

Funding for Innovation: Cooperative Intelligent Transport Systems



Department
for Transport

Application Form

The level of information provided should be proportionate to the size and complexity of the scheme proposed. As a guide, we would suggest around 10 to 15 pages including annexes would be appropriate.

A separate application form should be completed for each scheme.

Applicant Information

Local authority name(s)*:

London Borough of Hounslow (Lead Authority)
London Borough of Hammersmith & Fulham
London Borough of Westminster
Blue Point London – operators of Source London EV charge network
Imperial College London

Bid Manager Name and position:

Kieran Taylor, Principal Transport Planner

Contact telephone number: 020 8583 5206
Email address: kieran.taylor@hounslow.gov.uk

Postal address: Red Zone, Traffic & Transport
Hounslow Civic Centre
Lampton Road, London. TW3 4DN

When authorities submit a bid for funding to the Department for Transport, as part of the Government's commitment to greater openness in the public sector under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, they must also publish a version excluding any commercially sensitive information on their own website within two working days of submitting the final bid to the Department for Transport. The Department for Transport reserves the right to deem the business case as non-compliant if this is not adhered to.

Please specify the web link where this bid will be published:

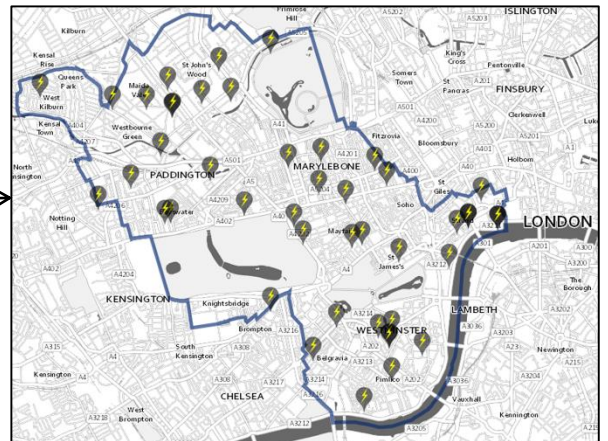
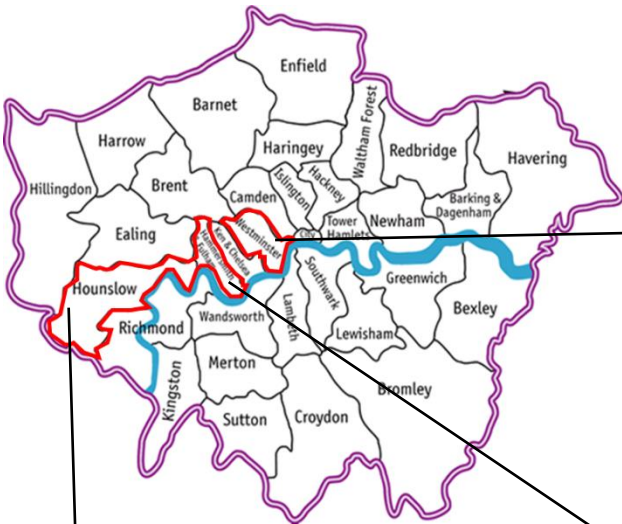
http://www.hounslow.gov.uk/index/transport_and_streets/electricvehicles/ev_bays_bid.htm

SECTION A - Scheme description and funding profile

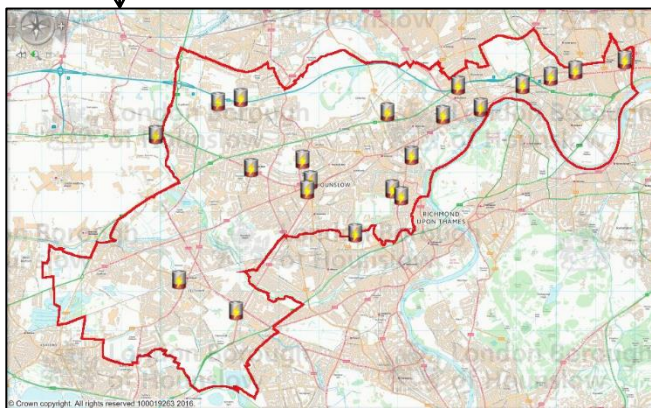
A1. Scheme name: Electric Vehicle Smart Parking

