

Transport Committee – Wednesday 12 September 2018

Transcript of Item 6 - Elizabeth Line

Caroline Pidgeon MBE AM (Chair): In the first part of the meeting we are going to be looking at the delays to Crossrail and I am delighted that we have such a strong panel before us today to get into some of this detail. From right to left, we have Simon Wright, Chief Executive of Crossrail Ltd; Sir Terry Morgan [CBE], Chairman of Crossrail Ltd; Heidi Alexander, Deputy Mayor for Transport; and David Hughes, Director of Strategy and Network Development at Transport for London (TfL). Thank you so much for coming along today. We really want to try to get to the bottom of this and get some clearer understanding for Londoners on this. I will perhaps start off with Terry and Simon. Can you further clarify the chain of events that led to your realisation that you were going to have to delay the opening of Crossrail?

Simon Wright (Chief Executive and Programme Director, Crossrail): Certainly, Chair. The first thing of course to say again is that we were very disappointed in having to take that decision ultimately, and I will just go over, as you have asked for, the events that led up to that.

If we go back to 2018, last autumn, we had increasing pressure on delivering infrastructure but still within the bounds of normal contract procurement; that is we were managing risks, we were looking at options to mitigate and so on. We then came to the point of seeking to energise the traction power. This is the electricity that drives the train, the overhead line in our case - unusually for a Tube, it is overhead line, not third rail - and we got to the point of energising that substation down at Pudding Mill Lane near to Stratford and we had the failure of the voltage transformers. That device failed quite dramatically and we had to then stop and we could not then energise the traction power. Therefore, that prevented us starting testing on the date we had planned, which was October last year [2017].

By the time we had unravelled all of the issues around the failure of the voltage transformer and come to the conclusion about what had caused it and then put in place the necessary work to fix it, it had taken us four months to get through that. We eventually then started testing trains in the tunnels in February of this year, some time later than we ideally would have wanted. Clearly, that had delayed the start of testing.

When we came to test those trains in the tunnels, we had additional problems. We had always pointed out that this was the riskiest part of the programme. This whole area of trying to ensure that we are integrated with software and systems is very difficult indeed. We have three separate signalling systems, as I have explained in the past, and by the time we came to start dynamic testing, we did not have a completed and finalised infrastructure and we did not have a completed and finalised and tested train. We were running slightly with one arm behind our back trying to do the testing we could from October, but clearly not making enough progress.

By the time we went through those months in the spring with some testing - not very positive results but some results - and continuing to fight to look at mitigation and continuing to look at what options we had to still get the testing done, we were raising warnings in sponsor boards and in our Board in May and June [2018]. We got to the point when we found that in July we were no longer able to confirm that there was sufficient time left to do this very complicated testing. We went to our July Board and we said, "We think this is unlikely. We still have a number of things we need to do". We were asked to come back in August with a final plan of what would happen and how we would then mitigate and what programme we were going to then recommend.

Clearly, until that meeting when the decision was taken that December was unlikely to be deliverable or was not going to be deliverable, then a revised plan was needing to be put in place because you cannot say, "We are not going to open in December", and have no follow-up plan as to what we are going to do. That decision was taken at our August Board and we then put in the adverse event notice to sponsors on the following day and we made the announcement as soon as possible the day after that.

That is the trajectory of events that led up to it and that is what I have explained in the past but just to clarify that that is exactly what happened.

Caroline Pidgeon MBE AM (Chair): That was very helpful because what you have said there is the four-month delay, which came out a bit last week before the Assembly, set you back considerably. There were issues with the testing of the new trains. You said you started raising warnings in May and June with the Board.

Simon Wright (Chief Executive and Programme Director, Crossrail): Yes. We have a very open governance system and so we have lots --

Caroline Pidgeon MBE AM (Chair): Well, we will come on to that.

Simon Wright (Chief Executive and Programme Director, Crossrail): OK. We have lots of meetings with lots of different parts of the Crossrail teams and sponsors. We were raising these concerns, still saying that December was possible but increasingly difficult, talking about the challenges and the delays that we faced, explaining what mitigations were put in place to try to overcome these challenges, and this heightened level of warnings was being clearly provided. That eventually led us to the conclusion that we were, finally, no longer able to say that December was deliverable.

Caroline Pidgeon MBE AM (Chair): In May and June, you were starting to raise warnings saying that December was possible but it was likely to be difficult. Deep down, although you hoped to open it -- and I understand in the rail industry, you all want to deliver this. Everyone we talk to - and we talked to the people on Thameslink - is passionate about delivering it. Actually, it was just not going to happen. You have a risk register, I assume, of all the aspects. Is it in May/June that it started to turn from green to amber to red and is that when you started worrying or was it earlier?

Simon Wright (Chief Executive and Programme Director, Crossrail): We have a number of risk registers and a number of red, amber, green states of planning. We have a very comprehensive risk register. From the earliest days, we were flagging risks around this stage of the project and programme. We have more than 800 risks on our risk register from things like terrorism and cybersecurity through to the signalling systems and the technical integration, and so we were monitoring and managing this from day one. Clearly, the mitigation that we were putting in place all the way through the spring and summer did not finally conclude with enough time being available to complete the testing. That was at the point when we had to declare that this was not going to happen.

Caroline Pidgeon MBE AM (Chair): When did those aspects of your risk register around the signalling and around the station fitout start to shift from green - meaning that you are on schedule to deliver it - to amber to red?

Simon Wright (Chief Executive and Programme Director, Crossrail): As I said, in May and June [2018].

Caroline Pidgeon MBE AM (Chair): In May and June? That is a lot earlier in some ways than what we had been told last week.

To what extent were these problems that you faced under your direct control - Crossrail's direct control - or were any of them other bodies such as Network Rail or TfL, even?

Sir Terry Morgan CBE (Chairman, Crossrail): Could I just answer some of that? We needed some additional funding and that was identified in May [2018], in the way that Simon described. In the language that we use, we were in breach of our funding capacity. That was when we declared that we had a funding issue that needed to be resolved and, indeed, the written parliamentary statement in July clarified and gave us sufficient funding at that time.

As Simon said, we had a Board meeting on 19 July when the indication from my executive indicated that they could no longer have confidence in the date of opening for December. We always, when we get into that situation, informally brief that. We had a meeting where, as you might imagine, when the executive came, they did not give an answer to what would be a date that they would be able to declare. They needed to spend more time working on the detail of it. Therefore, I made the decision at the Board meeting on 19 July to instruct the executive to go away and do more work and to make absolutely certain that there was no way of mitigating the risk that they had identified. That was when we called the meeting for 29 August to give them sufficient time to do that work. We informally briefed the sponsors at that stage of that informally.

Caroline Pidgeon MBE AM (Chair): After 19 July?

Sir Terry Morgan CBE (Chairman, Crossrail): There were no dates and there were no costs identified, but we informally briefed both sponsors that the date was at risk and that we were doing this work, intending to report back on 29 August. There was no other data on the table. In fact, what was actually declared, nobody in the Board had seen those numbers, nor dates, when I instructed the executive to do more work.

As Simon said, we finally met, and we met some of the supply chain, to be honest with you, to make sure that we were getting the very best from them in terms of some of our critical points to make sure that there was nothing else that they could do to improve the performance of the programme. That is again something we did in early August.

We then met on 29 August formally as a Board when the executive presented their conclusions. At that date, reluctantly, we had to confirm that the revised schedule would have to be declared and, as Simon said, an adverse event in formality terms. We then had to advise both sponsors and we did that the following day, that there was an adverse event notice to be declared.

The day after, we then briefed the Mayor, and so within one day we had briefed the Mayor about the Board results. The following day, 31 August, is when the press release was concluded.

We have had some criticism that we did not talk to everybody, but, in the best interests of making sure that we did the communication as effectively as we could and not find that some stories were leaking about the programme, we thought it was very important to get the news out there and to then start handling the consequences of it.

Caroline Pidgeon MBE AM (Chair): I have to say the story is slightly different today than what you told us last week. You have already told us that in May and June you started to realise you were not likely to deliver it on time and you had to do more work to confirm that. You have now said on 19 July you informally briefed

the sponsors. Therefore, presumably Heidi [Alexander] as Deputy Mayor [for Transport] was told. The Mayor was told about this on 19 July, which is somewhat earlier than what he said last week, which was the end of August.

