

Cross London Rail Links

Responses to Questions from London Transport Users Committee Presented on 19 November 2003

EAST

Q1. *Why is it proposed that the Shenfield line service should be split between Crossrail and Great Eastern (the latter operating 6 tph from Gidea Park to Liverpool St).*

Response:

With two eastern branches on Crossrail, it is not cost effective, given the high capital cost of constructing the route through the Isle of Dogs and Royals, to radically alter the balance of services on the two branches – i.e. operate 16 tph on the Shenfield branch and 8 tph from North Kent. Therefore, a 12/12 split of services in the east has been assumed.

Crossrail will therefore directly substitute a 16 tph peak service on the Shenfield line with a 12 tph service. Crossrail trains however will be longer - 10 car instead of 8-car on the present Shenfield line. This will lead to a decrease in “carriages in service” from 128 (16x8) to 120 (12x10). Given forecast levels of demand on the line in 2016, it is not acceptable to reduce the total capacity provided. Network Rail Rules of the Plan state that the signalling between Liverpool Street and Shenfield can accommodate a 2 minute headway (excluding the ability to turn trains at Shenfield or Liverpool Street).

An established benefit of Crossrail is that it will free up capacity on the approaches to Liverpool Street terminus station, as well as in the station itself. The SRA have indicated that additional peak hour service of 6 tph from the West Anglia route via Hackney Downs and 6 tph on the Great Eastern via Stratford will be possible following Crossrail.

In order to provide for the shortfall in capacity on the Great Eastern following Crossrail, the SRA have indicated that a 6 tph Gidea Park service should be assumed. This will give a total capacity on the line of 168 carriages (10x12 on Crossrail) + (8x6 on GE). This is an increase of 40% over the current total.

The introduction of this service has the additional benefit of maintaining a direct service to Liverpool Street terminus station. Crossrail recognises that passengers travelling to the immediate vicinity of Liverpool St gain little benefit from Crossrail as they are deposited underground rather than on the surface.

Q2: *How, if at all, would Crossrail contribute to the transport needs of new Thames Gateway developments along the north bank of the river.*

Response:

Crossrail will serve the Isle of Dogs and Royal Docks areas of the Thames Gateway north of the river.

A number of alternative alignments for Crossrail services to the Thames Gateway South Essex corridor were considered as part of the long list of route options. This

corridor was discarded from the short list of proposals for a variety of reasons, including;

- The high cost of tunnelling between the Royal Docks and Dagenham (over 3 miles);
- High property, economic and environmental costs associated with the construction of a grade separated junction at Forest Gate
- The lack of development opportunities at key points along the route compared to the Kentside Thames Gateway
- Modest demand relative to the Kentside Thames Gateway.

The DLR proposal for a link between Custom House (with Crossrail interchange) and Dagenham Dock appears to be strategically promising for assisting in improving the accessibility of the South Essex corridor.

Q3: If Crossrail is not intended to serve Thames Gateway (north), how do TfL/SRA intend that this area should be served.

Response:

This is an issue for TfL and the SRA and not CLRL. However, CLRL would point to such scheme as East London Transit, the DLR extension to Dagenham Dock from Galleons Reach via Barking Reach and the possibility of a new station at Barking Reach on the LTS Tilbury line. However, the precise status of each of these projects is not known to CLRL.

SOUTH EAST

Q4. It is proposed that North London Line (NLL) trains presently going to North Woolwich would be rerouted to run on Crossrail tracks from Custom House to terminate at Abbey Wood. How does this relate to proposals for DLR to take over the North London Line route from Canning Town to Stratford in order to serve Stratford International.

Response:

This assumption was included in the Crossrail business case at the request of the SRA.

The SRA and DLR are currently undertaking a joint study of the optimal use of the NLL infrastructure between Canning Town and Stratford.

Q5. What would be the total number of trains (Crossrail and NLL) terminating at Abbey Wood, and how many terminating platforms would be provided?

Response:

A total of 12 trains (8 Crossrail and 4 NLL trains) would start or terminate at Abbey Wood in the peak periods. The track layout will be flexible to eliminate conflicting moves between trains. Trains will start and terminate in two centre platforms with SET services operating on the outside platform faces. The track layout will allow all trains to use both centre and outer platforms as operational conditions dictate. Terminating services will draw forward from the platforms into sidings before setting back into the platforms to return to Central London or the NLL.

Q6. *Will there be a grade-separated junction at Abbey Wood for Crossrail trains going onto the SET lines to Ebbsfleet.*

Response:

Answer covered in Q.5.

