

Date: 11 March 2015

Item 11: Surface Transport: Asset Capital Programme

This paper will be considered in public

1 Summary

Surface Transport: Asset Capital Programme				
Existing Financial Authority	Estimated Final Cost (EFC)	Existing Project Authority	Additional Authority Requested	Total Authority
£92.8 m	£92.8 m	£0.0 m	£92.8 m	£92.8 m

Authority Approval: The Committee is asked to approve budgeted Project Authority of £92.8m. This programme is included in the approved Business Plan and the date of the end of the authority is 31 March 2016.

Outputs and Schedule: The purpose of this Asset Capital Programme (ACP) is to deliver safe, reliable and maintained assets that are designed to meet the needs of London today and in the future. The deliverables for financial year 2015/16 include 475,000m² of carriageway resurfaced, 55,000m² of footway relayed, 210 traffic signal sites modernised, 370 bus shelters replaced and 60 bridge and tunnel repair and upgrade projects.

- 1.1 This authority submission covers all business-as-usual asset capital programmes delivered by the Asset Management Directorate (AMD). Appendix 1 provides a list of all programmes and assets covered by this authority paper.
- 1.2 A detailed breakdown of the programme cost and funding is provided in section 6, including third party costs or funding.

2 Recommendation

- 2.1 **The Committee is asked to approve budgeted Project Authority of £92.8m in financial year 2015/16 to deliver the Surface Transport Asset Capital Programme.**

3 Background

Scope

- 3.1 The Asset Capital Programme (ACP) is a business-as-usual rolling programme of planned works that maintains, renews and develops Surface Transport's assets. The ACP comprises over 20 smaller asset programmes that include carriageways, footways, bridges, tunnels, lighting, traffic signals, CCTV, bus shelters and bus stations.

- 3.2 Previously, separate approval papers were submitted for many of these smaller programmes. The creation of the Asset Management Directorate in Surface Transport and the alignment of asset management practices has allowed, for the first time, all asset needs to be assessed and prioritised using a consistent approach. This has informed the fair allocation of funds between assets. Importantly, this enables sub-programme budgets to be flexed and adjusted in-year (within the overall programme authority) to deal with emerging risks, pressures and opportunities.
- 3.3 Works on the ACP are co-ordinated with each other and with works on other programmes to minimise network disruption.

Asset management

- 3.4 The asset management practices applied by TfL are well defined and have been steadily developed and refined over the last ten years. Many of the practices are recognised as industry leading, not only in the highways sector but across rail, utilities and other transport providers.
- 3.5 Furthermore, TfL has re-let major asset contracts in the last two years, including the highways alliance contract (LoHAC) and the traffic signal contract (TCMS2). These innovative contracts have delivered substantial efficiencies and savings to TfL and the London boroughs.

Strategy and objectives

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

Table 1: Alignment to legislation and TfL objectives

Source	Duty, Goals & Outcomes (summary)	How this is supported by the Surface Transport Asset Capital Programme
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 traffic	This includes the provision and maintenance of the assets that support and enable the movement of traffic, in particular the traffic signals for all of London.
Mayor’s Transport Strategy	Bring our assets up to, and maintain them in, a State of Good Repair	Asset renewals and modernisations are essential for achieving and maintaining a State of Good Repair (SOGR), this cannot be achieved through routine and reactive maintenance alone.

Source	Duty, Goals & Outcomes (summary)	How this is supported by the Surface Transport Asset Capital Programme
TfL Business Plan	Maintain underlying infrastructure so that it is fit for purpose	The primary role of the programme is to maintain Surface Transport infrastructure (including roads, footways, bridges, tunnels, traffic signals and bus infrastructure) to the appropriate level of safety and reliability.
The Transport for London Story	Customer	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 address specific customer concerns (pain points) and to provide new and innovative features that will delight customers.
	Delivery	This programme directly contributes to safe, reliable, clean, sustainable and accessible transport that is continually developing and evolving.
	Value for Money	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 service in London	Maintaining assets in a SOGR and developing assets as appropriate (especially bus infrastructure assets, but also carriageways, traffic signals, bridges etc) helps to deliver a comfortable network for those using the buses and a reliable service through a reduction in delays and diversions across the bus network.
	Ensuring reliable operation of London's road network for all users, while reducing congestion	Maintaining the Surface transport assets in a SOGR (condition and performance) directly supports reliable operation by minimising/mitigating asset failures, e.g. traffic signal outages, bridge expansion joints, tunnel equipment, drainage systems and carriageway cracking and potholes.
	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 enhances the walking experience and ensures all walkers, especially vulnerable users, can easily and safely use the footway network.

Source	Duty, Goals & Outcomes (summary)	How this is supported by the Surface Transport Asset Capital Programme
	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 casualties caused by 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.

Funding and Authority Strategy

- 3.7 This is an annual submission to gain approval and 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

- 3.8 This is a rolling programme comprising hundreds of discrete works in any year that range in value from £10,000 to £1m. The forward view of two to five years of works, depending on asset type, is maintained and regularly reviewed and updated through a well defined Value Management process.
- 3.9 An Integrated Assurance Review (IAR) was conducted in January 2015.

