

## M42 Active Traffic Management Results – First Six Months

### Leading the way

The Active Traffic Management (ATM) Pilot, between Junction 3A and 7 of the M42, has proved to be a great success since going live in September 2006. This is the UK's first scheme to provide the facility to open the hard shoulder as an extra lane during busy periods or when an incident occurs on the motorway.

ATM has been proven to successfully reduce congestion and improve journey time reliability for road users. This has been achieved by combining innovative technologies and operational procedures to make best use of the existing road space and to optimise speed limits for traffic conditions.

Since opening, the M42 ATM Pilot has consistently delivered measurable benefits to the road user and this is supported by positive feedback from customers, operators and the emergency services.

### Overall Performance

- ATM has resulted in smoother, more consistent traffic conditions. Variability of weekday journey times has reduced by 27% when compared to the before case, making journeys more reliable – one of the Agency's key aims and critical to the business community.
- Advanced incident detection and management, resulting in reduced impact on traffic when incidents occur.
- The latest technologies have been proven as part of the Highways Agency's most advanced traffic management system. The technology is consistently providing up to date information using 63 additional variable message signs to effectively manage traffic and inform road users.
- The overall consensus of road users is that they feel better informed and nearly two thirds would like to see ATM used elsewhere on the network
- The initial trend following 6 months of Hard Shoulder Running operation indicates the accident rate has fallen when compared to the before case. There were no fatal or serious injury accidents attributable to hard shoulder running. These safety results do however need to be read with caution, as safety statistics are normally measured over a three year period.



**M42 ATM Pilot: Managing the strategic network**

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### Improved Journeys

On average ATM benefits more than **130,000 motorists** every day on the M42. The Highways Agency's ATM Pilot uses the latest technology and innovative operational features to manage road space in response to traffic demand, providing a safe, less stressful and more informed journey for road users.

**Variability in journey times has reduced by on average 27%**, when compared to the before case, allowing drivers – both private and business – to plan their journeys better.

Hard shoulder running has increased the observed capacity of the motorway **by an average of 7%** when compared to the before case.

ATM has improved the distribution of traffic between lanes, an indication of better utilisation of road space and there are less occurrences of stop-start conditions.

It reduced average journey times in severe recurrent congestion. The PM peak average journey times on Tuesdays to Fridays have reduced by an average of 26% northbound and 9% southbound when compared to the period of 3 Lane Variable Speed Limits. This equates to an average reduction of 4 minutes (northbound) and 1 minute (southbound) giving an average journey time over the ATM section of 11½ minutes

## Safer Roads

ATM provides more consistent traffic conditions including smooth and predictable flows, fewer incidents and less flow disruption. Since the start of Hard Shoulder Running in September 2006 the key outcomes are

- The concept of opening the hard shoulder, as a running lane when needed, has been established with a proven robust process for opening and closing the hard shoulder.
- Speed compliance on the hard shoulder has been 98% or better at the 50mph speed limit.
- Although only based on limited data, the number of personal injury accidents on the ATM Pilot section has reduced from 5.2 a month in the 'before' period to 1.5 a month and no fatal or serious accidents have been attributable to hard shoulder running. The industry standard is usually 3 years worth of data needs to be analysed to give fully robust results.
- Reduced flow disruption – consistent speeds and distribution of traffic across all lanes, leading to safer, more comfortable driving conditions.

## Informed Travellers

The unique ATM travelling environment, where drivers are provided with clear, up to date information on network conditions, is proving popular with customers. Of drivers surveyed:

- **68% of respondents** feel more informed about traffic conditions. **93% of drivers** who use the hard shoulder felt that the instructions were clear.
- **84% of those interviewed** feel confident using the hard shoulder as a running lane.
- Almost two thirds of respondents would like to see ATM used elsewhere on the network.

## Sustainability

The M42 ATM Pilot is cost effective and has considerably less environmental impact during construction.

Vehicle emission and air quality measurements have shown that vehicle emissions have reduced by between 4% and 10% except for hydrocarbons. Fuel consumption has also reduced by 4%.

- Carbon Monoxide – reduced by 4%
- Oxides of Nitrogen – reduced by 5%
- Particulate Matter – reduced by 10%
- Carbon Dioxide – reduced by 4%
- Fuel consumption – reduced by 4%
- Hydrocarbons – 3% increase \*

ATM has also resulted in a minor reduction in noise of between 1.8dB(A) and 2.4 dB(A).

(\* It should be noted that hydrocarbons do not have an associated Air Quality Strategy Objective and any increase in hydrocarbon emissions will not cause a breach of any legislated limits).

## The Latest Technology

ATM is best considered as a 'tool box' of traffic management measures including comprehensive surveillance and traffic monitoring, incident detection, automated signalling and enforcement and informative signing.

Sensors in the road collect information to inform automatic systems and control centre operators of traffic conditions, enabling real time information and instructions to be displayed on overhead gantry signals and signs

The control centre uses the latest proven technology to operate the road 24 hours a day and 7 days a week. CCTV is used to keep operators informed of traffic conditions at all times so that they can provide a rapid and appropriate response to traffic incidents. Emergency telephones are provided at regular intervals in emergency refuge areas – a safer environment for broken down vehicles away from carriageway traffic.

## Traffic Management

The hard shoulder is opened only when needed to manage traffic demands during the morning and evening peak periods or when additional carriageway capacity is required, for example this could be to manage an incident.

The National Exhibition Centre (NEC), located at Junction 6 of the M42, regularly holds events attracting large numbers of visitors that travel through the scheme. ATM allows the increased demand, as a result of these events, to be effectively managed, maintaining traffic flows through the region.

## Future Network ATM Enhancements

The first six months of ATM operation has provided comprehensive monitoring data and feedback, which is being used to develop the scheme further, including:

- Improved information, using the variable message signs to encourage the road users to make best use of the available road space.
- Enhanced operating procedures to enable ATM to be operated with maximum efficiency.

Traffic levels and behaviour will continue to be monitored so that operation of the hard shoulder can be adjusted to suit changing demands and maintain the optimum performance for the scheme.

## More Active Traffic Management

The M42 ATM Pilot is an important milestone in network management and operation and its success is providing direction and knowledge as well as highlighting the benefits that ATM applications can bring to wider areas of the UK network.

The Highways Agency is currently reviewing the network to identify potential locations that might benefit from ATM.