

## Transport Committee – 14 January 2015

### Transcript of Item 5 – Crossrail

**Caroline Pidgeon MBE AM (Chair):** Let us move straight on. We have a packed agenda today starting with Crossrail, then doing a little 20 minutes or so on London Bridge and then moving into Crossrail 2. I very much welcome our guests this morning. We have Andrew Wolstenholme OBE, who is the Chief Executive of Crossrail Ltd, and Terry Morgan, who is the Chairman of Crossrail Ltd. You are both very welcome this morning. Thank you for joining us.

I am going to kick off the questions really to get from you your overall assessment of the progress so far on the construction of Crossrail, both on the central and the surface sections.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Thank you very much indeed for a very warm welcome. I am very pleased to report considerable progress has been made in 2014 and 90% of our bore tunnels are now complete. We completed 10 kilometres in 2014 and there are just 3.7 kilometres remaining. Seventy per cent of our platform enlargements, to create the space in our nine central stations, is now complete. We did seven kilometres in 2014 with just four remaining. Overall, the programme is 60% complete.

The executive and the board remain confident that we will deliver Crossrail on time and within our funding envelope. We had a very positive Public Accounts Committee (PAC) report in April supporting all of this analysis. We hit some significant milestones in 2014, including completing eight of our ten tunnel drives. We completed the complex technical work within the Thames Tunnel and the Connaught Tunnel, and all nine stations made considerable progress. You will see - and I know you are visiting next week - the completed roof at Canary Wharf. Custom House, which you will not be visiting, which was pre-assembled in the Midlands, is now nearing completion.

All of our procurement is now complete. Just before this Assembly last year we were due to announce the award of our rolling stock and depot contracts. We are very pleased that two months ahead of schedule we did that and we gave that to Bombardier. Also, in the spring of last year, the train operating company, a Hong Kong based organisation called Mass Transit Railway (MTR), was announced by Transport for London (TfL). They are preparing now for the early phase in takeover of the line between Liverpool Street and Shenfield. More recently, we have completed the final of our major procurements, which was the platform screen doors, and that was awarded just before Christmas.

On the on-surface Network Rail works there is, as you remember, £2.3 billion worth of work. I am pleased to announce that we are more than 30% complete on that work. There were major elements of work completed in the latter stages of last year and over the Christmas break, and Stockley Park flyover is now completed. Of course, this year the focus of that work aims towards the station upgrades, the platform extensions and some reconfiguration of some local track work.

I am very pleased to say that the schedule 7 planning approval was awarded in the middle of 2014 for Ealing Broadway. As you will know, we worked very hard to work with the local communities and local councils to make sure that we have world class design there.

There is a heavy emphasis, as we go forward this year, again, on our environmental and sustainability agendas. We look at the economic, at the social and at the environmental sides. I am sure the Chairman, Terry Morgan, will have an opportunity to talk about the very exciting progress we are making in terms of apprentices.

This year, as we complete tunnelling in spring, our focus shifts towards the fit-out of the tunnels to create a railway system and towards the fit-out of our nine central stations to create very exciting world-class passenger spaces and of course the upgrade of all existing stations on the surface.

In the summer, a year ahead of programme, we will be opening, with the Royal Society for Protection of Birds, the first phase of the Wallasea Island. That concludes the logistics exercise of moving safely 6 million cubic metres of tunnel arisings [excavated materials]. Our archaeological programme goes forward with a pace. There is very encouraging, very exciting news from our art programme and perhaps we can talk more about that later. Of course, from an operational perspective, this is the year when TfL take on the existing services, with the existing rolling stock from Liverpool Street up to Shenfield.

Therefore, overall, on time and within our funding envelope, we have made substantial progress and we are very pleased to report that we are still in a very good place.

**Caroline Pidgeon MBE AM (Chair):** Thank you very much. It is good to hear the project is doing so well. You said it is within your funding envelope. Are you assuming at the moment that by the end of the project you will be absolutely within your budget?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Yes, the Executive and the Board remain confident that with the levels of risk we have identified and the contingency that goes with that, we will be within our funding envelopes at the end of the programme.

**Caroline Pidgeon MBE AM (Chair):** Great, thank you. Obviously, moving forward, there are always risks with any project of this scale. What are some of the challenges and risks moving to, for example, the station fit-out phase that you talked about?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** We identified three principal risks in the second half. The first one, as you state, is moving from heavy civils [engineering] and heavy construction into a fit-out phase. That occurs at our stations where we transition into a new supply chain. You can imagine now the work goes from fitting out platforms, to platform screen doors, to the mechanical and electrical equipment, to the passenger spaces, to the escalators, to the lifts and in due course into the public realm. There are risks in testing and commissioning and in handing over to what we call the infrastructure managers. Five of the stations will be handed back to London Underground and the remaining will be handed back to TfL. That is one element of risk.

The second element of risk is the linear railway itself. Of course, that is what we call the P-Way [Permanent Way], which is the track, the overhead power lines, the communication systems and the signalling systems. Very early on in this programme we agreed that we would take on the role of what is called system integrator, making sure that all of the systems come together and all of the communication systems. I am very pleased to say that, independently ratified, the test commissioning and handover plan has now gone through our expert panel and through our Crossrail board and also on to our joint sponsors. This is very early to get the sort of visibility that we have to make sure that in the latter stage of this programme we are in good shape to make sure that all of those systems are completed and test that they work as designed to do and hand it over.

