

Public Accounts Committee

Oral evidence: Crossrail—a progress update, HC 184

Monday 19 July 2021

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Members present: Meg Hillier (Chair); Gareth Bacon; Sir Geoffrey Clifton-Brown; Mr Mark Francois; Sarah Olney; Kate Osamor; and James Wild.

Lee-Ann Murray, Director, National Audit Office, and Marius Gallaher, Alternate Treasury Officer of Accounts, HM Treasury, were in attendance.

Questions 1 to 86

Witnesses

I: Andy Byford, Transport Commissioner, Transport for London; Bernadette Kelly, Permanent Secretary, Department for Transport; Matthew Lodge, Director, Rail Infrastructure South, Department for Transport; and Mark Wild, Chief Executive Officer, Crossrail Ltd.



Report by the Comptroller and Auditor General
Crossrail—a progress update (HC 299)

Examination of witnesses

Witnesses: Andy Byford, Bernadette Kelly, Matthew Lodge and Mark Wild.

Chair: Welcome to the Public Accounts Committee on Monday 19 July 2021. We are examining again the issue of Crossrail—one of the major construction projects under way in London. It will provide a very important link from east of London to west of London and the bit in between, which is the bit we are focusing on today—the underground section through central London.

At the end of last year, in December, £825 million was secured for the project. That will pay for the tunnelled section to open, which is now expected in the first half of 2022, so some time between January and June. That £825 million was not the total needed to finish the project at that point, so one question we will ask is how much the cost is expected to be now and how it will be paid. We are also going to look at the delivery challenges that remain. For those who have followed this issue before, we were concerned about the integration of the different systems software—signalling, train running and so on. Crossrail will, of course, be known as the Elizabeth line. The signage is already up.

Thank you to our witnesses for the letter they sent us last week, which highlighted the number of stations that have now been handed over to Transport for London. We will touch on that, too. I welcome our witnesses today. In the room with us physically we have Bernadette Kelly, permanent secretary at the Department for Transport, and Mark Wild, chief executive officer for Crossrail Ltd.

Joining us virtually we have Matthew Lodge, director for rail infrastructure south at the Department for Transport, and Andy Byford, the transport commissioner at Transport for London. We are delighted that Mr Byford is able to join us because he has tested positive for covid and is working from home. Nevertheless, thank you, and please let us know if at any point you need a comfort break. We appreciate your attending, even though you are not able to attend in person, so thank you for that.

Sarah Olney MP has a question for Ms Kelly, the permanent secretary.

Q1 **Sarah Olney:** Thank you very much, Chair. Sorry about the background noise; I have my windows open.

I want to ask about masks on trains. You know that TfL, as of last week, has made it a condition of carriage that masks must continue to be worn on TfL's services, but a lot of my constituents in Richmond Park also use South Western Railway for their commute. I have spoken to South Western Railway and they are not taking the same line. They say that



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now that the law has changed, as of midnight last night, British Transport Police can no longer enforce it, and they do not want to make it a condition of carriage because that would make it difficult for their staff who might come into conflict. What guidance is the Department offering to train operating companies about mask wearing?

Bernadette Kelly: We have said that we expect and recommend that people wear masks on public transport. That is the position on the national rail network. You are correct that at the moment operators are not making it a condition of carriage for people travelling on trains to wear a mask. Instead, they are using the expect and recommend position. On the South Western Rail train that I came in on this morning, the tannoy emphasised that guidance to passengers, but it is guidance and not mandatory. As you say, the position on TfL is different.

Q2 **Sarah Olney:** Can I quickly ask you about a report that was in *The Guardian* on Saturday? It was about updated research data available about the safety of travelling on trains. A study last year showed just one covid infection in every 11,000 journeys, which makes people believe that train travel is safe. We understand that that data might have been updated and that the updated data might show that the risk has increased, but that is not being released. Can you tell us any more about that?

Bernadette Kelly: I don't have the information on the data in the article that you are referring to, I'm afraid. I can certainly endeavour to get that and write to the Committee, but I wouldn't want to try and just hazard a guess on it. You are right that the data we have had to date suggests a very low risk of infection, but rather than giving you an uninformed answer, I will come back to you formally on that particular article.

Q3 **Chair:** Can I check on that data? Is this something that the Department is collecting and planning to do regularly, especially as we unlock?

Bernadette Kelly: Again, I am not exactly sure what the status of the data is that is referred to here, so do you mind if I get some further information and come back to you immediately on that?

Q4 **Chair:** On the issue of mask wearing, one issue that has been raised with us is that if you are on an LNER train travelling from England to Scotland, the rules change as you cross the border. Have you any idea how that will work practically?

Bernadette Kelly: What I hope is that people will be sensible and put their face masks on, if they haven't already got them on, at the point at which they travel into Scotland, where it is mandatory. It is very much the same as coming in on the train to a London mainline station and then getting on to the TfL network. As I say, we are relying on people's good sense and good judgment here, and certainly what I saw this morning was a lot of people wearing masks on public transport, which is what you would expect.

Q5 **Sir Geoffrey Clifton-Brown:** Good afternoon, Ms Kelly. Can I ask you a question on the traffic light system? We seem to have introduced a fourth



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light in the traffic lights, which is usually a recipe for chaos, I would have thought. Are we likely to see more fourth lights? Or are we going to see a rainbow of all the colours, with joy for everybody, but perhaps an illusory crock of gold at the end of it? Where are we going to on travel abroad? There is pent-up demand in this country. People want to travel abroad and they want clear messages.

Bernadette Kelly: I understand that, obviously. What we have done with France is to introduce an exemption to the red traffic light, which none the less requires people who have been double vaccinated to quarantine on arrival. I agree that it does add some complications. What we are doing now is urgently ensuring that we have a system that is as effective as possible and something that people can understand.

I understand the gist of your question. Clearly, it was felt that, in light of concerns about the beta variant and its prevalence in France, this was a necessary step. Obviously, our preference is for a system that is as comprehensible and straightforward as we can make it.

Q6 **Sir Geoffrey Clifton-Brown:** If people are double vaccinated, why are we worried about where they are travelling? Hopefully, unless an entirely new variant arises, they should be relatively resistant to it and not bring anything back.

Bernadette Kelly: Look, I am not going to second guess the public health professionals and the advice that is driving some of this decision making. I am not a chief medical officer or a scientific adviser. The issue, as I understand it, is how effective some of the vaccines, notably AstraZeneca, are against the beta variant, so I think it is linked to the very particular efficacy of certain vaccines against certain variants. That is what is driving decision making here on public health grounds.

I don't think it is for me to second guess that. From the Department's perspective, we are trying to strike a sensible balance that allows people to travel where it is safe to do so.

Chair: I may have inadvertently erased a couple of sentences in my introduction. Let me be clear that the £825 million loan from the Department through the GLA to Crossrail was for the whole line and not just for the central section. I think I slightly misspoke, so I want to make that absolutely clear. I will now ask Gareth Bacon to kick off the main session.

Q7 **Gareth Bacon:** Thank you very much, Chair. Mr Wild, where are you at with the current schedule and current costs?

Mark Wild: On the current schedule, at the moment we are in the phase of trial running, which is almost the penultimate stage of Crossrail before we enter something called trial operations. Where we are at the moment is that 12 trains an hour are running. We are shaking the system down; this process takes several months to shake all the bugs out of it. We are in that phase of trial running. At the same time, we are doing the final



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integration testing. We are doing the tests that we can only do once the whole railway exists; the tests you cannot do in laboratories.

Those two things culminate in the entry to trial operations later in the autumn. Trial operations are really the dress rehearsal. From the day we enter trial operations, the opening of the railway will be a short number of weeks away. We are doing well, I think, in terms of integration: five of the nine central stations have been handed over, and Paddington and Whitechapel will be handed over in the next five weeks, which leaves only Canary Wharf and Bond Street. Broadly, I think the project has demonstrated a trajectory of getting to trial operations later in the autumn, which leads to our opening window being in the first half of next year. We will do our very best to get to the front edge of that window.

Q8 Gareth Bacon: Do you have a target date for the trial operations to start?

Mark Wild: The earliest the trial operations can start is in November. That is our target. Clearly, that of course depends on dropping the final drop of software, which is actually coming to the railway at the moment. Until that software has been worked on the railway over the next six to eight weeks, we will not really know, but November is the earliest we can start.

Q9 Gareth Bacon: How long do you expect the trial operations to last?

Mark Wild: The trial operations period is typically between 10 to 12 weeks.

Q10 Gareth Bacon: So we would be looking at full operations starting, at the earliest, at some point in February.

Mark Wild: Yes.

Q11 Gareth Bacon: What impact has covid had?

Mark Wild: Two impacts, really. It has cost us about £230 million, which is part of the £1.5 billion increase we have seen under my watch as CEO, so it has had a financial effect. The time effect of covid is probably neutral, because we did a reasonably good job when the pandemic happened. We unspooled the whole organisation and rebuilt it within 10 to 12 weeks, and we have recovered all the production that we lost. The effect of covid on Crossrail is predominantly, unfortunately, more of a cost pressure, which is of course the last thing we need, but I think we have controlled and contained the time effect of covid, so that has been pretty neutral.

Q12 Gareth Bacon: The Elizabeth line committee papers that were published, I believe, last week forecast the mid-range of the cost of covid was now at around £150 million, which is up from the original estimate of £120 million; I appreciate that that is the mid-range, rather than hard and fast. Slightly contrary to what you just said, it seems to be moving further away.

Mark Wild: It is very difficult to look at mid-ranges right in the middle of a month or two in which you are dealing with it. The difference of the £30 million between the NAO Report and the Elizabeth line committee report



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last week was the restocking of what we term the “management reserve”. We have a management reserve of £50 million that we reserve entirely for unknown unknowns. One of the big lessons of Crossrail from the past, when I sat on the board of Crossrail, was that we did not actually have a reserve for unknown unknowns. The movement in this period is to restock that reserve. We hope we do not need it, but I think everybody would agree that it is prudent for Crossrail to have a reserve. We estimate that to be £50 million. It is not allocated to any specific issue. We are rebuilding it because we are about to enter the most difficult, challenging system integration phase. The movement in the month is really the restocking of our management reserve.

- Q13 **Gareth Bacon:** Starting with the trial date—obviously, if the trial date is not hit, it would be unreasonable to assume you would hit the opening date—if I asked you for a level of confidence, as a percentage, how confident are you that that date in November will be hit?

Mark Wild: It’s very difficult to give a percentage until you see the software. If the software comes to the railway in the next six to eight weeks and we do not see any major problems with the software—I do not anticipate any—I would be very confident. Clearly, with software, we could get a glitch or a bug, and it is a safety-critical system. The next six to eight weeks are quite an important time, but if the software comes to the railway complete, without any bugs—it is presently in our laboratories and performing well—I would be very confident. Certainly, our objective as a leadership team is to get there.

- Q14 **Gareth Bacon:** I want to bring Mr Lodge in briefly. Network Rail’s costs on Crossrail have continued to increase. What do you attribute that to?

