

**EasyWay**

Annual Forum 2010



**Shortcut to the future.**

Lisbon • November 16<sup>th</sup>-18<sup>th</sup>



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# Motorway-to-Motorway Feasibility Study

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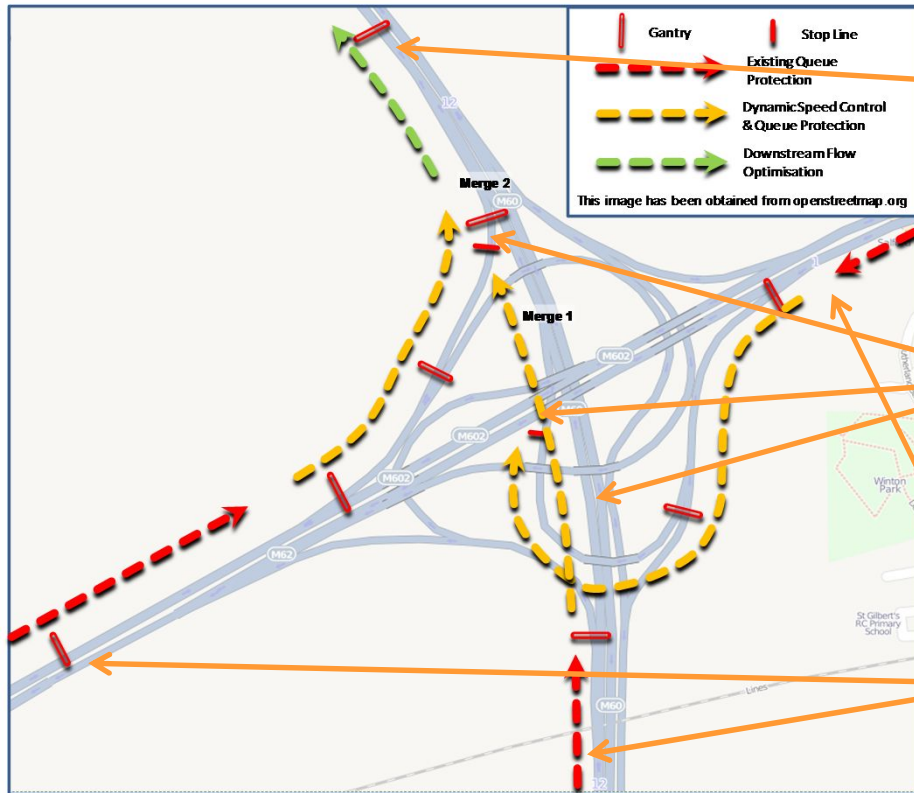
# Motorway-to-Motorway (M2M)

- M2M is a concept to reduce congestion and improve journey time reliability at motorway-to-motorway junctions.
- Overview of proposed M2M operation and potential benefits:
  - Technical Operation
  - Modelling Benefit
  - Economic Assessment
  - Safety Analysis
  - Environmental Impact
  - Stakeholder & legal concerns



## M2M Operation

M2M control philosophy to prevent or delay congestion



Downstream traffic control to maximise flow out of junction

Traffic control within junction to manage operation of merge

Upstream traffic control to minimise shockwaves



# M2M Operation

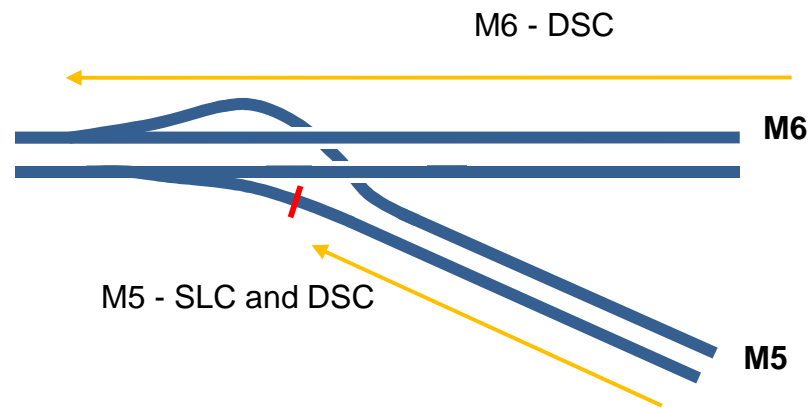
The study identified 3 techniques for successful M2M operation:

