

Date: 30 July 2015

Item: Surface Intelligent Transport System

This paper will be considered in public

1 Summary

ID/UIPXXX Surface Intelligent Transport System				
Existing Financial Authority	Estimated Final Cost (EFC)	Existing Project Authority	Additional Authority Requested	Total Authority
£ 133.58m	£ 133.58m	£ 2.26m	£ 9.80m	£12.06m

Authority Approval: The Board is requested to approve additional project authority for the Surface Intelligent Transport System bringing the total to £5.80m, to prepare for procurement (noting that relevant procurement authority will be sought in accordance with Standing Orders).

In addition, following completion of an Integrated Assurance Review being undertaken prior to the commencement of the procurement process, the Board is requested to authorise the Managing Director Surface Transport to grant additional Project Authority of up to £6.26m (which would bring the total Project Authority to £12.06m), required to undertake all procurement activities up to contract award.

Outputs and Schedule:

28 June 2015 – 30 April 2016

Prepare for procurement of:

- a Systems Integrator for the programme;
- a replacement Urban Traffic Control (UTC) system - a computerised control and management system for two thirds of London’s traffic signals; and
- an automated Predictive Signalling System - a computerised system which predicts future traffic conditions and automates traffic signal timings to regulate the road network to reduce delay.

Develop system requirements, finalise responsibilities for Systems Integrator, finalise a procurement strategy and prepare procurement documents in preparation for a pre-tender Integrated Assurance Review (IAR) and the procurement process which is expected to start in May 2016.

In parallel, begin the integration of London Works – a system that summarises all utility and road works in London – into a new standard mapping platform.

From 1 May 2016 – 30 September 2017

Undertake procurement activities up to contract award in accordance with approved procurement strategy. Complete re-launch of London Works.

1.1 A detailed funding table is provided at Section 5.1.

2 Recommendations

2.1 The Committee is asked to note the paper and recommend that the Board:

- (a) approves additional project authority for the Surface Intelligent Transport System bringing the total to £5.80m;**
- (b) following completion of an Integrated Assurance Review being undertaken prior to the commencement of the procurement process, authorises the Managing Director Surface Transport to grant additional Project Authority of up to £6.26m (which would bring the total Project Authority to £12.06m) required to undertake all procurement activities up to contract award; and**
- (c) notes the current estimated final cost for the Surface Intelligent Transport System is in excess of £100m and further authorities will be sought from the Board in due course.**

3 Background

Overview

- 3.1 SITS (Surface Intelligent Transport System) will deliver £1,000m of benefits through delay reduction for all road users by 2036, through faster, automated responses to live road conditions using a Predictive Signalling System, at a benefit to cost ratio (BCR) of 5.0.
- 3.2 The aim of the SITS programme is to release capacity in the road network to reduce delay through the use of technology and systems. SITS will gather an increased level of live data on road use. It will use this data to feed a new Predictive Signalling System to more intelligently facilitate the passage of traffic around the network and reduce delay. The predictive signalling system will predict likely congestion and then take active steps to prevent it occurring, or minimise its effect. This will be undertaken through the implementation of traffic signal timing strategies. SITS will also significantly increase the amount of data available to the travelling public and TfL will make this data available to allow its use to be maximised.

Strategic Context

- 3.3 London must rise to the challenge of a growing population, growing economic activity, rising traffic volumes and limited options to increase road capacity. The capital's roads are facing unprecedented demand, which will see around 1.25 million additional daily trips by 2018 with the forecast cost of associated delay being two and a half times its current level by 2031. Maintaining Journey Time Reliability (JTR) with current measures will not be possible. SITS is directly targeted at reducing this delay and maintaining JTR.

