

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)*: Kent County Council

**If the bid is a joint proposal, please enter the names of all participating local authorities and specify the lead authority*

Bid Manager Name and position: Andrew Westwood, Traffic Manager

Name and position of officer with day to day responsibility for delivering the proposed scheme.

Contact telephone number: 03000 411675 **Email address:** Andrew.Westwood@kent.gov.uk

Postal address: First Floor, Invicta House, Maidstone, Kent ME14 1XX

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.kent.gov.uk/about-the-council/strategies-and-policies/transport-and-highways-policies/transport-and-highways-funding>

SECTION A - Scheme description and funding profile

A1. Scheme name: Smarter Freight Traffic Management

A2. Headline description:

Please enter a brief description of the proposed scheme (in no more than 100 words)

The movement of freight around Dartford is identified as a critical issue by stakeholders. Complimenting existing works of the A2/M2 Connected Corridor with DfT, TfL and HE, in addition to wider developments of Dartford Crossing improvements, undertaken by KCC, HE and Connect Plus Services (CPS Area Service Provider); it's proposed research is conducted into the provision of vehicle-to-infrastructure (V2I) C-ITS services for smarter freight traffic management along Kent's SRNs.

The approach proposes;

- Assessment of requirements, sources and availability of freight data.
- Diversion planning and rat-running of freight on strategic and local network.
- Defining delivery of V2I C-ITS applications for freight.

A3. Geographical area:

Please provide a short description of area covered by the bid (in no more than 50 words)

Please append a map showing the location (and route) of the proposed scheme, existing transport infrastructure and other points of particular interest to the bid e.g. development sites, areas of existing employment, constraints etc.

The Dartford Tunnel serves a critical part of the UK strategic transport network. It has high-level interface with the SRN (M25 and A2/M2), offering pan-European connectivity, including freight links to TEN-T and ports of Thamesport, Dover and Calais.

OS Grid Reference: TQ538739

Postcode: DA1, DA2

Please see Appendix A3.

A4. Type of bid (please tick relevant box):

C-ITS: Connected Vehicle ✓

C-ITS: Real Time Information ✓

C-ITS: Smart Parking

C-ITS: Vulnerable Road Users

Other (please specify)

A5. Equality Analysis

Has any Equality Analysis been undertaken in line with the Equality Duty? **Yes**

The Equality Analysis is currently underway. An EQIA will be submitted in parallel to KCC Equalities team.

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.

The Dartford tunnel is the most heavily used crossing in traffic management systems within Europe. Consequently, the tunnel is subjected to severe traffic congestions and disruptions along the SRN.

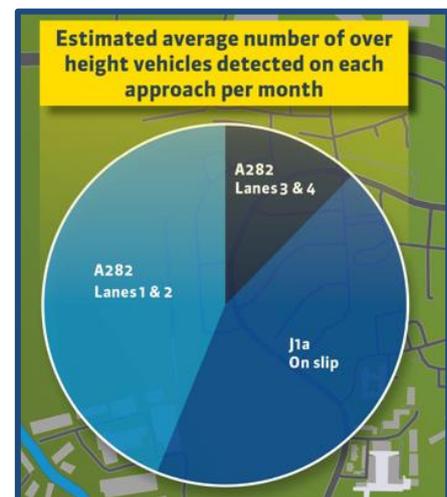
Over-height vehicles (OHVs) have a daily impact on the functioning of Dartford's Tunnel (see pie-chart), causing congestion from exit blocking and lane discipline at J1a.

Supporting the RIS2 vision, this scheme aims to make the network increasingly safer, smarter and more efficient. Deliverables include:

- Provision of infotainment – broadcasting freight specific information to connected freight vehicles, informing drivers of essential/real-time network information for route planning/guidance, including informing OHVs of the correct lane discipline for the Tunnel.
- Identify technology architecture to integrate real-time data to connected freight vehicle technologies

Investigation into freight technology interfaces would seek to improve traffic management and enhance performance of road networks at key hotspots around Dartford; alleviating congestion/delays that can have subsequent effects on the safety/efficiency of network conditions on adjoining junctions.

This research will support other strategic network objectives, including; aligning/collaborating research with European developments/programs, developing technology trials that provide a platform to understand the role/benefit to road operators/users, and develop the business case for future installation of C-ITS roadside communications throughout the SRN.



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.

