

Date: 12 December 2017

Item: Public Transport Portfolio Programme

This paper will be considered in public

## 1 Summary

<b>PUBLIC TRANSPORT (SURFACE)</b>				
Existing Financial Authority	EFC	Existing Programme and Project Authority	Additional Authority Requested	Total Authority
£ 536.0m	£ 536.0m	NIL <sup>1</sup>	£ 267.6m	£ 267.6m

**Authority Approval:** The Committee is asked to approve budgeted Programme and Project Authority of £267.6m to manage renewals and enhancements on Surface Transport’s frontline passenger services and is contained within the TfL business plan. This authority covers financial years 2017/18 and 2018/19 – the programme will return annually to the Committee to renew and validate a rolling approval. This enables approvals to be aligned to financial years which complements the nature of this programme and simplifies the approval request.

**Outputs and Schedule:** The Public Transport Programme maintains the safety and reliability, performance, planning and project management of London Buses, London Overground, Docklands Light Railway (DLR), London Trams, Emirates Air Line, Santander Cycles and London River Services through a prioritised programme of cost effective renewals and enhancements that support growth, housing, jobs and improving modal share.

- 1.1 This paper presents the strategic case for the Surface Transport Public Transport Programme (the Programme), summarises the development and delivery practices and sets out the proposed governance arrangements.
- 1.2 Refer to the cost and funding table in Section 10 for a detailed cost and funding breakdown, including third party costs and funding.

<sup>1</sup> Project authority has previously been granted by the Committee for a number of the components of this Programme. However, in order to maintain a single clear view of the Programme, this paper requests authority across all elements of the Programme, regardless of previous authority requests.

## 2 Recommendation

### 2.1 The Committee is asked to note the paper and:

- (a) **approve Programme and Project Authority of £267.6m for delivery of the Public Transport Programme, covering: £118.8m in 2017/18; £148.8m in 2018/19 as described in this paper and contained in the TfL Business Plan; and**
- (b) **note that Procurement Authority in respect of the various elements of the Public Transport Portfolio Programme will be sought at officer level in accordance with Standing Orders.**

## 3 Background

3.1 In the draft Mayor's Transport Strategy (June 2017) the Mayor sets out his ambition for accommodating growth, housing, the economy, the environment, public space and transport. Transport is a key strand of the Mayor's ambition while also being a core enabler of the other strands – and it is the day-to-day maintenance and renewal of the transport assets that provides the foundation for effective transport services.

3.2 Appendix 1 provides a graphical overview of TfL and Surface Transport's assets. This paper sets out the strategic investment case for the planned renewal and enhancement of the modes in this Programme - Buses, London Overground, DLR, London Trams, Cycle Hire and Emirates Airline.

3.3 In line with the draft Business Plan, due to be approved by the Finance Committee on 5 December, a day after publication of these papers, from a customer perspective, this includes the delivery of:

- (a) ensuring the safety and security of customers and introducing new bus safety standards;
- (b) improving safety, capacity and reliability on our rail network; and
- (c) capacity expansion works at DLR and London Overground stations.

## 4 Strategic Context

4.1 The Programme supports TfL's high level principles and objectives as set out in the draft Mayor's Transport Strategy.

**Table 1**

<b>Mayor's Transport Strategy Goal / Challenge</b>	<b>Mayor's Transport Strategy Outcome</b>	<b>High-level corporate measure which helps to demonstrate strategic alignment</b>
Delivering an efficient and effective transport system for goods and people	Smoothing traffic flow (managing delay, improving journey time reliability and resilience) Bringing and maintaining all assets to a state of good repair Reducing operating costs	Sustaining asset reliability Avoidance of increase in operational costs and reduce where feasible.
Improve the safety and security of all Londoners	Reducing the numbers of road traffic casualties	Maintaining an ALARP asset risk profile

Mayor's Transport Strategy Goal / Challenge	Mayor's Transport Strategy Outcome	High-level corporate measure which helps to demonstrate strategic alignment
	Improving fire safety	Refining bus safety standards
Enhance the quality of life for all Londoners / Improving journey experience	Bringing and maintaining all assets to a state of good repair Maintaining the reliability of transport networks Improving road user satisfaction (drivers, pedestrians, cyclists)	Maintaining asset condition to standard and ensuring system reliability
Reduce transport's contribution to climate change and improve its resilience	Reducing CO <sub>2</sub> emissions from ground based transport, contributing to a London-wide 60% reduction by 2025 Reducing air pollutant emissions from ground based transport, contributing to EU air quality targets	Reducing car journeys by i) making Public Transport an attractive, reliable alternative ii) increasing cycle usage iii) operating cleaner vehicles / rolling stock

