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National Infrastructure Commission call for evidence; Large-scale transport infrastructure improvements in London

Network Rail welcomes the opportunity to contribute to the call for evidence by the National Infrastructure Commission concerning large-scale transport infrastructure improvements in London.

1: Major Economic and social challenges facing London and its commuter hinterland

London's economy is continuing to grow, encouraging further population growth and demand for rail services within and beyond the capital.

The London and South East Market Study, produced by Network Rail on behalf of the industry, included a comprehensive review of the key drivers for future Rail growth, based around four scenarios determined by the trade-offs between the economy and social/environmental planning. In every scenario growth in employment in central London continues, reflecting London's unique status as a global employment market. The density of employment in central London is high, driving agglomeration and enhancing productivity.

This high density of employment in central London and the lack of capacity of the road network has created a strong market for rail travel, which is expected to grow further in line with increases in central London employment. The current mode share of rail, Underground and DLR for peak travel into London is 80%, and in recent years the number of people entering Central London by car in the peak has fallen – from 143,000 in 1996 to 64,000 in 2012. This is attributed to measures to improve bus and cycle flow (and safety) that have in effect reduced road capacity for cars, as well as to some extent the effect of the congestion charge. The need to cater for a growing commuter market amplifies the existing challenge of providing sufficient capacity for peak travel, which may remain underutilised at other times (although a growing economy should deliver increasing levels of disposable income which would encourage further off-peak travel).

The presence of employment attracts people to live in London, and the London Plan forecasts continuing high rates of population growth. However, given existing low levels of housing affordability and limited availability of land the likelihood is that many employees will be forced to live either in outer areas of the city or in the towns beyond the green belt. In both cases rail is well placed to meet this resulting commuting demand, as distances

become too long to be undertaken feasibly by other modes and, assuming roads policy remains broadly consistent, it is unlikely that sufficient road capacity will be available for journeys to be made by car. Network Rail is particularly conscious that, in addition to strategies which support investment in rail within London, it is critical that investment supports settlements beyond the city itself, given the significant proportion of the London employment market comprised of employees who live outside the city.

It is also anticipated that the number of Londoners in older age groups will increase, strengthening the need for investment to improve the accessibility of the transport system. A number of other demographic changes are identified in the London Plan. These include an increasing proportion of ethnic minorities and children, and the need to address continuing levels of social deprivation. Rail needs to carefully consider these factors and act to address them where it can.

Whilst accommodating demand for peak travel (particularly into Central London and Docklands) clearly poses the greatest capacity and connectivity issue for transport infrastructure, it is also vital that connections to international gateways (particularly airports but also HS1 stations) are maintained and improved. Providing sufficient connectivity to HS2 will also be a key future requirement.

2: Strategic options for future investment in London's transport

Network Rail believes that it is critical to the London and South East economy, and the wider UK economy, to continue with a rolling programme of enhancements to the rail infrastructure in and around the London area. The demand from passengers continues to grow, and both the general infrastructure and many specific train services are operating beyond capacity. Network Rail with industry partners has developed proposals to provide capacity to meet this growth through the Route Study process. During peak times service reliability is suffering already as passenger congestion becomes widespread at key stations as well as on the trains themselves.

To address this and to continue to support economic growth by providing improved rail services, these operational and capacity challenges will require investment in both the digitisation of railway network and conventional civil engineering focused infrastructure enhancements. In combination these will provide enhanced capacity, improved service reliability and better customer information.

A purely conventional strategy to meet demand – focused only on construction-based enhancements such as building new tracks – would cost too much, disrupt for too long, and deliver too little. Ultimately, London can only achieve the capacity its economy demands by complementing targeted infrastructure upgrades with digital innovation that makes existing infrastructure more effective. In particular our plans include proven innovations in signalling and train control. Our conventional infrastructure proposals tend to be limited as a result to tackling capacity challenges at key junctions and stations.

A number of stations in the London area are seeing levels of crowding that are seriously affecting passenger comfort and, ultimately journey times, so investment in enhanced station capacity will also be necessary to accommodate growing demand.