- 3.4 The Roads Task Force (RTF) Report (May 2013) was commissioned by the Mayor to set out a vision of how London can cope with major population growth and remain one of the most vibrant, accessible and attractive world cities. This vision looked to improve London's public spaces and streets and tackle congestion through better technology and information for customers. With building works well underway for the Roads Modernisation Programme (RMP) this vision is being delivered. Alongside the considerable benefits, these works will in many cases reduce vehicle capacity on the road network, often through the re-allocation of lanes or road-space to different modes of travel.
- 3.5 The RTF report identifies the important role new and emerging technologies can play in meeting this vision and that Intelligent Transport Systems (ITS) can greatly enhance the ability to get more out of the road network by improving efficiency, JTR and customer information, enabling road space to be more effectively managed for all modes of transport.
- 3.6 In addition, TfL's technological tool box is aging and unable to keep pace with the increasing demands on road space. New approaches and methods are now essential to avoid increases in journey delays and deterioration in JTR, with likely impacts on the capital's economic output and customer satisfaction.

What is the Surface Intelligent Transport System?

- 3.7 Some of the systems used to manage London's roads are close to life-expiry. These include the Urban Traffic Control (UTC) system – a computerised control and management system for two thirds of London's traffic signals, and London Works - a system used by TfL, the London boroughs and utilities companies to summarise and coordinate all utility and road works in London. Renewal of these systems is unavoidable.
- 3.8 The Surface Intelligent Transport System (SITS) will be an integrated suite of systems and tools including both replacements for systems approaching end of life and implementation of new systems. Through this combination, TfL will have the relevant tools to reduce delay.
- 3.9 At the heart of SITS will be an automated Predictive Signalling System. This will use increased levels of data collected from the streets to forecast congestion and seek to solve it before the congestion and delay occurs, with the primary output being adjusted signal timings. The focus will be on all modes of Surface Transport including cycles, pedestrians, buses, freight and not just vehicles.
- 3.10 SITS will also integrate with the Traffic Information Management System (TIMS) – used to record and publish road incident data, and the London Driver Information System (LDIS) – used to control the displays to drivers on message signs by the roadside.
- 3.11 SITS will also allow TfL to identify incidents happening across London faster than it currently does and react to them more promptly. Additionally, the system will manage the daily fluctuations in cycle, pedestrian, bus, freight and vehicle flows in a more efficient manner.