Delivery of 2014/15 programme

- 3.10 This section summarises the delivery and current status of the 2014/15 ACP. Table 2.1 in Appendix 2 provides a detailed breakdown of 2014/15 original budget and outputs against the current forecast. The overall programme remains largely on budget and target, with a forecast shortfall valued at £2.1m compared to the Quarter 3 forecast. The headlines from the 2014/15 programme are:

- (a) forecast increase in carriageway outputs of 60,000m² (10 per cent increase) – this is due to a number of large schemes (100,000m² each) that required a much shallower and lower cost treatment than originally estimated hence the programme is delivering more for the same investment;

- (b) re-profiling of the structures programme – forecast delivery of 30 projects compared to an original forecast of 37. This is due to a combination of factors including internal and external resource shortages, now resolved, and road space availability pressures exacerbated by STIP (Structures and Tunnels Investment Programme) works on similar network sections – with the latter taking priority;
- (c) Vehicle Restraint System (VRS) lower costs and higher outputs – a sub-programme for VRS started two years ago and both the delivery techniques and costs were untested. Improved knowledge and delivery techniques have reduced costs by approximately 30 per cent and will enable the backlog of poor assets to be more rapidly replaced;
- (d) tunnels safety – seven schemes are forecast to be delivered against an original target of nine, resulting in an investment of £2.2m against an original budget of £3.3m. The two deferred schemes are Green Man/George Green illuminated way finding signs and Fore Street remotely controlled traffic management. The former has been deferred to allow more time to identify the best value solution and the programme for the latter has been extended to enable technical issues with the mobile communications to be resolved; and
- (e) pumping stations – in previous years the refurbishment of pumping stations has been challenging due to limited supply chain experience and slow internal approval of designs. These issues were addressed in 2014/15 enabling accelerated delivery and removal of the backlog of pumping stations refurbishment – the increased rate of delivery in 2014/15 has been sustained and there is a forecast output of 25 refurbishments against an original target of 12.

3.11 In 2013 highway authorities received additional severe weather funding from the Department of Transport (DfT) for carriageway repairs. The settlement of £10.8m for London covered 2013/14 and 2014/15 and stipulated the amount to be invested in each year. The timing of the allocation meant many boroughs were unable to commit to delivery in 2013/14. Therefore, to ensure London fully utilised its allocation, TfL agreed to invest the majority of their allocation in 2013/14. This required, at short notice, approximately £4.1m of planned works to be brought forward from Quarter 1 and Quarter 2 in 2014/15 and delivered in Quarter 4 of 2013/14. This had a major impact on 2014/15 carriageway delivery and required new schemes to be programmed for the back end of 2014/15 – as this allowed time for the site visits, core investigations, designs and securing road space. This has contributed to a significantly back ended delivery in 2014/15.

3.12 As at Period 10, £53.6m of the forecast £91.1m had been spent – this equates to 59 per cent of the programme. This leaves £37.5m to deliver in the last three periods, a run rate of £12.5m 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. It is recognised this is challenging, however, delivery confidence is based on:

- (a) all road space bookings are in place; and
- (b) the remaining deliverables include an element of over-programming (£94m against a forecast of £91.1m) to accommodate inevitable changes.

3.13 A summary of the ACP outcomes and benefits for 2014/15, described using Key Performance Indicators (KPIs), is shown in Table 2. The table also includes the 2015/16 targets. Performance Indicators that support the KPIs are set out in the Asset Management Strategies and Plans.

Table 2: AMD key performance targets (percentages)

Key Performance Indicator	2014/15 Target	2014/15 Forecast	2015/16 Target
State of Good Repair of carriageway	91	91	92
Customer Satisfaction with carriageway condition	71	70	71
State of Good Repair of footway	92	93	93
Customer Satisfaction with footway condition	66	70	70
Availability of traffic signals	99.1	98.5	99.1
Customer satisfaction with traffic signal condition	83	83	84
Customer satisfaction with bus shelter condition	83	83	84
Customer satisfaction with bus stations	78	78	80

3.14 Table 2 shows that the 2014/15 investment is delivering the planned benefits to customers. Customer Satisfaction with footways has increased more than expected, however these numbers should be treated with care because the survey has changed from annual in previous years to quarterly in 2014/15 and the results for the winter quarter are still to be collected. Traffic signal availability is forecast to be slightly below target – this has been impacted by the mobilisation of the new traffic signal contract (TCMS2) in October 2014.

4 Proposal

Preferred Approach

4.1 The preferred approach is to invest the budgeted £92.8m in the ACP in financial year 2015/16 to deliver the outcomes and benefits described above. This approach will achieve Mayoral/TfL outcomes through the allocations shown in Table 3 and the outputs shown in Table 4.

Table 3: Recommended allocation of Business Plan budget (£m)

Programme	Investment Requirement (£m)	Change from Business Plan (£m)
Street Furniture	£0.4	
Green Estate	£0.2	
Carriageway	£19.3	(£0.1) to balance budget
Footway	£4.5	Reduced by £0.6 - the SOGR will be maintained
Lighting	£5.8	Includes transfer of energy efficient lighting project at Q3 2014/15
Vehicle Restraint Systems	£3.6	
Structures	£12.2	
Bridge Safety	£2.9	
Tunnels	£3.8	
Tunnels Safety	£3.0	Reduced by £0.5 based on a review of work required and deliverability in 2015/16
London Traffic Control System (LTRACS)	£2.1	Reduced by £0.5 based on a review of work required and deliverability in 2015/16
Pump Stations	£1.5	Increased by £0.9 to deliver additional high risk sites
Drainage	£2.2	Increased by £1.0 to align drainage works with carriageway schemes and reduce whole life costs
Asset Management System	£0.1	
Borough Traffic signal Mods	£12.7	
TLRN Traffic signal Mods	£6.4	Includes transfer of £0.2 from Minor Capital Works
VMS & OVD Mods	£0.8	
CCTV Mods	£1.0	
Pedestrian Countdown at Traffic Signals (PC@TS)	£1.0	New budget for installation of PC@TS units
Bus Stations and Stands	£4.3	
Bus Stops and Shelters	£4.1	
Bus Garages	£0.9	
Total Investment Required	£92.8	

4.2 The preferred approach includes a number of minor adjustments between sub-programmes compared to the current Business Plan allocations. These will enable optimal allocation of resources, for example, drainage is increased to enable investigations to be undertaken as part of all carriageway schemes and, as necessary, to deliver drainage works that will prevent future deterioration of the

carriageway surface due to subsurface water. The adjustments will also enable delivery of the full pump stations programme, which takes account of cost increases based on 2014/15 experience and the complexity of the locations on the 2015/16 programme. Appendix 2 provides a comparison of the 2014/15 and 2015/16 allocations and outputs. These proposed adjustments to the Business Plans are reflected in the Budget being forwarded for approval at this meeting.

