

Case Study

Wireless Vehicle

Detection for SCOOT and MOVA

Wireless vehicle detection as an alternative for inductive loops at nine sites.

Background

In 2014, during a major redevelopment of Swansea city centre, the new European Boulevard was created incorporating Oystermouth Road and Quay Parade.

Oystermouth Road is the main arterial road into Swansea and accommodates 4,000 vehicles an hour during peak travel periods. As such, when upgrading the traffic signals careful consideration was required to minimise disruption to commuters and the surrounding areas.

Solution

After consultation with Clearview Intelligence, Swansea City Council chose to install wireless vehicle detection as an alternative to inductive loops due to their faster installation times. Unlike inductive loops, which require access to a power source and trenching across the carriageway, wireless magnetometers are battery powered and installed in the centre of the carriageway by coring a single hole per sensor.

This method is four times faster than cutting loops into the road, and with an operational life of 10 years, this presented an opportunity to minimise the present and future maintenance disruption to motorists.

The solution uses a wireless magnetometer to detect vehicles and a low power secure radio transmitter to transmit this information to an access point. This relays the detection data to the traffic signal controller.

"Clearview's wireless vehicle detection has proved a viable alternative to traditional inductive loops and as such, has been used repeatedly by Swansea City Council at locations across the area. The studs have been used to implement SCOOT and MOVA traffic control at sites where cutting inductive loops would not have been possible, to improve traffic flow at key junctions across the city."

Gareth Jenkins, Telematics Engineer,
Swansea City Council

total of 62 magnetometers were installed at four locations along the Boulevard, including T-junctions and crossroads. Using these in partnership with an interface card enabled a comprehensive SCOOT network management solution to be implemented.

Ongoing work

Following the use of the magnetometers for the European Boulevard, Swansea City Council installed 71 additional units at a further five sites between 2016 and 2018, upgrading multiple VA junctions to MOVA operation. These comprised a number of heavily-congested satellite locations across Swansea, primarily consisting of crossroads.

The decision to extend the use of wireless detection rather than inductive loops was based upon numerous factors, which included their proven reliability on the European Boulevard project. Other influences included the topography of the area; the versatility to allow for installation of VA & SCOOT detection on a cobbled junction approach road that was unsuitable for traditional loops, and other sites where there was not enough ducting capacity to implement MOVA operation.

Recently, Swansea City Council has integrated the wireless magnetometers with Dynniq's PTC-1 controller. The access point now communicates directly with the controller CPU removing the need for an interface card. This has freed up space within the controller cabinet and freed up IO capacity within the controller.

Key Benefits

- Faster installation compared to inductive loops meaning less disruption to road users
- Suitable for installation where inductive loop options are unpractical
- Improved reliability with a five-year warranty included
- Battery and operational lifespan of 10 years means less maintenance time
- Compatible with existing traffic signal infrastructure and technology
- Intelligent signal procedures mean improved traffic flow and reduced congestion