3.12 The following table shows the three staged objectives of SITS.

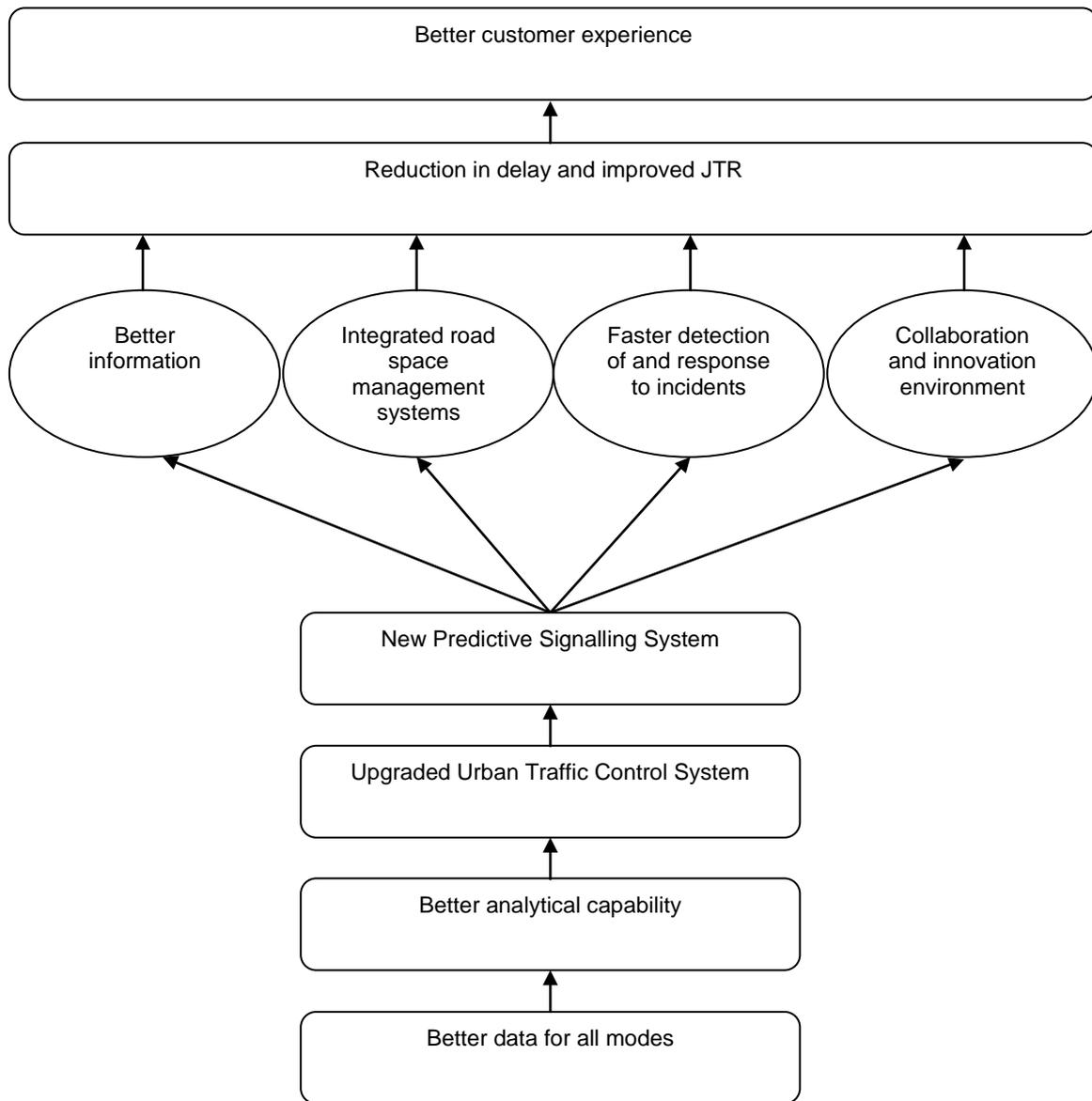
Staged Objective	Context	SITS Components	SITS Benefits
1. Keeping the status quo	Even without SITS, TfL must bring its equipment and systems up to date, to avoid obsolescence. The UTC, London Works and other systems must be replaced.	<ul style="list-style-type: none"> • UTC system upgrade • London Works, TIMS and LDIS replacement 	This stage delivers 0% of quantified SITS benefits but is essential to allow us to continue with normal operations.
2. Enhancing data and decision making	<p>Deliver an automated Predictive Signalling System which will use increased levels of data collected from street to forecast congestion and seek to solve it before the congestion and delay occurs, to better-regulate the road network.</p> <p>Additional physical sensors and mobile cellular data will detect all modes of traffic and improve resolution, feeding the predictive signalling system.</p> <p>Enhanced modelling capability and analysis of traffic data to better-inform decisions.</p> <p>Controlled exchange of traffic information through the Collaboration Hub, an online portal for internal and external data exchange.</p>	<ul style="list-style-type: none"> • Automated Predictive Signalling System • Physical sensors and mobile data • Data storage and enhanced analytical capability for traffic data • Collaboration environment 	<p>This stage delivers 50% of quantified SITS benefits.</p> <p>Automated Predictive Signalling will improve Journey Time Reliability and reduce delay.</p>
3. Better information for all	Supply better information to all – the public, policy makers and operators.	<ul style="list-style-type: none"> • Enhanced travel information through existing channels 	This stage delivers 50% of quantified SITS benefits.

3.13 Whilst there are three staged objectives, all three in totality need to happen to generate the full benefits of SITS. For example, TfL could just upgrade its obsolete systems in isolation, but this would not improve the interoperability of systems, or reduce the time taken to respond to incidents on the road network which are the chief cause of peak-time delays and poor journey time reliability. Alternatively, TfL could choose only to enhance the information it supplies to customers, but this information is an output of enhanced decision making tools so the investment is also needed here. Therefore the SITS approach is to bring in a fully integrated approach up front.

3.14 By improving TfL’s decision making capabilities – making them faster and better – SITS will deliver £1,000m of benefits between up to 2036, at a BCR of 5.0. A

schematic diagram indicating the route to the benefits expected from SITS is at figure 1.

