From: Michael Payne, Cabinet Member for Highways and Transport

Simon Jones, Director of Highways, Transportation and Waste

To: Environment and Transport Cabinet Committee – 17 July 2020

Subject: ADEPT Kent Live Labs Project

Classification: Unrestricted

Summary: The report updates Members on the Live Labs technology project being carried out in highways in partnership with Amey plc.

Recommendation: Members are asked to note the progress of the project and the plans for phase 2.

1. Introduction

1.1 In 2018 Kent County Council in collaboration with Amey plc successfully submitted a bid to the Association of Directors of Environment, Economy, Planning and Transport (ADEPT) in co-operation with DfT to run a Smart Places Live Lab. The award was £1.975m for a two-year project which commenced in June 2019. The Live Lab will embed SMART infrastructure in everyday service delivery in a meaningful way that communities can engage with and understand. Due to the Covid-19 pandemic and the potential impact on the programme, ADEPT have extended the programme end date to November 2021.

1.2 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 expert big data analytics provided by our partners on the project Amey Strategic Consulting.

2. Financial implications

2.1 A capital grant of £1.975m has been awarded to KCC to develop several innovative solutions, based on the bid made to the DfT and ADEPT.

2.2 £500,000 was allocated to Phase 1 of the project which was completed at the end of March 2020. The balance of the budget has been allocated to Phase 2 of the project, with Phase 3 focusing on producing the project report for ADEPT. The identified contingency has been revised to £150,000 from £190,000.

- Other funding options – Included in the KCC/Amey bid to ADEPT was the ability to access additional funding for appropriate projects by making application to the Kent Lane Rental Fund (KLRF). This approach was well received by ADEPT as a significant advantage to the project and had the potential to increase the innovations that could be trialled. Throughout the life of the LL programme, the project team will be assessing any innovations that

fit the KLRF criteria and submit bids accordingly. To date two applications have been made and one project has been successful – Route Reports – in being awarded £150,000 (see para 4.1 below).

3.   Phase 1

3.1   Workstream development - Phase one focused on scoping the challenges in service delivery faced by the various services in highways, including, highways asset management, traffic schemes delivery, major projects, public transport, drainage and street lighting. This work involved extensive staff/stakeholder engagement and data discovery and from these the development of workstreams. This stage of the project has proved to be very productive. Managers across Highways and Transportation were instrumental in identifying key areas of the service where technology and data analytics can improve their area of the service. This led to over 80 ideas being generated and from these 25-30 innovations have been identified and are being worked on for future development. The current list is showing at Appendix A.

3.2   Access to data sources has proved challenging and much work has been done by the project team to ensure that the right data has been obtained in order to meet the use cases identified by managers.

3.3   Operational platform – this is one of the key deliverables of the project and during phase one initial development was completed, utilising existing data sources and analytics. The platform has been demonstrated to managers and staff and their feedback has been used to revise and enhance the functionality. A beta version is being prepared for a limited number of staff to trial in real time. (Diagram below)

Phase 1 output examples (Quick wins)