- Dynamic Speed Control (DSC)
- Stop Line Control (SLC)
- Dynamic Lane Control (DLC)



## M2M Modelling

- M6 J8 Northbound

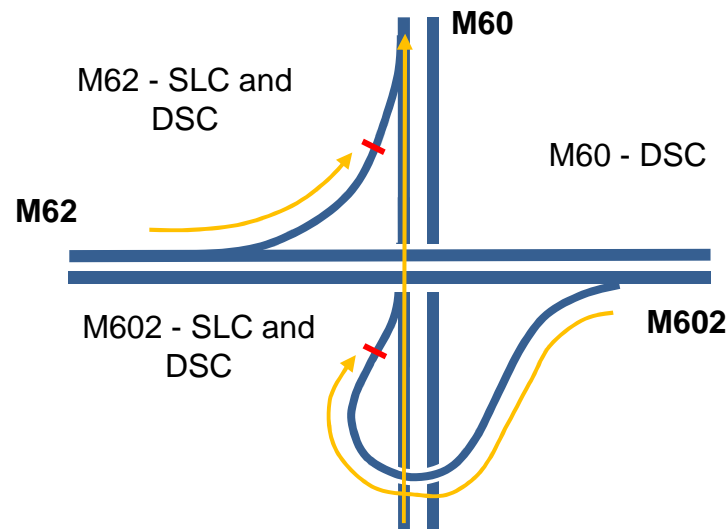


- simple junction
- well known congestion site
- MIDAS data used to calibrate and verify model



## M2M Modelling

- M60 J12 Clockwise

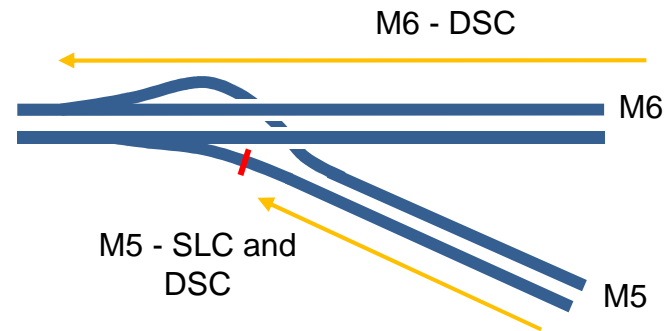


- complex junction
- more congestion than M6 J8 site
- MIDAS data for model calibration and verification

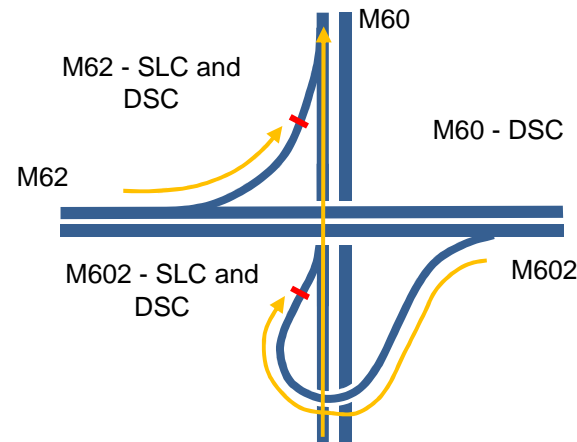


## M2M Modelling Results

M6 J8 Model	Journey Time Impact
M6 J7-9	-26.0%
M5 J1 – M6 J9	-9.2%
<b>M6 Overall</b>	<b>-19.1%</b>