Figure 1: Diagram to illustrate the route to SITS benefits



Contribution to Mayoral Strategy

3.15 The delivery of SITS aligns with the Mayor's Transport Strategy and its goal to 'support economic development and population growth'. This is achieved through meeting the strategic challenge of 'delivering an efficient and effective transport system for people and goods' and is now essential in helping to deliver the following Surface Transport outcomes:

- (a) quality bus network – maintaining and enhancing a reliable and high quality bus network and ensuring efficient coach services in London;
- (b) reliable roads – ensuring reliable operation of London's road network while reducing congestion. This will be achieved by unlocking effective capacity on the road network;

- (c) more and safer cycling – enabling more people to cycle, more safely and more often;
- (d) more and safer walking – support an increase in walking;
- (e) more efficient deliveries – supporting more sustainable patterns of freight delivery and servicing; and
- (f) improving the environment – reducing carbon dioxide emissions.

3.16 SITS will help achieve Surface Transport's outcomes by adding additional capacity back to the road network for vehicular traffic. It will also be more efficient and policy responsive for all road users.

Funding and Authority Strategy

3.17 Seed funding of £200k for SITS was agreed in January 2014, with additional Project Authority of £2.06m granted in April 2014 to undertake a feasibility study, identify benefits and produce an implementation plan for SITS.

3.18 An Integrated Assurance Review (IAR) and assessment by the Independent Investment Programme Advisory Group (IIPAG) took place in May 2015. This has recommended that the project proceed and that TfL investigate procurement strategy options and prepare for procurement. A pre-tender IAR will be conducted in March 2016 ahead of a further request for Project Authority to undertake procurement, with this starting in May 2016.

3.19 This current Project Authority request is to fund both preparation for procurement and to undertake procurement alongside parallel replacement and re-launch of London Works. This will take the cumulative Project Authority to £12.06m (which includes £3.54m now and £6.26m to be authorised by the Managing Director Surface Transport prior to the procurement process) out of an Estimated Final Cost (EFC) for the programme of £133.58m. The EFC of £133.58m is funded within the TfL Business Plan. Appendix 1 sets out how the programme is split into Pathway Programme Stages.

4 Proposal

Current Situation

4.1 Currently, traditional methods such as CCTV cameras, in-road detectors and signal timing algorithms, Automatic Number Plate Recognition (ANPR) cameras and various other supporting systems are used in conjunction with the existing Urban Traffic Control system to monitor, manage and report on London's roads, both the TfL Road Network (TLRN) and borough roads. The systems used to manage interventions are separate to these and include London Works.

4.2 These methods have been implemented in a piecemeal fashion to take advantage of technological advances, meaning that these systems:

- (a) do not have a common architecture, making them complex to join together or build upon, and making information flow between systems difficult; and

- (b) operate on aging infrastructure, much of which is coming to the end of its supported life.

4.3 As a result operators use several systems, often manually transferring data between the systems, slowing response times and reducing the benefits of their response to events. These responses are also becoming more reactive as congestion increases. Without a Predictive Signalling System, congestion cannot be predicted, driving up costs of operation for the business. There is a need to predict, analyse, and operationally manage the impact on the road network of the vast number of large and small changes that are taking place across Greater London, and increase resilience to major build schemes.

Preferred Option

4.4 The preferred option gives the best balance between costs, benefits and risk, and is essential to keep London moving and address the challenges faced.

4.5 An alternative option was considered, as described in paragraph 4.18, but it is not recommended as it would be a sub-optimal solution that would not provide sufficient understanding of London's road network because of insufficient data coverage.

4.6 For the preferred option, the following components will deliver the three staged objectives of SITS:

(a) Keeping the status quo:

A necessary upgrade of the current UTC system that controls the majority of London's traffic signals. This work will have to be carried out regardless of the SITS programme. SITS will allow the upgrade to be designed to fit in with other Surface systems, and become a central decision making tool.

(b) Enhancing data and decision making:

A new Predictive Signalling System. This system will translate and summarise data collected from the data sources below and it will then allow the computer to make some automated decisions for incidents happening on street, enabling substantial time savings in incident detection and response.