Matthew Lodge: I think a lot of those cost increases are historical. Since we re-baselined the Network Rail programme a couple of years ago, they have been consistent and stable. A lot of that is quite historical. Some of that is to do with scope that was missing from the original specification. There were impacts from the Carillion liquidation back in 2018, which had an impact on costs and prolongation, and Network Rail had to re-tender some work as a result of that.

In line with other things that we have seen on Crossrail, issues with the level of productivity that we have got from contractors have prolonged the work, because you have added costs into the project costs. It is worth saying that, in the last few months, Network Rail have been powering ahead with the work they have been doing. They have handed over Acton main line, Ealing Broadway and West Ealing in the last couple of months, and I am hoping that the next one of the stations, which is West Drayton, should be handed over in the next couple of days—fingers crossed. I know there are some go/no-go discussions this afternoon, but that should be coming in the next few days.

- Q15 **Gareth Bacon:** Are you content that you have now reached maximum exceedance of cost? That is a bad way of expressing it, but are you not expecting any more cost overruns?



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Matthew Lodge: On Network Rails works? No, I am confident that we can deliver them within the funding that we have got now.

- Q16 **Gareth Bacon:** Okay. I will come back to Mr Wild. You expect the central section to open, ideally, at some point in February, but it could slip a little bit. The NAO Report pointed out that the east and west sections have already been operating, so we will be talking about the entire line being operational from that point in February, hopefully.

Mark Wild: No, the concept of Crossrail is to run two existing railways—east and west—that are run very successfully now by TfL Rail. The objective to open the central section is a 12-trains-an-hour shuttle service between Paddington and Abbey Wood. That is the date that we aim for: early February. The window we have is February to June, actually, but hopefully we get to the front edge of that. Once those three independent railways are running—east, west and central—we then do the final stage.

Actually, just in the past period—reading the Elizabeth line committee papers—we have changed the staging strategy to bring all of the railway together in one go. Instead of, as was planned, bringing in the eastern trains and then bringing in the western trains, we will bring all of the railway together sometime later in 2022. That clearly depends on the early start to stage 3, which is Paddington to Abbey Wood.

You really need a solid bedrock. You need to make sure the reliability of that central section is very solid as a base before you bring trains in from the Great Western and the Great Eastern. But the clever work done by TfL in recent history—the past couple of months—is to have one single stage instead of the two stages. Andy Byford, the commissioner, would comment better than me, but that should produce a benefit and an increase in what the previous Crossrail board estimated.

Gareth Bacon: I have had a note from the Chair. I think I have interrupted the running order by mistake.

Chair: My error, Mr Bacon. We are still working out how to do it when we are actually facing each other face to face. Thank you for your forbearance, Mr Bacon. I want to turn to Mr Mark Francois MP.

- Q17 **Mr Francois:** Thank you, Chair. Mr Byford, the whole Committee appreciates your joining us under the circumstances; thank you, sir.

I declare a quick interest: as the Member for Rayleigh and Wickford, Crossrail does not quite reach my patch, but my constituents would get to Shenfield, cross platforms and pick it up, so I do have an interest. However, if you will forgive me, because of all the delays, enthusiasm in my patch for Crossrail has waned somewhat, if I am honest with you. That said, who are TfL's auditors?

Andy Byford: Do you mean for the Crossrail project specifically?

Mr Francois: I just want, very quickly, to go from the parent company down. Who audits Transport for London?



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Andy Byford: I believe it is Ernst & Young. I should know that off the top of my head, but I will check my facts on that.

- Q18 **Mr Francois:** Okay, E&Y. Thank you. According to the *Evening Standard* of last Thursday, in the last few years TfL has had bail-out loans from the Government in the order of £5 billion. We appreciate the difficulties because of covid, obviously, but is it true to say that without those Government loans, TfL would, in effect, be trading insolvently?

Andy Byford: What has happened with TfL is that, certainly for the period of covid, our revenues have absolutely collapsed, because our ridership has collapsed. Our ridership has collapsed because we followed Government advice—namely, the direction to retain public transport for critical workers. That was the right call by Government. We duly implemented that, but it meant that in the short term—that continues up to today—we are almost wholly reliant on the only banker in town, which is the Government, to provide us with revenue support to offset that ongoing loss of ridership.

With the deals that we have received—I should say straight up that we are very grateful to Her Majesty's Government for the support we have received—the Government have set conditions against that support, not unreasonably. That includes the target to get back to self-sufficiency within two years. We believe that that is possible.

However, to do that we need to find new revenue sources, because what this pandemic has brutally exposed is that an overreliance, to the tune of 72%, on income through the fare box is wholly inadequate. It is a broken model. Bear in mind that in most international transit systems, including the one from which I came, New York City Transit, the dependence on fares through the fare box is around 38%. In the short term, we had no choice but to go to Government. We believe that we can get back to day-to-day self-sufficiency. My definition of that is covering our operating, maintenance and funding costs through our own means and not relying on Government support.

- Q19 **Mr Francois:** It is a broken model. Coming to the programme itself, page 24 of the Report says, "The current forecast cost of completing the programme (excluding new trains and depot costs) is £18.9 billion." Why were the train and depot costs excluded from the costs of the programme? Presumably, you cannot run Crossrail without the trains, and you cannot run the trains without the depot.

Andy Byford: My understanding, sir, is that it is an accounting requirement that we typically carry the trains and other major capital items separately from the construction costs. Also, the trains were funded through a special mechanism that required them to be accounted for differently. I would ask the CEO, Mark Wild, to correct me if I am wrong on that point.

However, you are correct: the overall amount that we state for the capital construction of the stations, the track and all of the equipment that goes



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into the stations is £18.9 billion, but we are required to carry the costs of the trains separately. Mark, is there anything you can add to that?

Mark Wild: Yes. Throughout the whole history of Crossrail, the funding of the construction programme excluded the trains, which are a 30-year O&M deal with a capex component as well. For the whole history of Crossrail, it has been custom and practice to report it separately. The train contract with Bombardier, and now Alstom, is with TfL. However, it has been custom and practice to report on it in every written ministerial statement since the beginning of Crossrail.

Q20 **Mr Francois:** I get that, but if I am a layman I would still say that the trains are part of the project.

Mark Wild: I do not know why it started in 2012 that way, but the contract was put in place in 2014, and it has been reported separately ever since.

Q21 **Mr Francois:** What is the cost of the depot?

Mark Wild: Of the £1.1 billion, the depot might be 30% of that cost .

Q22 **Mr Francois:** Okay, so the depot is about another third of a billion, or a bit more.

Mark Wild: Yes, about £250 million to £300 million. I would say, though—I would say this—that the depot is one of the more advanced and sophisticated in the world. Having built train depots all over the world, I think it represents good value for money.

Q23 **Mr Francois:** Okay. On Network Rail, page 26, paragraph 2.7, of the Report says, "Network Rail's forecast cost of completing works on the national rail network"—I take it that that relates to Crossrail—"has increased by £390 million (15%) since we last reported in May 2019." That is quite a lot of money. Why has that cost gone up so much in two years?

Bernadette Kelly: I think, in fairness, the Network Rail costs have always fallen directly to the Department for Transport, so I or Mr Lodge should answer that question. Mr Lodge did indicate the things that have driven those increases since 2020. We have seen retendering costs as a result of the Carillion liquidation. We have seen some scope issues that had not been identified in original designs, which meant work had to be redone.

Chair: To help people following this, page 30, figure 8 has some of those headline figures.

Bernadette Kelly: Thank you, I recognise the figures. There was some redesign work at western stations. There were some productivity challenges, as there have been elsewhere in the project. There is a range of factors that have led to those increases in the on-network costs for which Network Rail is directly responsible.

Mr Francois: Okay. If I can speak purely as a constituency MP, I have found Network Rail a nightmare to deal with down the years. They are



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like an old 1970s-style nationalised industry: they are big, they are bureaucratic, they are unresponsive. What worries me is that across the board, we are seeing the costs of this programme continue to go up, aren't we? There is the Network Rail bit; we still have not got the final costs of the software integration between the trains and the signals, and very often, that can be the most fiddly part of a project; and if you add in the depot, we are heading for £20 billion, aren't we, and it still isn't open.

Bernadette Kelly: I am not going to add up figures.

Q24 **Mr Francois:** With respect, we are the Public Accounts Committee. It is our job to add up figures.

Bernadette Kelly: Indeed, but I do not want to try and do mental calculations and get to sums that we have not had a chance to verify. Mr Wild has just said that the depot was—about £300 million, did you say?

Mark Wild: About £250 to £300 million.

Bernadette Kelly: About £250 to £300 million. I am afraid I do not know about the claims, because that is a TfL contract. What the NAO's Report has covered, of course, is the on-network works and the core project, which is the £18.9 billion.

What I would just say, though, is that we are in the final stages of this project now. I think the costs have been stable for these final stages. We have tried to ensure that they are now absolutely realistic and assured. Yes, the software that Mr Wild has indicated is a key milestone will be an important moment later on this year, and will be the moment, I think, when we know how close we are to opening.

I would be very disappointed if we saw significant further increases beyond the cost pressures that have been identified in the NAO Report, and certainly on the on-network works that Mr Lodge spoke about a moment ago, as he said, we are confident now that we are at the costs that those works are going to need for completion.

Q25 **Mr Francois:** Just before I hand back to the Chair, this programme has been running for around about a decade. It is edging up to around £20 billion of costs, and if we throw the trains in it is well over that, so after a decade the cost keeps going up, you still cannot tell us exactly what the final cost is going to be, and you still cannot tell us exactly when it is going to open. It is not exactly a stunning success, is it?

Bernadette Kelly: We have been clear, I think, about the opening envelope. What we are doing in part in this is not falling into the trap we have fallen into in the past on this project, which is trying to be overconfident about opening dates. Members of the Committee will know that that was a major driver of some of the problems that arose in this project around 2017-18. It is why we are now being cautious in talking about an opening window, and I am confident that Mr Wild and the commissioner, as soon as we are able to be more certain about an opening date, will share that with Parliament.



Q26 **Chair:** I see that Mr Byford wants to own that as well.

Andy Byford: Thank you, Chair. My comments are an attempt to give the Committee—particularly the Member—some confidence. I publicly said some time ago now that there would be no further recourse to public funds over and above the £1.1 billion identified by the outgoing Crossrail board, and that there would be no further slippage in schedule beyond the opening window that I inherited, or that TfL inherited, which was the first half of 2022. I stand by that comment: I would not have made that comment—in fact, I would not have insisted, even as part of my job interview to take direct carriage of Crossrail, the Elizabeth line—if I had not done my homework and if I did not believe that we could meet those two objectives. It would have been the easiest thing in the world to have thought, “Great, there’s a third party here, the Crossrail board”, but you do not do these things lightly.

