

*London-wide Bid
for
Transport Asset Management
Resources*



*LoTAG Submission in Response to
Element 2 Funding*

19 December 2008

Foreword/Executive Summary

This is a London wide submission prepared by the LoTAG Asset Management Board (LoTAMB) on behalf of its constituent 33 London Boroughs and Transport for London (TfL).

London has a large and complicated highway and transport network managed by the 33 London boroughs and Transport for London (TfL). In Greater London there are 14,783km of roads (3,730km of which are bus routes), 329km of Tube lines and 28km of new tramways. It has around 4,300 highway structures, and 579,000 street lighting units.

Every day 23.8 million journeys are made on this transport network. Of these, 10.5 million by car or motorcycle, 7.2 million are made on public transport, 5.6 million on foot, and 0.4 million by bicycle.

London's highway network has unique characteristics and provides asset managers with many logistical challenges. It has long been recognised that joined up thinking to transport asset management in London, which is flexibility enough to cater for the goals and requirements of individual authorities, is essential.

LoTAG, through the work of its Highways (HMSG and Roads 2000), Lighting (LoLEG) and Bridge & Structures (LoBEG) sub-groups, has been very pro-active in developing common asset management practices across London over several years. During this time, there have been notable past and on-going successes, the details of which are described in the main body of this submission. The co-ordination and dissemination of good practice, emanating from these successes, to the boroughs, has been undertaken by these sub-groups.

Following a comprehensive survey of asset management practices across London, LoTAG approved the terms of reference an Asset Management Board (LoTAMB) to drive innovation and promote common asset management practices across London. The Board is fully representative of all areas of LoTAG's work, as its membership comprises representation from all its sub-groups and the boroughs and is therefore the ideal vehicle for this submission.

To date significant progress and investment has already been made across London, to make innovative use of data and develop asset management.

The current planned level of investment in London over the next 3 years is in excess of £3.5m and LoTAMB, on behalf of its constituent 33 London Boroughs and Transport for London, is seeking a contribution towards this investment of around £1m.

The innovations described in this submission are at the cutting edge of asset management practices in the UK and LoTAG wishes to remain at the forefront in developing the tools to optimise transport asset management in the most important city in the world. Access to this funding stream will be greatly beneficial in ensuring that the indicative programmed completion dates for the innovative applications can be achieved.

Should this submission for funding be successful, it is intended that LoTAMB will:

- Prioritise and decide on work and allocate funds to a lead Borough to deliver the work package
- Act as a regional champion and disseminate improvements in highway maintenance through better use of data
- Assist in forming a national network of champions to help disseminate good practice more widely, and
- Consider any other Element 2 individual bids from London Boroughs, if applicable.

London-wide Bid: Organisation

Lead Organisation

Westminster City Council

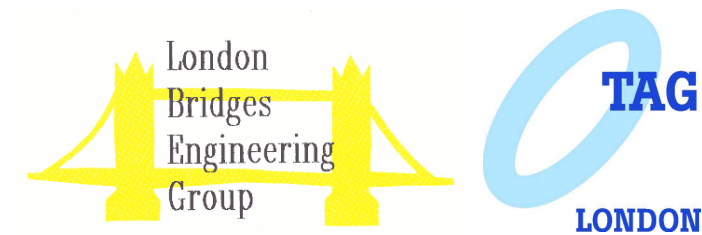
Contact: David.A.Yeoll
Head of Engineering and Transportation Projects
Westminster City Hall
64 Victoria Street
London, SW1E 6QP
Tel: 020 7641 2622
Email: dyeoll@westminster.gov.uk

LoTAG Asset Management Board (LoTAMB)

David.A.Yeoll	City of Westminster	Chair LoTAMB
Gordon Prangnell	Hammersmith and Fulham	Co-chair LoTAG Group 2
Richard McFarlane	Kingston upon Thames	LoBEG
Martin Sachs	Lambeth	HMSG
Trevor Rawson	Hackney	LoLEG
Krishnan Radhakrishnan	Hounslow	Member LoTAMB
Martin Holland	Islington	Member LoTAMB
Les Hawker	Transport for London	Member LoTAMB

Organisations Covered by this Submission

All 33 London Boroughs and Transport for London



ROAD2000

IMPROVING LONDON'S ROADS IN THE NEW MILLENIUM

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1 Introduction

1.1 General

The Department for Transport (DfT) issued guidance on '**Applications for Funding: Transport Asset Management**' in July 2008 which described how Local Highway Authorities in England can apply for funding and/or rewards in relation to transport asset management. This document represents London's co-ordinated response.

To date significant progress and investment has already been made across London, to make innovative use of data and develop asset management.

The current planned level of investment in London over the next 3 years is in excess of £3.5m and LoTAMB, on behalf of its constituent 33 London Boroughs and Transport for London, is seeking a contribution towards this investment of around £1m.