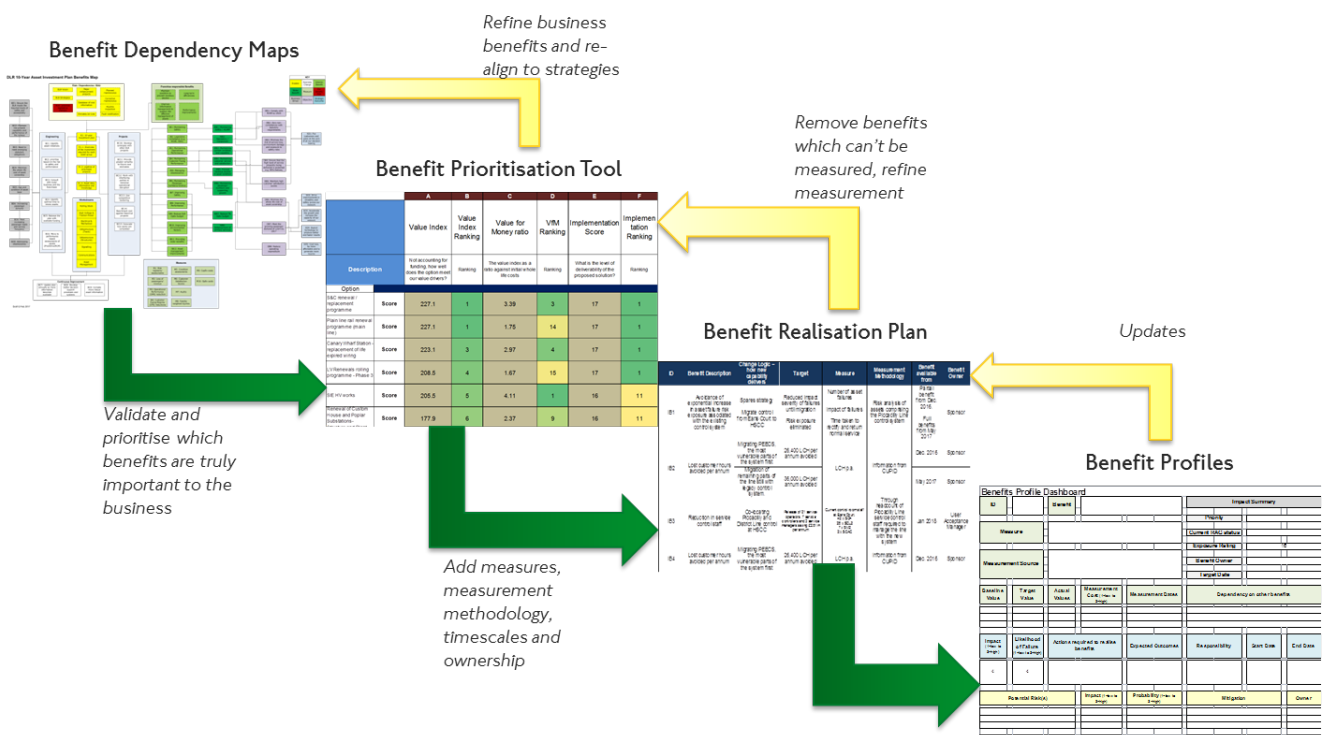
## 5 Renewals

### Objectives – Rail

- 5.1 Surface Transport follows the TfL Policy for Asset Management (Appendix 2). The following key asset management objectives have been established and prioritised to ensure that the network meets the required levels of safety, reliability and accessibility, and that value for money is delivered in the creation, acquisition, utilisation and maintenance of assets. These objectives align to those used by London Underground.
- 5.2 Objectives by priority:
- (a) safety obligations;
  - (b) statutory obligations;
  - (c) sustaining asset condition;
  - (d) obsolescence, life expiry and reducing inefficient / uneconomic maintenance costs;
  - (e) maintaining the current performance of the railway;
  - (f) ensure that assets are managed so as to minimise the risk of service loss, damage to the environment and exposure to uncontrolled safety risks;
  - (g) ensure that assets are maintained in an overall state of good condition; preventing insidious decline in asset condition, managing ageing and obsolescence, and renewing assets at the optimal time;
  - (h) meet the asset performance and service requirements for the network while minimising the whole life cost of asset ownership; and
  - (i) ensure that the data, information and knowledge about assets are sufficient, relevant, current, timely and reliable for their effective management.

## Prioritisation of Spend – use of value models

- 5.3 A single business case covers all of the rail renewals programmes (DLR, London Overground, London Trams) because London Rail has a consistent Value Management approach that is used to assess investment needs and prioritise works across all asset types.
- 5.4 Value Management enables risks and benefits of each project to be quantified, compared and prioritised across the full portfolio of assets and then the budget allocated accordingly. The risk matrix is shown in Appendix 3. Importantly, the programme budgets can be revised and adjusted in-year to deal with emerging risks and opportunities. For example, if unforeseen asset risks arise and are addressed in-year then the Value Management (prioritisation) process is utilised to identify which activities could be deferred.
- 5.5 The Value Management process used by the London Rail team was recognised by independent auditors last year as best in class within TfL. It is incorporated in the TfL Pathway procedure and the sequence of benefit management tools are shown below.
- 5.6 The Value Management process starts with mapping investments and business processes to strategic objectives. Appendix 4 shows the benefit maps for DLR and London Trams. The next step is to define and prioritise the value criteria that will be used to build the relative value model and therefore prioritise each scheme according to the strategic value we are trying to achieve. Appendix 5 lists the twelve value criteria and the outcome of the value management exercise. This has enabled a relevant value approach to identifying and prioritising investment ensuring best overall value is achieved. This process has been used successfully in London Rail and it is intended that its use will be extended across the Public Transport portfolio.



## **Objectives – Buses**

- 5.7 The renewals for buses relate to:
- (a) funding for replacement of New Routemaster (NRM) batteries. There is an unquantified risk associated with the expected life of the NRM batteries and provision for contingency funding has been written into the budgets; and
  - (b) the renewal of up to 140 of the oldest Dial-a-Ride (DaR) fleet for 2018/19. Subsequent fleet renewals for DaR will be transferred to the Air Quality and Environment Portfolio in order to ensure that the programme meets upcoming Ultra Low Emission Zone (ULEZ) requirements.

## **Objectives – Sponsored Services (Santander Cycles and Emirates Air Line)**

- 5.8 The renewals for Santander Cycles relate to several work streams including: payment software; on street equipment; bike replacement; relocation of docking stations and updating associated maps.
- 5.9 For the Emirates Air Line, renewals are essential cableway asset renewal activities and ship impact protection barriers.