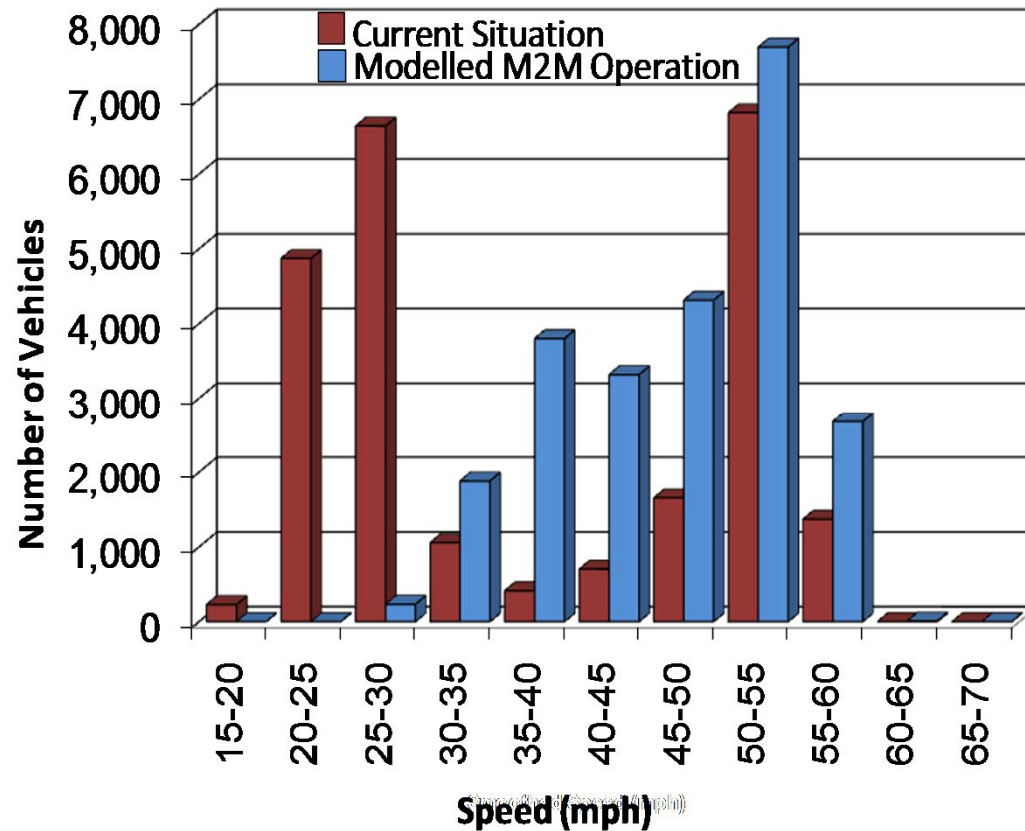
M60 J12 Model	Journey Time Impact
M60 J8 – J13	-34.5%
M62 J11 – M60 J13	-11.1%
M602 J1 – M60 J13	+7.8%
<b>M60 J12 Overall</b>	<b>-24.2%</b>





## M2M Modelling Results

### M60 Jct12 C/W Upstream Speed Frequency Comparison





# M2M Economic Assessment

- All motorway-to-motorway junctions in England assessed to determine which would be suitable for M2M
- 18 sites identified as potentially where M2M would provide high or medium value-for-money solution.
- Assessment done as an evaluation over 10 year period due to technological nature and rate of development of technology
- Economic impact would be considered in more detail for each site considered for M2M trial



# M2M Safety Analysis

- Key concern of using traffic signals and stop lines on motorway intersections for M2M
- The system would only operate in peak periods when traffic levels already high and speed low due to congestion
- Some driver education would need to be undertaken



# M2M Environmental Impact

- The assessment of the modelled M2M operation suggests that air quality in the vicinity could be improved
- However this is on the basis that traffic is not induced onto the motorway as a result of M2M
- Air quality impacts would need to be assessed as part of the design process of any potential M2M design



## M2M Stakeholder & Legal

Given the innovative nature of the M2M proposals the following key issues will need to be addressed:

- use of a stop line and traffic signals on a motorway
- use of VMSLs down to 20mph to control flows
- use of automatic lane closures

These would require Ministerial approval, and may also require Statutory Instruments and changes in standards and regulations



## Conclusion

The feasibility study showed that M2M has the potential to:

- reduce congestion and improve journey times
- improve safety
- reduce emissions
- provide economic benefits