1.2 Application against Element 2

This application, in response to Element 2, is made by the LoTAG Asset Management Board (LoTAMB) on behalf of the organisations listed at the front of this document (under the section titled *London-wide Bid: Organisation*). The City of Westminster will act as the lead organisation for the London-wide bid and will liaise on behalf of LoTAMB with the DfT on all issues relating to this application.

LoTAG fully supports a London-wide application and has long championed the 'one lead Borough' approach, whereby selected Boroughs develop 'centres of excellence' in specific areas and disseminate this good practice across London and beyond, thereby providing a focused and efficient approach to continual development.

1.3 Our Understanding of the Application

The DfT is making available £32m to assist local highway authorities in England with the development of their transport asset management capability. Element 1 makes £24.5m available in recognition of data collection while Element 2 makes £7.5m available in recognition of innovative use of data in making investment and maintenance decisions on the highway.

The guidance explains that evidence provided should relate to work carried out (or to be carried out) in 2008/09, so it is timely and more likely to be relevant to other authorities. The guidance goes on to say that work not completed this financial year can be included, provided lessons learnt/benefits gained so far and those expected are described.

1.4 Our Approach to the Application

We have considered the guidance carefully with respect to Element 2 and have concluded that if we restricted our submission to activities undertaken in or after 2008/09, then this would not be a true reflection of all of our recent and on-going transport asset management innovations. Due to the restrictions upon the size of the submission, we have included only a selection of the excellent work London has done. That is, we have made a number of significant innovations that support investment and maintenance decision-making on highways, structures and lighting, however these innovations have taken a number of years to develop, test, refine and fully implement before tangible benefits could be realised.

Our approach to this submission has been:

- To include activities that have recently, or will soon be, delivering benefits to London highway authorities regardless of when the work was initiated.
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- To present a wide range of these activities (across highway, structures and lighting assets) to demonstrate the breadth and depth of activity in London (we recognise this restricts the level of detail presented against each item but we have taken care to ensure the assessment criteria are addressed).

1.5 Importance of this Funding

Developing, implementing and sustaining good transport asset management is vital for well-informed decisions about asset usage, maintenance and investment. As such, we fully recognise the importance of the funding being made available, not only to reward those who have been actively embracing asset management, but also to support the active promotion and dissemination of good practice via champions.

We are fully committed to transport asset management in London and will continue to proactively develop and implement good and cutting-edge practices. If we are selected as a DfT champion then the funding would be used (i) to provide more formal dissemination of our activities, both in and outside London; (ii) to progress existing activities more rapidly; and (iii) to bring forward planned future development projects.

2 A London-wide Approach

2.1 London's Highway Network

London is the economic engine of the UK. There are over seven million people living in London making it the biggest city in Western Europe. Over 300 languages are spoken in multi-cultural London.

The capital is a massive wealth creator for both the national and global economies. London's £162 billion economy is larger than some EU countries and accounts for 17 per cent of the UK's Gross Domestic Product (GDP), a measure of earning wealth. This makes it a good city in which to both live and work.

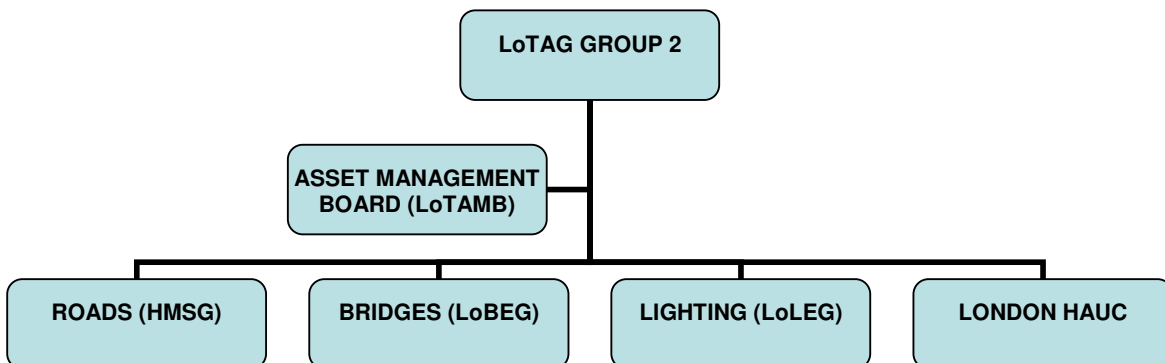
London has a large and complicated highway and transport network managed by the 33 London boroughs and Transport for London (TfL). In Greater London there are 14,783km of roads (3,730km of which are bus routes), 329km of Tube lines and 28km of new tramways. It has around 4,300 highway structures, and 579,000 street lighting units.

Every day 23.8 million journeys are made on this transport network. Of these, 10.5 million by car or motorcycle, 7.2 million are made on public transport, 5.6 million on foot, and 0.4 million by bicycle.

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2.2 Disseminating Good Practice in London

The existing network of highway engineering groups in London is shown and described below, the structure was specifically designed to reflect and directly feed into the Roads Liaison Group and UK Boards.