## **6 Enhancements**

### **Prioritisation of Spend**

- 6.1 The TfL five year Business Planning Process which reflects the principal outcomes of the Mayor's Transport Strategy in Table 1 in Section 4 was used to prioritise the enhancements.
- 6.2 The TfL five year Business Plan was developed from June to December 2016. During the planning process, all schemes were prioritised and scored to determine which projects would be included and funded in the business plan. The projects went through the following prioritisation and scoring process:
- (a) all projects were rated High, Medium or Low (HML) by their originating department. This priority rating was cross-checked by Heads of Departments at a workshop;
  - (b) projects were scored against five value drivers, with a score of 1 to 3 against the drivers;
  - (c) all projects were also scored for their contribution to the priorities and commitments of the draft Mayor's Transport Strategy; and
  - (d) short-listed projects were allocated to portfolios and these portfolios were scored against three business priorities at a pan-TfL level by the Executive Committee to form the main part of the Business Plan.

## **7 Proposal**

- 7.1 The preferred option is to deliver the full scope of the Programme as described in Table 2. The table provides the following information on each discrete project and annualised programme:

- (a) **activity** – the name of the project or sub-programme that make up the Public Transport Programme;
- (b) **description** – a description of the purpose and the type of works involved;  
and
- (c) **financial authority** – the funding that has been allocated for each project in the TfL Business Plan.

7.2 The Committee will be updated on a quarterly basis on progress with the Programme. Further details of the authorities sought and the financial implications are set out in Section 10.

**Table 2: Public Transport Programme – Funding programme by business with brief project descriptions**

<b>(a) Activity</b>	<b>(b) Description</b>	<b>(c) Remaining Financial Authority (£m)</b>
<b>Asset Renewals</b>	<b>The planned renewal, refurbishment, and modernisation of a wide range of assets, including:</b>	
- DLR	Bogie cracks; kingpin repairs; door control panels; wayside hardware - axle counters, electronic connection boxes and cables; CCTV; long line public address; ticket vending machines; cyber security works; mirrors and monitors; life expired wiring; removing obsolete lighting technology; low voltage equipment; lift cars; track; bridges; viaducts; tunnels; depot protection system; substation equipment; fire alarms; tunnel telephones; drainage systems; station canopies; fencing; noise mitigation	161.4
- London Overground	Help points; lighting; low voltage distribution panels and equipment; uninterruptible power supplies; sump pumps and switchgear; mitre relays; axle counters; points machines; clamp locks; tunnels; viaducts; bridges; conductor rail; ballast; track; buildings; fleet condition	29.9
- London Trams	Tram heavy maintenance and overhauls; points controller renewals; strengthening retaining walls; track renewals; overhead line equipment renewals; programmable logic controller renewals; bridge deck repairs and vehicle incursion mitigations	20.0
- Sponsored Services	Cycle Hire payment software; on street fixed assets; bike replacement and Emirates Airline cableway asset renewal activities and ship impact protection barriers	35.1
- Buses	Contingency money for the new Routemaster batteries that have an unknown life and replacement of up to 140 of the oldest Dial-a-Ride buses in 2018/19	69.9
<b>Asset Enhancements</b>	<b>Enhancements are planned for a variety of Public Transport assets</b>	
- DLR	A programme of major works to enhance services, including Vehicle Modernisation; mandated works to meet Rail Vehicle Access Regulations; depot enhancements; station enhancements at Limehouse and Pontoon Dock; rebuilding Custom House and a minor programme of customer enhancements	42.0
- London Overground	A programme of major works to enhance services, including electrification from Gospel Oak to Barking; station upgrades at White Hart Lane, West Hampstead and Hackney Central; ticket vending machine replacements; 4-car to 5-car enhancements; installing Train Protection and Warning System on sections of the Euston – Watford lines and minor signalling works	109.4
- London Trams	A programme of major works to cover tram modification works; major capacity upgrades at Dingwall Loop and Elmers End; Blackhorse lane bridge replacement and enhancements on the Wimbledon line	67.6
- Sponsored Services	Cycle Hire app developments, infrastructure developments and integration with wider TfL systems	21.6
- Buses	Completion of delivery of New Routemaster fleet and additional works to meet safety standards	23.8

## **8 Public Transport Programme Governance**

- 8.1 The governance structure for the Programme includes a well defined hierarchy of boards (covering projects and sub-programmes) with consistent terms of reference, clear accountabilities and authorities, and coordinated meeting cycles. These boards will monitor and review delivery progress and either take or escalate decisions (for example on costs, risks, milestones, priorities and policies) as defined in their terms of reference.
- 8.2 The Public Transport Investment Portfolio Board members include Public Transport Directors, the Head of Engineering for Surface Transport, the Head of Rail Projects and Programmes, General Managers, Sponsors, Planning and Finance. The Board takes place four-weekly and on a quarterly basis will include an update to the Committee.

## **9 Equality, diversity and inclusion**

- 9.1 The Programme will be delivered in accordance with the Equality Act 2010. Equality Impact Assessments are considered on all strategies, policies, business plans, change programmes or projects, having regard to our obligations under the public sector equality duty in section 149 throughout the delivery of the Programme.
- 9.2 As major projects progress through feasibility and design, consideration will be given to the need for an Equality Impact Assessment for each one. Possible effects on people with protected characteristics under the Equality Act 2010 (such as age, race, sex, and, often of particular relevance, disability), and mitigations of and countervailing considerations in respect of any adverse effects, will be considered and recorded.
- 9.3 All works are designed to minimise disruption to mobility impaired and visually impaired users, this includes:
- (a) access ramps where the footpath cannot be used to assist mobility impaired users change levels;
  - (b) phasing works so most disruptive works are completed at night - where safe, practicable and permitted;
  - (c) checking that alternative pedestrian routes are fully accessible; and
  - (d) using Persons In Charge Of Work (PICOWs) to ensure no-one encroaches into the worksite.



## 10 Funding Status

10.1 This paper requests Programme and Project Authority for £267.6m in 2017/18 & 2018/19 for delivery of the Public Transport Programme – covering £118.8m in 2017/18 and £148.8m in 2018/19.

