Greengauge 21 consultation response to National Infrastructure Commission: London's Transport Infrastructure

Greengauge 21 welcomes the opportunity to respond to the National Infrastructure Commission call for evidence.

In the first part of our response, we explain why a strategic framework, currently lacking, is needed to consider investments such as Crossrail 2. We put forward common criteria that we believe should be considered in all major (transport) investment decisions. The second part responds to the specific issues raised in the London's Transport Infrastructure consultation.

(i) The need for a strategic planning framework

The Northern and London transport initiatives are being considered by the NIC against a backdrop of continuing high annual rail demand growth and of major investments in the rail sector (and a substantial highways investment programme too). It is clear that substantial further investment will be necessary.

Our contention is that there is (still) no overall strategic plan or vision for the development of the national rail network. The risk is of failure to plan effectively the many interfaces and potential overlaps between projects, with the attendant dangers such as wasteful or even nugatory expenditure; untenable levels of disruption to services and local communities; and spikes in demand for the supply chain. Crossrail 2 would benefit from a wider rail strategic plan for London and the wider South East.

We recognise the planning work that Government (through DfT), Network Rail and the ORR undertakes to establish 5-year investment programmes for rail. But there is no longer term strategy.

We believe that there needs to be a *rationale* for new project possibilities set at a national level to help form the narrative on the need for such schemes, and to complement the business cases that project promoters (*e.g.* TfL and TfN) will be developing. Under EU law, while the recent precedent with HS2 may suggest otherwise, there is possibly a legal need for a strategic environmental assessment, and the wider strategy we call for could address this need or agenda.

Greengauge 21, through its Public Interest Group formed in 2008, with sponsorship of the English RDAs, Network Rail, TfL and many other public authorities across Britain, created a national strategy for high-speed rail ('Fast Forward', published in September 2009).

With appropriate support from stakeholders, building on its experience with high-speed rail, Greengauge 21 is seeking to develop during 2016 a broader *national rail development strategy*. This will include consideration of high-speed rail, but look more widely, at all forms of rail operation, passenger and freight. It will also consider the important interface between the national network and city region metro systems – a neglected area of study and one which is of particular relevance to Crossrail-style projects – projects which, in general, we believe are a highly effective way of developing the rail network. We would welcome exploring how it can be used to serve the National Infrastructure Commission objectives going forward.

In that work, we plan to develop clear criteria applicable across the nation when considering major rail investment options. We have identified five criteria that we believe the Commission should apply to the Northern and London cases – and indeed to all future transport investments of significant scale. These are:

1. Regional (and city region) economic need
2. Housing growth need
3. Capacity need
4. Implementation sustainability
5. Compatibility (with other projects and with changed circumstances) and sequencing.

The first criterion – regional (and city region) economic need – is straight-forward: there must be spatial plans. London, uniquely, has such a plan for 2050, provided under its statutory obligation from the Greater London Act.

Greengauge 21 considers it is essential that London's plans are kept up-to-date, developed comprehensively, with private sector inputs, so that a contemporary account of economic development outlook is available at all times. Otherwise, transport (and no doubt other) investment can only be considered in a vacuum.

Crossrail One was, in our judgement, ultimately given Government approval to proceed because of the existence of a clear long term expectation on the scale and location of the capital's future population and employment growth. Without wider

plans or frameworks, transport investments risk being distorted towards meeting existing/short term/foreseeable transport network congestion issues or other short-comings: the investments may still be worthwhile, but they are unlikely to be transformational and will leave open to chance whether wider economic and housing policy objectives are met as fully as they could be.

The existence of long term, spatially defined, growth plans in the London case goes a significant way towards meeting the second criterion (housing growth need). But it also serves to highlight the problem in the surrounding shire counties, where previous regionally-set housing growth targets have been squandered. Planning Crossrail 2, for example, which is said to 'connect Surrey with Hertfordshire', is hindered by the lack of longer term quantified and spatially-based plans for these counties. Greengauge 21 urges the Commission to call for this lack to be made good. The Commission is well-placed to consider questions like overheating of the housing market in London/Southeast (and the apparent lack of demand across much of the North).

The third criterion – capacity – needs to be driven by a range of demand growth scenarios which include a continuation of recent trends as well as the lower, more cautious forecasts used by DfT.