Supporting evidence may be provided in annexes – if clearly referenced in the strategic case. This may be used to assist in judging the 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.

Where 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?

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.

What is the impact of the scheme?

Connecting Dartford and Thurrock, the Dartford Tunnel is recognised as the most heavily used crossing in traffic management systems within Europe. Numerous junctions surrounding the tunnel causes a high volume of mixed traffic, including long-distance traffic (freight), and OHVs to use the tunnel. Subsequently, the design capacity of the Dartford Tunnel has been exceeded, causing severe traffic congestion and disruption to be experienced along the tunnel and adjoining junctions, particularly concerning Junctions 1a, 1b and 2 along the M25. Consequently, the local area is subjected to poor environmental/air quality and economic value derived from freight services using the tunnel are compromised. These major traffic disruptions experienced are set to intensify as network demands increase.

To support the Dartford Tunnel operation, it is proposed that C-ITS services for freight are investigated. C-ITS technology that interfaces with freight vehicles, can provide information to assist in smarter, dynamic and strategic traffic management. Specifically within the Dartford tunnel, information will help to inform/direct OHVs for freight into the most appropriate lanes, reducing congestion, and therefore, improving the environmental performance and conditions of the tunnel, J1a and surrounding areas. In addition, C-ITS can assist in facilitating conditions that allow for a cohesive network, enhancing cross-border continuity for freight transport. This is identified as essential for port activities between Dover and Calais on the adjoining A2/M2 corridor.

Learning from the A2/M2 connected corridor it is identified that there are limitations associated with the standards and data security regarding V2I. Therefore, this scheme is an essential part of research that will generate momentum and support the developments of standards and security protocols for connected corridor projects.

Investment into this research enhances developments of technology applications suitable for freight services as outlined in current CITE projects, whilst also complementing freight activities within the RIS2, operation stack at Dover and other European programs/partners, including Intercor and SCOOP@F. The aim is to establish potential C-ITS freight services that will enhance the operation of freight and alleviate congestion pressures and extract the economic value from freight.

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>	75	125	200
<i>LA Contribution</i>	10	5	15
<i>Other Third Party Funding</i>			

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.*

The 5% contribution will come from Kent County Council as the scheme promoter.

Highways England support this scheme, complementing their existing support and contribution to the connected corridor project.

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?*

Appraisal of the cost infrastructure for the projects program accounts for contingency budgets. Comprehensive cost and risk estimation has been undertaken, providing a risk allowance of 10%.

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

High level project management and planning from best practice including Managing Successful Programmes, Management of Risk and Prince2, supported with a risk register/issues tracker (see Appendix B10) and quarterly financial reviews undertaken every quarter with KCC, will

seek to prevent costs overrunning. However, in the event that costs overrun, options for mitigating impacts will be evaluated. Once visibility and control of the project is gained, costs will be reviewed against project delivery timescales and budget. Opportunities for cost-saving approaches will be assessed and undertaken if appropriate. It will be ensured that the quality of deliverables will not be compromised. Any changes to budgets and resource allocation will be documented and appropriately communicated to relevant stakeholders. If costs overruns significantly a comprehensive review of scale and duration of the project will be undertaken.

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

This study requires high-levels of engagement with relevant stakeholders, including LHAs, HE and the private sector. Consequently, issues may arise associated with stakeholder engagement, delaying delivering aspects of the review and subsequently increasing costs provisioned for engagement activities. To mitigate the impact a Gantt chart reflecting realistic timeframes including regular financial reviews will be formulated.

Exposure to technology risks, including the dynamic development of technologies and sourcing/accessing appropriate materials on relevant technology. In addition, research on the interoperability of technology interfaces maybe inhibited due to a lack of standards available. These technology risks outlined could prevent a comprehensive review of technology application within delivery timescales, and may require additional funding to access relevant materials. Technical expertise who have had previous experience on handling future technology projects, will be deployed to help reduce the exposure to these technical vulnerabilities.

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 provided please provide separate reporting in the form of an Annex to the bid to enable scrutiny of the data and assumptions used in deriving that BCR.

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.

Due to the unusual, innovative nature of the programme, and the lack of existing feasibility studies on freight and Dartford, it is not possible to apply a conventional economic assessment based on modelled impacts or evidence from similar schemes already in operation. However, as outlined in the *2016-17 LGF Transport Business Case Report* for the Kent Strategic Congestion Management Programme, by using professional judgement it is recognised that this scheme that the economic case is strong due to the instrumental role Kent's SRN plays in freight network. It is expected that this proposed scheme of freight traffic management through C-ITS applications would provide good value for money.

