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18 November 2019

Dear Florence,

As you're aware, at the end of April, we outlined a new plan to complete the outstanding works and bring the Elizabeth line into service at the earliest possible date. The high-level plan to complete the railway has progressed into a logically linked and detailed Delivery Control Schedule.

When the Delivery Control Schedule was launched in April a number of risks and challenges for the future were identified as potential scenarios. Those risks included: delays to software integration and challenges for assurance and handover due to the scale and complexity of the project. These risks have materialized, impacting programme cost and the time it will take to complete.

Following the Crossrail Board meeting on 7 November, we confirmed that further time is required to complete software development for the signalling and train systems and the safety approvals process for the railway. The Trial Running phase will begin at the earliest opportunity in 2020, this will be followed by testing of the operational railway to ensure it is safe and reliable.

Our latest assessment is that the opening of the central section will not occur in 2020, which was the first part of our previously declared opening window. The Elizabeth line will open as soon as practically possible in 2021. In early 2020 we will provide Londoners with further certainty about when the Elizabeth line will open.

Our detailed cost forecasts have increased due to programme risks and uncertainties. The latest projections indicate a range of between £400 million to £650 million more than the revised funding agreed by the Mayor, Government and Transport for London in December 2018, which is disappointing news. However, we are working to mitigate against risks and minimise costs to reduce any additional funding required as much as possible.

We are doing everything we can to complete the Elizabeth line as quickly as we can but there are no short-cuts to delivering this hugely complex railway. The Elizabeth line must be completed to the highest safety and quality standards.

**MOVING LONDON FORWARD**





## Safety

Health and safety remains our number one priority. Overall performance remains consistent, but still under scrutiny. Three accidents resulted in injuries requiring treatment. A fitter working at the Plumstead Depot suffered a broken foot when an unsecured gas bottle fell out of the storage cage he was opening. A person also required time off work after cutting his hand carrying materials. Most recently at our Liverpool Street site a person slipped on some polyethene sheeting that was covering materials and fractured his ankle. We always establish the root causes of incidents and share the learning across our programme and with the wider industry.

We also acknowledge the importance of highlighting best safety practice. This is a theme evident in our new health and safety induction film which has been viewed by every person across the project. The 'One Team for Health & Safety' film precedes the launch of our next Stepping Up Week which will run from 18 – 24 November, providing us all with an opportunity to focus even more intensely on our personal safety and that of our colleagues.

Following recent concerns regarding air quality at Bond Street, continued actions by Crossrail Ltd include a full dust management review with a detailed report produced; this has been shared with the Health and Safety Executive (HSE). We are also conducting client-led assurance of the arrangements in place for dust management and continued air quality monitoring.

## Central Section Progress

A key focus during 2019 has been finalising the stations, tunnels, portals and shafts. Physical works are nearing completion at many stations as well as within the tunnel section. Our key challenge remains the volume of handover assurance and documentation required to bring these assets into passenger operation. Nearly 200,000 documents need to be completed as part of the assurance and handover process and safety certification for the Elizabeth line.

By the end of the year, Custom House, Farringdon and Tottenham Court Road stations will be complete and the project is on track to finish all fit-out activities in the tunnels in January. The central section will be substantially complete by the end of the first quarter in 2020, except for Bond Street and Whitechapel stations where work will continue.

At Bond Street and Whitechapel stations we now have high productivity and a clear path to completion. Whitechapel station has reached the Staged Completion 1 point, which is a significant achievement for the programme. This means that Whitechapel has reached a sufficient level of completion to support entry into Trial Running in 2020 and will support the creation of a standardised requirements checklist which will be implemented across all stations.

To further streamline the handover of the remaining 28 major assets, local lesson sharing sessions have been held on the process at Victoria Dock and Pudding Mill Lane portals following their successful handover to the infrastructure manager. This allows for collating



and disseminating lessons learned and sharing best practice in a collaborative environment with our contractors to create exemplar templates for every assurance document type.

Significant work has taken place within the tunnel to support our readiness for Trial Running. The central section of the Elizabeth line has been connected to the GSM-R – the national railway radio system, and the London Fire Brigade Commissioner has assured the public address system which is now in use in the majority of the tunnel.

### **Dynamic Testing**

Version PD+10 of the train and signalling software was installed for testing in the central section in early October as planned and valuable reliability and functionality testing continues while the next software iteration is developed by Siemens. Each new version of the software increases functionality and the range of Dynamic Testing that can be undertaken. The software version PD+11 is still anticipated to be the version used for the start of Trial Running however, the uplift in functionality to PD+11 is significant. Development of PD+12 is now well underway minimise any potential impact on the schedule should it be required for Trial Running.

### **Operational Readiness**

TfL and MTR-Elizabeth Line are on course to start operating the stopping services from Paddington mainline station to Reading on 15 December 2019 under the TfL Rail brand (referred to by the project as Stage 5A). MTR-Elizabeth Line already staff 11 of the 15 stations between Paddington and Reading, after taking over the running of these from Great Western Railway in December 2017. The full plan is to use the full-length (nine-car) trains but it is unlikely that the software updates necessary will be tested and available in time for the introduction of service. It is likely that the service will start with the seven-car units currently used between Liverpool Street and Shenfield and the full-length units will be swapped in when available.

Following the handover of the first two sites, TfL is preparing for the handover of the next elements, currently expected to be Mile End shaft and Custom House station.

The Maintenance & Training teams are continuing to use the initial handover sites (Victoria Dock & Pudding Mill Lane portals) to achieve the necessary levels of competence in maintenance delivery ahead of further handovers.

The Maintenance team is providing track inspection support to the Crossrail contractors as well as shadowing contractors, enabling TfL maintainers to become familiar with the assets and locations prior to becoming the Infrastructure Manager.

Further multi-skilling training is being carried out for Traffic Managers to allow sufficient flexibility to operate the railway, a refreshed and updated training programme will cover any skills gap due to agreed changes to the functionality of the railway.



## **Network Rail**

Network Rail has completed the remaining driver CCTV works with all certification to support handover to Rail for London now submitted and under review to enable the delivery of the TfL Rail services between Paddington (high level) and Reading from December 2019 (stage 5a).

The final platform extension at Maidenhead is now complete (following West Drayton and Slough) with a plan to bring the platforms into use in late November 2019. Key construction works will be undertaken over the Christmas period as part of the Station Enhancement works on the west of the route including installation of platform structures and link bridges at Acton Main Line and West Ealing, and access structures on platform 4 at Ealing Broadway.

At Ilford and Romford, station enhancement works continue and are still expected to complete in December 2020.

Network Rail is progressing with the Great Eastern Main Line (GEML) traction power upgrade with a target completion date of May 2020. Contract awards for remaining scope on the GEML required to support Stage 4 services (direct trains from Shenfield into the central tunnels) are currently being programmed.

Kind regards



**Mark Wild**  
**CEO**