Activity	Financial Authority (Business Plan 5 years £m)	Authority Request £m		
		2017/18	2018/19	Total
Asset Renewals				
- DLR	161.4	18.0	24.3	42.3
- London Overground	29.9	5.4	3.9	9.4
- London Trams	20.0	7.8	4.4	12.2
- Sponsored Services	35.1	2.7	9.4	12.1
- Buses	69.9	0.0	17.0	17.0
Asset Enhancements				
- DLR	42.0	12.9	16.0	28.9
- London Overground	109.4	46.6	45.5	92.1
- London Trams	67.6	6.7	25.9	32.6
- Sponsored Services	21.6	12.6	6.3	18.9
- Buses	23.8	8.1	2.2	10.4
Third Party Income <sup>1</sup>				
- DLR	-20.6	-1.1	-7.6	-8.6
- London Overground	-16.8	-4.8	-11.2	-16.0
- London Trams	-22.9	0.0	-5.3	-5.3
- Sponsored Services	-1.4	-0.2	-0.2	-0.4
Over programming	-28.6	-2.0	-4.3	-6.3
Cost savings to make	-16.1	0.0	-2.0	-2.0
<b>Total Net</b>	<b>474.3</b>	<b>112.8</b>	<b>124.4</b>	<b>237.2</b>
<b>Total Expenditure</b>	<b>536.0</b>	<b>118.8</b>	<b>148.8</b>	<b>267.6</b>

(1) The overall authority sought is reduced to the extent that these sums are not received

10.2 The Financial Authority is contained within the TfL Business Plan for approval by the Finance Committee.

10.3 It can be noted that some of these projects already have Programme and Project Authority but that, if so, this request does not duplicate any previous authorities.

10.4 If Programme and Project Authority already exists for a project, then the project will not need to come to Public Transport Portfolio Board for Programme and Project Authority – to release the Programme and Project Authority granted to the Public Transport Board by the Committee – until the previous authority limit has been reached or the time has expired i.e. projects will only need to come to board once their existing Programme and Project Authority runs out.

10.5 Procurement Authority will be sought at officer level in accordance with Standing Orders.

10.6 It should be noted that DLR Rolling Stock and London Overground's Barking Riverside Extension have been transferred to the Major Projects Directorate portfolio. There is no provision for these works within this paper and separate submissions for authority will be made to the Committee.

10.7 Major investments in bus infrastructure and fleet form part of separate Programmes (Assets, Healthy Streets and Air Quality) with their own submissions for authority to the Committee.

## **11 Cost Estimation and Project Risk**

11.1 The approach to cost estimation and the level of cost certainty varies between projects. Influencing factors include the relative maturity of each project (reflected by the Stage Gate) and the relative risk associated with estimating errors (which is likely to reflect the cost used for planning purposes and also the ownership of risk).

11.2 Each project is required to actively manage risks by identifying and as far as possible mitigating them. Part of active risk management involves ensuring that adequate financial provision is made to either fund mitigating activity, for example to keep delivery on track or to cover any additional costs that may be incurred in the event that mitigation is not achievable.

11.3 For immature projects, risk may simply be calculated as a percentage of base cost. As projects develop, scope is firmed up and designs mature and a detailed risk register will be developed and a Quantified Risk Assessment produced. Most projects will hold risk at P50. Risk provision can be made at a higher level in exceptional circumstances but the decision will be made and the risk held centrally under the authority of the Chief Finance Officer.

11.4 The authority requested contains an appropriate level of risk provision for each project. While there will be a risk register for the Public Transport Portfolio Programme, there will not be any strategic risk budget. All risk will be held at the project or sub-programme level and, in accordance with agreed governance arrangements, will be approved for drawdown at Project Board or Programme Board level depending on value.

### **Over-Programming**

11.5 The Public Transport Sub-Programme includes £6.3m of over-programming in 2017/18 and 2018/19. This level reflects TfL's experience with asset programmes in terms of:

- (a) opportunities, constraints and risks that materialise in-year and require the programme to be adjusted accordingly; and
- (b) the ability to flex in-year delivery to accommodate movements and deferrals in sub-asset programmes.

11.6 Over-programming will be managed by the Public Transport Portfolio Board.

### **Value Engineering**

11.7 The Public Transport Sub-Programme includes £2m of cost savings to be identified. Where possible, these will be obtained through value engineering.

11.8 The objective of value engineering is to optimise how project outcomes and products are delivered and how they deliver benefits. These savings are being actively pursued across the programme and activities include:

- (a) consistent value management (prioritisation) across the asset types to ensure risks and value are effectively targeted by the programme;
- (b) value engineering workshops at project gates to identify saving opportunities and remove unnecessary activities that may have crept into the project scope;
- (c) robust governance to monitor and control delivery and changes;
- (d) identifying opportunities to offset costs via third party collaboration, commercial income and/or better alignment with other projects on the network; and
- (e) implementing lessons learned to drive better delivery value.

11.9 In the event that the full value engineering savings do not materialise, then 2017/18 priorities will be reviewed and the Programme Board will agree which are to be deferred to 2018/19.

## **12 Authorities Sought**

12.1 TfL's 2017 Business Plan process is due to be considered by the Finance Committee on 5 December 2017, and through this process we will be managing the risk to the current plan whilst meeting the Mayor's Transport Strategy requirements.