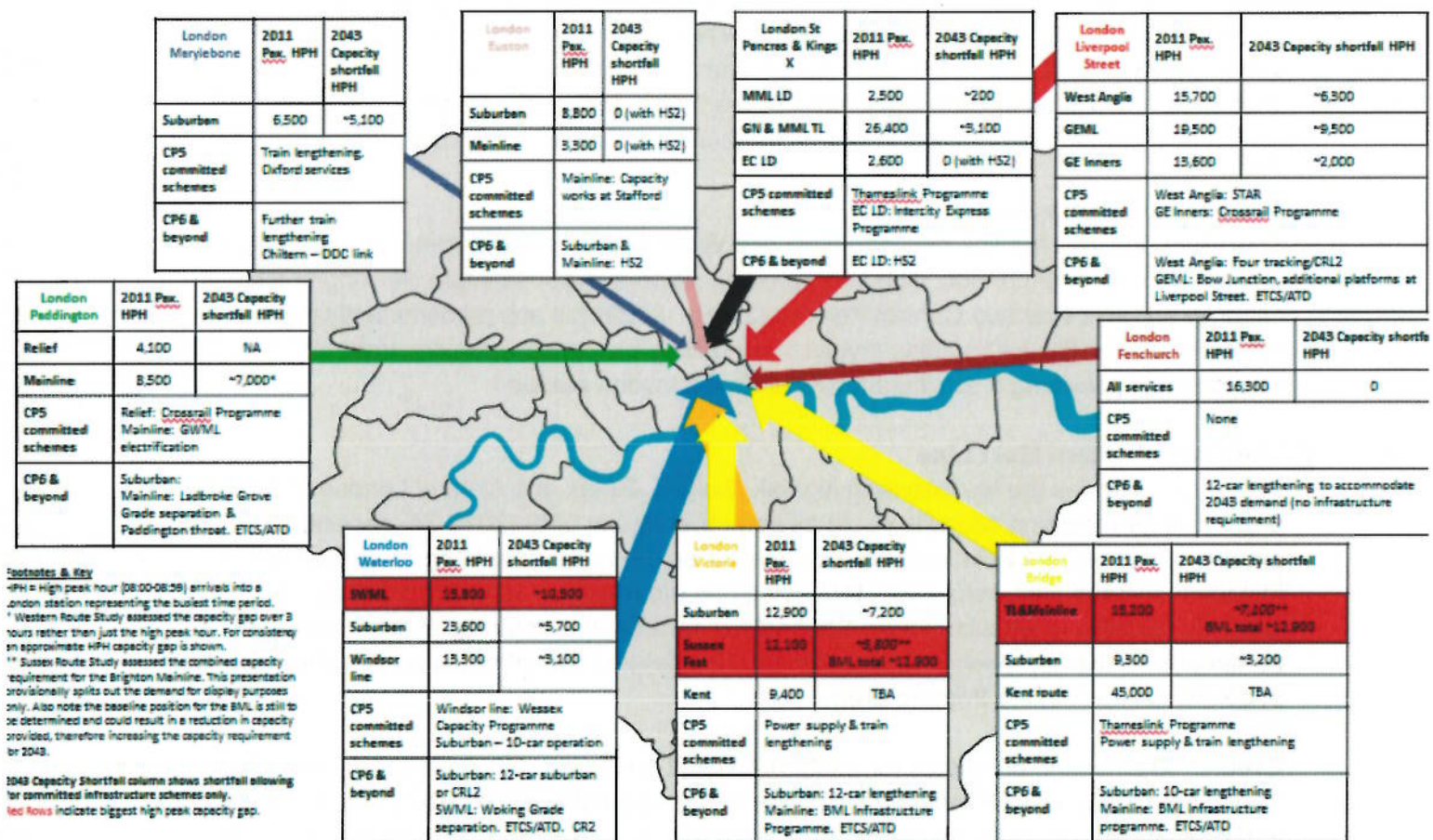
To help inform investment decisions, key Route Studies examining London rail services that have some of the greatest capacity challenges have been prioritised, along with capacity reviews of stations across the country. These Studies form part of the Industry's Long Term Planning Process (LTPP) and have been completed in partnership with Transport for London (TfL), the train operating companies on each route and the Department for Transport (DfT).

Summary of London and South East Priorities

The key gaps

Figure 1 developed with industry partners sets out the demand vs capacity gaps in the high peak hour on all National Rail routes into London. The map also references the solutions currently proposed for resolving the capacity challenges, and in some cases service reliability gaps. The section below describes the most important of these infrastructure/technology based schemes in more detail and their outputs. In all cases the demand gaps outside the high peak have also been considered.

Figure 1: London: High peak hour only: Capacity gaps



The key options

As Figure 1 displays, the three routes with the most significant peak time capacity gaps are the Brighton Main Line, the South West Main Line and the Great Eastern Main Line. This led to the Industry prioritising production of Route Studies for these routes in the London and South East area during 2014 and 2015.

