

Date: 15 December 2021

Title: London Underground Lifts and Escalators Renewals Programme

This paper will be considered in public

1 Summary

Existing Financial Authority (£m)*	EFC (£m)	Existing Programme and Project Authority (£m)	Additional Authority Requested (£m)	Total Authority (£m)
£938.90m	£938.90m	£885.13m	£19.11m	£904.24m

Table 1: Summary of Programme and Project Authority request.

* Financial Authority is based on the 2021 TfL Budget and Business Plan. Financial Authority beyond 2022/23 will be considered as part of future Budgets and Business Plans. See table 3 below for breakdown by year.

- 1.1 This paper covers the renewal of London Underground lifts assets which form part of the London Underground (LU) Lifts and Escalators Renewals Programme, which is a rolling programme delivering prioritised, critical asset renewals to improve asset condition and to maintain current levels of safety, accessibility, and reliability.
- 1.2 The purpose of this paper is to request authority **for essential renewals to existing Secondary Means of Vertical Transport (SMVT) lift assets providing Step Free Access (SFA)**. The remaining Lift and Escalator renewals projects either have existing Programme and Project Authority or will form part of future requests.
- 1.3 Supplementary information is included in Part 2 of the agenda for Members. This information is exempt and is therefore not for publication to the public or press by virtue of paragraphs 3 and 5 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to business affairs of TfL and which is legally privileged. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendations

2.1 The Committee is asked to note the paper and the related paper on Part 2 of the agenda and:

- (a) approve additional Programme and Project Authority of £19.11m for the LU Lifts and Escalator Programme, bringing the total Programme and Project Authority to £904.24m, comprising:**
 - (i) £14.51m to complete the replacement of nine life expired Secondary Means of Vertical Transport lift assets for design in 2022 and delivery between 2023 and 2024; and**
 - (ii) £4.60m to carry out the necessary capital whole life maintenance interventions on the nine new lift assets in (i) above and a further 36 existing lift assets until 2034; and**
- (b) approve additional Procurement Authority in the sum requested in the paper on Part 2 of the agenda to carry out the works identified in (a) above.**
- (c) note that the matters for which Authorities are sought include commitments that extend beyond the period of the Business Plan and Budget approved by Board on 28 July 2021 and provision will need to be made in future Business Plans and Budgets.**

3 Background

Strategic Context

- 3.1** There are currently 259 lifts installed at LU stations. These numbers will grow by 25 per cent between now and 2026 due to delivery of major station projects, the Accessibility programme, and the Elizabeth line. Lifts make the network more accessible to more people and contribute positively to customer journey times.
- 3.2** There are two types of lifts on the London Underground network:
 - (a)** lifts which are a Primary Means of Vertical Transport (PMVT) these lifts are the main mode of transport from street to platform and typically have a 40-year asset life; and
 - (b)** lifts which are a Secondary Means of Vertical Transport (SMVT) these lifts supplement stairs or escalators and are used principally to provide step free access (SFA) and typically have a 20-year asset life.
- 3.3** Eighty per cent of the 259 lifts on the London Underground network are SMVT lifts with the principle purpose of providing step free access.
- 3.4** Our Lift Asset Strategy can be summarised as a proactive rolling programme of renewals and maintenance to maintain a State of Good Repair (SoGR) and consistently achieve 99 per cent availability across the fleet to ensure customers

(including those requiring step free access) have safe, reliable, and quick access to our train service.

- 3.5 The Lifts Asset Strategy supports the Mayor's Transport Strategy (MTS) objective of 'providing a good public transport experience' and contributes to the aim within the MTS for 80 per cent of trips in London to be made on foot, by cycle or using public transport by 2041. The Asset Strategy also supports LU's priorities for 'Safety and Reliability', 'Customer', 'People' and 'Affordability' and is aligned to both the Financial Sustainability Plan and the TfL Long Term Capital Plan (LTCP).
- 3.6 Asset Renewals are a key aspect of TfL's LTCP which recognises the importance of planned and sustained investment at the optimum intervention point within the asset lifecycle. The LTCP is a 25-year plan of investment with principles agreed at board level across TfL. The LTCP enforces the strategic aspiration to invest in asset renewal prior to asset failure.
- 3.7 Maintaining lift availability levels requires ongoing maintenance and renewal. As described in paragraph 3.2 above, typically, lifts need replacing every 20 to 40 years depending on the type. This means we need to replace around four per cent of our lift assets each year to maintain condition levels.
- 3.8 The interventions that are carried out are however prioritised and informed by the condition and performance of each asset and are not purely based on asset age (see paragraph 4.3 below). With prioritised interventions it is expected that a minimum of eight lift renewals per annum (broadly two PMVT and six SMVT) are needed to hold the condition of the current asset base in a steady state (the Do Minimum scenario in the LTCP). This rate will need to increase as the number of assets grows in the future.
- 3.9 The management and volume of lifts has grown progressively. This has resulted in a diverse product base (seven different types of lifts). Our asset strategy is to actively pursue efficiencies and reduced maintenance costs through a policy of standardisation. This involves challenging scope and standards.. To date this process has resulted in the rationalisation of lift interventions and a new reduced and simplified specification for surface level lifts.
- 3.10 In line with our asset strategy, we also seek to upgrade safety systems and improve maintenance working environments when undertaking lift renewals as well as looking for opportunities and synergies to align with other planned works, for example line closures, to minimise disruption or save costs.

