

Funding for Innovation: Connected Vehicle Data



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)*:

Tier 1: Blackpool Council (lead authority), Bristol City Council and Cumbria County Council,
Tier 2: Blackburn with Darwen Council, Local Council Road Investment Group (LCRIG),
Lancashire County Council, Manchester City Council, Southend-on-Sea Borough Council &
Wiltshire 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: Will Britain, Head of Highway and Traffic Management Services

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

Contact telephone number: 01253 476121

Email address: will.britain@blackpool.gov.uk

Postal address: Highway & Traffic Management Services
Blackpool Council
PO Box 4
Blackpool
FY1 1NA

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:

www.blackpool.gov.uk/Residents/Parking-roads-and-transport/Roadworks-and-road-maintenance/Highways-asset-management.aspx

SECTION A - Scheme description and funding profile

A1. Scheme name: Digital inspector

A2. Headline description:

Please enter a brief description of the proposed scheme (in no more than 250 words)

The scheme proposed will use high definition, vehicle mounted cameras to collect road and footway condition data. This data will improve highway inspectors' productivity, enabling surface condition to be assessed, reduce costs, and minimise the impact of personal injury claims thereby releasing resources for reinvestment in highway and footway projects.

The Digital Inspector will be developed jointly between all the councils specified, working in partnership with Gaist Solutions Ltd who will provide technical and development support.

The partnership will provide vehicles to carry the cameras and will assemble a test programme. A portable data communication, collection, collation and storage system will be developed, with Gaist providing technical support. This work and the results will constitute 'proof of concept' for the connected vehicles approach. The system will potentially connect to existing infrastructure within authorities such as Blackpool's Bluetooth beacons sited as part of Blackpool Council's Cooperative Intelligent Transport Systems Project or Bristol City Council's 5G City Mesh.

With the camera-equipped vehicles constantly travelling the councils' networks, the condition data will be regularly updated, thus minimising the development of carriageway and footway defects between inspection periods and enabling more cost-effective repairs.

Partner councils offer a variety of road and footway environments within which to test the hardware and software packages. It is anticipated that, if proven successful, all will adopt this highway condition monitoring method. The scheme could then be rolled out to other local authorities and road maintenance organisations.

(238/250)

A3. Geographical area:

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

Carriageway and footway networks within the following authorities; Blackburn with Darwen, Blackpool, Bristol City, Cumbria County, Lancashire County, Manchester City, Southend-on-Sea Borough & Wiltshire. Primarily focused on sections of the networks that have driven safety inspections, proposing to expand this to cover the whole safety inspection network.

(47/50)

OS Grid Reference:

Blackburn with Darwen Council - 369223.83, 421897.91

Blackpool Council -331922.11, 436206.83

Bristol City Council - 346537.16, 172922.66

Cumbria County Council - 341152.28, 520430.23
Lancashire County Council - 358541.62, 439490.38
Manchester City Council - 384655.49, 394994.62
Southend-on-Sea Borough Council - 589337.05, 185656.64
Wiltshire Council - 403958.62, 155333.54

Postcode:

Blackburn with Darwen - BB1 7DY
Blackpool Council (lead authority) - FY1 3AH
Bristol City Council - BS1 6HT
Cumbria County Council - CA1 1RD
Lancashire County Council - PR1 0LD
Manchester City Council - M60 2LA
Southend-on-Sea Borough Council - SS2 6ER
Wiltshire Council - BA14 8JN

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.

For map showing authorities involved see Appendix A3.1 - Maps

A5. Equality Analysis

Has any Equality Analysis been undertaken in line with the Equality Duty? ✓Yes No

Please see Appendix A5.1 - Equality Assessment

SECTION B – The Business Case

B1. The Scheme – Summary/History (Maximum 300 words)

Please outline what the scheme is trying to achieve – indicate what data you expect to collect and your technological approach, what applications you will deliver from the connected data etc.

This should also provide a clear statement on data privacy and security.