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

Appendix 1: Transport for London's Assets  
Appendix 2: TfL Asset Management Policy  
Appendix 3: Risk matrix  
Appendix 4: London Rail benefit maps  
Appendix 5: London Rail value criteria

### **List of background papers:**

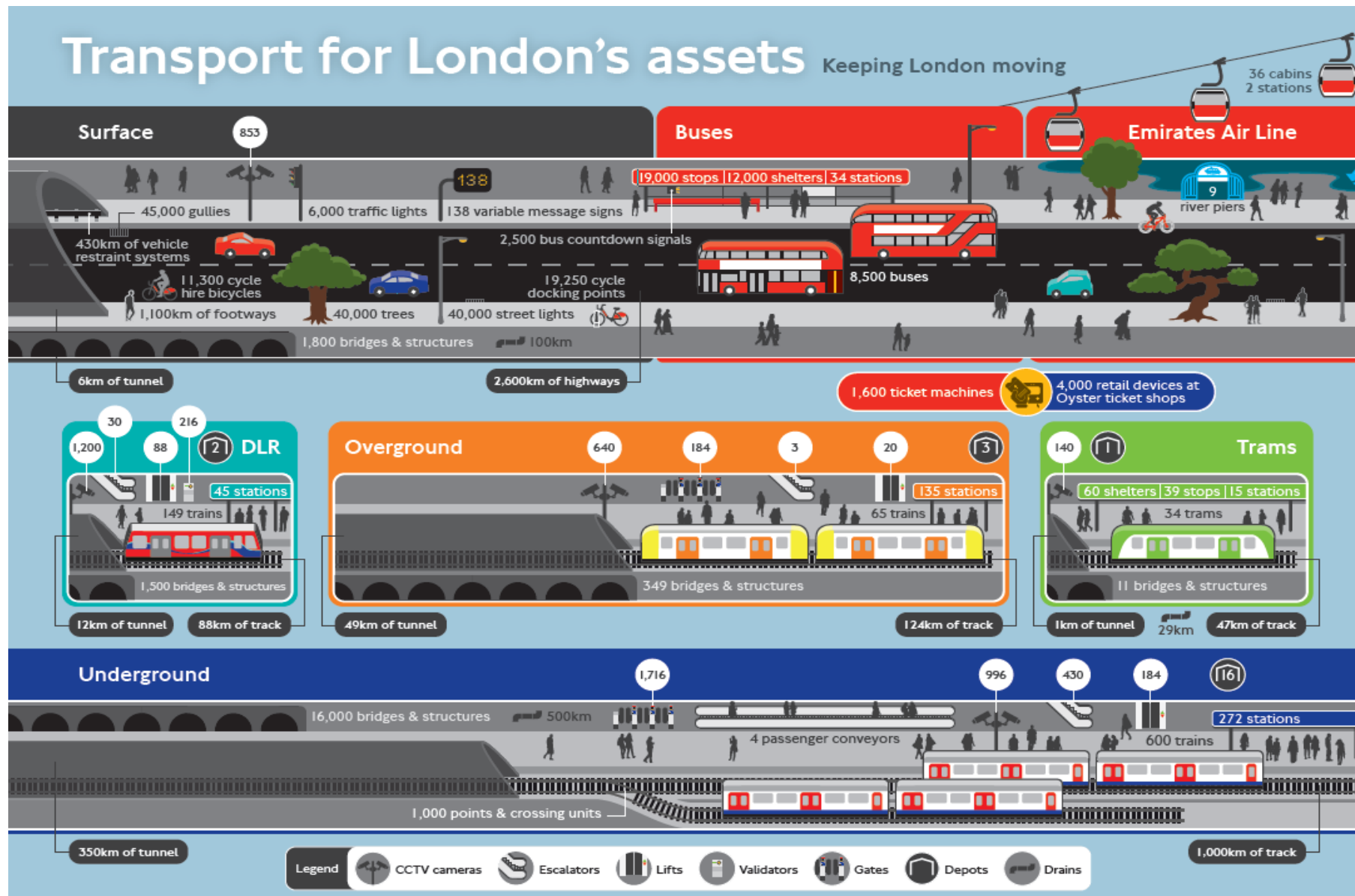
IIPAG Report

Management response to IIPAG Report

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# Transport for London's assets Keeping London moving



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# TfL Management System

## P020

## Asset Management Policy

Issue No.: A2

Issue date: April 2015

Review date: April 2018

### Policy Statement

TfL will use co-ordinated asset management activities to select, inspect, maintain, renew, improve and dispose of our assets in order to maximise customer satisfaction, maintain high levels of safety, manage risks, minimise whole life costs and enable delivery of our outcomes and priorities.

### Strategic Objectives

To support and deliver the Policy Statement TfL shall:

- Establish, maintain and review asset management objectives, strategies and plans
- Engage with customers to understand their requirements and take account of these in the asset management objectives, strategies and plans
- Establish, maintain and review the organisation structure, roles and responsibilities for controlling, directing and delivering asset management
- Establish, maintain and review the activities (including people, processes, data and technology) that deliver the asset management policy, objectives and strategy
- Identify and manage asset related risks
- Consider Whole Life Value (including capital and operating costs) when making decisions at each stage of the asset lifecycle, and embed practices that support and inform consistent decision making and prioritisation
- Identify, manage and continually improve the information that supports decisions, ensuring it is accessible and of the required quality
- Develop and implement asset performance measures that inform decisions, monitor the delivery and effectiveness of strategies and plans, and support benchmarking
- Measure and continually improve asset management maturity including the training and competence of our people
- Share, develop and implement asset management practices to be consistent across TfL's portfolio of infrastructure assets
- Regularly review asset management practices to assess their appropriateness to the business and to identify areas for change and/or improvement

### Lead Directors

TfL's Commissioner and Managing Directors are committed to this policy and are accountable for its provision, application and delivery. This policy shall be available to all employees and be publicly available.