The final piece, of course, is rolling stock and depot. I reported that two months ahead of programme, in March of last year, we awarded the rolling stock and depot contract for 65 new trains and for the maintenance facilities to be located at Old Oak Common. That is important, clearly, because we need rolling stock to be delivered before May 2017 and all the facilities that support that. I am pleased to say that the early design signoff occurred just before Christmas and that manufacturing processes will start as we go through towards this current calendar year. Equally, I am pleased to report that piling is now occurring and the early foundation work following the successful demolition of the site at Old Oak Common, and we are on plan and on programme to deliver that within the time constraints and to receive our rolling stock in time for the stage one opening in 2017.

**Caroline Pidgeon MBE AM (Chair):** Thank you. We are going to come on to Old Oak Common a bit later.

Can I pick up the issue around integrating everything? You said you are managing all the different systems. Signalling is clearly a huge issue and was a huge problem on the Jubilee line, for example, when the upgrade occurred there. Are you using tried and tested signalling systems rather than putting something completely new and not tested anywhere onto the new railway? There was a report I saw last night that there are concerns that signal issues could mean a reduced service from the start. Terry [Morgan], you were quoted in that and confirmed a mitigation plan because you are worried that signalling will not be completed properly. Perhaps you could explain that to us?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Let me deal with the core signalling and Terry can talk about the mitigation. We are very confident, having spent a long time to design a signalling system in the central section which uses a very tried and tested technology called communications-based train control (CBTC), which is a cab-based communication system. This is tried and tested in a tunnel environment for high-frequency, high-volume train services such as Crossrail. We have awarded this contract to an organisation that you will know well called Siemens. Siemens has delivered these systems on many occasions through both Europe and more internationally. I went to go to see Siemens' base in Hanover last year to understand its testing regime and to understand the constraints that it has on this programme.

So far, we are in absolutely the right place in terms of design. The lessons learned from programmes that have not gone well in the past are that you do not change the scope. I am pleased to say that there has been no change of scope. Therefore, we are using a system that is off-the-shelf, as it were. It is tried and tested and it will be configured for Crossrail in the opening. There are risks, however. Perhaps Terry can just talk about some of those in terms of the interface.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** I obviously know the piece that you are referring to, which was in *The Independent on Sunday*.

**Caroline Pidgeon MBE AM (Chair):** Yes.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** The basis of that conversation recognises that Network Rail itself is going through a huge investment in what it describes as 'digital rail', which is upgrading the signalling system nationally. For example, the Thameslink line through London Bridge will also go through a systems upgrade. The technology that is intended to be made available on the upgrade is also going onto Great Western. It is like the question and the answer that Andrew [Wolstenholme] gave to you earlier: there is an interface. CBTC is in fact the technology that we are using today on both the Jubilee and Victoria lines on an upgrade and so they are working well. We are very comfortable, as comfortable as you can be with signalling, that we have a very robust solution for the tunnels. There is an interface that has to be managed between Great Western and the transmission-based train control (TBTC) system.

If you take the most critical area for us, which is just west of Paddington, we have an agreed plan with Network Rail. It requires quite a bit of effort, investment and project management on its part. The point we were trying to make was that it is Network Rail's responsibility to deliver that system to us. We have a planning place to do that. The story that you referred to was a story that suggested that there were some challenges for Network Rail to deliver it. There are challenges. There is no question about that. The only point we were trying to make was that that is our plan. If things actually start to look like they are at risk, then we will talk to Network Rail about mitigating that risk. That was the only point I was trying to make: we are not going to sit there and wait until 2018 to see whether the system is going to satisfy our requirements.

**Caroline Pidgeon MBE AM (Chair):** It has only just come but I saw last night that it also said that a source inside the project told *The Independent* it is even possible no trains would be running at all in 2018.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** This is getting very pragmatic about it. We have a central section completely divorced from the rest of the railway stem that is based on TBTC. That is not at risk.

**Caroline Pidgeon MBE AM (Chair):** All right, but the risk is with Network Rail and --

**Terry Morgan CBE (Chairman, Crossrail Ltd):** There is every interface, to be frank with you, Chair. Every interface that we have, particularly when you start talking about signalling, is for us one of the sort of things that we worry about. That is the point of --

**Caroline Pidgeon MBE AM (Chair):** Yes, and obviously you are working closely with Network Rail to make sure, all being well, it is delivered on time?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** We are very minded to that, I have to say.

**Caroline Pidgeon MBE AM (Chair):** That is very helpful. Finally, on the rolling stock issue, did you say that the design has now been completely finalised or are there any other design issues you are considering?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** The design of the rolling stock has been frozen. That happened just before Christmas in accordance with the milestone programme, yes.

**Caroline Pidgeon MBE AM (Chair):** I know Victoria [Borwick AM] may want to mention this when she is here later, but the issue of toilets on trains comes up time and time again. Is there any opportunity for toilets to be installed on this new rolling stock?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** I am the nominated spokesperson on toilets. They will not have toilets on these trains. I have to say that sometimes I get slightly challenged by the question because we have 66 trains on order. Half of them will shuttle between Paddington and Stratford or Canary Wharf. They will never go out of the tunnel. Putting toilets on trains takes capacity out of these trains. I do not think it is in the best interests of Londoners, to be frank with you, that we are starting to put in facilities that actually take capacity out of what is fundamentally a metro system.

Out of our 40 stations - and we have been asked this question before - there are 37 stations with toilet facilities. We will have the ability to communicate to passengers where those toilets are as they take their journey. If you think about 40 stations on a track that is 120 kilometres long, a child's travel time between stations is very short. We think it is the most pragmatic solution to keep capacity on the trains for passengers and, if people do need to use toilets, to communicate to them where they can use those facilities at stations.

