



Microwave Sensor: M1 Costain Galliford Try JV 13-16 Traffic Study

We were approached by Costain and their client Highways England to monitor traffic ahead of key decisions in relation to the proposed 60 MPH speed through the scheme. As a collaborative member of the 60mph project team, it was determined that a traffic data collection solution was required which could monitor the following metrics at a frequency of each individual vehicle that passes the monitoring location:

- Vehicle type (car/HGV)
- Lane occupancy (L1/L2/L3 etc.)
- Vehicle speed (mph)
- Headway to previous vehicle (time)

Our microwave radar has the ability to collect this level of data and then average it per minute. We were also capable of providing individual vehicle data for our statistical analysis (as the individual headway figure allows the project team to calculate levels of close following vehicles).

In terms of monitoring equipment, Mobile VMS provided each radar unit with an

individual Vehicle Data Logger (IVD), in order to provide data by vehicle rather than an average.

Mobile VMS deployed monitoring sites within the scheme section 1A and another site further downstream in section 2B. The sensor provided bi-directional coverage across both lanes (capable of monitoring up to 8 lanes of traffic). In summary, two radar units were provided at each site (on opposing carriageways) to improve monitoring accuracy as the number of lanes increased.

- 4 temporary microwave radar units
- 2 months
- Radar units had IVD loggers

The scheme planned to run at 60mph through the works and the sensor data provided a valuable assessment of whether it was feasible and safe to do so. It was vital to have the ability to measure both headway and vehicle gap, to determine whether or not the distance between vehicles extended or reduced at 60mph.

Collaborative Solutions Provider

Sensors are normally used on a temporary basis to count, classify and measure speed. When Costain contacted Mobile VMS we consulted with our supply chain partner Ver-Mac as we needed a sensor that would measure headway/vehicle gap and have the ability to run on 12 volts as part of a temporary solution on our solar platform.

Within 2 weeks, we had received the sensor, carried out testing, deployed and calibrated on the live lanes. A total of 4 sensors were placed in key specified locations within the proposed 60mph trial zone - two units northbound and two southbound. Each sensor was measuring traffic data across 3 lanes (bi-directional flow).



Sensors were fully solar powered with no down time through project duration

4G Modem for communication

Reset box to automatically reboot the system in case of a network issue

24/7 reporting

Speed 85th percentile per lane

Count per lane

Classification per lane

Headway per lane

Vehicle gap analysis per lane

Data reports were generated by Mobile VMS and sent to TRL each week. The sensors and reporting mechanisms were in place for one month in advance of the 60mph to gather key information on the traffic conditions at a control speed of 50 mph and then ran for the duration of the 60mph trial. Mobile VMS placed the sensors in specified locations at the start of the trial and did not re-visit the sensor during the trial, obtaining all data remotely. The data provided (see example graphs below) enabled the 60mph trial team to obtain key information to help make the informed decision to change the speed limit to 60mph through the works.

