

MOVA detector replacement - Lincoln Rd Newark



Client: VIA East Midlands for Nottinghamshire County Council

Client Contact: Bob Roth – Traffic Systems Network Manager (North)

Site Location: Lincoln Road/Winthorpe Road, Newark (A46/B6166)



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Company Registration Number: 04600485 – UK

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Junction history:

- **September 1972** - Signals initially installed
- **Summer 2006** - Siemens ST800 controller installed
- **March 2012** - MOVA added utilising magnetometers
- **November 2016** - Junction redesigned to incorporate pedestrian and cycle facilities, with new ST950 controller
- **October 2021** - Detection system changed to Smart Video & Sensing (SVS) smartmicro™ radar UMRR11 Type 45 overhead detectors.

Background:

Lincoln Road is a main arterial route between Newark Town Centre and the A1 to the east and has an Annual Average Daily Traffic (AADT) of 18300 vehicles. The original decision to go with the magnetometers was informed by the close proximity of the bridge over the electrified East Coast Main Line railway. A conventional MOVA loop detection system would have required ducting installing on the bridge close to the railway and the Overhead Line Equipment (OLE) which was considered undesirable and to be avoided if at all possible. Also, there was a concern that the OLE may interfere with the loop detection system.

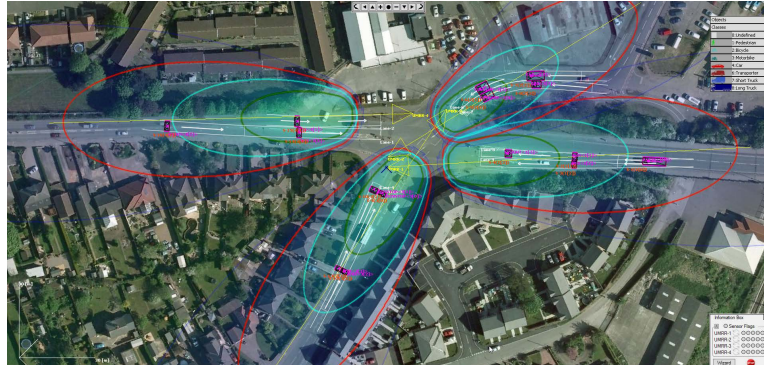
Consequently, the decision was made to use magnetometers, avoiding the need for ducting on the bridge structure (along with the other 3 arms. The magnetometer studs themselves were considered to potentially be less susceptible to any potential interference generated by the railway. However, experience with the studs since their installation has been mixed, with issues of lost communications (stud, repeater and access point failures) in particular. The batteries powering the studs and repeaters were coming up to the end of their expected lives and so the decision was taken to replace the detection system if a viable wireless system were to become available.

Technology:

We have had a great deal of experience and success with AGD318 pole mounted detection on single lane approaches using their dual output units to cover the IN and X detectors. However, they are limited by only covering a single lane and the detection zone can spread as distance from the detector increases leading to greater chance of overlap at the IN-det location therefore they are not ideal for larger junctions with long multi-lane approaches.

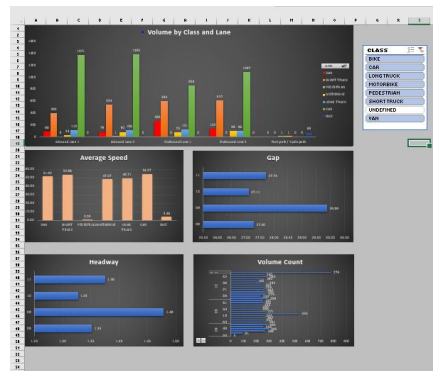
The smartmicro™ detection offers all the advantages of the AGD318 (pole mounted, no cutting into carriageway, no ducting) whilst being able to cover multiple lanes on an

approach from a single radar unit. The addition of the data collection capability of the smartmicro™ radar when paired with the SVS Novus data aggregator is indeed an added bonus. This is a much more cost-effective solution, consequently, the UMRR11 model was chosen to be the ideal replacement for the magnetometers and Novus was added for data collection.



smartmicro™ UMRR11 multi-lane radar

Reviewing comparative costs for the Winthorpe junction is difficult as it was an existing installation and the smartmicro™ system became available at just the right time to allow replacement of the failing magnetometers whilst avoiding issues of costly ducting and traffic management (TM) for the installation of conventional loop detection. We would have expected a ducted system to have cost in the region of £30-35k in total (ducting, loops, TM, detector packs) and would have taken a couple of weeks to install causing disruption to the highway network. The smartmicro™ equipment purchase and installation cost was in the region of £15k. We spent a couple of days preparatory work to install the dedicated multicore cable at site and the SVS Ltd engineers installed and commissioned four radars in one day. The decision was made to install SVS Novus data aggregator at that site which takes traffic statistical data from all four radars, stores it on an internal SSD drive which can be accessed remotely via our local ethernet network via the traffic signal controller.