**Caroline Pidgeon MBE AM (Chair):** At stations, I am sure Victoria [Borwick AM] will pick that up further later on. Let us move on to our next area.

**Valerie Shawcross CBE AM (Deputy Chair):** Yes, thank you very much. Good to see you both, Andrew and Terry [Morgan]. Congratulations really on achieving the near completion now of the tunnelling stage, and it all looking safe and sound and good.

However, there have been some health and safety concerns. Of course, very, very sadly there was a construction worker, Rene Tkacik, who was killed at Fisher Street in March last year. We should just start by asking about what changes have been made since his death and what improvements you have put in place.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** You are right. The whole of the programme was saddened by the incident on 7 March at about 5.00am. It happened in the Fisher Street Tunnel. It was in relation to a small piece of sprayed concrete, which is the concrete you spray to create the tunnel itself, when it fell down.

There are three independent investigations going on. I have to just state that there is a Coroner's inquiry that is going on towards the back end of February and so there is a limited amount that we can say.

Of course, in any incident like this there will be lessons learned. If I can just give you the backdrop, in 2014 we saw a reduction in reportable accidents of 40% across the programme. We saw a reduction in the lost-time incidents, which is any one period of time due to any injury whatsoever, reduced by 30%. I am very comfortable that the journey we are taking on health and safety is very positive and is a very constructive one. I remain very disappointed by what happened on 7 March. We have just written a booklet for the industry around best-practice tunnelling and that includes both tunnel-boring machines and spray concrete lining.

As far as we know, and the outcome of the independent reports has not yet been published, we were working to current best practice within the industry. Any lessons learned from those investigations we will take on and pass them on. We have now delivered almost three and a half years' worth of tunnelling programme with a remarkably low level of incidents. There is a reported 0.1% of falls of sprayed concrete lining between zero minutes and about 65 minutes afterwards. It is very unfortunate in this particular circumstance that Rene found himself in a position where he suffered ultimately from a fatality due to the fall of that concrete. Any lessons from those independent reports we will take on.

Interestingly, when the Health and Safety Executive came on, and it formed part of the investigation very quickly, it gave us permission to start the tunnel again on the Monday following the Friday. Therefore, in its overview, there were no systemic issues or best-practice issues that were failing.

What will come out is a series of lessons. What was occurring at the time was a very positive health and safety environment. The statistics I have given you indicate that as long as I am Chief Executive, my ambition and aim on Crossrail is to deliver a healthier and safer industry. We will not stop doing that until we deliver ultimately Crossrail.

It is hugely disappointing. There is no arrogance or complacency. We still have four kilometres of tunnel-boring to go. We still have 3.7 kilometres of spray concrete lining. The lessons will be applied and the industry will be better off as a result.

**Valerie Shawcross CBE AM (Deputy Chair):** Yes, thank you. I am pleased to hear you say that there is no sense of complacency at all and that you are striving to improve it. There was some criticism in a *Guardian* article at the time which made allegations about there being a culture of discouraging reports on health and safety. Do you have any comments on that?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** This occurred at a site in Whitechapel. It was relating to a report that was in draft only that was written the year before. I visited the chief executives of each of the three organisations that represent that joint venture. Neither party recognised that such a culture existed. We take the reporting of near misses or any incidents extremely seriously. We go on what we call a 'deep dive and stepping-up week' each year to make sure that the culture is developed. The increase in reporting of near misses is very encouraging.

There was no concern in that job site following *The Guardian* reports. When you have these reports, clearly, there were one or two individuals who were not content at the time, but the joint venture did not recognise that as a systemic issue. They continued to work very well with us as clients, with our programme delivery partner, with all the supply chains and any sub-contractors there might be to have an inclusive, constructive environment and culture and to make sure that safety is the number one value.

There is nothing so important on Crossrail that we cannot do it safely. I am encouraged when I go out to visit job sites right up on the frontline to have open and honest discussions about the way people feel. I come away excited by the environment we have created where almost universally we now have a culture where people feel very safe to work. They feel very safe to stop the work if they feel they are in any way compromised. That is a culture that we will continue to grow and continue to promote.

**Valerie Shawcross CBE AM (Deputy Chair):** You were talking about transitioning now into the fit-out stage. There is a very different set of functions and activities going on now with lots of kit being moved around. Are there any particular health and safety risks associated with that movement from one kind of activity to another very different set of activities?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Certainly, as I said, this is a journey. To be complacent is to go back. We have to train and induct another part of the supply chain. The sorts of risks do move on from heavy civil and heavy construction into rather lighter fit-out with the logistics of moving small plant and equipment around and the logistics of moving into working from heights. We have, as part of our Zero Harm campaign and the Target Zero campaign, golden rules. Those golden rules will now look at bringing systems into live status, electrical systems that have been tested and commissioned, mechanical systems that will have pressure in. These are the sorts of new risks that the workforce will be exposed to. From an induction point of view, from a training point of view and from a supervisory point of view, all of these things are risks that are identified and will be managed.

I am really very pleased that Crossrail has been able to promote something called its Frontline Leadership programme. If you consider the 12,000 people we have out in the field or have on the project, at any one stage half of them are being supervised and led by what we call junior leaders within the industry. Crossrail is the first programme to promote across all of our supply chain, bringing the supervisory staff into an environment where they can focus on not just the technical competencies but the ability to lead people and to identify risks and to manage them. Again, as part of our journey to creating a healthier and safer industry, Crossrail takes these things extremely seriously.

