Funding for Innovation:
Opening Local Authority Transport Data
Application Form

Department for Transport

Applicant Information

Local authority name(s)*:	Essex County Council (Lead) & Hertfordshire County Council
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Name of Project:	Real-time information for connected vehicles
Date:	February 8, 2019

Please specify the web link where this bid will be published: www.essex.gov.uk

Essex County Council Hertfordshire RINGWAY RINGWAY JACOBS elgin

SECTION A - Scheme description and funding profile

A1. Scheme name: Real-time information for connected vehicles

A2. Headline description:

The proposal is to develop a data feed for connected vehicles that would provide the building blocks for a potential national standard for how roadworks, incidents and other traffic management information should be set-up and dispensed to the travelling public for all vehicles.

Today, through an app derived from the roadworks.org website, residents of Essex and Hertfordshire are provided with information on road closures, roadworks, public events and incidents on the highway network of the two counties. (The roadworks.org website is recognised as the most comprehensive source of roadworks and traffic disruption in the UK.).

This proposal is to create an open data feed to cover incidents, as well as road closures, and to cover all disruptions to the network, ensuring that all the information is in real-time. Effectively, the intent is that this will set a template for a national standard source of open data which can be accessed by all sat-nav and mapping app providers.

Provision of this reliable up-to-date information will allow the travelling public to take informed judgements on their journeys to avoid or mitigate planned, or emergency, roadworks and incidents. It will provide accurate in-vehicle advice and move away from fixed variable messaging signs (VMS) and radio bulletins. This will lead to reduced congestion and provide more reliable journeys for those travelling on the network.

Additionally, by using the latest connected autonomous vehicle (CAV) standards, we will provide a step change in the way traffic management interventions are communicated to autonomous connected vehicles.

A3. Geographical area:

Area covered*:* The complete counties of Essex and Hertfordshire.
OS Grid Reference: Various
Postcode: Various