Sir Terry Morgan CBE (Chairman, Crossrail): No, there is a separation. We regularly brief the Mayor and, as you might imagine, we regularly brief the Mayor in terms of the status of the project.

As Simon has said, we have always tried to be very transparent about this. We have a problem. We do not have a train yet, to be frank with you, that is fit for testing and we are still in that state. That is part of what we have been reporting. We have always been very open about the things that we are trying to do and we had a discussion, too, at both briefings and indeed at a TfL Board meeting about the events that took place late last year in terms of not being able to get the high-voltage power on.

Therefore, we have been very open about it, but we have always had to separate fact from concerns. The fact is that we did not have a formal position to take until 29 August. We did brief informally about concerns that we had at the Board meeting and indeed in briefings with the Mayor, but the Mayor did not have any information of the sort that we provided on 30 August any day earlier than that date.

Caroline Pidgeon MBE AM (Chair): OK. I am going to come to Heidi [Alexander] in a second before I start to bring other Members in, but let me just go back to the question I had asked.

Terry, you have revealed a huge amount in what you have just said. To what extent were the problems under Crossrail's direct control or were they under your suppliers', Network Rail's or TfL's? You just told us you do not have a train that is even fit for purpose fully for testing. That is a huge concern.

Simon Wright (Chief Executive and Programme Director, Crossrail): Crossrail is accountable for the whole of the integration of the system. We are directly responsible, through our supply chain, for the central section. That is mainly the bits in tunnels from Abbey Wood to Paddington and then the Stratford leg. We have a delivery partner for the sections on the surface, which is Network Rail. It is the client and it procures the works and delivers those works. The funding is channelled through us and then the train is procured through TfL. We are accountable for the overarching integration of the whole system at the end of the day.

Caroline Pidgeon MBE AM (Chair): Ultimately, you are responsible for it all?

Simon Wright (Chief Executive and Programme Director, Crossrail): For the integration.

Caroline Pidgeon MBE AM (Chair): What about the trains not being available and not being fit for purpose?

Sir Terry Morgan CBE (Chairman, Crossrail): Can I just clarify what that means? Network Rail had a fixed-price contract to deliver a scope of work and so our relationship with Network Rail had an expectation that it would deliver the programme for a fixed price of --

Caroline Pidgeon MBE AM (Chair): And has it?

Sir Terry Morgan CBE (Chairman, Crossrail): No, it has not.

Caroline Pidgeon MBE AM (Chair): Network Rail has failed. OK.

Sir Terry Morgan CBE (Chairman, Crossrail): In the written parliamentary statement, there was a recognition that Network Rail needed some additional funding, supported by TfL, and that was announced when the written statement was published on 24 July [2018].

Caroline Pidgeon MBE AM (Chair): OK. There were issues with Network Rail. What about the supplier of the trains? Are there issues there? Have they led to some of this delay?

Simon Wright (Chief Executive and Programme Director, Crossrail): The rolling stock is already operating on stages one and two and so the reduced-length units are already functioning. The trains themselves, the hardware and the vehicles are all out there operating successfully and they are very positive. In fact, the best performance of any train operating company in the country is on TfL Rail, and so that is good.

What we still have are challenges around the software integration and the systems integration, as I have explained last time and this time. We have to get testing time. Until we have the dates for the start of the full-scale dynamic testing I gave you last time, 22 October this year is when we are going to be able to get a completed train with its software finally licensed, if you like, or approved and completed infrastructure and bring those two parts together in the central section. That is when we will start to see the real results of this integration coming forward.

Caroline Pidgeon MBE AM (Chair): Then are the central section stations behind schedule?

Sir Terry Morgan CBE (Chairman, Crossrail): You made reference last week to something you had seen and it was incorrect.

Caroline Pidgeon MBE AM (Chair): They are not behind schedule?

Sir Terry Morgan CBE (Chairman, Crossrail): No, I did not say that. The information that you had and quoted was a surprise to me. It was incorrect.

Caroline Pidgeon MBE AM (Chair): I quoted that only three were ready.

Sir Terry Morgan CBE (Chairman, Crossrail): We are 95% complete. It is true to say that the stations themselves are behind schedule, but we are still forecasting to complete - with one exception - this year the work on those stations.

Caroline Pidgeon MBE AM (Chair): The exception is Whitechapel?

Sir Terry Morgan CBE (Chairman, Crossrail): No. In fact, that is where it is incorrect. The one station that has always hung out there later than anything else is Bond Street.

It is fair to say as an example, as I said last week, we have always worked very closely with TfL to try to find pragmatic solutions to allow us to open. We had different plans about how we could mitigate and so it was possible to open the railway as part of our plan if Bond Street had not been completed. There are two ticket offices, one at Bond Street and one at Hanover Square. We could open without the Hanover Square one if that was the best way to get the railway open.

Caroline Pidgeon MBE AM (Chair): Great. That was helpful. Thank you. Heidi, can I come to you? Remind me. When did you start as Deputy Mayor [for Transport]?

Heidi Alexander (Deputy Mayor for Transport): 11 June [2018].

Caroline Pidgeon MBE AM (Chair): What were you told about Crossrail? Were you told, as we are now informed, in May or June that it is possible that it would not open in December or were you told everything was on time and on budget?

Heidi Alexander (Deputy Mayor for Transport): In May and June of this year, I was not told that there was any risk to the December opening date. I met with Simon [Wright] and Terry [Morgan] even before I started on 11 June and I was advised about the very significant cost pressures that the project was experiencing at the time. There was a lot of work in my first few weeks in the role, when negotiations were ongoing between TfL and the Department for Transport (DfT) to find a solution to those cost pressures, which was reported in the written ministerial statement on 24 July.

I would like to be quite transparent and honest with the Committee about my views on all of this. It is true to say that towards the end of July I was quite worried about the deliverability of a December opening but, as Terry and Simon have said, until the Crossrail Board met on 29 August, the project was still advising us that there was a chance that the December opening date could be met, and so I did not hear anything - and nor did the Mayor - about an autumn opening date until the last week in August.

When those concerns were expressed to me about the rising schedule pressures as well as cost pressures - and I would just like to make it very clear to the Committee that in my first few weeks in the job the concerns were about the cost as opposed to the schedule - and when I was made aware of increasing pressure on opening dates, I was very clear that the project team needed to go away and do a thorough piece of work because, if there was nothing definitive and categorical coming out of Crossrail towards the end of July, nobody could make an announcement that would have really made any sense. I can understand the desire in the project team not to abandon a December opening day if there was any realistic chance of that date still being met.

I was clear with the Commissioner [of TfL] that we should commission an independent review of the work that was still outstanding and that was updated to the Assembly at the Plenary last week. It was at the end of August when that review came back looking at the remaining construction work to be done in the tunnels and the way in which that would play out over the next couple of months that the Crossrail Board took the decision that it did on 29 August. I was aware that that meeting was likely to reach that outcome, but I was aware only a day before that meeting took place and then I briefed the Mayor on it immediately after the Crossrail Board meeting had taken place.

Caroline Pidgeon MBE AM (Chair): Thank you. That was really helpful. Thank you for that, Heidi. Just to clarify, 19 July, we were told by Terry [Morgan], is when he informally briefed the sponsors. Is that the point in July when you started to think this may not get delivered in December?

Heidi Alexander (Deputy Mayor for Transport): It was later than that, to be honest, slightly later.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): The 19 July date was a meeting of the --

Heidi Alexander (Deputy Mayor for Transport): It was a Crossrail Board meeting.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): -- Crossrail Sponsor Board, on which I am one of the two TfL representatives. It was at that meeting that Simon and his team briefed us on the mounting risks to the December date and the fact that

Terry had called this extraordinary meeting of the of the Crossrail Board at the end of August. That is the 19 July reference.

Sir Terry Morgan CBE (Chairman, Crossrail): Just for precision, it was a week later that we had the opportunity to brief the Mayor and indeed the sponsors about the results of the Board meeting on 19 July. So that we do not play around with dates, it was 26 July when we had that briefing on the outcome of the Board meeting.