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.

**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.

It is anticipated that the procurement routes for this scheme will be undertaken through existing frameworks within KCC.

Atkins will be procured through a Pro5 National Framework Agreement No. 664. KCC have an existing strong relationship and have worked together to provide several schemes throughout the county and neighbouring authorities.

The estimated value of deliverable equipment, resources or services will determine the procurement route. All shall be in accordance with the KCC standard terms and conditions.

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.

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 (see Appendix B8.)

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

Yes (see Appendix B11.)

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.

Due to the technical scope of this proposed scheme specialists knowledge on the application of C-ITS for freight and market/technology developments, standards and data mining will be required. Thus, this scheme will be supported and led by Atkins for completion. Atkins will seek to recognise and satisfy all stakeholders involved and minimise potential risks that may threaten. Effective communication and collaboration between the KCC, DfT, HE, and Atkins will underpin the successful delivery of the scheme.

As part of Atkins project delivery a skills matrices has been used to capture the skills and experience of staff to align them to project deliverables where they will have the greatest effect. Atkins will provide experienced knowledge on existing and emerging ITS, new technologies and

techniques, within the UK and on a European level. The blend of junior staff within the Atkins team also provides support and value for money.

The core team comprises of Atkins and KCC. Please see organogram attached to Appendix B9 that outlines the key structure and details the responsibilities of each role.

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.

Has a risk register been appended to your bid? **Yes**

SECTION C – Monitoring, Evaluation and Benefits Realisation

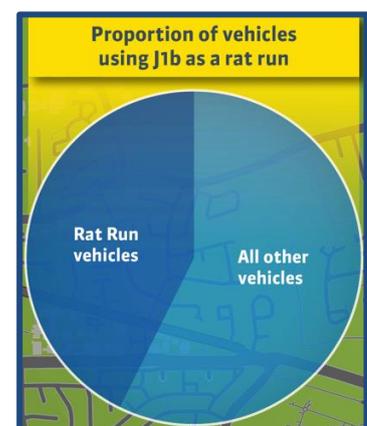
C1. Benefits Realisation (maximum 250 words)

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 your 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.

The investigation of the technology application for C-ITS along the A2/M2 Connected Corridor for smarter freight traffic management would produce numerous direct and indirect benefits for key stakeholders, including; KCC, HE, CPS, FTA and network users. These benefits include:

- Avoiding the use of the Traffic Management Cell. Over two fifths of vehicles from Junction 2 use Junction 1b to access the A282 (see pie chart attached). The provision of C-ITS V2I for freight can inform OHVs freight vehicles of the correct lane discipline to access Junction 1a for the Dartford Tunnel. By preventing the deployment of the Traffic Management Cell, the negative impacts associated to the cell model are avoided.
- Reduction in local congestion (journey time reduction, increased reliability, reduction in the number of CSMs (Customer Service Modules) KCC and HAILS HE receive.
- Improvements in journey times (reduction in delays - improvements in network efficiencies).
- Improved public perception of the local network.
- Increased network knowledge, for KCC, HE, CPS and network users.
- Supporting/complimenting other projects including Dartford Crossing, A2/M2 Connected Corridor and Operation Stack and Operation TAP.



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 has 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.

Due to the nature of the scoping activities that this scheme engages with, the extent for which comprehensive evaluation of network conditions will be limited. However, this investigation is an integral part in defining the delivery of C-ITS applications that are appropriate for freight traffic management, for both local and international freight movement within the context of Kent. It is essential that this investigation compliments existing works of the A2/M2 connected corridor and the Dartford Crossing improvements, whilst also providing the capacity to deliver for an increasing demand at the Port of Dover.

However, it is recognised that monitoring the benefits throughout the scheme is an important part of project delivery, and approaches towards monitoring the benefits, which could be appropriately assessed during the investigation and following the investigation are outlined below:

- Regular engagement meetings, updating and documenting the progress of activities that can provide a baseline of the benefits attained.
- Monitoring flows of traffic at intervals before / after study – to be taken at different intervals of year / time of day could be achieved through FVS / Bluetooth data that can measure journey times, across a point-to-point distance
- Reduction in HAILS on SRN network

SECTION D: Declarations

D1. Senior Responsible Owner Declaration

As Senior Responsible Owner for [scheme name] I hereby submit this request for approval to DfT on behalf of [name of authority] and confirm that I have the necessary authority to do so.