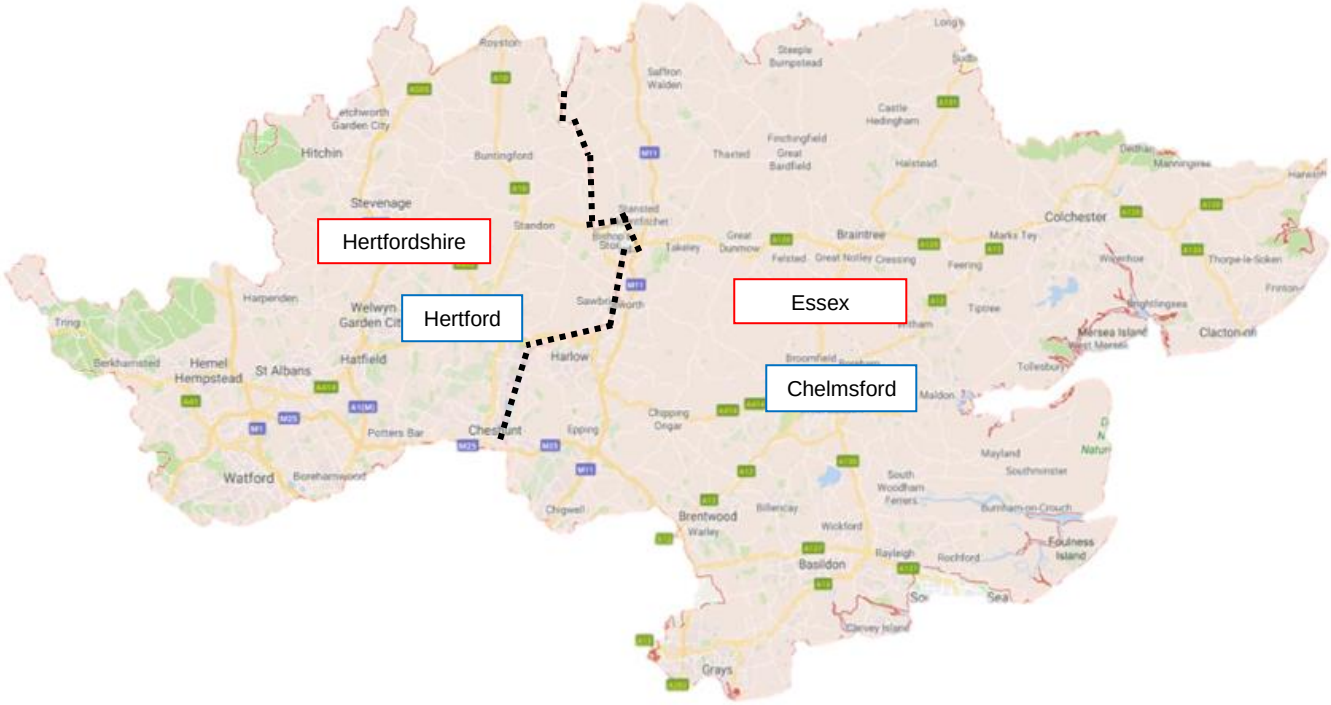


Figure 1: Hertfordshire and Essex

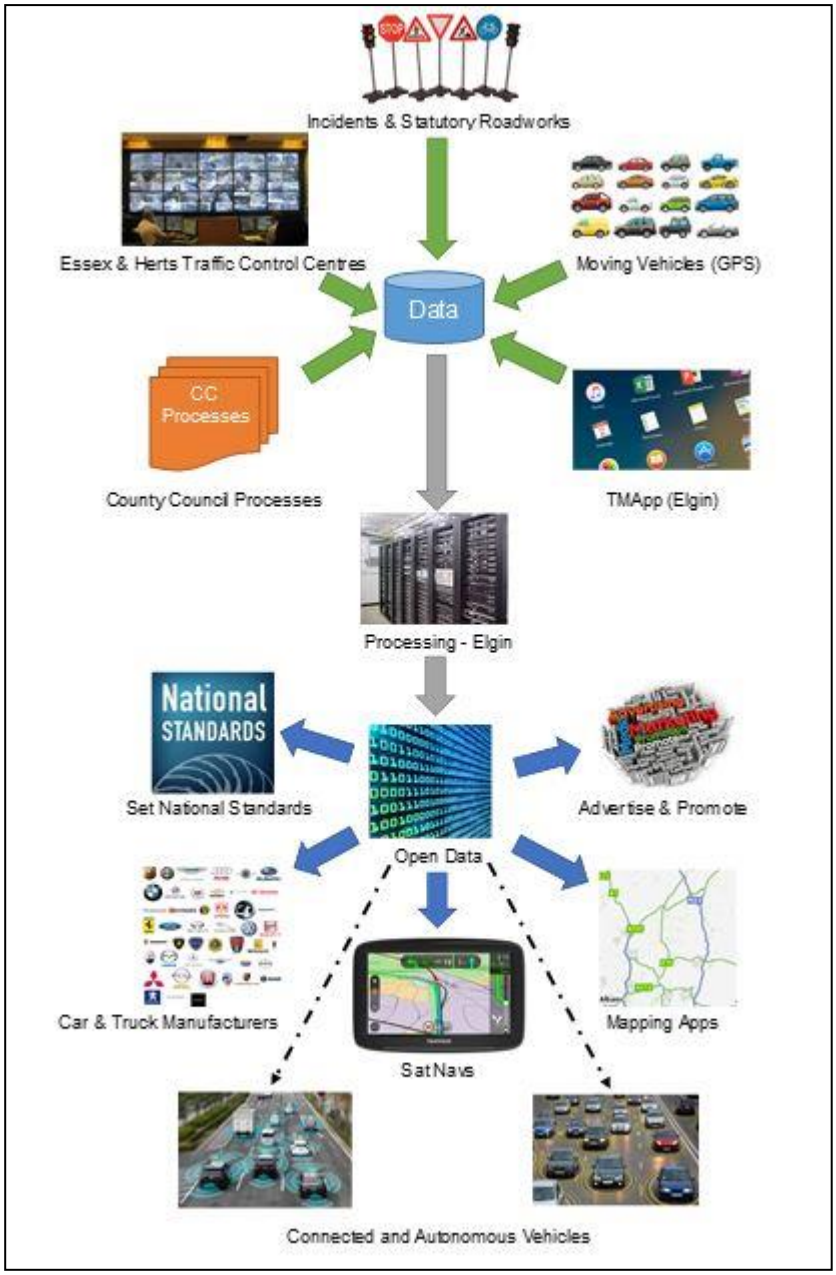
The combined population of Hertfordshire and Essex is 3.0 million. The county towns and administrative centres are Hertford and Chelmsford respectively.

A4. Equality Analysis

Has any Equality Analysis been undertaken in line with the Equality Duty? Yes (available if required).

SECTION B – The Business Case

B1. The Scheme – Summary / History



Essex County Council (ECC) and Hertfordshire County Council (HCC) extensively use the Elgin roadworks.org Traffic Management App to plan, manage and communicate disruption on their networks.

Information is shared through websites and coordinated with stakeholders such as utility companies.

