

Date: 8 March 2017

Item: Surface Transport: Asset Capital Programme

This paper will be considered in public.

1 Summary

Surface Transport: Asset Capital Programme				
Existing Financial Authority	EFC	Existing Programme and Project Authority	Additional Authority Requested	Total Authority
£83m	£83m	£0m	£83m	£83m

Authority Approval: The Committee is requested to:

- approve budgeted Programme and Project Authority of £83m in financial year 2017/18; and
- note that £594k of budgeted Programme and Project authority has been transferred to RSM in 2016/17 to deliver Archway works.

Outputs and Schedule: The purpose of the Asset Capital Programme (ACP) is to deliver safe, reliable and cared for assets that are designed to meet the needs of London today and in the future. The detailed deliverables for financial year 2017/18 are provided in Appendix 2.

- 1.1 This authority submission covers all business-as-usual asset capital programmes delivered by the Surface Transport Asset Management Directorate (AMD) as set out in Appendix 1.
- 1.2 A detailed breakdown of the programme cost and funding is provided in Section 6, including third party costs and funding.

2 Recommendation

2.1 The Committee is asked to note the paper and:

- (a) approve budgeted Programme and Project Authority of £83m to undertake all Surface Asset Capital Programme activities during the financial year 2017/18; and
- (b) note that Procurement Authority in respect of the various elements of the Surface Asset Capital Programme will be sought at officer level in accordance with Standing Orders.

3 Background

Scope

- 3.1 The Assets Capital Programme (ACP) is a business-as-usual rolling programme of planned works that maintain, renew and develop Surface Transport's assets. The ACP comprises 22 asset programmes that include carriageway, footway, bridges, river piers, tunnels, lighting, traffic signals, CCTV, bus shelters and bus stations – see Appendix 1 for details of the asset sub-programmes.
- 3.2 All asset investment is assessed and prioritised using one consistent approach, which provides an equitable allocation of funds between assets. Importantly, this enables sub-programme budgets to be flexed and adjusted in-year (within the overall Programme and Project Authority) to deal with emerging risks, pressures and opportunities.
- 3.3 Works on the ACP are co-ordinated across asset types and with other programmes to minimise network disruption.

Asset management

- 3.4 The asset management practices applied by AMD are well defined and have been steadily developed and refined over the last 10 years. Many of the practices are recognised as industry leading, not only in the highways sector but across rail, utilities and other transport providers. An overview of asset management in Surface Transport is provided in the supporting Business Case.

Strategy and objectives

- 3.5 Table 1 summarises how the ACP supports and aligns with relevant legislation, goals and outcomes.

Table 1: Alignment to legislation and Mayoral and TfL objectives

Source	Duty, Goals & Outcomes	How this is supported by the Asset Renewals and Modernisations Programme
The Highways Act 1980	Maintain the public highway	This programme directly supports this duty through the timely and appropriate repair and renewal of assets.
Traffic Management Act 2004	To manage the road network with a view to securing and facilitating the expeditious movement of people and goods	This includes the provision and maintenance of the assets that support and enable the movement of people and goods, in particular the traffic signals for all of London.
Mayor's Transport Strategy (It is anticipated that new MTS will include similar approach when approved)	Bring our assets up to, and maintain them in, a State of Good Repair	Asset renewal and modernisation is essential for achieving and maintaining the State of Good Repair (SOGR), which cannot be achieved through routine and reactive maintenance alone.
TfL Priorities	To put customers and users at the core of all of our decision making	Minimising traffic disruption and maintaining and developing Surface Transport assets to make a positive contribution to customer satisfaction. Making the right asset development choices, rather than always replacing like-for-like, provides opportunities to improve the customer experience.
	To drive improvement in reliability and safety across our network	Efficient and effective delivery of the right investment in the right assets to provide safe, reliable, clean, sustainable and accessible transport.
	To cost less, be more affordable and to generate more income	Well targeted renewals, modernisations and asset developments that take a whole life view, reduce network disruption by minimising reactive maintenance and provide opportunities to generate commercial income. Co-ordination of programmes between different asset types delivers maximum benefits from network occupation.
Surface Transport Outcomes	Maintaining and enhancing a reliable, accessible and high quality bus network and ensuring efficient coach services in London	Maintaining assets in a SOGR, and developing and improving infrastructure contributes to the quality of bus users experience
	Ensuring the reliable operation of London's road network for all users, while reducing congestion	Maintaining the Surface transport assets in a SOGR (condition and performance) enables reliability by minimising/mitigating asset failures, e.g. traffic signal outages, bridge expansion joints, tunnel equipment, drainage systems and carriageway cracking and potholes.

Source	Duty, Goals & Outcomes	How this is supported by the Asset Renewals and Modernisations Programme
	Supporting an increase in walking by creating safe, attractive and accessible streets and public spaces	Maintaining and developing footway assets and road crossings in a good condition, removing unnecessary street clutter and enforcing against obstructions enhances the walking experience and ensures all walkers, especially vulnerable users, can easily and safely use the footway network.
	Enabling more people to cycle, more safely, more often	Carriageway defects and potholes impact on the safety and satisfaction of cyclists and the appeal of cycling on London's roads.
	Supporting more sustainable patterns of freight delivery and servicing	Timely asset renewals and developments are able to reduce the number of operational maintenance activities required which may impact on freight deliveries.
	Continuing the downward trend in casualties on London's roads and public transport networks	Developing and maintaining our assets helps ensure they stay safe and serviceable at all times, minimising any accidents and subsequent injuries and casualties caused by poor asset condition and asset failures.
	Continuing to deliver environmental improvements	Green estate activities (e.g. replacing trees), energy efficient traffic signals and lighting (on the roads and in tunnels), and recycling/reuse of road materials all contribute to the environment and reduction of CO2 emissions.
	Continuing the downward trend in crime, antisocial behaviour and fear of crime on London's transport networks	Maintaining the condition, cleanliness and quality of bus stations and shelters, providing well-lit and attractive locations. Providing well-lit streets through good design and maintenance of our street lighting.
	Harnessing the potential of London's rivers and waterways to carry people and goods	Developing and maintaining our river piers helps ensure they stay safe and serviceable at all times, helping to improve their image and increase patronage.





3.6 Table 2 illustrates how the ACP contributes to Surface Transport's 10 Outcomes.

Table 2: Contribution to Surface Transport Outcomes

Outcomes with Major Contribution from ACP

-  Quality bus network
-  Reliable roads
-  More and safer cycling
-  More and safer walking
-  Reduced casualties
-  Harnessing rivers' potential

Outcomes with Minor Contribution from ACP

-  Safer and more efficient deliveries
-  Quality door-to-door transport
-  Reduced crime
-  Improving the environment

3.7 The ACP is a major contributor to the Surface Outcomes by providing assets that are fit for today and designed with the future in mind.

Funding and Authority Strategy

3.8 This is an annual submission to seek Programme and Project Authority to deliver the programme for the coming financial year. The programme is fully budgeted in the TfL Business Plan.

Life cycle stage, delivery status and progress

3.9 This is a rolling programme comprised of over 1,000 discrete works in any year that range in value from £10,000 to £1 million. The forward view of two to five years of works, depending on asset type, is maintained and regularly reviewed and updated through a defined Value Management process.