The project will be broken down into three core development segments, with associated tasks.

| In-Field Data Collection | Backhaul and Route Management | Data Inspection and Feedback |
|---|---|--|
| 1. Adaptation of Existing Camera technology into portable systems | 3. Develop a robust wireless backhaul via wireless communications systems to transmit data from the inspection vehicle to a central online server | 6. Design the data inspection tools for desktop inspection of the field data |
| 2. Design portable data storage systems and robust battery power system | 4. Develop a system for managing the most effective routing for the video inspection system. | 7. Develop a robust and auditable reporting process |
| 3. Design and develop automated upload system to central server | 5. Create a web-based visualisation system of the progress/coverage of the inspection in real-time or near real-time. | 8. Develop a robust and auditable 'request for action' system and feedback system. |

This project will focus on creating an innovative solution that can be used daily, removing many of the hurdles that have hitherto prevented the adoption of advanced imagery techniques in everyday operational situations.

This project will develop a system that can be readily integrated into most types of vehicles, with technology that reduces the ICT overhead associated with data collection and management, through automation wherever possible.

The project will provide a new breed of web services that allow a rapid feedback loop from image collection in the field to identifying and deploying inspectors/highways maintenance teams to defective parts of the network. The aim is to enable a planned response within 24 hours of the video survey. This represents a massive step change in efficiency and will create significant savings whilst at the same time it is anticipated that it will improve the safety of the network and reduce the risk of litigation from personal accident claims, which today cost the UK's councils millions of pounds each year.

The cameras will solely collect carriageway and footway surface data, and this will not raise any privacy or data security issues. As the data collected will be used solely for the

purposes of an engineering assessment of infrastructure and the imagery does not contain personal data about the pedestrians, and as it is not processed for the purpose to learn something about those individuals, nor will it be, Gaist have been informed by the ICO that the data does not fall under the remit of the DPA / GDPR. (evidence is available if required)

(275/300)

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 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 proposal?

Current methods of carrying out safety inspections are very resource intensive. It relies on inspectors walking designated routes to identify safety defects. This method is very time consuming, enables only a limited area to be inspected daily and is considered inefficient due to the number of defect free roads inspected.

The data that these inspectors collect is highly valuable and can be used in legal proceedings and therefore there is a need for this data to be captured, analysed and stored in a more systematic way to support these proceedings.

The current road and footway inspection / condition data available to inform decision-making for safety inspections is recognised as being insufficiently detailed.

What options have been considered and why does your approach to road condition provide the best solution?

Options considered:

| Collection Method | Reason ruled out |
|--------------------------|--|
| SCANNER | Data is not designed to highlight safety defects; the cost is also prohibitive |
| LiDAR | Hard to interpret data and has low repeatability |
| Other Video Surveys | Need of an internal resource to analyse video, image quality is still an issue |

This project will take video analysis further by introducing elements of automation and superior data processing capabilities more able to detect a road's physical state of repair. It is believed that this approach, using superior cameras to those available previously, is the most advantageous way to proceed. This proposal will increase productivity, ensure repeatability of data collection, provide data transparency and a robust evidence base.

What are the expected benefits / outcomes?

A superior decision-making tool to those available previously, increasing the efficiency of existing safety inspection regimes and make repairs more effective. It will enable the rapid deployment of repair gangs with a better understanding of the type of work needed. This efficiency gain will release additional funds for more repairs.

What is the impact of the scheme?

The project will develop a new data collection method (Appendix B2.1 - Strategic Case-Process Flow). This method will initially be field tested by Tier 1 partners and further refined through work with the other stakeholders. The Tier 2 partners will be early adopters. The suggested approach will lead to better and more consistent data collection. The increased productivity offered will mean a national productivity uplift, more efficient repairs planning and will lead to a reduction in the number of claims.

How will you transform the data into intelligence?

As can be seen above, a system objective is to turn data into intelligence automatically so that defects can be remedied before harm is done or can be placed in a decision-making process to determine the content of capitalised maintenance programmes.

(350/350)

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 | 2018-19 | Total |
|-----------------------------------|----------------|--------------|
| <i>DfT Funding Sought</i> | 100 | 100 |
| <i>LA Contribution:</i> | | |
| <i>Blackburn with Darwen,</i> | 5 | |
| <i>Blackpool Council (lead</i> | 5 | |
| <i>authority),</i> | 5 | |
| <i>Bristol City Council,</i> | 5 | |
| <i>Cumbria County Council,</i> | 5 | |
| <i>Lancashire County Council,</i> | 5 | |
| <i>Manchester City Council,</i> | | |
| <i>Southend-on-Sea Borough</i> | 5 | |
| <i>Council &</i> | 5 | 40 |
| <i>Wiltshire Council.</i> | | |
| <i>Other Third-Party Funding:</i> | | |
| <i>Gaist Solutions Ltd</i> | 170 | 170 |
| Total Bid Costs | | 310 |

Notes:

- (1) Department for Transport funding must not go beyond 2018-19 financial year.
- (2) A local contribution of 5% (local authority and/or third party) of the project costs is required.

