



Oxfordshire County Council

**Chipping Norton**  
**Transport Options Study**  
**(Addendum)**

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## KEY MESSAGES

- The proposed 1400 homes and 9 hectares of employment that make up the proposed East of Chipping Norton development area will generate a lot of traffic;
- The Local Plan development proposals include an eastern link road all the way from the A44 Banbury Road to the A361 Burford Road. Because of this road, even when the new development traffic is added to existing (background) traffic growth in 2031, the amount of traffic on the key town centre streets is predicted to reduce in the future (in the region of 10-15%). There would be a slight increase on Burford Road between Albion Street and West Street;
- The proposed eastern link road keeps a lot of the new development traffic out of the town centre and diverts a proportion of the existing (background) traffic away from the town centre (particularly Banbury Road to Burford Road and London Road to Burford Road traffic);
- The eastern link road is therefore critical to the acceptability of the proposed development however, even assuming its delivery, there is still a lot of traffic including HGVs in the town centre (the link road doesn't remove all movements e.g. from Banbury and London Roads to A44 New Street).
- Given the AQMA and the inevitable increase in pedestrian activity associated with the development, improvements are needed at key junctions in the town centre e.g. at New Street / West Street and the Over Norton Road / London Road double mini roundabout. This would be to improve pedestrian conditions and help to lock in the benefits of the link road. A 20mph speed limit for the town centre would support this, helping to ensure only traffic that needs to use the town centre road network does so. The lower speeds would help reinforce the higher priority that needs to be given to pedestrians and cyclists;
- Further work is needed to investigate details of potential improvements in the town centre although the report includes suggestions of some indicative schemes (e.g. traffic signals or a roundabout at New Street / West Street) that may be feasible. Further work will also be required to ensure delivery of new and enhancement of existing pedestrian routes to and from areas of new and existing development and key destinations in the town.



## EXECUTIVE SUMMARY

### INTRODUCTION

WYG were appointed by Oxfordshire County Council (OCC) to undertake an assessment of the transport implications of, and identify potential mitigation options to support, alternative potential development scenarios around Chipping Norton in West Oxfordshire as set out within the emerging Local Plan. The study was commissioned to help understand the impact of proposed development as set out within the Local Plan, testing a range of different development scenarios over an assumed period to 2031 and identifying potential opportunities to deliver improvements to the local highway and transport networks.

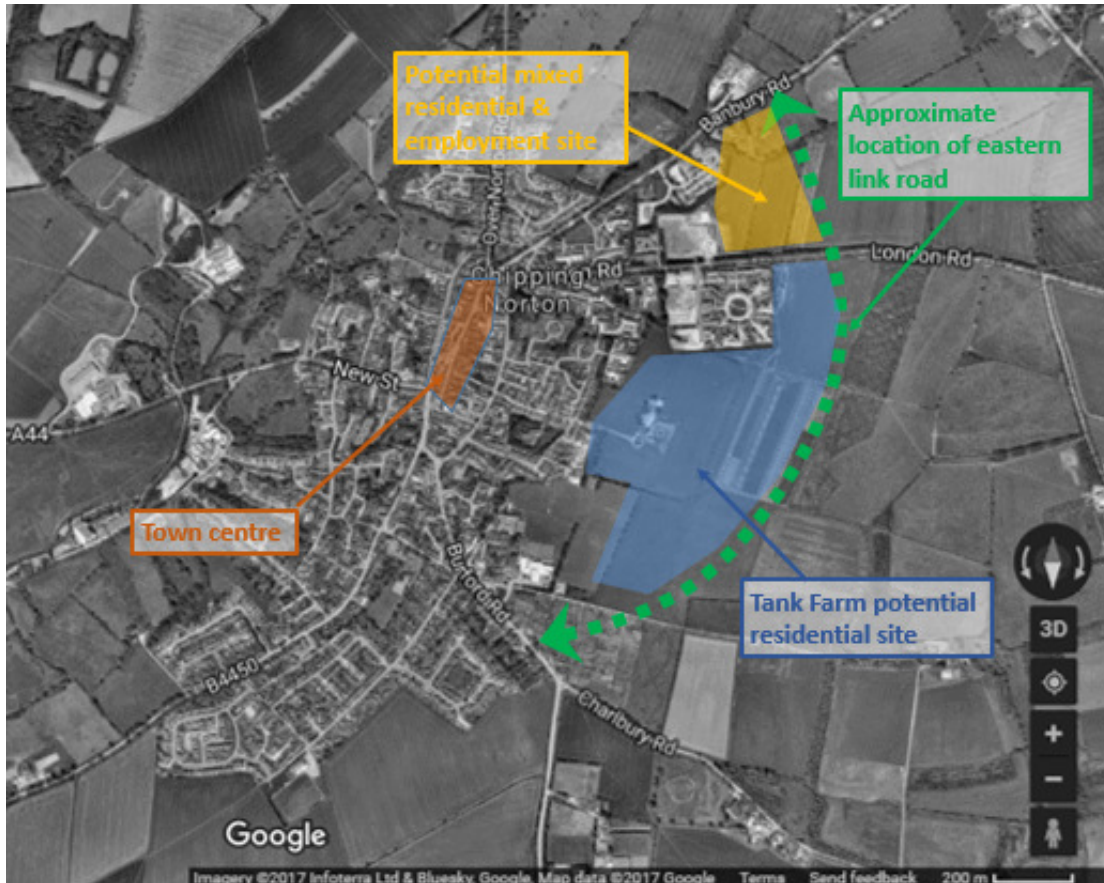
This assessment builds upon previous assessment undertaken by WYG in 2016 on behalf of OCC that considered the transport implications of several alternative development scenarios in and around the same area of the town.