Caroline Pidgeon MBE AM (Chair): Thank you. Terry, I have to ask this. You have been on this project since the start. You were assuring all of us in June and July this was going to open on time. Have you considered your position as Chairman of Crossrail as a result of this delay to the project?

Sir Terry Morgan CBE (Chairman, Crossrail): That is a very fair question to ask. I have. You are right that I have been with this programme for 10 years and it is my determination to finish the job.

Caroline Pidgeon MBE AM (Chair): OK. You have not been under pressure by either of the sponsors to --

Sir Terry Morgan CBE (Chairman, Crossrail): As you quite rightly point out, at the end of the day I am appointed by the Secretary of State [for Transport] and the Mayor of London, but where I am at the moment - and you asked a question of me directly - that is where I stand. I want to finish this job.

Caroline Pidgeon MBE AM (Chair): OK. You are not under any pressure from either of any of them to give up the post?

Sir Terry Morgan CBE (Chairman, Crossrail): It has not been raised with me, but it is something that I obviously think about a great deal. We have let people down. You are quite right. Since Heidi [Alexander] has become Deputy Mayor [for Transport], it has been a trail of disappointments. At the time, we were very confident we could get there with a lot of hard work, but we have not got there.

Caroline Pidgeon MBE AM (Chair): And you have not been asked to leave. OK. Thank you very much. Let us move on to look at scrutiny and transparency.

Florence Eshalomi AM (Deputy Chair): Thank you. I just wanted to start by saying that all of us, as Assembly Members, and you share the ambition that we want to see this project delivered on time and delivered safely, but the reality is that there has to be a lot more scrutiny around a project of this size. Just some of the conflicting information we have heard this morning demonstrates why. TfL has been raising concerns and so has the Assembly in terms of who reports to whom, when and what those meetings actually take note of.

One of the key things that we wanted to ask to Crossrail is in terms of the information being communicated to both TfL and the DfT. Are you confident that the information was being promptly and accurately reported back?

Sir Terry Morgan CBE (Chairman, Crossrail): I am very confident. In governance terms, we have a responsibility to the Secretary of State [for Transport] and the Mayor, but that is managed through the Sponsor Board, which includes David [Hughes] as a Board member. I am very confident that we have always had a very open relationship, sometimes as you might imagine challenging, but it has been a very open door. Indeed, you have to remember that the sponsors appointed what is called a project representative. They sit inside our building. They have always had access and they write a report regularly to the sponsors in terms of

the current condition of the programme. Therefore, there has always been this independent oversight made available to the sponsors to correlate with their own reports in terms of the status of the programme.

Florence Eshalomi AM (Deputy Chair): Heidi, David, are you confident and comfortable with the fact that Crossrail does not publish enough information? Some of the information around the Board meetings and those papers are not published. To an [GLA] Oversight Committee in 2016, TfL did state that it will be working with Crossrail to ensure there is a consistent approach to transparency, but there does not seem to be any follow-up on this.

Heidi Alexander (Deputy Mayor for Transport): Can I answer that question? I have made my views clear to Crossrail on this issue. I believe that there is very significant public interest in this matter and I have asked Crossrail to publish the minutes of their Board meetings as soon as possible. There may have to be some redactions where there is commercially sensitive information, but I have made my views clear on behalf of the Mayor to Crossrail about this issue.

Florence Eshalomi AM (Deputy Chair): That is great.

Sir Terry Morgan CBE (Chairman, Crossrail): Can I confirm that we will? The caveat is that we do not operate like the TfL Board in that there is no closed and open sessions. The minutes reflect everything that is discussed at the meeting and so there is not a separation between the two discussions. Of course, that means inside those minutes there is some highly sensitive information that is not in the interests of TfL nor the Government to see published. There will be a level of redaction but I am in no doubt that we are going to get pushed very hard to minimise the amount of redaction that goes into the minutes we release and that is what we will do.

Florence Eshalomi AM (Deputy Chair): OK. That is good to hear. Just on the minutes of those meetings as well, I am glad to see there is a commitment there and we will be seeing that. Do you feel that in terms of the independent review that was commissioned, we should see the terms of reference and what that is going to outline?

Heidi Alexander (Deputy Mayor for Transport): I will take it that that question was directed at me. There were a number of independent reviews that have been commissioned and ones more recently that I would like to take this opportunity to update the Committee on.

With respect to the review that we asked an industry expert to do on the realism contained within assumptions about the remaining work to be done on the tunnels and the construction, I will take that away and talk to the Commissioner about the appropriateness of publishing the terms of review on that piece of work. I would just like to remind Committee Members that - I think this was referred to in the Assembly last week - we have also commissioned a second independent review looking at the remaining stages of the project. This is about the dynamic testing period going forward and the trial operations period, and we want to be reassured that the assumptions made about the deliverability of those plans are realistic. We have not had that report back to the joint sponsors, TfL and the DfT, but we are awaiting that.

In the last few weeks, I have also discussed with the Commissioner the need to carry out an independent review which deals with issues around cost assurance and commercial practices within Crossrail Ltd and governance. There is a genuine question about whether the governance arrangements that have been put in place for this project are right and, if I was setting something up of this nature again, I am not sure I would choose the arrangements that we have. We have a situation where both the DfT and TfL are seen to be responsible for the project, but when differing views emerge about where the risks are going to materialise and

how to manage those risks, the joint sponsors who are seen to be responsible have very limited powers of influence and intervention. When things are going well, of course day-to-day autonomy for a project makes a lot of sense. When the going gets tough, some of those governance arrangements have been called into question. I would just like to put that on the record for the Committee.

Florence Eshalomi AM (Deputy Chair): That is good and those governance arrangements should continue to be called into question. Hence why, at the last TfL Audit and Assurance Committee meeting held on 7 June [2018], Crossrail put forward a proposal to dissolve its Audit Committee and this was agreed by the TfL Audit and Assurance Committee. Going forward, looking at Crossrail 2 - touch wood, we will get confirmation and that will start - can you assure us that there will be a lot more scrutiny and definitely that chain of accountability? We can see that by TfL agreeing for Crossrail to dissolve this Audit Committee, an amount of the conflicting information we have heard this morning in terms of who was reporting to whom and when those dates were announced may not have happened if there was a lot more oversight and due diligence.

Heidi Alexander (Deputy Mayor for Transport): We do need to have more reassurance about the audit processes that are in place and I would expect that to be picked up in the independent review of governance that has been commissioned by TfL in the last few days.

Florence Eshalomi AM (Deputy Chair): Thank you.

Sir Terry Morgan CBE (Chairman, Crossrail): Can I just clarify something that was said? There of course have always been two nominees from the sponsors on the Board of Crossrail and there has never been a separation in terms of their representation on the table and the information provided to them.

It also is true to say that - quite rightly, in my opinion - we have been going through a process of demobilising the programme in readiness for closing down the programme. Quite rightly, the decision was made that the Audit Committee in Crossrail should subsume its work into TfL and that was part of a demobilising programme. In other words, this was a transfer of responsibilities into TfL. Indeed, in more recent times when three non-executives were due to be renewed, we decided not to. I decided that it would be helpful in terms of supporting the transition that those nominees should come from TfL and DfT. There are now three members on the Board from TfL and two from DfT. Indeed, the Chair of the TfL Audit [and Assurance Committee] now sits on the Crossrail Board. That was with the intention of trying to make sure that there was a degree of continuity.

Florence Eshalomi AM (Deputy Chair): I appreciate that, but, again, you have highlighted to us that there were concerns around May/June. For this to then go to the Audit Committee on 8 June [2018], when you were fully aware that - and I appreciate that the decision was not taken until 29 August - there were concerns being raised, it does beg questions in terms of why you would want less scrutiny in terms of what was going on in a project of this size.