Asset Condition and State of Good Repair

- 3.11 Overall, the level of investment in lifts in the past few years has been below the required levels to sustain the assets in a steady state. The deferral of work from 2020/21 to later years because of the coronavirus pandemic has exacerbated this problem. This has created a backlog of investment to be completed to reach the Do Minimum scenario of the LTCP and recover the SoGR of our lift assets to 2019 levels.
- 3.12 The SoGR of lifts is in decline and this has had a knock-on impact on reliability which is now also in decline. The performance target for lift availability is 99 per

cent, but this has not been met across the network in 2020/21 even with reduced footfall.






Year	Size of Asset Base	% of Assets in a state of Good Repair	% Availability in service
2019	226	73.5%	98.44%
2020	248 10% new 	73.4% 	98.42%
2021	259 5% new 	70.7% 	98.19%
2024 (forecast including proposed investment)	259	61.7% 	98.13%

Table 2: State of Good Repair and Performance of Lift Assets

- 3.13 Table 2 shows that over the past two years the asset base has grown by roughly 15 per cent, however despite this increase in “as new” assets we have seen a decrease in SoGR, which highlights how the condition of our existing asset base is in decline.
- 3.14 Safety mitigations, maintenance and inspection regimes will continue to be carried out by Asset Operations to sustain LUs high level of safety. However, in the short term there are potential operational budget pressures and risks to operational performance as assets deteriorate.
- 3.15 The proposal in this paper seeks to slow this decline and only start to recover the position from 2025 onwards. This is constrained by the lead times to start works on site and the need to build up delivery capability from a low base having only completed one SMVT lift replacement in 2021/22.
- 3.16 The projection for the SoGR and availability for 2024 (in table 2 above) includes the proposed level of investment in this paper but does not include any new assets being added to the asset base (because this masks the deterioration in the condition of the existing asset base). Future availability is based on a deterioration of performance as assets move towards the end of their residual life. This network decline will not fall equally across the network. So regular users of some stations will be disproportionately affected by assets that are in a poor condition.
- 3.17 Whilst the proposed level of investment on lift replacements between now and 2024 is not enough to reverse the decline in SoGR (see table 2 above) it will build capability towards achieving a run rate of six SMVT lift renewals per annum by 2024 (to add to the two per annum achieved by the PMVT renewal workstream). Without the proposed investment there would be a further decline in the SoGR by 2024. Such a large backlog of renewals would be very difficult to catch up particularly as our asset base is growing and access is a finite resource. Note that

availability is a lagging indicator of condition and will follow the same trajectory as the SoGR within a few years.

- 3.18 We will need to increase the renewals run rate in future years with investment increasing from in the region of £16m to in the region of £20m per annum over the course of the 25-year LTCP. This is to be able to recover back towards the 2019 SoGR levels in line with the Do Minimum Scenario in the LTCP (illustrated by figure 1 below) and to account for our growing asset base. This investment will need to be addressed in future Budget and Business Plans and authority requests (subject to affordability and deliverability constraints).

