

Date: 26 June 2024

Item: Streets, Bus and Rail and Sponsored Services Renewals Programme

This paper will be considered in public

1 Summary

	Existing Financial Authority (2024/25-2028/29)	Forecast (2024/25-2028/29)	Existing Programme and Project Authority (2024/25-2028/29)	Additional Programme and Project Authority Requested (to end 2028/29)	Total Programme and Project Authority (2021/22-2028/29)	Programme and Project Authority to be Requested in future years
Gross Cost	£889m	£889m	£468m	£0m	£1,440m	£421m
Income	£40m	£40m	£0m	£0m	£66m	£0m
Net Cost	£849m	£849m	£468m	£0m	£1,374m	£421m

Table 1 – Streets, Bus & Rail and Sponsored Services Programme

- 1.1 This paper provides an update to the Committee on the achievements and progress of the Streets, Bus and Rail and Sponsored Services (RSS) Renewals Programme (the Programme) since the last reports in May and July 2023. The paper will also summarise the financial allocations by main asset types and projects for 2024/25 and the associated outputs and provide assurance to the Committee on the progress of the Programme.
- 1.2 The Programme groups together renewals that were previously split across the Surface Assets and Public Transport Programmes. These Programmes shared many similarities and now, through joint oversight, improved investment prioritisation and efficiencies can be gained.
- 1.3 In May 2023, the Committee approved increased Programme and Project Authority of £109m through to the end of 2025/26 for the Streets and Bus elements of the Programme. In July 2023, the Committee approved increased Programme and Project Authority of £201m through to the end of 2025/26 for the Rail and Sponsored Services elements of the Programme. This paper represents the first submission for the whole of the Programme and no additional Authorities are sought in this paper.

2 Recommendation

- 2.1 **The Committee is asked to note the paper.**

3 Background

Strategic Context

- 3.1 The Mayor's Transport Strategy (MTS) has three key themes: healthy streets and healthy people; a good public transport experience; and new homes and jobs. Maintaining the health of the Programme's assets is essential to delivering all these themes as almost all journeys on London's transport system interact with the Programme. It is particularly important to ensure that renewal of critical assets takes place to maintain a safe, operable and reliable public transport network.
- 3.2 A prioritisation framework for all of TfL's capital renewals investment has been used to determine the Programme's budget, comparing the priorities against those in other Programmes and networks. The framework uses six Asset Management Objectives (AMOs) aligned to business objectives. The AMOs are safety, service, customer and staff, environment, capacity and growth, and finance. Current Levels of Service against the AMOs are established and future forecasts are made through the investment modelling using the scenarios outlined in section 5 below.
- 3.3 The Programme's budget for 2024/25 is £180m. This is affordable within the overall TfL Business Plan allocation of £795m for capital renewals. The Programme is ensuring that value for money by assessing forecast benefits against costs at both a sub-programme level and in respect of individual projects. For larger and more complex projects individual business cases have been developed, with examples including the DLR Station Controllers project and Gallows Corner Flyover. This provides a good understanding value for money for most of the programme.
- 3.4 In addition to an established asset prioritisation process, we are now reviewing project scope and any notable changes in asset condition on a periodic basis. This enables us to proactively slow down projects that are less important (confirmed through an asset strategy review) in favour of accelerating other projects in the Programme dependent on the priority need. This is building on the success of delivery performance in 2023/24. We will continue to undertake efficiency challenges with regular re-baselining in the asset work-banks to ensure the most important projects proceed.
- 3.5 The Programme comprises multiple projects that deliver essential asset renewals, managing the state of good repair (SOGR) to provide safe and operable networks. The assets covered by this paper include TfL highways, traffic, highway structures, bus infrastructure, river piers, DLR, London Overground, London Trams, Cable Car, Cycle Hire, Woolwich Ferry and London Buses. The Programme also covers the Local Implementation Plan funding for borough principal road resurfacing and borough bridge strengthening. More detail on the sub-assets can be found in the appendices.
- 3.6 Investment in the Programme since 2018/19 has averaged £98m per annum in Street renewals and £60m in RSS renewals. For comparison, typical steady state investment per annum prior to 2018/19 in Streets was around £150m to £200m; while RSS Renewals would need an additional £50m to £80m per annum to clear the backlog of renewals. Considering the impact of inflation, the level of investment is significantly lower than pre-2018.

- 3.7 In 2023/24, around 50 per cent more expenditure was required to maintain the networks and services in a steady state and remove the backlog of renewals; this has now increased to around 70 per cent. As a result, it has been necessary to defer certain works. This will result in further asset deterioration, the introduction of additional network restrictions and increased operational expenditure. This will also place additional pressure on future years' budgets because as the assets deteriorate further, they will require more extensive, and therefore more expensive repairs.
- 3.8 As a result of the reduced level of investment there is a significant backlog of renewals with further details provided in Appendix 1.
- 3.9 The Programme has significant planned investments in major renewals such as Rotherhithe Tunnel and signalling across the DLR and Trams trackwork to address high priority asset risks and obsolescence. The required funding to address all of these is significant (up to £800m through to 2028/29) and not all planned activity is affordable from TfL funding alone.
- 3.10 Alternative funding for these major asset renewals is essential to progress some of the projects, such as through the Department for Transport's (DfT) Major Road Network (MRN) programme. In April 2024, the DfT approved the Outline Business Case for Gallows Corner Flyover – this is an important milestone but continued funding through this route is critical.

Environmental objectives

- 3.11 The Programme contributes to positive environmental benefits through avoiding asset failure and therefore the resulting congestion, longer journeys and associated environmental disbenefits. The Programme also delivers renewals that improve TfL environmental performance and contribute to the net zero by 2030 goal, by seeking to deliver construction activity and ongoing operations that minimise environmental impacts. However, due to constrained budgets, the type and extent of environmental benefits achieved will be limited without additional funding. Examples of where the Programme delivers environment benefits include:
- (a) all lighting renewals will be LED;
 - (b) carbon modelling is currently completed for highway structures and track renewals. We are developing plans to implement this approach for all assets from this year to inform decision making;
 - (c) planting of additional trees and shrubs, where appropriate; and
 - (d) building renewal projects will maximise opportunities to improve environmental performance, such as through the provision of green roofs, solar panels and heat pumps.