Signed: TfL Commissioner



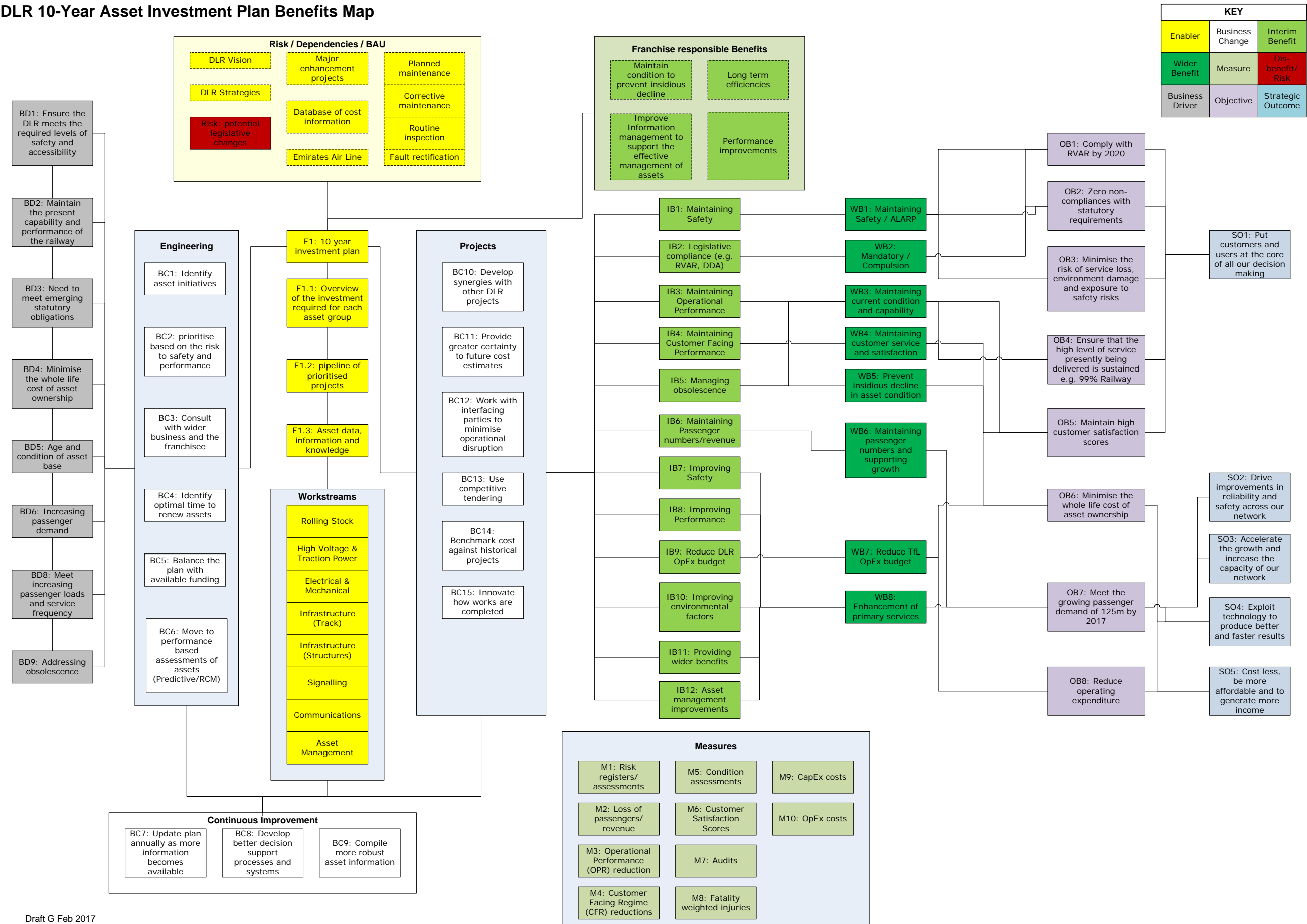
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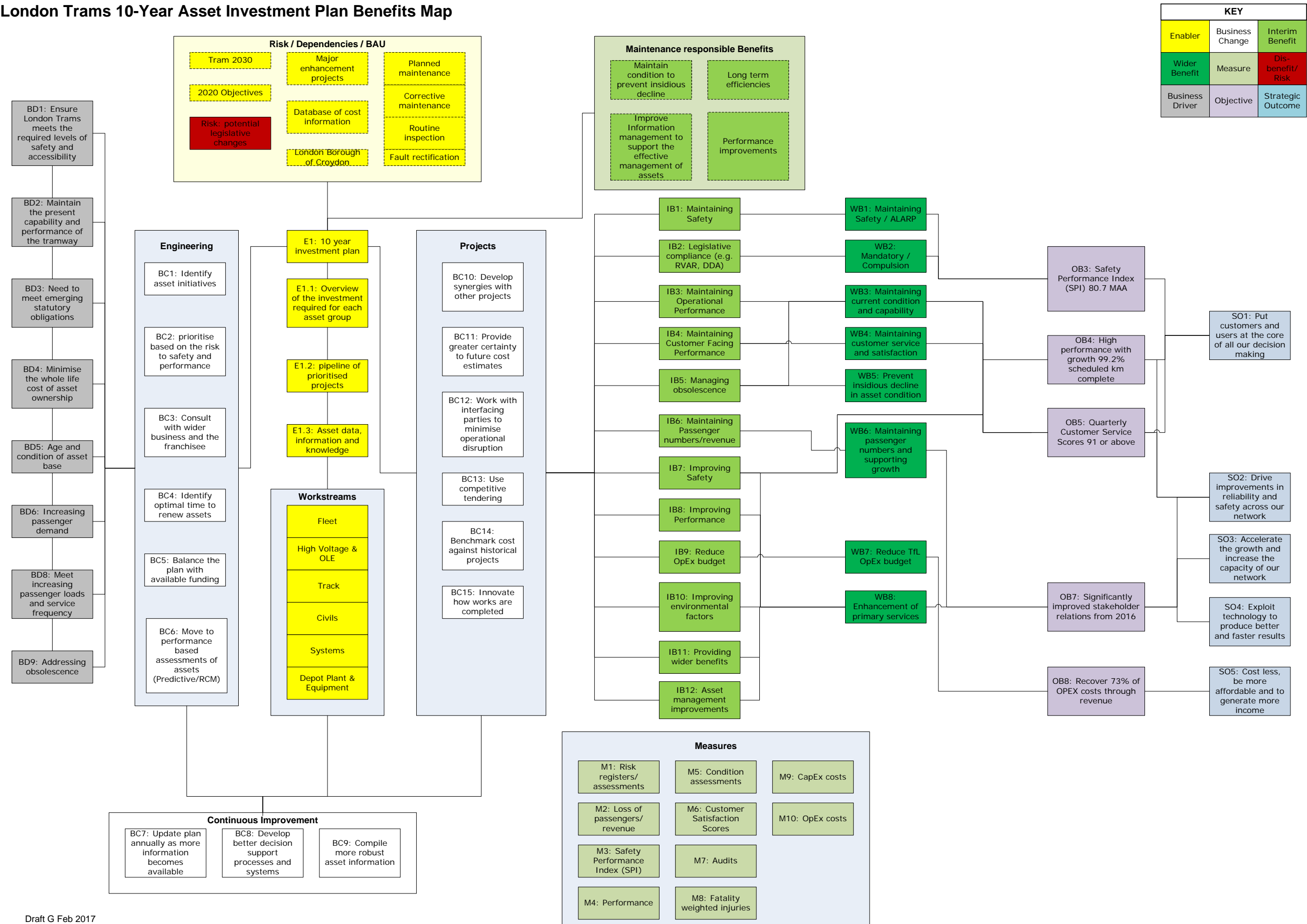
	Opportunity					Impact Type			Threat					
	Very High	High	Medium	Low	Very Low	savings	Project - Cost (£k)	increase	Very Low	Low	Medium	High	Very High	
	Project: ≥ £5M over project life	Project: >£1M < £5M over project life	Project: >£500k - £<1M over project life	Project: > £100k - < £500k over project life	Project: ≤ £100k over project life				Project: ≤ £100k over project life	Project: > £100k < £500k over project life	Project: >£500k - £<1M over project life	Project: >£1M - < £5M over project life	Project: ≥ £5M over project life	
	> 3 months	1 – 3 months	2 – 4 weeks	1-2 weeks	≤ 1 week	reduction	Project - Time	increase	≤ 1 week	1-2 weeks	2 – 4 weeks	1 – 3 months	> 3 months	
	Major Project - A major quality enhancement at multiple sites leading to reduced op expenses or increased revenue.	Major Project - A major quality enhancement can be achieved at multiple sites.	Major Project - A major quality enhancement can be achieved at one site.	Major Project - A minor quality enhancement can be achieved at several sites.	Major Project - A minor quality enhancement can be achieved at one site.	Improvement	Project - Quality	Shortfall	Major Project - A minor project objective is not achieved at one site. Other Projects – Up to 10% of planned work not completed.	Major Project - A minor project objective is not achieved at several sites. Other Projects – 10 to 25% of planned work not completed.	Major Project - A major project objective is not achieved at one site. Other Projects – 25 to 50% of planned work not completed.	Major Project - Over 2.5% of planned work not completed. Other Projects – 50 to 90% of planned work not completed.	Major Project - Over 5% of planned work not completed. Other Projects - Project failure	
	Operational: >£1.5M per year	Operational: >£0.25M - < £1.5M per year	Operational: >£125k - < £0.25M per year	Operational: >£25k - < £125k per year	Operational: < £25k per year	savings	Operational Cost (£k)	increase	Operational: < £25k per year	Operational: >£25k - < £125k per year	Operational: >£125k - < £0.25M per year	Operational: >£0.25M - < £1.5M per year	Operational: >£1.5M per year	
	N/A	N/A	N/A	N/A	N/A	Safety (Staff, passengers, contractors or MOP)			Minor Injury (Class 2)	Minor Injury (Class 1) or Multiple Minor Injuries (Class 2)	Single Major Injury, or Multiple Minor Injuries (Class 2)	Single Fatality, or Multiple Major Injuries	Multiple Fatality Accident	
	N/A	N/A	N/A	N/A	N/A	Security (Staff, passengers, contractors or MOP)			Multiple Minor Injuries	Several Major Injuries	One Fatality, Multiple Major Injuries	2-10 Fatalities	Over 10 Fatalities	
	>5% turnover	1 – 5 % turnover	0.5 -1% turnover	0.1 - 0.5% turnover	<0.1% of turnover	Financial			<0.1% of turnover	0.1 - 0.5% turnover	0.5 -1% turnover	1 – 5 % turnover	>5% turnover	
	N/A	N/A	Able to demonstrate compliance with a standard	Able to rectify a major non-compliance	Able to rectify minor non-compliances	Compliance			Low-level non-compliance against legal requirement or duty.	Minor non-compliance against legal requirement or duty.	Major non-compliance against legal requirement or duty and subject to comment from regulator.	Significant breach of legal requirement or duty resulting in enforcement action or prohibition notices.	Substantial breach of legal requirement or duty resulting in prosecution.	
	N/A	Extensive prolonged and widespread positive reactions from media, public and/or key stakeholders.	Significant positive local media campaign. National media interest creating public support.	Positive local media reporting over a period. Localised public and/or stakeholder support.	Positive local media report.	Reputation (Key Stakeholders include the ORR and the Mayor of London)			Adverse local media report.	Adverse local media reporting over a period. Localised public and/or stakeholder concern.	Significant local media campaign. National media interest creating public concern. Negative national statements.	Extensive prolonged adverse reactions from media, public and/or key stakeholders.	Extensive widespread negative reporting or public disputes with key customers or stakeholders.	