Delivery of 2016/17 programme

3.10 This section summarises the delivery and current status of the 2016/17 Surface Asset Capital Programme. Table 2.1 in Appendix 2 provides a detailed breakdown of 2016/17 original and revised budgets and outputs against the current forecast.

3.11 As at Period 9, £47.1m of the £81.1m budget had been invested – this equates to 61 per cent of the programme. This leaves £34m to deliver in the last four periods, a run rate of £8.5m per period if the latest forecast is to be achieved - Tables 2.2 and 2.3 in Appendix 2 show the year-to-date expenditure and outputs

by asset type respectively. Delivery confidence is high as road space bookings are in place, contractors programmes approved and past experience demonstrates the capability to deliver successfully.

- 3.12 A summary of the ACP outcomes and benefits for 2016/17, described using Key Performance Indicators (KPIs), is shown in Table 3 below. The table also includes the 2017/18 targets. Performance measures that support the KPIs are set out in the Asset Management Plans.

Table 3: AMD KPI targets

Key Performance Indicator	2016/17 Target	2016/17 Actual (Q3)	2017/18 Target
State of Good Repair of carriageway	91	91	90
Customer Satisfaction with carriageway condition	73	66	65
State of Good Repair of footway	93	94	93
Customer Satisfaction with footway condition	70	63	62
Availability of Traffic Signals	99.1	99.5	99.1
Customer satisfaction with Traffic Signal condition	78	73	72
Bus stations – Customer Satisfaction	79	TBC*	78

*Survey planned for end of Q4.

- 3.13 Two targets that have not been fully achieved are carriageway and footway customer satisfaction. The SOGR for carriageways and footways is within the acceptable range (90 to 94 per cent for carriageway and 92 to 96 per cent for footway) that was set through customer consultation; however this is not reflected in the declining customer satisfaction scores. Anecdotal evidence is that satisfaction with TfL footways and carriageway is skewed by customers' experience with their end to end journey, i.e. the majority of journeys take place on a range of networks, both local borough roads and strategic TfL roads.

4 Proposal

Recommended Option

- 4.1 The recommended option is to invest the budgeted £83m in the ACP in financial year 2017/18 to deliver the outcomes described above. This is achieved through the allocations shown in Table 4 and the outputs shown in Table 5.

Table 4: Recommended allocation of Business Plan budget (£m)

SAP Profit centre	SAP Profit centre name	Investment requirement (£000's)		Change from business plan (£000's)
ST-PJ61C	Capital Renewal - Carriage	17,373		
ST-PJ188C	Capital Renewal - Drainage	1,717		
ST-PJ186C	Capital Renewal - Footway	3,535		
ST-PJ189C	Capital Renewal - Furniture	270		
ST-PJ190C	Capital Renewal - Landscape	247		
ST-PJ187C	Capital Renewal - Lighting	4,490		
ST-PJ63C	Capital Renewal - Structure	15,000		+1,214
ST-PJ64C	Capital Renewal - Tunnels	5,080		
BR-PJ12C	Borough Traffic Signal Modernisation	11,111	14,141	
ST-PJ127C	TfL Traffic Signal Modernisation	3,030		
ST-PJ86C	CCTV/Road Safety Cameras	100		-203
ST-PJ26C	Bus Garages	379		
ST-PJ85C	Message Signing	100		-102
ST-PJ412C	Pump Stations	1,000		+91
ST-PJ353C	Restraint Barriers	3,492		
ST-PJ27C	Bus Stations and Stands	4,555		-1,000
ST-PJ46C	Bus Stops and Shelters	5,050		
ST-PJ509C	River Piers	1,414		
ST-PJ510C	Asset Management Information Systems	1,205		
ST-PJ531C	Dog Lane Arches	2,368		
ST- PJ542	Greenford Flyover	1,492		
Total		83,009		

*Note: upgrades and improvements to the AMD Asset Management Information Systems (AMIS) are included in the Asset Capital Programme. The international standard on asset management (ISO 55000) states that data and systems should be managed using the same principles and approach as other assets. As such, capital upgrades/renewals of AMIS form part of the ACP and are directly assessed and prioritised against other asset needs.

- 4.2 The recommended option includes a number of adjustments between sub-programmes compared to the current Business Plan. The adjustments are based on an assessment of risks and delivery opportunities and pressures in 2017/18. Appendix 2 provides a comparison of the 2016/17 and 2017/18 allocations and outputs.

Table 5: Target 2017/18 outputs

SAP Profit centre	SAP Profit centre name	Output type	Output
ST-PJ61C	Capital Renewal - Carriageway	Carriageway resurfaced (m2)	404,000
ST-PJ188C	Capital Renewal - Drainage	Drainage network area treated (m2)	281,000
		Gullies refurbished (no.)	1,400
		Pipes refurbished (m)	3,100
ST-PJ186C	Capital Renewal - Footway	Footway renewed (m2)	36,400
ST-PJ189C	Capital Renewal - Furniture	PGR reviewed (m)	7,000
		PGR removed (m)	TBC
		Footway decluttered (m)	TBC
ST-PJ190C	Capital Renewal -Landscape	Trees planted (no)	285
ST-PJ187C	Capital Renewal - Lighting	Columns replaced (no.)	900
		Luminaires replaced (no.)	1,600
		Lighting network area treated (m2)	208,000
ST-PJ63C	Capital Renewal - Structure	Detailed Design (no.)	30
		Works Completed (no.)	9
		Network area treated (m2)	4,530
ST-PJ531C	Dog Lane Arches	Network area treated (m2)	1,386
ST- PJ542	Greenford Flyover	Network area treated (m2)	3,354
ST-PJ64C	Capital Renewal - Tunnels	Detailed Design (no.)	8
		Works complete (no.)	15
BR-PJ12C	Borough Traffic Signal Modernisation	Detailed designs (no.)	160
		Junctions (no.)	80
		Pedestrian crossings (no.)	60
ST-PJ127C	TfL Traffic Signal Modernisation	Detailed designs (no.)	40
		Junctions (no.)	20
		Pedestrian crossings (no.)	20
ST-PJ86C	CCTV/Road Safety Cameras	N/A	N/A
ST-PJ26C	Bus Garages	Garages refurbished (no.)	N/A
ST-PJ85C	Message Signing	N/A	N/A
ST-PJ412C	Pump Stations	Stage Gate Completed (no.)	6
		Works complete (no.)	7
ST-PJ353C	Restraint Barriers	VRS treated (m)	14,900
		VRS network area treated (m2)	264,000
ST-PJ27C	Bus Stations and Stands	Stations / Stands refurbished (no.)	12
		Minor works (no.)	22
		Staff Facilities Refurbished (no.)	6
ST-PJ46C	Bus Stops and Shelters	Shelters replaced (no.)	350
		Shelters Refurbished (no.)	200
ST-PJ509C	River Piers	River Piers Refurbished (no.)	1

Impact on operations

- 4.3 The main operational impact is network disruption caused by works implementation. Road space access will be sought through the established processes. The programme is reduced in comparison to previous years therefore the operational impact may be less.
- 4.4 Delivery takes full account of lane rental, with many works delivered at night and/or off-peak. Also, we use innovative techniques, such as quick setting materials and new technologies that require less maintenance, like energy efficient lighting and traffic signals, to help minimise network disruption.