Consideration needs to be given to *what if* scenarios, rather than a single central demand forecast (including the effects of policy or technology shifts; funding availability and implementation slippages; market trend inflections). This should include thinking about *flexibilities* with operating pattern assumptions and hence wider outcomes.

There is a particular gap presently in the area of freight forecasts where major revisions are needed to take into account the possible impacts of port developments – especially Thames Gateway – and the emerging markets for rail in meeting domestic logistics and distribution network needs, including into urban centres.

And when considering capacity, the closely related area of punctuality performance needs to be addressed as well. There are often non-infrastructure solutions to capacity problems that are appealing for cost reasons but leave the network – which is already busy – overloaded and subject to poor punctuality performance.

The fourth criterion – implementation sustainability – is intended to help guide the nature or version of specific interventions and projects, applicable on a consistent basis across the nation. It has three distinct components:

- The ability of the region/corridor served to sustain any adverse environmental impacts, and specifically, the loss of land currently not used for transport;
- The likely impact on land use development, summarised on a single dimension of inducement towards densification/intensification of existing developed/formerly developed ('brownfield') land at one end of the axis and new development ('greenfield') and dispersion/sprawl at the other end; this is a key indicator for wider carbon/energy outcomes;
- The ability of the region's/corridor/s transport system to sustain economic objectives during periods of disruptive construction.

In effect, work in this area should help guide the type of investment needed: whether it would be better to upgrade existing or to go for new build; to serve existing urban developments or foster and encourage new settlements; to propose new transport infrastructure at-grade or in tunnel, and so on.

The fifth criterion – compatibility and sequencing is often missing from project-specific appraisals and gateway reviews. Applicable at project level, a compatibility matrix for Crossrail 2 covering rail investments is shown below. There is a high level of complementarity, with some other projects representing real opportunities for integrated designs and cost savings – in particular, the planned upgrades for the South West, Brighton and East Coast Main Lines as well as the possible DLR extension from Bank to Euston and plans to connect Stansted better with central London (which could be achieved with a Lea Valley upgrade scheme or with a totally new alignment – the latter having the potential to address wider issues such as ECML capacity).

Many projects are complementary and some would feed traffic onto Crossrail 2. Long term plans to increase tube line capacity (e.g. the Piccadilly Line) may, on the other hand, have an adverse impact on the business case of Crossrail 2 and the Thameslink project and other plans to improve Stansted connections could substitute in part for Crossrail 2 (but equally, with care, could act as good complements too).

Other project interfaces we judge most likely to be overlooked that represent real opportunities that could be precluded (or made costlier) by Crossrail 2 implementation include the outline plans for an outer London orbital railway in the London 2050 Plan (the scheme shown uses the same railway between New Malden and Teddington as Crossrail 2), and the DLR extension to Euston where an integrated station design could bring wider benefits to both projects.

Crossrail 2 Compatibility Matrix

COMPLEMENTARITY				PROJECT	OVERLAP	
Integrated design opportunity = ££ saving	One project feeds the other	Precursor project, builds market for Crossrail 2	Independent		Partial substitute, so business case impact	Clear alternative
▪		▪		SW Main Line Upgrade	▪	
▪				Brighton ML Upgrade		
▪				ECML Upgrade		
			▪	GEML Upgrade		
▪	▪			DLR Euston Ext		
				Tube capacity	▪	
			▪	Northern Line Ext		
			▪	Croydon Tramlink devt		
	▪			London 2050 plan orbital rail		
	▪			LHR southern access		
	▪			HS2		
▪				Stansted Express & Lea Valley scheme		▪
▪			▪	Crossrail 1 Extensions		
				Thameslink	▪	

The related question of sequencing is not the same as phasing. It concerns questions of what actions/investments are precursors for others and what might be precluded subsequently by early decisions, as well as optimum timings. It is crucial to thinking about strategic fit and meeting one of the criteria that Sir David Higgins identified for HS2: standing the test of time.

(ii) London's Transport Infrastructure

Developing London's transport infrastructure has involved lengthy timescales, and in some cases policy reversals: the abandonment of the 'Northern Heights' underground line extensions in the 1940s and the partial implementation of the London ring motorway schemes in the 1973 Greater London Development Plan before their abandonment serve as lasting examples.

