

## POPE of LNMS - Summary Report

<b>Scheme Title:</b>	M40 Junction 15 Improvements Scheme
<b>HA Number:</b>	D101517
<b>Opening Date:</b>	September 2004
<b>POPE Stage:</b>	One Year After

### Scheme Description

The M40 junction 15 is a grade separated junction located to the south west of Warwick and Leamington Spa. Prior to scheme opening the junction was affected by major queuing delays on all approaches (M40, A429 and A46) during both peak and inter-peak periods. There were also concerns regarding the extension of queues on the M40 off-slip carriageways into the main M40 motorway. The outturn scheme had three main components, as follows:

- ◆ Installation of MOVA (Microprocessor Optimised Vehicle Actuation) signal control;
- ◆ Installation and renewal of signing and lining; and
- ◆ Carriageway resurfacing and localised lane widening.

These enhancements were intended to form an interim measure until a Major Scheme is constructed at this junction in 2008.

### Scheme Objectives and Attainment

	Objectives	Objective Achieved?
1.	To improve operational efficiency at the junction by reducing delays and associated queues	Small Improvement
2.	To have a positive impact on road safety	Yes

### Economic Summary

	Predicted	Predicted Corrected	Actual
<b>First Year Benefit*</b>	£1.563	£3.379m	£0.311m
<b>6 Year Benefit*</b>	£8.3m	£18.6m	£0.480m
<b>Cost*</b>	£2.598m	£2.624m	£3.2m
<b>Benefit Cost Ratio (BCR)</b>	3.1	7	<1.0
<b>% FYRR</b>	60%	129%	10%

(\* Figures are quoted in 2002 price base and discounted to 2002)

## Main Scheme Impacts

Economy	<ul style="list-style-type: none"> <li>- Economic benefits were realised but were much lower than predicted;</li> <li>- PAR predicted an economic disbenefit in the AM peak and a benefit in the PM peak; the POPE assessment reveals that the inverse has materialised;</li> <li>- Higher than expected post-opening flows may have been a result of ongoing M42 Hard Shoulder Running and Active Traffic Management works drawing additional traffic to the junction during peak hours. An additional 370-710 vehicles per hour (in the peak periods) were utilising the junction in 2005 compared to 2003 (a 5.7%-11% increase); and</li> <li>- Peak hour average HGV flows increased by 6.5% between 2003 and 2005.</li> </ul>
Safety	<ul style="list-style-type: none"> <li>- Accident benefits were better than expected;</li> <li>- The scheme saved 2.8 accidents in the opening year;</li> <li>- The accident severity index has decreased from 10% to 0%; and</li> <li>- The total out-turn safety benefit over 6 years was 40% higher than predicted (£1.254m).</li> </ul>
Environment	<ul style="list-style-type: none"> <li>- As predicted, the scheme had no significant impact on the environment; only slight journey ambience benefits; and</li> <li>- Mitigation measures have been implemented as stated in pre-opening environmental documentation.</li> </ul>
Accessibility	<ul style="list-style-type: none"> <li>- The scheme had no measurable impacts on public transport interchange or cycling/walking accessibility.</li> </ul>
Integration	<ul style="list-style-type: none"> <li>- The objectives of the scheme were in alignment with policy priorities identified in the Warwickshire LTP 2006-2011.</li> </ul>

## Lessons Learnt

- ◆ The economic benefits were substantially under predicted and thus have contributed to a lower than expected FYRR and BCR. This underestimate may be attributed to several factors:
  - ◆ The PAR appraisal assumed zero traffic growth at the junction during the peak periods. Post-opening traffic counts used in the evaluation may have been inflated by some M42 traffic re-routing onto the A46 due to delays caused by the M42 Hard Shoulder Running/ATM road works in 2005;
  - ◆ The limited ability of TRANSYT to measure the benefits of MOVA and delays at saturated junctions may have affected the reliability of journey time saving calculations in both the PAR and POPE scheme appraisals;
  - ◆ There was no observed 'before' data available to verify the accuracy of TRANSYT outputs. Therefore the modelling output must be treated as indicative only; and
  - ◆ Given that the junction was operating over capacity prior to the improvements there was little opportunity to free up extra capacity within the constraints of the existing highway boundary.
- ◆ Anecdotal evidence from the MAC and Project Sponsor suggest that whilst queues and delays were initially reduced, they appear to be increasing of late;
- ◆ Safety benefits (in terms of accident numbers) were accurately predicted in the PAR despite analysing Area 11 accident data only;
- ◆ Additional safety benefits can be derived by a reduction in the number of post-opening KSI's. These impacts are not specifically measured within the PAR appraisal (an average accident value is used);
- ◆ Costs were higher than expected due to construction contracts running over budget;
- ◆ The PAR was not updated to include final changes in the scheme design prior to construction; and
- ◆ The scheme made a positive contribution to regional and local transport policy.