We are tracking costs literally by the day, and introducing discipline such as star chambers, which I chair along with the CFO of TfL. In those, we look at scope, at the early retirement of tier-1 contractors—which will absolutely reduce the cost to go—and at the use of consultants, but the biggest and most expensive line item is prolongation, which is why I set Mark and the team three targets. No. 1 is to open as close as possible to the front half of that window, the first half of 2022, for phase 3. The second target is to combine phases 4 and 5, which is what enables you to have that end-to-end running, and we have identified a very innovative way of doing that. That stops the cost haemorrhage, it starts the revenue flow, and it stops the reputational haemorrhage.

No. 3—this is in many ways the most tricky, and it has to follow the other two—is to get as close as dammit to the £825 million additional, so that we do not have to call on the cost delta. That is going to be a challenge, which is why we have never conceded the need for the higher figure, namely the £1.1 million, but we are leaving nothing to chance, and I stand by my public comments about not blowing either that overall schedule or cost budget.

Q27 **Mr Francois:** I will hand back to the Chair in a second. Just quickly, the only way you have been able to continue to afford the project, as the Report makes very plain, is by taking out a number of loans from the GLA, but which are ultimately backed by the Government, thus the Treasury and the taxpayer.

You are going to have to pay the taxpayer back those loans eventually via that route in reverse, but you have already admitted that your operating model is bankrupt, so you are going to have to borrow even more money from the Treasury and the taxpayer in order to keep TfL running in order to pay back the loans that you had to take out to keep the project on track in the first place, aren’t you?

Andy Byford: We maintain that we can deliver this for £18.9 billion, which is the upper part of the envelope. We do not intend to breach that. My focus has been on getting this railway open. I cannot account for what has gone on in the past that led to some of the cost overruns, although



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you rightly focused on those. It is regrettable that with covid and various other things, we ended up inheriting a situation where £1.1 billion more was needed. I wish I could turn that clock back, but I cannot, so I think the best use for my organisation's time, and mine as commissioner and Mark's boss, is to drive this thing to the finish line, to stop prolongation, to retire risk early and to get as close to the lower half of that funding envelope as possible, such that we get the cost haemorrhage to stop and we get the revenue flowing.

Q28 Gareth Bacon: On that point, Mr Byford, I was going to return to this. I was having an exchange earlier with Mr Wild about the £150 million, which is mid-range in the Elizabeth line papers. That is the mid-range, of course, of the programme expected costs exceeding the available funding. You just said that you will not require any further public funding to close that gap. How are you planning to do that? Will there be a knock-on? Where I am really going with this is: will the passenger experience be impacted by your closing that gap?

Andy Byford: No. I actually think it is a bit of a pyrrhic victory if you claim to have stayed within an overall budget and yet you have secretly cut out a whole load of passenger benefits. I would not defend that or advocate it. What I would say is, at the moment, it is a very fluid situation.

As Mark said, what we have done is to top up the management reserve. There are some costs that have gone up: expediting the programme, for example, where we brought in very capable additional people to finish off the stations that were on a critical path, and we identified that there was a need to increase our bandwidth there. We brought in people I used to work with in Toronto, who helped me get a late-running subway extension there across the line and address a delay.

These guys are world class—one in particular, but in order to play catch-up, he does need some additional funds. In a way, some cost elements go up and some go down as we retire risk. Right now, I would say it is a little bit early, and not to be phased by what appears to be another overrun, because there is a lot of risk carried within the project, and if we can successfully retire it, we will not need that delta that the NAO not unreasonably identified, because right now there are cost pressures, but that is before you take off the mitigants.

Q29 Gareth Bacon: So it is a risk but not something you think is likely to impact on the public purse. You think you can mitigate it within the funding envelope you have available now.

Andy Byford: I would say it is manageable. The only way you manage it is direct action. Again, I go back to my own motivation: I do not want to leave anything to chance. I did not want a situation where I would ultimately be accountable—and my organisation—for an entity that was being delivered by a third party. We had to take direct control of this, so that we could best influence the race to the finish on cost and on schedule.



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Of course, the corollary to that is that in adding that benefit, you also import the risks, but I am prepared to do that.

Q30 Sir Geoffrey Clifton-Brown: Let me thank you and Mark Wild very much for the Committee visit 10 days ago—that was very instructive. Can I clarify some of the latest opening dates and how that fits into the overall rail timetable? I think what you are saying to us is that the trials should complete by February at the latest, and that thereafter, it should be possible to open the middle section—hopefully by May next year at the latest.

Andy Byford: The window is the first half of 2022, which is January to June. What Mark was saying was that we are pushing to try to get trial operations under way by November. As long as trial operations go well—by definition you are practising your operation; you need to make sure there are no unexpected showstoppers—there will come a point in trial ops where we know it is a go. You still have to have some notice because you have to get your train crew schedules and gear up ready for opening. That would indicate that a mid-February finish—or a mid-February opening, rather; let us look at it positively—is the earliest possible that we could achieve.

Bear in mind that what the programme shows is that the P50 date, which is the probability of 50%, is April, and the P80 date is June, so we are well inside those two at the moment, particularly the P80. I believe that we can certainly exceed what we have inherited from the Crossrail board, and that would please me very much, because that is one of the three targets I set Mark Wild.

Q31 Sir Geoffrey Clifton-Brown: So then you move on to the integration of the three bits of the railway that Mr Wild was talking about.

Andy Byford: Correct.

Q32 Sir Geoffrey Clifton-Brown: Could you just take us through that? I cannot quite see why that takes so long. Once you have all three bits working, why does it take so long to integrate them and why are you putting the latest opening date of the entire railway at May or June 2023?

Andy Byford: Let me just clarify that for you; it can get a little confusing. The strategy we inherited from the Crossrail board—to be fair, it probably made sense at the time—was to link it to Network Rail timetable changes, which typically happen in May and December. The reason for doing that is that this is not a self-contained railway.

The bit through the middle is, and it will be for phase 3—it is just our services shuttling up and down—but where you then interface on the west with Great Western Railway and other national railway services, and on the east with Great Eastern, c2c and other services out east, obviously you cannot just do that on a whim—you have got to be part of a co-ordinated timetable change. That was the limiting factor. What we inherited from the outgoing board was a situation where you would do it in two phases and,

ultimately, the full opening, end to end, would be achieved in December 2022, or potentially slightly into 2023.

What we identified was an opportunity to combine both phases such that we could actually achieve through running—albeit using the different services starting from Shenfield and services out in the west—by September 2022. That is, in other words, several months ahead of what we inherited. The idea is to combine phases 4 and 5 into a revised operation. Again, you still have to be mindful of interaction with other services on the mainline, but that does not require us to be concurrent with the Network Rail timetable. It is quite ingenious actually.

Q33 Sir Geoffrey Clifton-Brown: That was going to be my next question. I am still not entirely clear how you meet those timetable objectives of either May or December each year. What you are now saying is that you hope to meet the December 2022 timetable to have the whole railway open and integrate with all the other services that you were talking about. I see that Mr Lodge has his hand up.

Andy Byford: There is still one further iteration after that—there are still a couple of phases. I am sorry if this gets a little technical and complicated. There is then one further phase where you get true end-to-end running whereby someone in the east could go all the way through to the west. The proposal we have at the moment means effectively that you can run two services, but it still combines a much greater number of trains through the central core. I will happily concede to Mr Lodge if he wants to add to that.

Matthew Lodge: What I was going to say was that we are working very closely with Network Rail now, as are TfL and colleagues in Crossrail, to align the Great Western timetable from December this year to allow that change to happen next year. The trains that currently go into Paddington will—when it is all ready to go and we are confident it will happen—seamlessly go down the tunnel and out towards Abbey Wood and Shenfield in the east, as Mr Byford said.

There is then one final step, which we would like to be concurrent with the May 2023 timetable change, bringing it all together. That is the final Crossrail timetable package delivered, so what we are trying to do is accelerate as much as we can the integration of the east and west with the Crossrail core, by making timetable changes to allow that to happen this December, which allows them to be switched on and switched over some time within the normal timetable change date that Network Rail works to. I hope that makes sense.

Q34 Sir Geoffrey Clifton-Brown: It does, but I just want to be absolutely clear; I think everybody would want to know this out of the hearing. What is the most likely date, now you are getting fairly close to it, when we are going to get a full end-to-end railway of Crossrail? Is that going to be before the timetable change in December, at the end of next year, 2022?



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Matthew Lodge: If you are asking me about the full absolute final Crossrail timetable, my prediction would be that that will be in May 2023, but you will have some of the significant benefits that Crossrail will deliver delivered early, some time after the opening of the central core in the first half of 2022, and we are doing all the work that we can to align the timetables to make that happen. Then we can switch into that new timetable some time after the first half of 2022 when we are absolutely confident.

Chair: For anyone following this, it is worth looking at figure 2 on page 16 of the National Audit Office Report, which gives a timeline. I think Mr Byford was going to come in.

Andy Byford: Don't underestimate what we believe we can do in September. Mark is probably best placed to describe that. In September of 2022, once we have got the central core in—hopefully around February, but certainly no later than the first half of 2022—and once we have that up and running, and the 12-trains-per-hour service is well and truly bedded in, we can progressively blend the services such that you effectively do get a form of through-running from September, which is markedly earlier than what we inherited. That will be of huge passenger benefit, and will turn on the revenue stream for TfL—the much needed revenue stream, to Member Francois' point earlier. Mark, could you describe the stopping—

Q35 **Sir Geoffrey Clifton-Brown:** I am going to come to Mr Wild, but Mr Byford, in order that those studying this hearing are absolutely clear, is that service in 2022 likely to involve a train change at Paddington, until all three are integrated?

Andy Byford: Yes. With your forbearance, let me ask Mark to describe where a train starts in the east and where a train starts in the west—what that will mean.

Sir Geoffrey Clifton-Brown: Provide clarity, please, Mr Wild.

Chair: Not in Rayleigh, much to Mr Francois' chagrin.

Sir Geoffrey Clifton-Brown: It's only down the road, Mark.

Chair: You could possibly buy Mr Francois off, if you committed to that in the hearing.

Mark Wild: I think the commissioner and Mr Lodge described it very well. Let's say we achieve our earliest opening and we open the central section in February. There are risks to that, but let's just say it. Then it is possible, in the autumn of 2022, to open an end-to-end railway that would have things like a journey from Heathrow straight through to Canary Wharf. The trains from the east would terminate at Paddington. All the trains from Shenfield would come all the way through and terminate at Paddington, so in the autumn of 2022 you would have a railway that was 95% of the end-to-end benefit.

A further tweak is then required, probably based on National Rail timetable days, to do the final articulation of any services from the east that will go all the way through, but in the autumn of 2022 you would have a railway that was end to end, albeit there would be more changes for people in the east at Paddington, but you would certainly come into Heathrow and get on a train and be in Canary Wharf in 38 minutes. You still need the final bit on a Network Rail timetable change, because obviously it affects Great Western services and Great Eastern services, but in the autumn of 2022 it is definitely possible to produce an end-to-end railway that is 95% of the benefit. Then a top-up would be required on a Network Rail timetable change.