Table 4: Target 2015/16 outputs

Asset	Measure	Delivery
Carriageway	Carriageway resurfaced (m ²)	475,000m ²
Footway	Footway Renewed (m ²)	55,000m ²
Lighting	Lighting network area treated (m ²)	650,000m ²
	Columns replaced / renewed (No)	550
	Luminaires replaced / renewed with LED (No)	6,600
Drainage	Drainage network area treated (m ²)	400,000m ²
	Gullies treated (No)	2,000
	Pipes Treated (m)	5,000m
VRS	VRS network area treated (m ²)	300,000m ²
	VRS treated (m)	17,000m
Structures	Preliminary reports completed (No)	65
	Structures network treated (m ²)	17,000m ²
	Works completed (No)	15
Tunnels	Completed works (No)	10
Bridge Safety	Completed works (No)	20
	Length of parapet treated (m)	5,500m
Tunnels Safety	Preliminary reports completed (No)	10
	Works completed (No)	5
LTRACS	Works completed (No)	10
Street Furniture	PGR Reviewed (m)	17,000m
	PGR Removed (m)	10,000m
TLRN Traffic Signals	Preliminary reports completed (No)	72
	Junctions completed (No)	80
	Pedestrian Crossings Completed (No)	10
Borough Traffic Signals	Preliminary reports completed (No)	68
	Junctions completed (No)	80
	Pedestrian Crossings completed (No)	40
PC@TS	Pedestrian countdown facilities at crossing (No.)	50 crossings and 80 junctions
OVD / VMS	Preliminary reports completed (No)	4
	OVD works completed (No)	2
	VMS works completed (No)	7
CCTV	Schemes completed (No)	35
Bus Stops	Shelters completed (No)	370

Asset	Measure	Delivery
	Advertising boxes completed (No)	360
Bus Stations	Stations and stands completed (No)	14
	Staff Facilities completed (No)	5
	Lighting completed (No)	3
Pump Stations	Preliminary reports completed (No)	10

Impact on operations

- 4.3 The main operational impact is network disruption caused by the works. Road space access will be requested through the established Surface Transport processes. The programme is comparable in size to previous years therefore the operational impact will be similar. It is recognised that Surface Transport will be delivering their largest ever investment programme in 2015/16 and this will place additional pressure on road space. To mitigate the impact of this programme, many of the schemes have been designed this financial year (2014/15) to provide the largest window of opportunity and greatest flexibility for agreeing road space.
- 4.4 Delivery takes full account of lane rental, with many works delivered at night and/or off-peak. Also, innovative techniques, including quick setting materials, and new technology such as energy efficient lighting and traffic signals that requires less maintenance (such as less frequent bulb and lantern replacements), are being used to minimise network disruption.

Impact on Equality

- 4.5 This programme makes a positive contribution to implementation of the Equality Act 2010 through the provision of accessible bus stops, tactile paving, drop kerbs and audible and countdowns on traffic signals.

Benefits and Value

- 4.6 The full range of assets on the ACP and the services they provide are not covered by the Business Case Development Manual (BCDM), furthermore the BCDM does not provide a detailed approach that can be readily applied across all asset types. To address this, Surface Transport has developed an asset management approach that incorporates the BCDM where possible and recognised Management of Value techniques. Two key asset investment techniques applied are:
- (a) Asset Investment Planning – computer 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 – used to assess risks/benefits and prioritise 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.

4.7 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.

4.8 Monetising all risks is challenging and the approach to some assets types is more mature than for others – it is recognised that further work is required to refine the monetisation of risks/benefits associated with Bus and Traffic Infrastructure as these assets adopted the common asset management practices more recently than others.

4.9 The benefit: cost ratio of the programme is:

Recommended 2015/16 investment = £92.8m

Quantified risk reduction = £245.6m

Benefit: Cost ratio = £245.6m: £92.8m = 2.7:1

Note: the above risk reduction only relates to £47.1m of the programme because these are the assets where the risks and benefits can be fully monetised. Assuming the rest of the programme is delivering equivalent benefits and risk reduction, then the benefit: cost ratio of the whole programme would be 5.2:1.

4.10 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 3. For example, the footway programme is comprised of Medium and Low priority schemes and therefore the allocation was reduced by £571k for 2015/16 because future Business Plan investment levels in footways will sustain an appropriate SOGR. All the Critical and Very High priorities shown in Figure 1 will be addressed by the 2015/16 programme.

4.11 Additional budget has been allocated to drainage. Based on Figure 1, drainage does not appear to merit additional budget, however this reflects a new strategy adopted for drainage. In order to reduce whole life costs and the risk of flooding from deteriorating/failed assets, drainage will be assessed and repaired as necessary as part of all carriageway and footway resurfacing schemes. Although this has increased the drainage budget in the short term it will reduce whole life costs by addressing the damage that failed drainage assets cause to carriageways and footways.