Enhanced data collection to support the Predictive Signalling System, bringing information together for the first time into one system from in-road detectors, traffic counters, closed-circuit TV, ANPR cameras, multiple on street sensors and mobile phones. Currently this information is looked at in individual systems, if at all.

Enhanced modelling and analytical capability through additional multi modal sensors and mobile data network coverage (40 per cent of network, focused on key corridors and strategic locations), better informing planning decisions and providing a fundamental intelligence to the Predictive Signalling System.

A collaboration environment providing a portal for external and internal systems to access specified information for other systems and phone applications, improving journey information and providing thousands of small

and medium-size businesses with access to a wealth of travel knowledge. In this way, SITS will aim to make specified information available to third parties in keeping with TfL's open data policy. It will also facilitate the safe development and trial of new capabilities, for example connected roads.

(c) Better information for all:

Travel information provided internally and externally will be enhanced due to the high quality data it would be based on, and the insights gained through the Predictive Signalling System. No new travel information channels are currently planned, but SITS will be able to accommodate this if needed in the future.

Equality Issues

- 4.7 During preparation for and undertaking of procurement, the SITS programme will have no impact directly or indirectly on the Equality Act 2010.

Benefits (and Value)

Business Case

- 4.8 The preferred option has a BCR of 5.0 over the appraisal period (2015-36). It is based on conservative assumptions driven by reductions in delay caused by unplanned incidents, reductions in delay related to planned road works and events and reductions in delays caused when fluctuations in travel demand, including during morning and evening peak-times, is not met owing to constraints in fixed road capacity.
- 4.9 Presenting the business case solely on the delay-related benefits of SITS, and using conservative assumptions was a deliberate choice, based on the fact that this is an innovative field, where empirical evidence is limited. The methodology was reviewed during the IAR and was found to be compelling. Whilst the benefits quantified may appear small in relation to the cost of delay London faces overall, we expect in reality that benefits will be much greater. Even with conservative assumptions, the BCR is significant.
- 4.10 At a total cost of £133.58m over the TfL Business Plan, the benefit has a net present value of approximately £1,000m (2015 prices and values). When the BCR is considered with non-quantified benefits and against the other business case options, the preferred option offers high value for money, whilst minimising risk.
- 4.11 The summary of the economic appraisal and benefits for the preferred option is tabulated below.

Economic Appraisal	
Net Present Values, £k	
Discounted NPV EFC	198,500
Passenger Benefits	1,000,000
Benefit : Cost Ratio	5.0

4.12 Significant analysis has been undertaken to assess and quantify the benefits of SITS. These are broken into two categories of direct benefits which are expanded on in the sections below.

4.13 Core Benefits. The following anticipated benefits drive the proposal to invest in SITS:

(a) Journey Delay Benefits

Through faster, automated responses to live road conditions using the Predictive Signalling System, SITS will reduce the delays associated with:

- (i) unplanned incidents, including those that reduce road capacity or involve unexpected variations in delay;
- (ii) planned works and events; and
- (iii) typical daily patterns of demand and capacity constraint, reflecting the fact that there are many constrained areas on the transport network where demand exceeds the available road capacity at peak times.

These benefits all result, in varying ways, from:

- (i) an improved understanding of normal baseline conditions (including the ability to detect variation from it); and
- (ii) the ability to predict the impact of changes and therefore identify the most appropriate intervention in different circumstances; and
- (iii) improved control of the network to implement responses; and
- (iv) the ability to provide improved information to guide decisions for those travelling (via travel information and/or mechanisms developed through the collaboration environment).

(b) Improved Journey Time Reliability

The reduction in unpredictable delay associated with incidents and events will bring additional benefits associated with improved JTR, as well as the direct benefits of the delay saved.

JTR is improved by reducing variation of times around the mean and is valued by those travelling as it reduces uncertainty and means that it is possible to reduce the allowance built into journey times when planning journeys.