There is a growing difficulty of reliably operating the railway in London and the South East during the peaks given the volumes of passengers now using the railway. This challenge is most pronounced on the South West Main Line and the Brighton Main Line where, in the London area, trains and stations are becoming so congested that dwell times are being substantially impacted and the reliability of the operation compromised. It is Network Rail's view that investment in these Routes in the coming years will be necessary not just to avoid significant overcrowding, but also to avoid a deterioration in the reliability of these routes.

For each of these routes, a brief summary is provided below of the options available to release further capacity. In every case more detail can be found in Appendix A which also includes a link to each of the relevant Route Studies.

The South West Main Line:

This route provides the link between Dorset, Hampshire, Surrey and London. Options for releasing additional capacity are split over a two to three Control Period (2019 – 2030) timescale. CP6 proposals include improving Clapham Junction Station to relieve critical overcrowding on the platforms/underpass access and a flyover and additional platform at Woking to release capacity at the outer end of the route. CP6/CP7 proposals include roll out of the Digital Railway on the route with digital signalling critical to releasing the next tranche of Main Line capacity – up to 10 additional train paths per hour. Finally by the early 2030s the completion of Crossrail 2 will release further Main Line capacity and provide a step change in capacity and connectivity for south west suburban London.

The Brighton Main Line

This route provides the link between East and West Sussex, East Surrey, suburban South London and Central London. The integrated package of proposals for releasing additional capacity are split over two Control Periods (2019 - 2029) but are predominantly focused on the early 2020s. The key options involve remodelling the critical junctions north of East Croydon and providing 2 extra platforms at East Croydon station.

The Great Eastern Main Line

This route provides the link between Norfolk, Suffolk, Essex and Central London. The proposals for releasing capacity could all be deliverable in CP6 (2019-24) depending on the precise timing of Digital Railway implementation on the route. The integrated package includes rollout of digital signalling technology on the main line -providing substantial capacity benefits - particularly from Chelmsford inwards, the doubling of the single track bottleneck on the approaches to Norwich (at Trowse) and the introduction of a short section of additional track in the Witham area.

Greater detail on the proposals for each route into London are attached as Appendix A. These set out the level of industry involvement, appraisal processes used, key conclusions in terms of capacity gaps on the network, proposals for resolution, associated costs and where relevant business cases.

Key option outputs

Table 1 below sets out a high level summary of the key findings of the Route Studies in terms of options to resolve the most significant highlighted capacity gaps. The table also gives a sense of the level of additional seats to/from London during the peaks these routes could provide.

Table 1: Potential Outputs: Passengers. Peak direction of flow.

Service Group	Significant peak standing currently from:	Long term capacity gap*	Range of additional passenger capacity that could be delivered CP6	Range of additional passenger capacity that could be delivered CP7/8
South West Main Line (SWML) – Dorset, Hants, Surrey	Basingstoke/ Guildford (40 - 47 minutes out)	10,500 (high peak hour only)	-	4,600 – 9,300** (high peak hour)
Brighton Main Line (BML). Sussex, Surrey	Haywards Heath (50 minutes out)	12,900 (High peak hour only)	4,000 (high peak hour) 8,000 (3 hour peak)	8,000 (high peak hour) 16,000 (3 hour peak)
Great Eastern Main Line. Essex, Suffolk, Norfolk	Shenfield (30 mins out)	9,500 (High peak hour only)	2,400 (high peak hour) 4,800 (3 hour peak)	8,400 (high peak hour) 16,800 (3 hour peak)

*This represents the number of passengers in the high peak hour only that could not be accommodated on the route

** Does not include the additional suburban capacity – this is detailed in Appendix A

The options for the other key radial main line and suburban routes into London set out in Figure 1 are included in the Appendix.

Network Rail looks forward to working with the Commission and continuing to work closely with TfL and the DfT on the solutions to London's rail capacity and connectivity challenges.

3: Crossrail 2 – options to increase benefits and reduce costs

Crossrail 2 has the primary objective of improving public transport connectivity to key opportunity areas in London and the South East, promoting the economic growth in the region. The project will also address significant existing capacity constraints on the national rail network, particularly on the South West Main Line from London Waterloo, and the West Anglia Main Line from London Liverpool Street. The project is consistent with rail industry long term strategy set out in the London & South East Route Utilisation Strategy (RUS) of 2011, the recently established Wessex Route Study and the soon to be published Anglia Route Study.

Crossrail 2 is a substantial project with very significant benefits to the economy. Network Rail and TfL have agreed with the Commission to prepare a more detailed submission on Crossrail for 12th February 2016.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Jo Kaye", written in a cursive style.

Jo Kaye

Director, Network Strategy & Capacity Planning