Q7. *Will there also be a grade-separated junction at Abbey Wood for trains coming from Ebbsfleet onto Crossrail.*

Answer covered in Q.5.

Q8. *What is the justification for extending Crossrail as far as Ebbsfleet. The passenger numbers are low (300 in peak 3 hours). What sort of journeys would these passengers be making?*

Response:

The passenger numbers are not considered realistic between Dartford and Ebbsfleet due to the limitations of our demand forecasting models. In particular, the employment and population increases, forecast to take place around Ebbsfleet are not included in our models. In addition, our models do not have a capability to model Park & Ride movements at Ebbsfleet.

We are currently developing a methodology for dealing with these shortcomings but are comfortable with their current omission since they will improve rather than harm the business case for the project.

Ebbsfleet demand forecasting is also problematic as yet we do not know the details of the Kent Integrated Franchise proposals.

Q9. *With Crossrail serving Ebbsfleet, will there be any reduction of services on the SET route between Dartford, Abbey Wood and London?*

Our current assumption is that two of the four Crossrail trains per hour will be new trains and two will be substitutes for existing trains. For demand forecasting purposes, we have assumed that two Gravesend to Charing Cross services are withdrawn in the peak hour between Gravesend and Dartford. As a result this Gravesend service is assumed to run Crayford/Barneshurst to Charing Cross only.

It should be stressed that this is a modeling assumption only and that our current assumptions for the future 2016 SET network include none of the Kent Integrated Franchise changes that are likely to be implemented. Our assumption is therefore a worst-case situation for Crossrail.

Q10. *Why is Crossrail now proposed to run direct from Royal Docks (Custom House) to Abbey Wood, rather than via Woolwich as previously proposed.*

Response:

The station at Woolwich has been deleted due to its very high construction cost, which initial analysis suggests will not be matched by the benefits. However, passive provision will be provided to allow a station to be built later.

Work is currently underway on establishing the feasibility of a lower cost option for a station at Woolwich.

Q11. *How will Crossrail serve London City Airport? Could there be a travolator link to the airport from the east end of Custom House station?*

Response:

Although there are no firm proposals developed yet, the most likely form of connection would be a bus route. It is not considered feasible to provide a travolator due to the distance and the need to cross the Royal Albert Dock.

A straight section of alignment will be provided at Silvertown to allow a future Crossrail station to be built there, if demand (including airport passenger demand) will justify this.

CENTRAL AREA

Q12. *Why is it only proposed to operate 24 tph through the central area? Should the project not be planned for 30+ tph using modern technology signalling?*

Response

Crossrail is seeking to operate 24tph as that level of service is considered achievable in the early years of service. Whilst the signaling has yet to be designed, operations above 24tph will depend on the ability to manage dwell times and the branches to accommodate Crossrail services over and above 24tph.

Q13. *The central core will function in the same way as the Underground, with high numbers of passengers getting off and on at all stations. With trains having twice the capacity of an LUL train, but half the number of doors (only two double doors per car), how will acceptable station dwell times be achieved?*

Response

Note that trains are assumed 50% higher capacity than the Central Line rather than double as stated.

Train design is not finalised at this stage but they will include 20 doors per side with wide stand backs from the doors to aid easier boarding and alighting. Dwell times will be managed using the LUL SATS (Station Assistant Train Services) system and other methods such as public announcements. These issues are at a very early stage of design with studies ongoing using software such as LEGION.

Q.14. *In reality, will it not be essential to have at least three double doors per car, with additional cars to compensate for the consequent loss of seats?*

Response

Central area stations are being designed with 245m length platforms and therefore additional cars could be added at a future date. Loadings are being planned to LUL's Planning Guidelines (PGC). However, the ability to add additional cars in the central area would be dependent on the costs of extending platforms across the Crossrail network.

Q.15. *It is suggested that with trains shorter than originally proposed, but with platform access points as originally designed when the scheme was being developed by LUL in the early 1990s, station dwell times will be even more extended because the front and rear cars will be overloaded. Is this a valid criticism?*

Response

End loading may be an issue in certain circumstances but it depends on where people board the trains, the time they have to board the trains (for example do they rush or do they have a wait) and where they choose to alight. Station designs will consider these issues as far as possible with the provision of passageways to spread passengers along the platforms. Trains are assumed to stop at the eastern headwall where the main access/egress will be.