Simon Wright (Chief Executive and Programme Director, Crossrail): It is not a question of any less scrutiny. It was just a transition in terms of how the oversight takes place. The scrutiny continues. The TfL Audit [and Assurance Committee] still scrutinises Crossrail in the same way it has done throughout.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): If I may, Chair, this decision that we are discussing was taken at a time when the project was still anticipating delivery on schedule and so it was a natural ramping down. What we need to do now is review all of the governance arrangements and the resourcing to make sure that what we have in place is fit for purpose to see the project through to its close. That is part of the review that Heidi has referred to. That decision in

June/July needs to be seen in the context that everyone's hope and expectation at the time was still that we would be opening the central tunnel section in December and therefore, quite rightly, as Terry said, starting to ramp down resource to minimise expenditure. That needs to be revisited in the light of where we now are on schedule.

Heidi Alexander (Deputy Mayor for Transport): Can I just make a comment about this as well, if I may? Language around demobilisation, based upon the assumptions that were there earlier in the summer, may well have been all well and good back then. The situation now, though, is we have to find a way to motivate the staff that we have at Crossrail too. This is a huge disappointment to everyone and there is a lot of anger and frustration. What we need now are cool heads in this, not rash commentary. We need to find a way to ensure that rather than talking about demobilisation, we are talking about motivation because this will be a fantastic asset when it opens. There has been progress made. Clearly, this reset period has been very difficult for everyone, but what I want to see going forward is a spirit of openness and collaboration from Crossrail with other bodies that are involved in delivering this scheme.

If I am going to articulate any criticism, there was undue optimism earlier in the summer about the deliverability of this scheme. I can understand why that is the case. When you have been involved in a project for 10 years and you have confronted innumerable problems and overcome them, then I can understand that desire to hold on to an opening date.

I have come to this quite new. I am not an engineer. I am not a professional project manager. I need straight answers to some straight questions and I have found this period frustrating, if I am honest. I want to find a way where we can go forward and get this fantastic piece of infrastructure up and running for London because, when it does open, it will be incredible.

Caroline Pidgeon MBE AM (Chair): That is the issue from us. You called it 'undue optimism'. David used the word 'hope'. Even when we have looked at other projects like Thameslink, we have no doubt there is a commitment from the industry to deliver this for passengers. We absolutely get that, but maybe sometimes that clouds actually listening to those on the ground who are raising alarms and saying, "This is not quite working. We are not sure we are going to get there". If everyone says, "Yes, we will because we are on this journey together", sometimes it is about who can raise that red flag and say, "It is not going to happen".

Caroline Russell AM: We have heard a lot this morning. We realise now that there is no train yet and that the high-voltage power is overhead and not on a third rail, and that we do not yet have sufficient integration of everything for the full-scale dynamic testing, not until 22 October. We have also heard about the governance arrangements.

Given all of this that we have heard, Heidi, when will we know a more specific opening date for Crossrail?

Heidi Alexander (Deputy Mayor for Transport): I understand why you are asking me that question, but it would probably be better directed to either the Chief Executive or the Chairman.

I would just like to correct something you said in your opening remarks, though. It is not true to say there is no train yet. Trains are running on the sections of Crossrail out from Paddington and out from Liverpool --

Caroline Russell AM: OK, sorry. There is no train fit for testing. That is what I wrote down. Terry said that there was no train yet fit for testing.

Sir Terry Morgan CBE (Chairman, Crossrail): To be precise, as we said last week, we have run a train at full speed in the tunnels. We have never run more than one train. This is what we said before. We have never been able to run more than one train. What we do not yet have is a homologated train where we could say the manufacturer has given us an assurance that we can put this train into test. That is what we are still looking for next month.

Caroline Russell AM: OK. That is what I was referring to when I mentioned it in my opening remarks. Thank you. Would that be Terry or Simon to say when we will have a more specific opening date for Crossrail?

Simon Wright (Chief Executive and Programme Director, Crossrail): As we have said in our statement, we have talked about autumn next year [2019] as being the opening date for Crossrail 2. People want more precision. We are not in a position to give that precision yet because we have to work through getting into this full-scale dynamic testing from 22 October [2018], as I have previously explained, having completed the infrastructure systems that support the railway in the tunnels, having got through and started this testing. When we have some test results under our belt, then we will be in a position to be more definitive about the number of times of cycles we are going to have to go through the software upgrades and what are called 'patches' to fix bugs. Until we get into that, it is really very difficult indeed and no one can be definitive about how many times we will have to go through this cycle. We have made an allowance, we have made an estimate and we have also allowed some risk against that estimate, and so we have been quite cautious and careful about these assessments, but until we have started that dynamic testing process we are not going to be in a position to be more definitive about the outcome.

Caroline Russell AM: I do not know how long these processes take. You anticipate starting this dynamic testing on 22 October and then you say that you need to be able to run some cycles so that you understand how much bug-fixing there is going to be to do?

Simon Wright (Chief Executive and Programme Director, Crossrail): Yes.

Caroline Russell AM: How long do you need for that dynamic testing until you will start to have a sense of the scale of any issues you might be dealing with?

Simon Wright (Chief Executive and Programme Director, Crossrail): Several months.

Caroline Russell AM: Meaning three or four?

Simon Wright (Chief Executive and Programme Director, Crossrail): Three or four months.

Caroline Russell AM: OK. We have been given autumn 2019 as a late estimate date of when Crossrail will open, but do you think that that actually is an optimistic estimate? Do you think we should be waiting for this three- or four-month period after your October dynamic testing begins before we start to think of these dates as solid?

Sir Terry Morgan CBE (Chairman, Crossrail): Can I just say? We have surprised our sponsors by some of the things that we have gone through. We have looked at a programme that will take us through to the autumn of 2019. It is still subject to heavy-duty scrutiny, given the work that we have done to date and the disappointment we created, there needs to be some time for independent scrutiny to take place of our programme. That is right and proper and that is going to take a little time to get to. We have to have more confidence and, indeed, the sponsors have to have more confidence that what we are saying now is deliverable.

Caroline Russell AM: Heidi earlier talked about a spirit of openness and collaboration. That seems to be really important because with a project that is as important as this for London, if everyone is just seeking to blame each other, then that is not going to help us get through it. What I would like to know is how Crossrail and TfL will keep the Assembly up to date on progress in a way that is realistic so that we do not have these surprises going forward.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): First and foremost, we will continue - and Terry will continue, I am sure - to provide reports of each and every meeting of the TfL Board in open session, as he has done throughout the project. Terry attends the TfL Board along with Mike Brown [MVO, Commissioner, TfL] and Mark Wild [Managing Director, London Underground, TfL]. Terry also attends the Programmes and Investment Committee of the TfL Board. At each and every one of those meetings, we provide in open session an update on the progress of the Crossrail project and that is what we will continue to do. Those updates will be subject to more scrutiny and more challenge and more discussion than perhaps has been the case hitherto.

Caroline Russell AM: Are you saying in that that you think that there was not enough scrutiny before?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): No, I am not saying that. It is merely a reference to that inevitably heightened interest in the progress of the project given the very disappointing news that we have all had to come to terms with over the last couple of weeks.

The progress of the Crossrail project has, as I say, been discussed on a regular basis at the TfL Board and at its committees. As has been alluded to in this morning's discussion, there has been a fairly transparent and open exchange of views, both in the public sessions of those boards and in the private sessions between sponsors and the Crossrail executive and in the Sponsor Board. I was not suggesting that there had been insufficient scrutiny; merely an inevitability of where we are now is that there will be heightened interest and everyone, this Committee included, will be wanting to pay closer attention to progress over the coming months as the team works to deliver against the revised schedule.

Caroline Russell AM: Thank you. Can I ask what progress has been made on calculating possible delays to launching the east and west sections of Crossrail?

Simon Wright (Chief Executive and Programme Director, Crossrail): The studies are continuing. They are not concluded but we are making progress. That work is underway. We will need about four to five more weeks before we are able to reach any conclusion and then we will have to go through some governance, unfortunately - not unfortunately because that is what we do, but it will need to go through Board assessment and Board approval - and then we can share that more widely. It is a quite complicated situation with rail. Of course, when we get out onto the Network Rail areas, we get into timetabling and all sorts of complexities around that and so it is taking a bit of time to work that through, but we will conclude that --

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): If I may, Heidi [Alexander] referred a little earlier to the independent reviews of the schedule that had been commissioned by the sponsors and mentioned both this morning and in last week's Plenary session with the Assembly that there were two parts to that schedule review commissioned by the sponsors. The first was looking primarily at the close-out of the construction work up to dynamic testing. That element of the review, as was mentioned last week, has already concluded and broadly aligned with the decision and recommendation arrived at by Terry and his Board at the end of August. The second part of the independent

schedule review that is ongoing is looking at, amongst other things, the realistic timescale for opening stage four and stage five; in other words, getting to the full end-to-end running of the services. That is running alongside the continuing work that Crossrail is carrying out to which Simon just referred.

