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Dear Caroline,

There is great momentum across the programme to complete the railway, following the strong and very productive finish to the end of last year. It will be an exciting time ahead with the opening of the Elizabeth line, which is still on track to be delivered in the first half of 2022.

During the festive period significant progress was made, including the commissioning of the remaining tunnel ventilation system software upgrades, the latest signalling software update, the commissioning of the latest control and communications software, train fleet software update and the replacement of voltage transformers earlier this month.

The pathway to opening this railway includes the commencement and completion of the second phase of Trial Operations, building reliability in the system and rolling stock, completing the relevant assurance work and the completion of the shadow running period.

We acknowledge that in a project of this scale and magnitude, there will be challenges, particularly as we look to deliver this railway to the highest safety standards. But we know what needs to be done to get this railway through Trial Operations and into passenger service.

### **Safety**

With the project in the final complex stages of delivery, the focus remains on ensuring that it is completed safely. There has not been a significant injury reported on the project since my last update and the overall Health and Safety indicators remain within those set by the programme.

The project remains vigilant to the recent COVID-19 developments and will continue to closely monitor the situation across the programme. Access to our sites has been restricted to protect our workforce and to limit disruption to the programme.

### **Trial Operations**

The first phase of Trial Operations commenced on 20 November 2021, in line with the earliest forecast dates. A phased approach to Trial Operations has been adopted to build greater resilience into the railway and to allow for the earliest commencement of passenger services.

Trial Operations has begun with scenarios such as testing the response to an unwell passenger and an obstruction on the line. The performance of the railway in the first few weeks of Trial Operations has been mixed. Prior to Christmas a third of the total tests planned for the whole Trial Operations period were completed. There is also real focus on improving reliability across the railway. Works

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were undertaken during the festive period to support this and initial indications have been encouraging. The central section is currently running at 12 trains per hour, the initial level of service on the Elizabeth line, with the new signalling software, helping to test reliability in the railway and build mileage.

As mentioned previously, during the festive period, the programme successfully undertook works, including the commissioning of the remaining tunnel ventilation system software upgrades, the latest signalling software update, the commissioning of the latest control and communications software and the replacement of voltage transformers earlier this month. All of these upgrades provide further increases in operational reliability of the routeway and signalling systems. Alstom also uploaded the train fleet software update, which has provided improved fleet reliability. These fixes bring the system close to the intended configuration for revenue service and support the pivot to reliability and focus on wider system issues, which are important in the final completion of the railway for revenue service.

The success of the commissioning of the software over Christmas and the transfer of Canary Wharf station are critical to commencing the second phase of Trial Operations. Final modifications to the safety systems are being carried out at Canary Wharf station and it is now forecast to be transferred by the end of January. Bond Street station has been decoupled from the opening of the railway and the team is working on a plan to get the earliest opening date for the station.

The second phase of Trial Operations will involve a series of more complex exercises, including evacuations of trains and stations, and is expected to commence in the coming weeks. Once complete, this will be followed by a period of shadow running, operating timetabled services ahead of the Elizabeth line opening.

### **Elizabeth line Opening (Stage 3)**

In the first half of 2022, the Elizabeth line will launch with a new passenger service between Paddington and Abbey Wood, through new tunnels under central London. The launch will bring immediate benefits to passengers travelling between these stations with 12 trains per hour, in each direction, all day.

The opening of the Elizabeth line has always been planned to take place in stages to ensure the new central London stations, signalling and infrastructure can run safely and reliably before it fully links in with services out to the east and west.

Following the opening of the central section between Paddington and Abbey and until the next phase of opening in Autumn 2022, the Elizabeth line will operate as three separate railways. The services on the east and west will continue to run into the mainline stations and passengers wishing to continue their journey to one of the new Elizabeth line central London stations will need to change to Paddington or Liverpool Street Elizabeth line station.

Opening the Elizabeth line (Stage 3) during the first half of 2022 will enable the later stages (5b & 5c) to be delivered in line with our earlier forecast and achieve much of the benefit to passengers of a through running service on the railway. The commencement of revenue service is dependent on a number of factors. This includes the completion of the necessary assurance, with work underway to further define the assurance transition into the second phase of Trial Operations and Revenue Service. It is also driven by system and rolling stock reliability. The successful commissioning of software across the systems during the festive period should see improved reliability going forward. Lastly, a key driver to commencing Revenue Service is the successful completion of the second



phase of Trial Operations and the shadow running period, the former is scheduled to begin in the coming weeks.

### **Full Elizabeth line Services (Stages 5b & 5c)**

After the opening of the central section of the Elizabeth line, in the first half of this year, direct services from Reading, Heathrow and Shenfield are expected to connect with the central section in Autumn 2022.

When this phase launches, services from Reading and Heathrow will operate through to Abbey Wood. Services from Shenfield will operate through to Paddington. The service in the central section between Paddington and Whitechapel will be 24 trains per hour during the peak. Full end to end services are expected to start no later than May 2023.

### **Focus and Challenges**

Despite recent progress achieved across the programme, we do not underestimate the challenges that remain, which continue to be the focus of management attention. We remain committed to following our process for the start of the second phase of Trial Operations, which is planned to commence in the early part of 2022. Critical to this is the successful completion of the planned activities during the festive period. These activities include completion of the necessary assurance documentation for the tunnel ventilation system, the ELR110 and Alstom software updates and the completion of the required assurance documentation needed for phase 2.

There is also a focus on improving total system reliability, including rolling stock. The successful commissioning of software systems across the infrastructure and train systems is expected to deliver improved operability and significant reliability improvements.

### **Operational Readiness**

TfL Rail delivered a Public Performance Measure (PPM) of 91.7 per cent during period 9 (14 November – 11 December). The eastern section of the line achieved 90.7 per cent with the western section achieving 92.9 per cent. There were several service impacting incidents on the eastern section largely related to the infrastructure on the Anglia route. The overall Moving Annual Average trend continues to be better than target at 94.9 per cent.

Passenger services from Paddington are now being operated by nine-car (to Heathrow and Reading) and seven-car (to Reading) class 345 trains. The seven-car trains will be progressively converted to nine-car trains for the start of Stage 5b. The Liverpool Street to Shenfield service transitioned to a full nine-car class 345 operation at the end of December 2021.

### **Surface Stations**

All Network Rail station enhancement works on the west of the central section have been successfully completed with the new station buildings and step-free access already bringing benefits to customers. The completion of the remaining construction activities and snagging works are also on track for completion in early 2022.

The focus for Network Rail on the east continues to be on the enhanced station upgrade works at Ilford and Romford. Delivery continues to progress at both sites. However, there is a structural issue at Ilford. While carrying out the station upgrade work, Network Rail have identified a damaged concrete slab in the concourse area. Network Rail and their contractor are working up options to resolve this. The target for entry into service and step-free access at both stations is by the early 2022, dependent on the resolution of the structural issue at Ilford.



We have taken great strides forward as a result of the completion of a huge amount of work over Christmas and the New Year. It has put the programme in a good position to begin phase 2 of Trial Operations in the coming weeks and, as a consequence, deliver a safe and reliable Elizabeth line within the opening window, the first half of this year.

Kind Regards,



**Mark Wild**  
CEO