- London Technical Advisors Group (LoTAG) – this is the London branch of the national TAG. LoTAG has representatives from all London highway authorities.
- Highway Maintenance Steering Group (HMSG) – this group deals with all aspects of roads, footways and cycle lanes; it includes four subgroups with practitioners from all boroughs who share good practice.
- London Bridge Engineering Group (LoBEG) – leads on the development and dissemination of bridge management activities and is recognised nationally for its innovative work.
- London Lighting Engineering Group (LoLEG) – leads on the development and dissemination of street lighting practices in London.
- London HAUC – provides a forum for authorities and utility companies to debate issues of mutual concern and to develop ideas that will improve road and street work management.

All of the above groups, and the recently formed LoTAMB (see below), have lead boroughs that act as the champions/centres of excellence for developing and sharing good practice. The groups hold regular meetings (normally biannually or quarterly) to discuss and disseminate good practice and normally have subgroups to progress specific initiatives. The regular seminars are open to organisations outside London.

2.3 LoTAG Asset Management Board (LoTAMB)

In 2006 a comprehensive survey of asset management practices in London was undertaken. The findings highlighted that, despite the above network, there was variability in asset management practices across London. Also, recent discussions between HMSG, LoBEG and LoLEG highlighted that cross asset sharing of innovative developments could be improved. To help address these issues, in early 2008, the LoTAG Asset Management Board (LoTAMB) was set up.

If this London-wide submission is successful, then LoTAMB would coordinate the distribution of the funds to appropriate asset management projects. This would include authorities outside the LoTAMB membership leading on specific innovations where, as agreed by LoTAMB, they are best placed to do so.

2.4 Benefits

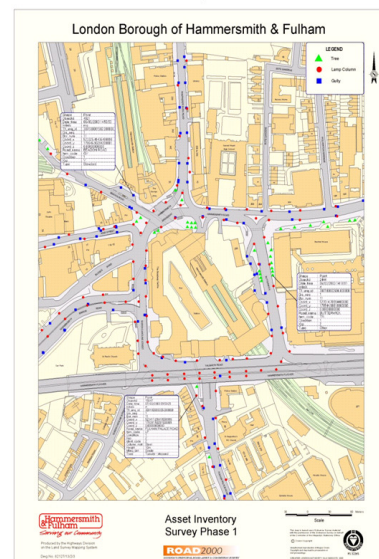
We consider the key benefits of adopting a London-wide co-ordinated approach to this proposal include:

- Making full use of existing organisational networks to develop, promote and disseminate good practice;
- Ensuring that London's highway authorities gain benefits;
- Adopting a holistic approach that shares practices between highway, structures and lighting.

3 Innovative Use of Data: Roads

3.1 Activity Overview – ROAD2000

ROAD2000 was set up in 1999, as a sub-group of the LoTAG HMSG, with the remit to oversee and coordinate the collection of condition and asset inventory data, on the London Borough Principal Road Network. The information provided by the survey includes:



- Maintenance Standards Automatic Pass Reports (APR) for Detailed Visual Inspection (DVI), Coarse Visual Inspection (CVI) and Footway Surveys giving Condition Index (CI), Treatment and Works Cost.
- SCANNER Road National Indicators (NI)
- DVI and CVI Best Value Performance Indicators (BVPI)
- Survey data in HMDIF format for SCANNER, DVI and CVI.
- Road Condition Indicators (RCI)
- PDF mapping for Networks, DVI, CVI, Footways, SCANNER and SCRIM showing shortfalls and thresholds.
- Geographic Information Systems (GIS) shapefiles for Networks, DVI, CVI, Footways, SCANNER and SCRIM showing shortfalls and thresholds.
- DVI data submissions to Transport for London.

The ROAD2000 work has proven to be highly effective and beneficial to London boroughs and Transport for London; the current ROAD 2000 strategy extends to 2010.

3.2 Strategic Aims Addressed by Activity

The strategic aims addressed by ROAD2000 surveys and associated work include:

- To provide Best Value and promote efficiency for condition surveys on London's classified road network and to promote best practice.
- To enable each borough to establish maintenance and funding needs for their Principal Road Network and for TfL to make informed decisions, based on robust and timely data, regarding the allocation of maintenance funds for the Principal Road Network;
- To determine maintenance standards and consistent condition data for all Principal Roads in London and provide assistance to Boroughs in making best use of data held on UKPMS.
- To provide a unique data base for research purposes to validate machine and visual survey data;
- To promote and develop footway standards treating London as a special case particularly with respect to developing a London rule set and footway condition assessment approach.
- To provide guidance on how data should be maintained as part of on-going maintenance arrangements

3.3 Value for Money

The data collection contract is managed by the Lead Borough (Hammersmith & Fulham) on behalf of all London Boroughs, thereby maximising efficiency and delivering economies of scale. This approach was adopted to enable the Lead Borough to maintain the resources necessary to manage and procure a single contract for surveying and processing the data. There are currently considerations to extend this contract to include other surveys.

