

# LNMS EVALUATION REPORT

## A64 Top Lane Copmanthorpe



**March 2005**

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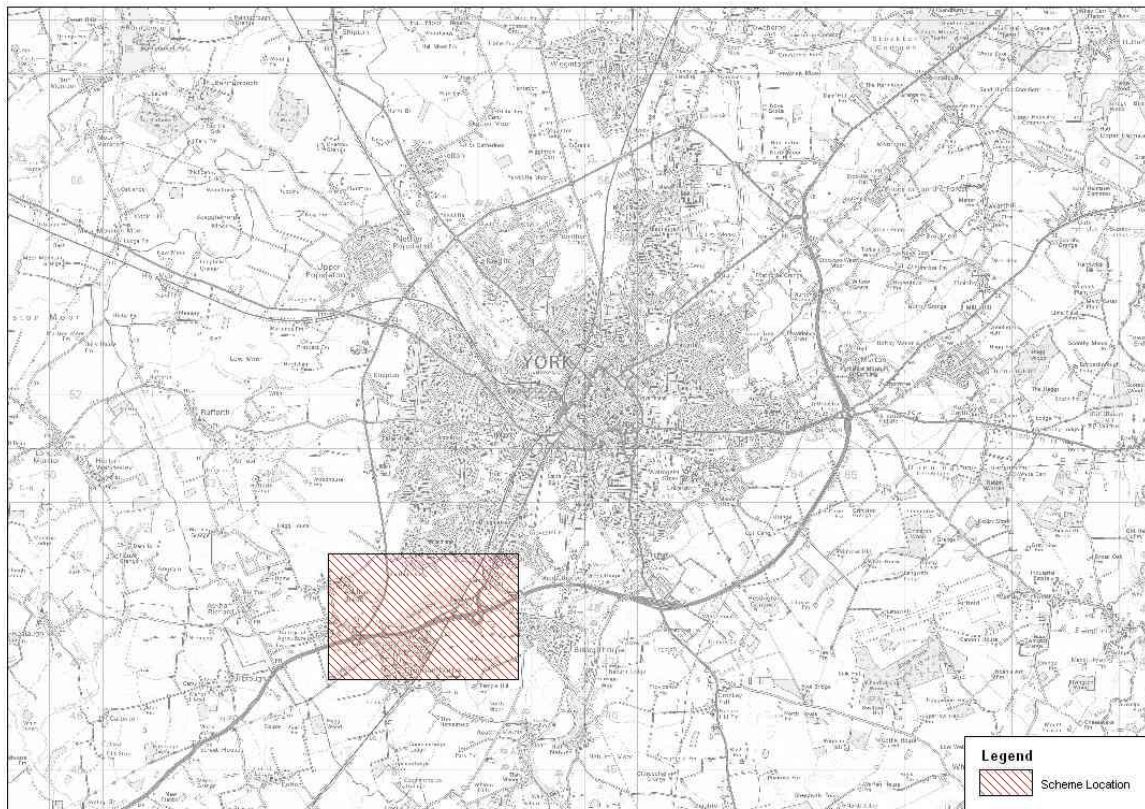
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# 1. Introduction

## BACKGROUND

- 1.1 The A64 Top Lane Copmanthorpe officially opened on 14<sup>th</sup> October 2002.
- 1.2 Prior to the scheme implementation traffic signals were present on a trunk dual carriageway which is highly unusual and as a result caused significant delay and accident problems.
- 1.3 The scheme consisted of the following
  - ◆ removal of the Top Lane/A64 junction plus associated traffic signals;
  - ◆ the removal of 3 central reserve gaps at Pike Hills golf course, Top Lane and east of Copmanthorpe;
  - ◆ The on line realignment of 1.3km of the A64(T);
  - ◆ The construction of 1km (approximately) of 6m single carriageway link road to connect Top Lane with the A1036 (T) slip road;
  - ◆ an underpass for the Link Road to pass under the A64;
  - ◆ a cycleway/footway bridge across the railway adjacent to the existing A1036(T) Bond Hill Ash bridge; and
  - ◆ a retaining wall adjacent to Pike Hills Golf Course.
- 1.4 The scheme is part of a programme of improvement schemes on the A64 trunk road between Tadcaster and York. These proposals rationalise the number of junctions and remove central reserve crossings along the route. The other schemes proposed are at Tadcaster Bar and Bilborough Top.
- 1.5 The initial scheme was completed during October 2002 but following a safety audit of the improvement scheme and in response to comments and suggestions from the local councils and the public, work was carried out during November and December 2003 to improve the scheme. This work included improvement to some of the traffic signals and pedestrian crossings. Extra road markings were added and the height of a plant container adjusted so visibility for pedestrians and motorists is improved. This work was completed in March 2004.
- 1.6 Figure 1.1 shows the location of the scheme.



**Figure 1.1 – A64 Top Lane, Copmanthorpe – Junction Improvement**

### *Scheme Background*

- 1.7 The history of the scheme dates back to 1993 when a safety and investigation study was undertaken by North Yorkshire County Council which identified interim works, but recommended in the longer term that improvements at Tadcaster Bar, Bilborough Top and Top Lane Copmanthorpe should be undertaken. In March 1997 there was a preferred route announcement, in June 1999 a public enquiry and December 1999 the Secretary of State announced approval.
- 1.8 Other options considered included an over bridge crossing of the A64 for local traffic and the construction of a new slip road; or removal of right turn manoeuvre across the Trunk Road. Both were investigated and discounted.
- 1.9 The problems associated with the location, prior to scheme implementation, was a traffic signal controlled junction located on a busy D2AP Trunk Road is unusual. Numerous accidents involving main line only and mainline/side road traffic have resulted in the intersection becoming an accident black site. There is also the issue of significant delays to trunk Road and side road traffic.
- 1.10 The scheme removes the Top Lane traffic signalised junction and hence the traffic conflict and delays. It also addresses the problem of severance and delay to all highway users travelling between Copmanthorpe and York and the delay to Trunk Road traffic.

### *Original PAR Document*

- 1.11 The PAR was produced by Mouchel and was last updated on October 2000. The PAR was of project type safety.
- 1.12 The projects objectives were as follows (in descending order of priority):
- ◆ Improve road safety for side road and trunk road users;
  - ◆ Improve the Environment of the village of Copmanthorpe by segregating the village from the trunk road corridor;
  - ◆ To assist in economic growth by reducing transport costs;
  - ◆ To improve accessibility, particularly for non motorised users of Copmanthorpe by way of a safe segregated route; and
  - ◆ To encourage the use of non-motorised means for travel between Copmanthorpe, York and neighbouring amenities.

### **PURPOSE OF THE REPORT**

- 1.13 This report represents the LNMS evaluation report for the A64 Top Lane, Copmanthorpe – Junction Improvement. This report has been prepared as part of the Post Opening Project Evaluation (POPE) Commission.
- 1.14 This report will set out a number of assessments, namely:
- ◆ A comparison of the ‘Before’ and ‘After’ traffic volumes on the A64 to illustrate how traffic volumes have changed since the opening of the junction improvement;
  - ◆ A comparison of ‘Before’ and ‘After’ journey times to illustrate how journey times have changed since the opening of the slip improvements;
  - ◆ The report will also outline the changes in accidents in the vicinity of Copmanthorpe since the scheme has been implemented and whether they have changed as predicted since the opening of the scheme; and
  - ◆ It will also present an evaluation of predicted and outturn economic forecasts based on changes in journey times as well as other outturn effects in the form of an Evaluation Summary Table (EST);
- 1.15 This report specifically considers the re-evaluation of the predicted benefits of the A64 Top Lane Copmanthorpe – Junction Improvement. The three main elements involved are:
- ◆ To identify the costs and benefits originally forecast for the scheme at PAR stage;
  - ◆ To quantify the outturn (actual) costs and the outturn level of benefits actually accruing, based on outturn traffic volume and journey time data for the scheme; and
  - ◆ To compare the results and quantify the difference in the Present Value of Benefits (PVB).
- 1.16 Following this introduction the report has been divided into four further sections as follows:
-

- ◆ Section 2 outlines existing data collation and new data collection and reports on traffic volume and journey time changes attributable to the A64 Top Lane, Copmanthorpe – Junction Improvement;
- ◆ Section 3 presents the original Appraisal Summary Tables (AST) for the A64 Top Lane Copmanthorpe Junction Improvement as well as detailing detail provided with the main body of the PAR document (including worksheets).
- ◆ Section 4 The section gives an early indication of changes in the number of accidents in the corridor, changes in traffic flow as well as subjectively assessing the non-monetised benefits;
- ◆ Section 5 contains the Post Opening evaluation of the outturn effects of the scheme
- ◆ Section 6 summarises the main conclusions from the evaluations and the limitations to use;

## 2. Data Collection

### BEFORE SURVEYS

2.1 The PAR document submitted in support of the scheme was based upon the following data:

- ◆ 1995 – 1999 Personal Injury Accidents;
- ◆ Traffic surveys including 12 hour classified turning counts, peak hour queuing counts, pedestrian counts and ATCs;
- ◆ Environmental Assessment;
- ◆ COBA files;

### AFTER SURVEYS

2.2 In the course of undertaking the LNM evaluation of the scheme, the following data was utilised:

#### *Automatic Traffic Counts - Atkins*

2.3 Atkins undertook Automatic Traffic Counts (ATCs) during the week beginning Monday 8<sup>th</sup> November 2004 for seven days. The ATCs were undertaken at the following three locations:

- ◆ Site 1 – Copmanthorpe to A1036 Link Road (OSGR 457,273, 447652);
- ◆ Site 2 – South of A64 Underpass (OSGR 458,053, 447,774);
- ◆ Site 3 – A1036 North of Intersection, South of Sim Balk Lane (OSGR 457,724,448110);

#### *Automatic Traffic Counts – Highways Agency*

2.4 Automatic traffic count data was obtained from Highways Agency Traffic Monitoring North from 1<sup>st</sup> January 1999 to November 2004. The data was obtained from three sites with the following counters being utilised:

- ◆ 12/1132 – EB A64, A659-A1237, East of Tadcaster (OSGR 452116, 444790);
  - ◆ 12/1133 – WB A64, A659-A1237, East of Tadcaster (OSGR 452124, 444781);
  - ◆ 12/1134 – EB A64, A1036 – A19, West of A19 (OSGR 459404, 448403);
  - ◆ 12/1135 – WB A64, A1036-A19, West of A19 (OSGR 459404, 448391);
  - ◆ 12/1566 – EB A64, A1036 Exit Slip (OSGR 457068, 447727);
  - ◆ 12/1567 – EB, A64, A1036: Through Eastbound (OSGR 457068, 447727); and
  - ◆ 12/1568 – WB, A64, A1036: Through Westbound (OSGR 457068, 447727).
-

### *Manual Classified Counts*

- 2.5 Atkins undertook a manual classified count on Tuesday 9<sup>th</sup> November 2004 at the junction between the A64 and A1036 Copmanthorpe Road (new signalised crossing) (OSGR 458010,448300).