Asset duties and responsibilities

- 3.12 TfL, as the highway authority for the Transport for London Road Network, has a statutory duty under the Highways Act 1980 to maintain the public highway. The Traffic Management Act 2004 places a duty on TfL to 'manage the road network with a view to securing and facilitating the expeditious movement of people and

goods', which includes the provision and maintenance of assets (e.g. traffic signals) that support this activity. We also follow the duties under the Road Tunnel Safety Regulations 2007 for the safe management and operation of road tunnels and the Greater London Authority Act 1999 to act as the Traffic Authority for traffic signal assets.

3.13 The Railways and Other Guided Transport Systems (Safety) Regulations 2006 provide the regulatory regime for rail safety, including the mainline railway, metros, tramways, light rail and heritage railways. We are required to meet the Office of Rail and Road (ORR) safety requirements to obtain the certification and authorisation required to operate trains, stations and infrastructure. The need to meet the health and safety standards set by the ORR, as well as other relevant health and safety legislation, drives many renewals projects.

Maintaining assets in a State of Good Repair

3.14 State of good repair (SOGR) describes the condition in which we seek to maintain assets to provide a safe and reliable network that minimises whole life costs and, where appropriate, meets customer expectations. The SOGR is based on industry standard condition measures which differ by asset type. For example, the standard that describes the condition of a bridge is different to the condition for carriageways. Where the SOGR is below the preferred range it reflects the need for renewals investment to deliver a reliable network and reduce the risk of restrictions and closures.

3.15 Table 2 shows examples of the current SOGR across various asset groups in the Programme. Target ranges across TfL typically score between 85 and 95 per cent. The SOGR is expected to deteriorate further in 2024/25 due to the 'budget constrained' funding scenario; consequently, there will be increased likelihood of assets being restricted or taken out of service to maintain safety.

Table 2: Current State of Good Repair

Asset	Current SOGR (%)	Target Range (%)
Carriageway	88	85-95
Structures	79*	85-95
DLR: Lifts & Escalators	63*	85-95
DLR: Track	90	85-95
DLR: Power	75*	85-95
Trams: Track	75*	85-95

*These assets are below the current target of SOGR.

3.16 Details of how SOGR is measured and calculated are provided in Appendix 2.

Obsolescence concerns

3.17 Obsolescence is an increasing concern which has become more significant due to reduced level of investment and assets coming to the end of their life expectancy. Examples of obsolescence include software signalling systems across the DLR and Trams. These systems are complex, resource-intensive and take a significant time to replace (up to five years). Work has been initiated to commence these projects. Other examples include removal of the production of tungsten halide

lamps and fluorescent tubes which has an impact across the asset base, particularly in station lighting and traffic signals. This lowers the ability for a like for like replacement during a maintenance event. Risk of obsolescence is mitigated by storing and securing spares from the supply chain and the widespread LED installation programme, which continues to be a key driver in maintaining the investment in traffic signals.

Impact on Operations

3.18 The reduced level of investment has had a significant impact on operations with increased temporary closures, increased interim measures to keep the network safe and substantial pressure on maintenance budgets. The societal costs in terms of this include additional congestion, increased journey times and reduced reliability. Examples of network and asset impacts include:

- (a) Rotherhithe Tunnel – traffic restrictions in place with only cars permitted;
- (a) A40 Westway – speed restriction (40mph to 30mph), numerous short closures to implement reactive safety works (expansion joint repairs) and closure of the north-west slip road from the A40 Westway to A3220 West Cross Route in August 2023;
- (b) A20 Drainage scheme – speed reduction and enforcement due to poor surface drainage;
- (c) A41 Brent Cross Flyover – load restrictions implemented in October 2022;
- (d) Gallows Corner Flyover – speed restriction from 30mph to 20mph, and weight restriction of 7.5 tonnes;
- (e) Trams – original fleet of trams rolling stock is now 24 years old and is reaching end of its design life and there is a regular shortfall in service. The impact of this has been an increase in short notice cancellations until trams are fixed and returned to service;
- (f) DLR – the Rolling Stock Replacement Programme of the new DLR train fleet will replace the current B92s. However, until these new trains are in operation mitigation work continues to current rolling stock such as replacement of bogie frames and additional vehicle overhauls.

3.19 The Programme has various interim measures that are specific to the asset type and form of deterioration; for example, for Streets and Rail we could typically include speed restrictions, weight or operating restrictions, additional or more frequent inspections, or even closures. All these restrictions are likely to result in delays to our customers across the network.

4 Programme Delivery in 2023/24

4.1 The total investment across the Programme in 2023/24 was £206m. This is £15m above the Budget and is because of dropped prior year accruals (i.e. where final accounts have confirmed costs are lower than initially estimated). This has allowed us to deliver increased outputs, which has been achieved through progressing

design work to enable accelerated delivery of critical renewals, as well as utilising budget availability from the wider TfL Investment Programme.

- 4.2 Appendix 3 provides a summary of progress made with the key Programme investment and outputs for 2023/24. To ensure efficient and effective management of the Programme in year, adjustments to individual budget allocations were made to reflect any changes to known asset condition, whilst also focusing on priority schemes where delivery was achievable. Overall, we had an improved level of delivery and managed to secure some additional funding to progress several critical renewals which otherwise would have been delivered in 2024/25.
- 4.3 Programme and Project Authority which was approved in 2023/24 for the continuation of the Programme had a portion allocated to the DLR Station Controllers project that has been extended by a year to the end of 2028/29. This aligns with the schedule subsequently agreed at contract award.

