

National Infrastructure Commission  
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Balfour Beatty's submission to the National Infrastructure Commission inquiry into future investment in London's transport infrastructure

## 1. Introduction

Balfour Beatty is a leading international infrastructure group. With 20,000 employees across the UK, we provide innovative and efficient infrastructure that underpins our daily lives, supports communities and enables economic growth.

As this country's largest infrastructure Group, Balfour Beatty has more than 100 years of experience globally, and draws on the engineering skills and innovation of over 20,000 highly committed employees across the UK. Balfour Beatty finances, develops, delivers and maintains the increasingly complex infrastructure that underpins this country's daily life – in transportation, power and utility systems, social and commercial buildings. We are committed to London. From the Crossrail Liverpool Street and Whitechapel Station tunnels, to the £590 million Heathrow Terminal 2B project and the £300 million Aquatics Centre for the London Olympics, Wembley stadium, the Channel Tunnel Rail Link and soon the £416 million London 'Super Sewer' scheme, our expert teams have for many years helped to make the London landscape – both visible and invisible – what it is today, ensuring it can to continue to grow as one of the world's leading capital cities.

This note draws on our expertise to set out some of our thoughts on the key questions relating to the future of London's transport infrastructure.

London is facing unprecedented population growth, projected to reach 10 million by 2030 and more than 11 million by 2050<sup>1</sup>. In order to support this growth, London's infrastructure will need continued investment to ensure it can maintain its status as a world class business location, competing with other top tier cities around the world and acting as a driver of the UK economy. Of course, significant transport investment is already underway in London, from Crossrail 1 to High Speed 2 and Thameslink, but more is needed. For example, much of London's commuter rail network is already operating at capacity in peak hours: additional capacity is required to tackle existing overcrowding and to support future growth.

Infrastructure requires vision, ongoing investment and consensus. Major projects take years to plan, build and develop; they are often disruptive to everyday life, especially in densely populated London, and their benefits are not felt within one electoral cycle or immediately understood by the public. The costs of disruption in London are high and the design of old-fashioned legacy systems often constrains options today. Prioritising and realising large projects requires political will. As much as possible, consensus is required for good infrastructure planning. The Olympic Park, where Balfour Beatty constructed the award-winning London 2012 Aquatics Centre, is a good example of what can be achieved with cross-party political support, while other worthwhile projects either do not happen or are slowed considerably if they do not have it.

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<sup>1</sup> London Infrastructure Plan 2050, Mayor of London

In our view, there is a real need for clear long-term plans that have cross party support. In March 2015, the Mayor launched a long-term infrastructure plan<sup>2</sup>, with the objective of setting out London's infrastructure needs and how to pay for them. As part of this, London's Infrastructure Delivery Board<sup>3</sup> was established to bring together the interested parties in developing the programme of infrastructure works and advising on their deliverability, enabling the Mayor to seek to gain cross-party support. While Balfour Beatty welcomes the establishment of the Board, this body is still very new and has no statutory role, so it remains to be seen how effective it will be.

Balfour Beatty strongly supports investment in London's infrastructure. We believe that it is important not just to maintain London as a global city and to ensure that those that live and work there have access to the services they need, but that continued investment in the capital is vital to the UK economy as a whole. However, we would caution that investment in London or in the North of England should not be viewed as a 'zero sum game'. The two should be considered together for the good of the national economy, and both should see increased and sustained investment.

## 2. Responses to specific questions outlined in the Inquiry

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

The challenges facing London are, in our view, mostly linked to its continued and rapid expansion. How to house the increasing population, how to transport people around the capital, and how to accommodate their other infrastructure needs including access to office space and business parks such as Tech City and the Advanced Business park, for example. There are of course many other social challenges, such as community cohesion, which we do not feel qualified to express views on. Here we outline a small number of the main challenges which we do have experience of:

- Delivering and maintaining infrastructure: London's transport infrastructure is already struggling to cope with current peak demand, a situation which will be further compounded by population growth and by plans including as High Speed 2 (HS2): the first phase of HS2 is due to open by 2026, which will mean large numbers of additional passengers to Euston station, where the Underground station is already at capacity. The opening of the second phase of HS2 in 2033 will place further burdens on routes to and from Euston.

A key economic challenge lies therefore in ensuring London's infrastructure is up to scratch. This is a twin challenge of planning and delivering new infrastructure; and ensuring the efficiency and maintenance of the city's existing infrastructure. The ability to rise to this challenge relies, in our view, on the level of forward planning and ability to adapt to changing circumstances and of course it requires regular and sufficient investment. Furthermore, infrastructure investment is most effective when developments are integrated from the initial vision, through the planning process all the way to implementation. Projects such as the Channel Tunnel Rail Link, the Jubilee line extension and Crossrail show what can be achieved when these requirements are all delivered.