### *Journey Time Surveys*

- 2.6 Atkins undertook journey time surveys on Tuesday 9<sup>th</sup> November 2004 for the following routes:

- ◆ Route 1 – A64 West to A64 East;
- ◆ Route 2 – A64 East to A64 West;
- ◆ Route 3 – A64 East to A1036;
- ◆ Route 4 – A1036 to A64 West;
- ◆ Route 5 – A64 East to Top Lane;
- ◆ Route 6 – Top Lane to A64 East;
- ◆ Route 7 – A64 East to A1036;
- ◆ Route 8 – A1036 to A64 East;
- ◆ Route 9 – Top Lane to A1036; and
- ◆ Route 10 - A1036 to Top Lane.

- 2.7 The surveys were undertaken in the AM peak 07:00 – 09:00, Inter Peak 10:00 – 12:00 and PM peak 16:00 – 18:00 with as many runs as possible being undertaken.

### *Accident Data*

- 2.8 Accident data was obtained from the managing agents for 1999 to 2003, data wasn't available for 2004 as it hadn't been released by the police. This data is expected to be available in April 2005.

### 3. Scheme Impact: Safety, Traffic and Journey Times

#### OVERVIEW

3.1 This section provides details of the outturn safety and traffic impacts of the scheme.

#### SAFETY

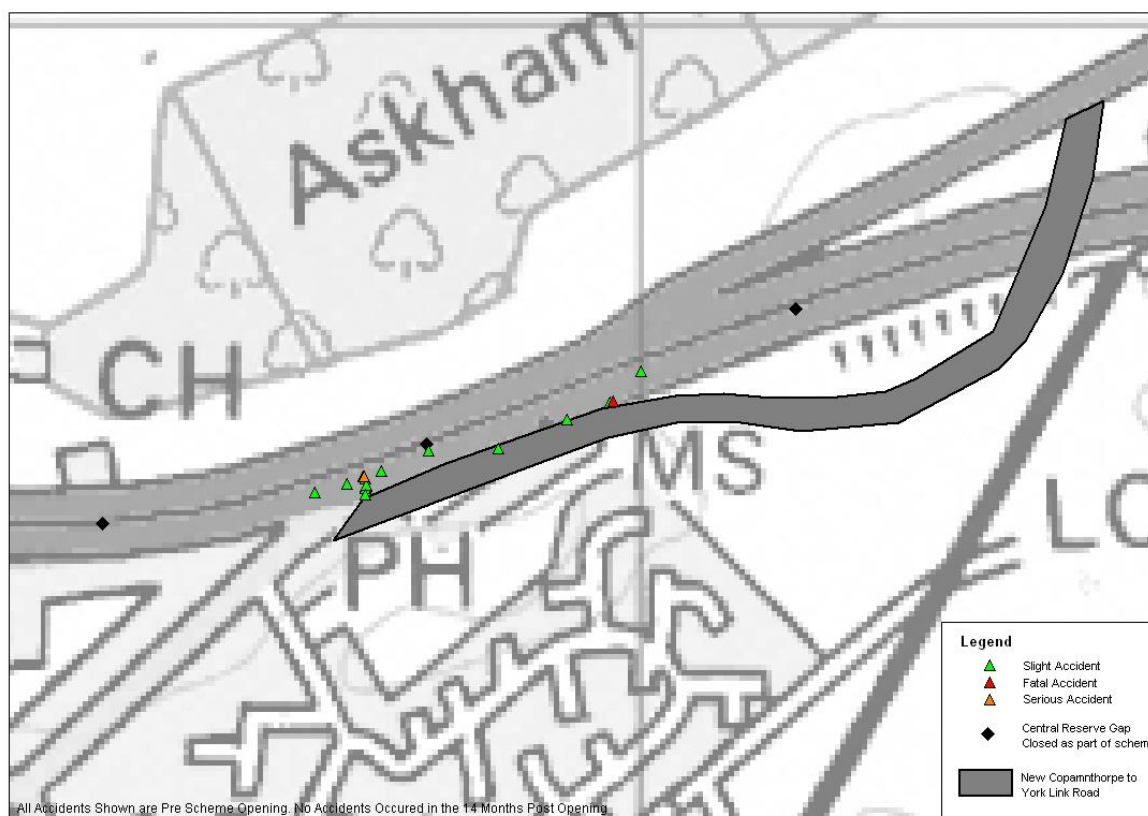
3.2 The original Mouchel PAR and AST forecast an accident saving over the 30 year assessment period of 79 personal injury accidents. This equates to a saving of approximately 2.63 accidents a year.

3.3 Pre scheme opening in the years 1989 to 1993 the accident rate was 0.822 PIA/Mvkm, from 1994 to 1998 this rate reduced to 0.458 PIA/MvKm and from 1995 to 1999 this rate changed to 0.514 PIA/MvKM.

3.4 Table 3.2 shows accident data collated post opening. The collated accident data was examined so that accident data collated post opening was selected to the same criteria as selected pre opening. Hence the selected accidents were accidents that occurred between the three central reservation gaps. Figure 3.1 details the selected accident data by severity.

**Table 3.1 – Post Opening Accident Data Collation**

Year	Number of Personal Injury Accidents (NOT casualties)			Total
	Slight	Serious	Fatal	
1999	9	-	-	9
2000	5	-	1	6
2001	4	1	-	5
2002	1	-	-	1
2003	-	-	-	-
TOTAL	19	1	1	21
Pre Opening Accident Rate (1995 – October 2002)				0.49 PIA/MvKm
Post Opening Accident Rate (October 2002 – December 2003)				0 PIA/MvKm



**Figure 3.1 – Pre Opening Accidents (No Accidents on this Trunk Road Section Post Opening)**

- 3.5 From both Table 3.2 and Figure 3.1 it is apparent that post opening no accidents have occurred at the scheme location. We would expect this to be the case as the no local road traffic conflicts with traffic at this location.
- 3.6 If accident data is amalgamated i.e. accident data presented in the PAR and accident data collated post opening then there is accident data for the pre opening period of 1995 to October 2002. During this 94 month period 46 accidents occurred. If it is assumed that all of these 46 accidents wouldn't have occurred due to the removal of the conflicting traffic (demonstrated in the 14 months post opening) then over the 30 year assessment period 176 accidents will be saved which is greater than the 79 predicted by the PAR (COBA).
- 3.7 It has been shown that in the 14 months post opening there haven't been any accidents on the trunk road in the close vicinity of the scheme. The traffic which used to cross the trunk road is now diverted onto the local trunk road network. Accident data was requested from York City Council to ascertain whether there had been a change in pre and post opening accidents on the local road network.
- 3.8 The main points to note:
- ◆ Accident rate of 0.49 PIA/MVkm Pre opening (1995 – Oct 2002) compared to 0 PIA/MVkm post opening (Oct 2002 – Dec 2003);

- ◆ If we assume that the scheme will remove the cause of all accidents in the vicinity then the scheme will remove 176 accidents over the 30 year assessment period; and
- ◆ There is a need to examine accidents on the elements of the local road network that were added as part of this scheme.

### **TRAFFIC FLOW**

3.9 Traffic flow data in our evaluation was used in three parts:

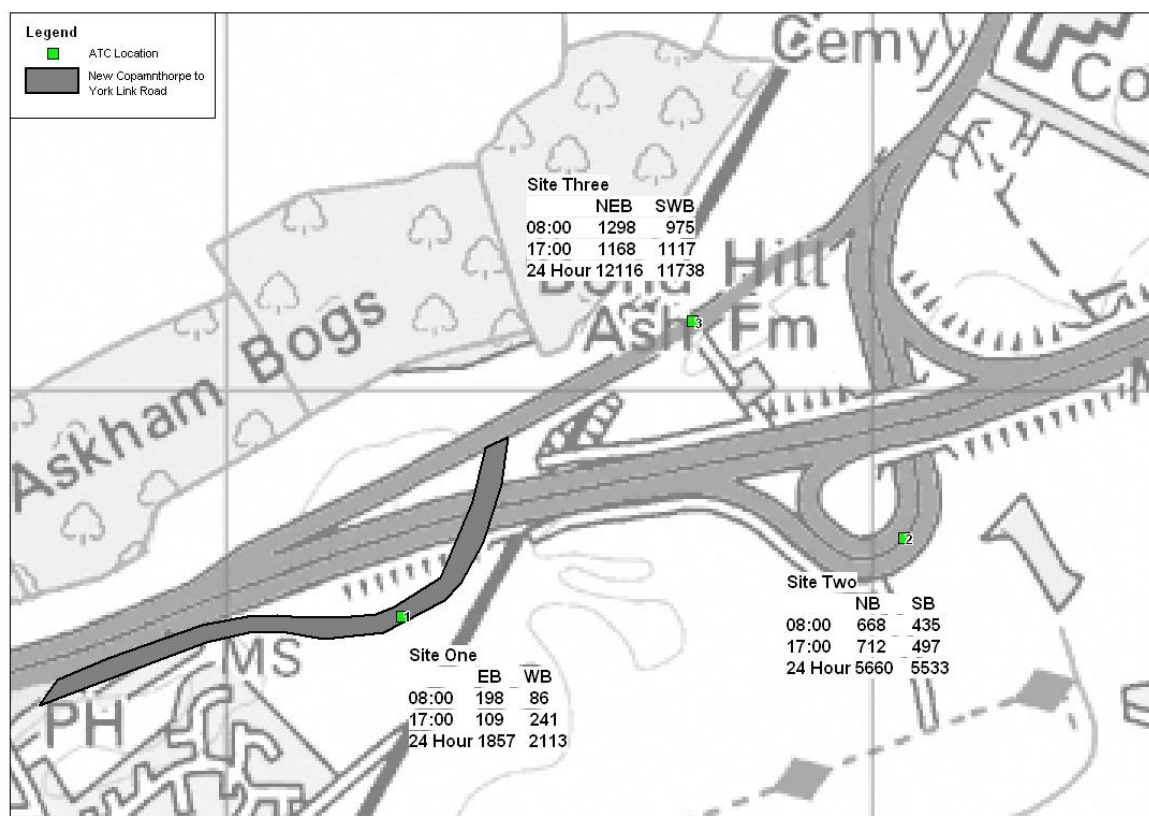
- ◆ Automatic Traffic Counts – Atkins Commissioned;
- ◆ Automatic Traffic Counts – Highways Agency Monitoring; and
- ◆ Manual Classified Count at junction between A64 diverge and the A1036.