Lengthy planning timescales allowed schemes such as the Victoria Line (1960s) to be designed to achieve key customer benefits such as the cross-platform interchange between the Victoria and Bakerloo lines at Oxford Circus. Subsequent tube developments have been less satisfactory, requiring level changes for transferring passengers at interchanges that have become much costlier to construct.

For rail, there have been broadly three types of development:

- Those initiated by London Transport/TfL – and the seminal (but very rapidly carried out) Central London Rail Study of 1988 (the clue to much of what followed in terms of the specification of Crossrails 1 and 2 is in the word *central*)
- Projects designed to get more out of existing infrastructure, and London underground has now built an excellent track record in increasing capacity with higher service frequencies, alongside station by station measures to increase access/interchange flow capacities; also in this category would be the London Overground
- Other rail developments not initiated by London Transport/TfL – and these have included the DLR, Croydon Tramlink, the Croxley Link (now re-labelled the Metropolitan Line Extension). Interestingly, these are schemes largely outside central London. The Jubilee Line and Northern Line Extensions were both initiated by property developers. But all of these projects have ended up under TfL's overall management (including in most cases through the construction phase).

There has been no successor to the Central London Rail Study carried out 27 years ago, nor any comprehensive plan for developing London's rail network across inner and outer London. So there is a planning vacuum around Crossrail 2.

The sequence of events with Crossrail 1 implementation is relevant. It had been selected as the priority from the various Central London Rail Study (CLRS) schemes

but its Parliamentary Bill was thrown out in 1994. A subsequent study led by the Strategic Rail Authority in 2001 examined the need for investment (The London East West Study (LEWS)), and this studied a wide range of options and considered the needs of freight traffic, for example, as well as passengers. No equivalent study has been carried out for Crossrail 2; its selection is based on the now ancient CLRS study, where it came in second. Crossrail 1 was revised following LEWS to include an alignment serving Whitechapel and Canary Wharf – and the earlier objections from London Borough of Tower Hamlets that had stopped the 1994 Bill did not recur.

In terms of the road network, there has been a continuing erosion of network capacity for vehicles attributable to local demand management measures, and better provision for cycling and pedestrians. Vehicular travel speeds have declined in all parts of London over the last ten years as a result, even with static and slightly falling traffic volumes.

The review led by Deputy Mayor Isabel Dedring in 2013 identified the potential role of tunnelled roads and a possible inner ring scheme was published in May 2014[1]. Because of the high levels of supressed demand, any increases in road network capability for vehicular traffic will be self-defeating as a means to tackle road congestion; road user charges or tolls would need to be considered; price levels would have to be punitive. In short, it is not realistic to plan on expanding the road network to add general vehicular traffic capacity. On the other hand, there is strong demand for additional space to be set aside as public realm; there is a very critical need to achieve gains in air quality (so pedestrianisation of Oxford Street should be a priority, especially given the access gains that Crossrail 1 brings[2]); and there is a need to accommodate buses, service vehicles and emergency services with a much reduced risk of delay from congestion.

This suggests that tunnelled road schemes with these wider user objectives should be developed – but explicitly not as a means to increase general road traffic capacity.

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

The problems of success – a prospering city, with economic strengths not just in financial/business/professional services, but also in creative/digital media and culture, in tourism, retail, in Government, in law/justice, in research and learning.

[1] https://tfl.gov.uk/corporate/publications-and-**reports/roads-task-force**
[2] See West End Commission, final report April 2013 **www.westendcommission**.com/**Report**.html

With high population growth, in both London and the surrounding regions (Southeast and East of England), there are challenges to provide sufficient new housing and associated social infrastructure (schools, parks/leisure facilities, hospitals) at affordable prices.

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?

Road investment needs to be directed towards meeting the needs of many distinct user groups: pedestrians, cyclists, buses/trams, servicing vehicles (including to construction sites) and emergency vehicles.

Rail investment needs to address the capacity challenges identified by Network Rail, including on several major radial lines[3]; efficiently to cross-link radial lines; to create a limited set of orbital rail routes that convert the radial routes into a part of a broader network capability; to respond to major development opportunities as they arise in the manner of JLE and NLE; to continue the programme of station capacity enhancement and LU line capacity upgrades; to respond to the access needs of major long distance terminals (HSR and airports); to provide for cross London railfreight and railfreight terminals.