I confirm that [name of authority] will have all the necessary powers in place to ensure the planned timescales in the application can be realised.

Name: Matthew Balfour

Signed:

Position: Cabinet Member for Environment & Transport



D2. Section 151 Officer Declaration

As Section 151 Officer for [*name of authority*] I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that [*name of authority*]

- 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:
Andrew Westwood
Traffic Manager

Signed:



Submission of bids:

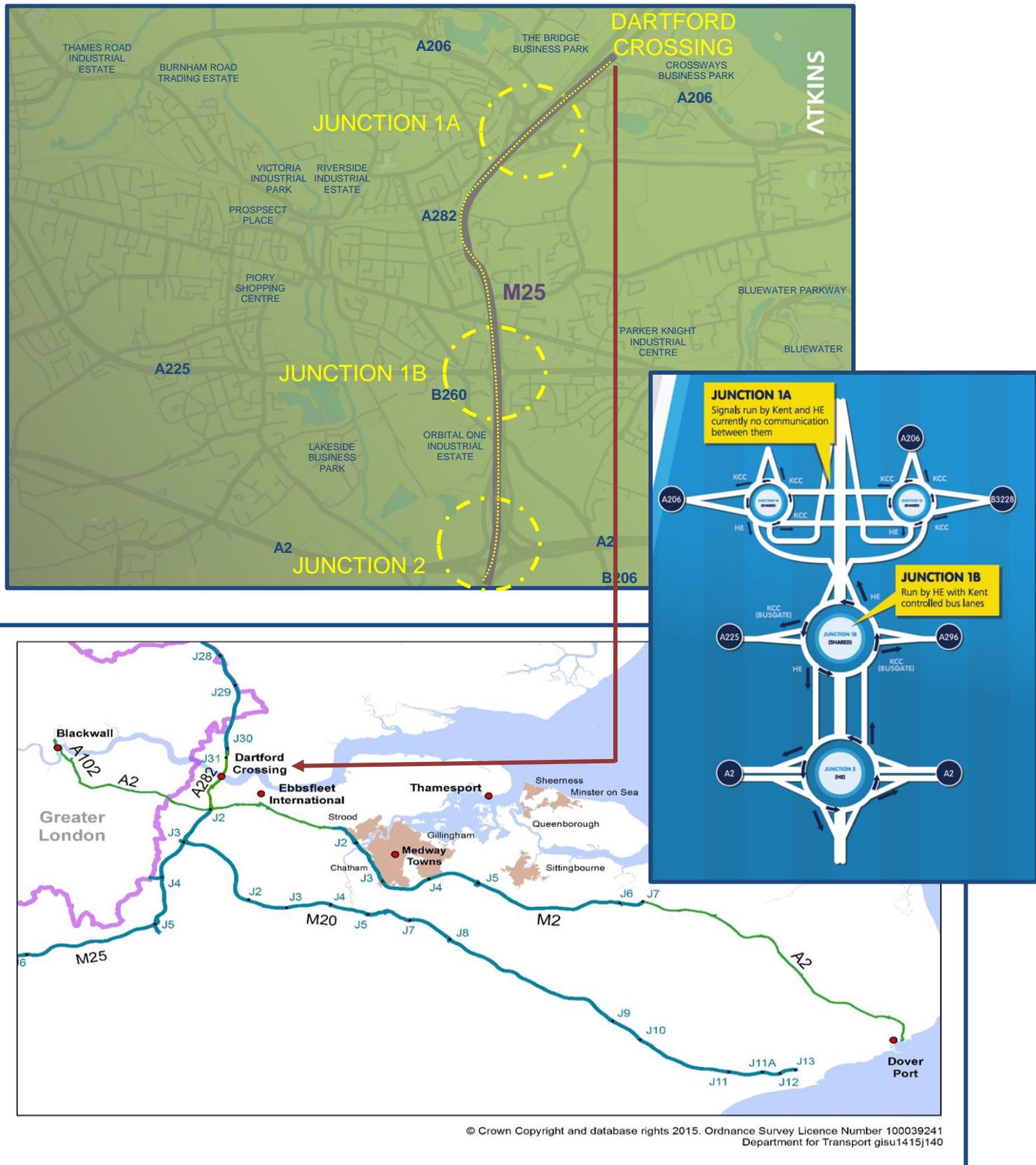
The deadline for bid submission is **5pm, 30 September 2016**.