#### *Automatic Traffic Count – Atkins Commissioned*

3.10 Three automatic traffic counts were placed on the local roads surrounding the site for the week beginning Monday 8<sup>th</sup> November 2004.

- ◆ Site 1 – Copmanthorpe to A1036 Link Road;
- ◆ Site 2 – South of A64 Underpass; and
- ◆ Site 3 – A1036 N of Intersection, S of Sim Balk Lane.

3.11 Figure 3.2 shows the ATC data collated with a 5 day average AM, PM and 24 hour flow.



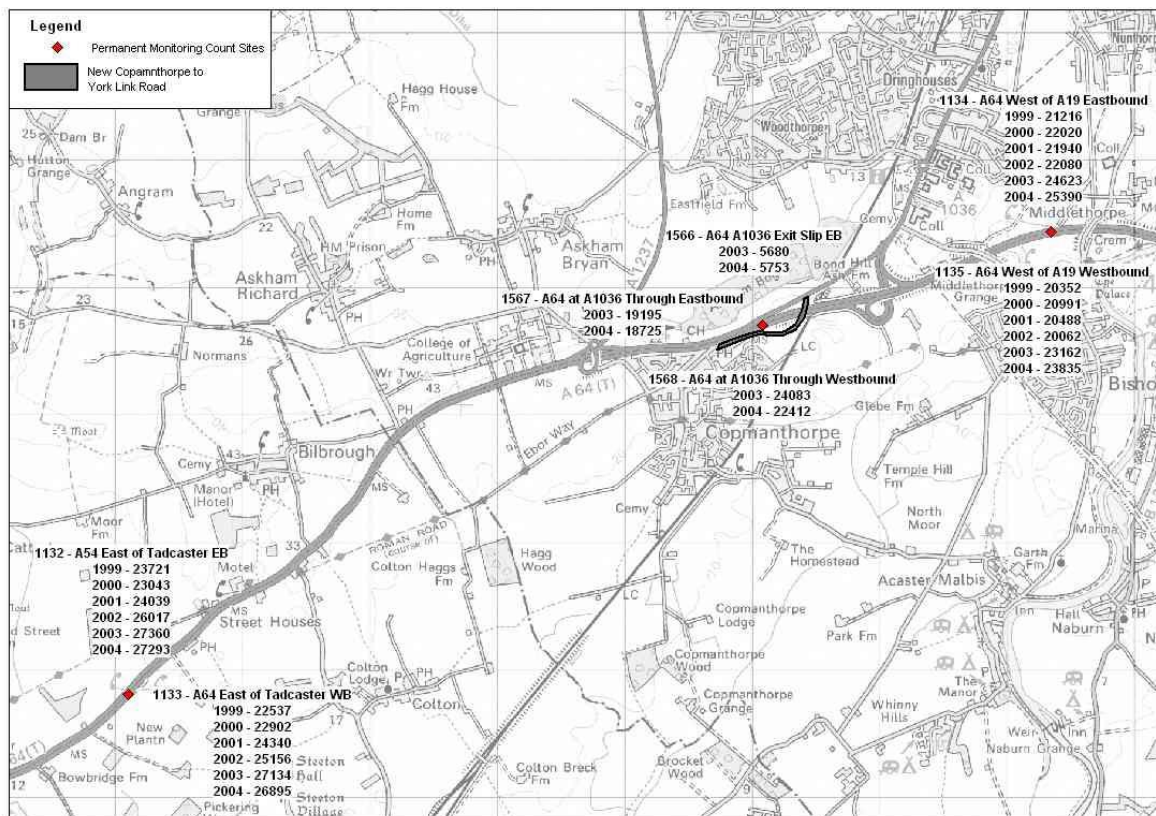
**Figure 3.2 – Sites 1, 2 & 3 ATCs**

- 3.12 From Figure 3.2 it is apparent that the greatest flow of traffic diverges from the A64 eastbound and heads towards York. The flow on the new link road shows aspects of being commuter dominated in the peak hours with flows towards York double that of towards Copmanthorpe in the AM peak and vice versa in the PM peak.

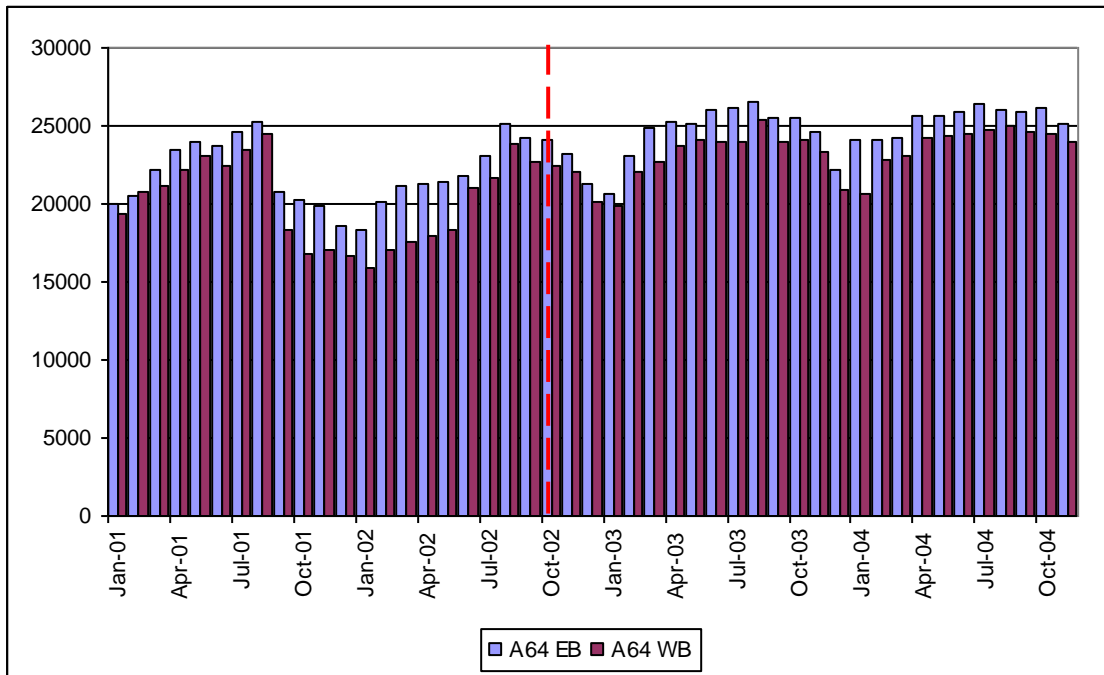
*Automatic Traffic Count – Highways Agency Monitoring*

- 3.13 Traffic count data was obtained from the traffic monitoring north team for three different locations along the A64 in the vicinity of the scheme (7 counters). Sites 1132 – 1135 data was obtained for 1999 to 2004, whilst for sites 1566 – 1568 data was only available for 2003 and 2004 as the count sites were implemented when the scheme was implemented.
- 3.14 Figure 3.3 shows 24 hour average weekly traffic at the three HA permanent monitoring sites.

Figure 3.3 – 24 Hour AWT at Three HA Permanent Monitoring Sites

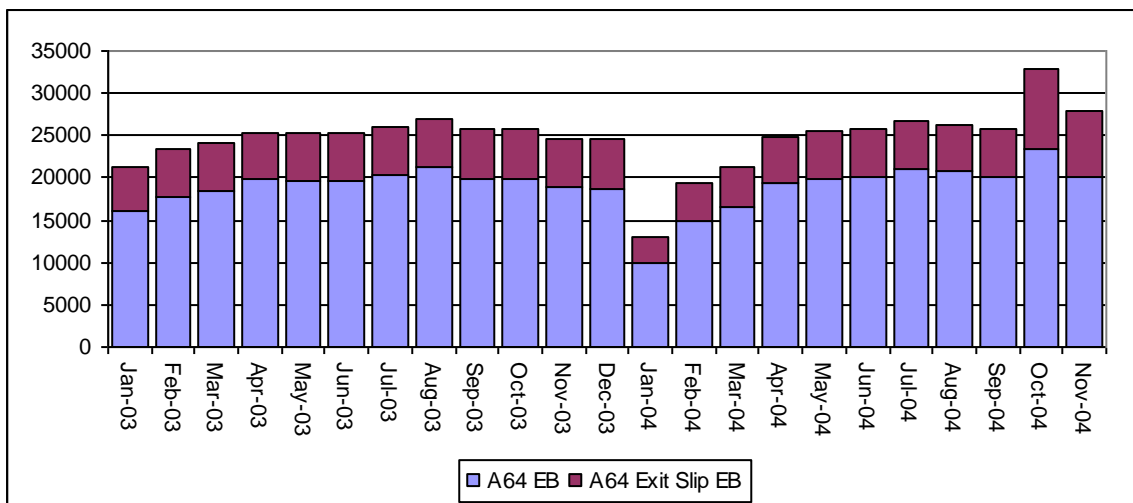


- 3.15 From Figure 3.3 it is apparent that average weekly traffic (Monday to Friday) is approximately 25000 vehicles both directions to the west of the scheme. Eastbound traffic is approximately 20% less than westbound traffic when passing the scheme.
- 3.16 When examining whether traffic figures have altered significantly since the implementation of the scheme it is only possible to use data from the counters to the west and east of the scheme (as the counters at the scheme location were implemented with the scheme).
- 3.17 Figure 3.4 shows the average weekly traffic to the east of the scheme and to the west of the A19 (the counters to the west of the scheme will be affected by flow to and from the A1239). The red hatched line indicates the opening date of the scheme.



