Mobility Monitoring Network

Soft Market Testing Specification for the Cambridgeshire & Peterborough

Mobility Monitoring Network Framework

Date	Version	Comments
16.09.21	V0.1	Initial draft for soft market test
17.09.21	V0.2	Revised draft for soft market test
21.09.21	v1	Issued spec for soft market test

Contents

1. Context

The Mobility Monitoring Network is a joint procurement between The Greater Cambridge Partnership (GCP) which is delivering the Greater Cambridge City Deal and comprises of Cambridgeshire County Council, The South Cambridgeshire District Council, Cambridge City Council, The University of Cambridge and representatives of local business through the Cambridgeshire and Peterborough Combined Authority Business Board and the Cambridgeshire and Peterborough combined Authority (CPCA), the devolved mayoral body. Other organisations that may use the framework procured include Cambridgeshire County Council who are currently using sensors to monitor the impact of new developments on mobility movements and Peterborough City Council.

GCP's next Gateway Review is due in April 2025 and has the potential to unlock a further £200m of City Deal funding. The details of the methodology by which GCP will be assessed has not yet been agreed with central government but it is imperative that GCP undertakes appropriate data collection to enable the impact of the investment to date to be demonstrated.

Individual schemes and projects already make use of a variety of data sets to prepare their business cases and to enable monitoring and evaluation post implementation, often supplementing available evidence with new mobility monitoring sensors to fill gaps in the data. This enables the impacts and benefits of each individual scheme to be demonstrated.

Preparation for the 2025 Gateway Review requires a more holistic assessment of changes in traffic levels and types across the whole GCP area. Traditionally, this type of assessment is made by annual counts, carried out by the County Council on one or more specific days in the year. This approach has considerable limitations as it cannot pick up changes or trends that occur in between annual surveys and can be impacted by events including severe weather. Consequently, a more modern and effective approach is required.

The Cambridgeshire and Peterborough Combined Authority (CPCA) is the transport body for the area and has a need to collect data to inform its work in preparing transport plans and delivering infrastructure. Their initial requirement is to begin to collect data in a number of market towns in Cambridgeshire.

Following successful trials of this type of technology by the Smart Cambridge team, the GCP and CPCA are considering the deployment of a network of sensors to provide classified counts, providing separate counts of cars, cycles, pedestrians and other vehicle types. As well as supporting the Gateway Review, GCP and the CPCA will then have access to a more realistic, up to date view of key traffic data including traffic volumes and modal splits.

The propose network will cover key locations on Cambridge radials, market town radials and some city routes including cycle and pedestrian paths. As well as providing vital evidence to support the next GCP Gateway Review, the data collected must be made available for use by other bodies as defined in any final agreement, in particular Cambridgeshire County Council and the CPCA to support traffic modelling and other requirements.

Previous work in this area has demonstrated the critical importance of having a 'before' baseline against which to compare impact data during and following the implementation of schemes. This dictates that the requirement to establish this contract and deploy the network is urgent to ensure

data can be captured prior to work on major schemes being initiated. With this in mind, GCP and the CPCA are considering a framework agreement to facilitate several parts:

- Establishment of the framework agreement and deployment of the first 'tranche' of key sensors (anticipated to be in the region of 70 – 80 sensors across the county with the considerable majority in Greater Cambridge)
- Other call offs as required by all parts of GCP, the County Council, the CPCA and other relevant organisations as and when needed.

It is intended that Cambridgeshire County Council will be the accountable body for the framework agreement.

2. Output Requirements

Output requirements include the following:

- The sensor must be capable of continuous operation, detection and supply of data 24/7 without human intervention
- The sensor must be capable of being mounted on or utilising existing infrastructure for deployment in order to minimise street clutter and maintenance requirements.
- It is assumed that the installation of a sensor can be carried out - under supervision if necessary - by electrical and civil contractors that Cambridgeshire County Council already have in place. Any supervision costs must be included in the unit price.
- Maintenance and operational support of sensors should be included

3. Data Requirements

As set out in the context and output sections above, the provision of data is the most critical part of this project. It is anticipated that the data will be used for many different purposes and by different partners throughout the lifetime of the sensor network.

