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Submitted electronically

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ICE written submission to the National Infrastructure Commission call for evidence – London's Transport Infrastructure

Dear Lord Adonis,

Please find the Institution of Civil Engineers' submission to the National Infrastructure Commission call for evidence on connecting northern cities. This submission is an output from ICE London region.

The ICE is a UK-based international organisation with over 86,000 members ranging from professional civil engineers to students. It is an educational and qualifying body and has charitable status under UK law. Founded in 1818, the ICE has become recognised worldwide for its excellence as a centre of learning, as a qualifying body and as a public voice for the profession.

In London, ICE supports and represents over 9,000 members living and working in the capital to actively promote civil engineering with industry, schools, universities, local government and the media. Further details from www.ice.org.uk/london

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 key points. Our members have much to offer in terms of expertise and would welcome the opportunity to further assist the Commission in its work.

Yours sincerely,

Suzanne Moroney
Director, ICE London and South East England

National Infrastructure Commission Call for Evidence - London's Transport Infrastructure: ICE London Response

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 the wider South East are undoubtedly the anticipated population growth, the related problems of capacity constraints across all types of infrastructure 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. Commuter lines into London and the tube network frequently experience 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 frequently become gridlocked. London and the South East are likely to need a new water resource within the next 25 years. Increased pressures on electricity mean that we need to an improved approach to demand management.

Housing regularly tops Londoners lists of concerns, based on exceptionally high selling and rental prices, as well as over-occupation. An estimated 49,000 homes¹ are required per year to 2050, significantly more than has been built in London in previous years.

A lack of affordable housing and increasing pressures on infrastructure 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 workers moving out of the city to areas where they can buy or afford to rent a property. If this happens on a large scale, the likely impact is a significant increase in the numbers commuting into London, putting ever greater pressure on the rail network. Others may be put off commuting into London by journey times and/or high fares. Transport operational staff, in particular need to live close to their workplaces.

ICE London believes London's future economic growth will be constrained unless there is sustained investment in the city's infrastructure and housing.

¹ [London Infrastructure Plan 2050](#), page 14.

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.

A decision on airport capacity is urgently needed if London's transport needs, and house building, are to be planned effectively.

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.

Better transport links to the wider South East must also be a high priority. The proposed Crossrail extension to Ebbsfleet and giving Transport for London control of more South East rail routes are crucial in providing better connectivity into London.

Transport for London has identified a wide range of interventions which have positive business cases. We do not propose to rank individual projects here 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 ICE London 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 have already been seen in terms of unlocking housing growth and ICE London believes that similar gains will be accrued from Crossrail 2.

Similarly, the Silvertown Tunnel is a much needed scheme to alleviate congestion on the Blackwall Tunnel. East London urgently needs a series of river crossings; Silvertown Tunnel should be considered as the first of a number of new multi-modal river crossings to the



east of Tower Bridge. This will open up opportunities for housing and employment growth at the London Riverside, Royal Docks and other Opportunity Areas on both sides of the river. Such schemes have long been regarded by existing employers and potential inward investors as being absolutely top priority.

There are several other schemes with strong business cases, that ICE London believe to be necessary to support London's growth. These include the Barking Riverside Overground extension; DLR extensions; the Croydon Tramlink extension; London Underground major station capacity enhancement schemes.

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

- 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.
- 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.
- 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.

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.

ICE London believes this is the single most effective way to reduce costs. A decision is urgently needed on airport capacity to enable a realistic programme of work to set out.

On Crossrail 2, there are likely to further efficiency savings that are possible. For example, by exploiting the potential benefits of BIM and adopting best practice contracting and procurement. On major projects additional money is often spent at interfaces with other infrastructure owners and utility companies. This is where the risks are. Early engagement and buy in from all parties is crucial to successful, lower risk and lower cost, delivery.

Further innovations may come forward that reduce costs. This is tax payers and fare payer's money being spent, so every effort needs to be made to make sure it is being spent wisely.

Crossrail has developed much in the way of best practice particularly on skills development and innovation, these need to be captured and built on for Crossrail 2 and other major projects. There will be other areas, that with the benefit of hindsight, can be improved on.

ICE London recommends that infrastructure providers, innovators and academics are brought together and set the challenge to reduce the build cost of Crossrail 2. This should

include a session on lessons learned from Crossrail. ICE London would be happy to convene such a group and report to the Commission on options to reduce costs. 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, designing in energy cooling from the ground around the tunnels to either help cool the tunnels themselves or supply heating and cooling to local building networks around shafts and stations. This was considered too late for implementation on Crossrail, but has been proven to be effective in other European countries.

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.

As well as branches via the Lee Valley and to New Southgate a further extension serving major potential housing development and Opportunity Areas in east London which would potentially offer additional development related funding towards Crossrail 2 should be considered. A spur has been safeguarded to facilitate a possible extension to east London and the ICE suggests that this is considered by TfL, as well as how Crossrail 2 can improve access to Stansted. An extension from Epsom to Gatwick should also be considered.

Jobs are the other main benefit for London overall and areas along the route, again a clear commitment to Crossrail 2, will allow training schemes 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 regional areas outside Greater London 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, is forecast to generate jobs around the UK – 60,000 while it is being built and 200,000 once the project is operational².

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

² TfL analysis



be less than optimal to improve journey times into London, only for passengers to be held up accessing an overcrowded tube network. High Speed 2 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.

ICE London support's the GLA's pursuit of 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%³. As a minimum, the increase in stamp duty and business rates revenue this produces 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 ***ICE London 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).

³ [JLL analysis](#)

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 \$12million 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.