**Figure 3.4 – Average Weekly Traffic to the East of the Scheme and to West of A19.**

- 3.18 Figure 3.4 shows the average weekly traffic at the count sites on the A64 on the WB carriageway at the A1036 diverge. Data for January 2004, February 2004, March 2004, April 2004 and October 2004 should be treated with caution due to incomplete data.
- 3.19 Figure 3.5 shows the amount of traffic diverging at the scheme from the A64 westbound carriageway. January 2004 and October 2004 data should be treated with caution.



**Figure 3.5 – Average Weekly Traffic on A64 WB at A1036 Diverge**

- 3.20 No conclusions can be drawn from Figure 3.5 other than diverging traffic is approximately 25% of total traffic.

- 3.21 Table 3.2 shows two way flow from the HA count sites to the east of the scheme for every July from 1999 to 2004.

**Table 3.2 – July flows from 1999 to 2004**

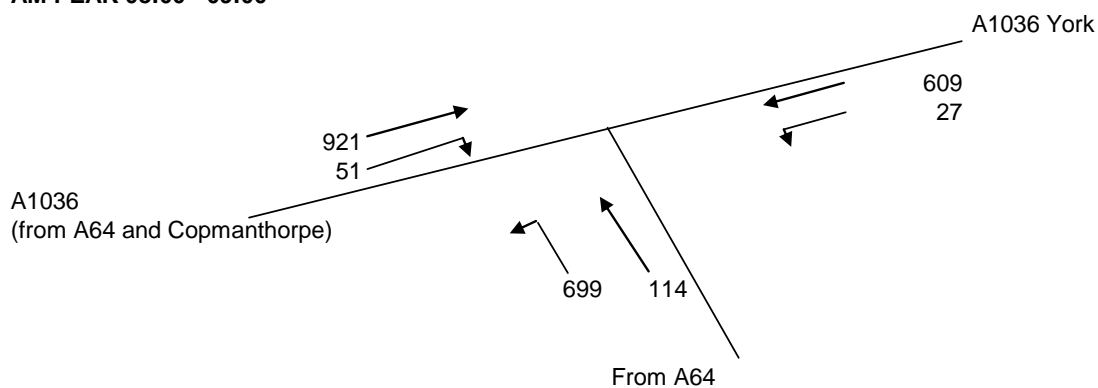
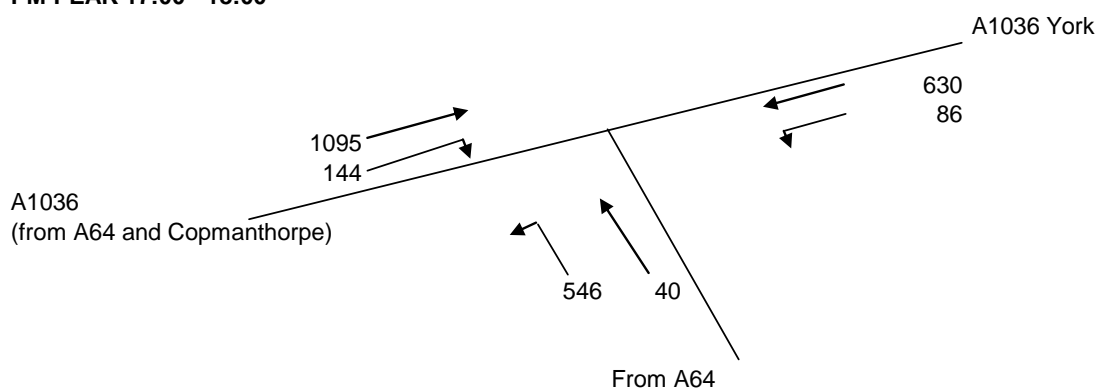
Month and Year	EB Flow	WB Flow	Total Flow	% Change Year on Year
July 1999	22837	21615	44452	-
July 2000	23339	21824	45163	+1.6%
July 2001	24675	23742	48147	+6.6%
July 2002 (construction)	23029	21719	44748	-7.1%*
July 2003	26187	23942	50129	+4.1%**
July 2004	26417	24721	51138	+2%

\*Affected by Construction      \*\* As a percentage of 2001

- 3.22 From Table 3.2 it is apparent that during the year of construction traffic was reduced quite significantly. It is also apparent that traffic on the trunk road has not changed significantly since the implementation of the scheme i.e. it has grown at levels similar to national growth percentages.

*Manual Classified Count at junction between A64 diverge and the A1036.*

- 3.23 For this LNM evaluation a manual classified count (MCC) was undertaken at the signalised junction between A1036 and the A64. Figure 3.5 shows the peak period counts from the survey day.

**AM PEAK 08:00 - 09:00****PM PEAK 17:00 - 18:00****Figure 3.6 – Manual Classified Counts**

3.24 From Figure 3.6 it is apparent that traffic proportions are relatively similar between AM and PM peaks (this is against the norm as you would expect the PM peak to be roughly the reverse of the AM peak).

3.25 The main points to note from the traffic flow section are:

- ◆ New link road carries approximately 100 vehicles an hour and approximately double that in the peak periods, AM towards York and PM towards Copmanthorpe;
- ◆ Approximately 25,000 vehicles pass the scheme in each direction;
- ◆ In the construction year traffic at various locations near the scheme are approximately a fifth less than normal;
- ◆ Traffic is peaked during the summer months;
- ◆ Diverging traffic at A64WB is approximately a quarter of total WB traffic; and
- ◆ Traffic in July 2002 (year of construction) is approximately 10% less than would have been expected without construction.

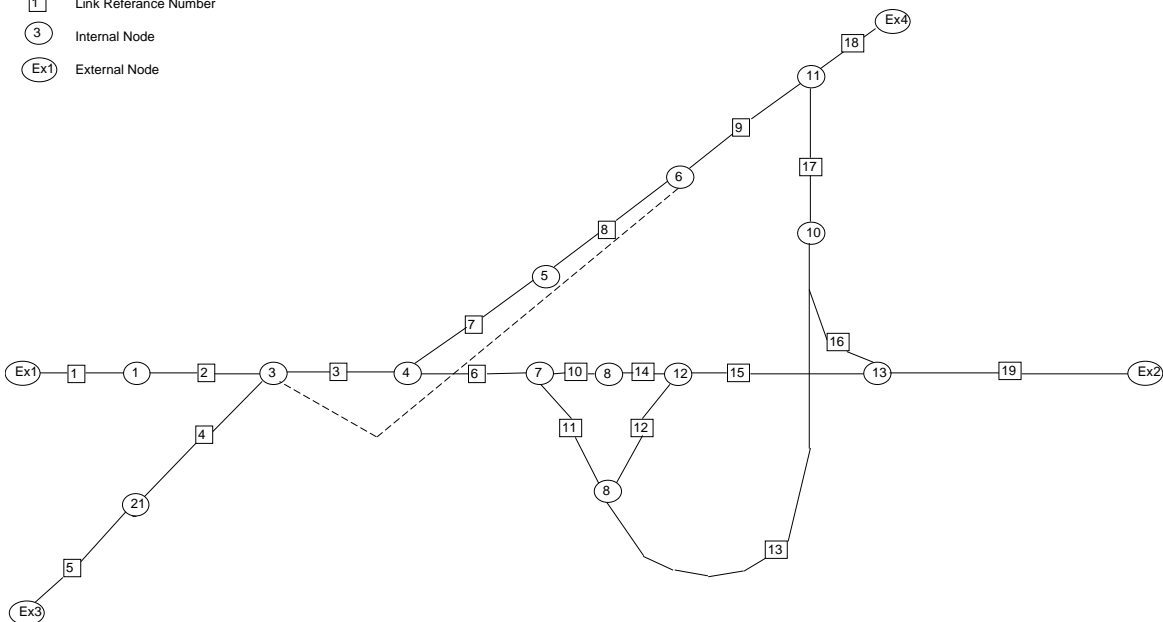
**JOURNEY TIMES**

*Pre Opening Journey Time*

- 3.26 Pre opening journey time data could not be obtained from Mouchel Parkman but journey time data was extracted from A COBA 10 model produced in support of the PAR. Both a high growth and low growth COBA model were produced but for the purpose of this evaluation high growth was used so as to represent a worst case scenario.
- 3.27 To establish a journey time from a COBA output file both link transit time and junction delay for every node and link of the COBA network was established. The node link diagram of this network is shown in Figure 3.7.
- 3.28 It should be noted that the PAR document only examined journey times on the main trunk road. The analysis presented here examined journey times across the whole COBA network because the scheme will impact on the local road network as well as the trunk road.

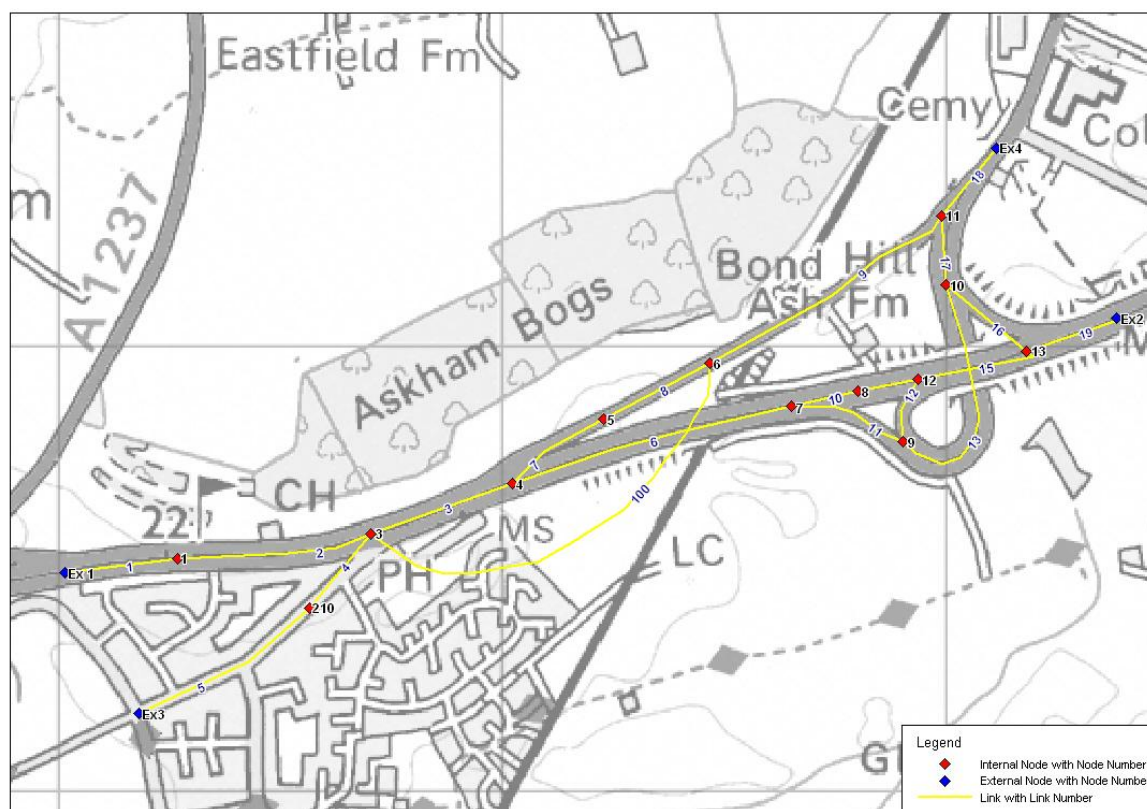
**Key**

- 1 Link Reference Number
- 3 Internal Node
- Ex1 External Node



**Figure 3.7 – Node Link Diagram**

- 3.29 On Figure 3.7 the dashed line represents the new link road constructed as part of the scheme. The do something network incorporates this as link 100. Figure 3.8 shows the node link diagram overlaid onto the road network.



