

**1. Why didn't you announce this when you announced the additional funding?**

DfT and TfL were formally made aware on 30th August, following a decision at the latest Crossrail Board which took place on the 29th August.

**2. How could you have been unaware of the potential for this delay?**

As has been discussed on a number of occasions at the TfL Board, the Crossrail Limited team have been managing a number of schedule and cost pressures as this enormously complex project draws towards completion.

Crossrail Limited have now completed a formal and comprehensive review of the remaining schedule for the completion of the construction and integrated systems testing ahead of the line opening safely and reliably to passengers.

As a result of that, Crossrail Limited has now notified us that they can no longer meet the December 2018 date which means that the central section will now open in autumn 2019.

**3. Will this have a further impact on the already extended funding envelope?**

As announced in July, an additional £300m of funding has been made available by the DfT and TfL, the joint sponsors of the project, to Crossrail Limited.

Crossrail Limited will advise of any additional costs arising from the revised opening date. If required, a revised funding package will be prepared between the DfT and TfL.

**4. How will you fund the December delay?**

Crossrail Limited will advise of any additional costs arising from the delay. If required, a revised funding package will be prepared between the DfT and TfL. Full details will be announced as part of our annual business planning process in November.

**5. Is the funding for other projects now at risk?**

Full funding details will be announced as part of our annual business planning process in November.

**6. What are the reasons for the delay?**

SPEAKING TO CRL:

The original programme for testing has been compressed by more time being needed by contractors to complete fit-out activity in the central tunnels and delays in the development of railway systems software. Testing has started, and further time is required to complete the full range of integrated tests required to ensure a safe and reliable railway.

## **7. When will the full railway open?**

The DfT and TfL will continue to work closely with Crossrail Limited on the revised schedule. The focus remains on opening the full Elizabeth line, from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east as soon after the central tunnels open as possible.

## **8. Doesn't this show an inability by Government and Transport for London to deliver major projects on time and on budget?**

No. Crossrail is a world class infrastructure project that will transform travel in London and the South East and is delivering immense benefits to the whole of the UK through its vast supply chain, adding up to £42bn to the UK economy.

Major projects are integral to unlocking new housing, creating jobs, driving forward economic growth and provide communities across the country with the transport infrastructure we need for the future.

The delay is disappointing, but not uncommon in a project of this scale and complexity and delivering the Elizabeth line safely is of paramount importance. There is always the potential for unexpected pressures to emerge that can challenge opening dates.

## **9. Why weren't these delays noticed earlier and mitigating action taken?**

SPEAKING TO CRL:

Following a full review of the remaining delivery schedule we have been advised the central section of the railway will not be able to open in December 2018.

Although the major construction work has been broadly delivered to schedule, finalising the communications systems and bringing together and testing the complicated interfaces such as track, power, signalling and trains is the most complex phase of the Crossrail project and it is during this late phase of the project that Crossrail Limited has come up against delays.

The DfT and TfL will continue to push Crossrail Limited to manage any schedule pressures and mitigate these as much as possible. The focus remains on opening the full Elizabeth line, from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east as soon after the central tunnels open as possible.

## **10. What was the impact of the electrical explosion at Pudding Mill Lane on the completion date and cost for the Elizabeth line?**

SPEAKING TO CRL:

During the initial energisation of electrical equipment at Pudding Mill Lane sub-station on 11 November 2017, two voltage transformers failed.

The cause of the failure was quality assurance. This delayed the start of energisation of power equipment in the tunnels by several months while extensive checks were completed, and thus delayed the start of testing.

This was one a number of unexpected challenges that occurred during construction, and it highlights the complexity of delivering major projects.

**11. What about the Network Rail works, are they also delayed?**

The upgrade of existing stations in the west is the responsibility of Network Rail.

**12. What is the revised timetable for opening?**

Full details of opening dates will be announced in due course.

**13. Why didn't you announce this when you announced the additional funding?**

DfT and TfL were made aware of the change to the schedule on 30th August, following a decision at the latest Crossrail Board which took place on the 29th August.

**14. How could you have been unaware of the potential for this delay?**

As has been discussed on a number of occasions at the TfL Board, the Crossrail Limited team have been managing a number of schedule and cost pressures as this enormously complex project draws towards completion.

Crossrail Limited have now completed a formal and comprehensive review of the remaining schedule for the completion of the construction and integrated systems testing ahead of the line opening safely and reliably to passengers.

As a result of that, Crossrail Limited has now notified us that they can no longer meet the December 2018 date which means that the central section will now open in autumn 2019.

**15. Will this have a further impact on the already extended funding envelope?**

As announced in July, an additional £300m of funding has been made available by the DfT and TfL, the joint sponsors of the project, to Crossrail Limited.

Crossrail Limited will advise of any additional costs arising from the revised opening date. If required, a revised funding package will be prepared between the DfT and TfL.