Benefits and Value

- 4.5 The approach described in the Business Case Development Manual (BCDM) is used to evaluate a Benefit:Cost Ratio for the ACP. Although the BCDM does not provide figures and metrics for the full range of assets and services covered by the ACP, the BCDM does provide the basis of the approach which is supplemented by asset management techniques, for example:
- (a) Asset Investment Planning – computerised models are used to analyse how the assets will behave over the next 20 to 30 years, or up to 60 years for some civils assets. This includes deterioration modelling, analysis of alternative intervention strategies and an assessment of the costs, risks and benefits of providing different levels of service, and
 - (b) Value Management – this assesses risks/benefits and prioritises works across all the asset types. A core requirement of the programme is to maintain the assets and manage risks; therefore risk mitigation/reduction is a measure of benefit. Benefits are also achieved by developing the assets, for example, improving customer satisfaction and generating revenue.
- 4.6 In both the above techniques, the common metric used to compare and assess needs and priorities across the ACP is monetised benefit/risk – risk reductions are taken as benefits. The supporting Business Case describes the Value Management process and explains how risks/benefits are monetised to enable the calculation of a Benefit:Cost Ratio as per the BCDM.
- 4.7 Monetising all risks is challenging and the approach on some assets types is more mature than others – it is recognised that further work is required to refine the monetisation of risks/benefits associated with bus, traffic and drainage infrastructure and this is actively being addressed.
- 4.8 The Benefit:Cost Ratio of the programme is:
- | | |
|--------------------------------|-----------|
| Recommended 2017/18 investment | = £83m |
| Quantified risk reduction | = £402.4m |
| Benefit:Cost Ratio | = 5.03 |
- 4.9 The prioritisation/risk categories are shown in Appendix 3. The schemes in each sub-programme that fall into each risk category are shown in Figure 1. This risk profile across assets is used to inform the budget allocations shown in Table 4,

for example, the budget has been increased for structures to address known risks.

- 4.10 Cycle Superhighways 7 and 8, currently with works on-site, account for the higher priority activities in the carriageway programme because the surfacing is nearing end of life. Both projects are on the programme for completion in 2017/18.

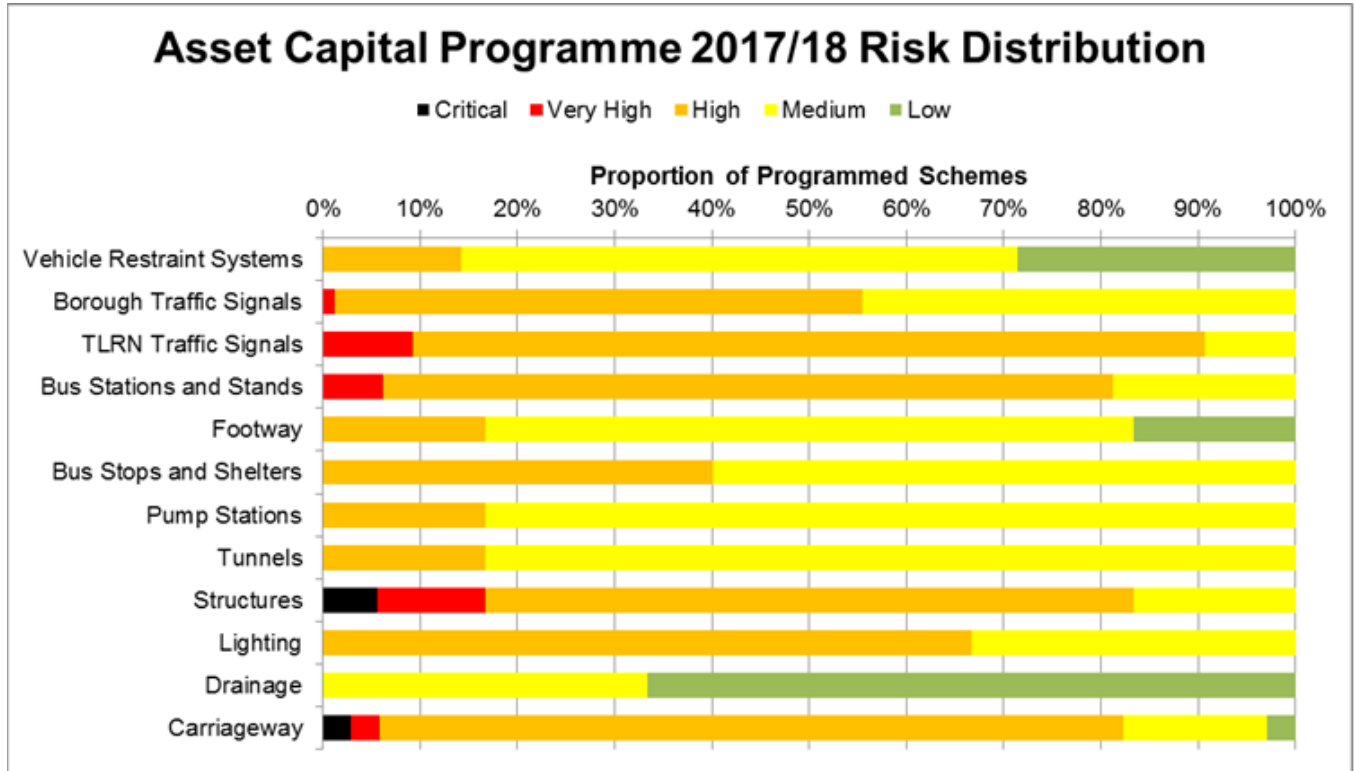


Figure 1: Priority profile of Assets Capital Programmes

- 4.11 A summary of the economic appraisal and benefits for the preferred option is tabulated below:

Table 6: Economic appraisal of ACP

Economic Appraisal	
Estimated Final Cost, £k (at outturn prices)	(83,009)
Net Present Values, £k	(83,009)
Discounted NPV EFC	(83,009)
Other CAPEX	0
Other costs	0
OPEX (+ or -)	0
Third Party	0
Revenue	0
Other Income	0
Net Financial Effect	(83,009)
Payback Period	-
Passenger Benefits	402,419
Impacts during Implementation	-
Total Benefit, £k	402,419
Benefit : Cost Ratio	5.03

Options Analysis

- 4.12 Good quality asset inventory and condition data is vital for assessing asset risks, investment priorities and asset degradation. A full range of risk based asset inspections are used to collect condition information, which is held in Asset Management Information Systems (AMIS). The supporting Business Case and Asset Management Plans provide details on the condition inspection regimes.
- 4.13 An overview of the current Business Plan investment indicates funding to be circa £10m per annum below optimum investment requirements until 2021/22. Sub-optimum investment would require future increases to regain current State of Good Repair (SOGR) of the assets following a period of managed deterioration. Beyond 2021/22, increased investment of approximately £50m per annum would be required under this programme to compensate for the end of the Structures and Tunnels Investment Programme (STIP).
- 4.14 STIP investment is over £600million of investment over a 10 year period in the safety and reliability of critical bridge and tunnel assets, including Hammersmith Flyover, the Westway, Blackwall Tunnel and Rotherhithe Tunnel. An increase in steady state investment beyond 2021/22 would be required to cover an on-going programme of major works. This will deliver steady state investment and avoid the peaks and troughs created by past practices which resulted in the need for STIP.
- 4.15 Further to the above, other options were assessed for the portfolio, including reductions of 5 and 10 per cent. The graphs below show the impact the different options have on the SOGR of carriageway, footway and structures. Through improved contracts and more efficient delivery costs, we are delivering more for less. For example, since 2007 cost of carriageway and lighting have been reduced by over 30 per cent and 20 per cent respectively.