A2. We will bring together leading suppliers of EV charge points and parking sensors to demonstrate the value of integrating these two technologies. Across London a new generation of charge points are being rolled out which provide real-time data on whether they are in use. However drivers still face the hazard that charge points are inaccessible because of cars parked illegally in EV bays. Deploying parking sensors in EV bays can solve this issue and charge points could drive down the cost of installing sensors by providing the communications channel to relay the sensor data.

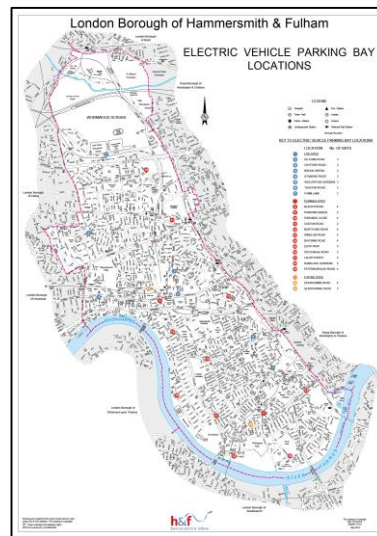
A3. Geographical area: The project will take place at Source London EV charging bays across the participating boroughs of Hounslow, Hammersmith & Fulham and Westminster. This covers central, inner and outer London to provide a range of different environments to test the technology. Westminster has over 3,500 sensors already deployed, allowing for work to commence as soon as funding is available. Sites at Hammersmith & Fulham and Hounslow will act as test beds for integrating parking sensor data to be sent via the charge point communication channels.



Westminster



Hounslow



Hammersmith & Fulham

A4. Type of bid: C-ITS: Smart Parking & Real Time Information

A5. Has an equality analysis has been undertaken in line with the Equality Duty - Yes

SECTION B – The Business Case

B1. The Scheme – Summary/History (Maximum 200 words)

Please outline what the scheme is trying to achieve – and the importance of C-ITS technology/innovation in delivering these outcomes.

EV charge points will become common on our streets as EVs become more popular. To optimise their utility they should be integrated with other smart infrastructure, which is likely to become commonplace in the future. We want to:

- demonstrate the value of parking sensors in improving the management of parking bays.
- demonstrate how EV charge points can act as the communications relay for parking sensors and dramatically reduce their installation cost.
- Evaluate; the impact illegal parking has on the accessibility of EV charge points, what affect parking sensors have on improving their availability, and whether reduced installation costs can act as a catalyst for installing sensors in other parking bays.



Source London latest charge point

The first stage of this project will be to install sensors at EV bays in Westminster to provide real-time information to members of Source London on the availability of charge points.

The next stage will be to develop software which will enable the parking sensors to relay information via the Source London charge points and remove the need for their own dedicated infrastructure. This will be tested at sites in Hounslow and Hammersmith & Fulham. Independent assessment will be carried out by the team at Imperial College London. Source London will then decide whether to roll out to all of their charge points.

B2. The Strategic Case (Maximum 350 words)

This section should set out the rationale for making the investment and evidence of the existing transport problems. In particular please provide evidence on the relevant questions/issues in the accompanying Competition guidance.

- Aims of proposed scheme and how it addresses the problems identified
- Demographic of the area and unquantified benefits to the local community
- The identified problem(s), with timescales and the key drivers
- The target and/or affected population(s) and what is known about their current needs, current behaviours and attitudes.

Supporting evidence may be provided in annexes – if clearly referenced in the strategic case. This may be used to assist in judging the strength of your strategic case arguments but is unlikely to be reviewed in detail or assessed in its own right. So you should not rely on material included only in annexes being assessed.

What are the current problems to be addressed by your scheme? (Describe any transport, environmental, social problems or opportunities which will be addressed by the scheme.