Caroline Russell AM: It is clearly an incredibly complicated thing that you are dealing with here. If the ongoing tests reveal further serious problems, what are the implications of that just in terms of delivery? Are you planning for that potential? Do you have contingency plans? What happens if things in real life, when you are testing, do not go to plan and the software bugs are more difficult than you expect to fix?

Simon Wright (Chief Executive and Programme Director, Crossrail): We have built some contingency into the schedules and so the answer is yes. We have mitigation measures to bring into play as and when these things occur. However, there are circumstances you can envisage where we had a very serious safety critical software problem late on, which would be difficult to deal with because - it is a complicated area again - safety critical bugs need more time to fix and they have to go through lots more testing and assurance before we can even put them back onto the railway to retest. These are called safety integrity level 4 or safety-critical bugs. If we found one of those later on in our testing, it would prove to be difficult to resolve. It is not likely we will find one late on because we hope to find them either on the test rig or on the test track or indeed when we start on 22 October [2018], but it is possible. Therefore, one has to be open and we are trying to be as open as we possibly can in all contexts and there are these kinds of risks with very complicated software where these things can occur.

Caroline Russell AM: Given the experience of this recent revelation of delay, you will be open immediately with any big delay that comes through?

Simon Wright (Chief Executive and Programme Director, Crossrail): The reporting is in place. We spell these things out as they happen. Therefore, the answer is yes.

Caroline Russell AM: Thank you. Then, finally, I just want to find out about the impact of the delay on the operator, MTR, and also their newly recruited drivers. What will be happening for them?

Heidi Alexander (Deputy Mayor for Transport): Do you want to answer that?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Yes. MTR has been recruiting additional drivers. MTR, just so that everyone is on the same page, is the operator of the Elizabeth line services. Clearly, both MTR and London Underground in terms of station staff have been recruiting to the timetable of a December opening. Roughly, MTR has now something like 380 drivers recruited, but it is important to recognise that more than half of those are already operating the trains on the TfL Rail services running out of Liverpool Street and Paddington. The remainder of those drivers are going to be needed to support the testing programme as that ramps up from the end of October.

Similarly, with station staff, clearly, London Underground has been preparing our resource plans for stations on the basis of a December opening. We will be able to use those staff who have already been recruited elsewhere on the network. What we have been doing over the last couple of weeks is starting to adjust our resource plans to reflect the later opening date. If the concern is that we are going to have armies of train operators and station staff sitting around twiddling their thumbs for nine months, that is not the case. They will be usefully employed.

Caroline Russell AM: No one will lose employment from it?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): No.

Caroline Russell AM: Thank you very much.

Caroline Pidgeon MBE AM (Chair): Thank you. Could I just pick up from Caroline's questions? Heidi, will you commit to writing to the Assembly monthly with a report on where we are on Crossrail? Maybe it should come from Terry [Morgan] or Simon [Wright], but if you are reporting to the TfL Board, would you be able to also write to us each month with an update?

Sir Terry Morgan CBE (Chairman, Crossrail): Whether every month is a question of --

Heidi Alexander (Deputy Mayor for Transport): That would be fine, yes.

Caroline Pidgeon MBE AM (Chair): That would be helpful. Thank you. Also, it has been reported today in *The Sun* that there are potentially issues with contractors. This was in *The Sun* and so we will bear that in mind, but some contractors potentially are walking out and some are going off to work at White Hart Lane's new stadium. Are there potential issues with contractors who are coming to the end --

Sir Terry Morgan CBE (Chairman, Crossrail): I saw that piece, actually, Caroline. You may not have looked at it in the same way that I did, but I noted that it was double the cost that was budgeted for in the first place.

Simon Wright (Chief Executive and Programme Director, Crossrail): For Spurs [Tottenham Hotspur Football Club], that is.

Sir Terry Morgan CBE (Chairman, Crossrail): For Spurs, the stadium cost was double what had been budgeted for.

Caroline Pidgeon MBE AM (Chair): Yes, I am sure.

Sir Terry Morgan CBE (Chairman, Crossrail): I take no comfort in that --

Caroline Pidgeon MBE AM (Chair): The point is whether there are issues with contractors.

Sir Terry Morgan CBE (Chairman, Crossrail): -- but we do not have a resource issue. We have some specialist skills we need for testing and, as was explained last week, we are almost there but we still need some skills. We were demobilising anyway with some of the skills that have gone to the football stadium.

Caroline Pidgeon MBE AM (Chair): Yes, but my question is whether there are potential issues with contractors who thought their contract was coming to an end and then moved on to their next project.

Sir Terry Morgan CBE (Chairman, Crossrail): No.

Simon Wright (Chief Executive and Programme Director, Crossrail): No, we have been able to --

Caroline Pidgeon MBE AM (Chair): You can assure us that they are all fine?

Sir Terry Morgan CBE (Chairman, Crossrail): To be really honest with you, we have had potential industrial relations issues around the fact that we were demobilising the very skills that you have just made reference to.

Simon Wright (Chief Executive and Programme Director, Crossrail): The answer is that it is in a controlled state. People are leaving the programme but in a planned way with proper consultation. They are moving on to other jobs - possibly at Spurs; I do not know where - but they are not disadvantaging Crossrail in that demobilisation. They are going because the work has finished.

Caroline Pidgeon MBE AM (Chair): That is fine. OK. That was clear. Thank you. Let us move on to the financial implications.

Tom Copley AM: Just on the opening dates, I wondered to what extent you are looking at re-phasing the stages, particularly with the central section. It has been suggested, for example, that you might be able to open some sort of shuttle service between Abbey Wood and Canary Wharf earlier and therefore have the associated benefits of the fare revenue. Is this feasible? Is it something you are looking at?

Simon Wright (Chief Executive and Programme Director, Crossrail): Some might now criticise us as being overoptimistic, but in our fight to try to preserve the December date, we did look at options such as a partial opening in an east or a west zone, whether it be Abbey Wood to Canary Wharf or whether it be something like Farringdon to Paddington. There are many difficulties around trying to do that in advance and we concluded that it just was not feasible in terms of the safety issues and the reliability issues. Trying to retrofit the railway after you have already opened it and trying to finish it is very difficult.

Leading up to the autumn 2019 date, it may be possible to have what my operator colleague calls a 'preview' service whereby we might be able to do that in a controlled way and open an element of the railway slightly earlier than the main opening, but it would only be marginally earlier.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): I agree entirely with what Simon said. That was something that the sponsors talked about with Crossrail Ltd. It would have been attractive to try to go for some partial opening, but the advice from Crossrail, which we agreed with, was that that would probably increase the cost and risk in delivering the end state and that that was more important, as Simon said.

Tom Copley AM: Yes, you made the right decision in that regard, but I was just interested in going forward. It is interesting what Simon said.

Simon Wright (Chief Executive and Programme Director, Crossrail): It is still on the agenda, but I would not play it up as being a very significant opportunity. It would be only slightly earlier than the main opening.

Tom Copley AM: Thank you.

Caroline Pidgeon MBE AM (Chair): Thank you, Tom.

Steve O'Connell AM: Thank you, Chair. Perhaps for those who may be watching this and who are new to the project, it might be worth to set the scene, Simon or Terry, to give an indication or a best guess of what the overall Crossrail budget has been and is, as far as you know, in roundish figures including the Elizabeth line, just to set the scene on the financial aspect of Crossrail, just a round figure to the nearest billion.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Broadly speaking, the budget for Crossrail has been £14.8 billion and that is £12.5 billion for the central section and £2.3 billion for the Network Rail-delivered works on the surface sections of the line. In addition to that, and always separate in its accountancy treatment, is roughly £1.1 billion of costs for the rolling stock and depot. That is the broad order of budget for Crossrail.