The ROAD2000 contract has an annual average value of about £900k – this includes data collection, analysis and presentation and an amount of around £300k for special commissions for research and development. In 2008/09, for example, it included the development of a London-wide SCRIM policy. This represents substantial cost savings when compare to each borough undertaking these activities separately.

3.4 Dealing with Change and Disseminating Information

ROAD2000 brought about significant changes to ways of working in London. It was recognised that all boroughs need to be well informed of the process, what it would provide them with and the requirements placed on them. Three elements that have been vital to disseminating and embedding ROAD2000 as the accepted way of working are:

- *ROAD2000 website* – the website provides condition data and maps for every London borough's survey results.
- *ROAD2000 Newsletters* – provides updates to the boroughs but these have been superseded by the annual Road 2000 seminar. The newsletters ideas have now been taken up by the Roads Board.
- *ROAD2000 Annual Seminar* – the seminar, now in its 9th year, is attended by all 33 boroughs and TfL and presents both the annual survey results and topical issues relating to asset management, inventory collection and asset condition surveys.

ROAD2000 has an excellent reputation, and deservedly so, for communication of condition data and dissemination of development work.

3.5 Benefits

The key benefits achieved from this work are:

- A common London wide approach is used for the collection and process of principal road condition data;
- The condition data collected across London's 33 Borough's has now proven to be consistent with results published year on year;
- Data is used in contributing to Councils CPR rating;

3.6 On-going and Future Work

On-going work, outside the annual surveys, to sustain ROAD2000, includes updating the ever-changing borough networks and auditing of survey data. Current plans include the extension of ROAD200 SCANNER surveys to include B and C Classified Roads. In 2008, the ROAD2000 working group started to develop a London-wide skid resistance policy and standards based on appropriate (to be determined) site categories/thresholds and investigation levels (IL). The work will provide the following in 2009:

- A skid policy prepared for all London Boroughs and TfL;
- A briefing paper that organisations can use to seek approval/formal adoption of the policy;
- A Tool Box that provides guidance on how to adopt the policy and implement it to suit local needs;
- A histogram of site deficiencies so boroughs can prioritise works, address backlogs and monitor trends.

An introductory presentation on the skid policy was given at the ROAD2000 conference in November 2008 and workshops have been arranged for early 2009 for boroughs. The main computations and identification of sites to be investigated will to be undertaken centrally (through ROAD2000) to ensure consistency and address any issues with resources in individual boroughs and TfL.

An investment of over £300k is being made, through ROAD2000, to develop, implement and disseminate the London wide skid policy.

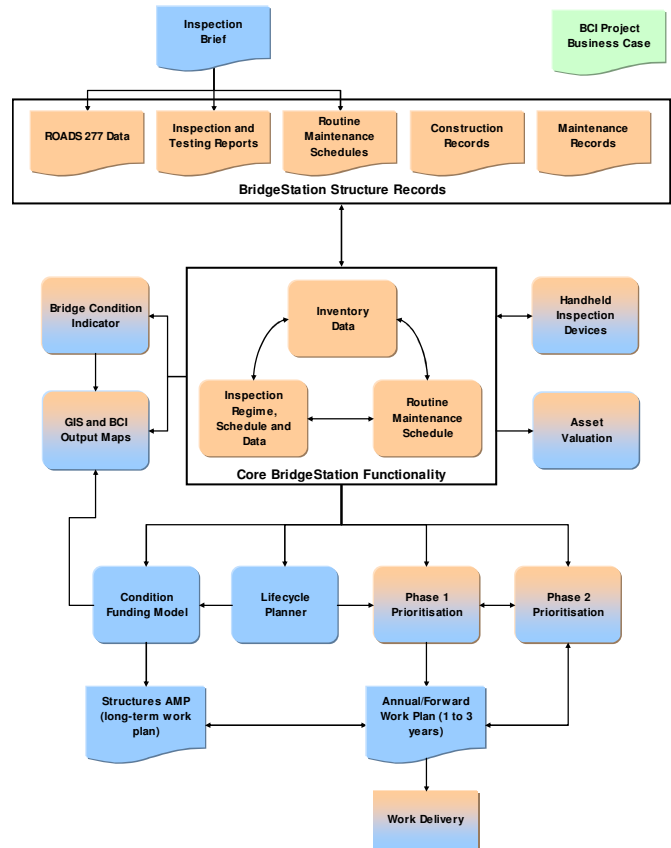
4 Innovative Use of Data: Highway Structures

4.1 Activity Overview – Maintenance Planning Process for Highway Structures

The CSS Bridge Condition Indicator (BCI) guidance was published in 2002 and sought to provide a common bridge inspection procedure for the UK. London adopted the CSS BCI approach, specifically for a project looking at the 900+ bridges on the Borough Principal Road Network (BPRN). This six year project (April 2003 to March 2009) focused on two areas (i) carrying out the inspections to the BCI requirements; and (ii) developing processes and tools that enable best use to be made of the inspection data. The lessons learned and processes/tools developed through this work would then be used to help all London boroughs and would be made available for use by organisations outside London.

