

# POPE of Major Schemes Summary Report

|                     |  |
|---------------------|--|
| <b>Scheme Title</b> | M25 Junction 28 (A12 Brook Street) Improvement |
| <b>Opening Date</b> | March 2008                                     |
| <b>POPE Stage</b>   | 5 Years After                                  |

## Scheme Description

The M25 Junction 28 (A12 Brook Street) Improvement scheme was a Highways Agency major project which opened in March 2008. The purpose of the scheme was to make a number of improvements to increase safety and capacity at the junction. These included the provision of a dedicated left turn lane from the M25 to the A12, an extension of the merge lane onto the A12 and the widening of two slip roads from three to four lanes.

## Scheme Objectives

| Objectives (Non-Technical Summary, 2006)   | Objective Achieved? |
|--|---------------------|
| Improve safety at the junction   | Inconclusive        |
| Improve circulation of the junction to deliver a reduction in vehicle queuing and journey times. | ✓                   |

## Key Findings

- Average journey times on key movements around the junction have reduced, with savings of approximately one minute seen in the PM peak between the M25 clockwise (CW) carriageway and the A1023 Brook Street.
- Observed average time savings per vehicle are better than predicted, particularly in the AM peak. The better than expected results may be due to traffic flows being lower than predicted on some slip roads.
- Post opening, an annual average increase of 2.9 collisions is seen, compared to a forecast saving of 1 collision per year.
- Deer grazing close to the scheme has had a negative impact on the planting, which in turn proved to have a detrimental impact on the ability to screen the road from nearby residential and sensitive heritage sites.
- Monetary benefits are significantly lower than forecast, with outturn present value benefits of between £36.2m and £44.4m compared to forecast £263.4m. This is partly due to not being able to monetise any observed safety benefits.

## Summary of Scheme Impacts

### Traffic

- Traffic levels decreased across both the M25 and A12 main carriageways from the pre-scheme stage to FYA stage. A number of slip roads show an increase in traffic flow, most noticeably on the A12 westbound (WB) offslip where an increase of 31% is seen. An increase of 5% is also seen on the M25 clockwise (CW) offslip (1,100 vehicles per day (vpd)) which is likely to be linked to the improvements as this is where the new jet lane has been implemented.
- Traffic levels on Brook Street have increased 2-3% between the one year after (OYA) and FYA stages.

- Observed flows on the M25 through the junction were between 14% and 21% lower than forecast. Forecast flows on the M25 slip roads varied in their accuracy, with only the M25 anticlockwise (ACW) offslip observed flows being below estimates. Others were close to that forecast, including on the A12 towards Chelmsford.
- Observed flows on the A12 WB onslip and the A12 eastbound (EB) offslip (to/from London) were shown to be between 16-19% lower than forecast.
- Journey time savings are seen on most routes considered and in all time periods. The greatest time savings have been seen in the PM peak, with an average saving of 1 minute and 5 seconds, compared with 53 seconds in the inter-peak and 48 seconds in the AM peak. The greatest journey time saving was shown on the route between the M25 clockwise and Brook Street during the PM peak.
- Observed average time savings per vehicle are better than predicted, particularly in the AM peak. The better than expected results may be due to traffic flows being lower than expected on some slip roads.

## Safety

- An annual average collision saving of 1 collision per year was forecast at the appraisal stage, a 5% decrease between the pre and post scheme scenarios. However, observed data shows that there has been an average increase of 2.9 collisions a year, a 16% increase compared to pre scheme. However, collisions in the vicinity of the jet lane have reduced in the post scheme period.
- These changes could be due to chance, and therefore cannot be directly attributed to the scheme.
- The annual average casualty rate has decreased post opening, however the killed and seriously injured casualty rate has increased, due to an increase of serious casualties.

## Environment

- Based on traffic flows, the noise and air quality impacts of the scheme are generally as expected. There has been no significant improvement or deterioration as a result of the scheme.
- The scheme's impact on Carbon emissions could not be evaluated.
- The landscape mitigation measures are generally as expected, with the exception of planting along the M25 CW off slip and the A12 WB slip road where the planting has suffered major grazing damage by deer and is not performing the screening function for which it was intended; although this has not materially changed the landscape setting of the ancient woodland
- Habitat establishment and maintenance is generally developing in line with the ecological mitigation proposals, but the function of the plant stock along the M25 CW off-slip road has not been realised and potentially has an adverse effect on the local bat population.
- The overall effect the scheme has had on water quality and drainage is as expected.
- Journey ambience has improved, however is considered to be slight beneficial, lower than the large beneficial forecast score. Whilst drivers have benefitted from improved journey times, the recorded increase in collisions may cause a rise in driver stress and frustration, poor lane discipline and sounding of vehicular horns (noted on site visit). The grazing damage to the planting means that traveller views have been impacted due to reduced vegetation screening.

## Accessibility and Integration

- A small number of cyclists and pedestrians crossing the junction might experience reduced accessibility due to the need to cross an increased number of lanes on the slip roads; however the low number of these users means that this is rated as a neutral impact.
- The scheme supports local and regional land policies encouraging transport infrastructure improvements which address congestion and ease the trunk roads. It also supports regional policies to invest in overcoming bottleneck problems.

## Summary of the Scheme's Economic Performance

| Note: all monetary figures in 2002 prices discounted to 2002. |        | Forecast       | Outturn evaluation |                     |
|---|--------|----------------|--------------------|---------------------|
|   |        |                | 0% traffic growth  | NTEM traffic growth |
| Present Value Benefits (PVB)                                  | TEE    | £259.564m      | £36.2m             | £44.4m              |
|   | Safety | £4.726m        | £0                 | £0                  |
|   | Total  | <b>£264.3m</b> | <b>£36.2m</b>      | <b>£44.4m</b>       |
| Present Value Costs (PVC)                                     |        | <b>£14.8m</b>  | <b>£15.7m</b>      |                     |
| <b>Benefit Cost Ratio (BCR)</b>                               |        | <b>17.9</b>    | <b>2.3</b>         | <b>2.8</b>          |

- Journey time benefits are significantly lower than predicted at the appraisal stage. The annual benefits were expected to rise exponentially through the appraisal period, with lower benefits in the first few years. The overall benefit over the full appraisal period is therefore difficult to assess at this stage.
- Outturn safety benefits have not been monetised due to the changes being statistically insignificant, and therefore cannot be directly linked to the scheme.
- Overall, the outturn PVB is between 14% and 17% of the forecast PVB of £264.3m.
- In spite of this, the outturn BCR indicates that the scheme has delivered high value for money.
- The study has found no evidence to suggest that the scheme has had a discernible impact in terms of stimulating economic activity. However, the scheme is aligned to local and regional socio-economic policy aspirations of improving the trunk road network.