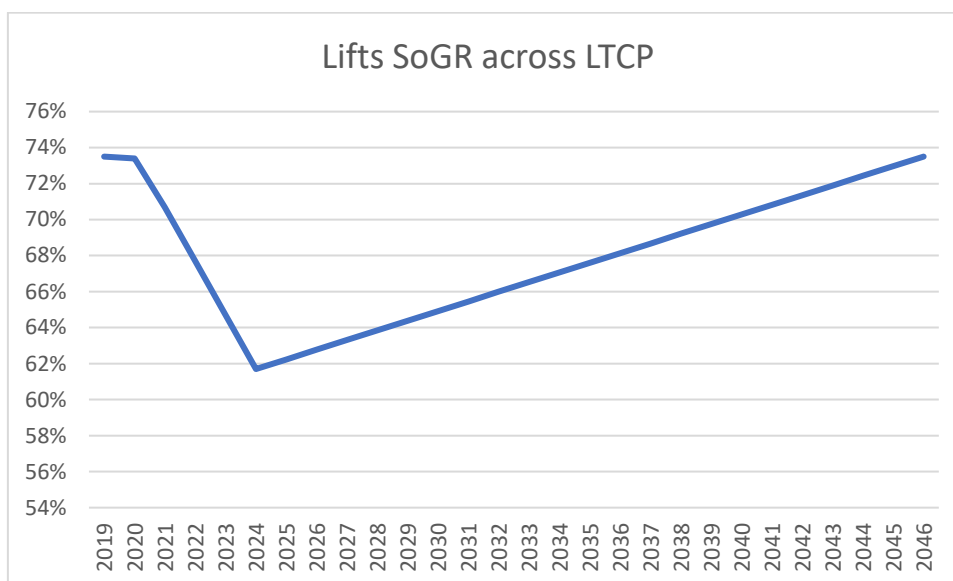


Figure 1: Potential SoGR of lift assets over the 25-year LTCP (existing 259 asset base)

Delivery Strategy

- 3.19 There are currently two delivery workstreams for lifts renewals, PMVT and SMVT renewals.
- 3.20 There are detailed work banks that prioritise which lift assets should be renewed. These work banks are prioritised using the following criteria:
- Asset risk profiles. An assessment of the risk associated with the failure of any of the asset sub systems or components or obsolescence risk, and the controls in place to prevent such failure and assure safety.
 - Asset condition. Determined through the asset's compliance against standards, its reliability, and its estimated residual life.
 - Asset criticality. A measure of the asset's importance to the operation of the station and the potential impact on the customer which could result from failure; and
 - Opportunities and synergies from alignment with other planned works, for example line closures, to minimise disruption or save costs.

3.21 The work bank is regularly reviewed, and the priority list evolves as asset condition, safety or reliability concerns or work synergies emerge. Most of the lift renewals within the programme are repeatable scope items, with minor variations due to site specific constraints.

4 Delivery Progress

Impact of the coronavirus pandemic

4.1 Since March 2020, the delivery progress of the component parts of this Programme have been significantly impacted by the coronavirus pandemic. TfL brought nearly all project sites to a temporary safe stop to limit the spread of the coronavirus, with construction activity paused between 24 March and 26 May 2020, except for limited specifically approved activities.

4.2 Additionally, there have been knock on impacts to the supply chain in terms of remobilisation which has constrained productivity and project progress. A large proportion of staff were placed on furlough during this period which has affected the progress of this Programme.

4.3 Our financial constraints following the pandemic has also had a significant impact on the Programme. As a result of the significant funding reduction in 2020/21 the overall volume of work completed has been reduced. Works which were not yet contractually committed were deferred from 2020/21.

PMVT Lift Replacements

4.4 It was planned to complete the replacement of two PMVT lifts at Belsize Park Station during 2020/21. However only one of the two replacements could be successfully completed in 2020/21 with the second delayed to 2021/22. This was due to works being delayed on site due to the temporary safe stop as a result of the pandemic. Works re-commenced in May 2020 (with appropriate pandemic safe measures in place). One of the lifts was completed in December 2020 and the second was completed in July 2021.



Figure 2: Installation of new lift ropes and controller at Belsize Park

- 4.5 Following completion of the works at Belsize Park, works commenced on site in June 2021 to replace both lifts at Borough Station and are due to complete in Summer 2022. These works have been planned to coincide with the temporary Bank branch Northern line closure to minimise disruption to customers.
- 4.6 Design activities have now commenced to replace both lifts at Holloway Road station to support a start on site in late 2022 (following the completion of works at Borough) with completion planned for late 2023. Replacement of both lifts at Mornington Crescent Station is currently planned as the next intervention (to follow Holloway Road) for delivery in 2024.

SMVT Lift Replacements

- 4.7 Design works at Tottenham Hale continued throughout 2020/21 but progressed slower than expected due to the unique nature of the asset at this location which required a complex intervention. Works have now commenced on site and are due to complete in January 2022.
- 4.8 It was originally planned to begin work on a new package of SMVT lift replacements in 2020/21 to support a start on site from 2021/22. However, work on this new package was deferred due to funding constraints arising from the coronavirus pandemic and is now requested in this submission to enable design and procurement of parts in 2022 and delivery on site between 2023 to 2024.