See Appendix B3.1 – Outline Project Costs

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 Local Contribution consists of a £5,000 contribution from each of the partner councils. This equates to 13% local contribution. Gaist our technology partner for this bid will provide resources equalling £170,000. The combined non-DfT contribution equates to 210% of the DfT contribution.

- 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 No N/A

Appendix B4.1 - Letters of Support – shows all the letters of support from each of the authorities involved and the technology partner.

- 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 applications.

B5. The Financial Case – Affordability and Financial Risk (maximum 200 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?

15%

- b) How will cost overruns be dealt with?

The partner councils will accommodate any cost overruns within their highways maintenance budgets in negotiation with Gaist. There will be no request for further grant as per the application guidance notes.

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

The risk register is attached in Appendix B10.1 - Risk Register.

The main risk involved in this project is scope creep and this will be carefully managed throughout. Due to this being an innovation project there is risk that learning from the project could result in unexpected outcomes. To mitigate this there will be a defined scope agreed by the Board. Any change will be subject to the Board's approval and a Change Control process. This will enable risks or opportunities relating to time, cost and quality to be quantified and assessed by the Board before any change decision. This will be the process to deal with any other risks that arise during the project

These risks will primarily affect the ability to deliver the scheme to the stated programme rather than the overall cost of the scheme. However, the governance structure for the project includes a dedicated project board and team to ensure risk mitigation measures are instigated in a timely manner.

(195/200)

B6. The Economic Case – Value for Money (maximum 200 words)

Bidders are requested to provide qualitative description of the data that will be collected from the project and how these could provide potential benefits going forward.

This should also capture any examples which generate revenue from the data collected and an indication on the number of users that benefits.

The Digital Inspector proposes to capture HD imagery of the carriageway and footway surfaces by encasing cameras and mounting them onto the rear of a vehicle allowing officers to drive the specified routes whilst the technology captures the data and transfers it to Gaist servers for analysis. The main outputs:

- 1. HD imagery continually updating Gaist's image library, following the 2017 national survey.**
- 2. A mapped layer showing highway authorities where defects are on the network. This will then need to be assessed by an officer in the authority to decide if it a Cat 1 or Cat 2 type defect.**

All this information will be stored on a secure web platform, allowing easy access to the data. Once the defect has been assessed by the officer then it can be transferred over to their Asset Management System to allow it to follow the usual business rules.

The main benefit of this proposal is cost savings; currently the safety inspections cost authorities roughly £50/km. Gaist feel that the cost to the authority could be reduced dramatically. Gaist's current method for collecting condition surveys is £32/km. There are savings to be made, whether officer time or re-allocation of resources.

(198/200)

B7. The Commercial Case (maximum 200 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.

Gaist has been appointed via the “RAMS Framework” to provide LCRIG authorities (all English authorities are named) with highway condition survey and technology support following competitive tender and therefore its services are available on a value for money basis.

On this basis and the partnership nature of the bid that is proposed, it is proposed that Gaist continue as principal contractor following a successful application for Connected Vehicle funds.

Should the need for further procurement emerge during the project, for instance in securing equipment, this will be considered against the framework agreements that the councils have in place and if these do not provide a satisfactory solution, open competitive tendering will be used.

Blackpool Council’s Procurement Team is on hand to offer advice on all aspects of this important area and will be consulted at each principal stage throughout the implementation process.

(142/200)

*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 200 words)

Deliverability is one of the essential criteria for this Competition and as such any bid should set out if any statutory procedure is 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 No

The attached project plan (Appendix B8.1 - Project Plan) shows the project outline. The plan currently shows the worst-case scenarios. As the project evolves past the design stage the timescales will be improved and adapted as required.

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

All proposals to bid for funding are considered by Blackpool Council's Corporate Leadership Team and a report is taken for this team's consideration. This report is appended (Appendix B8.2 - Delivery Statement) and its approval constitutes a full approval and commitment to this scheme on its approval by Government.

(86/200)

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.

An organogram is attached (Appendix B9.1 – Organogram) identifying the relevant project management roles for project, which as lead authority will coordinate across the four partners in this scheme.