London developed the *BridgeStation* Bridge Management System which is used by all 33 London Boroughs and TfL. This provides a central inventory to assist all Boroughs in carrying out their maintenance management functions. In addition *BridgeStation* is used for the bidding and allocation of funding for Capital grant from TfL to the Boroughs. *BridgeStation* has been extended to include a range of tools, such as the BCI module, and LoBEG intends to extend it further to provide additional tools to assist managers in respect of asset management.

Over the last three years LoBEG has developed a robust maintenance planning process, based on the UK Code of Practice, to make best use of the condition data. The flow diagram opposite shows the maintenance planning process. It is LoBEGs' intention, in time, to realise all components of this process.



Each component of the process represents an aspect of bridge management that makes use of inspection data. The components of this process that have been developed to date are:

- *Inspection Brief* – comprehensive inspection documentation and brief has been produced that seeks to ensure inspectors provide high quality and consistent data. This helped inform the content of the updated *Inspection Manual for Highway Structures* (May 2007).
- *Bridge Condition Indicator* – inspection data is being used to calculate the Bridge Condition Indicator and monitor trends over time (at stock level and for structure groups). The essential input to this is up-to-date inspection data.
- *Asset Valuation* – a LoBEG Technical Note (Sept 2008) has been developed and published (and made available nationally) that explains how the CSS Asset Valuation guidance has been interpreted and applied in London (including replacement unit rates and depreciation relationships). A MS Excel spreadsheet has been released and the process is currently being programmed into *BridgeStation* (the London wide Bridge Management System). A key input to this is up-to-date inspection data.
- *Phase 1 Prioritisation* – a LoBEG Technical Note (May 2008) has been developed and published (and made available nationally) that explains the maintenance prioritisation process; a MS Excel spreadsheet

has been released and the process is currently being programmed into BridgeStation. The key input to this is up-to-date inspection data.

- *Condition/Funding Model* – a model has been produced that enables LoBEG to predict the long-term maintenance needs for bridges and the impact that different levels of spend have on the BCI. A key input to this model is up-to-date inspection data. Development work is on-going and assumptions/algorithms are being reviewed in 2008/09.
- *Lifecycle Planner* – LoBEG have started work (in 2008/09) on the development of a Lifecycle Planning tool that supports detailed whole life cost analysis/comparison on a bridge specific basis. The inspection data (i.e. inventory and condition) provides the starting point for the WLC analysis.

The above illustrates the considerable advances and innovations LoBEG have made, and are continuing to make, regarding full utilisation of condition data. A presentation describing the above asset management process titled '*LoBEG: Structures Condition Survey Project - Maintenance Planning and Justification*' was presented at the annual 'Surveyor' bridge conference in November 2007

4.2 Strategic Aims Addressed by Activity

This work, primarily funded by TfL, seeks to implement the principles of better management of bridges in line with the Mayor of London's 'Transport Strategy for London'. The strategic aim of the maintenance planning process is to provide a fully developed and consistent London-wide process that (i) makes best use of bridge inspection data; (ii) streamlines maintenance management; (iii) supports maintenance decision making; and (iv) provides justification for maintenance expenditure on highway structures.

4.3 Value for Money

The maintenance planning process is being developed by the LoBEG Asset Management sub-group. This approach provides value for money because one co-ordinate London wide process is being developed opposed to a number of boroughs doing this separately. LoBEG have also engaged external experts in bridge management to (i) support delivery; and (ii) achieve additional value for money through utilising the external consultants' work for other highway organisations.

Approximately £400k has been invested (including this financial year) in developing the maintenance planning process processes, guidance and tools. £150k has already been identified for 2009 to 2011.

4.4 Dealing with Change and Disseminating Information

It was recognised by LoBEG that introducing a number of innovations could be daunting for many bridge managers. It was therefore decided that each innovation would be formally launched at a LoBEG seminar with an accompany Technical Note and interim MS Excel tool. The process would then be embedded within BridgeStation, again with training. To date this has been done for Asset Valuation and Prioritisation.

4.5 Benefits

The key benefits achieved from this work are considered to be:

- A common view of London wide bridge management developments, prevented duplication of effort across London; cost savings are estimated to be a minimum of £5k per Borough over the last five years; providing a total saving of £165k.
 - Making efficient use of staff time by streamlining activities, e.g. asset valuation and prioritisation. Cost savings estimated to be a minimum of £10k per borough over the last five years (and this is expected to increase significantly in the future), providing total costs saving of £330k.
 - Ensuring a consistent (and fully documented) approach is adopted across London – unable to quantify the financial benefits, but promotes improved understanding between boroughs and with supply chain.
-

- Actively sharing innovations with authorities outside London - unable to quantify the financial benefits but are likely to be considerable as it avoids duplication of effort by other authorities.