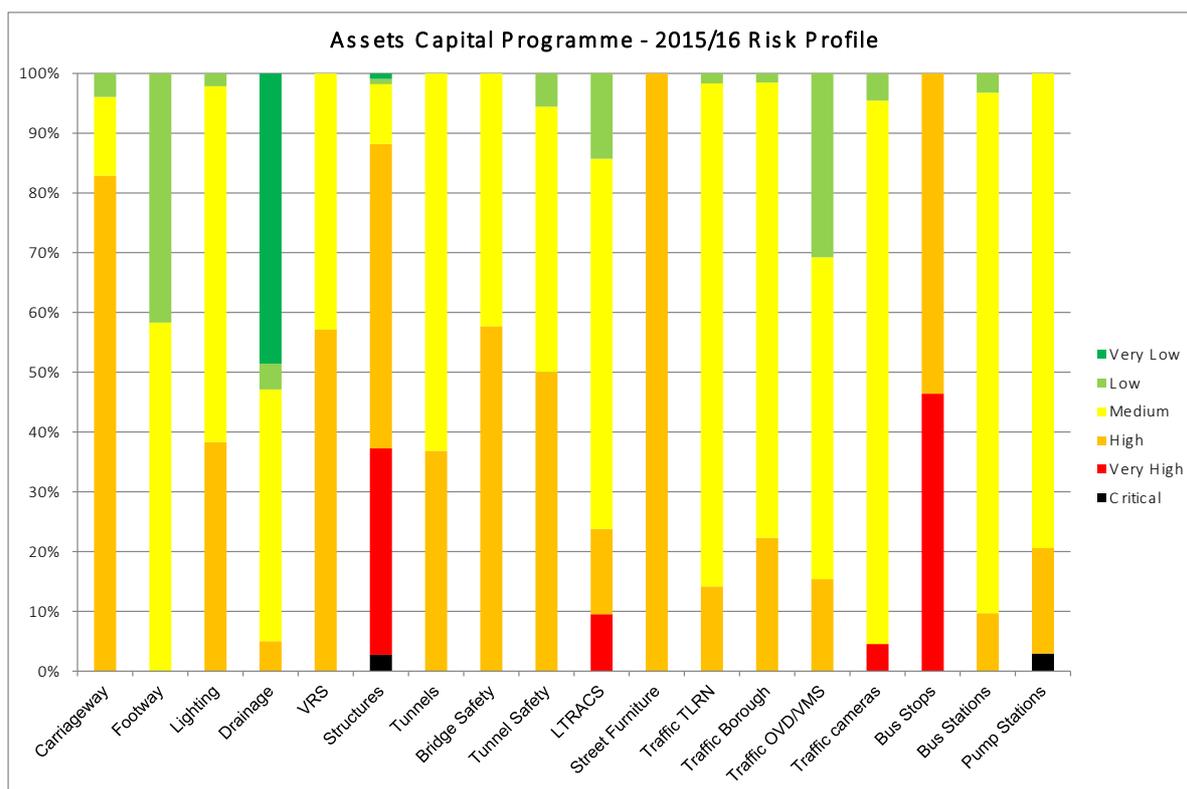


Figure 1: Priority profile of Assets Capital Programmes

4.12 A summary of the economic appraisal and benefits for the preferred approach is tabulated below:

Table 5: Economic appraisal of ACP

Economic Appraisal	
Estimated Final Cost, £k (at outturn prices)	(92,842)
Net Present Values ,£k	(92,842)
Discounted NPV EFC	(92,842)
Other CAPEX	0
Other costs	0
OPEX (+ or -)	0
Third Party	0
Revenue	0
Other Income	0
Net Financial Effect	(92,842)
Payback Period	-
Passenger Benefits	245,600
Impacts during Implementation	-
Total Benefit, £k	245,600
Benefit : Cost Ratio	2.7 : 1

Analysis of alternative approaches

4.13 A range of options was assessed for each asset type. Option analysis is used to assess the impact that different investment levels (increases and decreases), alternative strategies (such as preventatives versus reactive), and different service levels may have on risks, costs and customer satisfaction. For example, the graph below shows the impact that 10 per cent and 20 per cent budget reductions would have on the SOGR of carriageway (a 10 year horizon is shown).