I think it is ingenious. It is no credit to anybody in my team; it is all the clever operational people in the Department and Transport for London, working well together. As Matt Lodge said, that will start this December in tuning up the eastern and western existing timetables to be tunnel ready. That is the way to look at it. You make the Great Eastern and Great Western tunnel ready, decoupling them from a national timetable. I take no credit for it, but it is very smart what TfL and the Department have proposed.

Q36 Sir Geoffrey Clifton-Brown: Very good. May I try to dwell on what happened between December 2018 and March 2021—not to blame people, but to try to see what lessons we can learn?

On page 26 of the NAO Report, paragraph 2.6 says that “six of the 36 main works contracts accounted for 74% of the £1,343 million forecast increase in main works costs between December 2018 and March 2021”. Could we put on the record some of the conversation that you and I had during the visit, to establish what went wrong with those main contracts, and what might have been done—but wasn’t—to put them right?

Mark Wild: I joined the board in late ‘16, so I guess I had a front-row seat—and was part of the scrutiny of the project in the latter 18 months to two years. However, the roots of this problem go way back to when the contracts were led.

The first lesson learned is that in 2011-12, Crossrail had fragmented its contracting strategy into 36 different contracts. That produced multiple interfaces and dependencies of contracts on other contracts. I think that the fundamental issue in Crossrail is the interconnectedness and dependency of one contract on another. By 2018, almost all of the contracts were dependent on each other: contract X might depend on contracts A, B and C to provide documentation, while contract A depended on others. It became a very convoluted and complex picture.

On lessons learned for future major programmes, I am sure that Mark Thurston will be actively looking at this for HS2. Crossrail was too fragmented and interconnected, and of course, by the time we got to 2018, things were so compounded. My big lesson, sitting on the Crossrail board, has been that, like many other scrutiny bodies, we weren’t looking at the integration risk—the thing that we couldn’t see, the dependence



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that everyone else had on each other—in this hugely complex new digital environment.

I think the roots of it were way, way back. The contracts were too small and too dependent on each other. By the time we got to 2018, the concept of risk transfer and fixed-price contracts did not really work any more, because everybody was dependent on each other, and, to be honest, the programme had become compacted.

This is well trailed, and we have discussed it before in this Committee: the reliance on a single end date drove behaviours in the scrutineering people, in the board, the project representative and the IPA—a myriad of people—but also in the leadership team, of course, who were striving for an end date and could not quite see or measure the accumulation of risk. That risk has crystallised in prolongation for contractors, but it is not because the contractors were poor or did the wrong thing. I am sure there is poor workmanship in all of this, but the real issue was 37 contracts all depending on each other, and the project almost grinding to a halt.

The subsequent work we have done is to untangle it all—the truth is that, in my executive role in Crossrail, I spent the whole of 2019 untangling it. It is only really in the past 18 months that we have had demonstrated performance and productivity percentages in the 90s. In my first year as chief executive, we could only get productivity percentages in 30s, and that is because we had this legacy of a very tangled-up and interdependent supply chain.

The key lesson learned is to not break the supply chain into parts that are too small, and, if you do, to ensure you really measure the interface risk. I must say that there are plenty of lessons, and I am sure that they will be learned—not just in the UK, but all around the world.

It is easy to criticise people, but when you look at it, Crossrail was the first endeavour of its type; it is the world's first truly digital railway, of a size and scale that will have no peers in the world. Those aren't excuses; they are just pointers, for the future, on what should have been done better.

Q37 Sir Geoffrey Clifton-Brown: Was it a case, which we in this Committee see so often in large infrastructure projects, where the scoping work at the beginning, to try to work out how to actually build this railway, was not done properly?

For example, I don't know how many of those 36 different contracts had different standardisations in them. If you were doing it again today—and maybe we should learn some of these lessons and take them over to HS2—would you actually take far longer scoping it, to work out how you were actually going to build the railway?

Mark Wild: I was in Australia at the time, observing this from afar. I think you have to go back to 2010, 2011, 2012. It was after the global financial crisis. The market was cool. The construction industry in the UK was threatened with collapse because of lack of work, so Crossrail made a decision to energise the market and involve as many people as possible in



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the supply chain. Some 75,000 people have worked on Crossrail, and they did an excellent job. I don't think you would have made a different decision, because if they had bulked up the contracts then you could have lost a lot of suppliers.

The mistake made by Crossrail continued when I was on the board. We were simply looking at the wrong thing; we should have been looking at the interface risk. You could certainly run this contract with 37 individual parts, but you would have to be expert at system integration—it is really only in the past two years that we have built the team at Crossrail around system integration.

I think they made the right choice at the time, but the management response was maybe lacking over a few years. I think that is a fair comment, but I think they would have made the same choice. Given the market in 2011, every contractor in this country wanted a piece of Crossrail after the global financial crisis. The mistake of Crossrail Ltd was not to look at the system integration risk way back, after the tunnelling works finished.

Q38 Sir Geoffrey Clifton-Brown: You were a managing director and on the board from 2016, and yet the then chief executive—I know because I visited the thing in 2017-18—was confidently assuring us, up till the last six months, that it would be fully open in 2018. What were you saying to the board after your appointment in 2016?

Mark Wild: I was a non-executive director. I was the managing director of the tube, running the underground. I joined in the latter part of 2016.

It is fair to say that by the time we got to the autumn of '17, it was clear to everybody on the board that there was an accumulation of risk. I don't think anybody, including myself—there are lots of personal and corporate lessons here. The IPA gave Crossrail a green and amber rating. The project representative was quite pessimistic, but did not spot this huge hole in the project of system integration risk. The expert panel—all of these things.

The truth is that it would be easy to try and find somebody to blame. I think the roots of it are really bad design to start with in the contracting strategy. Simply, because nobody had ever looked at this integration risk before, all of the conventional measures, the risk measurements, weren't looking at it. By the time the Pudding Mill Lane explosion happened in November/December '17, we were clearly on high alert, and by the time we got to the spring of '18, the board were leaning quite heavily into the management at that time.

To be fair to the management team at that time, they probably lacked the capability of the system integration. Certainly when I became chief executive and Tony Meggs became chair, we corrected all of the things that we thought the Crossrail board should have done better. We reinstated the three layers of assurance. We brought a much wider expert panel in. We brought in a larger board with system integration



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expertise. We completely refreshed the management team, although it took us longer than we thought. From my experience on the board I have taken many lessons, and I hope I have brought them into my executive role as well.

It is a systemic failing. The positive is that projects such as HS2 and Hinkley can all learn from the scrutiny of a major programme that everybody would admit was not quite right.

Q39 Sir Geoffrey Clifton-Brown: We must keep answers a little briefer or I shall get into trouble with the Chair. On that £1.3 billion increase between 2018 and 2021, what did you actually do to try and minimise that? Did you seek to recover any money from contractors who had not completed their contracts?

Mark Wild: The situation was quite dramatic when I became chief executive. Maybe 20 of these contracts were simply dependent on each other, and we lost all of commercial risk provision/transition, so it was not simply telling the contract base to get on with it.

We took an attitude of transparency. We shone the sunlight over the whole of this programme. We also took on board a truly collaborative approach where we all owned the whole together. So I think we did a huge amount.

The thing I am most pleased about is what we did in the early part of 2019. We formed the staged opening plan that is being delivered now. Crossrail had a really flawed strategy of trying to deliver everything on day one. Now we have a staged plan where we are building a jigsaw and putting a jigsaw piece in every day, so I think we did a lot. The key is inevitably in that situation, but that is the thing to take forward for a future mega-programme. Once in that situation, I think we did the best that we could.

Q40 Sir Geoffrey Clifton-Brown: Ms Kelly, as Mr Wild has described, in 2018 you were facing a systemic failure. Could you confirm that no members of the board were given any severance payments or bonuses when they left?

Bernadette Kelly: The Department was not directly responsible for the payments of the board of Crossrail. Crossrail was a wholly owned subsidiary of TfL, so we had no part in setting remuneration. This has been detailed in previous NAO Reports, so we can certainly check and confirm those details.

Q41 Chair: Was that prior to Mr Meggs taking over?

Bernadette Kelly: Yes.

Q42 Chair: The question was more about after that first board change, wasn't it?

Sir Geoffrey Clifton-Brown: All right. Thank you very much. We will be coming back to detailed finances later on with you, Mr Byford.

Chair: Yes—looking forward, having looked back, just to reprise some of



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the work that this Committee has already done on this. It is important to set the context. As Mr Wild has said, whatever we all conclude about the rights and wrongs of this particular case, it is vitally important that we, as a Committee, play our role in helping the Government learn lessons about complex projects like this. I will go back to Gareth Bacon to aid us in that task.

Q43 Gareth Bacon: Thank you very much, Chair. Mr Byford, the two-fold business plan published in December 2017, which was for '18-'19 through to '21-'22, forecast that by '21-'22 Transport for London would be operating at a surplus. This obviously predated you, so I am not holding you accountable for that, but there were some slightly questionable assumptions in that business plan, such as an increase in ridership on all modes, including buses, which have been falling for many years.

It was barely getting into surplus, but it was in surplus. The key gamechanger was going to be Crossrail opening in December the following year, so 12 months on from that business plan being produced. The following year, the business plan was revised, and it forecast up to a £600 million shortfall because of the lack of fare sales on Crossrail. What are you forecasting now?

Andy Byford: As you said, we have had to revise our forecast precisely because of the various schedule changes. We are assuming keeping the opening window of the first half of 2022. As I have said to you, the intention is to be at the front of that opening window. If we can then hit the interim stage of the September 2022 sort of through running, as we just described in the earlier questioning, that starts the revenue stream flowing.

However, it would not be as simple as saying that that immediately starts what was once £500 million or £600 million a year revenue flowing, because in the meantime covid has come along and that has completely wrecked what was a fairly robust forecast. It is hard to say precisely, because we are still working through our modelling on what we think the impact of the various releases to lockdown will be.

We have modelled five scenarios at TfL—not just for Crossrail, but for the wider transport network—ranging from a completely disastrous, almost nihilistic scenario, where central London becomes a ghost town and no one uses transit anymore, through to probably a way overly optimistic scenario of everyone coming racing back as though it never happened.

We think the most likely scenario is a hybrid, by which we would potentially move to—best case—80% of normal ridership within the current financial year. That is now increasingly under stress, although it is early days for this most recent release from lockdown, but we are still around about a 50% blended ridership.

It is not easy to say exactly what the contribution will be. The key issue for me is getting that through service running, such that you do get the revenue stream flowing. Progressively, we will refine our modelling, so that we know what the actual contribution will be. But there are so many



variables, many of which are outside our control—not least what the reoccupation of offices will be.