Operatives within both Traffic Control Centres and their on-site contractors provide live updates on road closures and major incidents. This information is already made available to some sat-nav partners such as Google, Here, Waze and TomTom, but is bespoke for each.

The proposal is to extend this platform to provide the first building blocks for a national standard approach to transmitting real-time data information to connected vehicles, stimulating wider usage in the areas of Connected & Autonomous Vehicles (CAV) and Mobility as a Service (MaaS), and to support “Smart County” applications.

The data uses ‘plain’ English, for easy dissemination to the emergency services, public transport providers and the travelling public.

The data involved will not encroach on data privacy, or security, as information would already be readily available and would not involve or use any personal information details from the travelling public.

B2. The Strategic Case

Traffic continues to grow in the south east (1% per annum over the last 7 years), and suffers from extreme congestion in peak periods. Essex and Hertfordshire include some of the UK’s major roads, where traffic exceeds 2 million vehicles per day.

Traffic delays cost valuable time, extra fuel consumption and increase the cost of doing business. These costs, direct and indirect, are passed onto consumers through higher prices for goods and services and inefficient public transport. Fuel consumed through delays results in higher greenhouse gas emissions, pollutants and poorer air quality with an ultimate cost to national health.

Despite the rise in on-demand transport, total traffic volumes are forecast to increase 12% in the next ten years. Therefore, congestion will only get worse, putting pressure on authorities to provide better information, more speedily, to give the travelling public opportunities to avoid the congestion.

Planned / emergency road closures and incidents can have an enormous impact on the road network. The travelling public rely increasingly on web / cloud based resources to keep them informed of expected travelling times and preferred routing. Additional information to improve journey times and reduce congestion would have significant benefits, especially if provided in real-time and routed promptly to mobile phones and sat-navs.

Currently, information is picked up by selected providers who require bespoke configuration of feeds which is not sustainable for a wider uptake. The software infrastructure and back-end processes are in place, but the opportunity exists to take this to the next level and provide a greater impact on informed journey decisions. The benefits would be to better manage traffic, reduce congestion and levels of journey uncertainty for the travelling public. The proposal is to work with the DfT to extend this technology and expand this service further by creating a national standard that can be adopted by others.

Essex and Hertfordshire, as part of their technology strategy for transport, recognize the need to lead in collaborative technology and to provide the public with real-time seamless information on transport routes and timings.

In particular, HCC is already working with local bus operating companies and the DfT to provide an 'enhanced bus partnership' and this data feed would help address bottlenecks impacting services, provide mitigation for roadworks and expand real time information availability.

Additionally, the project will investigate implementation of data feed standards for connected autonomous vehicles (CAVs) with the objective to serialise "automotive grade" data outputs in real-time data feed to the Navigation Data Standard (NDS) Open Lane Model, enabling NDS partners and other CAV innovators to benefit from the open data.

Other options considered:-

- Open data provision of journey times following detailed analysis of Teletrac data - not pursued, as data is not in real-time and is already available on the web for those wishing to manipulate the data.
- Provision of car park data - not pursued, as VMS signs already provide information on available capacity in selected car parks and a feed of which is already published to the roadworks.org website.

B3. The Financial Case – Project Costs

Table A: Funding profile (Nominal terms)

(£000s)	2018-19	2019-20	Total
DfT Funding Sought	--	79.5	**79.5**
LA Contribution - Essex	--	5.0	**5.0**
LA Contribution - Herts	--	5.0	**5.0**
Other Third Party Funding	--	--	**0.0**
Total	**0.0**	**89.5**	**89.5**

This bid requests DfT funding of £79,533. A detailed cost schedule is attached at Appendix A.

The necessary hardware already exists, so funding is only required for the development and release of the improved data feed and for the establishment of a standardized system.

Neither authority has the available funds to fund this work independently and, by combining the work together, provides economies of scale.

Once the data feed has been developed and released, the cost of ongoing maintenance would be minimal, because the information would be fed from already established data sources. It is the intent of both authorities and Elgin to maintain this data feed into the foreseeable future.

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

a) Essex and Hertfordshire County Councils have both agreed to fund £5,000 each towards the development of the data feed.

b) For a letter of support, please see Appendix B.

B5. The Financial Case – Affordability

a) A 10% risk allowance has been included in the total costs.

b) Costs will be carefully monitored throughout the production and development of the data feed and the developer, Elgin, will be contracted to provide the data feed for a fixed sum, with no allowance for overruns. However, should there be any resultant cost overruns in the overall project, then both Essex County Council and Hertfordshire County Council will bear the risk as part of their role as the Highways Authorities.

c) It is always difficult to accurately predict software / programming lead times within a short time frame. However, Elgin now have 15 years of experience of working with these kind of tools and are already highly familiar with the data which leads to significantly reduced project delivery risk, but are flexible enough to be capable of providing more staff, if required. This may incur a short term increase in costs, but this will be contained within the scope of the fixed price contract.