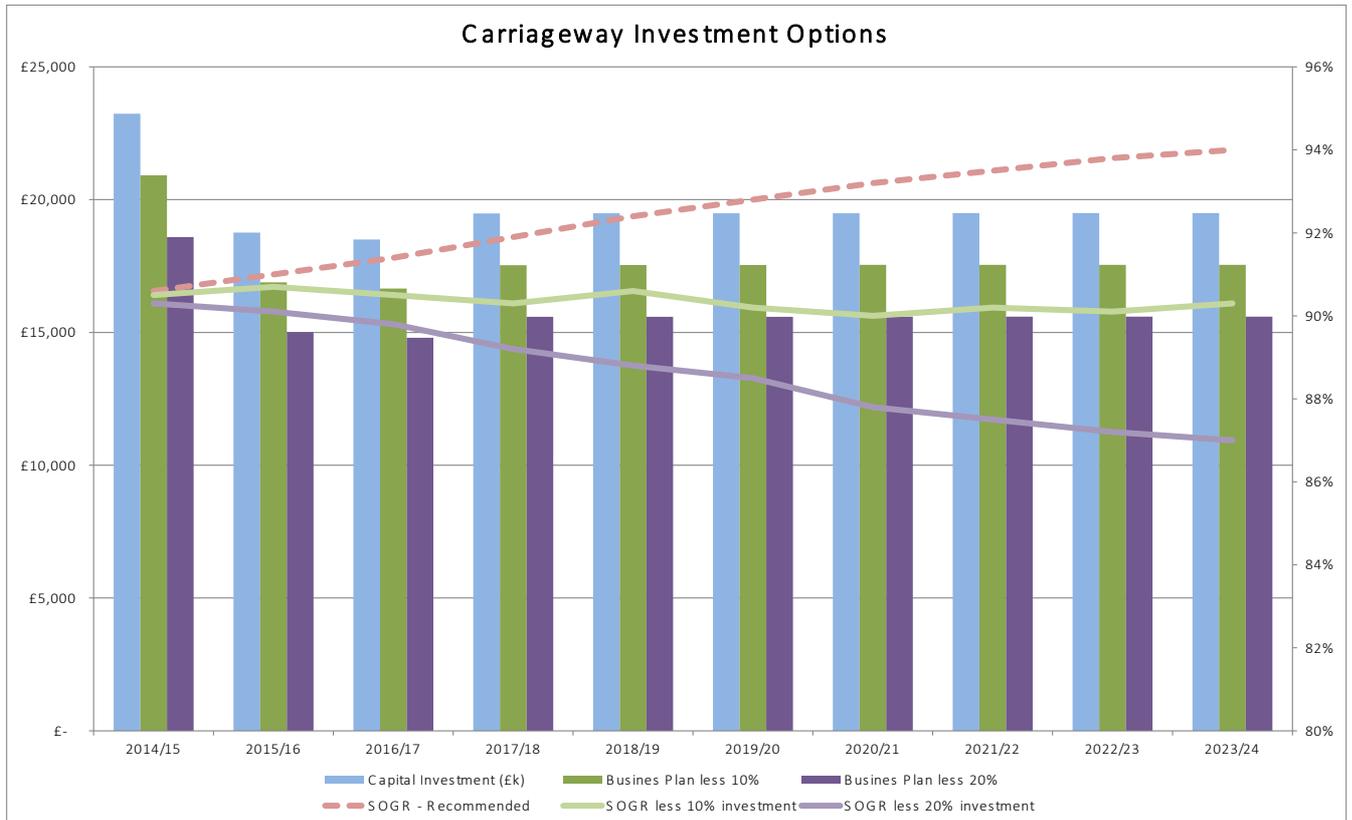


Figure 2: Impact of different investment levels on carriageway SOGR

4.14 This shows that the current Business Plan investment is projected to deliver a gradual improvement over the next ten years and achieve the target SOGR of 94 per cent in 2023/24 - as established through customer surveys and whole life value analysis. The 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 then the established asset management practices are used to assess needs and allocate resources accordingly.

4.15 The analyses undertaken have been used to review the appropriateness of the Business Plan investment levels and their allocations across assets. The analyses indicate that the Business Plan investment levels are appropriate up to 2021/22 to maintain/improve asset conditions and deliver asset developments. After 2021/22 the analysis indicates there is a shortfall in investment of £20m to £30m per annum that coincides with the end of the Structures and Tunnels Investment Programme (STIP), that is, an additional £20m to £30m per annum is required to achieve a steady state ACP and avoid future STIP type spikes in investment. Long-term investment levels will be reviewed through the Business Planning round.

- 4.16 The analyses, and the more detailed scheme specific Value Management process, have been used to inform the 2015/16 budget allocations presented in this paper. These asset management practices have been recognised as best 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 Surface Transport Asset Management Strategies.
- 4.17 The preferred approach is to deliver the Business Plan budget for 2015/16 as shown in Table 3 because it achieves TfL outcomes by maintaining and where necessary improving and developing assets. It also enables allocations to be flexed between assets to manage emerging risks and opportunities in-year.

Delivery of Preferred Approach

- 4.18 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 LoHAC, TCMS2 and Bus Shelter contracts. These contracts are managed by AMD.
- 4.19 The end-to-end delivery processes, from work identification to scheme completion, are being assessed using recognised process analysis and improvement techniques, including Lean and Six Sigma, to identify problems, define solutions and deliver a more efficient and streamlined approach.

Impact or dependency on other programmes

- 4.20 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 major bridge replacements and Cycle Superhighways. 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. Where possible, the timing of works on the ACP is adjusted to align with other programmes and vice versa.

Key milestones

- 4.21 To deliver the outcomes shown in Table 2 (section 3) and the outputs shown in Table 4 (section 4) by 31 March 2016.

Top 5 risks

- 4.22 The top five risks to the delivery of the 2015/16 ACP are shown below. These have been identified and assessed by the Senior Management Team in the AMD.

Table 6: Top risks for ACP

Risk No	Risk Description	Mitigation Actions
1	Road space availability	Early sharing of the programme (the draft programme for 2015/16 was shared in November 2014) and timely submission of road-space requests (processes being reviewed under Lean/Six Sigma project).
2	Supply chain resources to deliver increased investment pan-Surface	We are working closely with the contractors to profile works and balance workloads – encouraging contractors to learn from each other and share resources when necessary.
3	Supply chain satisfaction	The highways infrastructure market has picked up considerably since the LoHAC contracts were let and there is a risk that the supply chain can make better margins elsewhere. Target costing and open book is being used to improve our understanding of costs.
4	Unforeseen events	Severe weather events (rain, ice and snow) have in recent years had a considerable impact on asset condition and performance. The impact of these events on the assets is immediate and necessitates programmes to be amended. Robust programme review, prioritisation and change control processes are in place to manage these effects should they occur.
5	Sustained investment	A robust case has been made for the long-term investment needed to maintain and improve asset condition and the associated customer satisfaction. External budget pressures and internal completion may place the Business Plan profile at risk.

4.23 As an annualised programme a risk allowance is not made for the ACP. The ACP is comprised of hundreds of small 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 Financial Implications

5.1 The ACP is fully budgeted in the TfL Business Plan and has Financial Authority. Table 7 provides details of the planned investment in the above programmes over the Business Plan period.