Senior responsible officers within the other partner councils are as follows:

Blackburn with Darwen Council – Matthew Joyce
Blackpool Borough Council – Neil Mcardle
Bristol City Council – Shaun Taylor
Cumbria County Council – Andy Brown
Local Council Road Investment Group (LCRIG) – Will Britain
Lancashire County Council – Paul Binks
Manchester City Council – Andy King
Southend-on-Sea Borough Council – Paul Mathieson
Wiltshire Council – Julie Anderson & Parvis Khansari

B10. Management Case - Risk Management

Risk management is an important control for all projects but this should be commensurate with cost. A risk register covering the top 5 (maximum) specific risks to this scheme should be attached as an annex.

Has a risk register been appended to your bid? ✓ Yes No

Please see Appendix B10.1 - 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 your will lead to the outputs/ outcomes. This could be achieved by logic maps, text descriptions, etc.

We also request that your bid clearly articulates how you are expecting to use the data collected and the expected benefits for both road users and road operators. Please also outline how you could measure the expected benefits from the application of the harvested data.

Outcomes:

Use of camera technology – enhancing current technology stack to make the technology more portable, reducing the barriers to market without degrading the imagery unduly.

Streamlined Safety Inspections – enabling authorities to meet new Code of Practice whilst meeting statutory requirements.

Scheduling and Routing of vehicles – creating efficient processes to schedule and create routes that are optimised for the risk-based approach.

Optimise the claiming handling process – creating a digital inspection allows the insurance sector to re-invigorate their claims handling process.

Use of the data

Pinpoint locations of defects – allow authorities to concentrate their attention on areas of the network that need it.

Enable smarter asset management - track defect condition, enable ability to monitor in real-time and predict trends in road condition.

Contribute to the imagery of road condition, which can aid further developments in A.I. via Machine Learning.

Provide robust evidence base of what the state of an asset was at the point of inspection, provide better evidence for claims handling and S58 defence.

As the data is HD images it brings with it transparency; the images are simple to interpret allowing a greater understanding of state of the network.

Road User

A net effect to provide Safer Roads.

Road Operators

Use the technology developed to put on their own vehicles so that they can collect the data.

The data would enable operators to pinpoint the defective areas more easily. Having a “big” picture of what the state the network is in, allowing better decisions regarding Revenue or Capital spend.

(250/250)

C2. Monitoring and Evaluation (maximum 150 words)

The Department intends to evaluate the competition and bidders are requested to support our evaluation activities through the provision of information.

For example, we may ask you to complete a survey or take part in an interview. In particular we will be interested to gather your views on; the delivery process (e.g. have you delivered your proposal to cost and schedule and whether you have encountered any barriers to delivery); the technology implemented (eg did it work as intended); the data collection process (e.g. do you have confidence in the data collected?); and how the data has been used/how are you planning to use it?

Please include a statement of the monitoring data you can access and an indication of the authority to monitor.

The project is concerned with significantly enhanced data collection and processing and the results of this can be made available to DfT on a regular basis. Quarterly reports can be prepared assessing the project's progress and the results that it is yielding.

Joint visits to the partner areas will be organised over the year, enabling best practice and insight to be shared, and it's recommended that DfT colleagues participate in these. Authorities will be available to host individual knowledge sharing sessions at any time, including workshops and field visits where colleagues can ride in the camera equipped cars.

As the data will have no privacy or security implications, it can be placed on a joint and open data platform accessible via a secure web portal.

There are no difficulties in taking part in interviews concerning the delivery process, or any other scheme aspects.

(143/150)

SECTION D: Declarations

D1. Senior Responsible Owner Declaration

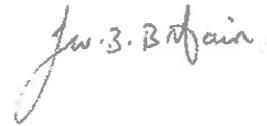
As Senior Responsible Owner for *Connected Vehicle Data* I hereby submit this request for approval to DfT on behalf of *Blackpool Council* and confirm that I have the necessary authority to do so.

I confirm that *Blackpool Council* will have all the necessary powers in place to ensure the planned timescales in the application can be realised.

Name: Will Britain

Signed:

Position: Head of Highways and Traffic Services



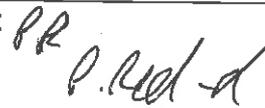
D2. Section 151 Officer Declaration

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

- 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: Steve Thompson

Signed:



Submission of bids:

The deadline for bid submission is **17:00 on 16 February 2018.**

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