In brief, the key elements of each scenario to be tested include:

- 1,400 new homes on sites located to the east (Tank Farm) and north-east of the town centre (between the A44 London Road and A361 Banbury Road);
- Nine hectares of new employment land on a site between the A44 London Road and A361 Banbury Road; and,
- A new link road to the east of the town connecting the A361 Banbury Road to the north of the town to Burford Road to the south.

**Figure E1** below illustrates the indicative location of the potential development sites and eastern link road.

Figure E1: Indicative Location of Potential Development Sites & Eastern Link Road



**SCENARIO DEVELOPMENT**

The following two alternative development scenarios were identified for assessment. In both cases it is assumed that the development would be accompanied by delivery of a new eastern link road around the town connecting the A361 Banbury Road in the north to the A361 Burford Road to the south:

- Scenario A (Upper): Development of 1,400 homes for private ownership, 1,200 on the Tank Farm site to the east of the town and south of the A44 London Road with the residual 200 on land between the A44 London Road and A361 Banbury Road to the north-east of the town. Development of 9 hectares of new B1 office facilities on a site between the A44 London Road and A361 Banbury Road; and,
- Scenario B (Lower): Development of 1,400 homes total of which 840 (60%) of which are for private ownership and 560 (40%) of which are affordable homes. It is again assumed that 1,200 (640 privately owned, 560 affordable) delivered on the Tank Farm site to the east of the town and south





of the A44 London Road with the residual 200 (all privately owned) on land between the A44 London Road and A361 Banbury Road to the north-east of the town. Development of 9 hectares of new employment facilities to include a mix of 50% B1 office facilities and 50% B8 warehousing on a site between the A44 London Road and A361 Banbury Road.

## **CALCULATING CAR TRIP RATES**

The number of car trips likely to be generated by each development scenario was derived from reference to the TRICS database (industry standard software for estimating the level of traffic generated by different classes of development) and distributed onto the network in accordance with the distribution of trips to work drawn from the 2011 census.

In summary, the assessment indicated that Scenario A would likely generate between 1,500 and 1,600 additional two-way car trips on the network during respective AM and PM peak hour periods. Scenario B would generate around 1,100 additional trips during both peak periods.

## **BACKGROUND TRAFFIC REDISTRIBUTION AND GROWTH ASSUMPTIONS**

Existing traffic already on the network was redistributed onto the amended highway network incorporating the potential eastern link road connecting the A361 Banbury Road to the A361 Burford Road. Growth factors were applied to the background traffic flows to account for the anticipated incidental increase in traffic that it is reasonable to anticipate will occur in the period to the 2031 assessment year in any case.

## **RESULTS OF ASSESSMENT**

In order to test the absolute and relative implications for performance of the network, the traffic flow implications of both development scenario A and B were assessed against the 2031 Baseline "Do Minimum" scenario (i.e. the increased level of traffic that it is reasonable to anticipate will be on the existing network as a result of wider background growth by 2031 but including no specific development around the town and no alterations to the existing highway network:- the link road would only be built if proposed development goes ahead).

The assessment focussed on identifying and quantifying the predicted impact at several key highway links and junctions around the town, a summary of which is presented in **Table E1**.