Steve O'Connell AM: I am sure taxpayers always like to hear about accountancy treatments with public funding. These are enormous funds --

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Absolutely.

Steve O'Connell AM: -- for public accountability. Setting the scene there, leading on from that, we are talking about capital revenue here with the delays. How much additional funding will you need to continue to complete the project, bearing in mind that you had £600 million - you referred to it earlier, Sir Terry - extra in July from the Government prior to this delay? There was obviously an exchange last week with the Mayor. Would you like to try to clarify that?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Yes. The £600 million you refer to is the announcement in the written ministerial statement made in July, which reflected the view of the project at that time as to the likely additional capex requirement. That was, broadly, £300 million additional for the central section and £300 million additional Network Rail funding for completion of the surface section works.

We do not yet know - and Crossrail is still working through - what the financial implications will be of the delay to the schedule that was announced at the end of August. A very preliminary assessment is being done by Crossrail. As Heidi [Alexander] alluded to earlier, sponsors are commissioning an independent review of that work as it unfolds. Until we understand the likely size of any additional capex requirement, we are not really in a position to advise how that additional capex requirement would be met.

Steve O'Connell AM: When we had the exchange last week with the Commissioner [of TfL], there was a simple question, and we are simple people with simple questions. The question was: how much capital and how much revenue? The answer I heard last week was £300 million extra capital --

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): No --

Steve O'Connell AM: Well, please, do not contradict me. The question was posed and the response was £300 million in capital and a revenue aspect because of the lost revenue. That was wrong, was it? I see shaking of heads.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): I am not meaning to contradict you. The £300 million - I think and we can check - to which the Commissioner was referring in his answers last week was the additional £300 million that was announced in July. That was a capital requirement.

The Commissioner also spoke last week about the potential revenue implications. Clearly, there are two implications of the schedule slippage: a potential requirement for additional capital funding and a potential

delay or an actual delay in TfL revenue from the new services. The £300 million was a reference to the July announcement.

What we do not yet know and what Crossrail is still working through and what we will be reviewing is what additional capex funding over and above that £300 million may now be required as a result of the schedule slippage that was announced at the end of August. That information will be worked through and we hope we will have by then concluded discussions with the Government about how any additional funding requirement will be met in good time for the Assembly's review of the TfL Business Plan at the end of this year.

Steve O'Connell AM: OK. I will get on to some conversation about the revenue loss in a minute. You are at present having those discussions with the Government about additional funding. How are they going?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): To the best of my knowledge, there have been two meetings in the week-and-a-half or so since the announcement with DfT and with Treasury colleagues at which we have explored, just kind of thinking what the options might be, without yet knowing what the requirement might be. I have not personally been in those meetings. They have been led by Simon Kilonback, our Chief Financial Officer. What Simon has said is that those initial meetings have been very constructive and very collaborative and that DfT and Treasury officials are coming to the discussions clearly with a view, like us, that this is a problem that the sponsors are going to need to address together.

Steve O'Connell AM: OK. The figure that you quoted that we heard last week, the £300 million, was already in the July amount, but there will be an additional capital requirement, as yet unknown, to continue the project of an unknown amount - probably a large unknown amount - of taxpayer money. Getting back to the revenue, this is lost revenue because the Elizabeth line is not opening on time.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Correct.

Steve O'Connell AM: This is probably more for Heidi perhaps and David because there is a significant loss of income. We heard - and I do not have it in the briefing - £20 million in the first year and rising, possibly. The Commissioner last week was, probably quite fairly, unable to put a real figure on the potential lost revenue income because we are talking about one year and then cumulative years. It is not just the income but there is commercial income, etc. That is a problem for TfL, bearing in mind your operating loss, is it not, Heidi?

Heidi Alexander (Deputy Mayor for Transport): As David has said, we need to understand the detail of the construction programme going forward as well because, potentially, there will be knock-on impacts with regard to fares revenue. As the Commissioner said last week, though, given that the assumptions made in the Business Plan for this year were predicated upon the Elizabeth line being operational between Abbey Wood and Paddington just for a quarter of the year, the income we were expecting this year is largely from the TfL Rail services that are already operating out of Liverpool Street and Paddington. Of course, in the stage three opening - this is the central section opening that is the subject, really, of today's meeting - a lot of the people who will be using that line will be changing their journeys from using the Central line or the Jubilee line. Therefore, in effect, we are recycling those fares within TfL. That is why the anticipated loss of fare revenue for the financial year we are in is in the region, we estimate, of about £20 million because of not hitting the December opening date for the central section.

Steve O'Connell AM: OK. There will be a commercial loss of advertising, etc, that you would not replicate elsewhere because that would be additionality, would it not? I'd assume.

Heidi Alexander (Deputy Mayor for Transport): It is an interesting question about the impact upon commercial revenue because the largest component of that is linked to the proceeds from oversite development. The delay of the stage three opening does not impact upon the oversite development programme. On wider commercial activity, we think there will be a small impact, but we feel that that is, at the moment, manageable within our overall commercial development budget.

Steve O'Connell AM: OK. My last question really before others come in. You are trying to offset the revenue loss and say, "That money will come in because passengers will be using other fares", but through your calculations and the Commissioner's comments last week, there is a significant revenue loss of income. He kept saying last week, quite rightly, that he is working it out because it is quite complex next year [2019] and the year after [2020].

Really for the Deputy Mayor [for Transport], bearing in mind TfL has a significant operational deficit and part of the income predicated would be to address that, would you be considering discussions about other opportunities for income, perhaps reviewing the Mayor's fares freeze?

Heidi Alexander (Deputy Mayor for Transport): We should be clear about fares. The Mayor's fares freeze is actually shoring up demand for TfL services on the tube. If you compare it to the other services in the south of England, the fares freeze is actually keeping public transport affordable for people. We should not be looking at increasing fares to cover the costs of a one-off delay to a construction project. It would not be appropriate to do that and I do not believe it will be necessary.

Steve O'Connell AM: OK. Thank you. My last comment really is echoing my comment of last week. These are significant sums of public money, £300 million additional, £600 million including £300 million, and an unknown significant amount also being asked for, and these are capital funds that could have been spent elsewhere in London on the tram and elsewhere. Yes, I had to get that in, Chair --

Caroline Pidgeon MBE AM (Chair): Yes, absolutely.

Steve O'Connell AM: -- but the fact of the matter is that these are large chunks of TfL capital funding and there seems to be almost no end to the investment in this one project.

Heidi Alexander (Deputy Mayor for Transport): Can I just make a brief point on that?

Steve O'Connell AM: Please do.

Heidi Alexander (Deputy Mayor for Transport): It was also a significant amount of public money that was taken out of the project back in 2010 when the Government decided to reduce --

Tom Copley AM: Yes, exactly.

Heidi Alexander (Deputy Mayor for Transport): -- the overall budget from £15.9 billion to £14.8 billion. We have a situation here now where it may be that the overall cost of the project comes in closer to what the original estimate was before that money was taken out.

Steve O'Connell AM: Thank you for that.

Caroline Pidgeon MBE AM (Chair): OK. Could I just pick up one question that I just wanted to tease out about advertising? In February [2018] TfL launched a tender for six sector-exclusive brands to be launch partners for the [Elizabeth] line's first year of operation with logo presence on the Tube map, controversially. What lost commercial income are you going to see given that there is at least a year's delay to the opening?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Chair, I do not have that information to hand, but I can write to you with that.

Caroline Pidgeon MBE AM (Chair): OK. That would be helpful.

Navin Shah AM: You are absolutely right that the Deputy Mayor [for Transport] has confirmed that she has been extremely concerned about the increase in cost. I want to try to get around in simple terms or in layperson's terms the whole issue about contractual arrangements in terms of project value and so on. Am I right in saying that from the figures being quoted, £14.8 billion plus £1.1 billion for rolling stock, and that gives us the current what you might call value of the capital programme at £15.9 billion? Is that correct?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Yes. There is a bit of a coincidence of numbers here that could cause confusion. The construction budget is £14.8 billion. It was, as Heidi just mentioned, previously before 2010 £15.9 billion. It was reduced to £14.8 billion. Separately, the rolling stock is £1.1 billion. If you add the two together, you get back to £15.9 billion, but it is not the same £15.9 billion.

