Hard shoulder bus lanes in Northern Ireland

Overview

Additional Traffic management measures were needed to mitigate the impacts of the construction of the proposed York Street Interchange (YSI) scheme. This project aims to improve the flow of traffic at the confluence of two motorways and the Westlink in Belfast, Northern Ireland. These measures include the introduction of hard shoulder bus lanes on M1 and M2 motorways into Belfast along with the provision of new CCTV Pan Tilt Zoom IP-based cameras for traffic monitoring purposes by the Traffic Information and Control Contre (TICC). The works started in 2018 and were completed in 2020, with an estimated cost of 2234k€.

Objectives

General background

The M1/A12 Westlink, M2 and M3 motorways, which are key sections of the Strategic Road Network in Northern Ireland, are presently connected through a complex arrangement of traffic signals at York Street in Belfast. This bottleneck presently causes significant congestion and delays for traffic travelling between the M1/A12 Westlink and the M2 and M3 motorways at peak times. The junction will come under increased pressure to deal with traffic in the future. In preparation for this, proposals were developed to provide a grade-separated junction at York Street that would provide direct links between the A12 Westlink and the M2 and M3 motorways and improve access between these roads and the adjacent Belfast Port.

The main objective of the bus lanes is to mitigate anticipated congestion, particularly during the YSI construction period, as well as to help promote and encourage the ongoing use of public transport for travel info Belfast.

Project description

New and upgraded CCTV cameras for this project were required to be connected to the existing motorway communication network and relay video images sent to the existing CCTV in-station located at the TICC.

On each of the two motorways the existing fibre network had only two spare fibres, and therefore all the images had to be combined onto the two, allowing for a resilient ring, meaning that if one fibre broke the other would be able to transmit all the images. The existing cameras on the network were analogue cameras, but the project took the opportunity to install digital cameras. This reduces the number of times the images are sampled and converted from analogue to digital.

The cameras themselves are standard ONVIF compliant digital cameras. The requirement was for the Highways England motorway type MCE2245B cameras, and this is the first implementation of the ONVIF digital camera variant.

At the control room end the images were integrated into an existing digital system, becoming 24 new cameras on the system.

The network utilises nine switches on the M1 motorway fibres and 15 switches for the M2. At the TICC control room, there are a further four switches which allow the IP cameras to connect to the existing monitoring equipment.

The control room network connection was further complicated as the TICC had an existing system in place which required the use of Multi-casting and VLAN's, as well as an existing firewall.

Upgrading the hard shoulder bus lane cameras from purely analogue to IP has provided a resilient network intended specifically for the task.

19 No of Rotating PrismVariable Message Signs were also installed as part of the project. They are used to advise all road users of the status of the bus lane at any time. During operation (normally 7am – 7pm, Mon-Fri) the VMS may be changed to display "Bus Lane Suspended". This may be necessary during inclement weather, if there is an obstruction on the hard shoulder following an emergency or during planned maintenance work.

European Commission

Co-financed by the European Union
Connecting Europe Facility

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Member States involved

UK – Northern Ireland

Implementation schedule

Start date: 2018
End date: 2020

Budget

Action promoter: Department for Infrastructure

Total project cost covered by this Decision: 2234k€

EU contribution: 446.8k€

Percentage of EU support: 20%

Results expected

Bus journey travel times will be obtained from the bus operator, measured and compared to those prior to scheme.

This project is expected to deliver results in the improvement of traffic management, with positive impacts on journey times and improved reliability for bus users.

Contact People

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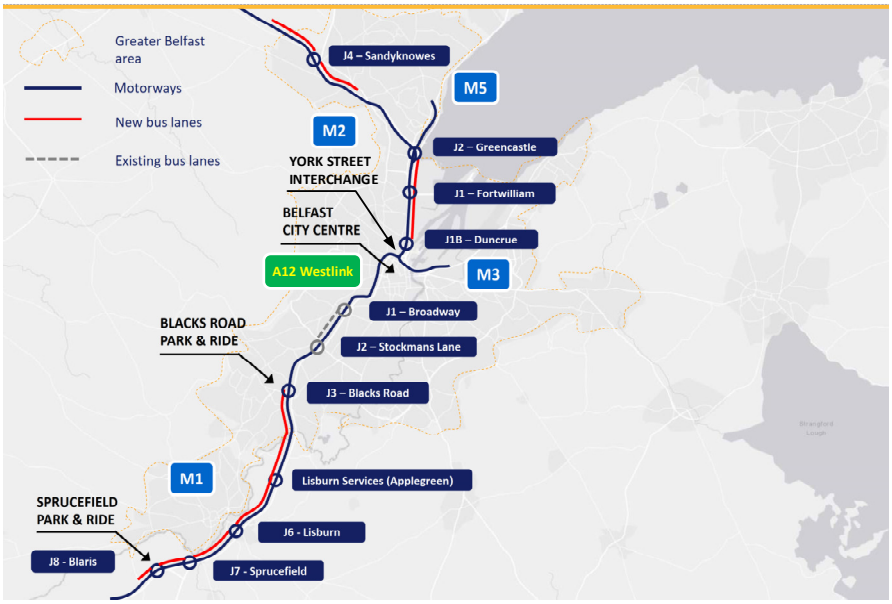
The Bus Lanes – Location Plan



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