	Wide-scale improvement in employee engagement across the company. Serious improvements across most support services.	Significant improvements in employee engagement in some company wide critical areas. Improvements in some key support services.	Significant improvements in employee engagement or support service improvements in non-critical areas.	Minor improvements in employee engagement and support service improvements in non-critical areas	Short-term increase in morale or support services in non-critical area	Organisational performance			Short-term loss of morale or support services in non-critical area	Minor employee disengagement and support service failures in non-critical areas	Significant employee disengagement or support service failures in non-critical areas.	Significant employee disengagement in some company wide critical areas. Failings in some key support services.	Wide-scale employee disengagement across the company. Serious failings across most support services.	
	N/A	N/A	N/A	N/A	N/A	Olympic Security (CRAM)			Several Major Injuries	One Fatality, Multiple Major injuries	2-10 Fatalities	10-50 Fatalities	Over 50 Fatalities	
	N/A	N/A	N/A	N/A	N/A	Olympic Resilience (CRAM)			Loss of Olympic route 15 mins - 3hrs	Loss of Olympic route 3hrs - 1day	Loss of Olympic route for 1 day	Loss of the network for 1 day or an Olympic route for 1 week	Loss of the network for > 1 week	
	N/A	Prevents Significant pollution with associated recovery work	Prevents Pollution restricted to operational areas	Prevents Minor pollution requiring minimal recovery work	Prevents Minor Pollution requiring no recovery work	Environment			Minor Pollution requiring no recovery work	Minor pollution requiring minimal recovery work	Pollution restricted to operational areas	Significant pollution with associated recovery work	N/A	
	Prevent 100+ Lost Departures	Prevent 20-100 Lost Departures	Prevent 10-20 Lost Departures	Prevent 3-10 Lost Departures	Prevent 1-3 Lost Departures	Performance - Railway impact on operational reliability			1-30 Lost Departures	30-100 Lost Departures	100-500 Lost Departures	500-1000 Lost Departures	1000+ Lost Departures	
	Reduce 20m delays by twenty per period	Reduce 20m delays by ten per period	Reduce 20m delays by five per period	Reduce 20m delays by two per period	Reduce 20m delays by one per period				Delays up to and including a 20 minute delay	20 min delay lasting up to an hour	20 min delay lasting up to half a day	20 min delay losing a route for a day or more	Loss of entire network for 1 day or more	
									N/A	< 20 minute delays on multiple routes	20m - 1 hour delay on multiple routes	Half day delays on multiple routes	N/A	
						Performance - Assets impact on Station Assets			Local Asset Failure requiring reset	Local asset failure or taken out of service for several hours	Asset failure or taken out of service for a day or more	Assets at several stations fail, or taken out of service	Systematic failure of assets across the network closing multiple stations	
	Opportunity Impact					Likelihood (within year)			Threat Impact					
Matrix Term	Very High	High	Medium	Low	Very Low	Qualitative	Frequency	Probability	Very Low	Low	Medium	High	Very High	Matrix Term
Very High	Opp A	Opp A	Opp B	Opp B	Opp C	Probable / Very Likely	1 or more occurrences per year	75% or greater probability of occurring	Cat C [11]	Cat B [16]	Cat B [20]	Cat A [23]	Cat A [25]	Very High
High	Opp A	Opp B	Opp B	Opp C	Opp C	Likely	Between once a year to once in 2 years	50% to 74% probability of occurring	Cat C [7]	Cat C [12]	Cat B [17]	Cat B [21]	Cat A [24]	High
Medium	Opp B	Opp B	Opp C	Opp C	Opp D	Possible	Between once in 2 years to once in 5 years	20% to 49% probability of occurring	Cat D [4]	Cat C [8]	Cat C [13]	Cat B [18]	Cat B [22]	Medium
Low	Opp B	Opp C	Opp C	Opp D	Opp D	Unlikely	Between once in 5 years to once in 20 years	5% to 19% probability of occurring	Cat D [2]	Cat D [5]	Cat C [9]	Cat C [14]	Cat B [19]	Low
Very Low	Opp C	Opp C	Opp D	Opp D	Opp D	Very Unlikely	Less than once in 20 years	Less than 5% probability of occurring	Cat D [1]	Cat D [3]	Cat D [6]	Cat C [10]	Cat C [15]	Very Low