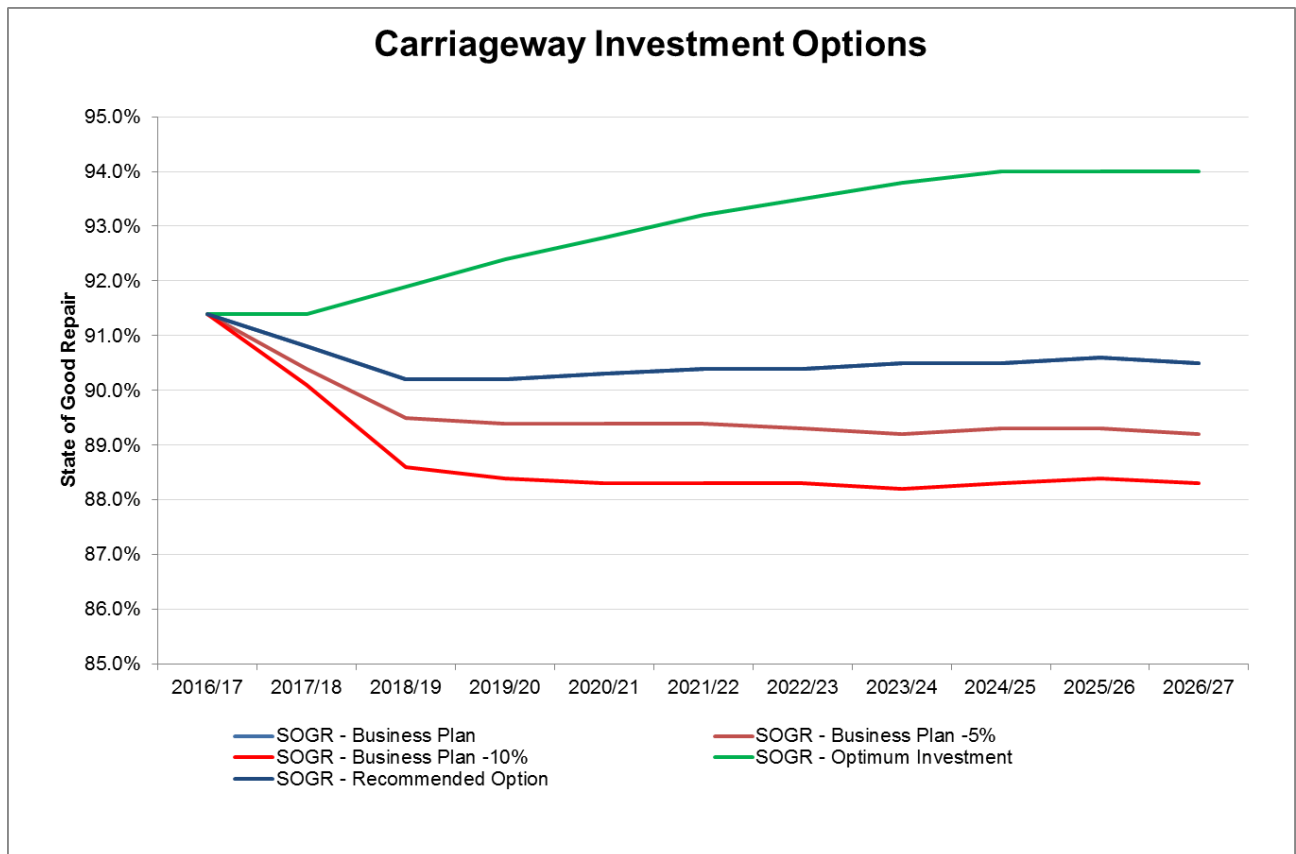


Figure 2: Impact of different investment levels on carriageway SOGR

- 4.16 This graph shows that the current Business Plan investment is projected to maintain SOGR, just above 90 per cent over the next 10 years. The acceptable range for carriageway SOGR, based on customer consultation and whole life cost analysis, is 90 to 94 per cent. TfL has set itself a target of 94 per cent to reflect the higher standard required to support an increase in cycling in London. This target cannot be achieved during the current Business Plan.
- 4.17 Investment modelling indicates that a further reduction in budget of 5 per cent for two years would result in a reduction in the SOGR to below 90 per cent. A 10 per cent reduction for two years would result in a gradual decline in SOGR with a projected SOGR of 88 per cent by the end of 2026/27. The current Business Plan assumes higher investment levels in 2019/20 onwards; these would sustain the SOGR level reached in 2018/19.
- 4.18 Declining SOGR places additional pressure on operational expenditure to rectify defects. The analysis presented above assumes operational expenditure (e.g. pothole repairs) would remain at current levels. A decrease in operational expenditure will increase the rate of SOGR deterioration.
- 4.19 The above analysis excludes the impact of severe weather events, for example extreme rainfall, snow and/or ice. The timing of and impact that these events have is uncertain and experience has shown they are best dealt with as and when they happen. This allows the impact to be more accurately assessed and the established asset management practices are used to assess needs and allocate resources accordingly.

