

POPE of Major Schemes Summary Report

Scheme Title	A1 Peterborough – Blyth Grade Separated Junctions
Opening Date	2009
POPE Stage	Five Years After

Scheme Description

The A1 Peterborough – Blyth Grade Separated Junctions scheme is a major Highways England scheme to improve a 73 mile length the A1 trunk road in the East Midlands at Blyth, Apleyhead, Markham Moor, Gonerby Moor, Colsterworth and Carpenters Lodge. The scheme involved the construction of six new two level junctions, resulting in the removal of all the at-grade roundabouts on this section of the A1. The A1 improvements were carried out by Highways England to reduce congestion and accidents at these junctions. The schemes were appraised separately and have separate Appraisal Summary Tables (ASTs). This evaluation also reports the results separately for each junction wherever possible.

Objectives (from Environmental Statements, 2004/2005)	Objective Achieved?
Reduce Delays	✓
Reduce Accidents	✓
Improve non-motorised user safety	✓

Summary of Scheme Impacts

Traffic

- Traffic on the A1 has shown year-on-year increase from 2009 when the scheme was completed to 2015. This is notably different from the trends seen on the local roads in all the areas of the junctions in this scheme, and on 'A' roads nationally which all saw a fall or negligible growth during this period, which is associated with economic conditions.
- Increases on the A1 traffic were observed at OYA and were linked with the combined effect of the junction improvements of this scheme improving the attractiveness of this route, leading to rerouting of traffic. This FYA study shows that in 2014 and early 2015 there were further large increases such that traffic on sections of the A1 near these junctions is between 16% and 36% higher than before start of construction. This most recent sharp rise is higher in the northern part and is probably caused by rerouting of some strategic traffic away from the parallel M1, more than 30 miles to the east, where there is a lengthy section of roadworks currently underway for a smart motorway scheme.
- HGV levels on this part of the A1 are at a high level for the strategic network at an average of 22% on weekdays. At FYA, the numbers of HGVs has increased from before, but as the numbers of other vehicles has increased at a greater rate, the proportion of HGVs has reduced slightly an average of

24%. This is likely to be due to more of the additional traffic being light vehicles and much less rerouting of HGVs.

- Local roads adjoining the junctions have shown varying levels of increase and some decreases. There is no clear pattern of traffic growth on these roads comparable with the growth rate observed on the A1.
- Some local traffic from the area east of the A1 may have rerouted to access the A1 at Apleyhead instead of the next junction to the north (Blyth).

Journey Times

- Post opening journey times on the A1 are consistently lower in both directions at all times of the day in the post opening period, and the FYA journey times are an improvement on the OYA journey times, despite the increased traffic flows.
- The journey time data provides sufficient evidence to conclude that the scheme has achieved its objective in reducing delays.

Forecasting Accuracy

- At FYA most traffic flows on the A1 and the adjoining roads are below the central growth forecast with the scheme.
- The net increase in traffic with the scheme (i.e. the difference between the Do Minimum and Do Something scenarios and growth between the years 2006 and 2015) on the A1 is much greater than predicted at Blyth, Apleyhead, Markham Moor and Gonerby Moor junctions.
- Discrepancies from the forecasts were caused by the 2006 observed data before the start of construction being lower than the forecast Do Minimum prior to any recession impacts on traffic flows. This meant that the forecast were already awry before construction started. Also A1 traffic at Gonerby Moor was mistakenly forecasted to be too high which appears to be due to an error in the baseline.
- Journey time savings on the length of the A1 between the junctions are between 8 and 10 minutes (northbound and southbound) which is close to the level of saving forecast.