Navin Shah AM: Fine. I was simply trying to get to the figure as quoted. Generally, when you have construction projects or I suppose any projects, you allow for contingency funds. Are you able to tell us that this figure includes that contingency fund or is that additional to the sum quoted?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Shall I go first? The £14.8 billion in the original budget included a significant element of contingency.

Navin Shah AM: How much was that?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Specifically, there was £600 million of TfL-funded contingency. The last £600 million of that £14.8 billion was TfL-provided project contingency. Terry referenced earlier the breach that Crossrail reported in June [2018]. That breach was in effect Crossrail Ltd telling the sponsors that it had exhausted the contingency and that it would require additional funding; hence the additional £300 million that we were talking about a few moments ago. The original budget included contingency. The position we are now in is that that contingency has, unfortunately, been exhausted and, as we have been discussing, what we do not know yet is what the additional capital funding requirement will be. In arriving at that new capital funding requirement, we will need to include a contingency element within that.

Navin Shah AM: Are you able to tell us whether the contingency that you had, which normally is for unforeseen elements of projects and unforeseen circumstances, which could be, for example, testing or software that you mentioned, would also include -- my concern is that there is also delay due to the problem of fitting out. To me, that is surprising. That element is something which should have been foreseen.

Are you able to tell me what the contingency allows for in terms of those kinds of elements and what the new contingency of £300 million allows for? Do you reckon that is likely to increase?

Simon Wright (Chief Executive and Programme Director, Crossrail): If I could, I will answer the first part of that, perhaps. The original contingency was estimated through a quantified risk assessment (QRA) process. We took all of our 800 risks, we looked at the probability of whether they were likely or not likely to occur and we looked at the cost of fixing them if they did occur. That was done right at the very beginning of the programme. This quantified risk assessment, if you like, becomes the contingency sum.

Of course, there are hundreds of risks occurring every day on big programmes, from the tunnelling phase all the way through to the very complicated construction of the station boxes 45 metres deep in the middle of London and incredibly difficult to build. Some of these risks did occur and so contingency was being converted into cost as we went through right from 2008/09. Contingency was there for these very reasons, as you point out, of dealing with risks as they occurred. Unfortunately, clearly, in the circumstances, this contingency or the risk provision was inadequate to cover the ultimate risk when we got into 2018, which was revolving around software and integration.

Is there going to be risk in the future provision? David has already suggested that that would be a very necessary thing to do: provide a QRA.

Navin Shah AM: Can you let the Committee know at an appropriate stage when you have completed your assessment? Obviously, time is money. As you are saying, currently you do not know whether the completion at the end of next year [2019] is realistic or not. If that is likely to slip further, there is additional cost. Can you let the Committee know both when you get to a realistic completion date together with what the new contract value is, ie the completion sum? That certainly we need to know because it has implications in terms of taxpayers' money and the cost to Londoners apart from the other funding commitment that that will be required.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Of course we will do that. By the time we are discussing with the Assembly the outcome of the Business Planning process, we would expect to have a full understanding of the additional funding requirement, the contingency element within that and how that funding requirement will be met.

Navin Shah AM: Thank you.

Tom Copley AM: I am glad, Heidi [Alexander], that you pointed out the original budget. Like Steve [O'Connell AM], I am a simple soul and it almost seems to me like a project costs what it costs and just hacking bits out of it is probably not going to be successful.

I wondered if I could hear from David and maybe Sir Terry. When that agreement was made that the budget would be reduced, what were your thoughts at the time as to how realistic it was? Could you also tell us if you feel that it is contributed at all to the delay? Perhaps I will start with Sir Terry.

Sir Terry Morgan CBE (Chairman, Crossrail): I will avoid repetition in terms of what Simon has said. We applied a QRA to the funding and there were a number of adjustments made and the scope changed where it was, but at that time we supported the reduction in funding. It was not the motive behind this but there was a time when the whole going forward of the programme was in doubt and so we went through a process of satisfying ourselves at that time with our understanding of the programme whether we had sufficient funding with the £14.8 billion. With the benefit of hindsight, we will say that we clearly did not have enough contingency left to deal with things because some of the contingency we had was to deal with things we did not know about --

Tom Copley AM: Unknown unknowns.

Sir Terry Morgan CBE (Chairman, Crossrail): -- and some of the things that we did not know about we actually made decisions not to commit until we knew something better. There were two sources of things we had to manage that were beyond the original scope of the things that we committed to do.

Tom Copley AM: Did it contribute to the delay at all?

Sir Terry Morgan CBE (Chairman, Crossrail): No.

Tom Copley AM: That was not a factor?

Sir Terry Morgan CBE (Chairman, Crossrail): No. There has been some correspondence I have seen in public suggesting that there was a delay on the train contract. I am being very clear. There was some discussion around how that should be funded. That was of a concern to us because that brought some ambiguity to the programme. However, when the decision was made that the trains would be procured through the borrowing capacity of TfL, that was something we really welcomed because it brought certainty to the programme. Indeed, within a couple of weeks of making the recommendation about who should win the contract, the order was placed, which would have been quite unimaginable in the context of a private financial initiative (PFI).

Tom Copley AM: Yes, you made that point last week. David, yes?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): I concur with that. Sir Terry and I are two of the dwindling number of people who have been involved in this project since the outset and so my recollection of those discussions in the 2010 spending review aligns with Sir Terry's. It is important to remember that at the time Crossrail was not a committed project. We had not started digging. There was a rationale behind the reduction in funding and that was that the tender returns for the main civils contracts had come in with very tight prices because this was in a period after the global financial crisis of 2008 and so there were very tight prices coming in from the market. I agree with Sir Terry that with hindsight now you would look at that and think that maybe taking that money out was the wrong call. There was a rationale for it at the time.

As regards the financing of the train and the decisions and discussions that took place at that time, my recollection is the same as Terry's, actually. The main reason for changing the financing mechanism for the rolling stock - because the original intent would be that it would be PFI finance - was actually to remove schedule risk because we felt that trying to finance the train through a PFI deal, based on what had been experienced on the Thameslink programme, would put us in a very difficult negotiating position opposite the banks in turn because they would know they had us up against a hard deadline. The decisions that were taken around the approach to rolling stock financing at that time were taken with the main purpose of de-risking the schedule.

Tom Copley AM: Can I move on to another point that was raised last week, the issue with Canary Wharf and whether or not there are any penalty clauses? I am told there is a penalty clause but it does not kick in until 2021. Is that right?

Simon Wright (Chief Executive and Programme Director, Crossrail): If I can clarify --

Tom Copley AM: Can you tell me what the details of that are? Yes, go on.

Simon Wright (Chief Executive and Programme Director, Crossrail): It does not kick in until December 2021 and there are various criteria about providing services and there are penalties if we were to overrun to any extent, which I sincerely trust is unimaginable. There are penalties but with a cap.

Tom Copley AM: Are there any other penalty clauses you have with anyone else?

Simon Wright (Chief Executive and Programme Director, Crossrail): Not that I am aware of.

Caroline Pidgeon MBE AM (Chair): Could I clarify about Woolwich and Berkeley Homes?

Simon Wright (Chief Executive and Programme Director, Crossrail): I do not believe there is a penalty clause with Woolwich. It put in money to build the civil works, but I do not believe there is any other leverage.

Caroline Pidgeon MBE AM (Chair): Perhaps we can get that confirmed in writing.

Sir Terry Morgan CBE (Chairman, Crossrail): Berkeley Homes did want to build out that station, but we commercially decided that we would not do that, and so Berkeley Homes was simply a contractor to us.

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Chair, my understanding is the same as Simon's that there is no penalty clause around Woolwich, but we will confirm that.

Tom Copley AM: The final one, to Heidi this one. The Mayor confirmed last week, quite rightly, that the bus rescheduling that was going to be based on this was going to be delayed or the bus changes and the cuts were going to be delayed. What is the knock-on impact of that in terms of the cost for the bus service?