What options have been considered and why C-ITS may provide the best solution? What are the expected benefits / outcomes? What is the impact of the scheme?

Please provide information on the geographical areas that will benefit from your scheme. You should indicate those areas that will directly benefit, areas that will indirectly benefit and those areas that will be impacted adversely.

Rationale for the bid: Improving air quality and people's health

The Greater London Authority estimates that over 9,000 Londoners a year die due to long term exposure to air pollution. EV's have huge potential to improve local air quality but having the right EV charging infrastructure in place is essential to support uptake of EVs.

This project seeks to use C-ITS to overcome some of the known issues with public charge points. We wish to make owning an EV as, if not more, convenient as owning a petrol or diesel car.

Owners of EVs typically charge their vehicles while they are parked up overnight so households without access to off-street parking are reliant on public charge points. Source London is the network of publically available charge points found throughout the capital.

In London it is estimated that 66% of households do not have access to off-street parking and other towns and cities throughout the UK will face this issue too. These households need to have total confidence that they will be able to rely on the publically available charge point network to refuel if they are to switch to using EVs

The existing problem: EV charge points blocked by non EVs

We know from surveys of existing Source members there is a problem with charge points not being available because a non-EV is parked there. This results in wasted journeys, meaning the highway network is used inefficiently, inconvenience for EV drivers and that owning an EV is less attractive to consumers.

By using parking sensor data, combined with data from the charge points, to monitor EV bays we aim to improve real-time information to EV drivers about the availability of charge points. It will also improve enforcement action against vehicles parking in contravention in EV bays, which should lead to fewer instances of vehicles blocking access to the charge points.

Beneficiaries of the project

The immediate beneficiaries will be users of the Source London charge points in the participating boroughs. However this projects aims to demonstrate how parking sensors can be deployed more cost effectively and evaluate other applications for them; in loading bays, reducing the cost of parking enforcement etc.

B3. The Financial Case – Project Costs

Before preparing a scheme proposal for submission, bid promoters should ensure they understand the financial implications of developing the scheme (including any implications for future resource spend and ongoing costs relating to maintaining and operating the asset), and the need to secure and underwrite any necessary funding outside the Department for Transport's maximum contribution.

Please complete the following tables. **Figures should be entered in £000s** (i.e. £10,000 = 10).

Table A: Funding profile (Nominal terms)

£000s	2016-17	2017-18	Total
<i>DfT Funding Sought</i>	30	174	204
<i>LA's Contribution</i>	1	6	7
<i>Other Third Party Funding</i>	2	2	4

Notes:

- (1) Department for Transport funding must not go beyond 2017-18 financial year.
- (2) A local contribution of 5% (local authority and/or third party) of the project costs is required.

B4. The Financial Case - Local Contribution / Third Party Funding

Please provide information on the following points (where applicable):

- a) *The non-DfT contribution may include funding from organisations other than the scheme promoter. Please provide details of all non-DfT funding contributions to the scheme costs. This should include evidence to show how any third party contributions are being secured, the level of commitment and when they will become available.*
- b) *Where the contribution is from external sources, please provide a letter confirming the body's commitment to contribute to the cost of the scheme. The Department for Transport is unlikely to fund any scheme where significant financial contributions from other sources have not been secured or appear to be at risk.*

Have you appended a letter(s) to support this case? **Yes**

See appendices for details.

- c) *Please list any other funding applications you have made for this scheme or variants thereof and the outcome of these applications, including any reasons for rejection.*

No other funding applications have been made for this, or similar, schemes.

B5. The Financial Case – Affordability and Financial Risk (maximum 300 words)

This section should provide a narrative setting out how you will mitigate any financial risks associated with the scheme. Please provide evidence on the following points (where applicable):

- a) ***What risk allowance has been applied to the project cost?***

Within the project costs we have allowed 10% for contingency with the following breakdown of costs:

- b) ***How will cost overruns be dealt with?***

The current costings are based on having 80 parking bays fitted with sensors. If there are overspends there is a commitment from the participating bodies to invest more of their own resources.

If cost overruns are more significant there is the opportunity to reduce the number of bays fitted with sensors. If required the number of sites could be reduced to as low as 60.