Safety

- Annual average number of collisions at all the junctions in the post opening period fell by 8.7 (13%). This is conservative as it takes into account the wider trend of collision reduction nationally during this period whereas there did not appear to be a trend of reduction at the A1 junctions.
- Although numbers of both fatal and serious collisions fell, the number of the much more frequent slight collisions fell at a greater rate, resulting in an increase in the severity index of the collisions which occurred (the proportion of collisions which were either fatal or serious).
- Considerable variation in the observed safety impact of each junction improvement.
- Net reductions in annual collision numbers have been observed at the three northerly junctions Blyth (3.7), Apleyhead (4.3), and Markham Moor (7.0). Analysis of collision rates at these junctions, which takes into account the extra traffic (PIC/mvkm), show these improvements are statistically significant.
- No improvement has been shown at the three southernmost junctions (Gonerby Moor, Colsterworth and Carpenters Lodge), although the small increase in collisions is not statistically significant.
- Fatal and serious collision numbers fell by 6 and 8 respectively, not including wider national trends.
- Analysis of the collision rate, taking into account the additional traffic (PIC/mvkm), shows an overall reduction in the rate of 26% which is significant.
- There is no significant change in the collision rate for traffic on full length of the A1.
- Forecast collision savings were accurate for the three northerly junctions, while the southern three did not have the expected savings. Overall the saving was 13% when 33% had been predicted. The lower success can be partly attributed to local trend not following national collision reduction trend and the additional traffic on the A1.

Environment

- Impact of the junctions on the noise climate are considered to be generally better than expected based on difference between the forecasts and the observed traffic flows at FYA .
- Similarly, the air quality impacts are lower than or within +/-10% tolerance of the forecasts. The A1 south of Blyth is the only real exception where the flow traffic is worse than expected.
- Impacts on landscape are worse than expected due to problems with plant growth. Despite replacement planting having being undertaken, the current levels of plant growth and establishment indicate that the visual screening, landscape integration, and visual amenity functions of the plant stock at all junctions is generally considered unlikely to be developing as well as would expected at this stage. Similarly, the slower plant growth is making the short term ecological impact worse than expected.
- The visual impact on the landscape at night is better than forecast due to the overbridges not being lit.
- Biodiversity impact is worse than expected in the short term due to the ecological impact of the slow establishment of the new tree and shrub planting. Offsite planting at Apleyhead for badger foraging has not been done. A significant section of the translocated hedgerow at Carpenters Lodge has failed. Some of the planned wildflower areas have been noted as successful but others are missing.
- There were no significant archaeological finds and the impact of cultural heritage is as expected.
- Drainage facilities constructed as part of the new junctions are largely working as expected and planted vegetative treatment systems (rushes) appeared to have generally established well.

Accessibility and Integration

- Impacts of the junction on land use policies and other government policies are mainly neutral, as expected and as concluded at the OYA stage
- There has been no change in option values resulting from the scheme, therefore, the evaluated impact is neutral as concluded in the OYA and as expected.
- The scheme has not had an impact on the provision of transport interchange facilities, therefore a neutral impact has been observed as expected and as concluded in the OYA stage.

Summary of Scheme Economic Performance

All monetary values in £m 2002 market prices, discounted		Forecast	Outturn re-forecast
Present Value Benefits	Journey Times	£1023.8 m	£397.1 m
	Vehicle Operating Costs (VOC)	-£6.7 m	-£8.2 m
	Safety	£42.6 m	£17.4 m
	Indirect Tax	£1.3 m	£1.6 m
	Total	£1061.0 m	£407.8 m
Present Value Costs		£66.4 m	£86.8 m
Benefit Cost Ratio (BCR)		16.0	4.7

- The investment cost of building the scheme was 13% above that predicted. Reasons for this include the additional maintenance following the collision involving the chemical spill and fire at Blyth junction, shortly after it opened.
- The journey time benefits are evaluated as £397.1 million over 60 years for the A1 corridor and turning movements at the junctions. This is much lower than the expected level of benefits and this is partly due to traffic being lower than expected, despite the traffic growth since before the scheme was built. Due to the nature of the improvements, journey time benefits would be expected from the opening of the scheme due the removal of delays to A1 through traffic at the junctions.
- BCR is lower than the very high forecast BCR partly due to the higher than expected costs, but primarily due to the lower than forecast journey time benefits as fewer vehicles use the A1 than expected. However the outturn BCR still represents over £4 benefits for every £1 spent which represents very high value for money.

This document summarises the findings of the five years after evaluation study completed in November 2015.