Challenges in 2023/24

- 4.4 Challenges in 2023/24 included securing network access to complete works and some projects were delayed as a result. This challenge was mitigated by developing a work-bank of projects which were brought forward when required.
- 4.5 In DLR a delay in introducing the new Rolling Stock Replacement Programme has in turn introduced a delay in commencing procurement of the mid-life overhauls for the existing fleet of B2007 trains. This is impacting on train fleet availability. We are now capturing the impacts on our renewal programme as they arise.
- 4.6 In London Overground the replacement of 3,000 baseplates in the Thames Tunnel was not achieved due to supplier access issues and unforeseen complexity of delivery. There was also an unsuccessful procurement part of the signalling control system replacement. For both renewals lessons learnt activities have been completed.

5 Programme delivery for 2024/25

Option assessment

- 5.1 To inform the 2024/25 Programme, the following scenarios were considered in addition to those modelled last year (see Appendix 4). These two new scenarios are based on the Budget Constrained funding scenario within the TfL Business Plan but focus on different delivery outputs.
- (a) Budget Constrained (Option 3a): This scenario considered the outputs and outcomes forecast if the Business Plan allocation was targeted at business-as-usual projects and interventions, rather than currently unfunded high-cost renewals. This impact of this option is that the high-cost renewal projects, for example Rotherhithe Tunnel, would continue to deteriorate and have an increasing risk of further restrictions or prolonged closures. This was chosen as the funded scenario as more of the asset base can be treated and therefore more risk is mitigated than under Option 3b.

- (b) Budget Constrained (Option 3b): This scenario considered the outputs and outcomes forecast if the Business Plan allocation was targeted at high-cost renewals projects instead of the business-as-usual activities. The impact of this option is that condition across the wider asset group would continue to degrade and so increase the number of high-cost renewals in future. This is due to a lack of low-cost early interventions being unfunded, resulting in an increase in high-cost end of life treatments to fully restore asset condition being required across the estate. In addition, the current Business Plan allocation is not sufficient to fund all the high-cost renewals identified.
- 5.2 A prioritisation process was followed to assess which projects across the different asset groups and networks were the most urgent and deliver the most value against the AMOs. Following this, an Asset Assurance Safety Review was undertaken for each asset area to capture residual safety risks and identify mitigations needed.
- 5.3 To manage the Programme efficiently, critical renewals in 2024/25 have been identified to the value of £216m (i.e. £43m above the £173m TfL Budget). This represents a work-bank of additional priority schemes that can be accelerated should further funding become available, or if delivery on other schemes is slower than anticipated. Periodic reviews will be used, together with quarterly investment decision points to assess the level of delivery achieved, the planned outputs and to determine whether additional commitments can be made. This will include ongoing review of asset priorities to ensure the best value for money investment. This approach gives maximum flexibility to ensure a safe and operable network is maintained.

Value for Money

- 5.4 There are a wide range of investments in this Programme, which collectively make contributions to all five of TfL's Strategic Priorities: Customer, Colleague, Safety & Security, Green, and Finance. The largest monetised value contribution is to outcomes supporting the 'Customer' priority, as these investments help to keep the network safe, and therefore operable, minimising closures, and the consequent delays and disruption.
- 5.5 Typical value for money associated with most of the investments in this Programme are in the 'high' and 'very high' categories. The standalone major projects such as the MRN initiatives have benefit cost ratios calculated, for example Croydon flyover has a Benefit to Cost Ratio (BCR) of 10:1 (£10 of public value back for every £1 spent), and for Gallows Corner flyover, the BCR is even higher.
- 5.6 We are confident that the robust prioritisation approach to activity in this Programme, described in sections 5.1 and 5.2, maximises the value for money from the budget we have available. Asset modelling and historical performance trends have been used to assess the SOGR that we expect this planned investment to achieve. Overall, we expect asset condition to continue to deteriorate, leading to more defects and our backlog of renewals increasing. With more things to fix than we have the budget for, the Programme has had to focus investment on the highest safety and reliability risks, compromising optimal timing of spend, and value for money over the long-term.

- 5.7 Projects are assessed to ensure value for money is fully considered when selecting delivery, and procurement, options. For example, the A40 Westway project has recently considered a range of traffic management options balancing capital costs, asset risk, deliverability, and network impacts to inform decision making.
- 5.8 Benefits monitoring and evaluation activity during the development, design and operation phases of investments in this Programme is significant. Its aims and objectives are to ensure the end benefits are safeguarded and optimised, value for money is maximised, and lessons to be learned are fed back and embedded in future plans. Comprehensive activity associated with the major schemes is planned and being scoped, for example we are developing detailed plans to validate the expected benefits of our MRN projects.
- 5.9 Work is ongoing to fully capture the benefits delivered at year end for the Programme over and above SOGR and network safety.

Delivery in 2024/25

- 5.10 Appendix 5 details the planned expenditure and forecast outputs for each of the assets in 2024/25. Key activities planned include:
- (a) A40 Westway – delivery completed for work package 2a (seven expansion joint replacements);
 - (b) Kingston Cromwell Road bus station – bus station major renewal completed;
 - (c) Brent Cross Structures – concept design completed and advanced strengthening work delivered;
 - (d) Gallows Corner – detailed design completed and build commenced subject to DfT approval of the final business case (the outline business case was approved earlier this year);
 - (e) the Asset Capital Programme – multiple critical asset renewals completed covering all Surface asset types, including: 90,000sqm of carriageway resurfacing; 180 new bus shelters; four bridge and structure renewals; and 12 bus driver welfare room renewals delivered;
 - (f) DLR – multiple critical renewals across several asset areas, including: platform resurfacing at three stations and realigning copers at 11 stations; Transmission Network; low voltage renewals at Herons Quay; replacement of DC circuit breakers at Beckton Substation; B2007 Data Recorders and Door Nosing Rubbers, continue design phase for Station Controllers; and replacement of two crossovers at Poplar and Beckton;

