

**Date:** 20 July 2022

**Title:** Northern Line Extension

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## **This paper will be considered in public**

### **1 Summary**

- 1.1 Following a successful launch of the Northern Line Extension (NLE) on 20 September 2021 this submission provides an update on the final stages of delivery and closeout of the programme, as well as highlighting some of the early benefits realised to date.
- 1.2 This submission provides an update to the last update to the Committee on 16 October 2020.
- 1.3 Supplementary information is included in Part 2 of the agenda. This information is exempt and is therefore not for publication to the public or press by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL.

### **2 Recommendations**

- 2.1 **The Committee is asked to note the paper and the supplementary exempt information on Part 2 of the agenda.**

### **3 Background**

- 3.1 The NLE delivered a 3.2km twin tunnelled extension of the Northern line Charing Cross branch from Kennington to Battersea Power Station via Nine Elms. The NLE supports wider regeneration of the Vauxhall Nine Elms Battersea Opportunity Area, which is aiming to deliver 20,000 new homes and 25,000 new jobs, through significantly improving transport accessibility in the area. The NLE also delivered two new step-free Zone 1 stations therefore improving public transport accessibility for people with mobility impairments.
- 3.2 Following a successful public launch event attended by the Mayor and the Secretary of State for Transport the NLE entered revenue service on 20 September 2021, achieving the planned opening date despite a ten-week suspension of construction in 2020 due to the coronavirus pandemic.
- 3.3 The NLE was the first major extension of the London Underground since the Jubilee line was extended in the late 1990s. This culminated a six-year construction period in which the stations, ventilation shafts, tunnels, track and signalling systems were delivered and fitted out by the joint venture of Ferrovial

Agroman and Laing O'Rourke (FLO) and Thales (respectively). Photos of the stations and infrastructure delivered can be seen in Figure 1.

3.4 During the final stages of delivery in 2021 several concurrent workstreams were successfully completed to reach revenue service, these included:

- (a) infrastructure and systems commissioning and testing;
- (b) signalling testing and commissioning;
- (c) station and train-based training and familiarisation, trial operations and shadow running; and
- (d) obtaining necessary consents and assurance.