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# DLR 10-Year Asset Investment Plan Benefits Map

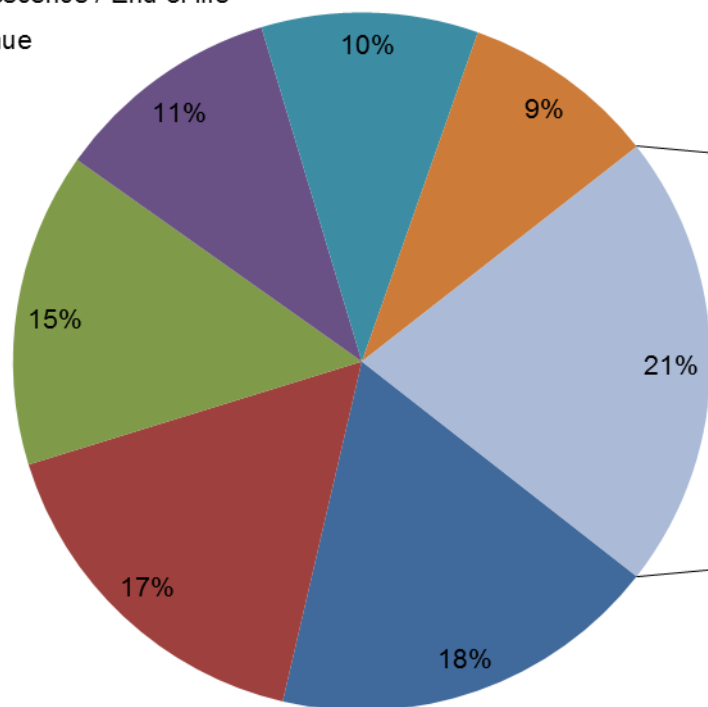


# London Trams 10-Year Asset Investment Plan Benefits Map



## Benefits of the 10 Year Plan

- Maintaining safety
- Compliance
- operational performance
- customer facing performance
- obsolescence / End of life
- Revenue



### Secondary – Improving the status quo

