for particular skilled workers or allow synergies to evolve e.g. where joint training academies are established. Maybe this should be first?

The London Infrastructure Plan 2050 and the Mayor's Transport Strategy need to be articulated into a programme of work that sets out and sequences the key infrastructure projects and development sites over the next 20 years.

The TPS believes this is the single most effective way to reduce costs. On Crossrail 2, there are likely to further efficiency savings that are possible for use of different building materials and/or custom building of stations. Further innovations may come forward that reduce costs. This is tax payers and London fare payers' money being spent, so every effort needs to be made resources available to make sure it is being spent wisely.

The TPS recommends that infrastructure providers, innovators and academics are brought together and set the challenge to reduce the build cost of Crossrail 2. Many of the innovations that come forward would likely be applicable to wider infrastructure build.

The benefits of Crossrail 2 will be maximised when it is planned alongside London's wider infrastructure needs. This will ensure the possibilities for integration are taken full advantage of.

For example, green infrastructure should form a central part of station build, with green roofs and sustainable urban drainage around stations. This will reduce the need for traditional 'grey' drainage solution that are typically much more costly, as well as contributing to overall place making around stations. Including green infrastructure in the construction brief is far more cost effective than retro fitting later and will be particularly important in areas like the Upper Lee Valley where the growth areas are located in [flood risk zone 3a](#) and have a high probability of flooding

Providing green infrastructure has clear social and economic benefits. Examples are improving public health through cleaner air quality and reducing risks to lives from flooding and heat waves.

With coordinated planning Crossrail 2 tunnels can carry fibre optics for digital connectivity, an opportunity that was missed with Crossrail 1.

One of the main benefits of Crossrail 2 is the potential to unlock significant housing growth along its route. ***The potential for the creation of new vibrant communities will be maximised if there is a clear and early commitment to fund and deliver Crossrail 2 to stated timescales.*** Experience from London's Docklands demonstrated that an early physical and hence visible start at least to preparatory works generates early simultaneous inward investment. This will give developers the confidence to start building homes and

invest in the public realm aspects of the development that will ensure high quality places to live are created.

Jobs are the other main benefit for London overall and areas along the route, again a clear commitment to Crossrail 2, will allow training programmes to be put in place to ensure local people benefit from the job opportunities created.

The benefits of Crossrail 2 will spread far wider than London, and this must be factored into any consideration of the benefits.

The rail line will serve the wider South East and will connect to National Rail networks in Hertfordshire and Surrey, better linking those to the London Underground and national and international services. Crossrail 2, like Crossrail 1, is forecast to generate jobs around the UK – 60,000 while it is being built and 200,000 once the project is operational.

Crossrail 2 will maximise the effect of other transport investments, particularly those such as High Speed 2, that better connect other parts of the country to the capital; by relieving congestion at key points where National Rail lines meet the London Underground. It would be less than optimal to improve journey times into London, only for passengers to be held up accessing an overcrowded tube network. HS2 arriving into Euston station is the obvious example.

4. What are the options for the funding, financing and delivery of large-scale transport infrastructure improvements in London, including Crossrail 2?

Crossrail 2, along with many of London's other transport requirements have a positive business case and will generate significant additional value for London and the UK as a whole. In the long run, investment will pay for itself through higher productivity, greater revenues to business, increased land and property values, and increased tax receipts for government. ***The issue is how these gains are captured and used to fund infrastructure investment.***

The TPS support's the GLA's pursuit of additional fiscal devolution. Devolution of the form set out by the [London Finance Commission](#), whereby London retains income from property tax to make self-determined investments in its infrastructure, would provide a source of revenue in itself and provide greater scope to borrow to fund infrastructure. A funding gap will still remain, and alternative funding mechanisms will be required.

Transport investment in particular can have a significant impact on property prices. Crossrail is demonstrating this well, even before it has opened – Whitechapel residents are expected to see a 54% increase in property values, with the average increase along the line expected to be 9%. As a minimum, the increase this brings in stamp duty and business rates revenue should be available to London, which the city can then borrow against to fund transport projects.

Learning from the Northern Line Extension and similar schemes, there are opportunities to take advantage of local uplifts in land values. ***The TPS would like to see mechanisms put in place to allow the capture of increased property and land values for example through the opportunity and compulsory purchase of land parcels along key new transport routes and through additional property taxes in areas that have seen significant increases in property values due to transport investment.***

Crossrail was funded by equal contributions from Central Government, London Government and London business. London businesses were in support of this arrangement and are signalling similar levels of support for a comparable arrangement for Crossrail 2.

It is reasonable to argue that those who benefit should pay, its seem logical that the cost should be shared between National Government (who will gain from increased tax revenues), property developers (who will gain from higher returns), residents (who will see a rise in the value of their property), passengers (who will gain from improved connectivity, reduced journey times and so greater access to jobs and leisure opportunities) and London businesses (who will gain from improved connectivity for customers and employees).

5. How have major metropolitan areas in other countries responded to similar challenges and priorities? Are there any lessons to be learned and applied in London?

On financing, the Mayor of Chicago Rahm Emmanuel set up a Chicago Infrastructure Trust as a new method of generating private investment for infrastructure projects.

The Trust has funded an energy retrofit programme for 60 public buildings, costing \$12.234million and recently negotiated a \$32million 4G upgrade of the Chicago transit system. It has also been suggested that the Trust could fund a high speed rail link to O'Hare Airport.

The Trust does not work as a Private Finance Initiative (PFI). Instead, the Mayor would release bonds for the private sector to invest in, whilst ownership and management of the infrastructure would remain with the public sector.

In London, an Infrastructure Trust could be set up in the same way as the London Enterprise Panel, under sections 30 and 34 of the Greater London Authority Act 1999. Should a Trust be set up, it could provide a significant level of funding for projects like Crossrail 2.

The TPS would support further applications of the Mayoral Development Corporation model but with the ability to link groups of development/regeneration sites along the "string of pearls" routes defined by the new rail links and extending beyond the GLA boundary.