Heidi Alexander (Deputy Mayor for Transport): I do not have that figure to hand. I would just like to clarify something about the various bus consultations that have happened and are also due to happen. The Commissioner said last week that where we have consulted on changes that were directly related to the opening of the Elizabeth line and how people might get to stations around Woolwich, for example, we would not rush to implement those.

However, there are also some wider considerations around, for example, the introduction of the Ultra Low Emission Zone in central London in April of next year [2019] and so we need to do a thorough piece of work at TfL to look at all the changes in the round and to understand exactly which changes there may still be a rationale for going ahead with. However, clearly, where it is only linked to the opening of the central section of the Elizabeth line, then we will not be going ahead with those, but we do need to look at some of the implications around central London.

None of the bus routes that are included in the consultation that are due to start later this month are directly affected or related to the Elizabeth line. Whilst we have looked at increases in rail capacity on a number of the Tube services where we have been able to increase the frequency of services and, for example, the introduction of the Overground in east London, the consultation that is upcoming around buses is related to those changes in rail capacity. Therefore, none of the routes that are included in that would be affected by this announcement about Crossrail. I just wanted to clarify because there is the stuff that we have consulted on already and then there is the stuff that is to come.

Tom Copley AM: OK. Thank you.

Caroline Pidgeon MBE AM (Chair): Thank you. I just wanted to say when we were talking about the original decision that of course at that time Crossrail was not going to go to Reading and Heathrow was not confirmed. Presumably, that has been another factor that has changed as the project has developed.

Simon Wright (Chief Executive and Programme Director, Crossrail): We were going to Heathrow in part, but you are right about the Reading decision.

Caroline Pidgeon MBE AM (Chair): That must have some cost implication there as well. Let us move on to our final section, which is implications for business and Crossrail 2.

Joanne McCartney AM: I want to look at some of the wider implications and perhaps I could ask a general question to start. How will the delay affect businesses and planned developments along the route? Have you had any feedback from any organisations who have concerns around this?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): We have not had any feedback in the last two weeks around specific developments along the line of route. In respect of developments, it is unlikely that people would be significantly changing their plans as a result of this delay in schedule. However, clearly, the delay is extremely disappointing to businesses and Londoners in general. From a TfL perspective, it is important that we do not lose sight of that. There is lots of discussion about funding and what-have-you and all the risks and governance, but actually the most disappointing thing here is that we do not have what will be a fantastic addition to London's transport services. It is going to be eight or nine months later than previously planned and businesses will share the disappointment and feel the pain of that along with everyone else. No, as far as I am aware, we have not had any specific feedback or correspondence about the implications of the delay.

Sir Terry Morgan CBE (Chairman, Crossrail): Could I please just remind you? Heidi is right. This is still going to be a fantastic railway when it is introduced. Of course, the fact is that we have been working for 10 years on this programme. Many developers - not necessarily who have made a full contribution to the development, I hasten to add - have made a very positive decision to relocate into London.

I hope that it helps Crossrail 2 because the reality is that when we won support for Crossrail, it was based on a gross domestic product (GDP) benefit of £42 billion. That is a gross understatement. Over the lifetime of the programme, that is a gross understatement of the actual impact that Crossrail has already had on London. There are jobs. There is redevelopment. The oversite developments have gone forward in exactly the way we had hoped. There is more space created as a consequence. Some very big multinational companies have relocated into London and I have no doubt the fact that there is this additional public transport capacity being made available would have been a factor in terms of making that decision. Crossrail will still have - later than any of us would want - a very positive impact on London's economy.

Joanne McCartney AM: Thank you. Perhaps this is one for TfL. Obviously, many businesses have contributed to the cost of the Elizabeth line through the Crossrail business rate supplement. Does the increased costing have any impact on that in future years?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): I have referred to the constructive discussions we have started with the Government and so we will be looking at all the options available to us to meet the additional funding requirement. That could include further contributions through the Mayoral Community Infrastructure Levy or business rates, yes.

Joanne McCartney AM: That is still open for discussion at the moment?

David Hughes (Director of Strategy and Network Development, London Underground, Transport for London): Yes.

Joanne McCartney AM: Thank you. I want to move on now to the impact, if any, this delay will have on Crossrail 2, which is a project all of us in this room have championed. It is going to bring great benefits to my constituency of Enfield and Haringey. You have had discussions with the DfT since this was announced. Have you had discussions around how this might impact Crossrail 2 or whether it will do?

Heidi Alexander (Deputy Mayor for Transport): As yet, I have not had a discussion directly with the DfT about what implications there are, if any, for Crossrail 2. It is my view that these are two entirely separate projects and should be treated as such. The strategic transport need for Crossrail 2 will continue to exist come what may. We desperately need to tackle overcrowding on the transport network, be that on the Northern line, at Euston, on South Western trains, and there is a desperate need to build more homes in the southeast of England. That strategic link from southwest London through to northeast London is vitally important for that.

What Crossrail 1 has demonstrated, albeit that this current period is quite difficult for everyone, and what we were able to show is that London and central Government were able to come together to finance a really important piece of infrastructure. I hope that in the negotiations that we have going forward -- I am not really interested in raking over the past, to be honest. I want to find a solution to this jointly funded project at the moment and jointly sponsored project and make sure that we open a safe and reliable railway on day one and that we can work with the DfT on the Independent Affordability Review that has been done by Mike Gerrard [Chair, Independent Affordability Review]. I see no reason why what has happened with Crossrail and these difficulties that we are experiencing at the moment should impact upon the case for Crossrail 2 because that case exists irrespective of what is happening at the moment.

Joanne McCartney AM: Do you still feel you are on track for a Hybrid Bill in 2021?

Heidi Alexander (Deputy Mayor for Transport): Clearly, there are some important decisions that the Government needs to make about its commitment to Crossrail 2 and enabling the development works that are ongoing to continue. Around the upcoming budget and in the spending review, I have met with Jo Johnson [MP, Minister of State for the DfT] in the last couple of months since I have been in post and we had a discussion about Crossrail 2 and the importance of it there. Clearly, we need to look at the detail of Mike Gerrard's Independent Affordability Review and come to some conclusions about the route and about how to deliver Crossrail 2. It is a very big project and we need to have those discussions and come to some agreement with the DfT.

Joanne McCartney AM: Wonderful. Going forward on Crossrail 2, there will be questions asked about TfL and the DfT's ability to oversee major projects. What can you do, I suppose? With the learning from what has happened with Crossrail, how are you going to make sure that that is taken forward into any oversight or governance arrangements for Crossrail 2?

Heidi Alexander (Deputy Mayor for Transport): I alluded earlier to the fact that I see a number of lessons that really need to be learned from what has happened here. One of them is about the oversight that the sponsors of a project have and their ability to intervene and influence when dealing with the sorts of problems that have emerged in recent weeks over Crossrail. There is a broad piece of learning for the industry to do and

for the Government to do about what governance arrangements are appropriate for very large-scale infrastructure projects like this.

I would make two other points about lessons learned. One is that when you are building a railway, you cannot cut corners. The matter of the funding reduction that I spoke about earlier is really important. Railways are very complex and expensive things to build and so the fact that this project may come in close to the original budget is a lesson for us.

The third thing I would say is about complexity. One of the problems that we are dealing with here is the fact that we are trying to integrate three signalling systems. We need to find a way to simplify big infrastructure projects. There is an inherent tension between the complexity of the project and the connectivity that it provides, but there are engineering solutions that you need to look at right at the beginning about how you can simplify some of that. With the nature of signalling arrangements, for example, on Crossrail 2, whilst it might sound a bit geeky, that needs to be considered right at the outset.

Joanne McCartney AM: Thank you.

Caroline Pidgeon MBE AM (Chair): Lovely. Thank you very much. That concludes our questions on Crossrail. I am sorry to have overrun but we have some really good answers this morning and a much more detailed understanding of what really has happened and that there perhaps were some concerns earlier. Thank you for your openness, all of you. Thank you, David, Heidi, Sir Terry and Simon. We will be following up in writing with some further questions.