Gritting compliance

KPI tracking

Gang compliance & performance

Network Risk
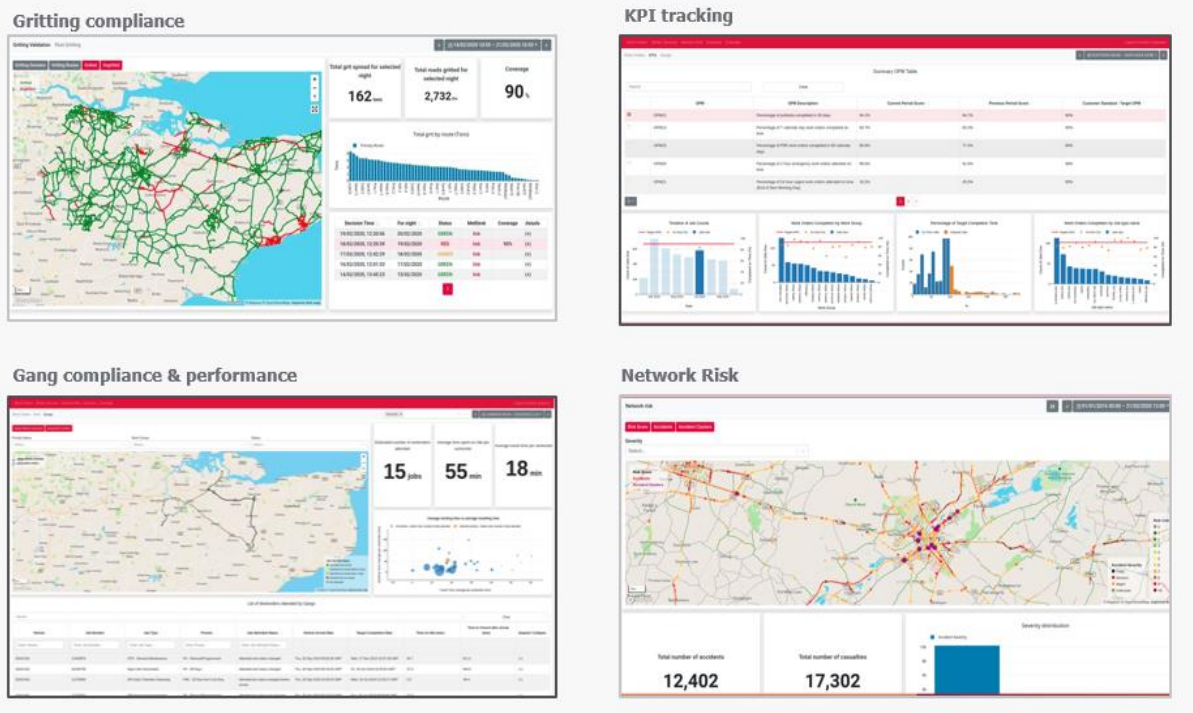
4. **Phase 2**

4.1 Phase 2 has got off to a good start despite a few workstreams being delayed due to Covid 19 [some of the sensor/camera trials were related to traffic counts and due to low levels of traffic during lockdown there was little value in carrying out these trials. These trials will now be carried out later in the year]. Technology trials are being developed from the work done during phase 1 and some innovation trials have started, and others are imminent as outlined below:

- **Confirm data integration** almost complete with 'go-live' date by mid July 2020
- **Development** - Mobilisation of network risk workstream to support scheme planning and development (developing a tool to support planning of safety and other highway schemes, which will integrate third party data e.g. Predina, alongside others), arboriculture, and the new winter data gathered from the 120 mobile sensors deployed along the primary salting network two years ago.
- **Gully sensor trials**: Four types of gully sensors are being trialled side by side in a range of gullies across the county. All of these are now in the ground (Map16, kaarbontech, UKFDA and Amey) and the data derived from them will be used to develop two core outcomes: a) sensor tech response evaluation report; and b) sensor tech value-add proposition review which will enable the project team to assess how efficient and cost effective these sensors are and whether to recommend further development or wider deployment.
- **Routereports** – This technology is a video and telematics defect identification system (e.g. potholes) that will be installed in 20 vehicles -12 highways vans and 8 Arriva buses and will go live for gathering data in mid-July. There will be

an ongoing process of developing the detection algorithm for around 6 months with productive output being available around March 2021.

- **Gipave** – this is a Graphene enhanced asphalt in road scheme delivery, with the potential to offer significant gains in strength and lifespan over current methods in use throughout the UK. The enhanced asphalt is produced by Iterchimica S.R.L – a company based in Italy, who use Graphene pellets melted into bitumen to create an asphalt material that has been shown to deliver in the region of a 150% improvement in the lifespan of the road material compared with traditional methods. The material is being used in a resurfacing scheme in East Hill Dartford and will be laid alongside traditional materials for comparison purposes. The scheme will be completed by 3rd July 2020 (see Appendix B).
- **Strategic Platform -** a mobile based prototype was presented to the LL project board on 22nd June and further work is needed to reposition the platform as a digital change programme for customer engagement. This will involve work with the Corporate Communications Team and KCC Digital Services.

4.2   The project team have also been engaging with the SME market to find the best technology solutions for delivering innovations within the project.

4.3   Workstreams will continue to be developed during the life of the project with successful ones taken forward and lessons learnt from any that fail at the proof of concept stage.

4.4   The project team has also met with other Live Labs across the country to share the work that we are doing and to learn from each other.

5.   Phase 3

5.1   The final stage of the project will focus on business transformation including:

- Implementation of business change
- Agile platform refinement in relation to the operational and strategic platforms
- Establish performance measures
- Embed enduring support model to ensure that technological benefits can where possible be proposed as business as usual

5.2   Additionally, all LL projects must produce a final report on the project for ADEPT and this will also be completed during Phase 3.

6.   Conclusion

6.1   The Live Labs project has got off to a good start with phase 1 successfully delivered and phase 2 progressing the workstreams identified so far. The joint project team is working very well, with the Amey consultants delivering high quality work and providing the analytic specialism critical for the success of the overall programme. Over the next few months more technology trials will be deployed and analysed. Development of the operational and the strategic platforms will continue and business use cases for these tools will be consulted on. This intelligence-led approach to asset management could lead

to significant benefits to the service in terms of efficiencies, network resilience and customer experience.

7.   Recommendation

7.1   Members are asked to note the progress of the project and the plans for phase 2.

Contact details

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Appendices:

Appendix A – Workstream development
Appendix B – Gipave - Graphene enhanced asphalt, road scheme delivery

Background documents:

1.   ADEPT Live Labs Highway Assets Data-Led Management Solution
      https://democracy.kent.gov.uk/ecSDDisplay.aspx?NAME=SD5862&ID=5862&RPID=36248645

2.   ADEPT Live Labs Prospectus
      https://democracy.kent.gov.uk/ecSDDisplay.aspx?NAME=SD5861&ID=5861&RPID=36248647