**Figure 3.8 – Node Link Diagram on Mapping**

- 3.30 From Figure 3.8 it is apparent that the node link diagram doesn't extend as far west as the A1237 junction or as far east as the A19 junction.
- 3.31 The main differences between the do minimum node link diagram and the do something node link diagram are as follows:
- ◆ Do something includes link 100.
  - ◆ Do minimum traffic from EX3 can pass across the A64.
  - ◆ Link 9 shortens slightly in length in the do something.
- 3.32 The node link diagram was examined and it was established that there were ten possible routes that could be taken between external nodes on the network. Table 4.4 shows both the do minimum and do something journey times. It should be noted that this includes both link transit time and junction delay.
- 3.33 A negative percentage in Table 3.4 represents a predicted reduction in journey time whilst a positive percentage represents a predicted increase in journey time.

**Table 3.3 – Journey Times Do Something (DS) and Do Minimum (DM) from COBA**

	AM			IP			PM		
	Do Nothing	Do Something	DN – DS	Do Nothing	Do Something	DN – DS	Do Nothing	Do Something	DN – DS
	secs	Secs	% Change	secs	secs	% Change	secs	secs	% Change
Route 1 – A64 West to A64 East	172	143.2	-17%	160	141.6	-12%	324.6	148.7	-54%
Route 2 – A64 East to A64 West	175.8	143.2	-19%	160.7	141.6	-12%	447.9	148.7	-67%
Route 3 – A64 East to A1036	218.6	160.5	-27%	185.6	155.7	-16%	446.2	177.5	-60%
Route 4 – A1036 to A64 West	198.9	169.5	-15%	184.2	168.2	-9%	469.3	173.4	-63%
Route 5 – A64 East to Top Lane	171.8	187.1	+9%	160.4	182.6	+14%	321.5	207.4	-35%
Route 6 – Top Lane to A64 East	175.6	193.6	+10%	161.1	187.4	+16%	444.8	218	-51%
Route 7 – A64 East to A1036	119.7	124.4	+4%	119	123.4	+4%	121.8	127.9	+5%
Route 8 – A1036 to A64 East	85.9	93.1	+8%	85.3	91.1	+7%	87.9	101.1	+15%
Route 9 – Top Lane to A1036	321.7	177.4	-45%	235.9	171.6	-27%	568.5	199.9	-65%
Route 10 – A1036 to Top Lane	179	165.4	-8%	164.1	162.6	-1%	446.4	173.5	-60%

3.34 The main points to note from Table 3.3 are:

- ◆ Predicted that the scheme would reduce journey times on the trunk road;
- ◆ It was calculated that the scheme would cause some journey times to increase due to longer routes post scheme opening;
- ◆ Predicted that the largest percentage changes in journey times occur in the PM peak;
- ◆ The PAR document only reports the savings on the trunk road whereas the scheme was predicted to deliver some disbenefit to users of the local road network. For example vehicles travelling between A1036 to A64 East will experience an increase in journey time of 8% in the AM peak, 7% in the inter peak and 15% in the PM peak; and
- ◆ On the other hand the scheme would deliver greater percentage journey time savings on Route 9 than the savings on the trunk road (Routes 1 & 2).

#### *Post Opening Journey Times*

3.35 From the COBA network ten different journey time routes were established (as shown in the previous section). These journey time routes were an amalgamation of various nodes and links. Pre opening we have used COBA to establish journey times but post opening we designed post opening journey time surveys to replicate as much of the COBA network as possible.

3.36 For the post opening journey time surveys it wasn't possible to time every link (COBA there are journey times by links and junction delay by node) but intermediate timing points were used. Delays at the signalised junctions were also noted.

3.37 From our survey data it was possible to extrapolate a journey time for every link and junction delay for every node.

3.38 Table 3.4 displays average post opening journey times that arose from our post opening journey time surveys.

**Table 3.4 – Post Opening Journey Times**

Route	AM	IP	PM
	07:00 – 09:00	10:00 – 12:00	16:00 – 18:00
	Time (No. of Runs)	Time (No. of Runs)	Time (No. of Runs)
Route 1 – A64 West to A64 East	01:38 (10)	01:36 (12)	01:50 (11)
Route 2 – A64 East to A64 West	01:41 (10)	01:33 (12)	01:48 (11)
Route 3 – A64 East to A1036	03:52 (6)	02:18 (7)	03:21 (5)
Route 4 – A1036 to A64 West	02:18 (5)	02:22 (8)	02:34 (5)
Route 5 – A64 East to Top Lane	04:04 (4)	03:50 (5)	05:44 (3)
Route 6 – Top Lane to A64 East	04:21 (5)	04:02 (5)	05:15 (4)
Route 7 – A64 East to A1036	03:28 (5)	02:11 (5)	03:29 (4)
Route 8 – A1036 to A64 East	02:03 (4)	00:57 (5)	01:07 (4)
Route 9 – Top Lane to A1036	04:09 (5)	03:26 (6)	03:34 (4)
Route 10 – A1036 to Top Lane	03:53 (5)	03:08 (6)	03:27 (4)

- 3.39 From Table 3.4 shows that there is very little variance in journey times between time period on the trunk road (Routes 1 & 2) whilst journey times for the local road network has much greater variance.
- 3.40 The difference between the post opening journey times and do nothing is shown in Table 3.5. This shows what actual benefit or disbenefit the scheme has actually delivered.
- 3.41 A negative percentage in Table 3.5 represents an actual journey time saving when comparing post opening journey times with do minimum journey times.

**Table 3.5 – Journey Times Do Nothing (DS) and Post Opening (PO)**

	AM			IP			PM		
	Do Nothing secs	Post Opening Secs	DN – PO % Change	Do Nothing secs	Post Opening secs	DN – PO % Change	Do Nothing secs	Post Opening secs	DN – PO % Change
Route 1 – A64 West to A64 East	172	98	-43%	160	96	-40%	324.6	110	-66%
Route 2 – A64 East to A64 West	175.8	101	-43%	160.7	93	-42%	447.9	108	-76%
Route 3 – A64 East to A1036	218.6	231	+6%	185.6	138	-26%	446.2	201	-55%
Route 4 – A1036 to A64 West	198.9	138	-31%	184.2	142	-23%	469.3	154	-67%
Route 5 – A64 East to Top Lane	171.8	244	+42%	160.4	230	+43%	321.5	344	+7%
Route 6 – Top Lane to A64 East	175.6	261	+49%	161.1	241	+50%	444.8	314	-29%
Route 7 – A64 East to A1036	119.7	208	+74%	119	131	+10%	121.8	209	+72%
Route 8 – A1036 to A64 East	85.9	123	+43%	85.3	57	-33%	87.9	68	-23%
Route 9 – Top Lane to A1036	321.7	249	-23%	235.9	206	-13%	568.5	214	-62%
Route 10 – A1036 to Top Lane	179	233	+30%	164.1	188	+15%	446.4	207	-54%

3.42 From Table 3.5 the main points to note to:

- ◆ It is apparent that the scheme delivered substantial benefits to trunk road traffic. Journey times reduced by between 40% and 76% depending on direction of travel (EB or WB) and time period (AM, IP, PM).
- ◆ Although the scheme delivered benefits on the trunk road the scheme delivered disbenefits as well as benefits for users of the local road network. For example A64 East to Top Lane the AM peak journey time increases by 42% in the AM peak, 43% in the IP and 7% PM peak.

3.43 Table 3.6 shows a summary of journey times on the trunk road, this is by direction of travel and by time period.

**Table 3.6 – Journey Time Savings by Direction and Time Period**

Time Saving (secs)	AM	IP	PM
Eastbound	74	64	215
Westbound	75	68	340

3.44 From Table 3.6 it is apparent that the scheme delivered substantial journey time saving with the greatest savings being experienced in the PM peak.

3.45 The main points to note from the journey time section are:

- ◆ The PAR document only reports the savings on the trunk road whereas the scheme was predicted to deliver some disbenefit to users of the local road network. For example vehicles travelling between A1036 to A64 East will experience an increase in journey time of 8% in the AM peak, 7% in the inter peak and 15% in the PM peak;
- ◆ On the other hand the scheme would deliver greater percentage journey time savings on Route 9 than the savings on the trunk road (Routes 1 & 2);
- ◆ The surveys showed that there is very little variance in journey times between time period on the trunk road (Routes 1 & 2) whilst journey times for the local road network has much greater variance;
- ◆ It is apparent that the scheme delivered substantial benefits to trunk road traffic. Journey times reduced by between 40% and 76% depending on direction of travel (EB or WB) and time period (AM, IP, PM); and
- ◆ Although the scheme delivered benefits on the trunk road the scheme delivered disbenefits as well as benefits for users of the local road network. For example A64 East to Top Lane the AM peak journey time increases by 42% in the AM peak, 43% in the IP and 7% PM peak.