- (g) London Overground – multiple critical renewals across several asset areas, including: procurement of Saft¹ 48v rectifiers and spares, continued design for GSM-R² and Transmission, and delivery of Kilostream³; canopy and roof refurbishment and platform resurfacing, design at Hackney Downs; Windrush line Signalling Control System, Thames Tunnel baseplates;
- (h) Trams – multiple critical renewals across several asset areas, including: Sandilands water ingress; drainage remedial works; renewal of the cab doors, rooftop cabling and flooring on the CR4000 tram fleet; Control Room upgrade at Therapia Lane Depot; Lineside Isolator Cabinet renewal; Sandilands ballasted track renewal; and East Croydon and George Street embedded track renewal;
- (i) Woolwich Ferry – Rolling asset maintenance on ferry terminal linkspan, installation of ferry service customer information improvement projects;
- (j) Buses – Deliver a further 51 refurbishments, over half the New Routemaster fleet will have been refurbished;
- (k) Cycle Hire – 620 e-bike replacements to be delivered; station relocations and repairs; and
- (l) Cable Car – ship impact protection and replacement of ventilation.

5.11 Due to the lack of further funding available in 2024/25, several projects will not progress, including:

- (a) Tunnels projects, including the renewals at George Green and Green Man Tunnels, have been paused;
- (b) procurement for the major renewals at Westminster and Bankside piers has been paused;
- (c) borough roads and bridges investment is significantly lower than previous years with only the highest priority activity progressed;
- (d) DLR – some track fixings; Bank Tunnel reconditioning; LED Lighting projects; Custom House water supply, where the station has no water supply therefore deep cleaning is not possible;
- (e) London Overground – mid-life overhaul of 378 trains; Seven Sisters escalator overhaul; West Anglia wall refurbishment;

¹ Saft – a company that provides high technology batteries used by the railway system

² GSM-R – the Global System for Mobile Communications-Railway for comms between drivers and signallers

³ Kilostream – installation and commission of new circuits to replace existing services withdrawn by BT

- (f) London Trams – eight projects associated with the replacement of CR4000 fleet, track pipeline, digital radio and passenger counting system;
- (g) Woolwich Ferry – terminal tower works; boiler replacement and improving North Terminal capacity works; and
- (h) Cycle Hire – station repairs, customer information updates.

5.12 Many activities will continue beyond 2024/25, such as progressing the design on Brent Cross structures and delivery of DLR Station Controllers. This authority request therefore covers the period through to the end of 2028/29.

6 Programme Risks and Milestones

Programme risks

6.1 The top risks associated with delivery of the Programme are shown in Table 5 below.

Table 3: Top risks from Streets, Bus and RSS Renewals Programme

Risk No	Risk Description	Mitigation Actions
1	Reduction of capital funding limits delivery of project objectives	Projects within Programme robustly prioritised based on whole life cost and risk to ensure best value. Delivery focused on highest priority asset need. A work-bank of projects is in place so additional priority schemes can readily progress where possible. Projects with third party funding opportunities, including through the Government's MRN Programme, are prioritised with business case submissions to secure funding planned.
2	Emergency works may be required (e.g. Rotherhithe Tunnel)	Project scope regularly reviewed to identify short term measures required to keep asset safe and operable. Appropriate risk provision in place on specific projects based on asset condition.
3	Supply chain resilience due to investment being below planned levels	Regular engagement with the supply chain to ensure investment plans are clearly communicated. A work-bank of schemes has been produced that enables underspend across the business to be utilised at short notice.
4	Resource shortages including difficulties in recruitment retention	Succession planning and nurturing our staff. This includes the creation of a robust plan to cover illness, leave, and staff who move on with an action plan.

6.2 The Programme does not include an overall high-level risk allowance. It is comprised of hundreds of schemes that, experience has shown, enable risk to be effectively managed across the programme using the work-bank approach described. Periodic reviews of the Programme risks are held with escalations reported at the Programme Review meeting. On larger projects (e.g. the A40 Westway, DLR Station Controllers and Rotherhithe Tunnel) risk is held at project level.

Programme Milestones 2024/25

6.3 The strategic milestones are shown in Table 4 below.

Table 4: Strategic Milestones

Delivery Team	Project	Milestone	Target Date
Chief Capital Office: Rail & Sponsored Services	East Croydon & George Street Track Renewal	Completion of Trams Track Renewal	05/05/2024 (achieved)
Chief Capital Office: Infrastructure	MARP A40 Westway	Work Package 2a Start on Site	16/09/2024
Chief Capital Office: Rail & Sponsored Services	Woolwich Ferry Resilience and Renewals - Maintenance Grid	Commence construction of upgraded maintenance facility to support essential work to vessels leading to increased availability for customers and cost savings.	06/10/2024
Chief Capital Office: Infrastructure	Kingston Bus Station Redevelopment	All works completed on site and bus station back in use to the travelling public.	30/10/2024
Chief Capital Office: Infrastructure	ACP Stations and Stands Programme	12 Bus Drivers Welfare Rooms Completed in 2024/25	31/03/2025

7 Financial Implications

- 7.1 The 2024 TfL Budget provides the Financial Authority needed to deliver the scope of the works set out in this request. Of this, £7.3m of this relates to additional third party funded traffic signal and bus infrastructure schemes, along with DfT funding (i.e. there is no net impact on TfL funding).
- 7.2 The Programme's Financial Authority and the Programme and Project Authority is shown in Table 5 below.