**Valerie Shawcross CBE AM (Deputy Chair):** Thank you for that. Can I just move on to the issue of vehicles? I know Crossrail paid a lot of attention to making sure that the heavy goods vehicles (HGVs) had side

panels and were as safely designed as possible. However, there very sadly a cyclist was killed in June 2014 following a collision with one of your HGVs. The issue there was much more about driver behaviour. What more could you be doing to improve safety with HGV movements?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Again, this was recognised early on in the programme as an exposure to risk with the incidents of HGVs sharing the road with vulnerable road users. One of the outputs of a holistic decision to transport material to Wallasea Island was to take vehicles off the road.

One of the elements of what we are doing very closely with Network Rail is to make sure, wherever possible, that small sites, but sites very close to local communities, are fed from the rail side, not the road side. The first thing we try to do is eliminate the need to put a HGV on the road. The second thing we do is that we identify the route, if we are using HGVs, to make sure that that route is the safest route and that it is known by the drivers. The third thing is that we train our drivers. We have an award-winning driver training programme. We have now trained just under 8,000 drivers. My executive and I have been on that driver training course so that we understand exactly the content and the scope of what it is there to deliver. The final thing, as you have mentioned, is that we have a zero-tolerance approach to mandating equipment on vehicles - whether they are mirrors, whether they are side radars or whether they are protection bars - to make sure that in the unfortunate circumstance of a collision happening, the casualty is minimised in terms of the damage done.

I do think that we are leading the industry on this one. I took all of the 16 chief executives aside early on in the project and we agreed that we would have zero tolerance on this. Through 2014, we had 98% compliance. There were still vehicles that arrived on site that were not allowed onto the job site and they returned. The circumstance in which that happens is that the managing director of the company that is involved in that logistics then has to re-attend the driver training course. It is bit of a pain for them, but that is the level at which we are going to make sure that this thing is stamped home.

I am hugely disappointed that there has been an incident on the roads due to a Crossrail vehicle. I am confident that what we are doing is the right thing to make sure, again, roads in London and elsewhere around the United Kingdom (UK) will benefit from the programme that we have put in place.

**Valerie Shawcross CBE AM (Deputy Chair):** That is very good to hear that there is a really strong incentive to the companies to take that seriously. We noticed in your submission to us, which was very comprehensive, you raised the issue of vans and growing concerns there. Do you want to tell us a little bit about what you have been doing to make the use of vans safer?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** I suppose in line with the changing supply chain, the size of the supplier and the organisation that supports that supplier is of a changing context. We have not yet finalised the programme we will put in place. We are not encouraging a fleet of smaller-sized vans. What we will be encouraging is consolidation of the logistics to make sure that those vans are still co-ordinated in terms of transport on London's roads and that we minimise again the exposure of any vehicle that is supporting logistically Crossrail and the occurrence of vulnerable road users again.

**Valerie Shawcross CBE AM (Deputy Chair):** Training for van drivers?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** The training programme will be consistent for the second half of the programme. We will not stop training drivers. Any driver who is programmed to turn up on a Crossrail site will have to go through our driver training programme.

**Valerie Shawcross CBE AM (Deputy Chair):** Thank you.

**Caroline Pidgeon MBE AM (Chair):** Let us move on to the topic of route extensions.

**Richard Tracey AM:** There have been various announcements that have been made over the past year about extensions to the original Crossrail route going west to Reading and so on. Also, the one we particularly want to look at is the announcement last August from the Department for Transport (DfT) announcing a study into an extension into northwest London and Hertfordshire. Can you tell us a bit more about that?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** I will try to handle that. If I go back to the opening statement from Andrew [Wolstenholme] about being on time and within the funding envelope, a huge driver of that has been very severe control on what we would describe as 'scope creep'. There has been very little scope change throughout the life of this programme.

Our first position is that we will only take on work of the sort that you have just described if the sponsors - that is the DfT and TfL - wish to evaluate those programmes. Right now there is an evaluation going on. You are quite right. There always has been a protected route, for example, in the southeast from Abbey Wood down to, not really Ebbsfleet as we would know it today, but, very close to Ebbsfleet International. That route is still in play. You are right to say that we were asked to review the possibility of an extension to Tring.

There are no decisions made. They are not in our plans to actually have to accommodate any extensions to change. The only one that happened was the decision last year to extend out to Reading. As a consequence, that required minimal work from an asset point of view because we always thought that that was a distinct possibility. If you remember, when Crossrail was first approved, one of the conditions that supported the programme was that there was no electrification at that time on the Great Western. There will be by then. There was always a very real potential to go to Reading at relatively minor cost. The only cost that actually really mattered to us was the fact that we had to order an additional train set in order to accommodate that revised timetable.

There is no further progress to comment on, really. We are obviously aware that those reviews have been taking place, but the sponsors have not yet drawn a conclusion as to whether they will continue. Of course, the Tring debate was as much to do with taking some of the relief on the West Coast with some of the commuter services to try to relieve a little bit of the work at Euston. There is still a lot of work to be done in terms of how that project will unfold.

**Richard Tracey AM:** It sounds as though you would foresee some considerable challenges if the Government and DfT were suddenly to ask you to extend into Hertfordshire. What are the particular challenges? You said there were not any great ones going to Reading, but what about this one?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** That is more challenging. The only thing I would offer as some relief is that whatever happens in terms of track extension, it is post-2018. That has always been our driver on this project. I have to say that one of the considerations that always comes to us from the sponsors whenever we are evaluating things and the one condition they do not want compromised is the ability for us to say we are on time and we are going to deliver inside the funding. These are very much post-2018 and so they will be added onto that.