4.6 On-going and Future Work

Key elements of the on-going and planned work include:

- *Lifecycle Planner* - completion of the first version of a Technical Note and associated tool in 2009.
- *Phase 2 Prioritisation* – updating the scheme level system prioritisation to align with the latest thinking in bridge management and to make best use of limited funds available.
- *Condition/Funding Model* – on-going enhancement and linking strategic to bridge specific analysis.
- *Asset Valuation* – updating as required to align with the findings from the forthcoming CIPFA work.
- *Risk Based Inspection Planning for Highway Structures* - to develop a Risk Based Inspection Planning framework that can be used to assess and, where appropriate, amend the standard inspection regime.

5 Innovative Use of Data: Lighting

5.1 Activity Overview – Street Lighting for Strategy

LoLEG was formed in spring 2005 with the primary aim to maintain a technical network for street lighting professionals employed by London boroughs and to:

- Provide coordinated and comprehensive advice and support in street lighting matters;
- Develop and disseminate best practice;
- Provide a centre for professional advice/assistance for local policy development and service delivery;
- Provide a knowledge base of street lighting expertise within London.

A detailed street lighting inventory is a prerequisite for unmetered supply agreements with energy providers. Consequently, many lighting authorities have good inventories in place. The use to which this data is put varies across the capital, as such, LoLEG is identifying and disseminating areas of good practice, examples of which are provided below:

- *Street Lighting Suite of Guides* - LoLEG are in the process of reviewing and updating the Street Lighting Strategy originally developed by Westminster City Council in 2000. The intention, is to translate the Westminster-specific strategy between 2008 to 2010 into a suite of London-wide processes and tools that can be adopted, and tailored, to individual boroughs to meet their particular requirements.

The Strategy includes a Street Lighting Design Guide, Special Area Design Guide, Maintenance Strategy Document, Prioritisation Strategy, a computerised tool to produce the prioritised programme, Risk Based Inspection and Testing guide, and a SMART Lighting Strategy. All of these will be translated into a London suite of guides.

- Prioritisation of re-lighting schemes - A risk prioritisation process is being developed to target investment at those streets most in need. The process takes account of structural risk, lighting performance and the visual condition of the column, lantern and electrical components. In addition, the process takes account of 'local' factors including accident black spots, low lighting levels, high crime area, prime site/important streets, area of significant pedestrian use and complaints. These factors produce a 'score' for each street that is then used to produce a priority list. It is the intention that the priorities will be reviewed annually and takes account of new data, including the annual condition survey and load testing.
- Remote Monitoring - Several boroughs are currently trialling Remote Monitoring (RM) systems, with one of these intending to have the system operational across the whole borough in time for the 2012 Olympics. These trials are being shared through LoLEG and a development opportunity has already been identified. This centres on the linkages between the RM system and authorities' existing asset management systems (such as Confirm, Mayrise and Symology). This linkage needs to be robust to ensure outages or impending component failures are reported in a manner that enables fault instructions to be issued electronically to the maintenance team.

A further LoLEG investigation is the development of a computerised tool to optimise maintenance strategies. Such a facility will look at the data provided by the RM and asset management systems and output a range of the most advantageous options of when to replace lamps, ballasts and other components. At the same time, it would ensure that light output does not fall below set thresholds.

A key outcome from RM is acceptance by the energy suppliers, UMSUG and Ofgem, that it provides an accurate measure of the energy used, i.e. virtual metering. LoLEG will continue to lobby for this acceptance.

- Lamp Technology - As lamp technology moves forward (via LEDs, induction lamps, electronic control gear etc), reductions in energy consumption and costs are expected. Several boroughs are already testing a selection of these innovations, the results of which are being collated by LoLEG. A large-scale LED trial will shortly be implemented in Hackney, who together with TfL, Haringey, Westminster, Barking & Dagenham and others have existing smaller scale trials of a variety of LED luminaires.

Links between the London Climate Change Agency (LCCA) and LoLEG have already been established regarding the LCCA's project that will review lighting design practices and the British and European design standards. Although in its early stages of research and consultation, with three universities and the ILE, LoLEG has already committed to participation in site trials when that phase is reached.

5.2 Strategic Aims

Common themes in the corporate objectives of boroughs and the Mayor of London's Transport Strategy include safer neighbourhoods, and cleaner and greener places in which to live and work. The management of the capital's street lighting stock has a vital role to play in achieving these. As such, the guiding aims of LoLEG work are to develop and disseminate practices and tools that inform lighting management decisions with regard to (i) reducing crime and fear of crime; (ii) promoting public safety and a sense of well being; (iii) reducing energy consumption; (iv) creating a vibrant night time economy; (v) attracting inward investment, (vi) creating a sense of place; and (vii) increasing residents' satisfaction with the services and facilities provided.

5.3 Value for Money

The initiatives described here are being and will continue to be collated and disseminated by LoLEG. This approach provides value for money because a single coordinated, London-wide process provides economies of scale and avoids a number of boroughs undertaking the same or similar tasks. To date, approximately £200k has been invested in taking forward the initiatives described above.

5.4 Dealing with Change and Disseminating Information

LoTAG recognised that many recent innovations and requirements within the lighting industry have placed a considerable demand on the limited lighting resources within London boroughs. As such, LoLEG was established to act collaboratively, to share the restricted resources available and disseminate information.