While we understand that it is not part of the NIC's remit, we also believe that an early and final decision on aviation capacity in the South East needs to be taken. Of our closest competitors, Frankfurt has four runways; Schipol, six runways; and Charles de Gaulle has four runways. The continued delays are, we believe, damaging the UK's competitiveness.

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<sup>2</sup> Ibid

<sup>3</sup> <https://www.london.gov.uk/what-we-do/business-and-economy/better-infrastructure/london%E2%80%99s-infrastructure-delivery-board>

- Housing shortage: Currently, fewer than half of London's target of 42,000 homes are being built, and the numbers seem to be going in the wrong direction: there were around £4.5bn in orders for new housing construction in London in 2014/15, down 16% from the previous year<sup>4</sup>.

The housing shortage has a number of economic impacts. Low and middle income earners are being increasingly priced out of London. Increasing house prices are negatively impacting firms' ability to recruit and retain staff: the CBI/ CBRE London Business Survey<sup>5</sup> found 32% of businesses saying that they are unable to offer flexible part-time employment due to the time/cost of the commute into London for employees who cannot afford to live locally. Similarly almost a third of firms said that employees are moving away from the local area and therefore having to leave their jobs as housing costs are too high. This is problem employers are facing now, but it is likely to get worse in future, especially for key workers such as nurses and teachers.

As some employees are forced to move further out of the capital due to rising housing costs, getting people from London's outer regions and from the wider country into London quickly and affordably is key. Transport connections are vital for commuters and Crossrail 2 will play an important role in facilitating these journeys.

Another point to consider if London is to deliver a greater amount of housing stock, is that density levels within the city may need to increase. London is not dense in comparison to places like Hong Kong for example. Discussions will be needed around the level of density that is acceptable and where this will take place.

Of course, the social angle of the housing shortage is significant. The most recent report on London poverty outlines that 1.2 million Londoners in poverty live in a working family, up 70% over the last decade<sup>6</sup>. The report highlights that, in a continuing trend demonstrated in the four previous editions, a key driver of poverty in London is the affordability of housing. With a shortage of affordable housing, the only option for low-income households is private renting, however, rents have increased by 19% in London in the last five years (compared to the 11% average across the country) resulting in an average private rent of £1,600 per month (more than double the £770 average in England)<sup>7</sup>. Indeed, average private sector rents in London are more than twice the national average for all property sizes<sup>8</sup>.

- Skills: London is a global city, a member of small elite group of cities that competes in an international market to attract highly skilled mobile workers in areas such as creative and media, financial services, IT software and global services. A well educated workforce and a deep skills base are crucial to enable it to maintain its position as a global city, and one which continues to see significant economic growth. However, every year India and China educate more than four million graduates, compared with just over 250,000 in the UK<sup>9</sup>. If something were to significantly reduce the flows of skilled immigrants from overseas into London that recent years have witnessed, this problem is likely to be compounded.

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<sup>4</sup> [ONS, New orders in the construction industry](#)

<sup>5</sup> CBI/ CBRE London Business Survey 2015

<sup>6</sup> New Policy Institute, London's Poverty Profile 2015, October 2015

<sup>7</sup> Ibid

<sup>8</sup> [Valuation Office Agency private rental market statistics](#)

<sup>9</sup> Europe Economics, The Competitiveness of London – Future Challenges from Emerging Cities, 2008

In the infrastructure industry, designing, constructing, operating and maintaining the infrastructure which keeps London moving requires specialist skills and experience. In order to make sure we have the skilled labour necessary to build the transport networks, buildings, rail and runways and so on, it is important to ensure that London develops and retains the required level of skilled resource. Business needs confidence in the quality of the pipeline in order to ensure it has the skilled staff for some of the specialist roles in major projects. This is especially the case where new skills are required for innovative schemes.

Balfour Beatty welcomes and supports the government's ambitious plans to create 3 million more apprenticeships by 2020. We invest in apprenticeship programmes across a broad range of disciplines, employing over 150 apprentices each year in the UK in addition to the 320 currently under training in a diverse range of roles across the business<sup>10</sup>. We employ around 700 more young people on graduate and part-time higher education / degree schemes. However, we do not believe that the apprenticeship levy alone will be enough to meet the shortfall in skilled workers the infrastructure industry needs.

- Flooding: Of course, the impact of flooding from the Thames would be disastrous: not just in terms of the number of businesses and dwellings sited in London and the fact that London is the UK's largest centre of activity, but the Central Government district of Whitehall is also almost entirely within the Thames floodplain. Furthermore, the damage to London's transport infrastructure would be significant: much of the central area of the Tube network is based within the floodplain and 86 railway and underground stations, eight power stations, 1,000 electricity substations and 16 hospitals could be at risk<sup>11</sup>.