(c) Improved flexibility to support policy objectives

SITS will improve flexibility to support policy objectives to meet the requirements of not just vehicles but all road users in a number of ways including the provision of:

- (i) significant levels of additional data across all modes to improve understanding of travel conditions and different modes and the context

for making policy responses and therefore the type of impact these responses might achieve;

- (ii) allow the iBus system to actively work with the UTC system to selectively prioritise buses, such as late running services, instead of all buses, helping to automatically regulate the service;
- (iii) improved control over the network (through variable control and prioritisation) to be able to implement changes required to support policy e.g. prioritisation of cyclists at junctions; and
- (iv) potentially improved ability to communicate with those travelling (through travel information and potential outcomes from the collaboration environment) to provide messages in support of policy requirements, such as supporting cycle use.

Core Benefits – Quantified

4.14 The table below sets out the quantified core benefits of SITS until 2036. The values below take into account discounting over time, changes to value of time each year, and phasing in of benefits in different years related to when the different components of SITS are implemented.

	To 2036 (£m)
Delay and journey time reliability improvements associated with unplanned incidents	366
Delay and journey time reliability improvements associated with planned works/events	142
Delay savings associated with typical daily demand variation/capacity constraints	483
Total Impact	991*

*The £991m value has been rounded to £1,000m in the BCR calculations so to not appear overly precise, due to the number of assumptions used in the methodology

4.15 The innovative nature of SITS means that the full potential scale and scope of the benefits realisation is still to be fully determined. Consequently, the focus of quantification has been on analysing available information on current conditions to support reasonable, conservative assumptions on the potential scale of impact of SITS on reducing different components of current journey time delay.

Supplementary Benefits

4.16 The core benefits described above will be supplemented by several other benefits from the step change in information and technology, including improvements to TfL's decision making over future scheme investment and secondary benefits for transport users and wider society.

SITS as an Enabler

- 4.17 A final important benefit of the implementation of SITS is that it will act as a very significant enabler, providing the basis for a wide range of additional measures and interventions (with some additional investment or policy action). These cover areas including:
- (a) freight - for example measures to incentivise reductions in peak freight journeys, maintain essential services when required and improved scheduling. The freight industry may also be able to take measures to reduce logistics costs on the basis of improved journey time reliability;
 - (b) planning and operation of bus routes – to match demand better;
 - (c) protection of vulnerable road users – through prioritisation and better allocation of road space;
 - (d) dynamic road space use – to make best use of road space based on demand (including virtual parking and loading) or to control for other issues, for example to prevent air quality thresholds being exceeded;
 - (e) road asset maintenance – improved ease of identifying most efficient maintenance through increased data sources;
 - (f) improved enforcement, with benefits such as reduced accidents;
 - (g) staff efficiency – for instance in terms of volume of road works permits processed;
 - (h) planning development – potential improvement due to new data sources; and
 - (i) flexibility to accommodate future modes, including autonomous vehicles.

Options Analysis

- 4.18 A rigorous options analysis has been undertaken and, following an industry standard Multi Criteria Decisions Analysis (MCDA), seven options were shortlisted. An alternative option was also considered with an estimated cost of £113.48m including sunk and committed costs. It has a net present value of approximately £650m and an indicative BCR of 3.7 over the full appraisal period (2015-36).
- 4.19 This option only provides a moderate increase in information and this is not viewed as sufficient for TfL to deliver the full benefits of SITS, in particular the objective around meeting the requirements of all road users. This is highlighted by the lower BCR of this option, which is a result of the lower cost not being outweighed by the loss in benefits. It would be a sub-optimal solution and is therefore not recommended.

Delivery of Preferred Option

Execution Strategy

- 4.20 The preferred option is to deliver SITS through the procurement of a Systems Integrator (SI), to ensure effective interfacing and operation of the various system components which, when operating effectively together, will provide the required capabilities and benefits of SITS. These components include some which will be developed versions of existing TfL software systems, some which are existing or

planned pan-TfL systems (such as communications networks), some which may be delivered through existing framework agreements and others which will be procured directly by the SI.