You said you were going to mention Old Oak Common. There is obviously a huge debate going on around that whole area about how you would route rail traffic into Old Oak Common with a combination of High Speed 2 (HS2) and potentially a commuter service. That is still ongoing, but it is very much in the domain of DfT and TfL right now.



**Richard Tracey AM:** Presumably this extension to Hertfordshire and such would definitely be aiming at taking away some of the stress of HS2 running into Euston. Is that right? Is that the purpose?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** It is trying to create some lung space for Euston in terms of its development. You are right. It is trying to take some capacity out of Euston whilst they try to do the programme. Of course, it is a moving feast. There is a lot of looking at how best to do the Euston work in support of HS2. I have no doubt within that programme there are still alternatives that are being looked at beyond just taking some relief on the West Coast.

**Richard Tracey AM:** Yes, Andrew, please.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** The design and configuration of Euston is not yet finalised.

**Richard Tracey AM:** Indeed.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** That is why there is some uncertainty as to the status of the piece of work that Terry has outlined.

In terms of the complexity, there are two elements to this. One is the physical joining. There would be a scope of work to take trains from the Great West Line up to the West Coast Main Line. That scope would have to be delivered within time and costs and the risks analysed to that. It is a relatively small piece of scope but no doubt it comes with its complications.

From TfL's point of view, if you were to accept the proposition, then of course what it would have to guard against is that the operation and the 24 trains put on the central section and how you feed these in from the east, the southeast and from the west is not in any way compromised. I would imagine that TfL will have to be asked the questions around the operability of that route, its serviceability in terms of what you call project and programme management (PPM) and the reliability of feeding in trains from another leg from the northwest this time to make sure that that does not compromise the trains coming from Heathrow and the trains coming in from Reading and from Slough. Those are the sorts of things that you have to consider.

As Terry [Morgan] says as Chief Executive, one of the elements that was pointed out in the National Audit Office report and one of the reasons why we are stable in terms of time and cost is there has been relatively little scope change. If there were changes, Terry says it should not in any way interrupt the programme or the cost plan that we have and that is a very, very clearly stated line in the sand.

**Richard Tracey AM:** The other one is the Ebbsfleet possibility. You say no further work has been done on that, Terry, and is there going to be?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** In a small part of the Autumn Statement, there is a review. At Ebbsfleet obviously there is this Garden City proposal to be developed. As part of that, a review has been asked for, just to understand where the projected route is and how that might aid the development of that proposal. It is no more than that at the moment. It is with the DfT. They will be scoping out what it would mean to extend the route beyond Abbey Wood. It will not go to Ebbsfleet International. That is something that some people get confused about. It is about 200 metres away from Ebbsfleet and it would require a new station. There is an evaluation going on, but we are not putting much input to that.

**Richard Tracey AM:** Yes. Would you like to speculate on the time it would take and the cost?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** No. We have very little idea, to be frank with you, in terms of that route. If somebody gave us notice, I am sure we could come up with some sort of calculation, but that would prove to be probably half the cost of what other people might estimate it to be.

**Richard Tracey AM:** You take the same view, do you, Andrew?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** I do. The only input we have had so far is what we call passive safeguarding to make sure if there is any planned development on the route, then that would not conflict with any future potential opportunities. There has been very little work done in scoping out what that might be. Therefore, it would be irresponsible to give you a time or a costing.

**Richard Tracey AM:** If I can just continue a little on the implications of any extensions on crowding levels of Crossrail, Sir Peter Hendy [Commissioner, TfL] had said that as soon as Crossrail is finished, it will be full within months of opening. We know that is what always happens with new lines. What is your evaluation of that?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** I am not sure of the context within which Peter [Hendy] was mentioned there. All I can say is that Crossrail has been designed for a design point well out into the future. We talk of 24 trains per hour, but the concept of Crossrail is to be able to expand up to 30 trains per hour. We have built the platforms and the central sections to 240 metres long. The trains are going to occupy a space significantly shorter than that.

There is opportunity both to increase the number of units on each piece of rolling stock. There is opportunity to increase the capacity. Therefore, designed into Crossrail from day one is the opportunity to expand. The station concourses, the urban realm and the public spaces within each of the stations have plenty of spare capacity to be able to take up. London is growing and that is why the discussion and next on your agenda is an article around Crossrail 2. London is growing and therefore one cannot assume that forever, without additional hardware of a train transport system, London will be able to cope. I am reasonably happy that the right responsible design input has been given to make sure that on day one and for the foreseeable future there is opportunity to increase the capacity.

**Richard Tracey AM:** I see from my notes he said it in his *Guardian* article, which we have all heard quite a lot about, which was last September. You may remember. You have probably read it. There were various other issues addressed in that apart from Crossrail. Thank you very much.

**Valerie Shawcross CBE AM (Deputy Chair):** I wonder if you can just clarify for us what the status of the link down to Heathrow is. Did that not require a negotiation regarding the Heathrow Express? I thought we would hear something more about that in the Autumn Statement and it seems to have gone silent. Can you just explain to me exactly what is currently planned at the moment for Heathrow and what your hopes are for that link?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** The status of that has not changed. Heathrow Express and Crossrail will operate into the Heathrow complex. Crossrail will not go to Terminal 5. Personally, I think some questions will be asked at some stage about how this fits within the context of a service into the Heathrow complex. Sir Peter Hendy has already expressed the view that Crossrail will be operated under the Oyster system, whereas Heathrow Express does not. Clearly, we are a stopping train that takes you through Paddington if you choose to, but Heathrow Express is a non-stop service and a premium service compared to

Crossrail. There are still things to be sorted, but probably this level of discussion will take place between DfT and Heathrow about the future of transport capacity.