However, assuming that the Thames Barrier continues to perform and that the Thames Estuary 2100 plan works, the other, less manageable threat is in the form of surface water for example, following prolonged heavy rainfall in the Thames catchment area. The amount of impermeable surface cover in London, such as concrete on pavements and buildings, means that rainfall runoff from the land into the drainage systems and rivers creates a build-up of water and potentially fluvial and surface water flooding. Drainage systems may have inadequate capacity or become blocked leading to further flooding. The more building there is and the less green space, the more pronounced this problem becomes. Climate change, with its projected extremes of weather and wetter winters, is likely to add to this and the City of London have identified surface water flooding as one of the most serious challenges London faces<sup>12</sup>. Therefore robust and effective management strategies and flood resistance and resilience measures need to be put in place in order to mitigate the risks and opportunities for integration should be capitalised on. For example, the capacity of green space to reduce flood risk is rarely factored into the planning or design of parks.

- 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?

Balfour Beatty's priorities for strategic investment options for London are:

- A. Crossrail 2: Crossrail 1 will deliver a 10% increase in transport capacity east to west. However, it will not address the issues of congestion levels on north-south tube and rail lines

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<sup>10</sup> <http://www.balfourbeatty.com/index.asp?pageid=364>

<sup>11</sup> The Environment Agency's "at risk" list, 2015

<sup>12</sup> <https://www.cityoflondon.gov.uk/services/environment-and-planning/sustainability/climate-change/Pages/surface-water-flood-risk.aspx>

and the need for significant additional capacity due to projected population growth. We believe that a new north-south line linking Wimbledon to Hackney across central London and extending into the suburbs, linking in with London Underground, London Overground, Crossrail 1, National Rail, High Speed 1, High Speed 2, London Trams and international rail services, should be approved as a matter of urgency. The urgency relates both to the need to address the two problems outlined above, but also to the need not to lose the skills and knowledge gained from Crossrail 1 due to a time lag between the two projects. The priority, in our view, is to plan the new rail line in conjunction with housing and regeneration needs.

Firm decisions on the route, a construction timetable and a credible funding package need to be made as soon as possible. We furthermore believe that additional Crossrail lines could follow.

- A. London Underground: As well as developing the new Crossrail 2 line, line upgrades and station works are still necessary to maintain a resilient underground system. We agree with Transport for London that, even with the new capacity the Tube upgrade is bringing online, it will not be enough to meet London's future needs. Investment must continue across the wider tube network: we must ensure that journeys are seamless across the whole network. There will be little point having a good quality, fast Crossrail 2 if the onward tube connections are prone to signal failure, over-crowding and delays.

Furthermore, the areas that are opened up by Crossrail 1 and the potential Crossrail 2 will mean that more people from those areas access the Underground for their onward journeys. Constant upgrades and developments must therefore be factored in as a priority.

- B. New East London river crossings: We agree with the Centre for London report<sup>13</sup> that there is a need to address the severe lack of crossing capacity on the East Thames. There are three crossings to the east of Tower Bridge, compared to 16 road crossings on the 20 miles of the river west of Tower Bridge. All three of the eastern crossings are regularly congested. However, the population of East London is forecast to increase by 600,000 in the period to 2031<sup>14</sup>, and this area of the capital is a key priority for regeneration, housing and jobs.

We support a minimum of two bridges at Gallions Reach, which would connect Thamesmead with Royal Docks; and at Belvedere, which would connect north Bexley with Havering. These options were the two identified by a recent TfL consultation which received 7,500 responses, 90% of which were in favour of new river crossings in east London. The two new crossings would form part of a package alongside the Silvertown tunnel, which would connect the Greenwich Peninsula with the Royal Docks and would play a key role in supporting the population and employment growth forecast for London.

Balfour Beatty believes that the success of the toll bridge at Dartford suggests new projects could be paid for with private finance and money recouped from those using the crossings.

- C. An orbital underground ring road: This would relieve congestion around Tower Bridge and Old Street, as well as the Old Kent Road, the A40 around Acton and the A503 at Woodberry Down.