The accuracy and reliability of the data feeds will be essential to ensure that regular reporting can be created and automated, that schemes can be accurately monitored before, during and after their implementation and that the evidence base produced can be made available easily to both partners and, where applicable, the public.

With this in mind, the sensor network must be able to deliver data that provides:

- Pedestrian and cycle counts and direction of travel - this will include on shared use footways and footways next to a live carriageway, in a cycle/bus lane and also on carriageway in a mixed traffic environment
- Vehicle count and direction of travel – at a minimum the sensor will be able to classify cars and buses in a mixed traffic environment
- Count data provided in near real-time including a data feed e.g. a 'push' API feed that will allow the data to be used by other applications
- Access to a data portal/dashboard that will allow access to the historic count data
- Ability for a limited number of cameras to have ANPR functionality
- Data must be made easily available to export from the data portal/dashboard
- Data should be accessible in time bins
- It must be possible to extract data in .csv formats

- An accuracy of at least 90% for each 'approach' a sensor is monitoring. It is expected that this is demonstrated prior to sensor sign off, but is also maintained throughout the life of the sensors.

4. Data Ownership

While we are not mandating a particular model in regard to data ownership, the requirements set out below must be taken into account.

- All data captured by the sensors will belong to us, we will be able to share and re-use data with third parties. The Supplier will be able to re-use data collected subject to agreement between the contracting parties

5. Data Security

Previous projects and collaborative work carried out by the programme have demonstrated the importance that partners and the wider public place on the security of the data. While the data collected as part of this project is not expected to contain any personal information, assurances on data/cyber security are still required. This applies both to the security of the data itself, but also to the wider system. Our current thinking is detailed below:

- Any sensitive data must be anonymised
- All data must be collected in a GDPR compliant way
- The supplier should provide explanation of what are the potential risks to the council and the public in the event of a system hack
- Are the sensors capable of capturing any data other than that requested by the council, which could be classed as sensitive?
- Are there any previous concerns or breaches of security that should be brought to the attention of the local authority?

6. Installation Requirements

The successful supplier will need to work with our lamppost PFI provider, Balfour Beatty, to identify sites and check they are suitable for sensors to be mounted. This will be completed through the Cambridgeshire County Council (CCC) attachments process.

Our requirements will also state that trenching/digging/slot cutting in the carriageway will not be permitted due to the traffic disruption and maintenance issues this can cause.

7. Operational Requirements

As explained in the context section, this project is considering a large sensor network that can be reliably used for several years. There is also a likelihood of additional sensors being needed to expand the network as new projects come online. With this in mind, an understanding of the operational management of the network is key. The following requirements are being considered in this regard:

- Provision of information on the way in which fault management and network monitoring is investigated/reported

- The responsibility of the supplier to ensure the network is running and resolve issues if not
- KPIs and reporting protocols will need to be in place
- How is accuracy confirmed and maintained throughout the lifetime of the deployment

8. Potential future network extension

As mentioned above, there is a likelihood of further sensors being added to the network. As part of this procurement, a framework will be put in place under which additional sensors can be purchased and installed. To facilitate this, the council are considering requesting the following:

- Information on lead time for purchase and installation of additional sensors
- Identification of what requirements they would have of the council in order to facilitate this process
- Identify any impact that inclusion of further sensors would have on the existing network

9. Information Provision (Visualisation of Data)

While the collection and analysis of data is important, the ability to present that data in clear and meaningful visualisations is critical to the local authority.

To facilitate this, we are considering the following requirements:

- Provision of an API to allow sensor data to be accessed
- Ability to download in standard formats such as excel
- Access to a data portal/dashboard that will allow data to be assessed by time and date ranges
- It would be an advantage if the platform already has connectors for common data visualisation and analytics tools such as Power BI or Tableau