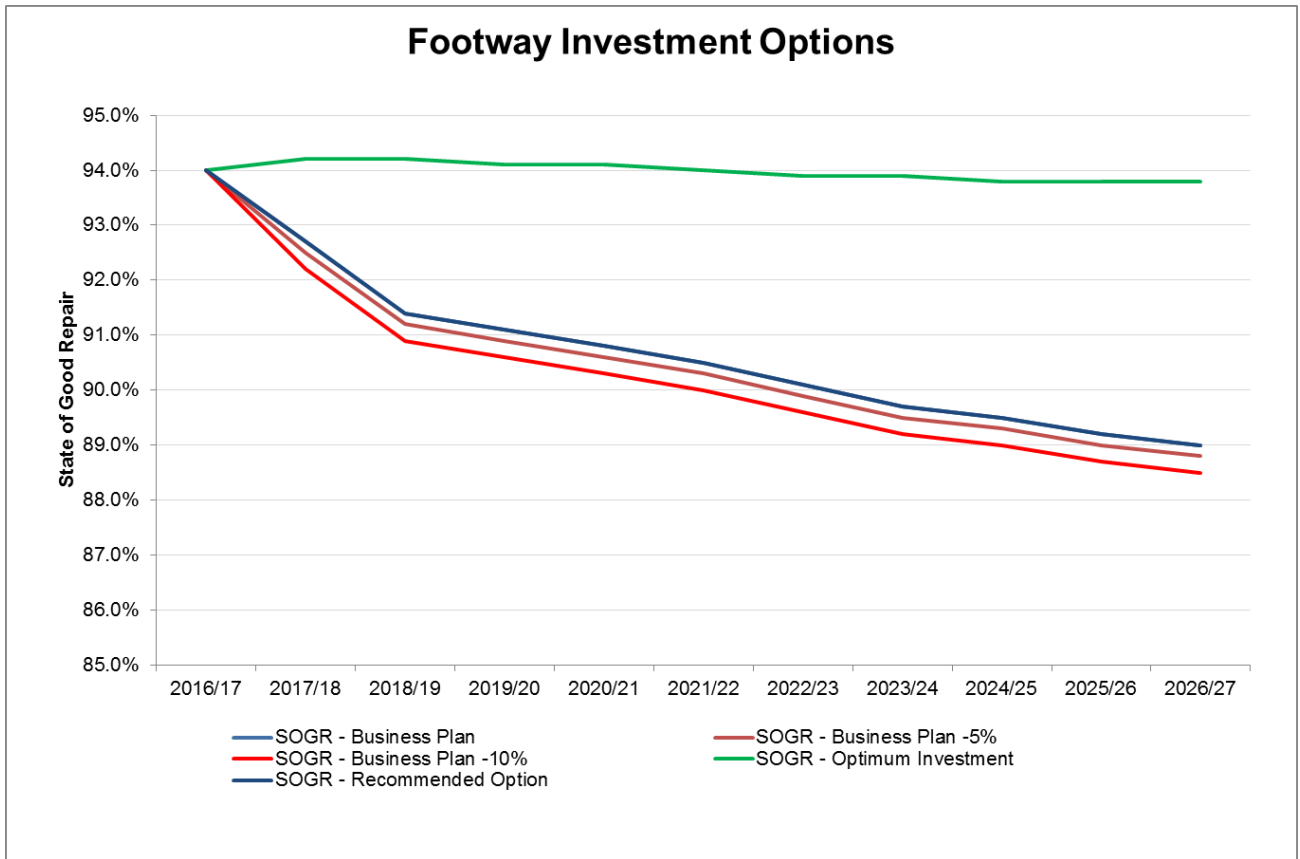


Figure 3: Impact of different investment levels on footway SOGR

4.20 The SOGR of footway is currently at 94 per cent. Investment modelling indicates that the current Business Plan investment is unable to maintain the SOGR, dropping to 93 per cent in 2017/18. The acceptable range for footway SOGR, based on customer consultation and whole life cost analysis, is 92 to 96 per cent. The above options (Business Plan, 5 and 10 per cent reduction) all result in a decline in SOGR to the 91 per cent by 2018/19. The SOGR is predicted to reduce to 89 per cent by 2026/27 for all three options.

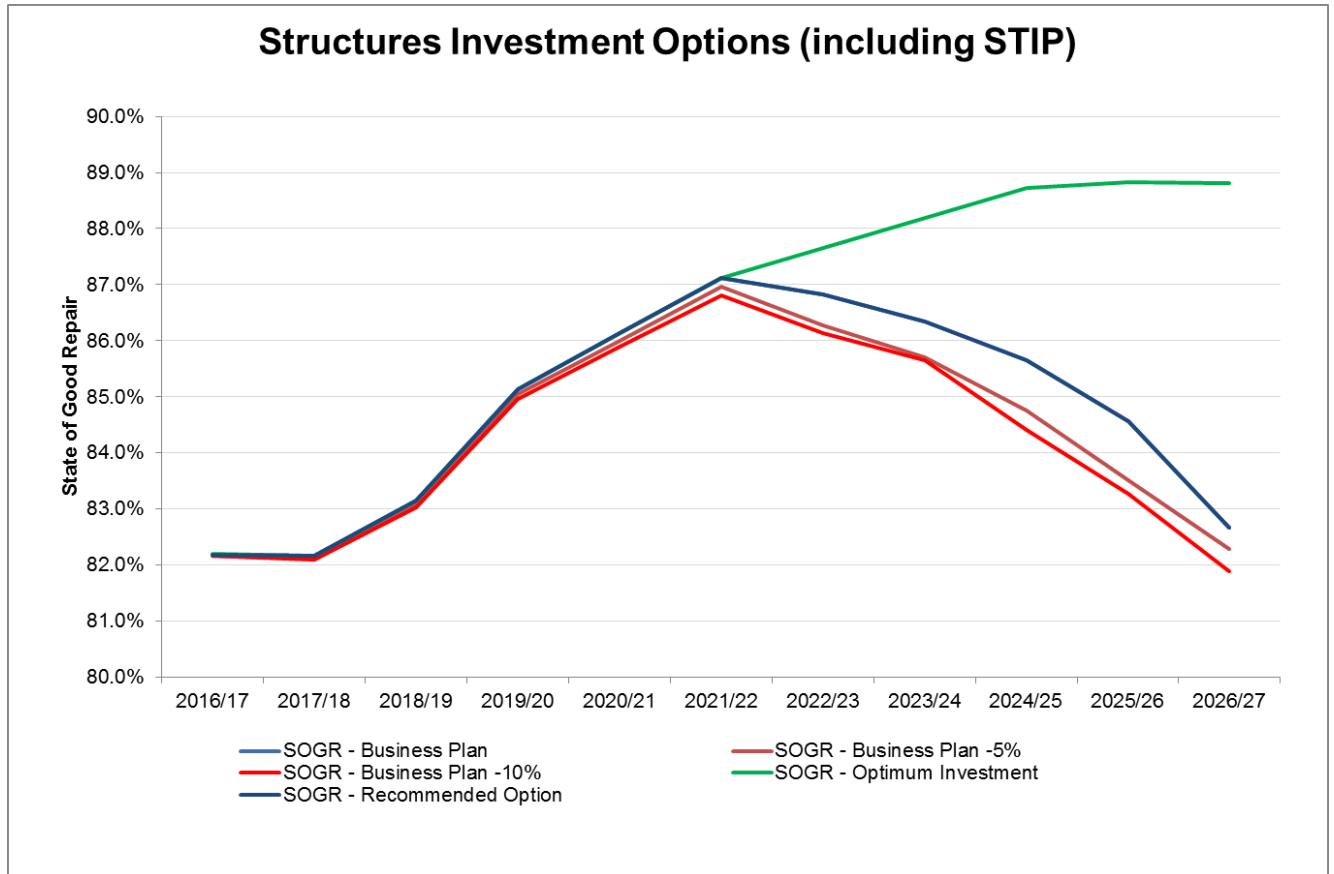


Figure 4: Impact of different investment levels on structures SOGR

- 4.21 The SOGR of structures gradually improves, under all scenarios, until 2021/22, largely due to the Structures and Tunnels Investment Programme (STIP) - over £600m of additional investment above the Asset Capital Programme. The minimum SOGR target for structures is 88 per cent based on optimum whole life costs. The above options do not fully achieve this, and after 2021/22 the asset condition declines if as the STIP programme comes to an end.
- 4.22 From 2021 onwards, the analysis indicates that the steady state budget for the asset capital programme will need to increase from circa £100m per annum to £150m per annum to prevent a subsequent decline in the SOGR of structures and tunnels, and to accommodate other major works on bus stations, embankments and drainage. This will negate the need for future spikes in investment, like STIP, and deliver whole life cost savings of circa 10 to 20 per cent compared to a 'peak' and 'trough' approach to asset investment.
- 4.23 The option analyses, and the more detailed scheme specific Value Management process, have been used to inform the 2017/18 budget allocations presented in this paper. These asset management practices have been recognised as good practice by external reviewers and have been specifically developed to support the optimum allocation of resources between asset types for the programme. The proposed allocations address risks and benefits on a priority basis and support delivery of the asset strategies defined in the Business Case and Asset Management Plans.