An electronic copy only of the bid including any supporting material should be submitted to:
TRAFFIC.COMP@dft.gsi.gov.uk

APPENDICES

Appendix A3. Geographical Area

Map showing location of Dartford Tunnel and its adjoining connections to the SRN including the A2/M2 Connected Corridor. Existing transport infrastructure and points of interest are identified and labelled.



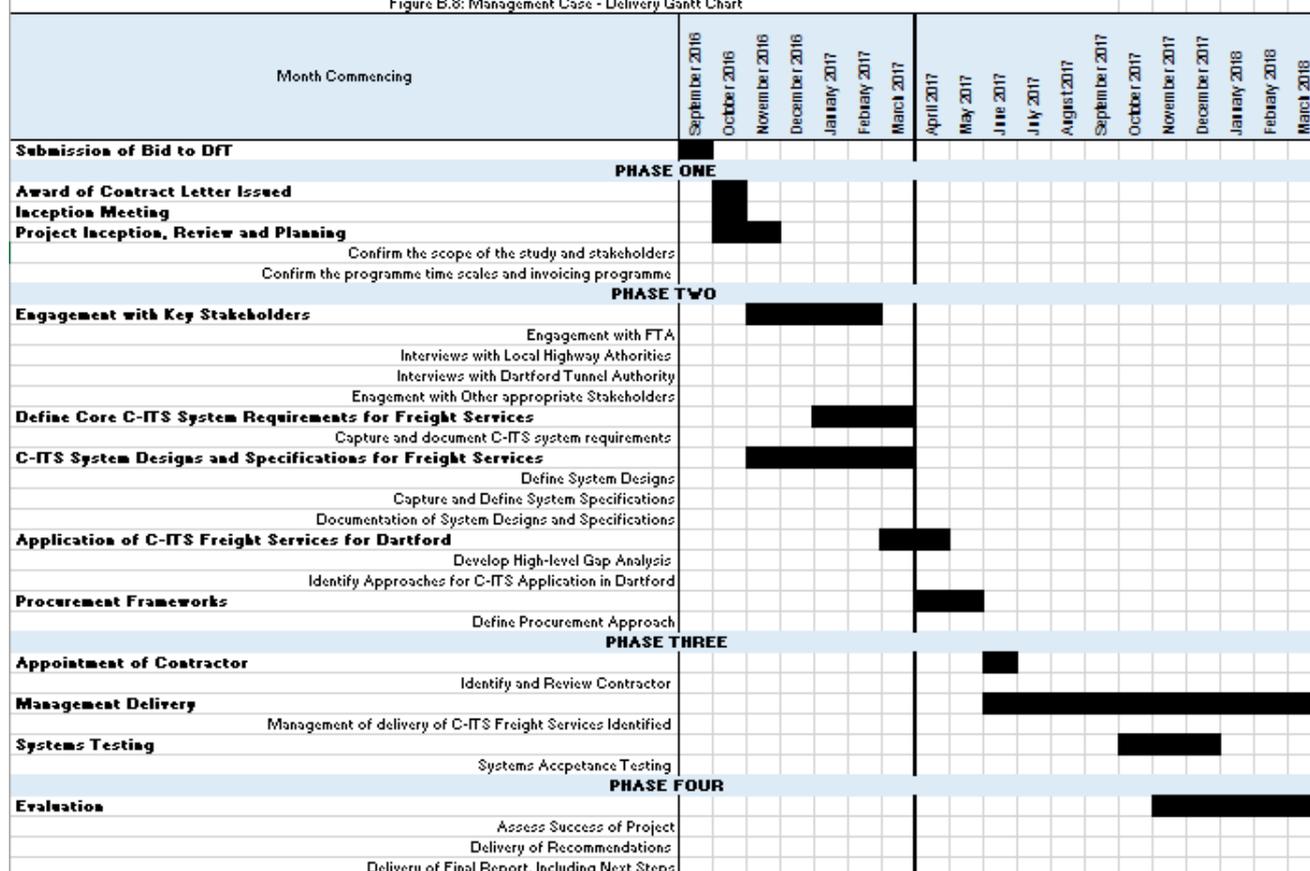
Appendix B3. The Financial Case – Projects Costs