- Q44 **Gareth Bacon:** You went exactly where I was going to go with that because, even when the original forecast was done way back in 2017, there were a whole load of assumptions that went in there because Crossrail will change passenger behaviour. People who might have taken different modes to get to where they need to, might now use Crossrail and then transfer. Is this really a how-long-is-a-piece-of-string question? When are you likely to have a more robust projection of how it is going to impact on Transport for London's finances, once it has become clearer how many people are likely to travel into the city?

Andy Byford: That is a fair characterisation. Having said that, we are not passive in this regard. We are talking to the CBI, London First and people like the New West End Company, major employers and the civil service to ascertain what their strategy is with regard to expecting or requiring their people to go back to work, and what the economic forecasts are looking like, in terms of take-up of office space, and take-up of commercial and retail space.

There is a scenario in which we think that there will be a softening of the traditional mass migration to and from the centre of London on a daily basis. We think there is a likely possibility that a lot of companies will go to two to three-day working. Equally, we have modelled in a scenario where there is much more activity in the satellite parts of London—so, much more activity in the likes of Croydon, Hammersmith and Stratford. That in itself needs to be factored into the model, so it is actually a very difficult proposition.

Having said that, I think that the benefits that Crossrail will bring, particularly with regard to when, for example, global travel begins to start up again, the fact that you can go from Heathrow to Canary Wharf in around 34 minutes will have a massive attraction to anyone who might have otherwise taken another mode.

- Q45 **Gareth Bacon:** I do not think anyone would disagree with that assumption. The key thing, really, is around dates, isn't it? That's because the Government are very clear that London should pay the cost of the loans and so on, and that they should be paid back. Clearly, if you are not making income, that will be a challenging thing for you to achieve, won't it?

Andy Byford: It will. That is why I am so focused with my team on achieving as close to the £825 million delta as we possibly can, because there is no guarantee that we would be able to secure the additional funding over and above the £825 million to close the gap to the £1.1 billion.

What I do know, though, is that the GLA's ability to raise additional funding is maxed out—there is no further prospect of getting any further money from the GLA. And right now we have no agreement whatsoever



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with Government—other than, “We’ll talk about it”—if we were to have to draw down against that delta between £825 million and £1.1 billion.

For myriad reasons, that is one of my three challenges to the team. Job one is to get the central section open and to stop the prolongation, to retire risk; to retire the expensive tier 1 contractors; and to get the service up and running such that the revenues start flowing.

Q46 Gareth Bacon: Because your borrowing capacity is maxed out as well, isn’t it? I assume that would have significant consequences for any capital programme management that you might have going forward.

Andy Byford: Very much so, sir. That is something that has my full attention. I said when I came to TfL that there were two primary targets—two equal priorities. No.1 is to get the Elizabeth line open and No.2 is to lead TfL through and beyond the covid crisis. And a major part of leading TfL through covid is to rebuild the ridership, rebuild the finances and—critically, as per my earlier answer—diversify our income such that we are not dependent, to the tune of 72%, on fares through the fare box, because in this changed world it would be reckless and irresponsible of us to carry on with that model.

Q47 Gareth Bacon: Sure. You have anticipated me again, because I was going to ask how you are going to diversify your income model in order, primarily and in the interests of this Committee in particular, to pay back the Government loan. I take your point about trying to keep it to the £825 million rather than the £1.1 billion, but what levers are available to Transport for London to diversify its income?

Andy Byford: It is interesting. The Government, in their most recent settlement with us, which takes us through to 11 December and which was an additional influx of funding to keep TfL going on a day-to-day operating basis, stipulated that TfL had to find additional ways of raising revenue but that they must be within the Mayor’s current powers. This is something that we are discussing with City Hall. We have floated a couple of ideas, one of which was retention of vehicle excise duty, although, to be fair, that was one about which HMG said, “Well, no, hang on a second, that’s not up for grabs, so you can take that one off the table”.

Secondly, there was the proposed Greater London boundary charge, whereby people who are not London residents would pay a charge to cross the boundary. That is a possibility. There are other options, and none of them is easy.

Q48 Gareth Bacon: That’s not going to fly, though, is it? The Mayor attempted to link that to the demand for vehicle excise duty, which he knew was not going to fly, either. Neither of those is really a viable option, so what else are you looking at?

Andy Byford: Wider road-user charging is something that has been talked about in the past. At the end of the day, there are no easy solutions. If you are looking to close the £500 million a year gap—that is what we are talking about—in order to bring down the percentage of



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farebox reliance from 72% to around the 40% to 50% average that I would normally talk about, we are required to find new revenue streams of around £500 million a year. You can't save or cut your way out of that. You have to find long-term, sustainable revenue streams.

The conditions on us stipulate that it must be within existing mayoral powers, which does limit somewhat our room to manoeuvre. I am not going to speculate or comment publicly today on items that we are discussing with the Mayor that have not yet been agreed—that would be inappropriate. City Hall is aware we have this task from Government. Those are our conditions, which were imposed as a result of being given the funding, and it is still a work in progress.

Q49 Gareth Bacon: Out of interest, you mentioned earlier the modelling and assumptions about how many people would come back to work five, three or four days a week. What are your assumptions about your own office-based staff? How many days a week are you expecting them to come in? You have a nice big, shiny office at Palestra House opposite Southwark station. What balance are you expecting there?

Andy Byford: Again, that is very much a work in progress. We had originally assumed that we would start the wholesale reoccupation of offices—Palestra and the two other primary or main operating bases—from September. With the delay to the opening-up of lockdown—which is today, of course, 19 July—we have put that back somewhat. We would still expect to see some return to offices during this calendar year, but we are also taking the opportunity to completely relook at our own office portfolio.

Although I said you cannot cut your way out of the revenue hole we face—and I certainly would not advocate slashing at services or cutting infrastructure, because that has been proven the world over to be a slippery slope and one from which it takes years to recover—there are things we can do now, given the changed environment. There are opportunities such as teleworking, which I am utilising today, so do we need such a big head office footprint? We are taking a look at that. We are also talking to our unions about what would constitute a safe return to work for people who are able and willing to work in the offices. Certainly, we would expect to see some reoccupation by the end of this calendar year.

Gareth Bacon: Chair, I am slightly conscious that I am going back to City Hall and resurrecting the transport committee. I don't think that is what I should be doing, so I am going to stop at that point.

Q50 Chair: Thank you, Mr Bacon. You have experience of City Hall and there are rather a lot of London MPs on the Committee now, so we do tend to get into the things that matter to our constituents from day to day. *[Interruption.]* Yes, Sir Geoffrey is outnumbered.

I want to ask about the co-ordination among different organisations. Mr Byford, we know that this has been a problem. Mr Wild has talked about integration, but that is not just about the systems; it is about the organisations. We touched a bit on this when we came to visit. We talked



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about Network Rail, and you have talked to us about consultants and contractors and how you are integrating them. Then you have TfL and the Department.

Can you tell us how that is actually going now? You have taken very direct control, and it is very noticeable in this session how you have personally said that you own this—you have taken it into TfL and you say you are responsible. What are you doing to ensure that co-ordination between those different organisations works? Crucially, are there any levers that you think you are missing that you need?

Andy Byford: In a nutshell, the governance is that I chair— I can describe it on a daily basis. I have a daily check-in every single day, including, to poor Mark's chagrin, on the weekend. We check in every day on a purely tactical basis: "What did we aim to do yesterday and what did we not do? And if we didn't do it, what are we going to do in the next 24 hours?" It is that granular detail.

There is a weekly check-in with my team where we have a slightly longer look ahead, and then there is what is called the Elizabeth line delivery group, which I chair, which is a co-ordinating group where we have people like Network Rail on the call, and we talk to our colleagues at DfT.

Above that is the Elizabeth line committee, which is chaired by the deputy mayor Heidi Alexander and includes input from board members, independent panel members, various assurance levels and the project representative. Bernadette, the permanent secretary, and I regularly have meetings, including formal meetings—at the IPC, for example—at which we are answerable to the public for the performance of the Elizabeth line and Crossrail teams.

As you have indicated, however, I have made it clear that the buck stops with me. It needed a single point of ownership. It needed one guiding mind who was prepared to say, "I'll take this. I will put my reputation at risk," because I believe that someone has to own this, rather than having this rather convoluted structure where it was possible for one person to think that someone else was doing something when in fact they were not. I would say it generally works. I do not think we are missing anything. However, I am keeping that under very close review.

- Q51 **Chair:** As you describe it, you have stepped up and taken on that responsibility and that risk, but has there been any issue about getting any of those organisations to equally step up? In the past—a long time ago—when I chaired a transport project, getting the right people in the room was sometimes the issue. You can have somebody who is theoretically representing an organisation but they do not have the power to say yes or no to the demands of that meeting and that project. Have you got the right people in the room now, and were there any hiccups along the way? This is partly for the lessons learned that we want to do.

Andy Byford: No, I do not believe so. I was very grateful to the permanent secretary, in that, within 95 days of my appointment as commissioner, we achieved the transfer to TfL. I think the results since



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then, with the accelerated delivery that the NAO reported in its Report, have shown that that was the right thing to do. I certainly think it helps other bodies—such as Siemens and Alstom, which are critical suppliers—to know that, ultimately, they are not dealing with a third-party entity with which they will never have a future relationship, like a temporary Crossrail board who will disappear once the project opens. No, they are dealing with the customer—the commissioner of TfL. They are dealing with that person from whom they probably want some future business, so it is actually very powerful. I phone CEOs of those two companies if I need something, and so far it is working very well.

Q52 Mr Francois: Mr Byford, your colleague Mr Wild told us earlier that part of his challenge was untangling an extremely complex set of relationships. However, paragraph 16 on page 9 of the Report states: “Several organisations are now responsible for bringing the Elizabeth line into service, which adds complexity.

As the central section approaches the start of passenger services, responsibility for completing, maintaining and operating the Elizabeth line is shared between Crossrail Ltd, London Underground, the newly created RfLi, Network Rail, RfL and MTREL.” It says at the end of the paragraph: “We often see programmes have problems when roles and responsibilities change, and when they are shared between different bodies”. Forgive me, but even as a layman on transport matters, that is not a simplified command chain, is it? That is very complicated.

Andy Byford: That is a fair statement, but having said that, in many ways the command chain is simple: ultimately, they all report to me. Okay, Network Rail is a sovereign entity on its own, but if I have a problem with anything at all to do with Network Rail—a good example is that the other day we heard there were some issues with Ilford and Romford stations—I am straight on the phone to Andrew Haines, my peer, the CEO of Network Rail. What you are describing there is ownership of the stations. Some of them are LUL stations, which is not something I could change.

I find it bizarre, if I am honest, that things were set up in this way. For example, Paddington will be an RfLi station. It does not seem logical to me—you would think it would be an LUL station—but I am not going to waste time on trying to unpick that. Rather, we are driving the contractors that are finishing those stations to get the job done, and also standing up RfLi, and the person who heads RfLi reports to me. The person who leads the project, Mark Wild, reports to me. The MD of the Tube reports to me, so I would argue that the command structure itself is actually incredibly simple, but I agree that the number of bodies underneath that is mind-blowing, if I am honest.