- 4.24 The recommended option is to deliver the Business Plan budget for 2017/18 as shown in Table 4 because it achieves Mayoral and TfL outcomes. It also enables allocations to be flexed between assets to manage emerging risks and opportunities in-year.

Delivery of Recommended Option

- 4.25 The Pathway Project Execution Plan (PEP) sets out the governance, roles and responsibilities, stakeholders, and the approach for delivering the programme. The programme will be delivered through established contracts - including London Highways Alliance Contract, Traffic Control Equipment Maintenance and Related Services Two and Bus Shelter contracts. These contracts are managed by AMD.

Impact or dependency on other programmes

- 4.26 This programme is not dependent on other programmes to realise the benefits. However, there is a close relationship between this programme and other delivery programmes across Surface Transport, for example healthy streets and Mini-Holland. To ensure best use is made of network space and works are co-ordinated effectively and efficiently, the two to five year ACP is shared with key stakeholders through Surface Playbook. Where possible, the timing of works on the ACP is adjusted to align with other programmes and vice versa.

Key milestones

- 4.27 The Programme's key milestone is to deliver the outcomes shown in Table 3 (Section 3) and the outputs shown in Table 5 (Section 4) by 31 March 2018.

Top 5 risks

- 4.28 The top 5 risks to the delivery of the 2017/18 ACP are shown below. These have been identified and assessed by the Senior Management Team in AMD.

Table 7: Top risks for ACP

Risk No	Risk Description	Mitigation Actions
1	Impact of TfL's Business Plan on asset State of Good Repair (SOGR)	<ul style="list-style-type: none"> Actively seek out more effective / efficient ways of working. Review asset strategies, including material and treatment types Implement robust and consistent decision-making through good practice asset management across all Surface assets.
2	Impact of TfL Transformation projects on staff and delivery	<ul style="list-style-type: none"> Re-organisation of the Asset Management Directorate includes a detailed transition plan and staff training Local changes are being co-ordinated with wider TfL Transformation changes to avoid significant conflicts and

Risk No	Risk Description	Mitigation Actions
		unnecessary disruption
3	Potential disputes with contractors delivering the programme	Ensure clear scope of requirements and resolve any disputes robustly.
4	Road space availability	<ul style="list-style-type: none"> • Early sharing of the programme - the draft programme for 2017/18 was shared in December 2016 • Timely submission of road-space requests
5	Supply chain performance and sustainability	Tenders were bid at a market low which means there is a risk of inadequate resource. Mitigation - close commercial engagement and management.

4.29 The ACP is an annualised programme and does not include a risk allowance. The ACP is comprised of over 1000 schemes that typically range in value from £10,000 to £1m. Experience has shown that the risks across the programme balance out over the year or that any significant risk occurrences can be managed within the programme budget.

5 Stakeholder Engagement

5.1 Stakeholders are engaged on the overall service, for example, through annual customer satisfaction surveys on roads and bus stations. The findings are used to inform investment needs and priorities.

5.2 On individual projects stakeholder engagement is tailored to each scheme. For example, stakeholder engagement on a business-as-usual carriageway resurfacing scheme includes letter drops and signing, while engagement on a bus station re-construction involves extensive engagement with the local community, the borough, customers and the bus operating companies.

6 Equality and Diversity

6.1 This programme makes a positive contribution to equality and diversity through the provision of accessible bus stops, tactile paving, dropped kerbs, and audible and countdown facilities at traffic signals.

6.2 The need for a full Equality Impact Assessment is considered on a project-by-project basis.

7 Financial Implications

7.1 The ACP is fully budgeted in the TfL Business Plan and has Financial Authority. Table 8 provides details of medium term planned investment in the above programmes over the business plan period.

Table 8: Business Plan Investment (£m)

Year	Investment (£m)
Actuals 2014/15	97.0
Actuals 2015/16	104.6
Forecast 2016/17	81.0
Proposed Project Authority 2017/18	83.0
2017/18	83.0
2018/19	83.3
2019/20	94.2
2020/21	95.2
2021/22	96.1

7.2 The programme costs are based on agreed contract rates and a detailed analysis of completed works. A summary of the costs and funding are shown below.

Table 9: Cost breakdown of ACP (£m)

Costs and Funding (£m's)	2013/14	2014/15	2015/16	2016/17 (forecast)	2017/18	2018/19 - 2021/22	Total
Cost (Out-turn)	85.7	97.0	106.2	81.1	83.0	421.3	874.3
Internal staff costs					4.2		
Feasibility and Design					7.6		
Implementation					71.2		
Other costs							
Risk							
Estimated Final Cost					83.0		
Investment Funding							
Budget/Plan	79.9	88.1	92.1	89.7	83.0	368.8	801.6
Third Party Funding	5.4	5.3	0.8	0.8			12.3
Plan Surplus/(Shortfall)						(52.5)	(52.5)
Current Authority					0		
This Authority Request					83.009		
Future Requests						421.3	421.3

7.3 The programme seeks annual Programme and Project Authority and undergoes an annual Independent Assurance Review (IAR).

8 Assurance

8.1 The TfL PMO appointed an External Expert to undertake an Independent Assurance Review of the ACP. A review took place in January 2017. There were no critical findings.

List of appendices to this paper:

Appendix 1: Asset sub-programmes

Appendix 2: Comparison of 2016/17 and 2017/18 allocations and outputs

Appendix 3: Risk categories used to prioritise works

List of background papers:

Surface Transport Asset Capital Programme Business Case

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Appendix 1: Asset sub-programmes