		Actuals	Actuals	Actuals	Business plan forecast					Total forecast to 28/29	Authority - Years to 28/29
Rounded to £m		21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29		
Financial Authority											
Programme Total		169	176	190	180	197	158	166	189	889	1425
Budget or Plan	TfL Element	162	168	179	173	188	150	158	181	849	1358
	Third Party Funding	7	8	12	7	8	8	8	8	40	67
Programme forecast											
Programme Total		169	176	206	180	197	158	166	189	889	1440
Budget or Plan	TfL Element	162	169	194	173	188	150	158	181	849	1374
	Third Party Funding	7	7	12	7	8	8	8	8	40	66
Authority request											
Programme and Project Authority	Committee Approved	169	176	206	180	147	79	55	7	468	1020
	Additional authority requested	-	-							0	0
Future Authority Requests						49	79	111	182	214	421

Table 5: Summary of the costs and funding

*Value of work done in 2023/24 (£206m) is higher than Budget (£190m) due to the effect of prior year dropped accruals

8 Equality and Inclusion

8.1 TfL has an obligation under the Equality Act 2010 to:

- (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under the Equality Act 2010;
- (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and
- (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

8.2 Most of the Programme is like-for-like renewals and, as such, maintains the existing provisions. The lower SOGR may have a negative impact on two groups: older customers and customers with disabilities. The programme to improve SOGR is therefore expected to benefit people in both these groups. Equality Impact Assessments will be completed on projects as required.

9 Assurance

9.1 TfL Project Assurance conducted an Integrated Assurance Review on the Programme in April 2024. An independent review was also undertaken by the Independent Investment Programme Advisory Group (IIPAG). Both TfL Project Assurance and IIPAG highlighted the challenges and risks of a deteriorating asset condition which is generally below desired levels of SOGR and is continuing to decline. Reduced investment means that the number of assets with higher levels of risks is rising across all areas. The review identified three general recommendations.

9.2 An agreed Integrated Assurance Plan (IAP) for the Programme, covering the next 12 months, has been produced that sets out those projects that are expected to be reviewed. The IAP will be reviewed and updated quarterly.

List of appendices to this paper:

- Appendix 1: Investment backlog summary
- Appendix 2: State of Good Repair
- Appendix 3: 2023/24 actuals and forecast outputs
- Appendix 4: Investment modelling scenarios
- Appendix 5: 2024/25 budget allocations and outputs

List of Background papers:

- IIPAG and TfL Project Assurance Reports
- Management response to IIPAG and TfL Project Assurance Reports

Contact Officer: David Rowe, Director of Investment Planning
Email: davidrowe@tfl.gov.uk

Appendix 1: Backlog summary

Asset	24/25 allocation	Estimated backlog	Estimated average steady state annual budget	Annual funding gap	Estimated backlog in 5 years
Bus Stops and Shelters	£3.75m	£23m	£11m	-£7.25m	£60m
Bus stations, garages and stands	£3.9m	£11.7m	£10m	-£6.1m	£42m
River Piers	£0	£17.2m	£5m	-£5m	£42m
Victoria Coach Station	£1.2m	£30m	£3.5m -£5m	-£2.5m	£43m
New Routemasters	£1.2m	£5.8m	£7m*	-£5.8m	n/a
Dial-a-Ride	£0	n/a	n/a	n/a	n/a
Highway Structures	£40.85m	£850m	£70m -£100m	-£40m	£1.2bn
Tunnels	£3.25m	£270m	£5m -£10m	-£3.5m	£290m
Pumping Stations	£0.1m	n/a	£5m	-£5m	£25m
Carriageways, footways and cycleways	£7.5m	£52m	£20m	-£12.5m	£115m
Drainage	£2.7m	n/a	£3m -£5m	-£1.5m	£7.5m
Street lighting	£3.45m	£51m	£7m -£10m	-£6.5m	£85m
Vehicle restraint systems	£6m	£34m	£5m -£10m	-£2m	£44m
Green infrastructure	£0m	£0.1m	£0.5m	-£0.5m	£2.5m
Minor Capital Interventions	£5m	n/a	n/a	n/a	n/a
Traffic signals	£9.8m	£54m	£10m -£15m	-£4m	£94m
CCTV	£0m	£0.3m	£0.5m	-£0.3m	£2m
Safety cameras	£3.1m	£18m	£2m -£4m	£0m	£18m
Over-height vehicle detection	£0m	£4.2m	£0.4m	-£0.4m	£6m
Variable message signs	£0m	£5.8m	£0.4m	-£0.4m	£8m
Total Road, Bus and River	£92.5m	£1.3bn	£150m	-£57.5m	£1.9bn

Asset	24/25 allocation	Estimated backlog (millions)	Estimated average steady state annual budget	Annual funding gap	Estimated backlog in 5 years
DLR	£29.70m	£234.0m	Being developed		
London Overground	£7.50m	£12.9m			
Trams	£23.10m	£219.0m			
Woolwich Ferry	£3.10m	£0.6m			
Cycle Hire	£3.50m	0			
Cable Car	£0.80m	0			
Total RSS	£67.7m	£467m			

Appendix 2: State of Good Repair (SOGR)

- 1.1 SOGR, where possible, is based on industry standard condition measures. TfL has mapped these industry measures to a consistent five category scale of asset condition – the condition categories are Very Good, Good, Fair, Poor and Very Poor. The percentage of assets in these categories is used to calculate SOGR, namely:
 - (a) SOGR – the sum of the percentages in the Very Good, Good and Fair categories. These assets, in general, do not require planned asset renewal in the next one to three years, although in some instances it does reduce whole life costs to intervene when an asset is in the Fair category.
 - (b) Not in a SOGR – the sum of the percentages in the Poor and Very Poor categories. Typically, these assets should be considered for a renewal within the next one-to-three-year period.
- 1.2 All assets are safety managed; where the SOGR is below the preferred range it reflects the need for renewals investment to deliver a reliable network and reduce the risk of restrictions and closures. Safety is maintained through appropriate inspections, minor repairs and restrictions.
- 1.3 Target are not set as 100 – the upper bounds of the target ranges are set using customer expectations (based on customer surveys) and whole life costs. The latter has shown that it is uneconomical and provides poor value for money to deliver a SOGR above the upper bounds of these ranges. Additionally, face-to-face surveys with customers have illustrated they do not expect a “perfect” asset and accept that at times repairs are required.
- 1.4 Therefore, a carriageway SOGR of 88 means 88 per cent (or 510km) is not in need of renewal based on the latest condition data, but the remaining 12 per cent (or 77km) should be considered for renewal. There is not an immediate safety concern or need for an urgent intervention, but based on an overall assessment of safety, reliability, whole life costs, customer satisfaction and future performance, these parts of the network should be considered and planned for renewal in the coming years.