- 4.21 The programme team intend to appoint an SI first; financial incentives to align the successful bidder's payment with TfL's outcome-based requirements will be explored. These decisions and the wider procurement strategy will be kept under review during preparation for procurement and subject to a further integrated assurance review prior to the commencement of procurement.
- 4.22 Once granted the necessary authority to undertake procurement, the procurement strategy will be executed with contract award anticipated in September 2017. Over this period work will continue on London Works, completing the transition to the new system, training and re-launch by 31 December 2016.
- 4.23 The uncertainties associated with a technology programme of this duration and complexity will be managed through the adoption of an iterative approach to system development, with appropriate check-points and opportunities to assess, learn, respond and improve, linked to supplier payment.
- 4.24 The programme team will continue to draw heavily on lessons learned from other programmes and projects both inside and outside TfL. These will include commercial, contractual and technical lessons and will form an important input into preparations for procurement.
- 4.25 While other procurement preparations are ongoing, the development of London Works will continue since this is required sooner. Existing framework arrangements will be used to design, build and test an upgraded London Works system running on the Geographical Information System as a service (GISaaS) spatial mapping platform.
- 4.26 The SITS programme interfaces with many other projects, programmes and stakeholders. Dependencies include IM's Transforming IM (TIM) Programme and TfL Integration Service (TIS), Surface Transport's TCMS2 Contract and GIS as a Service (GISaaS) platform, and alignment with strategic roadmaps published by the Department for Transport (DfT).

4.27 Key Milestones: Appendix 1 sets out how the programme is split into Pathway Programme Stages.

Milestone	Forecast Date
Complete preparations for procurement (Stage C - Tranche 1A)	30 April 2016
Start procurement process	03 May 2016
Complete transition to new London Works, operating on GISaaS	31 December 2016
Contract award	31 July 2017
Complete procurement (Stage C - Tranche 1B)	30 September 2017
Begin Transformation, and deliver UTC/Predictive Signalling System (Stage C - Tranche 2)	01 October 2017
Phased transition to new UTC system completed	30 November 2019
Complete Transformation (Stage C - Tranche 3)	30 September 2021
Complete Programme Close (Stage D)	30 June 2022

4.28 Risks: A number of strategic risks will require the establishment of strategic partnerships with the ITS and mobile industries. The outcome of these risks will shape the longer term capabilities of SITS, the extent to which the programme meets the balanced scorecard objectives and the final turn out cost. Mitigation strategies are in place for these risks which are of particular note:

- (a) Predictive Signalling Systems offered by the market are less effective than anticipated;
- (b) new sensor technology and other data sources to drive multi-modal detection and benefits measurement are less effective or more expensive than anticipated; and
- (c) cost approximations, even after thorough market engagement, for new systems (in particular for new technologies), may be underestimated owing to commercial sensitivity from vendors.

4.29 The total risk value for the project included in the requested EFC is £52.33m which is 66 per cent of the total future programme costs which is in line with a project at this early stage and of this complexity.

4.30 Resources and staffing relating to this project authority request have been reviewed at IAR and assessed as appropriate. Staffing will include a programme management team of six, a dedicated sponsor's team of four and support from commercial, legal and relevant subject matter experts. For preparation for procurement, including requirements elicitation, an additional team of nine staff are planned. The programme will place importance on ensuring that the most appropriate skills, knowledge and experienced is applied to the programme.

5 Financial Implications

Summary of the costs and funding and Budget Status:

- 5.1 The feasibility work carried out during Stage B, including detailed cost modelling, has determined that the programme will require budget authority for a total EFC of £133.58m, which includes sunk costs. Project costs total £43.53m, Operational Costs total £37.72m, risk at 66 per cent is £52.33m.

Costs and Funding	Prior Yrs, £k	2015/16	2016/17	2017/18	2018/19	Future	Total
Cost (Out-turn)							
Project Management	237	552	626	604	592	313	2,924
Feasibility and Design	1,735	2,766	3,854	1,738			10,093
Implementation				11,918	14,628	41,690	68,236
Risk		510	1,220	9,412	10,045	31,143	52,330
Estimated Final Cost	1,972	3,828	5,700	23,672	25,265	73,146	133,583

Benchmarking including reference to benchmarking tables

- 5.2 Where possible costs within the programme have been provided by relevant business units within TfL, for example costs for physical equipment. Due to the innovative nature of this programme certain elements (predictive and use of mobile data) are still relatively untested and therefore a proof of concept exercise was carried out to determine the potential value of these elements and to determine reasonable cost estimates. Cost estimates have where possible been benchmarked via engagement with the market. SITS undertook a successful industry engagement day in January 2015, which has led to further follow up engagement. The programme team are also continuing to engage with other authorities and government organisations.