Q53 Mr Francois: For the uninitiated, MTREL?

Andy Byford: That is the contractor. It is the mass transit railway—the Hong Kong operator—which is the private contractor that will be running the trains. It is a contracted service: it is a bit like London Overground or the buses. It is not TfL’s direct service: it is a contractor, so that is the



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Elizabeth line. We own the trains, but they provide the crews and operate them.

Q54 **Mr Francois:** Yes, but they do not really report directly to you, do they? They are a contractor.

Andy Byford: They don't—well, they do via a contract. Ultimately, their contract is with TfL. Who is in charge of TfL? The commissioner.

Q55 **Mr Francois:** It all still sounds very complicated, I think, even to anybody watching this.

On Network Rail, very quickly, for the best part of three years my constituents could not use their railway at the weekend. They never got any discount from Abellio Greater Anglia—"Lesser Anglia", as my constituents fondly call them—because they were forever closing the railway in order to do engineering works, not all but many of which were related to Crossrail.

For three years, they never got any discount on their season ticket. They could not go into London when they wanted to—this was all pre-pandemic—because of all the Crossrail works, and now if they want to go to Maidenhead, they have to wait until May 2023. To be honest with you, I have no confidence in Network Rail at all, but do you accept that even with Mr Wild's unravelling of the Gordian knot, if you like, it is still a fairly complex arrangement and there are lots of things that could go wrong?

Andy Byford: I do accept that there are more entities involved than I would normally expect to see or than I would normally want, but I go back to my point about best use of time. We could spend further time trying to unpick that and redo contracts, or we can do what I believe we should do, which is drive to the finish line and make this thing happen.

Q56 **Mr Francois:** Lastly on this point, you talked about different revenue projections and you talked about a number of different options, and as you say, there are no easy ones. Putting up the fares is generally never popular with anybody, but you did not say much about fares. What is your plan for fares over the next five years? In terms of raising revenue for Crossrail and TfL, that is absolutely fundamental, so what is the policy on fares for the next five years, sir?

Andy Byford: While we are in receipt of Government emergency funding—in theory for potentially the next two years, but that remains to be seen; our current funding deal takes us to December—we are expected to implement an RPI plus 1% fare increase every year, and that is a stipulation of the Government conditions as per the last year.

Going forward after that, that would revert to a TfL board decision, the issue always being that on the one hand, you want to retain that option to put fares up in line with inflation, but on the other hand, you do not want to keep going back to the passengers and making the system unaffordable, because eventually elasticities kick in and you have made it so unaffordable that people just will not use the service.



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Q57 **Mr Francois:** I get that, but just quickly, you said something quite interesting there. Are you assuming—is your core assumption—that you are still going to be getting “pandemic-related” Government support for another two years?

Andy Byford: No. I will correct myself on that, sir, thank you.

Mr Francois: Sorry, because that is what you appeared to say.

Andy Byford: Yes, and I sort of corrected myself on that. The current deal that we have expires on 11 December, and there is certainly no certainty that we will get any revenue support beyond that. We might, we might not: let’s wait and see. What we have committed to is that we are tasked with financial self-sustainability within two years—that was my reference to two years, poorly expressed.

One way or another, we are still going to need some sort of support, because without any Government support, there is a need to raise new revenue sources. As per Mr Bacon’s questions earlier, we have yet to determine what those are going to be. Certainly for the next two years, we have a budget right now that is not a balanced budget. Short of finding more revenue sources or getting more Government support, we do not yet have a solution.

Q58 **Chair:** Thank you, Mr Byford. That neatly brings me to Bernadette Kelly and the DfT. You have agreed this funding up to £825 million. It is pretty clear that there is still a gap, even if it is not to the full overruns that were expected when the settlement was made in December. Mr Lodge, how involved are you to make sure that you are assuring yourself that what Mr Byford and Mr Wild have talked about today is actually happening, so that you are safeguarding the likelihood of taxpayers having to put in any more additional funds than might well be expected already?

Matthew Lodge: Since the governance changes that we put in place in late 2020—I think Mr Byford referred to this earlier—we have had a number of areas whereby TfL and colleagues reporting to the Department through our IPDC committee, which is one of the internal boards within the Department that Bernadette chairs, through ministerial quarterly engagement, and through regular—

Q59 **Chair:** Sorry, is RPDC the rail planning delivery committee?

Matthew Lodge: Sorry, IPDC. Bernadette, you might have to help me. I cannot remember exactly what the four letters mean.

Bernadette Kelly: It is the Department’s investment committee, which is where we look at all our major project delivery as it goes. As Mr Lodge is indicating, the commissioner comes to that committee, which I chair, once a quarter to update us on progress of the project. That is by no means—I think Mr Lodge was about to say a bit more—the only assurance we do on this project.

On Mr Francois' point about the complexity, it was precisely that complexity that led us to strongly support the commissioner in seeking to take on single-point accountability for the completion of the delivery of this project in 2020. That was exactly the right thing to do for the project at this stage in its life cycle. Although it has not made the position completely simple, it means that the levers rest with the commissioner to really drive this now to a successful conclusion.

However, this is not "file and forget" from the Department's perspective. We are entirely conscious that we have made a huge financial commitment to this project, and it is absolutely imperative now that it comes in, or as close as possible to, the funding that has been allocated to it. We have a whole range of mechanisms. As I say, my investment committee is one. The Minister meets quarterly, I believe, with the deputy Mayor and the commissioner.

The project representative, which has been a key part of our assurance for this project, has been strengthened and plays a major part in assuring the project, both for us and for TfL. We have a non-executive representative on the Elizabeth line committee appointed by us, who is Kathryn Cearnis. The IPA still carries out critical friend reviews at appropriate points. We are keeping very close to the delivery of this project, because it is absolutely essential in our eyes, as well as, of course, for TfL, that this is now concluded at the lowest cost and as soon as possible, so that we can start to see the benefits flowing through.

Q60 **Chair:** You signed off the £825 million at the end of last year. You and Mr Byford agreed that there was a gap still in the funding and that you would park that conversation, so what is happening about that conversation?

Bernadette Kelly: What the commissioner has said again today is that he is doing his absolute best with Mr Wild to bring this project in as close to the funding—

Q61 **Chair:** But from the report, it is not going to be on £825 million.

Bernadette Kelly: We know that there is a risk that it will be somewhat more than that.

Q62 **Chair:** A bit more than a risk.

Bernadette Kelly: Well, we don't know for sure yet, because there are still mitigations. There are still opportunities to manage costs on this project. We were discussing this, actually, last week. We think it is probably going to be spring next year before we actually know what costs, above the currently agreed envelope, will crystallise. We have not agreed how any such costs will be funded or financed. The Government's position has been that it wants London to pay for the project, given the benefits to London, but we will need to review the situation at that point in time.

Chair: That is very diplomatically put, Ms Kelly. We are collecting the script for the next "Yes Minister", and that might fit in, as so often it does when you appear in front of us, which I am sure goes down very well with



all your colleagues.

- Q63 **Sir Geoffrey Clifton-Brown:** Perhaps I can stick with you, commissioner. Is it possible that the whole revenue situation for London underground or London transport could be worse than you have stated to us today? Crossrail accounts for 10% of all London transport. If the travelling public does not come back as you expect and, as a displacement, some of your existing budget goes to Crossrail, you could find yourselves in a position where not only is the Crossrail budget lower than you thought but the whole London transport budget is lower than you thought. Is that nightmare scenario likely or possible?

Andy Byford: We are still confident that when Crossrail—the Elizabeth line—opens, and particularly when we achieve the early through-run than we described in earlier answers and hopefully attract some revenue from national rail services, there will be a net contribution from the Elizabeth line going forward that can help the TfL bottom line. However, as per my earlier answer, one of the problems that we face—and my poor CFO and I have regular, long, quite angst-filled discussions about this—is that there are so many variables that have yet to be answered that we are still ploughing through the models and ascertaining what they mean in terms of likely revenue and likely ridership.

Sir Geoffrey Clifton-Brown: Can we just talk about the loans? The NAO Report makes it clear that not only have you already had a £750 million loan, but the GLA has had a £1.3 billion loan. You have a further agreement for this £825 million loan. There was a £100 million contribution by GLA. According to paragraph 18 of the NAO Report, to which the Chair has already referred, the midpoint cost increase between £30 million and £218 million, i.e. £120 million, it is likely you are going to need another £120 million.

Chair: £150 million.

- Q64 **Sir Geoffrey Clifton-Brown:** Or even £150 million. Where is that likely to come from?

Andy Byford: It is precisely because I don't know where an additional £150 million would come from that there is absolutely no prospect or certainty of any funds above and beyond the additional £1.1 billion that the Crossrail board identified, or even above the £825 million lower figure that the Crossrail board identified. That is why there is all the more reason to drive as close as we can towards that lower figure.

I certainly cannot get that extra money from the GLA. The GLA's ability to raise further funds is maxed out. TfL's ability to raise further funds is maxed out. The only other recourse would be to go to HMG. Although there is an agreement that we would talk about it, discuss it and address the issue, there is absolutely no certainty at all yet that DfT or HMG would be able to fill that hole. I cannot be more specific than that, other than to say that I have made it very clear to my team that that is why we are driving so hard: because there may not be any more money forthcoming.



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Q65 Sir Geoffrey Clifton-Brown: Ms Kelly, you know what the inevitable next question is. The railway has to be finished. If TfL and the GLA cannot afford to pay any more money, there is only one other place it can come from.

Bernadette Kelly: As the commissioner has said, we have reached an agreement about where any further money will come from. We are all committed to the completion of this project. Clearly, that is an absolute imperative, and that is the most important thing. I very much welcome the effort that the commissioner, Mr Wild and the team are putting into delivering this project as close to the agreed funding envelope as possible. The conversation about further funding is one we will have to have if and when we reach that point.

Q66 Sir Geoffrey Clifton-Brown: But it is more than just paying the extra money; it is also about repaying the loans, commissioner. The loans have already been pushed out from 2031 and 2033 to 2041 and 2043. Can these just be rolled up, interest free, and paid as and when you can afford to repay them? What is the expectation about repaying them?

Andy Byford: The arrangement that we have anticipates that it may take until 2043 to do that repayment. I would have to come back to you in writing on what options might be available to us in terms of interest free, once I have taken advice from my financial experts, but certainly we do not take the fact that we have such high leveraging lightly.

I do not like to see a project that is so heavily dependent on ever-increasing loans because, obviously, as the commissioner, I wear two hats: not only finishing off Crossrail and ultimately paying for it, but making sure that in doing that, we do not bankrupt TfL, because equally I have to make sure that we have sufficient funds to keep TfL going. Rest assured, that is something that keeps me very much awake at night.

Q67 Sir Geoffrey Clifton-Brown: Yes. Paragraph 5 of page 58 of the Report states, "The £825 million loan will be paid for by extending the Business Rate Supplement for Crossrail by three years". Is that something you have already committed to?