B6. The Economic Case – Value for Money

In Essex and Hertfordshire, it is estimated that there are at least 2 million vehicles operating on a daily basis.

Cost of delay can be analysed to demonstrate value for money improvements. If one of the major A-roads in the two counties, with an average annual daily flow (AADF) of 80,000 vehicles per day, suffered from a delay imposed by road works in the peak hour, the value of time saving for avoiding a five minute delay could be approximately £16,000. Even for a minor A-road, with an AADF of 20,000 vehicles per day, the value of time saving could be £4,000. ECC has calculated that in an average year, there are almost 4,600 incidents on the network where journey time is doubled. Potential savings could therefore exceed £45m per year.

Highways England report that the cost to the economy from a two-hour delay on a busy motorway, following a two-lane closure, is £135,360. However, this figure increases to £1,488,960 for a three-lane closure, lasting up to four hours. Based on Teletrac data, ECC has calculated the annual cost of unreliability on its major roads at £47.5m and the cost of delay at £374.5m. Figures for HCC are similar.

B7. The Commercial Case

Because Essex and Hertfordshire have already invested in the use of the 'Real Time' travel technology, developed by Elgin, that enables live traffic updates to be sent to sat-nav and real-time map providers, the intention is to use the same supplier for the development of this data feed and initial discussions have already taken place. Elgin appreciate the short timescales involved and are happy with these timing constraints.

As Elgin have been responsible for the development of the roadworks.org platform since 2004, and are recognized nationally for their expertise in this area, it is very unlikely that any other supplier could provide an equivalent service, let alone in the timespan required.

As Essex and Hertfordshire already hold multi-year contracts with Elgin, the current terms will be expanded to cover the required new requirements.

This proposal does not contravene any legal processes and the project will comply with all required regulations.

Section 151 Officer – see below.

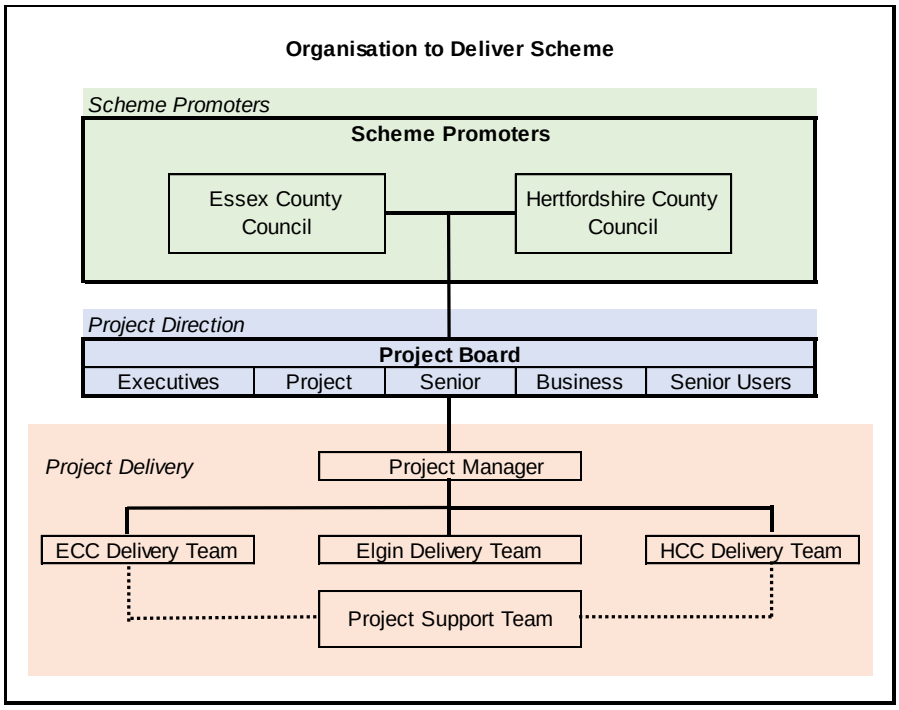
B8. Management Case - Delivery

No statutory procedures will be required. Contracts already exist with Elgin and the nature of procurement would be through a single tender due to the specialist needs of the scheme.

a) A summary project plan is attached - Appendix C.

b) For statements of intent, please see Appendix D.