Appendix 3: 2023/24 actuals and forecast outputs

	Sub-programme	Allocations Feb/July 23 (£m)	2023/24 Actual spend (£m)	2023/24 expected output	2023/24 actual output
Assets Capital Programme	Borough Traffic Signal Modernisation	10	16.9	45 controllers renewed	77 controllers renewed
	TLRN Traffic Signal Modernisation			72 designs	110 designs
	Capital Renewal - Footway	0.5	2.6	3,441sqm network treated	8,858sqm network treated
	Capital Renewal - Lighting	3.9	7.9	400 columns and 505 luminaires replaced	558 columns and 681 luminaires replaced In year cost increased due to site specific traffic management requirements
	Capital Renewal - Drainage	1.5	1.8	131,114sqm network treated	107,095sqm network treated
	SCOOT loop Renewals	2.3	2.3	2,000 loops renewed	2,000 loops renewed
	Stations and Stands Annualised Programme	5.9	10.4	8 Driver welfare builds	8 Driver welfare builds
				2 Civils builds	2 Civils builds, including Victoria bus station acceleration
				1 CCTV renewal	3 CCTV renewals
				7 lighting renewals	10 lighting renewals
					Canada Water build completed
	CCTV/Variable message signs (VMS)	0.4	0.9	1 overheight vehicle detector (OVD) renewed	1 OVD renewed
				1 VMS renewed	2 VMS renewed
				Digital Video Network Protocol (DVNP) delivered	DVNP delivered
	Vehicle Restraint Systems (VRS)	4	3.4	7,193m VRS treated	5,934m VRS treated
Minor Capital Interventions	3	2.2	100 schemes completed	100 schemes completed	
Pump Stations	0.6	0.7	2 pump stations renewed 4 designs completed	2 pump stations renewed 4 designs completed	
	4.5	6.1	325 shelters treated	420 shelters treated	

	Sub-programme	Allocations Feb/July 23 (£m)	2023/24 Actual spend (£m)	2023/24 expected output	2023/24 actual output
	Stops & Shelters Annualised Programme			15 additional shelters lit	15 additional shelters lit
	Surface Asset Management Information Systems	0.6	0.8	6 minor capital works completed	6 minor capital works completed
	Capital Renewal - Carriageway	10.3	15.7	128,000sqm of network treated	177,795sqm of network treated
	Capital Renewal - Structure	7	11.1	5 builds completed	4 builds completed - Cost increase driven by asset condition issues and Network Rail access on key projects (e.g. Grove Park)
				10 detailed designs	9 detailed designs
	Capital Renewal - Tunnels	1.5	0.8	6 designs 1 build completed	5 designs 1 build completed
	Third Party Signal Enhancements	8	4.2	Undefined	Undefined
Operations Assets	Dial A Ride	0.25	0.14	1 build completed	1 build completed
	Safety Camera Extension Programme phase 2	0.5	1	Option definition	Option definition
	Victoria Coach Station Infrastructure	1.5	1.7	3 build completed	1 build completed
				1 design	1 design
	Modernised Victoria Coach Station	0.15	0.15	Property negotiations completed	Property negotiations ongoing
	Contracts Re-lets (Inspections, Technology and Bus stops)	3.5	1.5	1 Contract execution	1 Contract execution
				1 Contract award	1 Contract award
			1 feasibility completed	1 feasibility completed	
	Surface Asset Management Information Systems	9.3	5.1	SAMIS Tech and Bus stops delivered	SAMIS Tech delivered

	Sub-programme	Allocations Feb/July 23 (£m)	2023/24 Actual spend (£m)	2023/24 expected output	2023/24 actual output
MARP	MARP A40 Westway Structures Refurbishment	6.78	2.8	Work package 2 Detailed Design complete	Work package 2 Detailed Design complete
	MARP Rotherhithe	1.38	1.3	Targeted works to support ongoing operation	Targeted works to support ongoing operation
	MARP Brent Cross	2.48	1.3	Contract awarded for Concept Design	Contract awarded for Concept Design
	MARP Blackwall Tunnel Southbound Refurbishment	3.66	2	Contract awarded for Detailed Design	Contract awarded for Detailed Design
	MARP Croydon Flyover	0.7	1.3	Phase 1 feasibility and investigations completed	Phase 1 feasibility and investigations completed
	MARP George Green	0.86	0.8	Feasibility completed	Feasibility completed
	MARP Green Man	0.77	0.7	Feasibility completed	Feasibility completed
	MARP Kew Bridge	2	1	Feasibility completed	Feasibility report drafted
	MARP Hope & Anchor	2	1	Feasibility completed	Feasibility report drafted
	MARP Kingston Cromwell Road Bus Station	4.3	8	Construction commenced	Construction commenced
	MARP Ardleigh Green Bridge Replacement	0	0	Project close	Defect resolution ongoing
	MARP Gallows Corner	2.86	1.3	Concept Design completed	Concept Design completed
	MARP Piers	0.6	0.2	Procurement for Detailed Design and Build Completed	Procurement paused due to budget constraints
Borough Roads and Bridges	Borough Roads and Bridges	0	5.1		
DLR	Civils	40.44	2.9	Refurbishment of final arch at Limehouse	Complete
	Communications		2.8	Transmission Network design and build contract awarded and commencement of works	Complete