Q.16 *What reversing facilities will be provided at Paddington for the one train in four planned to terminate there? Will trains have to detrain on the main running line and then run empty to a siding further west? If so, how will this be achieved without delaying the following train(s)?*

Response

On leaving Paddington, terminating trains will be cleared by SATS. If passengers remain on-board they can be detrained at Westbourne Park (where a reversing facility will be provided) or remain until Paddington is reached again. This has been agreed with the HMRI. Westbourne Park will be designed such that movements will not conflict with the main running lines. The facility is also essential for emergencies and phased opening.

WEST

Q.17. *What are the reasons for proposing that Heathrow Express and the forthcoming Paddington - Heathrow all stations service (to be introduced in December 2004) be combined into a single semi-fast service?*

Response:

A Crossrail service to Heathrow has very significant benefits, particularly for business travellers who could access West End, City and Docklands without changing trains. This is expected to increase the rail share of trips to and from LHR and relieve current road congestion due to taxis particularly at Paddington.

Crossrail aims to run at least 6 tph service on any branch and no circumstance less than 4 tph to avoid platform congestion at Central London stations.

Since there is insufficient capacity on the GWML to overlay 4 extra trains to LHR Crossrail has proposed replacing the existing and proposed HEX services. In order to deliver acceptable journey times and to ensure that all Crossrail trains operate a similar pattern a compromise has been proposed. Interchange at Ealing Broadway and Hayes would be provided to enable passengers from intermediate GWML stations to change to Crossrail.

Q.18 What is BAA's view of this?

Response:

BAA plc oppose Crossrail's benchmark scheme proposals. Detailed discussion with BAA is continuing.

Q.19 Is it desirable to force all air passengers onto what will be a metro service through central London? Will this not replicate the problems of the Piccadilly line where heavy luggage and high passenger loadings do not mix well?

Response:

Crossrail will provide a valuable service to LHR for air passengers who are currently discouraged from accessing the airport by rail due to the high number of changes required. Crossrail's stations will have MIP lifts to ease interchanges and level access between rains and platforms. Crossrail rolling stock will be designed with wide vestibules and possible wide corridor connections that will provide space for luggage.

Q.20. The proposal refers to Heathrow as a single entity. How would Terminals 4 and 5 be served?

Response:

The assumption in the business case was that the 6 tph service was split 50:50 between Terminals 4 and 5. However, it is recognised that this may not be the optimum service pattern. The eventual destination of these 6 tph within the airport would depend upon BAA's overall transport strategy for Heathrow.

Q.21. If the proposed semi-fast service goes ahead, should it not also serve Southall?

Response:

The service pattern is designed to provide a service to Heathrow Airport from Central London. As it replaces the non-stop HEX (journey time approximately 15 minutes), the journey time needs to be as quick as possible and BAA indicated that a maximum of two stations between Paddington and Heathrow should be included.

As one station, Ealing Broadway is a given (it is a Strategic Town Centre and key interchange), only one further station can be served. Hayes was selected as it is an important interchange for local and longer distance passengers and facilitates interchange with services from the west. Southall would still benefit from connections to and from Heathrow, although passengers would be required to undertake same platform interchange at Hayes.

Q.22. *Dropping the idea of operating to Slough means that all-stations diesel trains will have to share the slow lines with Crossrail between Paddington and Hayes. Because of the lower performance of diesel trains and the additional stops they will make, there will be a big speed differential, which will have a severe impact on line capacity. The slow lines also have to accommodate significant freight traffic, thus further affecting the frequency and type of passenger services that can be operated. There will also be significant waste of resources with suburban diesel trains terminating at Paddington from the west whilst Crossrail trains terminate there from the east. Would it not be possible to operate a better service for passengers and be more cost-efficient if the line was electrified to Slough and all inner suburban services taken over by Crossrail?*

Response:

Operating to Slough only requires a significant amount of infrastructure for a relatively low train frequency. It also raises issues of capacity on the GWML and how stations beyond Slough would be served. Crossrail's proposals have been developed in association with the SRA and their policies for the route (as at July 2003). It is proposed that the timetables would reflect the performance of the different types of traffic and rolling stock, including freight. Further, there are other instances on the NRN where trains with different performance characteristics serve the same tracks.

Q23. *The passenger loading projections show Hayes generating 6000 passengers in the 3 hour am peak and Ealing Broadway a further 6000. Based on the general formula of the busiest hour = half the peak three hours, this implies 6000 passengers in the busiest hour plus the passengers from Heathrow. Are the figures realistic? If so will 6 tph be enough to carry people in acceptable conditions and without excessive station dwell times.*

Response:

Passenger demand for forecasts for Crossrail have been derived from the LTS and Railplan models, which are accepted as being "fit for purpose" by TfL, the SRA and DfT.