SAP Profit centre	SAP Profit centre name	Asset group and activities
ST-PJ61C	Capital Renewal – Carriageway	Carriageways - resurfacing
ST-PJ188C	Capital Renewal – Drainage	Drainage – renewal and refurbishment
ST-PJ186C	Capital Renewal – Footway	Footways - relaying
ST-PJ189C	Capital Renewal – Furniture	Street Furniture – renewing, removal and provision of new furniture
ST-PJ190C	Capital Renewal – Landscape	Green Estate – removal, re-planting and provision of new trees
ST-PJ187C	Capital Renewal – Lighting	Lighting – renewal/replacement of columns and lanterns, including energy efficient LEDs
ST-PJ63C	Capital Renewal - Structure	Structures – repair and refurbishment of bridges, footbridges, retaining walls and other structures on the TfL Road Network
ST-PJ64C	Capital Renewal - Tunnels	Tunnels – repair and refurbishment of Mechanical and Electrical (M&E) and structural components on TfL tunnels and provision of measures to comply with tunnel safety standards
BR-PJ12C	Borough Traffic Signal Modernisation	Traffic Signals – modernisation (renewal) of traffic signals on borough roads
ST-PJ127C	TfL Traffic Signal Modernisation	Traffic Signals – modernisation (renewal) of traffic signals on TfL roads
ST-PJ337C	Traffic Infrastructure Minor Projects	Traffic Signals – emergency renewals, including Pedestrian Countdown at Traffic Signals – PC@TS
ST-PJ86C	CCTV/Road Safety Cameras	CCTV – modernisation/renewal
ST-PJ26C	Bus Garages	Bus Garages – repairs and refurbishments
ST-PJ85C	Message Signing	VMS / OVD – renewal and replacement
ST-PJ412C	Pump Stations	Pump Stations – refurbishment and renewal
ST-PJ353C	Restraint Barriers	Vehicle Restraint Systems – removal, renewal and provision
ST-PJ27C	Bus Stations and Stands	Bus Stations and Stands – repairs, refurbishment and redevelopment
ST-PJ46C	Bus Stops and Shelters	Bus Stops and Shelters - removal, renewal and provision at new sites
ST-PJ509C	River Piers	River piers – repair and refurbishment of piers
ST-PJ510C	Asset Management Systems	Upgrades and improvements to the AMD computerised asset management system
ST-PJ531C	Dog Lane Arches	Dog Lane Arches repair and refurbishment (separated from ST-PJ63C due to exceeding £2m)
ST-PJ542C	Greenford Flyover	Greenford Flyover repair and refurbishment (separated from ST-PJ63C due to exceeding £2m)
ST-PJ205C	Bridges Safety	Structures – primarily comprised the making safe or renewal of substandard bridge parapets
ST-PJ001C	Tunnels Safety	Tunnels – upgrade and/or provision of tunnel safety systems to comply with latest standards
ST-PJ330C	LTRACS	Tunnels – renewal, upgrading and provision of LTRACS communication and end point devices

Appendix 2: Programme financial and output overview

Table 2.1: Comparison of 2016/17 original authority (Approval Paper) and latest forecast

SAP Profit centre	SAP Profit centre name	Original Budget (A)	P10 Forecast (B)	Change between A and B (%)	Commentary
ST-PJ61C	Capital Renewal – Carriageway	17.3	15.4	-11%	In order to achieve the savings challenge set in 2016/17, the asset capital renewal programme was adjusted as shown. Adjustments were based on asset priorities (risk profiles), known delivery pressures and network opportunities.
ST-PJ188C	Capital Renewal – Drainage	2.2	2.6	+21%	
ST-PJ186C	Capital Renewal – Footway	3.6	3.4	-5%	
ST-PJ189C	Capital Renewal – Furniture	0.4	0.3	-32%	
ST-PJ190C	Capital Renewal – Landscape	0.3	0.3	+0%	
ST-PJ187C	Capital Renewal – Lighting	7.5	6.7	-11%	
ST-PJ63C	Capital Renewal - Structure	15.7	11.5	-27%	
ST-PJ64C	Capital Renewal - Tunnels	6.4	4.3	-33%	
BR-PJ12C	Borough Traffic Signal Modernisation	8.3	7.5	-9%	
ST-PJ127C	TfL Traffic Signal Modernisation	7.6	8.3	+10%	
ST-PJ337C	Traffic Infrastructure Minor Projects	1.0	0.1	-90%	
ST-PJ86C	CCTV/Road Safety Cameras	0.5	0.5	0%	
ST-PJ26C	Bus Garages	0.2	0.7	+280%	
ST-PJ85C	Message Signing	0.4	0.4	0%	
ST-PJ412C	Pump Stations	1.8	1.1	-40%	
ST-PJ353C	Restraint Barriers	3.6	1.4	-62%	
ST-PJ27C	Bus Stations and Stands	5.1	4.5	-10%	
ST-PJ46C	Bus Stops and Shelters	6.9	5.7	-18%	
ST-PJ509C	River Piers	0.7	0.2	-73%	
ST-PJ510C	Asset management Systems	1.2	0.7	-36%	
ST-PJ531C	Dog Lane Arches	N/A	0.6	N/A	
ST-PJ542C	Greenford Flyover	N/A	0.7	N/A	
ST-PJ205C	Bridges Safety	N/A	0.3	N/A	
ST-PJ001C	Tunnels Safety	N/A	0.3	N/A	
ST-PJ330C	LTRACS	N/A	0.5	N/A	
Total		90.5	77.9	-14%	

Table 2.2: Comparison of 2016/17 (with bring forward) and 2017/18 allocations

SAP Profit centre	SAP Profit centre name	2016/17 Actual YTD	2016/17 SAP Forecast (P10)	2016/17 P10 AMD Forecast (A)	2017/18 Budget (B)	Change between A and B (%)	Commentary
ST-PJ61C	Capital Renewal – Carriageway	10.68	17.21	15.39	17.37	13%	In order to achieve the savings challenge set in 2016/17, the asset capital renewal programme was adjusted as shown. Adjustments were based on asset priorities (risk profiles), know delivery pressures and network opportunities.
ST-PJ188C	Capital Renewal – Drainage	1.47	2.24	2.63	1.72	-35%	
ST-PJ186C	Capital Renewal – Footway	2.35	3.59	3.41	3.54	4%	
ST-PJ189C	Capital Renewal – Furniture	0.13	0.38	0.26	0.27	4%	
ST-PJ190C	Capital Renewal – Landscape	0.22	0.39	0.26	0.25	-5%	
ST-PJ187C	Capital Renewal – Lighting	2.46	6.87	6.69	4.49	-33%	
ST-PJ63C	Capital Renewal - Structure	4.81	11.83	11.47	15.00	31%	
ST-PJ64C	Capital Renewal - Tunnels	2.63	4.36	4.33	5.08	17%	
BR-PJ12C	Borough Traffic Signal Modernisation	4.36	7.10	7.50	11.11	48%	
ST-PJ127C	TfL Traffic Signal Modernisation	6.88	7.72	8.33	3.03	-64%	
ST-PJ337C	Traffic Infrastructure Minor Projects	0.19	0.10	0.10	N/A	-100%	
ST-PJ86C	CCTV/Road Safety Cameras	0.12	0.47	0.47	0.10	-78%	
ST-PJ26C	Bus Garages	0.79	0.81	0.74	0.38	-49%	
ST-PJ85C	Message Signing	0.29	0.39	0.44	0.10	-77%	
ST-PJ412C	Pump Stations	0.97	1.12	1.09	1.00	-8%	
ST-PJ353C	Restraint Barriers	1.06	1.36	1.39	3.49	151%	
ST-PJ27C	Bus Stations and Stands	3.22	4.85	4.54	4.56	0%	
ST-PJ46C	Bus Stops and Shelters	5.04	6.25	5.66	5.05	-11%	
ST-PJ509C	River Piers	0.11	0.85	0.19	1.41	635%	
ST-PJ510C	Asset Management System	0.17	0.60	0.74	1.21	62%	
ST-PJ531C	Dog Lane Arches	0.49	0.58	0.57	2.37	317%	

SAP Profit centre	SAP Profit centre name	2016/17 Actual YTD	2016/17 SAP Forecast (P10)	2016/17 P10 AMD Forecast (A)	2017/18 Budget (B)	Change between A and B (%)	Commentary
ST-PJ542C	Greenford Flyover	0.00	0.70	0.70	1.49	115%	
ST-PJ205C	Bridges Safety	0.33	0.22	0.27	N/A	-100%	
ST-PJ001C	Tunnels Safety	0.26	0.33	0.30	N/A	-100%	
ST-PJ330C	LTRACS	0.37	0.46	0.46	N/A	-100%	
Total		49.38	80.77	77.92			

Table 2.3: Comparison of 2016/17 and 2017/18 outputs

Note: The Year-To-Date (YTD) and Forecast figures below were taken from the programme database on Thursday 26th January.