	Sub-programme	Allocations Feb/July 23 (£m)	2023/24 Actual spend (£m)	2023/24 expected output	2023/24 actual output
				Long Line Public Address system Phase 4 in delivery	Complete
	Electrical & Mechanical		8.9	Commence design and delivery of 59 lifts	Design and delivery commenced, six lifts complete
				Commence delivery of 18 escalators	9 of 18 complete
	High Voltage (HV) Traction		2.9	Delivery of six HV and Direct Current (DC) switch gear renewals	3 of 6 complete. Delays due to Rolling Stock Replacement Programme
	Rolling Stock		1.1	Agree Project Requirements for B2007 mid-life refresh	Complete
	Signalling		3.3	Station Controllers design and build contract award	Complete
	Track		13.7	Re-railing 300m and install sixteen structural expansion joints	1,200m of fully renewed track (ballast, rail and sleepers)
London Overground	Asset Management	13.74	0.3		Maximo updates complete
	Civils		1.2	Wall 642 remediation and reinforcement	Complete
	Comms		0.3	Deliver the design for the replacement of 11 GSM-R base stations and five repeaters	Concept design ongoing
				Deliver the design for the replacement of the transmission equipment on the East London Line core route	Concept design ongoing
	Electrical & Mechanical		0.9	Lift obsolescence renewals programme	Delivery ongoing. Will be complete in Q1 24/25
				Soft 48V rectifier renewal	Delivery ongoing. Will be complete in 24/25
	Fleet		0.4	Deliver the updated 378 Train Cab Simulator	Complete
	Premises		1.2	Roof, canopies, and stairs renewals across West Anglia Route Stations	Delivery ongoing. Will be complete in Q1 24/25
Viaduct Arch water ingress remediation		Complete			

	Sub-programme	Allocations Feb/July 23 (£m)	2023/24 Actual spend (£m)	2023/24 expected output	2023/24 actual output
	Power		0.4	Fire alarm installation design and build at Dalston Track Paralleling Hut / Transformer Room	Complete
	Signalling		0.3	Windrush Line Signalling Control System – design and install a new Signalling Control system	Unsuccessful procurement
				Remote condition monitoring of Axle Counters	Complete
	Track		2.5	Replace 3,000 baseplates in the Thames Tunnel	Not achieved due to supplier access issues and unforeseen complexity of delivery
Trams	Civils	23.5	3	Carriageway resurfacing and crossing safety improvements within Croydon town centre,	Complete
				Renewal of step-free access ramp at Birkbeck retaining wall	Design complete
	Fleet/ Depot		1.9	Progress detailed design for renewal of Control Room at Therapia Lane Depot,	Complete
				Renewing the cab doors and flooring on the CR4000 tram fleet	Multi-year project, delivery ongoing
	Power and Systems		1.6	Completion of replacement of life-expired depot lineside power isolators	Design and procurement complete, delivery ongoing
				Completion of design for new digital tram radio system	Concept design ongoing
	Track		15.3	Embed 120m of track at Church Street	Complete
				Complete drainage renewal at Mitcham Junction	Complete
				Design and delivery of drainage at Sandilands	Complete
	Woolwich Ferry		Woolwich Ferry Renewals Programme	5.23	4.2
Rolling asset maintenance on the ferry terminal Linkspan		Complete			

	Sub-programme	Allocations Feb/July 23 (£m)	2023/24 Actual spend (£m)	2023/24 expected output	2023/24 actual output
				Implementation of ferry service customer information improvement projects	Design complete
Cycle Hire	Bike and Docking Station renewals	4.03	3.8	Deliver against contractual bike numbers	Complete
				Docking station repair and relocation projects	Complete
				Asset condition survey and follow-on works	Complete
Buses	New Routemaster Refurbishment	8.4	7.7	Deliver a further 335 refurbishments, over 50 per cent New Routemaster fleet will have been refurbished	297 buses refurbished, almost half of Routemaster fleet refurbished
Cable Car	Cableway Maintenance	1.01	0.95	Gearbox and sheave assembly overhaul	Complete
				Replacement of defective air conditioning unit	Complete
				CCTV upgrades	Complete
TOTAL		206	206		
Less:					
	Canada Water Bus station	0.5	0.5		
	Third Party income	8	11		
NET TOTAL		198	194		

Appendix 4: Investment modelling scenarios

The following strategic options were considered in 2023/24:

- (a) **Budget Constrained (funded scenario):** Remaining within GLA budget allocations for the next 10 years and forecasting condition and levels of service against the Asset Management Objectives. The impacts are described in paragraph 5.3.
- (b) **Base:** Achieving the 'Base' level of service for the Asset Management Objectives. Declining State of Good Repair and increasing asset defects/faults; majority of interventions are reactive. Restrictions, closures, and service reductions will be required to manage safety. Increased pressure on operational and engineering teams to manage assets and safety, with a large renewals backlog which will take years to address and result in a prolonged period of service disruption (several years). The service remains safe; however, reliability is reduced. Customers frequently experience disruptions and delays during their journey and modal shift is evident. Customer satisfaction will decline and there will be frequent negative press coverage of London's transport network.
- (c) **Average:** Achieving the 'Average' level of service for the Asset Management Objectives. A mix of planned and reactive renewals depending on risk exposure. In control of State of Good Repair and asset risks. Customers receive an adequate but acceptable service that is safe and generally reliable, services can be inconsistent. Customer experience of TfL services is mixed; this is reflected in customer feedback with major complaints occasionally made.
- (d) **Good in 10 years:** Achieving the 'Average' level of service for the Asset Management Objectives within the next 10 years. Optimised interventions, utilising preventative interventions to reduce whole life costs. Well planned interventions that minimise network disruption, innovating materials and processes. Customers know they will have a safe, reliable and easily accessible journey. The experience will be of a 'world-class' transport environment with trains, buses, stations, and facilities which customers praise and promote to others. A good/high-quality service, with the appropriate reliability and availability, which delivers the ambition of the Mayor's Transport Strategy and caters for on-going passenger growth/demand; and
- (e) **Good in five years:** Achieving the 'Average' level of service for the Asset Management Objectives within the next five years. As for Good in 10 years but achieved within five years