The Crossrail service at Hayes and Ealing Broadway is likely to prove highly attractive to passengers due to the fast, interchange free, journey provided to the West End and City. Therefore, Crossrail is forecast to attract passengers from a wide catchment area of West London including the Metropolitan and Piccadilly lines at Uxbridge.

Crossrail recognise that the forecast passenger loadings on services between Ealing Broadway and Paddington would be above the planning standard for the route. (Capacity of 6,700, Demand of 8,200 in the peak hour). At this location, Crossrail would be a victim of its own success.

SOUTH WEST

Q24. How will Crossrail journey times from Richmond to key locations such as Earl's Court, Westminster and Bank compare with a) existing District Line times, and b) accelerated District Line times after that line is modernised with new trains and improved signalling in 2013-2016.

Response:

	Earls Court	Westminster	Monument
District Line (2003)	21	33	43
District Line (2016)	19	30	39
DL with Crossrail	25	36	45
Comments	(3 mins interchange at T Green)		Use Moorgate Crossrail
	(3 mins wait time. at T Green)		

Crossrail Times

	Paddington	Tott Court Road	Liverpool St
Crossrail	16	21	27

Q.25. *Will Piccadilly line trains call at Turnham Green for interchange with Crossrail.*

Response:

It is possible that the Piccadilly line could be stopped at Turnham Green although this is a decision for LUL. They have indicated that the necessary resignalling work would have to be included as part of the PPP resignalling programme. However, the decision to stop this service is not dependent upon Crossrail serving Turnham Green. Consequently, Crossrail's working assumption is that the Piccadilly line trains do not call at Turnham Green.

Preliminary analysis suggests that stopping the Piccadilly line would not have a material effect on the Crossrail business case. As a result, this decision will be made at a later date, in consultation with LUL.

Q.26. *With Crossrail NOT going via Chiswick Park, how is it intended to provide rail services for the large development on the former Chiswick bus works site.*

Response:

Crossrail will serve Gunnersbury station, which is the closest station to the Chiswick Park development.

Q.27. *Will Crossrail going to Richmond stand in the way of medium/long term aspirations to increase the North London line service from its present 4 tph to 6 tph?*

Response:

Yes, it would be difficult to accommodate an additional 2 tph on the North London Line at Richmond following the opening of Crossrail. The SRA's network

assumptions for year 2016, which are the basis of future planning, assume a 4 tph North London Line service at Richmond.

Q28. Will there be a grade-separated junction at Richmond for Crossrail trains going onto the SWT lines to Kingston?

Response:

Our current assumption is that this movement will be grade-separated.

Q29. Will there also be a grade-separated junction at Richmond for trains coming from Kingston onto Crossrail?

Response:

There will be no grade separation for this movement.

Q30. With Crossrail serving Kingston, will there be any reduction of services on the SWT route between Kingston/Twickenham and Waterloo? If so, how will congestion on this route (which is acute at Putney and Wandsworth Town) be reduced.

Response:

No, the 4 tph Crossrail service between Kingston and Richmond will be entirely additional to the existing SWT service. This is on the advice of the SRA. This additional capacity will take a considerable number of passengers from SWT services into Waterloo and therefore reduce congestion on services at inbound stations such as Putney and Wandsworth Town.

Q.31. What is Cross London Rail Links' view of the London Regional Metro proposal, and its possible relationship with their own scheme?

Response:

LRM's proposal is to build the central tunnel of Crossrail as proposed in the early 1990s i.e. as currently safeguarded. Larger diameter tunnels are proposed so that double-decker trains could at some point be run but also so that they can propose the TBMs currently employed to excavate the CTRL tunnels under London. LRM propose that the scheme should be connected to the NRN but others should undertake that this.

It can therefore be seen that while their proposal would be cheaper to construct, CLRL's analysis shows that building the central area tunnel would incur the bulk of the costs and few of the benefits. LRM's proposals do not offer a connection to Docklands or Thames Gateway, do not have an estimate for connections to the NRN and no Treasury approved risk contingency in their estimate (Crossrail base cost is £7.106m rising to £10bn when risk contingency is added). Consequently, CLRL consider their proposal to be poorly developed.

A significant risk to their proposal is that it retains the proposed portal at Allen Gardens over which London Borough of Tower Hamlets objected in the previous application. Another disadvantage of their proposals is that it would be very difficult, if not impossible, to construct a junction to allow a service to Docklands and the Thames Gateway from the original alignment.