Andy Byford: When the GLA agreed the mechanism with DfT, the two sources of leverage were MCIL and the business rate supplement. It is true that, potentially, that might mean that the repayment period does stretch out to 2043, yes.

Q68 Sir Geoffrey Clifton-Brown: Is that publicly committed to, or is that just an option?

Andy Byford: That is an option.

Q69 Sir Geoffrey Clifton-Brown: What we have not yet talked about is what you can do, maybe in discussion with the Department, about added value in terms of other developments—I do not know what—in the Crossrail catchment area. What discussions are you involved with?



Andy Byford: A lot of discussions. Already that is building on a very successful initial commercial development strategy around the whole of the Crossrail corridor. Look at the likes of Farringdon, where the TikTok office block is practically finished. There are fantastic developments in the likes of Southall in the west and in Woolwich in the east. There is evidence along the line already of property and housing uplift, because of the investments that a major railway extension brings. That is not atypical—that is what you tend to see when you build large infrastructure projects such as this.

One of the things that we are working with Government on right now is ways in which to expedite the construction of new homes and to increase the amount of over-station developments and line-side developments that Crossrail could support, in order to provide a revenue stream for TfL and for the benefit of things such as affordable houses and job opportunities. That is something that our commercial departments are very much focused on—with a lot of success, I would say.

Q70 **Sir Geoffrey Clifton-Brown:** I think I might be trespassing on somebody else's area on that, so we will leave it for the moment. Can I come back to you about apprenticeships? The Report makes it clear that you have 1,000 apprenticeships. How many of those will be completed by when the line opens?

Andy Byford: I will ask Mr Wild to answer that.

Mark Wild: Crossrail overachieved on its apprenticeship targets, and 1,000 apprenticeships were the outcome. Lots of them were in the civil engineering phase, so they are all completed. But the Elizabeth line TfL people and MTREL—the people who operate the trains—have apprenticeship programmes as well, so it will endure. The tunnelling academy at Ilford is now a full training scheme and a training facility for TfL.

I think the apprenticeships on the Elizabeth line are in the range of 100 to 200 at the moment. That will increase every single year. We do not know quite where the 1,000 apprenticeships of Crossrail went to—we hope they are working for Mark Thurston at HS2. Because they went through tier 1 contractors, we did not keep track of them, but it was certainly a big boost to the skills needed for the future construction programmes.

Q71 **Sir Geoffrey Clifton-Brown:** Clearly, the country needs to benefit from those 1,000 apprenticeships and the other 55,000 workers you have had on the project. What discussions are you having with HS2, for example, to make sure that as the work declines on your project as it nears completion, HS2 is building up, and that those skills and people transfer across if they wish to?

Mark Wild: We work extensively with HS2. I meet Mark every couple of months, and we have good connectivity between Crossrail and HS2 for lessons learned. HS2 have their jobs portal, which we share within Crossrail. Crucially, Mark and I speak about the very complex high-end system integration skills that we both still need. We work actively in that



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area to make sure that they do not go to Sydney, Melbourne or Hong Kong and that they get the opportunity to work with Mark, and equally, that Mark does not take somebody who we might need just now. There is a lot of connectivity between us and Mark. I think that is really vital because HS2 is the next frontier of system integration, and we work really extensively with them.

There have been many cases where we have looked at certain groups of individuals and skills, and have worked actively between HS2 and Crossrail. It is really pleasing to see that Mark, and the permanent secretary, I think, have taken lots of Crossrail's lessons directly into HS2 now. Long may that continue.

Sir Geoffrey Clifton-Brown: Ms Kelly, do you want to comment on that at all?

Bernadette Kelly: Just to confirm the very constructive conversations going on, as you would expect, between Mr Wild and Mr Thurston to ensure that we make the best of the skills premium that Crossrail has helped to create. I think there will be ample work for all those people, based on the huge task in delivering HS2 and also the very significant pipeline of transport infrastructure investment that we have. We will need far more.

We talked at the last hearing about the National College for Advanced Transport and Infrastructure, which we are working with to ensure that that is another school to help train some of the people and provide the skills we need, working actively with the industry across the rail piece on both the infrastructure side and the broader skills needed to make sure we have the capability that we need.

Q72 **Sir Geoffrey Clifton-Brown:** Finally from me, Commissioner, how is the structure of Crossrail and the whole of TfL geared towards achieving net zero?

Andy Byford: I see Crossrail contributing a huge part towards our objective to be net zero. We have very ambitious plans to be net zero, including a full electrification of the bus fleet—the largest bus fleet in the country by far, with 9,500 buses. We want to push on with that, which we think can be achieved by 2030. We would like to talk to Government about capital support—we talked earlier about operating support. We could become self-sufficient by the end of 2023.

Certainly, were we able to work with Government to get capital support to help us to electrify our bus fleet, that would have huge benefits not only as part of our quest, first, to become net zero, but secondly, to materially contribute to the country's objective to become net zero by 2050. Without TfL's bus network becoming electrified, I do not think you will get the British production lines and suppliers to have the critical mass to convert the fleets of other municipalities.

That in itself leads to the third Government priority that can be met—namely, levelling up. If we want levelling up, it makes good sense to

invest in TfL with its buying power and the fact that we spend 55p out of every £1 around the country on different contractors. That, plus various other green initiatives, means that we are pushing towards net zero within the tangible future—we can do that. But the biggest change we can make is to get the Elizabeth line open, get cars off the road, get our bus fleet electrified—in other words, tangible, meaningful steps to contribute to London’s cleaner air.

Q73 Sir Geoffrey Clifton-Brown: Your preference for your bus fleet is electrification rather than hydrogen, is it?

Andy Byford: We are not averse to hydrogen. In fact, only a month ago, the Mayor launched the first hydrogen bus trial of 20 buses on the route from East Acton to Oxford Circus. I think hydrogen has huge potential merits, so we are certainly not shutting the door to that. What we do know is that 9,500 buses are zero-emission capable, as well as the London taxi fleet, and there are various other initiatives that TfL has been leading on in terms of much greater use of walking, cycling, and public transport. We want to achieve 80% of travel by those sustainable modes by 2040. TfL can help London help the UK lead the way.

Q74 Sarah Olney: Ms Kelly, I want to ask some questions about the benefits of Crossrail. We have talked a lot today about the costs and the work needed still to deliver, but one thing that it is interesting to know is how we are going to maximise the benefits of Crossrail. Once it is here, once it is fully delivered and once it is up and running, how are we going to make the most of this asset as a whole city or even in the wider area?

First, I want to ask what your strategy is for identifying, evaluating and maximising the benefits of Crossrail.

Secondly, what are the benefits for Londoners like my constituents in Richmond and Kingston? Crossrail is not coming to our part of London at all. How are you going to maximise the benefits for those residents of London?

Bernadette Kelly: I will start, but I am sure the commissioner and Mr Wild will want to say something about this as well.

First, I would say huge benefits have already been delivered by this project. We talked a bit about apprenticeships and skills and jobs. We could equally point to a lot of investment that has already happened and that has been happening now for many years along the line of route as a consequence of the investment in Crossrail.

Crossrail did a property impact and regeneration study looking at 2008 to 2016, which identified some 90,000 homes and over 4 million square feet of office space that was already being brought forward in that space in time.

We know there are plans in place for 12 major developments around the Elizabeth line stations and Crossrail sites. We can see in a number of places—Woolwich station would be one—that it is a core part of the master



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plan that is now being delivered for the Royal Arsenal site, which will have over 3,700 new homes. And so on—there are a whole succession of developments that either have happened or are happening right along the line of route.

In terms of an approach, I think TfL obviously are principally responsible, in a sense, as the owners of the asset, for now ensuring that the benefits of it are fully realised over time, and it will take time for the full benefits of this huge investment to come to fruition.

If I can just talk about the approach—obviously, as co-funders of the project, we have a profound interest in ensuring the benefits are properly realised—we have a Crossrail evaluation study, which will provide a baseline for the assessment of future benefits. Transport for London has an Elizabeth line benefits management forum, which I expect Mr Wild or the commissioner can say more about, but that is developing a full strategy, which will be published this summer, I believe—setting out the actions now to help realise those benefits.

Post opening, we will do formal evaluations, as you would rightly expect—at the two-year and five-year stages would be typical for a project of this scale.

There is an approach here of a baseline, measuring and having a strategy for driving the benefits, and then evaluating them in due course. As I say, I do think many of those benefits you can see being delivered right now.

I will leave Mr Wild or the commissioner to say some more.

Mark Wild: I would start with the commissioner, and then if anything else is needed, I will chip in—

Q75 **Sarah Olney:** Sorry to interrupt. Mr Byford, we definitely want to hear from you, but Ms Kelly very much expressed the benefits there in terms of new homes. I just wonder if we could talk more broadly of the benefits to business and to the wider economic ecosystem of the city, as well as homes.

Chair: Was that to Ms Kelly or Mr Byford?

Sarah Olney: To Mr Byford.

Andy Byford: Thank you. I think there are absolutely both. We are already seeing the benefit in terms of developments taking place lineside, and the permanent secretary talked about some of those. I made a point of going to Woolwich Arsenal.

I have been to all of the Crossrail sites—you would be surprised if I hadn't—and Mark has kindly showed me around them all. We walked the sites, and we don't just look at the actual station; we look at what is going around them. Certainly going to Woolwich, it was amazing to see the transformation around there: the regenerative effect that having a high-



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capacity, high-quality and high-speed—in terms of journey time—connection makes to a sub-community or a smaller or regional centre.

Further out, we went to have a look at the command centre in Romford, and there again you can clearly see the lineside benefits—the ripple effect of having this superb new infrastructure facility nearing completion. Contractors or developers know that that will be a selling point for them if they do want to build either a factory or an office block or some houses: proximity to high-quality transport is going to be a requirement for future occupants.

I would go further than that. First, in terms of benefits, rail capacity is a definite. We have always said that it would increase capacity—one of your colleagues made reference to this earlier—by around 10%. There are people out there who say, “You don’t need 10% additional capacity now with the reduction due to covid,” but I don’t think that will be permanent, and I would actually argue the contrary. Precisely because people—certainly in the short to medium term—are not going to tolerate being crammed in on the Central line, they will welcome the fact that now there is an alternative, or shortly will be. It will not just be any alternative, but a spacious, clean, modern, fast alternative. That is a huge benefit.

On reduced journey times, the figure I always cite is the one from Heathrow to Canary Wharf. The journey time from Heathrow to the City of London will have been cut from 55 to 34 minutes. That is material. That gives Heathrow, the UK’s primary aviation hub, a massive competitive advantage: to be able to land not just at a downtown airport like City, but to be able to land at a major international airport and reach the centre of town in 34 minutes.

On improved connectivity, the Elizabeth line brings 1.5 million more people within a 45-minute commute of the existing major employment centres. Again, that is a huge benefit.