There is also the opportunity to reduce the scope of the research that will be undertaken by Imperial College London in order to reduce expenditure.

The cost of integrating the sensor technology is the largest unknown at this stage, with 20 weeks of software engineer time allocated to achieving this. The project plan allows for two types of sensor to be trialled to see which is the most effective. Again if cost overruns are identified we will be able to reduce costs by trialling just one sensor type.

The core aims of the project could still be delivered if the above mitigation is carried out.

c) What are the main risks to project delivery timescales and what impact this will have on cost?

The main risk to project delivery timescales are again around ensuring the parking sensors and charge points are able to work together effectively. While this may have an impact on when the final report on the project is produced the impact on cost should be minimal.

Westminster Council are a partner on the bid and also bring with them a wealth of experience of using parking sensors. They are trialling optical sensors already and operate over 3,000 smart parking sensors. This reduces the risk of unknown technical issues.

B6. The Economic Case – Value for Money

If available, promoters may provide an estimate of the Benefit Cost Ratio (BCR) of the scheme (particularly for schemes costing more than £100,000)

Where a BCR is not available/appropriate other values of value for money should be demonstrated. These should be commensurate with the value of the scheme – examples are set out in paragraph 20 of the Guidance.

There is insufficient data to provide a Benefit Cost Ratio. A large element of this trial is to gather the data necessary to assess what the value is of having better information on EV charge point availability. Imperial College London will take on this function.

In addition to the nominal value that Source London members attribute to having a more reliable network there is the potential to evaluate how effective parking sensors are at reducing the costs of enforcing parking restrictions. Currently parking enforcement is labour intensive but parking sensors have the potential to direct enforcement activity in reaction to where contraventions occur rather than patrolling in order to deter contraventions.

B7. The Commercial Case (maximum 300 words)

This section should set out the procurement strategy that will be used to select a contractor and, importantly for this fund, set out the timescales involved in the procurement process to show that delivery can proceed quickly.

What is the preferred procurement route for the scheme? For example, if it is proposed to use existing framework agreements or contracts, the contract must be appropriate in terms of scale and scope.

Immediate delivery

If funded this bid could be delivered immediately because the necessary contracts are largely already in place. All three boroughs have an existing contract in place with Blue Point London to supply and install EV charge points. In addition Westminster Council have an existing contract in place for the supply of parking sensors from Smart Parking, who have been enthusiastic about this bid. This will allow the project to begin straight away by fitting sensors in EV bays at Westminster and Blue Point London beginning work on the software to combine the data from their charge points.

Hounslow and Hammersmith & Fulham will need to select suppliers for the parking sensors used on our highway but the low values involved in purchasing the hardware will make this a simple and short process. Because the work in our boroughs is to test the concept of using the charge points communication channels to relay data from the sensors this will only require a small number of bays to be fitted with sensors and the value of the equipment purchased by any individual borough is likely to be under 20k.

Following an assessment of the sensors, which would be compatible with Source London charge points, available on the market, the procurement route would then be chosen. This would either be a short Request for Quotation exercise or might even qualify for a waiver of standard procurement practices. This would take place once the first phase of the software development is being carried out with the Westminster sensors so no delay would be caused by procurement exercises.

**It is the promoting authority's responsibility to decide whether or not their scheme proposal is lawful; and the extent of any new legal powers that need to be sought. Scheme promoters should ensure that any project complies with the Public Contracts Regulations as well as European Union State Aid rules, and should be prepared to provide the Department for Transport with confirmation of this, if required. An assurance that a strategy is in place that is legally compliant is likely to achieve the best value for money outcomes is required from your Section 151 Officer below.*

B8. Management Case - Delivery (maximum 300 words)

Deliverability is one of the essential criteria for this Competition and as such any bid should set out if any statutory procedure are needed before it can be delivered.