Table 7: Business Plan Investment (per Q3) (£m)

Year	Actuals 2011/12	Actuals 2012/13	Actuals 2013/14	Forecast 2014/15	Proposed Project Authority 2015/16	2015/16	2016/17
Investment	81.8	72.2	85.3	93.2	92.8	92.8	96.8

Year	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Investment	101.0	102.3	102.2	107.5	110.8	112.0	110.7

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

Table 8: Cost breakdown of ACP (£m)

Costs and Funding (£ m's)	2013/14	2014/15	2015/16	2016/17	Future (17/18 - 23/24)	Total
Cost (Out-turn)	85.3	93.2	92.8	96.8	746.5	1,114.7
Internal staff costs			4.4			
Feasibility and Design			5.7			
Implementation			82.7			
Other costs			0			
Risk			0			
Estimated Final Cost			92.8			

Investment Funding						
Budget/Plan	79.9	88.1	92.1	96.0	734.0	1,095.9
Third Party Funding	5.4	5.1	0.8	0.8	6.6	18.7
Plan Surplus/(Shortfall)			0			92.8
Current Authority			0			
This Authority Request			92.8			
Future Requests			0	96.8	746.6	843.3

5.3 The programme seeks annual authority approval and has undergone an annual IAR. The funding authority sought in the paper expires on 1 April 2016.

Commercial

5.4 Works will be procured through the existing maintenance contracts, including LoHAC, TCMS2 and the Bus Shelter contracts.

6 Assurance

6.1 The TfL Programme Management Office (PMO) appointed an External Expert (EE) to undertake an IAR of the ACP. The review took place in December 2014 and

January 2015. There were no critical findings. The EE made five general recommendations and 10 observations all of which have been accepted.

- 6.2 The Independent Investment Programme Advisory Group (IIPAG) review was conducted as part of the PMO IAR review. The IIPAG made four recommendations including reporting, smoothing the delivery profile and reviewing supply chain delivery capacity.
- 6.3 The IIPAG and PMO recommendations have been agreed and met, with particular emphasis placed on LoHAC resources and their capacity to deliver the increased volume of work in 2015/16 from TfL and the boroughs.
- 6.4 An action plan is being developed to address the External Expert, PMO and IIPAG findings and recommendations, with actions already in motion against the majority of the findings.

List of appendices to this paper:

Appendix 1: Asset sub-programmes

Appendix 2: Comparison of 2014/15 and 2015/16 allocations and outputs

List of background papers:

Reports from the TfL Programme Management Office and the Independent Investment Programme Advisory Group and the management response to those reports.

Contact Officer: Dana Skelley, Asset Management Director, Surface Transport
Number: 020 3054 1413
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Asset sub-programmes

Centre Name	Asset Group and activities	Asset quantities
Borough Traffic Signals	Traffic Signals – modernisation (renewal) of traffic signals on borough roads	6407 automatic traffic signals
TLRN Traffic Signals	Traffic Signals - modernisation (renewal) of traffic signals on TfL roads	
Traffic Infrastructure Minor Capital Works	Traffic Signals – emergency renewals, including Pedestrian Countdown at Traffic Signals - PC@TS	
Closed Circuit Television	CCTV – modernisation/renewal	853 CCTV cameras
Carriageway	Carriageways - resurfacing carriageway that is in need of repair and maintenance	2554 lane km and approx. 9,000,000m ²
Drainage	Drainage – renewal and refurbishment	45,294 gullies and approx. 800km of drains
Footway	Footways - relaying footway that is in need of repair and maintenance	1,100 kilometres of footway, approx 3,000,000m ²
Street Furniture	Street Furniture – renewing, removal and provision of new furniture	
Green Estate	Green Estate – removal, re-planting and provision of new trees	Over 40,000 trees, 438,000,000m ² of grass and planted areas and 44km of hedges
Lighting	Lighting – renewal/replacement of columns and lanterns, includes energy efficient LEDs	Over 40,000 columns, as well as illuminated signs and street furniture
Structures	Structures – repair and refurbishment of bridges, footbridges, retaining walls and other structures on the TLRN	1,800 structures including bridges, footbridges, retaining walls and subways
Bridge Safety	Structures – primarily comprised the making safe or renewal of substandard bridge parapets	
Tunnels	Tunnels – repair and refurbishment of Mechanical and Electrical (M&E) and structural components on TLRN tunnels	

Centre Name	Asset Group and activities	Asset quantities
Tunnels Safety	Tunnels – upgrade and/or provision of tunnel safety systems to comply with latest standards	12 road tunnels
LTRACS	Tunnels – renewal, upgrading and provision of LTRACS communication and end point devices	
Variable Message signs / Overheight Vehicle Detection	VMS / OVD – renewal and replacement	138 Variable Message Signs and 54 Overheight Vehicle Detectors
Pump Stations	Pump Stations – refurbishment and renewal	
Vehicle Restraint Barriers	Vehicle Restraint Systems – removal, renewal and provision	430km linear length of VRS
Bus Garages	Bus Garages – repairs and refurbishments	
Bus Stations and Stands	Bus Stations and Stands – repairs, refurbishment and redevelopment	20 major bus stations and over 100 smaller bus stations of varying sizes
Bus Stops and Shelters	Bus Stops and Shelters - removal, renewal and provision at new sites	Over 12,000 bus shelters (c.7000 managed through advertising agreements)