Phase	Task	Project Cost (£000s)
1 - Study Phase		
	Project inception, confirming key stakeholders and confirming scope with DfT.	5
2 - Information Capture and Analysis		
	Engagement with key stakeholders	25
	Define core C-ITS system requirements for freight services	20
	Capturing and documentation of freight C-ITS system designs and specifications	20
	Defining how the application of C-ITS freight services can be delivered in Dartford	25
	Defining procurement approach	5
3 - Project Delivery Phase		
	Appoint Contractor	20
	Manage delivery of C-ITS freight service application	30
	Systems testing and acceptance	10
4 - Evaluation		
	Final report, evaluating the success of project	40
Total DfT Funding Sought		200
Total for LA / Third Party Funding		15
Total		215

Appendix B8. Management Case – Delivery

a.) Project is defined by four phases;

Figure B.8: Management Case - Delivery Gantt Chart



Phase 1: Study Phase (November 2016 - December 2016)

- **Project Interception**—*Confirm the scope of the study with DfT and identify key stakeholders to engage with. Details of the time scales and budget will be defined.*

Phase 2: Information Capture and Analysis (November 2016 – May 2017)

- **Engagement with Key Stakeholders**—*scope context of freight. Expectation and outcomes of project outlined, and core requirements defined. 4 months provisioned for engagement activities, accounting for potential contingencies and ongoing development.*
- **Define System Requirements**—*Capture system requirements for C-ITS freight service applications.*
- **System Designs and Specification**—*Identify system designs and specifications relevant to C-ITS freight service applications, documentation relevant for the application to the context of Dartford. To be completed by April 2017. Delivery may be subjected to external factors, such as limited access/availability to relevant technology documentation.*
- **Application to Dartford**—*High-level gap analysis assessing C-ITS freight service requirements for Dartford, identifying/defining service(s) to be deployed. To be completed by May 2017.*
- **Procurement Framework**—*Define procurement approach to be deployed.*

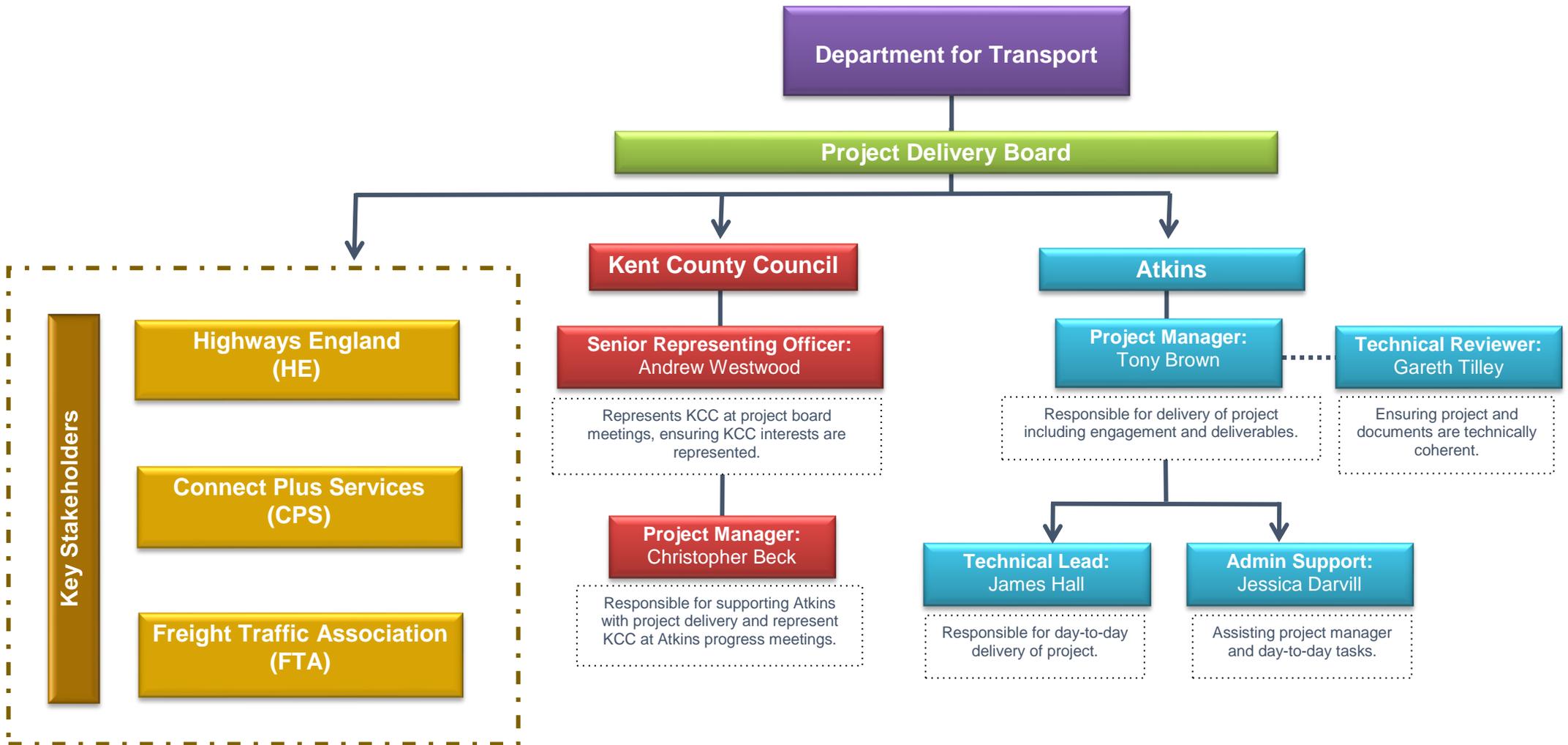
Phase 3: Project Delivery (May 2017–March 2018)