- *How should they be prioritised, taking account of their response to London's strategic transport challenges, including their impact on capacity, reliability, journey times and connectivity to jobs?*

Against the 5 criteria identified above and by reference to business case and benefit:cost performance.

- *What might their potential impact be on employment, productivity and housing supply in London and the southeast?*

These investments are hugely important to employment and productivity. They might have little useful impact on housing supply/prices: transport enhancement tends to drive up property values and hence prices. But planned in conjunction with new measures to achieve residential densification and to serve large scale new developments with 'transit-oriented development', rail investments could be made supportive of the housing supply objective too.

[3] London and South East Route Utilisation Study 2011 see www.networkrail.co.uk/.../**route**%20**utilisation**%20strategies/.../**london**% and www.networkrail.co.uk/...**studies/london-and-south-east**-market-**study**.pdf of 2013.

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

The *benefits* of Crossrail 2 can be increased by:

1. Ensuring it provides sufficient capacity relief to major national rail routes so that other parallel major rail investments are not needed
2. Cross-linking its branches, such as Kingston – Epsom (which will otherwise be under-utilised with perhaps only 4 trains/h) to provide part of the orbital network (and failing to do this may well preclude creating a highly valuable orbital rail system)
3. Increasing planned service frequencies to 40 trains/h. This requires full automation, but this is the norm with new metro systems.

To expand on the first point. Crossrail 2, suitably adapted, could provide for transformations of the South West and East Coast Main Lines (SWML and ECML). The four track route into Waterloo (SWML) has sufficient demand (peak passengers routinely stand for over 60 miles) to require one pair of tracks to offer a non-stop route into Waterloo, with the other pair of tracks accommodating limited stop outer suburban services to provide high frequency interchange at the key nodes along the route in London (Wimbledon, Clapham Junction and Vauxhall). The current Crossrail 2 plan will unfortunately preclude this by leaving a need also to serve Earlsfield – a location that needs to be served by Crossrail 2 running on its own tracks. It would still be possible to serve Balham and relieve the Northern Line, but this should be a separate branch, suitably extended to serve the Streatham area.

At the other end of the route, the ECML will be paralleled by Crossrail 2, but not over sufficient distance to obviate the need to operate duplicate suburban services, wasting line capacity and precluding the expansion of longer distance (and high-speed services) on the ECML corridor without building a new pair of tracks (in the style of the HS2 approach to central London). Crossrail 2 should be extended (on its own tracks) to Welwyn Garden City accordingly. A second branch should run eastwards to serve the opportunity areas along the Thames.

Costs can be reduced by adopting technology closer to that used on DLR, allowing where needed, for greater flexibility of alignment, and with 40 trains/h, potentially somewhat shorter trains and therefore lower cost stations (a combination that also reduces the risk of station overcrowding and the need to provide for it). Unnecessary

or unwanted stations (such as at Chelsea) can be avoided and faster journey times and shorter (lower cost) alignments can be selected (at least in this instance).

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

- *What is an appropriate local and regional contribution - given the potential distribution of benefits to business, residents, transport users and the wider economy - and how could this be achieved?*
- *What innovative funding mechanisms could be considered to support delivery of key schemes?*

A levy should be placed on all property in London, residential and business, to fund transport investment. Together this should provide at least 33% of the funding of projects like Crossrail 2 – with extensions into the line catchments in surrounding shire counties. Another third should come from operating profit (that is revenues less operating costs). Ticket prices will have to remain high – partly because of demand management issues – but more discounting should be available to younger residents who cannot afford the fares, from 18 to 25/30 and maybe even 40 years age groups. Government should fund the balancing third: its returns will be huge (including in enhanced tax revenues).

For road schemes, the Congestion Charge needs to be overhauled and extended to the M25. In London the road system is the one transport network which does not cover its routine costs. Use of the network by the innovative forms of service providers such as Uber and car clubs needs to be addressed separately from the regular pay-as-you go/daily tariff.

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?

A useful source on this subject is now a little out of date but remains reasonably comprehensive.[4] Some cities (e.g. Oslo) have since used road tolling to fund public transport schemes.

[4] Transport 2000 (now CBT): Financing Public Transport: How does Britain Compare? 1992