Programme financial and output overview

Table 2.1: Comparison of 2014/15 original authority and latest forecast

Asset	£'m - 2014/15			2014/15 Outputs		per cent change between A and C	Commentary
	Original allocation (A)	Q3 Forecast (B)	Latest Forecast (C)	Original	Latest Forecast		
Carriageways	23.98	24.802	24.802	560,000m ²	620,000m ²	3	Minor change in investment and large forecast increase in output. This is primarily due to a number of large schemes (100,00m ² each) that required a much shallower treatment than originally estimated.
Structures	12.38	10.854	10.322	37 Gate 2's	30 Gate 2's	(17)	Decrease in outputs due to challenging delivery and roadspace – slipped projects are planned for delivery in 2015/16
Footways	5.07	4.942	4.942	53,500m ²	62,200	(3)	Forecast higher outputs due to mix of schemes (inner and outer London) that have been delivered
Lighting	4.41	6.523	6.523	900 columns and 1200 lanterns	1,311 columns and 5,500 lanterns	48	Large increase in budget and outputs as £3.21m was transferred in from Energy Efficient Street Lighting
Tunnels	3.51	3.129	3.129	10 schemes	5 schemes	(11)	The Hanger Lane LED scheme increased in cost in June 2014 from £1m to £1.6m when asbestos was found – this required three smaller schemes to be deferred. Also, some designs have taken longer than anticipated requiring, in Q3, works to be programmed for delivery in 2015/16.

Asset	£'m - 2014/15			2014/15 Outputs		per cent change between A and C	Commentary
	Original allocation (A)	Q3 Forecast (B)	Latest Forecast (C)	Original	Latest Forecast		
Vehicle Restraint System	3.93	3.894	3.894	13,000m	18,500m	(1)	Large increase in outputs because contractors have developed improved ways of working for this relatively new programme – this will reduce the existing backlog more rapidly than originally projected
Drainage	1.90	1.477	1.477	600,000m ²	600,000m ²	(22)	Better than projected costs and outputs by combining with carriageway works
Landscape	0.24	0.243	0.243	n/a	n/a	1	Minor variance
Furniture	0.35	0.346	0.346	n/a	n/a	(1)	Minor variance
Pump Stations	0.54	2.339	2.339	12 schemes	25 schemes	333	Large increase because client approval and contractor delivery has been unlocked and this has been used to accelerate completion of the backlog of works
Asset Management System	0.29	0.06	0.06	n/a	n/a	(79)	Improvement works rescheduled to align with suppliers upgrade programme
Bridge Safety	2.00	1.976	1.500	20 schemes	20 schemes	(25)	Lower than estimated costs
Tunnels Safety	3.30	3.300	2.200	9 schemes	7 schemes	(33)	A carry over of funding is required as schemes in George Green, Green Man and Fore Street tunnels have unforeseen technical issues which require more time to ensure a value for money solution.
LTRACS	2.32	2.322	2.322	10 schemes	12 schemes	0	Minor variance

Asset	£'m - 2014/15			2014/15 Outputs		per cent change between A and C	Commentary
	Original allocation (A)	Q3 Forecast (B)	Latest Forecast (C)	Original	Latest Forecast		
TLRN Traffic Signal Mods	4.11	5.221	5.221	225 sites renewed	231 sites renewed	27	Some movement of deliverables between TLRN and Borough roads based on a risk/priority assessment of needs
Borough Traffic Signal Mods	13.30	12.420	12.404			(7)	
VMS / OVD Mods	0.719	0.719	0.719	14 sites	12 sites	0	Slight drop in outputs due to some slippage
CCTV Mods	0.948	0.965	1.965	66 sites	70 sites	107	Increased investment to deliver full year targets and align with programme movement and upgrade of support systems in early 2015/16
Bus Stations and Stands	4.52	3.487	3.487	17 schemes	17 schemes	(23)	Lower than estimated costs to deliver works
Bus Stops and Shelter	3.08	4.088	4.088	350 renews	350 renewals	33	TfL received more than planned for third party funding for replacement of stops and shelters across the network.
Bus Garages	0.70	0.131	0.131	n/a	n/a	(81)	Planned works not deliver and slipped to 2015/16
Pedestrian Countdown at Traffic Signals	0.00	0.00	0.00	0	0		New budget for further implementation of Pedestrian Countdown at Traffic Signals units across London.
Total	91.60	93.237	91.130	n/a	n/a		

Table 2.2: Comparison of 2014/15 and 2015/16 allocations

Asset	£'m - 2014/15		2015 /16	per cent change between 14/15 (A) & 15/16 (B)	Commentary
	SAP Actual (P10)	Latest Forecast (A)	Budget (£'m) (B)		
Carriageways	14.1	24.8	19.3	(29)	Higher budget in previous years due to DfT funding for pothole repairs and year two of commitment to improve carriageway condition across UK
Structures	4.6	10.3	12.2	16	Small increase in line with investment modelling assessments and risk priorities
Footways	3.0	4.9	4.5	(10)	Small decrease which will still maintain State of Good Repair
Lighting	2.2	6.5	5.8	(12)	Funds transferred at Q3 from the Energy Efficient Lighting budget for delivery of LED lighting across the network.
Tunnels	1.8	3.1	3.8	18	Increase to allow delivery of high priority projects
Vehicle Restraint System	1.3	3.9	3.6	(8)	Small decrease in investment to continue feasibility studies and design assessments of VRS network.
Drainage	1.0	1.5	2.2	32	Large increase to enable drainage surveys to be undertaken with carriageway works.
Landscape	0.1	0.2	0.2	1	Continued delivery of tree replacements across the network.
Furniture	0.1	0.3	0.4	6	Continued delivery of street furniture replacement / removals.
Pump Stations	0.8	2.3	1.4	(61)	Decrease in investment for 2015/16 because the backlog of works is reducing