B9. Management Case – Governance



Project Board – responsible for the direction and overall management of the scheme. The Board is chaired by Senior Responsible Owners, Executives and Senior Users for each of the local authorities. The Project Manager reports regularly to the Board, to inform progress and highlight issues or concerns.

Responsibilities include:

- Set the strategic direction of the project;
- Define the scope;
- Set the project milestones;
- Approve the appointment of the Project Manager (PM);
- Provide the PM with the strategy and decisions to enable the scheme to proceed to programme and resolve any challenges;
- Secure any necessary approvals through the authorities;
- Approve the scope of work, programme and budgets, and any subsequent changes;
- Monitor project risks and take appropriate action to mitigate risks.

Delivery Teams – reporting to the PM, the Teams (one for each authority and one for Elgin) are responsible for organising and delivering the project.

Project Support – responsible for project administration, including document control, project team communications, arranging meetings, updating plans, and chasing up completion of actions.

Senior Responsible Owner (Andrew Cook, Director, Highways & Transportation, ECC) – responsibility for ensuring effective delivery of the project on time and on budget.

Project Manager (Matt Adamson, Elgin) – responsible for organising, controlling and delivering the data feed for connected vehicles that defines a new national standard for how roadworks, incidents and TM information should be set-up and dispensed to the travelling public for all vehicles.

Executives – obtains funding for the scheme (Chris Stevenson, Head of Network Development, ECC and Mark Kemp, Director of Environment and Infrastructure, HCC).

Commissioning Delivery Manager (Gary Macdonnell, Commissioning Delivery, ECC) – provides the coordinated management of the project to achieve the aims and objectives.

Senior Users (including Liz Burr, Head of Essex Network and Steve Johnson, Head of Highways Contracts and Network Management, HCC) – oversee the use of the scheme.

B10. Management Case - Risk Management

The top five main risks are:-

- Lack of timely development resource availability
- Poor understanding of project scope
- New requirements added during development leading to scope creep
- Unrealistic timescales
- Lack of engagement between developer and customers

For the risk register, please see Appendix E.

SECTION C – Monitoring, Evaluation and Benefits Realisation

C1. Benefits Realisation

Benefits would be significant if other authorities can be persuaded to adopt the data feed to allow a true national standard database to be set up. Once the data feed is established for Essex and Hertfordshire, and working successfully, it should be possible to market / advertise the benefits to other authorities. There would be a minimal cost for other authorities to join the system, but this would be far outweighed by the benefits to the travelling public in these other areas.

The benefits of a smarter road network, by making the existing data more usable and accessible, would primarily go to the travelling public who use the data feed. The councils would benefit from a positive halo effect of providing good and reliable data to make the travelling public's journeys less stressful at times of disruption. Before and after data will be obtained through GPS software to validate levels of improvement.

In particular, HCC's work on the enhanced bus partnership would benefit from this data feed to provide improved bus services and more accurate real-time information for the travelling public.

Additionally, if the data feed can be shown to work successfully with CAVs, then this could again be extended nationally, setting a standard for the industry.

C2. Monitoring and Evaluation

Both authorities plan to measure journey time data, before and after, to ascertain what improvements have been achieved by advising the travelling public early enough to take avoiding action around roadworks, incidents etc.

Bus companies could provide information to demonstrate the improvements achieved to their services as a direct result of this improved data feed.

It would be hoped that, if benefits can be demonstrated, then the data feed could be rolled out to other authorities with an ultimate aim of making the system cover the whole of the UK.

SECTION D: Declarations

D1. Senior Responsible Owner Declaration	
As Senior Responsible Owner for Real-time information for connected vehicles I hereby submit this request for approval to DfT on behalf of Essex and Hertfordshire County Councils and confirm that I have the necessary authority to do so. I confirm that Essex and Hertfordshire County Councils will have all the necessary powers in place to ensure the planned timescales in the application can be realised.	
Name: Chris Stevenson	*Signed*: 
Position: Head of Network Development Highways and Transportation Essex County Council	

D2. Section 151 Officer Declaration	
As Section 151 Officer for Essex and Hertfordshire County Councils, I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that Essex and Hertfordshire County Councils: - have 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 - accept 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 - accept responsibility for meeting any ongoing revenue requirements in relation to the scheme - accept that no further increase in DfT funding will be considered beyond the maximum contribution requested - have the necessary governance / assurance arrangements in place - have 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: Nicole Wood Director Finance & Procurement Essex County Council	Signed: 

Submission of bids:

The deadline for bid submission is **23.59 hrs on Friday, 8 February 2019**.

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