**Valerie Shawcross CBE AM (Deputy Chair):** As it stands at the moment, there is not an expectation that Crossrail would be able to take you straight into Terminal 5?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** Correct.

**Valerie Shawcross CBE AM (Deputy Chair):** That is a tragedy, really. We all have the view that we would like to see Heathrow better served by surface transport and better integrated into the system. What would be the timetable, do you think, of any discussions and development on that and what would be the costs?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** Nothing might happen, Valerie, to be frank with you, between now and 2018. There is still the possibility there will be some discussions. Right now, to get back to the point I was trying to make a few minutes ago, it is not in our scope to go to Terminal 5. There would have to be an instruction from the DfT to do so. We have not been given that instruction and nor are we expecting one in the short term.

**Valerie Shawcross CBE AM (Deputy Chair):** OK. Is the DfT actively working on this or has this just been side-lined as an issue, do you think?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** You are almost moving outside our territory, to be frank with you. If there are discussions, we are not familiar with them.

**Valerie Shawcross CBE AM (Deputy Chair):** You are not aware. It might be something that this Committee could ask the DfT if we are interested whether or not it is going to take that up. OK.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Just to confirm: there are four trains per hour going into Heathrow Central, Terminals 1, 2 and 3 and that then shuttles on to Terminal 4. What that does is it subsumes the Heathrow Connect service. That is the existing stopping service from Heathrow into Paddington. We take on that service and that is four trains per hour.

**Valerie Shawcross CBE AM (Deputy Chair):** Yes, and that is the service that the staff would use and it is the service that is charged at an ordinary rate, but Heathrow Express is the rapid premium-price service. It does seem strange to take a fantastic new service into Heathrow and not take it to Terminal 5.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** I could not have said it better.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** As Terry says, that is the debate that needs to happen between now and 2018 or beyond. Heathrow Express has a franchise to get into Paddington up to 2023 and that needs to be a discussion between our joint sponsors, led by the DfT and Heathrow Airport Ltd.

**Valerie Shawcross CBE AM (Deputy Chair):** Just to aid our technical understanding, there would be a direct conflict of track access really between Heathrow Express and Crossrail to go in to Terminal 5?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** I built Heathrow Express. I built the extension to Terminal 5. There is no technical reason why Crossrail trains should not go into Terminal 5, but that is just a commercial discussion.

**Valerie Shawcross CBE AM (Deputy Chair):** It is a service conflict, then. It is competition.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** Just remember what Andrew said earlier, though, which is that Stockley flyover has just gone through a fairly fundamental change that takes away some of the constraints that existed in terms of access to Heathrow. Again, that creates choices for people to consider going forward.

**Valerie Shawcross CBE AM (Deputy Chair):** OK, but the station is there and they could go into it?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** There are no capacity constraints. There is no technical reason why it should not happen.

**Valerie Shawcross CBE AM (Deputy Chair):** It is commercial.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** There is room on the platforms. If it were to go to Terminal 5, passengers would have to make the choice between getting on the fast service to Paddington, the Express service, and the service that stops and takes slightly longer to Paddington but takes you beyond to destinations in central London and beyond.

**Caroline Pidgeon MBE AM (Chair):** Lovely.

**Valerie Shawcross CBE AM (Deputy Chair):** That is very helpful.

**Caroline Pidgeon MBE AM (Chair):** Very helpful. Let us move on to Old Oak Common.

**Navin Shah AM:** Chair, before I move on to Old Oak Common, a related question. A train spur would present a great benefit to regeneration proposals in Brent and Harrow. Can you tell me whether the service will stop both at Wembley Central and Harrow & Wealdstone stations?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** To an extent, we have dealt with that. We do not know. The DfT last August indicated that it is going to have a study to look at the options. Terry [Morgan] indicated that in part this is to create some lung space or some headroom for the different phases of development that may occur in Euston. That would be a subject for the study to look at. I do not know the answer as to whether there are going to be stops at those particular locations.

**Navin Shah AM:** I would just like to convey that certainly from both Brent and Harrow there is a great expectation. There are certainly not only the issues about massive regeneration in Old Oak Common but the benefits it will derive to other regeneration [schemes] as part of the London Plan proposals. I would just like to make that comment and stop there.

With regards to the depot proposals in Old Oak Common, there are concerns being expressed about its detrimental impact on regeneration in Old Oak Common. The Mayor himself has stated that the long-term aim should be to move the depot as soon as possible to support regeneration at Old Oak Common. Can you give us an update as to your current discussions between TfL, Crossrail and the Mayor's Office, please?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** I can confirm that we have been fully co-operative with the Mayor's Office and the various stakeholders that have put forward development options for Old Oak Common. I am aware that they are one of a number of potential development options. Having

been in this game of major projects for 30 years, I am also quite well aware that a depot facility would technically be able to accommodate an oversite development.

As far as I am concerned, we identified Old Oak Common. The DfT and TfL identified Old Oak Common as the existing location for the depot for Crossrail. What I am charged to do is to make sure that we build that out in order to accommodate 65 new trains by May 2017. I am also aware that TfL has put together a series of potential options in the medium and in the long term as to how potentially you could move the Old Oak Common depot facility. People should be encouraged by that. What is happening at the moment does not preclude the long-term development of Old Oak Common in any configuration that it might need.