SVS NOVUS Data Aggregator

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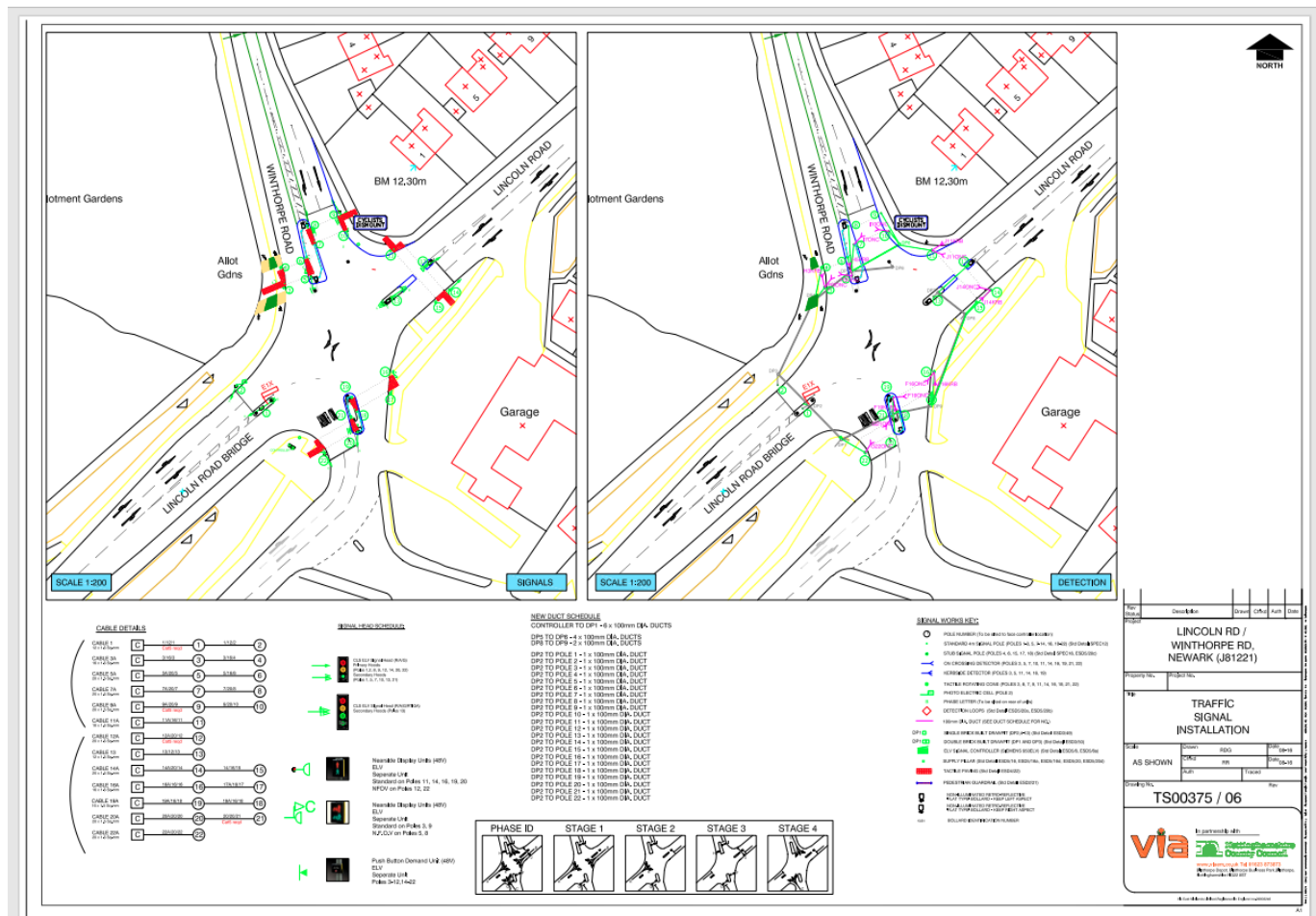
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Unfortunately, there is no objective data for the previous detection system to compare the smartmicro™ detectors against and the old system was removed so there was no period when both systems were operational.

Subjectively, we can say that performance has been very promising based upon the fact that we have received no complaints from the public since the installation of UMRR11's on this busy junction and it is technology that we will be looking to employ again on larger multi-lane junctions within our region when installing MOVA.