*Figure 1: Infrastructure constructed as part of the NLE*

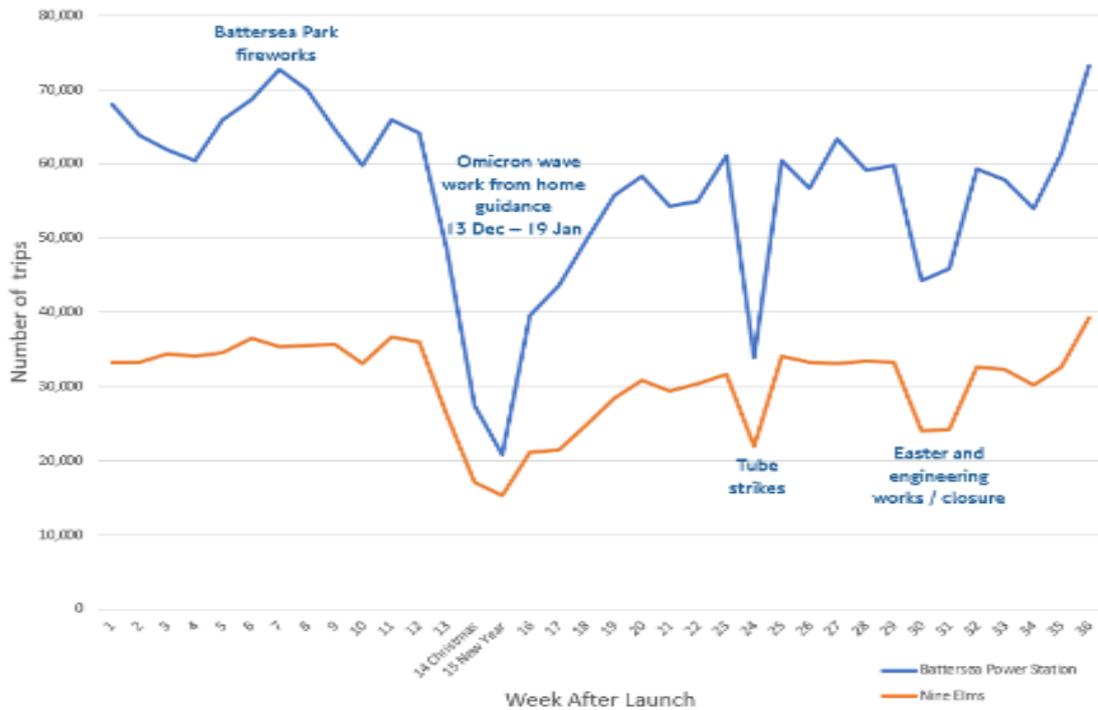
## 4 Current Progress

4.1 Since entering revenue service, the Delivery Team, FLO and Thales have worked to deliver outstanding scope and conducted a thorough snagging process, including addressing almost 20,000 observations and minor work items. A detailed technical assurance of documentation has also been carried out with documents having been submitted, assured, and accepted.

- 4.2 Contract completion with FLO was achieved in June 2022 with the contract delivered within authority and under the latest budget provision. A structured handover process has been undertaken using the Design and Build contract with FLO and Thales with all assets now handed over to LU Asset Operations for full planned preventive and reactive maintenance.
- 4.3 A defects period runs until July 2023 to allow any new and existing defects to be addressed within a 12-month defect period as per standard practice on major infrastructure projects. Testing and implementation of solutions is ongoing and all defects will be addressed and assured by TfL engineers within the 12-month defects period.
- 4.4 The NLE opened with a service frequency of six trains per hour in the peak periods and five trains per hour off peak. The service frequency was increased on 27 June 2022 with the implementation of Working Timetable 59 meaning the extension is now served by 12 trains per hour in the peak periods and ten trains per hour off peak. Therefore, trains now serve the NLE stations every five to six minutes, depending on time of day.

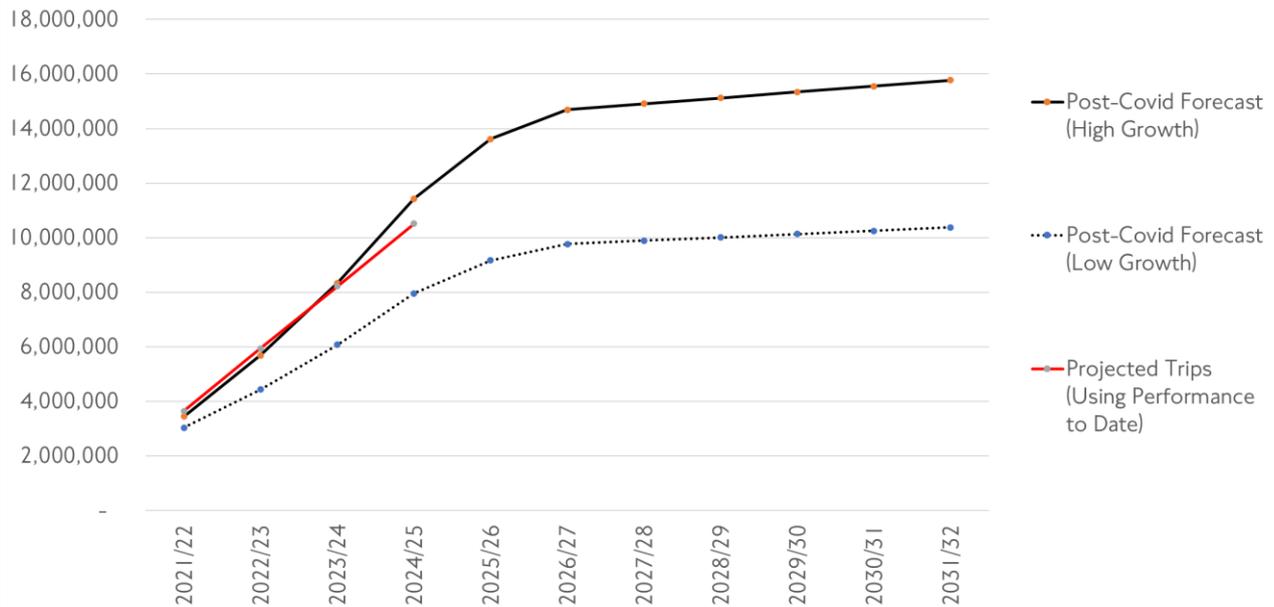
## **5 Benefits Realisation**

- 5.1 The NLE has delivered a step-change in public transport accessibility in an area which was previously poorly served by public transport despite its relatively central location.
- 5.2 The extension is already playing an important role in London's recovery from the pandemic with over three million trips recorded before June 2022. Battersea Power Station is the busier of the two new stations with approximately 60,000 trips per week since the NLE opened and almost 13,000 trips recorded recently on the busiest day of the week (Wednesday). Nine Elms station attracts over 30,000 trips per week and almost 7,000 trips on the busiest day. Based on this level of demand we anticipate up to five million trips in the first year of the NLE. It is important to note that these are still early results and weekly data is influenced by specific events such as local leisure events, engineering closures and strikes as can be seen in weekly trip data shown in Figure 2.



