

Date: 18 July 2013

Item 10: Road Space Management SCOOT

This paper will be considered in public

1 Summary

1.1 This paper describes proposals for additional traffic management technology and seeks approval of project authority of £57.088m, with an initial limit of £21.1m to undertake the first two years of the Road Space Management Split Cycle Offset Optimisation Technique (SCOOT) delivery portfolio. This will enable the installation of SCOOT technology at an initial 600 traffic signal sites (from the planned total of 1,500).

2 Recommendations

2.1 The Committee is asked to:

- (a) **note this paper;**
- (b) **approve project authority of £57.088m to deliver Split Cycle Offset Optimisation Technique (SCOOT) traffic signalling technology, as described in this paper, provided that no more than £21.1m is spent on installation at an initial 600 sites; and**
- (c) **note that the approval of the Committee will be sought for further expenditure, in due course, following review of the installation at the initial 600 sites.**

3 Background

3.1 SCOOT is an urban traffic control system that automatically optimises traffic signal timings based upon demand. It is already in place in around half of London's approximately 6,000 traffic signal sites. It utilises a network of sensors to feed information into intelligent algorithms to manage "flow", stops, delay and improve journey time reliability (JTR). It is able to optimise in line with prevailing policies by mode, vehicle emissions or geographical need, for example, changing as required by time of day. It is at the core of London's Intelligent Transport Systems (ITS) and is fully integrated to give real time information for operational, planning and public information purposes. It is also endorsed in the Mayor's Transport Strategy Proposal 30(a) as one of the technologies included in further investment in intelligent traffic control systems and the infrastructure to support them.

3.2 Alongside the proven benefits for the flow of motor vehicles and for facilitating bus progression and air quality improvements, there is an on-going development programme for SCOOT, which specifically considers pedestrians and cyclists.

This programme will provide the backbone for future capabilities to be implemented across the network for sites installed with SCOOT.

- 3.3 London's population is forecast to increase significantly. The associated economic activity will increase demand for road space (including public realm) on the Capital's already largely saturated road network. When operating at or near capacity, minor disruptions through incidents can lead to major congestion spreading exponentially. SCOOT provides the real time control to manage these incidents effectively to minimise the disruption.
- 3.4 TfL is working with the Roads Task Force to detail the future aspirations of how London's road network will service the vitality and economic prosperity of the capital. Predicted modelling, taking into account population growth and expected journey time increases, shows a picture of major changes on the network due to unprecedented activity and works. SCOOT will respond dynamically in real time to these changes and specifically support:
- (a) **East/West Cycle Super Highway (EWCSH)** – providing the necessary SCOOT infrastructure to facilitate the building and operation of the EWCSH;
 - (b) **Central London Coverage** – providing 100 per cent coverage of the Inner Ring Road, including a 2.5 kilometres buffer (ensuring approach control);
 - (c) **London-Wide Existing Network Enhancements** – the remaining Transport for London Road Network (TLRN)/Urban Traffic Control (UTC) network sites for upgrade;
 - (d) **Opportunity Areas/Growth Enabling Schemes** – an 'Opportunity Area' is capable of accommodating a substantial number of new homes and jobs. This long term planning is targeting SCOOT implementation at areas of growth, facilitating significant assignment change. (i.e. Heathrow, A40/Willesden Opportunity Area);
 - (e) **Metropolitan/Urban Centre Areas of Influence** – previous SCOOT roll outs have focused implementation in Central London. The London Plan gives TfL a responsibility to support growth in metropolitan and urban centres, providing significant benefits to suburban bus networks. (i.e. Romford, Harrow);
 - (f) **Sub Regional Areas** – linking key suburban centres providing benefits for regional bus networks and future multi-modal activity. (i.e. Romford, Ilford A118);
 - (g) **Five Cycle Super Highways (Area of Influence)** – providing the necessary SCOOT infrastructure to facilitate the building and operation of the multiple Cycle Super Highways; and
 - (h) **Expected Road Use Changes** – locations of significant future change in traffic patterns as indicated by modelling.

4 Description

- 4.1 The proposed delivery portfolio will install SCOOT at an additional 1,500 sites across London's strategic road network. This will allow TfL to manage traffic in a more flexible, dynamic and policy responsive manner.
- 4.2 At the completion of this programme, 75 per cent (a total of around 4,500 out of 6,000 locations) of London's traffic signals will be operating SCOOT. The real time operation of SCOOT will be at the core of a Road Space Management Strategy to manage road space across the network and facilitate delivery of an ambitious capital programme.

