

Motorway Incident Detection and Automatic Signalling MIDAS

The MIDAS system automatically detects queues by monitoring the speed of vehicles passing loops in the road spaced at 500 metre intervals.



MIDAS measures the amount of time a loop is actuated by a vehicle passing over it and can therefore detect slow moving traffic.

Once slow vehicles are detected speeds of 40 and 60 are set to compliment these roadside signs are set with queue ahead and queue caution messages. Reducing speed smoothes traffic flow and reduces stop / start traffic.

MIDAS covers 1,513 kilometres of route. Research on the benefits of MIDAS carried out by the Transport Research Laboratory in 2006 it is estimated the system is saving:

Fatal accidents saved per year 17
Serious injury accidents saved per year 84
Slight injury accidents saved per year 686
Damage only accidents saved per year 6,006
Value of accident savings per year £74 million (2006 prices)

Managed and controlled motorways

M25 J10-16, M42 J3a-7, M6 J4-5, M1 J10-13 and M6 J8-10a.

These areas of motorway have additional processing to actively monitor traffic flows and speeds to detect the onset of congestion, speeds are progressively reduced as congestion increases. This slows vehicles and helps preserve the flow for longer. These measures improve journey time reliability, delay the onset of peak time congestion and when traffic volume reduces the motorway returns to free flowing more quickly.



Frequently Asked Questions

Q: Why are signals set and there seems to be no queue?

A: Once set, automatic signals remain set for a minimum of 4 minutes to avoid giving rapidly changing information to the motorist. Operators in the RCC can override these settings if required.

Bunching of vehicles due to overtaking a slow moving vehicle can cause platooning. Drivers travelling between the platoons will notice the speed restriction but may be in relatively light traffic.

Previous versions of MIDAS sometimes set signals when one slow moving vehicle, such as a Wide Load, passed over the loops. This did not always lead to congestion. Recently the system has been upgraded to reduce the sensitivity to this problem.

In a relatively small number of cases, there could be a fault with the system and it is very helpful when motorists notify HAIL so that potential problems can be investigated.

Q: Why is there a 4 minute minimum time for signal settings?

A: The signals remain on for a time after a queue has started to disperse to ensure a smooth transition to free-flow conditions and avoid bunching.

Q: I'm sure that MIDAS causes congestion!?

A: Extensive analysis has been done by the Transport Research Laboratory into the day to day

operation of MIDAS. This includes comparisons of congestion and queues on stretches of similar motorways with and without MIDAS. In all cases, it has been conclusively demonstrated that MIDAS improves journey time reliability, smoothes traffic flow and reduces accidents.

Q: Why do we get signals set to 40 one after another?

A: This is to advise the motorist that further queuing traffic is ahead. Queues are often not uniform – there can be a section of halted traffic, followed by a clear stretch of road, then another section of slow moving or stopped vehicles.

Q: Why is 40 still displayed when I am stopped?

A: The automatic systems cannot set lower speeds than 40. The Queue Protection system is installed for safety reasons to help prevent motorists arriving at the back of a queue whilst still travelling at 70. If the queue is still there, then the signals will still display 40. The 40

is not a target speed, it is a maximum allowed speed. Once traffic starts to move, this speed restriction will aid the slow moving body of traffic to pick up speed generally before allowing higher maximum speeds, reducing stop/start driving.

Q: Are there any improvements planned?

A: The HA is constantly sponsoring research into improvements. This covers everything from replacement detectors for the loops in the road to improved visibility of signals and signs. In addition, improved maintenance techniques have been introduced to increase reliability.

Q: Do other countries have MIDAS?

A: Similar systems are in widespread use throughout the world.