## 4. POPE Methodology

### INTRODUCTION

- 4.1 This section assesses the level of economic benefits predicted for each of the scheme and compares these predictions with actual benefits accrued when considering actual traffic volume changes and actual journey time benefits. The approach that we have taken is termed the Post Opening Project Evaluation (POPE) methodology. The basis of the POPE methodology is that through previous economic evaluations undertaken it has been identified that the majority of benefits are derived primarily from two areas:
- ◆ Link transit time (vehicle hours) benefit/disbenefits; and
  - ◆ Accident benefits.
- 4.2 As such, link transit time, (which is represented by traffic volumes multiplied by journey times) and the number of accidents can be collected before and after scheme opening and the difference between these observed values can be compared to the difference shown in time and accidents for the same links shown in the original Mouchel assessment. The premise of the POPE methodology is that the change in the observed flows, times and accidents can be directly associated to the economic benefits predicted for this scheme.
- 4.3 A consequence of the POPE methodology is that all costs and benefits are expressed in terms of the present value year and the discount rate prevalent at the time that the original PAR was submitted. For this scheme the present value year is 1994, and the discount rate was 6 per cent. It should also be noted that the PAR was done in accordance with PAR2 guidance.

### ACCIDENTS

- 4.4 The original Mouchel assessment forecast an accident saving in the opening year of
- 4.5 Table 5.1 presents the 30-year accident savings and benefits attributed to the scheme.

**Table 4.1 – Comparison of Original PAR prediction of Accident benefits with Actual observed post opening data (MAIN CARRIAGEWAY).**

Over 30 year assessment period		
	Original PAR prediction (Main Carriageway)	Outturn (Main Carriageway)
Number of Accidents Saved	79	176
Level of Benefit (£)	£1,840,000	£4,099,241
In 1994 prices and values discounted at 6%		

- 4.6 The original PAR prediction was based on COBA while the POPE benefit was derived by taking the post opening accidents saved as a proportion of PRE accidents and factored the monetised benefit.
- 4.7 It should be noted that this is only for the main carriageway and the scheme could cause an increase in accidents on the local road network and therefore the difference between level of benefit predicted and actual will be closer.
- 4.8 Normally, it is usual for accident savings to be evaluated at least three years after opening in order to get a fair reflection in the number of accidents in the corridor. Therefore this evaluation should be seen as an initial view and cannot be considered as a validated conclusion at this time.

#### **JOURNEY TIME BENEFITS/DISBENEFITS**

- 4.9 The PAR document predicted that a 30 year present value benefit (PVB) of £52.36M would be accrued from the economic benefits of the scheme.
- 4.10 The forecast benefits (calculated from the one year post opening COBA run) predicted a benefit of 74414 vehicle hours in the post opening year, this corresponded to £1.580M (in 1994 prices discounted at 6%) of benefits. This equated to benefits an hour of £21.23.
- 4.11 To calculate observed benefits for trunk road traffic the following formula was used.
- ◆ Hours Saved = (Flow DS – DM \* JT DM – DS) + 0.5(Flow DS – DM \* JT DM – DS)
- 4.12 The hours saved from this formula were then multiplied by benefits an hour extracted from the one year post opening COBA and applied to both high and low growth capitalisation factors to give an overall journey time benefit as show in Table 4.2.

**Table 4.2 – Comparison of Predicted and Actual ‘Observed’ benefits in the post opening year.**

<u>Values representing annual savings in FG2, FG3 and FG4 hours.</u>	<b>Outturn COBA 1 Year Assessment Predicted Benefits.</b>	<b>Actual ‘Observed’ Benefits</b>
No. of Vehicle Hours saved in the opening Year	74414	338450
Accrued Benefit in the opening year (£)	£1.508M	£7,186M
Accrued over 30 years (£)	£52.360M	£97.789M
In 1994 Prices, discounted to 1994 (6%)		

- 4.13 Table 4.2 demonstrates that the scheme delivers approximately double the amount of journey time benefits that were predicted pre opening. It should be noted that these savings are for trunk road and have not taken into account the schemes affect on the local road network.

#### **SCHEME COST**

- 4.14 Scheme costs were not provided on request so for the purposes of the economic calculation we have assumed that the PVC presented in the PAR represents both pre and post opening costs.

#### **SUMMARY**

- 4.15 The scheme provided over double the amount of accident benefit than what was predicted pre opening.
- 4.16 The scheme delivers almost double the amount of journey time benefit to trunk road traffic than was predicted pre opening.
- 4.17 Scheme costs were not provided.
- 4.18 Table 4.5 shows a summary of the economic impacts of the scheme.

**Table 4.3 – POPE Comparison: Summary**

	Original Mouchel		POPE		POPE 'Ratios'	
	Low (1)	High (2)	Low (3)	High (4)	Low (3/1)	High (4/2)
Accidents	£1.84m	£1.84m	£4.10m	£4.10m	<b>2.23</b>	<b>2.23</b>
VOC	-	-	-	-	-	-
Journey Time	£51.72m	£51.72m	£97.79m	£97.79m	<b>1.89</b>	<b>1.89</b>
PVB	£53.56m	£53.56m	£101.89m	£101.89m	<b>1.90</b>	<b>1.90</b>
PVC	£2.50m	£2.50m	£2.50m*	£2.50m*	<b>1.00</b>	<b>1.00</b>
NPV	£51.06m	£51.06m	£99.39m	£99.39m	<b>1.95</b>	<b>1.95</b>
BCR	21.4	21.4	40.76	40.76	<b>1.90</b>	<b>1.90</b>

\*No outturn costs provided

All costs and benefits are 1994 prices discounted to 1994 at 6%.

- 4.19 Table 4.5 shows that overall the scheme delivers a benefit of 90% greater than predicted. But it should be noted that no outturn scheme costs were provided.

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## 5. Summary of Appraisal and Evaluation Summary Tables

### INTRODUCTION

- 5.1 In order to fully evaluate the effects of the traffic safety measures scheme, Atkins has undertaken a review of the original PAR document prepared by URS. The Appraisal Summary Table (AST) from this document, which summarise the predicted impact of the scheme under the five objectives of environment, safety, economy, accessibility and integration, is presented as Table 5.2 in this report.
- 5.2 The Atkins review focused on:
- ◆ The main body of the PAR document itself; and,
  - ◆ The Appraisal Summary Table (AST) from the PAR.
- 5.3 Each of these is dealt with in turn below.

### PAR DOCUMENT

- 5.4 The main points to note from the PAR document including worksheets of the A64 Top Lane Copmanthorpe – Junction Improvement are as follows:

#### *Environment*

- 5.5 The PAR and associated worksheets state the following in terms of environment:
- 5.6 Noise was predicted to have a beneficial impact where 15 years after opening 143 properties will experience a decrease of between 5dB(A) and 10 dB(A).
- 5.7 Local Air Quality – One hundred and fifty three properties will experience a beneficial impact in year 2005 in air quality as a result of the scheme.
- 5.8 Mouchel predicted that biodiversity will have a neutral impact overall but with slight benefit for Askham Bog SSSI.
- 5.9 Heritage – Neutral impact.
- 5.10 The scheme was predicted to have a moderately negative impact in terms of Water caused by high potential to do harm due to high A64 traffic flows.

#### *Safety*

- 5.11 The PAR and associated worksheets state the following in terms of safety:
- 5.12 Table 5.1 presents the accident data presented within the PAR document.

**Table 5.1 – Accident Data as Presented in PAR Document**

Number of Personal Injury Accidents (NOT casualties)				
Year	Slight	Serious	Fatal	Total
1995	2	0	2	4
1996	4	3	0	7
1997	1	2	0	3
1998	2	0	0	2
1999	9	0	0	9
TOTAL	18	5	2	25
Give observed accident rate, and state units				0.514 PIA/MvKm

- 5.13 The PAR states that the scheme addresses the safety issue at the Top Lane junction where a major concentration of accidents occur – consisting mainly of shunt type accidents on the main line and turning related from Top Lane. The site has been the number one accident black site in North Yorkshire in the past.
- 5.14 The scheme closes three A64 central reserve gaps; Pike Hills Golf Course, Top Lane and east of Copmanthorpe with direct access to properties fronting the A64 between these gaps will be removed. At present the traffic signals provide gaps in the traffic streams for the frontages to access the trunk road.
- 5.15 From 1989 to 1993 the accident rate between (and including) the three gaps was 0.822 PIA/MVkm, from 1994 to 1998 this rate was 0.458 PIA/MvKm. The accident rate at the time of producing the PAR was 0.514 PIA/MvKm (1995 – 1999) which equates to 5 accidents per year. The combined (link and junction) national average rate for this section of road would produce 1.25 accidents per year. The combined national average rate is currently 0.129 PIA/MvKm.
- 5.16 The PAR presented accident data from 1995 to 1999.
- 5.17 Over the 30 year assessment period of the scheme 79 personal injury accidents will occur of which there will be 1 fatal casualty, 15 serious casualties and 110 slight casualties.

### *Economy*

- 5.18 The PAR and associated worksheets stated the following in terms of economy:
- 5.19 The PAR states that a traffic signal controlled junction located on a 45900 AADT D2AP Trunk Road is unusual, combined with right turning manoeuvres from the side road, and 3 central reserve gaps.
- 5.20 In the peak period using the trunk road without improvement will take 3.69 minutes whilst with improvement it will drop to 0.5 minutes, a saving of 3.19 minutes. In the interpeak using the trunk road without improvement will take 0.71 minutes whilst with

the improvement the journey time will take 0.46 minutes. This equates to a 0.25 minute journey time saving.