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<sup>13</sup> Centre for London, Linking London: A New Generation of River Crossings to Revitalise the East Thames, October 2014

<sup>14</sup> TfL, 2015

There are also other points to consider in relation to improving London's future infrastructure, for example:

- One of our observations from our work elsewhere in the world is that, when large-scale infrastructure projects are delivered in this country, opportunities are often missed for infrastructure integration. For example, the Crossrail tunnels that are currently being built could have included broadband fibre, but will not because decisions were not made at the right time. We need to become better at considering all future infrastructure needs upfront at the inception of major projects.
- It should not all be about new infrastructure. Work is also needed to improve the capital's road network and ensure that it is fit for purpose for the projected population increase. Congested roads are a strain on the economy and the environment, impacting London's competitiveness and Londoners' overall quality of life. In our view, smart technology is needed to deal with bottlenecks at traffic junctions for example, including some of the Dynamic Traffic Forecasting methods being used in Barcelona, digital road signs, junction technology and encouraging sat-nav companies to give drivers better real time information. We support TfL's £4 billion Road Modernisation Plan and believe that it could potentially go even further, with an extension to the congestion zone, or an amended charging regime where costs vary based on those roads and times of day where congestion is worst.

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

- Building on the Crossrail 1 model: Decisions about public expenditure on London's infrastructure investment are often not taken in such a way that the costs, or at least some of them, are borne by the people who benefit. However it is estimated that local funding sources could meet at least half of the costs of Crossrail 2<sup>15</sup>, in part by building on the Crossrail 1 model. This would include ideas such as increasing fares and building on the idea of the Olympic precept for Council tax payers. While these options may be politically unpopular, it is our view that they should be considered in line with the principle that those who benefit should carry some of the burden for the funding. It is in cases such as these that political consensus around future infrastructure priorities is important to achieve.

The Crossrail funding model is interesting in that it brings together a number of sources of funding and financing. Most notably in terms of alternative funding mechanisms it includes a supplementary business rate on larger London businesses of two pence in the pound for approximately the next 30 years. This approach was largely welcomed by London business, which is broadly supportive of the principle that tax and spending decisions should be better aligned. We support work that has been done by PWC<sup>16</sup> and others on demonstrating how a continuation of the Business Rate Supplement and the application of a Mayoral Community Infrastructure Levy could meet 21% of the costs of Crossrail 2. The benefit of these methods having been used in Crossrail 1 lies in the fact that the principle has been established and in the learnings that can be taken from the operation of the schemes.

- Land value uplift / Tax Increment Financing (TIF): Infrastructure investments decisions need to consider all their economic returns from the outset, for example, by capturing increased land values around schemes due to improved transport connections. TIF can enable local

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<sup>15</sup> Michele Dix, TfL presentation on Crossrail 2, June 2015

[http://www.newlondonarchitecture.org/docs/michle\\_dix--transport\\_for\\_london-1.pdf](http://www.newlondonarchitecture.org/docs/michle_dix--transport_for_london-1.pdf)

<sup>16</sup> PWC, Crossrail 2 Funding and Financing Study, November 2014

authorities to raise funds for infrastructure improvements which will increase economic activity in the future. It has been widely and successfully used in the US and in Hong Kong for many years and is beginning to be used in the UK. One of the conclusions from PWC's analysis is that:

*"many land and property owners who have benefited most from the project are not making a commensurate contribution to the project costs"<sup>17</sup>.*

Crossrail 1 is projected to add more than £5 billion<sup>18</sup> to property values along its route, only a fraction of which is being captured to support the cost of the line. More should be captured in plans for Crossrail 2, which would reduce reliance on national taxation. This is something that could and should be addressed in advance of Crossrail 2.

- Dividing the burden between interested parties: Subdividing major projects into smaller sections with bespoke financing/funding arrangements. For example, the bulk of the project, for example the tunnelling could be simplified and funded centrally, but station development and other elements could be funded and justified separately by local authorities and/or private sector developers.
- Private sector investment in infrastructure: Although there are Pension and Infrastructure Funds for example, which could invest in London infrastructure, their investments are subject to market and policy risk. They require policy certainty from government in the form of clear up-front statements of government policy in key strategic areas, ideally, government guarantees, better coordination within government and rapid implementation of the detailed policy frameworks which can provide the certainty and longevity which the private sector needs to make the business case for infrastructure investment. While this is unlikely to be a viable option for Crossrail 2, due to the size of the scheme, it is possible that private investment could be used for other London infrastructure projects.

Much of the investment in UK infrastructure is undertaken by international businesses which have a choice of markets and projects for their scarce capital, and they will naturally choose those jurisdictions with effective policy frameworks which provide certainty over the longer term over jurisdictions which do not.

Balfour Beatty believes that commitments to long-term infrastructure plans would reduce the cost of delivering infrastructure in London and elsewhere in the country. Longer-term plans teamed with the certainty that they will be followed through would also enable the whole industry to ensure the right resources – both in terms of skills and assets - are in place to deliver. Without this certainty, for example, providers cannot start training the workers needed in the future or ensure their supply chains are in place.

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<sup>17</sup> Ibid

<sup>18</sup> GVA, Crossrail Property Impact Study, October 2012