- **Appointment of Contractor**—*Identify and appoint suitable contractor to deliver C-ITS service. To be completed by June 2017.*
- **Management Delivery**—*Ongoing technical support and project management of the delivery and deployment of the C-ITS freight service application.*
- **Systems Testing**—*Deploy suitable systems acceptance testing to ensure service is appropriately deployed and delivered to the satisfaction of stakeholders involved. 3 months provisioned to account for limitations that may arise concerning technical feasibility.*

Phase 4: Evaluation (November 2017 – March 2018)

- **Evaluation of Project**—*Analysis of the success of project, defining recommendations and lessons learnt.*
- **Final Report**—*Documentation of findings and next steps. To commence as soon as possible, can be undertaken in conjunction with other activities. Delivered at the end of the 2018 FY.*

Appendix B9. Management Case – Governance



Appendix B10. Management Case – Risk Management
Programme Risk Register:

Risk No.	Risk Description	Risk Category	Impact	Gross Risk Assessment				Planned Risk Management Action	Response			Dependencies	Review Date	Residual Risk Rating	Risk Status
				Likelihood	Impact	Overall	Target		Option	Owner	Manager				
1	Risk of funding / resources are insufficient from KCC to complete the project	Financial	Benefits of the scheme may not be fully recognised/ experienced	L	H	M	L	Ensure funding / resources are secured prior to bid submission	Treat	Andrew Westwood	Tony Brown	KCC	01/04/17	L	Open
2	Risks associated with agreements/support between KCC, HE, CPS, FTA and other key stakeholders	Stakeholder	Operational improvements to KCCs strategic and local network is not realised. Benefits associated to scheme not realised.	M	H	H	L	Early engagement with key stakeholders to ensure stakeholders buy in	Treat	Andrew Westwood	Tony Brown	KCC, HE, CPS and FTA	01/04/17	L	Open
3	Risks associated to development of technologies as study is undertaken	Technology	Comprehensive review and evaluation of potential C-ITS deliverables for freight traffic management may not be realised	L	H	M	L	Engage in relevant documents and engage with market place including suppliers of services/systems. It may be appropriate to engage with car manufacturer	Treat	Andrew Westwood	Tony Brown	KCC, Atkins	01/04/17	L	Open
4	Risks associated with data mining techniques, freight specific data is not accurate enough or accessible to demonstrate benefits associated to a defined application	Benefit Realisation	Due to the nature of the scope, improvements are not comprehensively recognised/ monitored. Application of C-ITS cannot be fully defined.	M	H	H	L	Early engagement with stakeholder, and specialised knowledge on data mining techniques will help to reduce impacts and overcome potential challenges	Treat	Andrew Westwood	Tony Brown	KCC, HE, CPS	01/04/17	L	Open