### *Accessibility*

- 5.21 The PAR and associated worksheets stated the following in terms of accessibility:
- 5.22 The PAR states that 'currently non motorised users wishing to travel between Copmanthorpe and York need to cross the A64(T) at the traffic signals (or the two uncontrolled central reserve gaps) with no pedestrian phase provided. Non motorised users share the crossing space with vehicles crossing from Copmanthorpe. Non motorised users cross in both directions and are separated from adjacent crossing vehicles by a white line.
- 5.23 Over a 12 hour period in July 1998, 151 cyclists and 30 pedestrians were recorded crossing the A64(T) at the traffic signals.
- 5.24 Scheme will provide a segregated route for non motorised users along the new link road. They will cross the one way A1036 (T) slip road at the Western Traffic signalised junction under a pedestrian phase. They will then join the existing cycleway/footway on the north side of the A1036.
- 5.25 A very slight increase in journey length for York/Copmanthorpe bus services will be outweighed by the reduced delays and reduced/improved journey times. Pedestrian access to the eastbound bus service will be safer than at present where passengers cross the A64 to embark/disembark.
- 5.26 Pedestrians – travelling along the A64 on its south side – Slight benefit for non motorised users using the footway/cycleway as now segregated from the A64 by an environmental barrier.
- 5.27 Pedestrians – crossing the A64 at Top Lane (to/from York) – slight beneficial as cyclists have improved amenity with no change in journey time and pedestrians although journey time increases by 0.5 minutes amenity is improved (i.e. safer/easier crossing of A64 & A64 masked from view by environmental/landscape works.)
- 5.28 Pedestrians – Crossing the A64 at the Golf Club (to access the Golf Club) – neutral on the assumption that a central reserve pedestrian crossing point is maintained at this location.
- 5.29 Accessibility: Access to Public Transport – Access times to public transport would not be significantly different, the new bus route would use the proposed link rather than cross the A64 at Top Lane. Change in quality would be slight beneficial/neutral because of this, but the overall impact is assessed as slight beneficial due to the bus stop being relocated from the north of the A64 to the link road on Copmanthorpe side.
- 5.30 Accessibility: Severance – New severance slight as journey length is increased by 55m. Relief from existing severance as A64 no longer crossed at grade.
-

### *Integration*

- 5.31 The PAR and associated worksheets state the following in terms of integration:
- 5.32 Access to bus services will be improved, by way of a new eastbound bus stop on the link road. York bound local traffic, including public transport will no longer suffer from delays caused by the A64 trunk road. Trunk Road traffic no longer subjected to junction delays caused by the traffic signals.
- 5.33 Agricultural traffic presently using the A64 and A1036 slip road to access land north and south of the A64 to the west of the railway line will use the link road, thus avoiding potential conflict with the A64 Trunk Road traffic.

### **APPRAISAL SUMMARY TABLE (AST)**

- 5.34 The AST summarises the predicted impact of the scheme under the five objectives of
- ◆ Environment
  - ◆ Safety
  - ◆ Economy
  - ◆ Accessibility
  - ◆ Integration
- 5.35 The AST is presented in Table 5.2.

### *Environment*

- 5.36 The AST states the following in terms of environment:
- ◆ Noise – Benefits from the removal of traffic lights and provision of noise barrier. Net 143 properties win with this scheme.
  - ◆ Local Air Quality – Benefits from removal of traffic lights. 153 properties experience improved air quality.
  - ◆ Landscape – Moderate beneficial impact.
  - ◆ Biodiversity – Neutral impact: Adjacent SSSI unaffected. No discernable effect to SINC verge. Neutral.
  - ◆ Heritage – Neutral impact: line of Roman Road unproven; watching brief during construction proposed. Neutral.
  - ◆ Water – The sensitivity of the water environment with mitigation is low as is the land drainage/flood risk. The assessment is moderate – ve purely due to the high traffic flows (potential to cause harm). Moderate –ve.

### *Safety*

- 5.37 The AST states that Safety is enhanced by the removal of the traffic signal junction on the A64 Trunk Road.

### *Economy*

5.38 The AST states the following in terms of economy:

- ◆ Journey times & vehicle operating costs - Journey time saving to A64 trunk road traffic is due to the removal of the traffic signals and hence the delay that these cause.
- ◆ Reliability – The improvement to the trunk road by the removal of the traffic signals is likely to improve the reliability, and therefore stress will be reduced. Not Applicable.
- ◆ Regeneration – doesn't serve a regeneration area and the development doesn't depend on the scheme.

### *Accessibility*

5.39 The AST states the following in terms of accessibility:

- ◆ Pedestrians and others – amenity is improved as non motorised users are segregated from the A64, crossing of the A64 is no longer at grade. Slight Beneficial.
- ◆ Access to public transport – Access to public transport is slightly improved, as the bus stop to the north of the A64 will be relocated to the link road on Copmanthorpe side of the A64. Slight Beneficial.
- ◆ Community Severance – No new severance. Relief to existing severance due to the removal of the accident black site at grade crossing point of the A64. Neutral Beneficial.

### *Integration*

5.40 The AST states that a safe alternative route of greater amenity is to be provided for local traffic and non motorised users, avoiding the at grade crossing of the A64. Access to bus routes slightly improved as stop is relocated to the link road. Trunk road traffic is no longer delayed by the traffic signals.

**Table 5.2 - AST for A64 Top Lane Copmanthorpe – Junction Improvement**

<b>TOP LANE COPMANTHORPE JUNCTION IMPROVEMENT</b>		- Removal of traffic signal controlled junction and the closure of two additional central reserve gaps on the A64. Provision of new link road and underbridge for local traffic between Copmanthorpe and York. Provision of a service road west of Top Lane to serve properties which presently have direct access to the A64.		
<b>PROBLEMS</b>		Traffic signal controlled junction located on a busy D2AP Trunk Road is unusual and has resulted in this intersection becoming an accident black site. The scheme addresses the problem of severance and delay to all users travelling between Copmanthorpe and York and the delay to Trunk Road traffic.		
<b>OTHER OPTIONS</b>		Over bridge crossing of the A64 for local traffic or removal of right turn across Trunk Road have been investigated and discounted.		
<b>OBJECTIVES</b>		<b>QUALITATIVE IMPACTS</b>	<b>QUANTITATIVE MEASURE</b>	<b>ASSESSMENT</b>
<b>ENVIRONMENT</b>	Noise	Benefits from removal of traffic lights and provision of noise barrier	No. properties experiencing (w/s): - increase in noise 0 - decrease in noise 143	net 143 properties win with scheme
CO <sub>2</sub> : tonnes added Nil	Local air quality	Benefits from removal of traffic lights	No. properties experiencing: - improved air quality 153 - worse air quality 0	-56 PM <sub>10</sub> -64 NO <sub>2</sub>
	Landscape	Moderate beneficial impact.	Not Applicable	Moderate beneficial
	Biodiversity	Neutral impact: Adjacent SSSI unaffected; No discernable effect to SINC verge.	Not Applicable	Neutral
	Heritage	Neutral: line of Roman road unproven; watching brief during construction proposed.	Not Applicable	Neutral
	Water	The sensitivity of the water environment with mitigation is low as is the land drainage / flood risk. The assessment is moderate -ve purely due to the high traffic flows (potential to cause harm).	-	Moderate -ve
<b>SAFETY</b>	-	Safety is enhanced by the removal of the traffic signal junction on the A64 Trunk Road	Accidents Deaths Serious Slight 112 3 21 168	PVB £1.84m 73% of PVC
<b>ECONOMY</b>	Journey times & VOCs	Journey time saving to A64 Trunk Road traffic is due to the removal of the traffic signals and hence the delay that these cause.	Trunk Road journey time savings: peak 3.41 mins; inter-peak 0.25 mins	PVB £51.72m 2065%of PVC
	Cost			PVC £2.50m
	Reliability	The improvement to the Trunk Road by the removal of the traffic signals is likely to improve the reliability, and therefore stress will be reduced.	Not Applicable	Not Applicable
	Regeneration		Serves regeneration area? Development depends on scheme?	No No
<b>ACCESSIBILITY</b>	Pedestrians and others	Amenity is improved as NMU's are segregated from the A64, crossing of the A64 is no longer at grade.	-	Slight Beneficial

	Access to public transport	Access to public transport is slightly improved, as the bus stop to the north of the A64 will be relocated to the link road on Copmanthorpe side of the A64.	-	Slight Beneficial
	Community severance	No new severance. Relief to existing severance due to the removal of the accident black site at grade crossing point of the A64.	-	Neutral Beneficial
<b>INTEGRATION</b>		A safe alternative route of greater amenity is to be provided for local traffic and NMU's, avoiding the at grade crossing of the A64. Access to bus routes slightly improved as stop is relocated to the link road. Trunk Road traffic is no longer delayed by the traffic signals.	-	Beneficial
<b>COBA 10 R5</b>			PVB £53.56m PVC £2.50m NPV £51.06m BCR 21.4	

Note : This Table reproduces the AST of the PAR document

**OUTTURN EFFECTS**

- 5.41 In order to assess the actual or outturn effects of the opening of the scheme, we have produced an Evaluation Summary table (EST), which mirrors the appearance of the AST, and includes details of the actual sub objectives that have been evaluated. The EST is presented in Table 5.2.
- 5.42 Section three discussed the economy and safety impacts of the scheme. This section concentrates on the other three impacts included in the AST, namely
- ◆ **Environmental Impacts** such as noise, local air quality, landscape, biodiversity, heritage and water;
  - ◆ **Accessibility Impacts** such as change in access to public transport, severance within communities and impact on pedestrian and other modes; and
  - ◆ **Integration** measured by how the scheme accords with policy.
- 5.43 The assessments that follow are all subjective assessments from members of the evaluation team.
- 5.44 The following reiterates the statements that accompanied these impacts before providing photographic evidence that the mitigating measures have been implemented.

**Environment*****Noise – Benefits from the removal of traffic lights and provision of noise barrier. Net 143 properties win with scheme***

- 5.45 The AST states that there are noise benefits from the removal of traffic lights and the provision of a noise barrier. A noise/environmental barrier has been provided and this is shown in Figure 5.1.



**Figure 5.1 – Environmental Barrier**

- 5.46 The environmental barrier as shown in Figure 5.1 will reduce traffic noise for properties in Copmanthorpe but the removal of traffic lights may increase noise due to the higher noise associated with faster moving traffic.
- 5.47 The Par document predicted that 15 years after opening 143 properties experience a decrease of between 5 dB(A) and 10dB(A). It is suggested that noise is quantitatively evaluated in 2017.

***Local Air Quality – Benefits from the removal of traffic lights. Improved air quality for 153 properties.***

- 5.48 The AST states that local air quality benefits from the removal of traffic lights. Here it can be argued that as the traffic lights have been removed local air quality has improved. This is based on there being less or no queuing traffic that is associated with air pollution.
- 5.49 The PAR states a beneficial impact in year 2005 for 153 properties. For the purposes of this evaluation no air quality assessment has been undertaken.

***Landscape – Moderate beneficial impact***

- 5.50 The moderately beneficial impact predicted for landscape wasn't qualified hence can not be evaluated here.