**Figure 2: Weekly Northern line extension trips to date (combined entries and exits)**

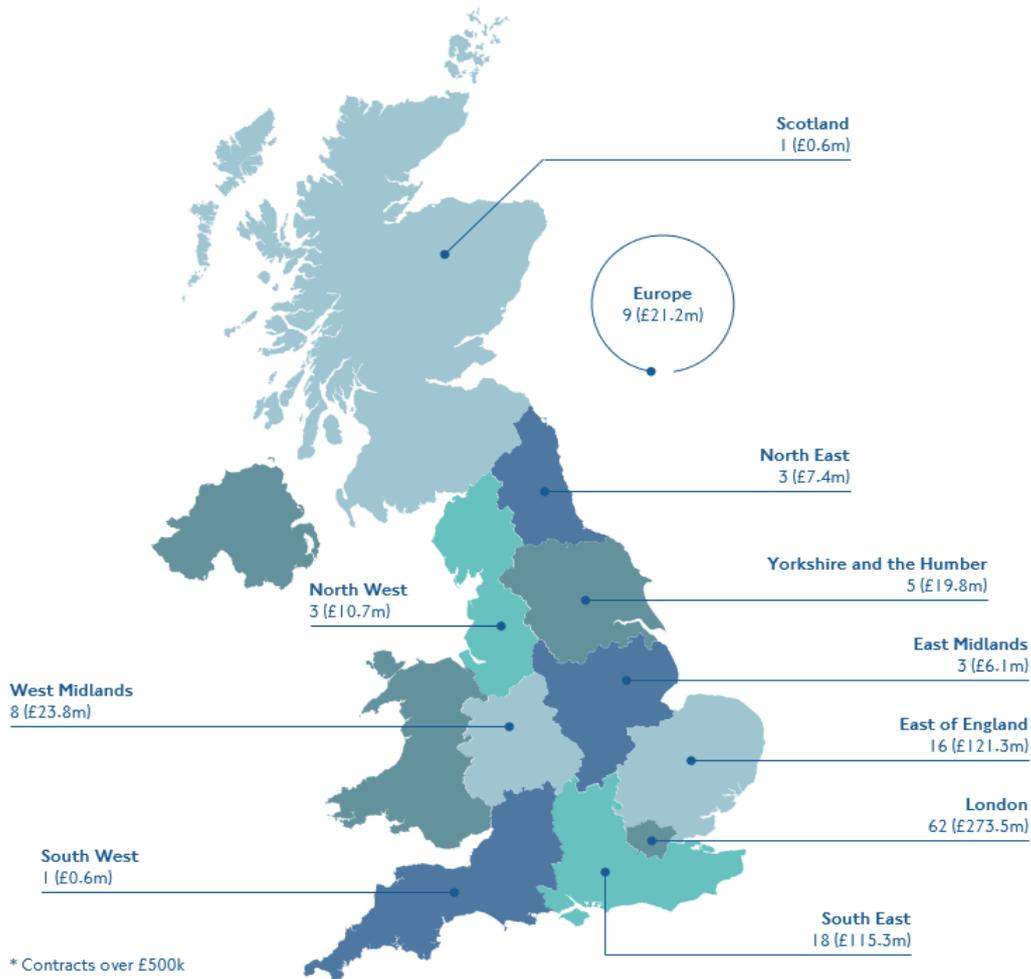
- 5.3 It is anticipated passenger usage will continue to grow in future months and years due to a combination of factors including London’s continued recovery from the pandemic and the associated return to offices; planned growth and regeneration in the Opportunity Area as more homes and offices are completed; and the increase in service frequency making the extension more popular with reduced waiting times.
- 5.4 Based on recently updated modelling we are predicting long-term increases in NLE trips as shown in Figure 3. This graph shows a projection of future NLE trips using a combination of existing performance data and annual uplift factors with over ten million trips predicted in 2024/25. This projection is compared to updated NLE modelling forecasts which account for low and high growth scenarios following the coronavirus pandemic. Construction workforce trips are not included in long-term modelling so have been removed from the NLE projection.
- 5.5 Key destinations for trips to and from the NLE include stations in the City and West End including Bank, London Bridge, Leicester Square and Waterloo. Analysis of key journey time pairs before and after opening NLE found the extension has led to a 17-minute reduction in passenger journey times on average, representing a reduction of almost 50 per cent.