What it does preclude is for us delaying the contract at the moment, adding additional scope, adding additional cost and putting at risk the opening date of 2017 when we need that facility to start the regular operation of Crossrail. I do not think anything has been ruled out for the future. Being in this game for a long time, there are many occasions when development opportunities come along. They are considered responsibly and co-operatively with all parties. In that case, I have not received any instructions from my joint sponsors to stop building the depot at Old Oak Common, but I am aware that a considerable amount of work has been done to look in the medium term as to how potentially you could put in oversight developments and, in doing so, move parts or elements of the depot sites located there.

**Dr Onkar Sahota AM:** Andrew, you say that other sites have been considered. Which other sites have been considered?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** As far as I am aware, no other sites have been considered for the Crossrail depot but there are exercises going on. Crossrail is not the only depot at Old Oak Common and I know that this is an issue for other train operating companies. No other sites have been considered outside of Old Oak Common to move in the current timeframe the Crossrail depot site. Exercises have gone on to see whether there is a reconfiguration of the Old Oak Common to accommodate this short-term development exercise. The answer from our joint sponsors quite clearly, back to the Mayor's Office and those interested stakeholders, is there is not an option to do that in the current timeframe. That does not preclude options in the medium term to move Old Oak Common as and when those development opportunities mature and as and when the circumstances are right to receive them.

**Dr Onkar Sahota AM:** OK, thank you.

**Navin Shah AM:** Do you have any idea when you might be able to indicate what those other options are and the timeframe attached to that?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** Can I just add to that? We are not going to do that. Old Oak Common is the nominated depot for the 2018 opening. What we have said is there is nothing magic about a depot and where it is located other than it has to service the railway. We do not have any other sites that we know about that would actually suit what we need to do at West London. If somebody comes along with a proposal that suggests there are some other sites, we will evaluate them but we are not.

We have been quite firm about this because we need to get some certainty. This depot is now on our critical path. We have been very open to proposals about how we could actually facilitate the potential development of this site in the past. We have opened up those possibilities. However, I am very much in the position, as Andrew [Wolstenholme] is, that I am very pleased that we kept very firm. You cannot compromise this depot for 2018. There is no alternative. Nobody has ever offered an alternative and we are not going to be trying to actually gain this in terms of finding other sites. If somebody wants to suggest it, we will evaluate it but our

plan is very clear. I do not want any uncertainty. Right now, Crossrail will open with a main depot in 2018 at Old Oak Common.

**Navin Shah AM:** No, I appreciate your critical path and the reason, which is well justified, to stick to your plans.

**Caroline Pidgeon MBE AM (Chair):** Absolutely.

**Navin Shah AM:** The question is long-term viability and the whole future of regeneration of Old Oak Common. That is why we certainly need to know what those long-term options are and what the timeframe attached to that is.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** Yes, and you are quite right. It needs to be done. We will help facilitate it, but we are not engaged in describing what that would be.

**Caroline Pidgeon MBE AM (Chair):** It is the Mayor's Office which is leading that.

**Navin Shah AM:** We will proceed elsewhere. Thank you.

**Caroline Pidgeon MBE AM (Chair):** That is helpful, thank you. Onkar is going to move on to the next area about integration with TfL.

**Dr Onkar Sahota AM:** Crossrail is acting on behalf of TfL and the Mayor's Office but, as we move towards 2018, there will be integration between TfL and you. What are those plans? We have not seen any plans about those timescales and how that is moving forward?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** This is a very important issue. Indeed, the PAC identified this as one of the things that we needed to deal with in the second half. Can I just distinguish? What we are doing as part of the project is to design, build, test, commission and hand over the physical asset. We are going to hand that over to two infrastructures managers. One is Rail for London and one is London Underground, both part of the TfL organisation. I am very pleased that one of the very early appointments I made was Howard Smith, who is the Operations Director and who sits within the Crossrail Executive. He is building the capability and the size of his operational team in order to take over the infrastructure and to operate it on day one and in the five stages of handover. That is all part of the programme.

In delivering Crossrail, we have a sizeable team that manages the £14.8 billion worth of risk. That team comes with a board. It comes with an executive committee. It comes with the corporate and support functions that a programme the size and scale of this would require. You are absolutely right in saying now that what we have to do is to identify a transition period. Individuals in parts of the organisation may decide when their time is over in Crossrail to go back into the industry or, indeed, to TfL. We are having discussions around how those individuals can create the opportunities.

From the support functions' point of view, the principle that we have used is that Crossrail needs to be able to manage the risk. We are also looking at the transition between some of those function support roles as to when the right time is to hand over that service and to ask TfL to deliver that service back into Crossrail to make sure that absolutely as a priority we deliver value for money for the taxpayer. We are very cognisant of that and the plan: we have developed the strategy as to how we will look at this transition. Increasingly at a level of granularity, we are looking at the options, for instance, for human resources (HR), for finance and for

certain parts of the IT system, and to understand the capacity and capability of TfL to provide those services back to us, at which point we will agree a transition.

This is very much on my radar screen. I have appointed a Director of Transition. His accountability is to make sure that there is first and foremost a smooth handover of the physical asset and the operation that goes with that. Equally, it is to make sure that the core functional side of it is slipped into the right transition phase. For me, the NAO and you as a scrutiny committee should look back in 2019 and say, "Not only did we spend the time to make sure the governance and the structure of Crossrail to deliver the risks of a £50 billion programme were put in place, but also there was a very sensible transition back in".

Then we can look at this sort of model to deliver very effectively the sorts of programmes that you are going to talk about later on in the morning. HS2 is very interested to take on the legacy learning as to what we are doing. The NAO has certainly looked across other spending departments to suggest that this is a very good delivery mechanism for a programme of this size and scale.