SAP Profit centre	SAP Profit centre name	Output type	2016/17 Target	2016/17 YTD 26/01/17	2016/17 Forecast 26/01/17	2017/18 Output
ST-PJ61C	Carriageway	Carriageway resurfaced (m2)	402,290	226,678	332,670	404,000
ST-PJ186C	Footway	Footway renewed (m2)	29,200	19,769	30,676	36,400
ST-PJ187C	Lighting	Columns replaced (no.)	800	256	764	900
ST-PJ187C	Lighting	Lighting network area treated (m2)	428,000	11,280	368,113	208,000
ST-PJ187C	Lighting	Luminaires replaced (no.)	4,200	480	3,012	1,600
ST-PJ188C	Drainage	Drainage network area treated (m2)	375,000	239,058	782,599	281,000
ST-PJ188C	Drainage	Gullies refurbished (no.)	1,650	802	2,221	1,400
ST-PJ188C	Drainage	Pipes refurbished (m)	8,250	2,985	10,957	3,100
ST-PJ189C	Street Furniture	PGR reviewed (m)	16,000	-	7,001	7,000
ST-PJ189C	Street Furniture	PGR removed (m)	10,000	-	15,652	N/A
ST-PJ189C	Street Furniture	Footway decluttered (m)	-	-	-	TBC
ST-PJ190C	Green Estate	Trees planted (no)	1,000	-	1,089	285
ST-PJ353C	Vehicle Restraint Systems	VRS network area treated (m2)	84,294	2,085	42,495	264,000
ST-PJ353C	Vehicle Restraint Systems	VRS treated (m)	4,757	50	4,671	14,900
ST-PJ63C	Structures	Network area treated (m2)	5,000	339	4,080	4,530
ST-PJ63C	Structures	Works complete (no.)	13	3	20	N/A
ST-PJ63C	Structures	Stage Completed (no.)	-	-	-	142
ST-PJ531C	Dog Lane Arches	Network area treated (m2)	-	-	-	1,386
ST-PJ542C	Greenford Flyover	Network area treated (m2)	-	-	-	3,354
ST-PJ205C	Bridge Safety	Works complete (no.)	1	3	7	N/A
ST-PJ205C	Bridge Safety	Parapets treated (m)	-	176	296	N/A

SAP Profit centre	SAP Profit centre name	Output type	2016/17 Target	2016/17 YTD 26/01/17	2016/17 Forecast 26/01/17	2017/18 Output
ST-PJ64C	Tunnels	Works complete (no.)	12	4	20	15
ST-PJ64C	Tunnels	Reports (no.)	5	7	14	N/A
ST-PJ64C	Tunnels	Stage Completed (no.)	-	-	-	15
ST-PJ001C	Tunnels Safety	Works complete (no.)	1	1	1	N/A
ST-PJ330C	LTRACS	Works complete (no.)	1	1	7	N/A
ST-PJ412C	Pump Stations	Reports (no.)	2	1	2	N/A
ST-PJ412C	Pump Stations	Works complete (no.)	5	1	6	7
ST-PJ412C	Pump Stations	Stage Completed (no.)	-	-	-	6
ST-PJ509C	River Piers	River Piers Refurbished (no.)	-	1	2	1
ST-PJ27C	Bus Stations and Stands	Stations / Stands refurbished (no.)	12	7	14	12
ST-PJ27C	Bus Stations and Stands	Minor works (no.)	9	4	11	22
ST-PJ27C	Bus Stations and Stands	Staff Facilities Refurbished (no.)	6	-	6	6
ST-PJ46C	Bus Stops and Shelters	Shelters replaced (no.)	535	367	535	350
ST-PJ46C	Bus Stops and Shelters	Shelters Refurbished (no.)				200
ST-PJ26C	Bus Garages	Garages refurbished (no.)	1	1	1	N/A
BR-PJ12C	Borough Traffic Signals	Detailed designs (no.)	100	N/A	100	15
BR-PJ12C	Borough Traffic Signals	Junctions (no.)	70	N/A	63	15
BR-PJ12C	Borough Traffic Signals	Pedestrian crossings (no.)	30	N/A	31	160
ST-PJ127C	TfL Traffic Signals	Detailed designs (no.)	100	N/A	100	80
ST-PJ127C	TfL Traffic Signals	Junctions (no.)	60	N/A	83	60

SAP Profit centre	SAP Profit centre name	Output type	2016/17 Target	2016/17 YTD 26/01/17	2016/17 Forecast 26/01/17	2017/18 Output
ST-PJ127C	TfL Traffic Signals	Pedestrian crossings (no.)	30	N/A	38	40
ST-PJ337C	Traffic Infrastructure Minor Capital Works	Junctions (no.)	30	N/A	30	N/A
ST-PJ337C	Traffic Infrastructure Minor Capital Works	Pedestrian crossings (no.)	60	N/A	60	N/A
ST-PJ85C	Message Signs	Asset feasibility report (no.)	98	N/A	98	N/A
ST-PJ86C	CCTV/Road Safety Cameras	Asset feasibility report (no.)	225	N/A	225	225
ST-PJ510C	Asset Management Systems	Works complete (no.)	-	4	3	N/A

Appendix 3: Risk categories and matrix

Risk Category (£k)	Description ¹	Risk Acceptable
≥ 5,000	Critical – the asset represents an unacceptable risk to network safety and/or reliability and TfL’s reputation, action must be taken to reduce the level of risk	
≥ 1,000 & < 5,000	Very High – network safety and/or reliability are at or below broadly acceptable levels, and action must be taken to improve safety and reliability	
≥ 50 & < 1,000	High – action must be taken to maintain network safety, reliability and/or State of Good Repair at or above acceptable levels, interventions may be further justified on the basis of reduced whole life costs	
≥ 5 & < 50	Medium – action should be taken to deliver preferred levels of network safety, reliability and State of Good Repair, to fully achieve Surface Transport and TfL outcomes, and to reduce whole life costs	
< 5	Low – action may be appropriate on the basis of whole life cost savings and reducing future disruption.	

Notes:

1. The acceptability of risk is used to prioritise activities
2. Unacceptable region – risks cannot be justified except in the most extraordinary circumstances
3. ALARP region – acceptable only if risk reduction is impractical or if its cost is disproportionate to the improvement gained – the degree of acceptability depends on the level of disproportionality between risk reduction (or benefit gained) and cost

Broadly acceptable region – risk reduction unlikely to justify intervention, however, whole life cost savings may justify intervention