From: Simon Jones, Director HT&W – Growth, Environment and Transport

To: Mike Whiting, Cabinet Member for Planning, Highways, Transport and Waste

Date: 12 August 2019

Decision No: 19/00056

Subject: Local Highways Asset Management Technology Incubator ('Live Labs)

Summary
KCC has secured £1.975m for a two-year project to set to develop an asset management control hub, situated within the Operational Control Room (OCR) based at Aylesford Highway Depot. This intelligence-led approach to asset management could lead to significant benefits to the service in terms of efficiencies, network resilience and customer experience. An asset management control hub will be responsible for collecting all data and providing intelligent analysis, both through software automation and consultancy form.

Recommendation: The Cabinet Member for Planning, Highways, Transport and Waste is asked to approve progression of the Live Labs project using the funding awarded by the Department for Transport and delegate authority to the Corporate Director of Growth Environment and Transport to enter into any relevant legal agreements and to take other actions necessary to implement the decision.

1. Introduction

1.1 Transportation, particularly highways, is on the cusp of a revolution led by new materials, methods of manufacturing, digitisation, the electrification of transport and the use of robotic and autonomous technologies. In recent years there has been a wide range of innovation in the use of new technologies including new road surface materials, digital networks and sensors, and construction / maintenance techniques but many of these have not been deployed at scale or been subject to commercial, real world rigour.

1.2 In recognition of this last year the Association of Directors of Environment, Economy Planning and Transport (ADEPT) in co-operation with DfT, announced a £25m *Smart Places Research Programme* funding package to "stimulate innovation and encourage collaboration in local highways." This included the development of up to six smart local highways and autonomous vehicle (AV) live labs focusing on innovation, collaboration and agility.

2. KCC/ Amey application

2.1 A joint application was submitted by the Director of Highways Transportation and Waste and the Business Director of Amey and Staffordshire County

Council. The project objectives for Kent, were to provide answers to two key needs within innovation and asset management on the local network namely:

(i)   the creation and management of a centralised digital hub for all asset management data, presented on a dashboard which will present a live view of the network. The hub will be responsible for collecting all data and providing intelligent analysis, both through software automation and consultancy and

(ii)   service redesign using dynamic network sensors, involving the commercial sector including local SMEs to provide commercially viable alternatives to cyclical and reactive maintenance

2.2   The Live labs will embed SMART infrastructure in everyday service delivery in a meaningful way that communities can engage with and understand

2.3   In February 2019 the competition winners were announced, and the KCC/Amey/Staffordshire bid was successful and an award of £4m was made for a two-year live lab project.

3.   Financial implications

3.1   As stated above the project has been awarded £4m which will be split evenly between Kent and Staffordshire. Additionally, bids will be made to the Kent Lane Rental fund throughout the project which will supplement the £2m award. A full-time project manager will be seconded to the project with support staff to ensure that we are able to maximise this opportunity and realise benefits to service delivery for the people of Kent. As well as KCC project management, Amey have committed high level technical experts to work on the project.

4.   Project deliverables

4.1   Since the announcement of the award, work has been ongoing to further scope the project to enable it to go live in June 2019. The project is underpinned by the development and operation of an asset management control hub, situated within the Operational Control Room (OCR) based at Aylesford Highway Depot.

4.2   With digital connectivity being the next major shift in highways there are options to use intelligent devices to help better manage, monitor and maintain assets within the digital world.

4.3   Smart Winter and Smart gully projects are currently ongoing in Highway Asset Management. Both utilise sensor technology which can be further developed and utilised for this project. The Control Hub will provide a conduit for all data sources on the network including sensors, weather, satellite and operational

routing. The control hub will be governed by an intelligent dashboard, presenting a live view of the network.

4.4 This intelligence-led approach to asset management could lead to significant benefits to the service in terms of efficiencies, network resilience and customer experience. The hub will be responsible for collecting all data and providing intelligent analysis, both through software automation and consultancy.

4.5 In addition to the existing Smart highways projects, other elements of the service will be scoped for inclusion. The project will also utilise other widely available data sources (IoT – Internet of Things) where appropriate and internal data sources such as Confirm, our existing asset management system. The use of satellite and drone technology will also be explored.

5. Late-stage SME smart technology scale up

5.1 The final element of the project will be to open the 'live lab' to third parties to test both software and hardware technologies from pilot to full blown solutions. Kent and Amey recognise the difficulty in scaling technological solutions and as part of the project, will look to assist and incubate innovative solutions from smaller providers including local SMEs.

5.2 KCC with Amey will provide an expert steering committee who will review and assess incoming opportunities. The focus for this live lab will be 'proven technology, without proven commercial viability'. While remaining flexible to new ideas, the live lab will focus on mature solutions which are struggling to scale effectively.

6. Conclusion

6.1 Technology alone cannot solve many of the problems faced by the highways sector, but it can help deliver significant operational efficiencies, improve network reliability and resilience and, importantly, improve the experience of those who are dependent upon our roads.

6.2 The Live Labs project provides a unique opportunity for KCC Highways to engage in a funded technology project that has the potential to bring about a step change in asset management and service delivery.

6.3 The output after 2-years is to present valid, scalable technology, combined with demonstrated effects of efficiency, methods and productivity in highway service delivery. These new solutions can then be shared and adopted around the ADEPT network safely.

7. Recommendation

7.1 The Cabinet Member for Planning, Highways, Transport and Waste is asked to approve progression of the Live Labs project using the funding awarded by the Department for Transport and delegate authority to the Corporate Director of Growth Environment and Transport to enter into any relevant legal agreements and to take other actions necessary to implement the decision.

8.   Supporting Documentation

Appendix 1 - Live Labs Prospectus

9.   Author

Andrew Loosemore
Head of Highways asset Management
Tel: 0300 411652
Email: andrew.loosemore@kent.gov.uk