5.5 Benefits

Benefits achieved to date by the formation of LoLEG include:

- Identification of signs no longer requiring illumination.
- A conversion programme for photo-cell controlled illuminated signs to reduce energy usage.
- Cost savings by identifying which lamps and other components fail within the warranty periods.
- Identifying life-expired or structurally suspect/unsound columns and developing a programme of replacement. In one case, this led to a self-funded relighting programme across the entire authority.
- Identifying inefficient components and developing a conversion programme.

In addition, the initiatives described in Section are expected to accrue the following benefits:

- Suite of Guides – a common suite of practices for London, tailored to local needs where required.
- Replacement Prioritisation – risk based prioritisation of needs to make best use of available funds.
- Remote Monitoring – a wide range of benefits, including reduced energy consumption, improved maintenance regimes, virtual metering and replacement of components before failure.
- Lamp Technology – benefits are expected to include longer life, better control and reduced maintenance

5.6 On-going and Future Work

Much of the work is actively progressing and there is still much to do. Investment in the region of £250k is planned over the next three years. A key element of future activity will be to bring these various components of work together into a holistic approach.

LoLEG will continue to collate and disseminate innovations in the lighting field, including its work with the LCCA, the ILE, the UK Lighting Board and the CSS Lighting Group.

6 Innovative Use of data: Asset Management

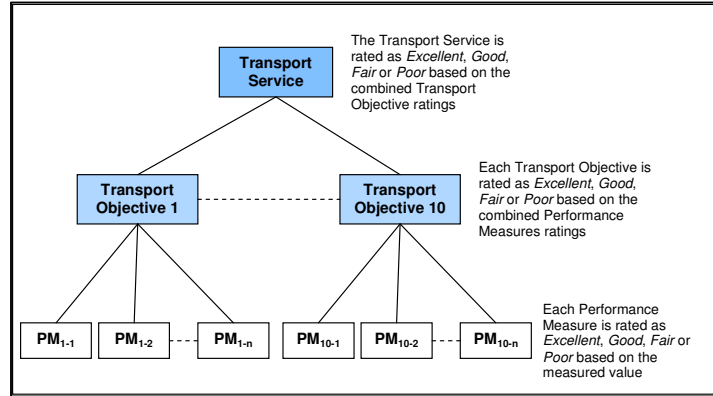
6.1 Levels of Service

This work, started in 2007 and due for (initial) completion in early 2009, comprises the development of a framework (shown schematically in the diagram below) for the overall measurement of the performance of (i) the transport infrastructure; and (ii) the management of the transport infrastructure. This framework enables an authority to determine how they are performing against predefined 'Levels of Service' and performance targets.

The framework links individual (normally engineer) performance measures to a borough strategic Transport Objectives which in turn link to the boroughs corporate goals and vision. The intention is to monitor overall performance against the strategic Transport Objectives, in addition to individual targets.

31 indicators have been identified as being suitable for London wide benchmarking, this include:

- BVPI 165 – Percentage of pedestrian crossings with facilities for disabled people as a proportion of all crossings in the local authority area;
- CSS NM8 - Percentage of bridges meeting the required carrying capacity compared to total stock;
- Percentage of the local authority principal road network where structural maintenance should be considered based on CVI survey;
- Percentage of schemes without significant defects at substantial completion;
- Percentage of schemes completed on or ahead of published date;



The framework provides a clear link between day-to-day engineering activities and strategic goals and objectives. Also, since the majority of the indicators make use of asset condition and/or inventory data, the quality of this information is vital to the success of the framework.

A provisional 'dashboard' has been developed to show performance against targets in an easily understandable format. This is a simple way of showing how performance is changing and will support the identification of cashable and non-cashable savings.

6.2 Strategic Aims Addressed by Activity

The strategic aims addressed by this work are:

- To provide a common set of indicators that can be used to compare and, where appropriate, set targets across London;
- To provide senior management and members with improved clarity and visibility of the performance of the transport service and how this is changing with time.

6.3 Value for Money

The Level of Service work has been championed by Westminster City Council and in early 2008 a London-wide Level of Service Benchmarking Group was formed to disseminate the work to date and to agree on a common approach. Between 2008/09 and 2009/10 it is estimated that a total of £100k will have been invested in this work, this is considered to represent a considerable saving when compared to each borough developing a Level of Service/performance framework on their own.

6.4 Dealing with Change and Disseminating Information

The London Benchmarking Group has been formed to ensure an approach is developed that is acceptable and workable for all Boroughs. Information has been disseminated through the Group and regular meetings are held to provide updates on progress and discuss the way forward. This has included presentations at this years' ROAD2000 conference and other national highway conferences.

The 'levels of service and performance framework' has been endorsed by LoTAG and is a 'case study' in the current DfT 'Highways Efficiency Toolkit guidance'.