**Table E1: Scenario A & B Link & Junction Assessment Summary Comparison to 2031 Baseline “Do Minimum” Scenario**

| Highway Link / Junction         | 2031 Baseline “Do Minimum” (Reference Case) |      | 2031 Development Scenario A |      | 2031 Development Scenario B |      |
|---------------------------------|---|------|-----------------------------|------|-----------------------------|------|
|                                 | AM  | PM   | AM                          | PM   | AM                          | PM   |
| <b>Links</b>                    |   |      |                             |      |                             |      |
| High Street                     | 100%  | 100% | -7%                         | -7%  | -11%                        | -10% |
| West Street                     | 100%  | 100% | -8%                         | -5%  | -10%                        | -5%  |
| Burford Road*                   | 100%  | 100% | +5%                         | +5%  | +3%                         | +3%  |
| Albion Street                   | 100%  | 100% | -15%                        | -15% | -15%                        | -15% |
| Banbury Road**                  | 100%  | 100% | -19%                        | -19% | -23%                        | -22% |
| <b>Junctions</b>                | AM  | PM   | AM                          | PM   | AM                          | PM   |
| Over Norton Rd double mini rbt  | 100%  | 100% | -6%                         | -7%  | -12%                        | -11% |
| High St / New St junction       | 100%  | 100% | -1%                         | 0%   | -5%                         | -4%  |
| West St / Burford Rd junction   | 100%  | 100% | -2%                         | 0%   | -4%                         | -2%  |
| Burford Rd / Albion St junction | 100%  | 100% | -5%                         | -5%  | -6%                         | -6%  |

**ASSESSMENT RESULTS SUMMARISED**

- The assessment results clearly demonstrate that both development Scenarios A and B would be expected to have a significant beneficial impact on the operation of key links and junctions on the existing network despite the addition of traffic to the network associated with the development itself. This is principally due to delivery of the eastern link road that both allows for appropriate distribution of traffic generated by the development itself plus redistribution of a substantial proportion of existing background traffic away from the more sensitive sections of the existing network, particularly the town centre;
- For example, assessment indicates that delivery of either scenario A or B would reduce the predicted 2031 Baseline traffic flow along High Street by between 7% (Scenario A) and 11% (Scenario B). As illustrated by Table E1, similar reductions would be anticipated along other key links and junctions including West Street, Banbury Road and the Over Norton Road, High Street / New Street junctions and both mini-roundabouts on Burford Road to the south of the town centre;
- Both scenarios A and B would be expected to have a more marked beneficial impact on the operation of the existing network when compared to alternative development scenarios that were previously tested as part of the original 2016 study.
- For example, predicted traffic flows along key sections of the existing highway network including High Street, West Street and Banbury Road are between 10% and 25% lower during AM and PM peak periods assuming delivery of Scenario A (including 1,400 new houses and 9 hectares of employment land to the north and east of the town) compared to delivery of a development scenario



assuming only 600 new houses are constructed on the Tank Farm site but not accompanied by delivery of the eastern link road. Again this is because of, and highlights the benefit of, delivery of the eastern link road and the role it plays in alleviating pressure and traffic flow on the central area network;

- Assessment of the network implications of development Scenario A clearly indicates that there is a clear benefit of extending the proposed eastern link road through to the A361 Banbury Road to the north-east of the town. An assessment of performance that includes construction of a full eastern link road connecting the A361 Banbury Road to the north of the town to the A361 Burford Road to the south.

A further sensitivity test was undertaken to assess the performance of the network assuming delivery of Development Scenario A (as an upper, worst-case scenario) against two further development scenarios as previously tested in the original 2016 study:

- 2031 Baseline plus Development of 600 homes on the Tank Farm site connected into the existing highway network via a single link into the A44 London Road to the north but incorporating no major alterations to the existing highway network (as tested in the original 2016 study); and,
- 2031 Baseline plus Development of 1,500 homes on the Tank Farm site including delivery of a partial eastern link road connecting the A44 London Road to the east of the town to the A361 Burford Road to the south.

The results indicated Both scenarios A and B would be expected to have a more marked beneficial impact on the operation of the existing network when compared to alternative development scenarios that were previously tested as part of the original 2016 study with significantly reduced predicted traffic flows along key sections of the existing highway network within the central area of the town.

## **MAXIMISING BENEFITS: ENCOURAGING SUSTAINABLE TRAVEL**

In addition to the potential eastern link, an initial assessment of options to mitigate the impact of future traffic levels on the town centre network and encourage transition towards sustainable travel was undertaken.

As well as providing the principal means by which improvements to traffic conditions within the town centre might be achieved, the proposed eastern link road provides a significant opportunity to deliver new sustainable travel (walking and cycling) infrastructure connecting new and existing areas of residential development to the potential employment area to the north of the town and existing services such as the town's secondary school to the south.