This bid has been designed with deliverability at the fore. We have included partners with an excellent background in participating in group projects and knowledge of this area. See Imperial's and Westminster's supporting letter for greater detail of the project board. While we have been ambitious in the innovation that we are undertaken we have ensured that if faced with setbacks that the core aims of the bid can be delivered on time and within budget. For example BPL's technical team have already examined Smart Parking sensors and have ensured that these will be compatible with the BPL back office.

With regards statutory requirements needed to establish the EV parking bays, associated with the charge points, these have already been completed. By January 2017 all three boroughs will have the upgraded charge points installed and will be ready to implement this bid.

The general plan as set out in the associated project plan is to:

- review the technical specification of available sensors
- review the literature on parking sensors applications

- install parking sensors in EV bays, operating through their own communication points, in Westminster and work on combining the data from both to provide real time information for users

- review how this trial is working and then work on getting the sensors to communicate directly with the charge points, removing the need for their own communication points.

- Operate both systems and evaluate their performance.

a) *An outline project plan (typically in Gantt chart form) with milestones should be included as an annex, covering the period from submission of the bid to scheme completion. The definition of the key milestones should be clear and explained. The critical path should be identifiable and any contingency periods, key dependencies (internal or external) should be explained.*

Has a project plan been appended to your bid?

Yes

b) *A statement of intent to deliver the scheme within this programme from a senior political representative and/or senior local authority official.*

Attached to this bid submission are letters from all of the participating bodies stating their support for what is proposed within this bid.

B9. Management Case – Governance (maximum 300 words)

Please name who is responsible for delivering the scheme, the roles (Project Manager, SRO etc.) and set out the responsibilities of those involved and how key decisions are/will be made. An organogram may be useful here. This may be attached as an Annex.

Ultimate responsibility for successful delivery of the project and financial management rests with the London Borough of Hounslow. We will provide resources to manage the project and upon notification of a successful bid a project board will be formed with one representative from each of the 5 listed partners to take key decisions in line with the submitted bid. Other borough's will be responsible for managing the installation of parking sensors and integration with charge points in those boroughs are

London Borough of Hounslow

Project sponsor - Head of Traffic & Transport, Mark Frost
Project Manager - Principal Transport Planner, Kieran Taylor

London Borough of Westminster

Kieran Fitsall - Head of Service Improvement & Transformation at Westminster Council

London borough of H&F

Edward Stubbings – Senior Transport Planner at Hammersmith & Fulham

Blue Point London will be responsible for managing the integration of the parking sensor data with their back office systems:

Maryline Marilly – Borough Relationship Manager
Clement Baldy – Lead software engineer

Imperial College London will undertake all monitoring, evaluation and dissemination of learning from the project as set out in section C of this bid. Responsibility for producing this rests with:

Professor John Polak, Director of the Urban Systems Laboratory

B10. Management Case - Risk Management

Risk management is an important control for all projects but this should be commensurate with cost. For projects where the costs exceed £100,000, a risk register covering the top 5 (maximum) specific risks to this scheme should be attached as an annex. Please ensure that in the risk register cost that you have not included any risks associated with ongoing operational costs and have used the P50 value.

See attached Risk Register.

SECTION C – Monitoring, Evaluation and Benefits Realisation

C1. Benefits Realisation (maximum 250 words)

The Competition is seeking to build up the business case for the relevant technologies and use cases. Please provide details on the profile of benefits, and of baseline benefits and benefit ownership and explain how you will lead to the outputs/ outcomes. This could be achieved by logic maps, text descriptions, etc. This should be proportionate to the cost of the proposed scheme.

Improved enforcement of EV charging bays, by innovative integration of charging infrastructure and parking sensors and communications technologies, will give rise to impacts affecting several different stakeholders, in both the short and long term. These can be briefly summarised as follows:

- Existing and potential future EV users will benefit from more convenient and reliable access to out of home charging facilities.
- The wider EV supply chain (manufacturers, retailers, maintainers) will benefit from the consequent stimulation of demand for EVs.
- Mobility service providers and other fleet operators wishing to deploy EVs will benefit from more convenient and reliable access to out of home charging facilities.
- Charging service providers will benefit from improved customer satisfaction and higher utilisation of their charging assets.
- Power distribution providers will benefit from more stable and predictable local energy loads and from the opportunities this will create for more effective local grid balancing.
- Local authorities and parking enforcement operators will benefit from more accurate and timely information regarding illegal parking enabling better use of enforcement resources and the design of more effective deterrents.
- Policy makers and the general public will benefit from the increased use of EVs through reduced CO2 emissions and improvements in local air quality. Local authorities will benefit from reduced exposure to the risk of regulatory penalties.
- Finally, the project will foster business innovation by creating new data streams that will drive the development of new parking services (e.g., dynamically priced charging reservations, optimal scheduling of EV charging for grid services).