6.5 Benefits

The framework and dashboard illustrates how performance is changing over time and supports the identification of cashable and non-cashable efficiency gains, continuous improvement and service improvement. Quality crosschecks are still used to ensure that quality has not been compromised in the pursuit of efficiencies.

6.6 On-going and Future Work

The provisional framework will be agreed in early 2009 and this will be followed by a trailing period. Parallel development work is intended to assess how the framework can be used to justify or demonstrate the need for funding, for example, the funding required to deliver an 'Excellent' Level of Service compared to a 'Good' Level of Service.

Collection and collation of data for the individual performance measures is an on-going process. In addition benchmarking between other London authorities is essential to determine how well each authority is performing.

6.7 Asset Management Innovations

The following provides a brief summary of other London-wide asset management recent and on-going innovations, which are making use of condition data.

- Transport for London Stated Preference Customer Survey - In July 2008, TfL commissioned a market research company to conduct a Stated Preference (SP) customer survey, to gauge public priorities for maintenance of the highways. This research will determine the relative importance of various aspects of condition. The survey asked 1140 respondents in five locations across London, to indicate their preference for sets of carriageway condition defects or attributes (or footway for pedestrian respondents), at different levels and in different combinations. They were also asked for their preferences for surface condition compared to other aspects, such as lighting, drainage and disruption. Once the study is finalised and the recommendations accepted it is intended to incorporate customer priorities explicitly within the current models used to select and prioritise carriageway and footway capital schemes in 09/10. The goal is to maintain assets in a safe condition, while achieving value for money and improving customer satisfaction.
 - Asset Deterioration and Cost Prediction Tools for Footways and Carriageways – work started early 2008 on the development of the methodology and computerised tools. These tools will be used to support 'what-if' analyses of different investment and/or maintenance strategies. The key input data is current condition data, while historical condition data is analysed to determine, and update, deterioration profiles. The first computerised model is due for completion in March 2009. The work is lead by Westminster City Council and to be shared with all London boroughs. Total investment is around £120k.
 - Value Management Framework for Footways and Carriageways – work started in early 2008 on the development of a framework and associated computerised tools. A prioritisation strategy, taking into account structural condition, visual appearance, skid resistance, maintenance history, statutory undertaker's activity and other factors, for the development of annual programmes for structural maintenance of both carriageways and footways, is being developed. The computerised tools will provide support and the first model is due for completion in August 2009. The work is being lead by Westminster City Council and shared with all London boroughs. Total investment is around £50,000.
 - Framework for a Maintenance Management Plan (MMP) – following the introduction of the 2005 Code of Practice for Highway Maintenance (Well Maintained Highways), a framework for documenting maintenance policies and practices to ensure compliance with the Code in the delivery of maintenance using risk management techniques, was developed. MMPs in respect of highways, structures and lighting should be integral documents supporting a TAMP at the operational level. This work was lead by Westminster City Council. The framework document was approved by LoTAG and endorsed by Zurich Municipal as the London wide standard. The total cost of the project was approximately £40,000.
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- *London Wide Asset Management Survey* – following the Local Implementation Plan Guidance issued by TfL to all London boroughs, requiring boroughs to submit programmes for asset management plans, LoTAG was keen to promote synergies in the production of Highway Asset Management Plans (HAMPs) and good asset management practices across London. Accordingly, in 2006, LoTAG commissioned a comprehensive survey on the progress of London boroughs in these matters. The results highlighted a wide range in practice, knowledge and understanding across London and no commonality in developing HAMPs. However, this survey formed the baseline from which the innovations in this submission have been developed.

7 Conclusion

This application is made by the LoTAG Asset Management Board (LoTAMB) on behalf of its constituent 33 London Boroughs and Transport for London (TfL). The City of Westminster will act as the lead organisation for the London-wide bid and will liaise on behalf of LoTAMB with the DfT on all issues relating to this application.

London's highway network has unique characteristics and provides asset managers with many logistical challenges. It has long been recognised that 'joined up' thinking to transport asset management in London, which is flexibility enough to cater for the goals and requirements of individual authorities, is essential.

LoTAG fully supports a London-wide application and has long championed the 'one lead Borough' approach, whereby selected Boroughs develop 'centres of excellence' in specific areas and disseminate this good practice across London and beyond, thereby providing a focused and efficient approach to continual development.

Developing, implementing and sustaining good transport asset management is vital for well-informed decisions about asset usage, maintenance and investment. As such, we fully recognise the importance of the funding being made available, not only to reward those who have been actively embracing the asset management, but also to support the active promotion and dissemination of good practice via champions.

We are fully committed to transport asset management in London and will continue to proactively develop and implement good and cutting-edge practices. If we are selected as a DfT champion then the funding would be used to:

- Provide more formal dissemination of our activities, both in and outside London
- Progress existing activities more rapidly; and
- Bring forward planned future development projects.

The current planned level of investment in London over the next 3 years is in excess of £3.5m and LoTAMB, on behalf of its constituent 33 London Boroughs and Transport for London, is seeking a contribution towards this investment of around £1m.