Appendix 5: 2024/25 budget allocations and outputs

	Sub-programme	2024/25 Allocation (£m)	2024/25 expected output
Assets Capital Programme	Borough Traffic Sig Modernisation	7.8	20 Junctions renewed
	TLRN Traffic Signal Modernisation		
	Capital Renewal - Footway	0.2	1,600sqm treated
	Capital Renewal - Lighting	6.7	323 Columns replaced LED luminaires retrofitted
	Capital Renewal - Drainage	2.7	187,000sqm of network treated
	Capital Renewal - Landscape	0.0	0 trees planted
	SCOOT Renewals	2.0	2,000 loops renewed
	Stations & Stands Annualised Programme	4.4	12 bus driver welfare renewals (rooms) completed
	Bus station layouts	2.5	Walthamstow Bus Station build completed, 5 targeted builds completed at other bus stations
	Restraint Barriers	6.0	7,300m treated
	Minor Capital Interventions	4.0	50 schemes completed
	Pump Stations	0.1	1 build completed
	Bus Stops & Shelters	3.7	180 shelters treated
	Capital Renewal - Carriageway inc. cycleways and DfT contribution	7.6	90,000sqm treated
	Capital Renewal - Structure	4.1	4 builds completed
	Capital Renewal - Tunnels	1.4	3 builds completed
	Lodge Flyover Minor Capital Works	0.4	4 minor capital works schemes completed
	SAMIS Bus Stops	3.5	System delivery
	Victoria Coach Station Infrastructure	1.2	1 build completed
	Contract re-let	0.1	Project closure
Safety Camera Extension Programme phase 2	2.3	3 contracts extended	
Third Party Enhancements	5.8	Undefined	

	Sub-programme	2024/25 Allocation (£m)	2024/25 expected output
Major Asset Renewals Programme (MARP)	MARP A40 Westway Structures Refurbishment	18.5	Delivery of work package 2A (7 expansion joints)
	MARP Rotherhithe	1.0	Targeted works to support ongoing operation
	MARP Brent Cross	9.1	Completion of Concept Design. Strengthening works at A41 Flyover delivered
	MARP Blackwall Tunnel Southbound Refurbishment	0.9	Detailed Design completed
	MARP Croydon Flyover	2.4	Concept Design completed
	MARP Kew Bridge	0.6	Feasibility completed
	MARP Hope & Anchor	0.6	Feasibility completed
	MARP Kingston Cromwell Road Bus Station	3.8	Construction completed and bus station open to the public
	MARP Ardleigh Green Bridge Replacement	0.1	Project close
	MARP Gallows Corner	6.1	Detailed Design completed
	Efficiency	-3.9	
Borough Roads and Bridges	Borough Roads and Bridges	4.6	
DLR	Civils	1.6	Complete platform resurfacing at three stations (All Saints, Prince Regent, Royal Albert); Realigning copers at 11 stations
	Communications	0.8	Contract completion, commencement of survey works and completion of concept design for Transmission Network
	Electrical & Mechanical	6.2	Completion of low voltage renewals completion at Herons Quay, Commencement of delivery at West Silvertown and Pontoon Dock
	HV Traction	2.5	Replacement of DC Circuit breakers at Beckton Substation; Switchgear replacement at Royal Mint Street & Bow Church Substation; Replacement of shore supply contactors at Poplar Depot and Beckton Depot
	Rolling Stock	1.2	Commencement of delivery for Door Nosing Rubbers; Commencement of delivery for B2007 Data Recorders

	Sub-programme	2024/25 Allocation (£m)	2024/25 expected output
	Signalling	10.9	Continue design phase for Station Controllers; Continue installation of loop cables
	Track	6.2	Replacement of 2 crossovers at Poplar and Beckton, Re-railing and SEG replacement at Greenwich, Renewing re-railing through Bank Tunnel
London Overground	Asset Management	0.7	AMIS (SAP) functional updates
	Civils	0.0	No allocation
	Comms	1.4	Procurement of Saft 48v rectifiers and spares, Continuation of design for GSM-R, Transmission; Delivery of Kilostream
	Electrical & Mechanical	0.0	No allocation
	Fleet	0.0	No allocation
	Premises	0.6	Delivery of canopy and roof refurbishment and platform resurfacing, Commence design at Hackney Downs
	Power	0.0	No allocation
	Signalling	2.3	Windrush Line Signalling Control System, Feasibility and options study for SSI Tech Terminal Refresh
	Track	2.6	Thames Tunnel Baseplates
Trams	Civils	1.0	Completion of design and procurement for Sandilands Water Ingress; Completion of drainage remedial works
	Fleet/ Depot	3.5	Continue renewing the cab doors, rooftop cabling and flooring on the CR4000 tram fleet; Delivery of Control Room upgrade at Therapia Lane Depot
	Power and Systems	3.4	Delivery of Lineside Isolator Cabinet renewal
	Track	15.2	Completion of delivery Sandilands ballasted track renewal; Completion of delivery of East Croydon and George Street embedded track renewal

	Sub-programme	2024/25 Allocation (£m)	2024/25 expected output
Woolwich Ferry	Woolwich Ferry Renewals Programme	3.1	Rolling asset maintenance on ferry terminal linkspan, Installation of ferry service customer information improvement projects, Feasibility work on a Passenger Real-time Information system initiated, Asset systems upgrade initiated, Feasibility work on alternative ferry layby berth Replacement for auto-mooring system.
Cycle Hire	Bike and Docking Station renewals	5.0	620 e-Bike replacement to be delivered; Station relocations and repairs
Buses	New Routemaster Refurbishment	1.2	Deliver a further 51 refurbishments, over half of the New Routemaster fleet will have been refurbished
Cable Car	Cableway Maintenance	0.8	CCTV feasibility works and refresh; Ship impact protection; Replacement of ventilation equipment
Staff welfare	Staff welfare	0.6	Refurbishment of 21 station staff welfare facilities across LO, DLR and Trams
TOTAL		180	
Less:			
Third Party Income	DfT carriageway income	0.3	
	Third party bus shelters	0.8	
	Third Party Signals	5.0	
	Third Party Cycle Hire	1.0	
NET TOTAL		173	