Finally—I am very proud of this—a great feature of the design is that it is fully accessible. That, to me, is a massive benefit. All the new stations are of course accessible, but working with Network Rail we have combined the likes of Ealing Broadway, for which the aspiration for many years has been to make it accessible.

I think the ripple effect across London and the wider south-east—going both east and west—will be immense.

Sarah Olney: And Mr Wild?

Mark Wild: I will not repeat anything that the commissioner has said except that the Elizabeth line was always central to the Mayor’s transport strategy. I think what the NAO has pointed out is the state-of-the art discrete benefits realisation plan, which is in preparation, and will I think be able to extract even more. We have to remember that there is £42 billion of agglomerated business and personal benefit, so I have absolutely



no doubt that the Elizabeth line will be seen as a great enabler of social and economic activity.

- Q76 **Sarah Olney:** Mr Wild, obviously we are living now in quite different times to when this project was first conceived and the business case was first agreed, and we have obviously experienced an unprecedented drop in ridership, as Mr Byford was saying, over the last 18 months. I understand that a lot of modelling is going on, as he mentioned earlier, for how behaviours might change in the future. What do you think are the possible additional benefits of Crossrail? How might the existing benefits previously identified be revised in the light of the fact that there may well be a substantial and possibly long-term change to rider behaviour as a result of the pandemic?

Mark Wild: The commissioner will comment on TfL's long-term plans, but when I started on the railways—my first job on the railways was in 1998—I came across some people in York working on Crossrail, so this design started in 1999-2000. It takes 20 to 25 years to build something like this. In the broad sweep of history, no matter what happens with coronavirus—people can model it, but who knows?—we have built Crossrail and the Elizabeth line for 120 years, which is the design life, and I have no doubt that it will be here in 200 or 300 years' time.

In the broad sweep of mega-infrastructure, certainly no other competitive cities are stopping building lines like this. If you go to Singapore, Hong Kong, Melbourne or Sydney, or even new York, you will see that they are conceiving and building lines like this, because it takes 20 to 25 years. I am sure that there will be a blip and a reallocation in the way people work and live, but I think that, with a 120-year design life, there is plenty of time and opportunity for people to come back to the Elizabeth line.

I also think that we have something that could have been built for the pandemic. Our trains are spacious, large and air-conditioned. I know that some of you have been to our stations and seen the cathedral-like spaces, with free air flow. I think that once people experience the Elizabeth line, they will realise that—it is not the Central line, let me put it that way. We are very proud of the managing director of the tube, but we have not built the Central line. We have built something that will stand the test of time. It is architecturally stunning. I think it is built for social distancing. Time will tell what will happen over the next two to three years, of course, but I have no doubt that it will stand the test of time.

- Q77 **Sarah Olney:** Mr Byford, what do you now think the benefits of Crossrail will be if there is a sustained change in people's travelling behaviour?

Andy Byford: I am in danger of repeating what I have previously said—

Chair: You don't need to repeat it.

Andy Byford: Sure. Let me just say this one thing, and it is not meant to be a glib statement. I do think that there is a non-financial benefit—you could argue that there will also be a financial benefit—that the opening of the Elizabeth line will have early next year. There could be no greater



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symbol of London's resurgence and emergence from covid than the opening of the Elizabeth line. That is pure luck, because we cannot claim that we came up with that. Who wanted covid? Certainly not me—I can say that literally today. I think that it will have a transformative effect and will really help this city and this country, because suddenly, more than any other world city, it can be showcased as "London is back." That is why we are so single-mindedly determined to have no further delays and no further cost runs. Let's get it done.

Q78 Sarah Olney: Ms Kelly, earlier we touched briefly on some of the lessons learned, and the one that particularly struck me was Mr Wild's point about the interface risk of trying to manage the contracts—I think he said there were 36 different contracts—and how, although it was the right decision to make, they did not anticipate early enough what the risks would be in trying to manage those together. I just wonder how you are applying those lessons, and not just to transport projects but to infrastructure projects across Government.

Bernadette Kelly: Absolutely. I am sure that the Chair will recognise that I have spoken at some length in the past about the lessons from Crossrail, because clearly there are many, and it is incredibly important that we learn them and act upon them.

Looking back at the steps that we have taken in the Department to ensure that we extend those lessons to all our work and beyond in Government, we did a 24 lessons report back in April 2019, jointly with the IPA, very much based on some of our experiences on Crossrail. We have had a very extensive project development improvement plan, which we have extended right across the Department, looking at strengthening our capability, our governance, culture, transparency—all these factors have now been built into how we look at project delivery within the Department.

We are rolling that plan out and sharing it with colleagues across Government through an infrastructure steering group, chaired by the chief operating officer, Alex Chisholm, which has many very senior colleagues from Departments such as BEIS and the Ministry of Defence, which, as you can imagine, have a direct interest in infrastructure delivery.

We have really exhaustively mined the lessons from Crossrail and are ensuring that we learn them. I could talk at great length, but I won't. What I will say, though, is that there are some very specific points that came out of the things that Mr Wild was saying earlier about the contracting structures and what we have learned on Crossrail. I hope that through how we are now delivering HS2, any Committee members who were at the last hearing about a month ago, when Mr Thurston was able to appear in front of the Committee and talk about what he was doing, will see very clear evidence of how we are approaching commercial contracting very differently on HS2.

For the main work civils, these are much bigger contracts. We have a small number of very large contracts, which are designed to ensure that HS2 can then properly integrate those civils works. Mr Thurston was able



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to talk about the early work that is now going on to establish the procurement of the systems functions for HS2 in a way that directly learns from Crossrail. We have very clear plans for an alliance structure and very clear responsibility for integration built into those procurement plans. I can assure you that my investment committee probes this very, very thoroughly whenever we see these contracting and procurement arrangements in front of us.

Sarah Olney: Thank you.

Q79 **Chair:** I just wanted, finally, to ask each of you in turn what it is that is keeping you awake at night. I will go to Mr Byford first. You touched on this earlier, and that is why I am coming to you first. Then I will go to Mr Lodge and to our witnesses in the room. You are at crunch time now. You have got a lot relying on the next few months to try to meet this January to June deadline.

Andy Byford: I have been doing this a long time—32 years, in three continents—and the one thing that always keeps you awake is the unknown. You think that you have covered all the angles, and we are meticulous at tracking how we are doing against the various construction risks, the covid risks, the software risks and the contractor risks. I am very confident that we have got a good handle on this, but you never know; in trial running or trial operations, something could crop up that is so completely—

Q80 **Chair:** Can I just hone that a little more? We have this Siemens software coming soon, and that has already had a delay. Then you have, as you say, the trial running. Are they the two biggest areas where you think unknowns are likely?

Andy Byford: Yes. If, in trial running, notwithstanding all the various work we have done on design, suddenly something working in tandem with something else—particularly when you overlay a new element that is parachuted in, namely this software—just does not work in a logical manner, that could set you back months. I do not think that will be the case.

We have spent hundreds of hours seeing the whites of the contractors' eyes and insisting that they make Crossrail, on a continuing basis, their global No. 1; I have made that pretty crystal clear to my counterparts. I am pretty confident that what I have outlined will not be the case, but that would be my answer. You can be as confident as you can, but something can always crop up that you just could not have anticipated.

Q81 **Chair:** You have been very positive and owned the issue today, so it is interesting that even now, at this late stage in the hearing, you are saying that these things could still go badly wrong. You have got that in there. Mr Lodge, what is your point of view from the Department?

Matthew Lodge: I would say that there are still a number of risks that the project has, and I think they are all being managed, as the commissioner just mentioned. For me, it is completing the handover of all the stations, and actually getting that done. I think we are making really



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good progress on that, and it is all going well, but there is a risk in that. Software, which Mr Byford has talked about, is the one thing that is keeping me awake. Finally, it is the integration of the timetable. I think it is all going well, but it is the kind of risk that could still come back and bite you. I think all the right things are being done to mitigate that risk.

Q82 **Chair:** That integration of the timetable falls squarely back with the Department when Crossrail is finally completed, so I can see why that might worry you.

Matthew Lodge: The Department and Network Rail, yes.

Mark Wild: I actually feel confident about getting to the front edge of the window. The issue for the system will be the step up from 12 trains an hour to 24 trains an hour. It means we have just got to make sure the reliability of the system—it is attention to detail that we need. I actually feel confident that we will get there.

Q83 **Chair:** So you sleep well at night, Mr Wild?

Mark Wild: Yes, I do. I think the system is safe, and people are trained. Andy is right; we could find an unexpected thing, but that is life in this game. The unusual thing about this system is that it is so large and complex. Going from 12 to 24 trains an hour later next year is something that needs really thinking about, but it is all achievable. I do not worry too much about getting within the window, as early as we can, for 12 trains an hour from Paddington to Abbey Wood.

Q84 **Chair:** I have to say that the optimism has been extraordinary today. I now turn to Bernadette Kelly, who famously sleeps very well at night.

Bernadette Kelly: I do.

Chair: What is on your list of worries? You must have something.

Bernadette Kelly: It is just this relentless focus on delivery now, because we are so close. I think that is what you are seeing in the evidence that you are hearing from Mr Wild and the commissioner. It feels as though we are now in the final lap, but it is about that relentless focus on delivery. It is not done until it is done.

Q85 **Chair:** You have a big Department. You have covid to deal with, as well as international travel and bailing out rail companies. You have got a lot on your plate, Ms Kelly. Where does Crossrail rank?

Bernadette Kelly: It is incredibly important that it is done, and that it is done successfully.

Q86 **Chair:** So where does it rank?

Bernadette Kelly: If I am frank, I believe this is a project now over which there is a firm grip, for which there is a clear plan. There is strong leadership being demonstrated by the commissioner and Mr Wild to deliver on that. We are absolutely watching the bits of responsibility that sit with us, which are the Network Rail pieces and the timetable. Again, we have a



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firm grip on those things. I am not complacent at all. It probably is not worrying me as much as one or two other things, where we still have to develop plans with the same level of certainty as these ones. Look, we will not be comfortable or complacent about this until it is fully open, but I genuinely do think there is a good, robust plan and we just need to continue to drive in a very open and transparent way towards delivering on that.

Chair: Thank you; that brings me towards my final comment about transparency. If there is any slippage, we would like to know that. As you know, this Committee does not like surprises. We have had a very optimistic outline today of where things are at, with great enthusiasm. Enthusiasm and optimism are good things, but we are cynics and sometimes, as has been highlighted, things can go wrong even at this late stage. Of course, every mistake costs the taxpayer dear, and it is our job to make sure that we are holding your feet to the fire on that.

Thank you very much indeed for your time, and particular thanks to Mr Byford for struggling through his covid. We wish you all the best for your recovery, and we hope you do not have any other Select Committees this week. You will be glad to know that we rise for summer recess on Thursday; I am not sure what the London Assembly is doing. Thank you very much for appearing despite that. Thank you to Matt Lodge from the Department for Transport; to Mark Wild, the chief executive of Crossrail; and to Bernadette Kelly, the permanent secretary.