**16. Why did you agree the funding package with the DfT in July, potentially leaving TfL to foot the bill for any remaining costs?**

When the revised funding agreement was made in July, Crossrail Limited had not advised the DfT and TfL, the joint sponsors of the project, that the December 2018 opening date could no longer be met and the potential cost implications of this. We continue to work closely with Crossrail Limited and the DfT on the potential financial implications of this change.

**17. What are the revenue implications of not beginning a service from this December?**

Although there will be some revenue implications, we are experienced at managing our costs and are ahead of our savings target for the year. Full details of how we will manage the change in expected revenue will be announced as part of our annual business planning process in November.

**If pressed: What was the predicted revenue from December 2018?**

The business plan predicted circa £80m, but this includes revenue from TfL Rail services between Liverpool Street and Shenfield and Paddington and Hayes & Harlington / Heathrow which are already running as planned.

**18. What are the revenue implications of not running a full service by December 2019?**

The TfL business plan forecast £400m per annum in revenue following the opening of the full railway out to Reading. We will work through any cost and revenue implications of a revised opening date and report this through our annual business planning process.

**19. How will you fund the December delay?**

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**20. Is the funding for other projects now at risk?**

Full funding details will be announced as part of our annual business planning process in November.

**21. What are the reasons for the delay?**

The original programme for testing has been compressed by more time being needed by contractors to complete fit-out activity in the central tunnels and delays in the development of railway systems software. Testing has started, and further time is required to complete the full range of integrated tests required to ensure a safe and reliable railway.

**22. When will the full railway open?**

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**23. What is the regulatory sign off required to run the railway?**

There are a series of safety reviews both TfL and MTR, the operator, need to complete ahead of the railway being ready for passenger service which is why full testing of all of the systems together is essential. The Office of Rail and Road then need to approve the railway as safe to operate before services can begin.

**24. Doesn't this show an inability by Government and Transport for London to deliver major projects on time and on budget?**

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The DfT and TfL will continue to push Crossrail Limited to manage any schedule pressures and mitigate these as much as possible. The focus remains on opening the full Elizabeth line, from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east as soon after the central tunnels open as possible.

**26. What was the impact of the electrical explosion at Pudding Mill Lane on the completion date and cost for the Elizabeth line?**

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**27. What about the Network Rail works, are they also delayed?**

The upgrade of existing stations in the west is the responsibility of Network Rail.

**28. What is the revised timetable for opening?**

Full details of opening dates will be announced in due course.

**29. What is the revised opening strategy for the Elizabeth line?**

Full details of the opening strategy will be announced in due course. When the central section does open the railway will operate as three separate railways.

**30. How did it get so bad so quickly? Who was to blame for this situation?**

CRL response: The Elizabeth line is one of the most complex and challenging infrastructure projects ever undertaken in the UK.

We have been working hard to maintain the programme but sufficient time is required to introduce the next phase of the railway – the central section between Paddington and Abbey Wood – in a way that can be guaranteed to be safe and reliable.

The original programme for testing has been compressed by more time being needed by contractors to complete fit-out activity in the central tunnels, a later than planned start to dynamic testing and delays in the development of the railway systems software that allows operation across the three different signalling systems.

Testing has started but further time is required to complete the full range of integrated tests required to ensure a safe and reliable railway.

The railway will open through the central section once full testing of the train and signalling system has been successfully completed and a sufficient level of operational reliability has been achieved.

**31. What will be the final cost of the Elizabeth line?**

SEE WMS ANSWER

**32. CRL Q: Did station construction delays affect railway systems testing?**

CRL A: Construction activity is drawing to a close with the completion of the remaining architectural fit-out in the new central section stations and this will complete as planned this year.

Comment [V1]: This isn't true to say 'as planned' it was planned to handover in July.

While there have been some delays in the station construction programme this has not directly impacted the testing and commissioning of the railway systems.

Comment [V2]: Not true.

**33. What are the three signalling systems that will be used on the Elizabeth line?**

CBTC (Communications Based Train Control) was selected for the central section as it is technically and operationally proven and is successfully used by many metro systems around the world.

TPWS (Train Protection Warning System) operates on the Great Western Mainline and Great Eastern Mainline i.e. Liverpool Street to Shenfield and Paddington to Reading.

ETCS (European Train Control System) operates in the Heathrow tunnels.

**34. What do you mean by railway systems software?**

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**35.** What is the current state of construction activity?

CRL A:

**36.** When you finally open, will all the new stations open?

CRL A: Yes.

Comment [V3]: Remove

**37.** Could a preview / partial service be operated this December?

CRL A: No, It is not possible to open a limited or partial service through the central section without it impacting on testing.

CRL Q: Was it known that the Elizabeth line would not open in December 2018 at the time the WMS was published?

CRL A: No. This situation only became apparent as we progressed through the dynamic testing phase progressed and was not known beforehand.

CRL Q: How long has it been known that the Elizabeth line would not be ready to open in December 2018?

CRL A: A final view was formed in August on the basis of current testing progress and technical input from our supply chain leading the signalling and train systems testing.