Asset	£'m - 2014/15		2015 /16	per cent change between 14/15 (A) & 15/16 (B)	Commentary
	SAP Actual (P10)	Latest Forecast (A)	Budget (£'m) (B)		
Asset Mgmt System	0.1	0.1	0.1	33	Decrease because improvement projects for the system are not planned in 2015/16
Bridge Safety	0.9	1.5	2.9	49	Increase in budget to complete all high priority sites in 2015/16
Tunnels Safety	1.7	2.2	3.0	27	Small increase aligned to prioritised projects
LTRACS	2.0	2.3	2.1	(11)	Small decrease aligned to prioritised projects
TLRN Traffic Signal Mods	4.0	5.2	6.4	19	Slight increase to deliver traffic signal enhancements
Borough Traffic Signal Mods	9.4	12.4	12.7	2	Continued delivery of traffic signal enhancements
VMS / OVD Mods	0.1	0.7	0.8	11	Continued delivery of VMS and OVD modernisations
CCTV Mods	1.6	2.0	1.0	(88)	Decrease in investment, following increased investment in 2014/15 to replace aged units across the network.
Bus Stations and Stands	2.7	3.5	4.3	19	Bus stations and stand increased as per prioritised programme
Bus Stops and Shelter	2.4	4.1	4.1	0	Continued delivery of bus stops and shelters replacements
Bus Garages	0.1	0.1	0.9	85	Large increase to deliver Edgware bus garage project, which has been delayed due to discussions between Group Property and current Tenants.
Pedestrian Countdown at Traffic Signals	-	-	1.0	-	New budget for further implementation of Pedestrian Countdown at Traffic Signals units across London.
Total	53.6	91.1	92.8	2	

Table 2.3: Comparison of 2014/15 and 2015/16 outputs

Asset	Output measure	Outputs - 2014/15			2015/16	Comments
		Targets	Year to date (P10)	Forecast (P10)	Output Targets	
Carriageways	m ²	560,000	459,990	620,000	475,000	The target for carriageways has reduced due to DfT funding made available in 2014/15 to increase output
Structures	Schemes completed	37	14	30	-	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Preliminary reports completed (No)	-	-	-	65	
	Structures network treated (m ²)	-	-	-	17,000	
	Works completed (No)	-	-	-	15	
Footways	m ²	53,500	19,879	62,200	55,000	
Lighting	No. of columns	900	321	1,311	550	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Lighting network area treated (m ²)	-	-	-	650,000	
	No of luminaires	1,200	1,733	5,500	6,600	
Tunnels	Scheme Completed	10			10	
Vehicle Restraint System	VRS Treated (m)	13,000	5,800	18,500	17,000	Additional measure to be used from 2015/16 onwards to better reflect outcomes.
	Network area treated (m ²)	-	-	-	300,000	

Asset	Output measure	Outputs - 2014/15			2015/16	Comments
		Targets	Year to date (P10)	Forecast (P10)	Output Targets	
Drainage	Network Treated (m ²)	600,000	370,682	600,000	400,000	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Gullies treated (No)	-	-	-	2,000	
	Pipes Treated (m)	-	-	-	5,000	
Landscape	No. of trees	n/a				
Furniture	PGR Removed (m)	n/a			10,000	
	PGR Reviewed (m)	n/a			17,000	
Pump Stations	Schemes Delivered	12		25	-	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Preliminary reports completed (No)	-	-	-	10	
	Works completed (No)	-	-	-	18	
Asset Mgmt System	N/A	-	-	-	-	
Bridge Safety	Project completed	20	0	20	-	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Completed works (No)	-	-	-	20	
	Length of parapet treated (m)	-	-	-	5,500	

Asset	Output measure	Outputs - 2014/15			2015/16	Comments
		Targets	Year to date (P10)	Forecast (P10)	Output Targets	
Tunnels Safety	Schemes Implemented	9		7	-	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Preliminary reports completed (No)	-	-	-	10	
	Works completed (No)	-	-	-	5	
LTRACS	Schemes Implemented	10		12	10	
TLRN Traffic Signal Mods	Preliminary reports completed (No)	-	-	-	72	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Junctions completed (No)	-	-	-	80	
	Pedestrian Crossings Completed (No)	-	-	-	10	
	Sites completed (TLRN & Borough)	225	152	231	-	Joint measure used for TLRN and Borough works for 2014/15
Borough Traffic Signal Mods	Preliminary reports completed (No)	-	-	-	68	New measures to be used from 2015/16 onwards to better reflect outcomes.
	Junctions completed (No)	-	-	-	80	
	Pedestrian Crossings completed (No)	-	-	-	40	

Asset	Output measure	Outputs - 2014/15			2015/16	Comments
		Targets	Year to date (P10)	Forecast (P10)	Output Targets	
Pedestrian Countdown at Traffic Signals	Junctions delivered (No)	-	-	-	80	A new programmes set up to introduce Pedestrian Countdown units across London.
	Crossings Delivered (No)	-	-	-	50	
VMS / OVD Mods	Sites completed	14	2	12		New measures to be used from 2015/16 onwards to better reflect outcomes.
	Preliminary reports completed (No)	-	-	-	4	
	OVD works completed (No)	-	-	-	2	
	VMS works completed (No)	-	-	-	7	
CCTV Mods	Sites completed	66	54	70	35	
Bus Stations and Stands	Completed Upgrade	7	5	7	14	
	Completed Staff Facilities	6	1	6	5	
	Completed Lighting	4	5	4	3	
Bus Stops and Shelter	Shelter Replacement	350	167	350	370	
	Advertising boxes completed (No)	-	-	-	360	
Bus Garages	Garage Refurb	1	0	0	1	