**Dr Onkar Sahota AM:** I hope that we can look back in 2019 and say that all is well, but we would like to know even now what the plans are. Will you publishing any transition plans and what the project plans are within timescales?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** I do not know if Terry wants to comment. Terry has a steering group.

**Terry Morgan CBE (Chairman, Crossrail Ltd):** As I say, it is a really good question but it is very early. If I just use as an example, last week the Working Group of the Board met for the first time on this very subject. We do recognise at the end of the day with this project that it is all very well, as we do, to say we run to that on cost. However, if it does not deliver the service on day one in a very transparent and very open way, we will have lost all the sense of what we have achieved to date. This is a very early phase for us. It is a question of not if but when we can share those plans because we just want to get some robustness behind it first. It is one of the big changes that we have made in the programme from last time we met you. We are now really thinking very hard about how we hand this programme back.

**Dr Onkar Sahota AM:** Yes, thank you. The other thing is that this eventually will be managed by TfL and part of the line is outside London. Does that create any challenges at all?

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** From an operational point of view, we spoke a little bit about the technology interfaces that there are between the signalling systems. That equally relates to the operational interfaces. The control centre will be based at Romford, but there will be component parts of the operation which will be within the Network Rail services. A lot of the work that is going on at the moment is with Howard Smith, our Operations Director, chairing what we call the programme board. That is to bring not just Rail for London and London Underground into play, but to bring those parts of the Network Rail operating group into that programme board. That is to make sure that on day one any interfaces in terms of operation, technology and maintenance is all accounted for.

It is very well acknowledged that this is a relatively complex system that relies on trains coming across other people's networks on other people's infrastructure that is fed into the central tunnel system. Those are risks that are recognised and we have in place the organisation that is working with those respective organisations to make sure that it is seamless from day one.

**Dr Onkar Sahota AM:** Great, thank you.

**Caroline Pidgeon MBE AM (Chair):** Thank you, Onkar. Thank you for your answers and your thorough submission. I have one final question really because we are moving on to look at Crossrail 2. I am just wondering if there are any key lessons from the planning, funding and delivery of Crossrail which should be taken into account by the Crossrail 2 project teams.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** Again, that is a really good question. Operating at a reasonably high level within the industry, it is part of my responsibilities to make sure that the legacy not only to Crossrail 2 but across the wider national infrastructure planned is devolved.

I suppose Crossrail 2 finds itself in a position where we were in 2000. It still has not chosen a single route. There is plenty of discussion going on and lessons being shared between parts of TfL as an organisation and us to make sure that the options it has to set up a governance structure, for instance, is happening. I am very pleased to say that relatively recently we have been talking with TfL around certain secondees being taken from Crossrail 1 into Crossrail 2.

**Caroline Pidgeon MBE AM (Chair):** Brilliant, yes.

**Andrew Wolstenholme OBE (Chief Executive, Crossrail Ltd):** That signals a serious bringing up of a transition phase and also a serious acknowledgement that there are lessons that we in Crossrail 1 can pass on. If you look back in the NAO report, this is a time where you get the consultation period. You absolutely firmly understand what the business case is. You understand what the economic value of that business case is over a period of time. That is something I believe Crossrail did very well.

That forms the very steady foundations upon which you can then do some of the engineering, some of the environmental work, as a basis upon which you can begin to understand how you fund these programmes. When you get a very firm brief with a very strong business case, when you get an engineered solution and when you get a funding model, those are the environments where you can get political alignment.

There is a long way to go yet but some of those very basic lessons learnt are being taken up. Michèle Dix [CBE, Managing Director, Planning, TfL] has a huge track record and experience of leading from her current role as to what that does. I am confident that we are open in sharing the lessons that we have and that they will take them up.

**Caroline Pidgeon MBE AM (Chair):** Terry, do you want to add anything?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** Can I just add a little bit more to that? You should never compromise on finding the best people. It goes without saying and that is one of the things that you compromise at your own peril. The other things are about specifically lessons to be learnt about oversight developments. How do you capture more of the value for the public sector compared to what we had to do? We were the very first to go into this in a substantive way. Thirdly, there is the whole question then about trying to make sure there is a focus on building on the legacy issue. Andrew has touched on some of them. They add a lot more value to the programme when you look at this much more holistically than perhaps just reporting on - though it is - just a railway.

You will not be surprised that I will take the opportunity. We often talked about our commitment to skills. We have talked many times that we had an ambition to do 400 apprentices by 2018. We are now at 426 and there is a degree of momentum. In my opinion, we could have done more if we had hit those things earlier. We talked about art. We almost gave up on art. We were reminded yesterday when we met an artist from Israel



that we have the largest public sector programme of art in the UK probably ever undergoing right now. We have found some good sponsorship of almost all of our stations with the exception of two and we are very optimistic. We have one that we need to resolve but we have made huge progress. You have to hit them early and you have to have a determination to actually see these things through.

**Caroline Pidgeon MBE AM (Chair):** It is the wider benefits in the programme, not just delivering the railway?

**Terry Morgan CBE (Chairman, Crossrail Ltd):** It just creates the space to allow the guys to get on and do the job. There are these other things that say yes, we are sacrificing some services. However, you look at the fact that we have put 1,000 people now on to Crossrail who were unemployed and the fact that we have now 400 apprentices in 2015 who came from a NEETs (not in education, employment or training) background. There are all sorts of things in there that just create a recipe that says we need to do more of this.

**Caroline Pidgeon MBE AM (Chair):** Yes, lovely. Thank you very much indeed. Thank you, Andrew and Terry. We really appreciate your answers today.