***Biodiversity – Neutral Impact: Adjacent SSSI Unaffected; No discernable effect to SINC verge.***

5.51 No evaluation was undertaken regarding Biodiversity.

***Heritage – Neutral: line of Roman road unproven; watching brief during construction proposed.***

5.52 No evaluation was undertaken regarding Heritage.

***Water – The sensitivity of the water environment with mitigation is low as is the land drainage/flood risk. The assessment is moderate –ve purely due to the high traffic flows (potential to cause).***

5.53 No evaluation was undertaken regarding Water.

### **Accessibility**

***Pedestrians and Others – Amenity is improved as NMUs are segregated from the A64, crossing of the A64 is no longer at grade.***



**Figure 5.2 – Pedestrian Facilities**

5.54 Figure 5.2 shows new footway provision on the realigned Top Lane segregated from the A64 by an environmental barrier.



**Figure 5.3 – New Underpass under the A64 with Pedestrian Provision**

- 5.55 Figure 5.3 shows the new underpass under the A64 with pedestrian provision. As the footway on the south side of the A64 is segregated through the use of an environmental barrier and as the crossing of the A64 is no longer at grade then a slight beneficial impact is agreed with.

***Access to Public Transport – Access to Public Transport is Slightly Improved, as the Bus Stop to the North of the A64 will be Relocated to the Link Road on Copmanthorpe side of the A64.***

- 5.56 Previously pedestrians would have had to cross the dual A64 to access the bus stop on the northern side. As part of the scheme the bus stop was relocated to the north of the new link road to the south of the A64 segregated by the environmental barrier. Figure 5.4 shows the new bus stop.



**Figure 5.4 – Bus Stop**

- 5.57 As the bus stop has been relocated to the Link Road on the Copmanthorpe side of the A64 then a slight beneficial is agreed with.

***Community Severance – No New Severance. Relief to existing severance due to the removal of the accident blacksite at grade crossing point of the A64.***

- 5.58 Within the PAR document it is acknowledged although the journey length for a non motorised user is increased there will be relief from severance as the A64 is no longer crossed at grade. Figure 5.3 shows the new crossing point of the A64 for all users travelling between Copmanthorpe and York.
- 5.59 Community Severance was rated neutral and beneficial, for this evaluation we have subjectively assessed this as a slight beneficial.
- 5.60 Although the new route is slightly longer it will be perceived as safer due to not having to cross the A64 at grade and will be far more pleasant leading to people of Copmanthorpe being more likely to travel between Copmanthorpe and York especially by non mortised mode. Hence the scheme will have reduced the feeling of severance.
- 5.61 Part of the new route for non motorised users is shown in Figure 5.5.



**Figure 5.5 – New Link Road with Pedestrian and Cycle Facilities**

***Integration – A safe alternative route of greater amenity is to be provided for local traffic and NMUs, avoiding the at grade crossing of the A64. Access to bus routes slightly improved as stop is relocated to the link road. Trunk road traffic is no longer delayed by the traffic signals. Beneficial***

- 5.62 On reviewing the local, regional and national policy extracts (On worksheet 8.4) used to justify the beneficial impact stated in the AST, it is agreed that the scheme does meet these impacts therefore a beneficial impact is agreed with.
- 5.63 The main points to note from the outturn effects section are;
- ◆ Environmental barrier has been provided to mitigate noise but the higher speed associated with the removal of traffic lights would lead to an increase in noise;
  - ◆ Beneficial impact in local air quality due to the removal of queuing and stop start traffic associated with traffic lights;
  - ◆ Noise and Air Quality should be re-evaluated in future years;
  - ◆ Accessibility pedestrians and others - beneficial through the provision of a new segregated footway and an underpass to cross the A64;
  - ◆ Access to public transport – beneficial through the provision of new bus stop facilities;
  - ◆ Community Severance – New safer crossing point of the A64 removes all possibility of conflict between non motorised users and the A64 traffic;
  - ◆ Integration – Scheme meets government policies and therefore evaluated as a benefit;

**Table 5.3 - EST for A64 Top Lane Copmanthorpe**

<b>TOP LANE COPMANTHORPE JUNCTION IMPROVEMENT</b>		- Removal of traffic signal controlled junction and the closure of two additional central reserve gaps on the A64. Provision of new link road and underbridge for local traffic between Copmanthorpe and York. Provision of a service road west of Top Lane to serve properties which presently have direct access to the A64.		
<b>PROBLEMS</b>		Traffic signal controlled junction located on a busy D2AP Trunk Road is unusual and has resulted in this intersection becoming an accident black site. The scheme addresses the problem of severance and delay to all users travelling between Copmanthorpe and York and the delay to Trunk Road traffic.		
<b>OTHER OPTIONS</b>		Over bridge crossing of the A64 for local traffic or removal of right turn across Trunk Road have been investigated and discounted.		
<b>OBJECTIVES</b>		<b>QUALITATIVE IMPACTS</b>	<b>QUANTITATIVE MEASURE</b>	<b>ASSESSMENT</b>
<b>ENVIRONMENT</b>	Noise	Benefits from removal of traffic lights and provision of noise barrier	No. properties experiencing (w/s): - increase in noise 0 - decrease in noise 143	Noise Benefit through provision of environmental barrier
CO <sub>2</sub> tonnes added Nil	Local air quality	Benefits from removal of traffic lights	No. properties experiencing: - improved air quality 153 - worse air quality 0	Air Quality benefit through removal of queuing traffic
	Landscape	Moderate beneficial impact.	Not Applicable	Moderate beneficial
	Biodiversity	Neutral impact: Adjacent SSSI unaffected; No discernable effect to SINC verge.	Not Applicable	Neutral
	Heritage	Neutral: line of Roman road unproven; watching brief during construction proposed.	Not Applicable	Neutral
	Water	The sensitivity of the water environment with mitigation is low as is the land drainage / flood risk. The assessment is moderate -ve purely due to the high traffic flows (potential to cause harm).	-	Unsure
<b>SAFETY</b>	-	Safety is enhanced by the removal of the traffic signal junction on the A64 Trunk Road	Accidents Savings 255.4	PVB £4.10m 164% of PVC
<b>ECONOMY</b>	Journey times & VOCs	Journey time saving to A64 Trunk Road traffic is due to the removal of the traffic signals and hence the delay that these cause.	Trunk Road journey time savings: EB AM 74secs IP 64 secs PM 215 secs WB AM 75 secs IP 68 secs PM 340 secs	PVB £97.79m 3912% of PVC
	Cost		Not Obtained at Present. Used Same as Predicted Pre opening for Calcs	PVC £2.5m
	Reliability	The improvement to the Trunk Road by the removal of the traffic signals is likely to improve the reliability, and therefore stress will be reduced.	Not Applicable	Not Applicable
	Regeneration		Serves regeneration area? Development depends on scheme?	No No
<b>ACCESSIBILITY</b>	Pedestrians and others	Amenity is improved as NMU's are segregated from the A64, crossing of the A64 is no longer at grade.	-	Slight Beneficial

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	Access to public transport	Access to public transport is slightly improved, as the bus stop to the north of the A64 will be relocated to the link road on Copmanthorpe side of the A64.	-	Slight Beneficial
	Community severance	No new severance. Relief to existing severance due to the removal of the accident blacksite at grade crossing point of the A64.	-	Slight Beneficial
<b>INTEGRATION</b>		A safe alternative route of greater amenity is to be provided for local traffic and NMU's, avoiding the at grade crossing of the A64. Access to bus routes slightly improved as stop is relocated to the link road. Trunk Road traffic is no longer delayed by the traffic signals.	-	Slight Beneficial
<b>COBA 10 R5</b>			PVB £101.89m PVC £2.50m NPV £99.39m BCR 40.76	

## 6. Summary of Conclusions

- 6.1 In summary, the main points to note from the Evaluation of the A64 Top Lane Copmanthorpe are:

### *Safety*

- 6.2 In 94 months pre opening 64 accidents occurred whilst in the 14 months post opening 0 accidents have occurred.
- 6.3 If we assume that the scheme will remove the cause of all accidents in the vicinity then the scheme will remove 176 accidents over the 30 year assessment period; and

### *Traffic Flow*

- 6.4 Traffic is peaked during the summer months;
- 6.5 Scheme has not had any significant effect to traffic flows apart from during the year of construction where flows fell by 7%.

### *Journey Times*

- 6.6 The surveys showed that there is very little variance in journey times between time periods on the trunk road whilst journey times for the local road network has much greater variance;
- 6.7 It is apparent that the scheme delivered substantial benefits to trunk road traffic. Journey times reduced by between 40% and 76% depending on direction of travel (EB or WB) and time period (AM, IP, PM); and
- 6.8 Although the scheme delivered benefits on the trunk road, the scheme delivered disbenefits as well as benefits for users of the local road network. For example A64 East to Top Lane the AM peak journey time increases by 42% in the AM peak, 43% in the IP and 7% PM peak.
- 6.9 Predictions were not made regarding journey time impacts of the scheme to local road network traffic within the PAR.

### *POPE Methodology*

- 6.10 The scheme provided over double the amount of accident benefit than what was predicted pre opening.
- 6.11 The scheme delivers almost double the amount of journey time benefit to trunk road traffic than was predicted pre opening.
- 6.12 Scheme costs were not provided.

*Outturn Effect*

- 6.13 It is difficult to establish whether the scheme has delivered a beneficial impact with regard to noise because an environmental barrier has been provided to mitigate noise but the higher speed associated with the removal of traffic lights would lead to an increase in noise.
- 6.14 Beneficial impact in local air quality due to the removal of queuing and stop start traffic associated with traffic lights.
- 6.15 Beneficial impact with regard to pedestrians and others through the provision of a new segregated footway and an underpass to cross the A64.
- 6.16 Beneficial impact with regard to access to public transport through the provision of new bus stop facilities.
- 6.17 Beneficial impact with regard to community severance through the provision of a new safer crossing point that removes all possibility of conflict between non motorised users and the A64 traffic.
- 6.18 Scheme meets government policies and therefore evaluated as a benefit with regard to integration.

*Overall*

- 6.19 The scheme should be viewed as a success as not only does it deliver economic benefits of 90% greater than predicted the environmental, accessibility and integration impacts of the scheme are all beneficial.
- 6.20 It should be noted that outturn scheme costs were not provided and as a result predicted scheme costs were used.