5 Proposal

- 5.1 This submission seeks £19.11m of Programme and Project Authority for renewal of SMVT lifts. Additional Procurement Authority is also requested in Part 2 of the agenda. The remaining Lift and Escalator renewals projects either have existing Programme and Project Authority or will form part of future requests.
- (i) £14.51m for replacement of nine existing life expired SMTV lift assets for design in 2022 and delivery between 2023 and 2024.**
- 5.2 Our prioritisation process (described in paragraph 3.9 above) has generated a workbank of nine lifts forming the next package of critical SMVT lift replacements.
- 5.3 These lifts are all in a poor condition (categorised as life expired in the Asset Condition Register, the worst category), with poor performance and obsolete components. They are hydraulic lifts which were not designed for the level of footfall they have received and have consistently failed to meet performance targets.
- 5.4 The replacement of these nine lifts between now and 2024 is essential to slowing the current decline in SoGR and lift availability and reliability and maintaining step free access at these stations. The replacements also help mitigate the risk of asset failure and associated loss of service.
- 5.5 Due to the 12-month lead time for undertaking design, failure to initiate these renewals now would result in zero SMVT lift replacements being completed in 2023 and 2024.

Intervention	SMVT Lift renewals completed			
	2022	2023	2024	Total
SMVT Lift replacements	0 (design and procurement)	3	6	9

Table 3: Proposed volumes for SMVT replacements 2022 to 2024

(ii) £4.60m for capital whole life refurbishment interventions on the nine new SMVT lift assets above and a further 36 existing SMVT lift assets until 2034.

5.6 These interventions are required as part of the whole life maintenance and intervention approach to ensure these lift assets remain in a State of Good Repair and capable of meeting availability targets.

6 Financial Implications

6.1 Table 5 below shows the financial impact of the Programme by year. Due to the long-term nature of the pan-TfL contracts, there is approved Project and Programme Authority to cover commitments up to 2035.

6.2 The Financial Authority is provided through the two-year Budget for 2021/22 and 2022/23 approved by the Board on the 28 July 2021.

6.3 It is noted that the current funding agreement with government expires on 11 December 2021 and additional government funding will need to be agreed beyond this period, therefore a subsequent prioritisation of the TfL Investment Programme will be required to ensure that all projects are affordable within the funding envelope provided and as such revised authority may need to be sought.

6.4 Authority granted by the Committee which relate to both the current funding period to 11 December 2021 and commitments outside of this period, may need to be revised as part of future budgets to be considered by the Board. Provision will also need to be made in future Budgets and Business Plans in respect to commitments made. If additional funding is not available, a prioritisation of the TfL Investment Programme will be required, and some programmes and projects will not be taken forward and revised authority will be sought as appropriate.

6.5 All financial commitments related to this request will be overseen in accordance with TfL Business controls in respect of draw down.

Costs and Funding (£m)	Prior Years	2021/22	2022/23	2023/24	2024/25	Future Years	Total
Cost (Outturn)							
Existing Programme and Project Authority	456.2	30.0	37.3	46.8	54.0	260.9	885.1
Additional Authority Requested		0.5	3.0	7.8	3.9	3.9	19.1
Total Programme and Project Authority	456.2	30.4	40.3	54.6	57.9	264.8	904.2
Existing Financial Authority	456.2	32.3	38.6	54.6	61.7	295.4	938.9
Estimated Final Cost (EFC)	456.2	30.4	40.3	54.6	61.7	295.6	938.9

Table 4: Lift and Escalator Programme financial implications

7 Equality Impact Assessment

- 7.1 The Programme is delivered in accordance with the Equality Act 2010. Equality Impact Assessments are carried out for each intervention, with due regard to our obligations under the public sector equality duty.
- 7.2 Successful delivery of the programme particularly impacts on customers requiring step free access.

8 Assurance

- 8.1 TfL Project Assurance has been undertaking continuous assurance on the Lifts and Escalator Sub-Programme on a periodic basis. Previous assurance recommendations have been reviewed and progress noted. No critical issues have been identified in the areas reviewed as part of the continuous assurance. As a result, a Sub-Programme review was not required for this submission.
- 8.2 An Integrated Assurance Plan for the Programme has been agreed with TfL Project Assurance for the next 12 months and is updated quarterly. It is planned to undertake a detailed assurance review prior to the next submission to the Committee.

List of appendices to this report:

Appendix 1: Lifts Delivery Summary

Exempt supplemental information is contained in a paper on Part 2 of the agenda

List of Background Papers:

None

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