**Figure 3: Projected annual Northern line extension trips (excluding construction)**

- 5.6 The NLE is key to regeneration of the local area and plans to deliver much needed new homes and jobs. Construction of the NLE has been a significant factor in providing the necessary infrastructure to enable the scale of residential development and establish a new vibrant commercial and residential quarter on London’s South Bank. As of March 2021, planning consent had been granted for over 18,550 homes with 8,100 already completed.
- 5.7 During its construction, the NLE programme itself supported around 1,000 jobs, including 79 apprenticeships and 159 previously unemployed people. In terms of employment in the Opportunity Area, the target of 25,000 new jobs remains on track to be delivered. High profile organisations such as the US Embassy and Penguin Random House have already moved into the area and Apple are due to move into their new campus in Battersea Power Station which can accommodate up to 3,000 staff.
- 5.8 Delivery of the NLE has also contributed to economic activity beyond London with over 50 contracts worth approximately £305m awarded to UK suppliers outside of London. For example, the roundels were made on the Isle of Wight, high-integrity door sets were made in Manchester and metalwork and glazed balustrades were made in Kent. This broad supply chain helps spread economic growth and contributes towards Levelling Up with more than a third of total contract spend being outside of London as illustrated in Figure 4.
- 5.9 It is still early in the lifecycle of an infrastructure scheme such as the NLE and it is anticipated that the full benefits will be realised over the coming decades. We plan to continue to monitor benefits of the NLE and would like to undertake further analysis to better understand other areas such as the revenue impacts, the long-term impact on regeneration and wider economic benefits, showcasing what investment in infrastructure like the NLE can bring, particularly with future

aspirations to deliver other major schemes including the Bakerloo Line Extension and Crossrail 2.



**Figure 4: Regional economic benefits from NLE supply chain (spend and number of businesses by region, contracts over £500k)**

## 6 Governance

- 6.1 To ensure successful completion and closeout of the delivery stage of the NLE first-line assurance has been undertaken by the Sponsor, the Programme Management Office and the Delivery Team through implementing a structured programme and project stage gate procedure.
- 6.2 In total 20 project level stage gate meetings have been held since the NLE opened in September 2021. Individual gate meetings have focussed on specific elements of the NLE including Battersea Power Station, Nine Elms Station, tunnels and track, ventilation, power, line-wide communications, and IM systems. These gate reviews have ensured outstanding scope, snags and assurance have been completed since the NLE entered revenue service, when several interim arrangements had been in place to enable the extension to open.

- 6.3 The delivery stage of the NLE is due to conclude with a Programme Gate C (Delivery of Tranches) currently scheduled for 21 July 2022. Final closure of the NLE programme (including closure of all defects and financial close) is due at a Programme Gate D (Close) which will take place in 2023.
- 6.4 A series of lessons learnt workshops were held as part of the programme and project stage gates. Key lessons identified included:
- (a) the project team and supply chain treated the NLE as a railway system from the outset by ensuring the civils and systems integration phases were equally well planned, including provisions for installation, testing and trial operations;
  - (b) understanding the complex design relationship with oversight development and ensuring design and delivery decisions are taken at the appropriate time;
  - (c) understanding construction phasing and changes in constrained sites with multiple third parties;
  - (d) a one team collaborative approach and strong relationship with the contractor meant the programme was able to adapt to covid practices quickly and safely;
  - (e) understanding relationships between projects and programmes and the related impacts on benefits and delivery (e.g. Jubilee and Northern line Additional Trains programme and Bank Blockade); and
  - (f) a well planned and coordinated stakeholder launch helped maximise the NLE's early impact and generated support.

## **7 Assurance**

- 7.1 First-line assurance continues to be carried out on the Programme and its constituent projects. Second-line assurance is being undertaken on a continuous basis and no further formal reviews are planned.

## **8 Financial Implications**

- 8.1 The NLE has an estimated final cost of £1.1bn. Therefore, the Programme was delivered within existing authority despite the cost pressures brought about by the pandemic.

### **List of appendices to this report:**

Exempt supplementary information is included in a paper on Part 2 of the agenda.

**List of Background Papers:**

None

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