5 Financial Implications

- 5.1 The total cost of the project and ongoing operating costs were fully provided for in the Business Plan. The authority requested reflects the latest project projection which forecasts savings over the life of the project and business plan and phasing differences which will be accommodated in the quarter 1 forecast. The earlier introduction of the system in 2014/15 is to ensure they are in place to support the cycling activity referred to in 3.4 above. The table below summarises the funding and project authority inclusive of risk.

| Funding & Project Authority Breakdown | | | | | | | | |
|---------------------------------------|--------------|---------------|---------|---------|---------|---------|---------------|--|
| Funding & Project Authority | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | Total | |
| | £000's | £000's | £000's | £000's | £000's | £000's | £000's | |
| <i>Funding Breakdown</i> | | | | | | | | |
| Business Plan | 7,453 | 7,714 | 11,976 | 12,395 | 12,829 | 8,852 | 61,221 | |
| Estimated Final Cost | 7,402 | 13,709 | 11,114 | 11,455 | 11,867 | 1,542 | 57,088 | |
| Business Plan Surplus/ (Shortfall) | 52 | -5,995 | 862 | 940 | 962 | 7,311 | 4,133 | |
| <i>Project Authority Breakdown</i> | | | | | | | | |
| Prior Submission | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| This submission request | 7,402 | 13,709 | | | | | 21,111 | |
| Future submission request | | | 11,114 | 11,455 | 11,867 | 1,542 | 35,978 | |
| Total Estimated Final Cost | | | | | | | 57,088 | |

- 5.2 The following table summarises the associated operating costs and reflects the expectation that there will be a surplus compared to the budget funding.

| Operating Costs and Funding Breakdown | | | | | | | | | | |
|---------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | Total |
| | £000's | £000's |
| <i>Funding Breakdown</i> | | | | | | | | | | |
| Business Plan | 0 | 600 | 1,253 | 1,939 | 2,684 | 3,467 | 3,715 | 3,845 | 3,980 | 21,483 |
| Estimated Operating Costs | 0 | 238 | 740 | 1,150 | 1,586 | 2,052 | 2,124 | 2,198 | 2,275 | 12,365 |
| Business Plan Surplus/ (Shortfall) | 0 | 361 | 512 | 790 | 1,098 | 1,414 | 1,591 | 1,647 | 1,704 | 9,117 |

- 5.3 Key risks have been identified and quantified. A financial risk provision of £1.35m has been included in the Estimated Final Cost.

6 Commercial and resources

Procurement Strategy

- 6.1 Contracts are either in place or currently being re-let for all elements of the work. The civil engineering will be delivered through the London Highways Alliance Contracts, managed by TfL. Signal works will be provided through the Traffic Control Maintenance Services contract and equipment through the TfL bulk purchase contracts.

Resources

- 6.2 The project will employ internal TfL resources to carry out planning, signals design and enabling works. Additional consultant traffic engineering resources will be required to deliver the programme.

7 Benefits

- 7.1 The introduction of SCOOT control delivers a number of benefits:
- (a) reduces delay;
 - (b) helps improve journey time reliability;
 - (c) reduces congestion;
 - (d) reduces noxious emissions;
 - (e) improves the ability to deal with (unplanned) incidents and (planned) events;
 - (f) improves network co-ordination between signals;
 - (g) adapts to short, medium and long term changes in traffic flow; and
 - (h) provides a rich source of real time and historic network performance data.
- 7.2 The benefits have been quantified, using reduction in delay as a measure, based on modelling undertaken for the previous SCOOT project. The 12 per cent reduction in delay provides a benefit cost ratio of 16:1. This modelled benefit has now been supported by actual measured benefits over a large sample size.

8 Review

- 8.1 An Integrated Assurance Review was conducted by the TfL Programme Management Office and the Independent Investment Programme Advisory Group on 18 June. The output of this review was two reports with minor recommendations and observations, with no critical issues identified. These observations are being progressed by the project team.

9 Further Implementation

- 9.1 A full review will be undertaken to assess the benefits received from the installation at the initial 600 sites. The costing will also be refined based on practical experience of utilising the new Traffic Control Maintenance and related Services (TCMS II) contract which is currently being procured and deploying the 21st Century Communications solution to replace the withdrawal of BT analogue communication circuits, which currently form the communications infrastructure for London's traffic signals, before approval is sought from the Committee for further sites.

List of appendices to this report:

None

List of Background Papers:

None

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