C2. Monitoring and Evaluation (maximum 250 words)

Evaluation is an essential part of scheme development and should be considered and built into the planning of a scheme from the earliest stages. Periodic monitoring and evaluating the outcomes and impacts of schemes, in addition to evaluation findings towards the end, is also important to show if a scheme has been successful. Where possible, bidders should describe any baseline info (or other counterfactual) they will use for the evaluation.

Please set out how you plan to measure and report on the benefits identified in Section C1, alongside any other outcomes and impacts of the scheme. Scheme promoters are expected to contribute to platforms for sharing and disseminating the lessons learned, as directed by the Department for Transport.

The aim is to identify and measure the impacts of improved EV charging bay enforcement and to use this as a basis for quantifying the consequent economic, social, environmental and business benefits of the system and their distribution across different stakeholders. The work will also explore how impacts and benefits are likely to scale if the systems were rolled out on a larger scale across London and elsewhere.


The work will draw on well-established evaluation principles including the use of before and after designs to establish baselines and identify impacts, the use of physical and statistical controls to minimise the influence of confounding factors and explicit analysis of survey sample size to ensure statistical power. The quantification of benefits will draw on standard protocols such as those available in webTAG.


The data collected will be of two types; passively-collected operational data from the parking sensors, the charging infrastructure and the wider traffic management system and actively-collected data from surveys of (pre-implementation) bay activity and (pre and post implementation) existing and potential EV user experience. Relevant contextual data including

trends in local EV ownership will also be assembled. The user and bay surveys will contribute baseline information and inform on short and long term impacts on customer experience and EV acquisition/use intentions and the operational data will inform on impacts on bay and charging activity. Three distinct sets of surveys are planned: (1) Pre-implementation bay activity, (2) Existing bay users pre and post implementation, (3) Prospective EV users pre and post implementation.

--

SECTION D: Declarations

D1. Senior Responsible Owner Declaration	
As Senior Responsible Owner for this bid: Smart Sensor monitoring of Electric Vehicle bays I hereby submit this request for approval to DfT on behalf of the London Borough of Hounslow and confirm that I have the necessary authority to do so.	
I confirm that the London Borough of Hounslow will have all the necessary powers in place to ensure the planned timescales in the application can be realised.	
Name: Mark Frost	Signed: 
Position: Head of Traffic & Transport	

D2. Section 151 Officer Declaration	
As Section 151 Officer for this bid: Smart Sensor monitoring of Electric Vehicle bays, I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that the London Borough of Hounslow	
<ul style="list-style-type: none"> - has allocated sufficient budget to deliver this scheme on the basis of its proposed funding contribution - will allocate sufficient staff and other necessary resources to deliver this scheme on time and on budget - accepts responsibility for meeting any costs over and above the DfT contribution requested, including potential cost overruns and the underwriting of any funding contributions expected from third parties - accepts responsibility for meeting any ongoing revenue requirements in relation to the scheme - accepts that no further increase in DfT funding will be considered beyond the maximum contribution requested - has the necessary governance / assurance arrangements in place - has identified a procurement strategy that is legally compliant and is likely to achieve the best value for money outcome - will ensure that a robust and effective stakeholder and communications plan is put in place. 	
Name: CLIVE DALFREYMAN	Signed: 

Submission of bids:
The deadline for bid submission is 5pm, 30 September 2016 .
An electronic copy only of the bid including any supporting material should be submitted to: TRAFFIC.COMP@df.t.gsi.gov.uk