Other income, costs, saving/efficiencies, revenues etc, as summarised in the table above

- 5.3 There is not expected to be any income or cost savings as a direct result of SITS. The programme includes the replacement of the UTC system which would have to take place by 2020, irrespective of the work on SITS. The programme is not expected to have any negative effect on traffic revenue.

Operational costs that are included in Project costs

- 5.4 The innovative nature of the SITS programme will mean that a small increase in staff will be required in the first four years of programme delivery; this will result in additional training and up-skilling costs related to the training of existing and additional staff. In the longer term (i.e. after four years) TfL expects the resource requirement to reduce below existing levels, as the predictive element of the programme requires less manual input and decision making than is currently needed.

Whole life and ongoing/future costs not included in Project costs

- 5.5 There are no revenue changes anticipated as a result of SITS. All ongoing costs are included in the programme costs for the duration of the programme.

Third Party Funding

- 5.6 This programme has no third party funding. Whilst there might be opportunities for income generation in the future, these have not been factored into the cost assumptions.

Commercial

- 5.7 The SI will be procured through a tender process, most likely through a competitive dialogue process.
- 5.8 Taking on board feedback from the IAR and IIPAG process, careful consideration of the commercial delivery approach will continue throughout the next tranche of procurement preparation, with a final recommendation forming the core of the Procurement Strategy and procurement authority submission.
- 5.9 Further market engagement, the outputs from the SITS-wide requirements capture process and ongoing refinement of TfL's expectations for the SI, will shape both the content of the procurement documentation, and the phasing of the procurements.
- 5.10 Tender evaluation and contract award form the main activities from May 2016 onwards, see Appendix 1.

6 Assurance

- 6.1 Programme Management Office Assurance Review Summary: An IAR was conducted in May 2015, which recommended that the requested £3.54m project authority is approved. There were no critical issues in the report and eight recommendations were made.
- 6.2 IIPAG Review Summary: An IAR was conducted in May 2015, which recommended that the requested £3.54m project authority is approved. There were no critical issues in the report and three recommendations were made.
- 6.3 A further IAR is planned towards the end of preparation for procurement and prior to the commencement of procurement.

List of appendices to this paper:

Appendix 1: SITS Programme Stage and Tranche Dates

List of background papers:

IIPAG and PMO Reports, with management responses

Contact Officer: Alan Bristow, Director of Road Space Management
Number: 020 3054 2593
Email: alan.bristow@tfl.gov.uk

SITS Programme Stage and Tranche Dates

SITS will be run as a Pathway programme. Planned dates for future stages and tranches are shown below.

			Start	End	Key events
Stage C Deliver Tranches	Tranche 1A	Prepare for Procurement	28 Jun 15	30 Apr 16	<ul style="list-style-type: none"> • Systems Requirements capture and Systems Integrator. • Finalise procurement strategy and preparation of procurement documentation. • London Works design, build and testing.
	Tranche 1B	Undertake Procurement	1 May 16	30 Sep 17	<ul style="list-style-type: none"> • Conduct procurement, tender evaluation up to contract award. • Complete re-launch of London works on new standard mapping platform.
	Tranche 2	Begin Transformation, Deliver UTC/Predictive	1 Oct 17	30 Nov 19	<ul style="list-style-type: none"> • SI delivers SI's architecture components and begins integration. • UTC and Predictive Signalling System developed, trialled and built, phased transition to new UTC.
	Tranche 3	Complete Transformation	1 Dec 19	30 Sep 21	<ul style="list-style-type: none"> • Completes integration of UTC and Predictive Signalling System.
Stage D Close		Close out and transition to BAU	1 Oct 21	30 Jun 22	<ul style="list-style-type: none"> • Complete transition from a pathway programme to business as usual operation of SITS. • Close down of programme.