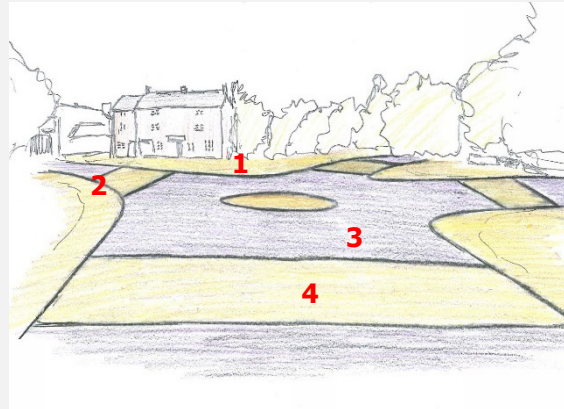
It will be necessary to ensure that new infrastructure appropriately connects into existing cross and through-town routes that are themselves convenient, safe and effective options to prove attractive to users, particularly within and on routes through the town centre. Even following delivery of the eastern link road, assessment indicates that the A44 High Street corridor will remain a busily trafficked route and pedestrian movements will increase, therefore appropriate management of traffic flows and the interaction of traffic and increased pedestrian activity will be key to success. Even assuming a reduction in the level of traffic on the High Street, it is almost certain that the town centre will continue to experience issues with poor air quality.

Identifying appropriate options for management will require further consideration but may include implementation of a 20 mile per hour restricted speed zone in and around the town centre, adoption of low-speed, pedestrian friendly design principles based upon guidance as set out within the Manual for Streets and / or signalisation of key junctions to regulate traffic flows, deal with geometry constraints and improve pedestrian amenity.

An indicative approach to how a low-speed, pedestrian friendly environment might be implemented at the Over Norton Road double mini-roundabout to the north of the town centre and an indicative sketch of a signalisation scheme for the A44 New Street / High Street junction is presented within **Figure E1** below:

Figure E1: Examples of Indicative Mitigation Schemes

Over Norton Road Double Mini-roundabout



speeds down





## 1 INTRODUCTION

### 1.1 PREAMBLE

1.1.1 WYG have been appointed by Oxfordshire County Council (OCC) to undertake an assessment of the transport implications of alternative potential development scenarios in the immediate vicinity of Chipping Norton in West Oxfordshire and develop potential mitigation options.

1.1.2 The study was commissioned to help understand the impact of proposed development as set out within the Local Plan, testing a range of different development scenarios and identifying potential opportunities to deliver improvements to the local highway and transport networks to both mitigate the impact of the proposed development itself and potentially improve their existing operation.

1.1.3 This assessment builds upon a previous assessment undertaken by WYG in 2016 on behalf of OCC that considered the transport implications of several alternative development scenarios in and around the same area of the town.

1.1.4 In brief, the key elements of each scenario to be tested include potential delivery of:

- 1,400 new homes on sites located to the east (Tank Farm) and north-east of the town centre (between the A44 London Road and A361 Banbury Road);
- 9 hectares of new employment land on a site between the A44 London Road and A361 Banbury Road; and,
- A new link road to the east of the town connecting the A361 Banbury Road to the north of the town to Burford Road to the south.

1.1.5 **Figure 1** illustrates the potential location of development sites and the eastern link road.

**Figure 1: Illustrative Location of Development Sites and Eastern Link Road**



1.1.6 As agreed with officers working in OCC’s transport and highways section, two scenarios have been developed for assessment to represent a reasonable upper and lower level of additional trips generated and consequently impact on the network. Brief details of the scenarios are as follows:

- Scenario A (Upper): Development of 1,400 homes for private ownership, 1,200 of which are to be delivered on the Tank Farm site to the east of the town and south of the A44 London Road with the residual 200 on land between the A44 London Road and A361 Banbury Road to the north-east of the town. Development of 9 hectares of new B1 office facilities on a site between the A44 London Road and A361 Banbury Road; and,
- Scenario B (Lower): Development of 1,400 homes total of which 840 (60%) of which are for private ownership and 560 (40%) of which are affordable homes. It is again assumed that



1,200 (640 privately owned, 560 affordable) are to be delivered on the Tank Farm site to the east of the town and south of the A44 London Road with the residual 200 (all privately owned) on land between the A44 London Road and A361 Banbury Road to the north-east of the town. Development of 9 hectares of new employment facilities to include a mix of 50% B1 office facilities and 50% B8 warehousing on a site between the A44 London Road and A361 Banbury Road.





## 2 CALCULATING RESIDENTIAL DEVELOPMENT TRIPS

2.1.1 In total four alternative development scenarios were assessed in the 2016 report, all of which categorised proposed housing development as 'privately owned'. This further assessment has been commissioned in part to consider the potential impact of changing the overall number and type of residential units delivered. Of specific interest is the assessment of how delivery of a proportion of affordable homes as part of the development might reasonably be expected to reduce the number of car trips generated.

2.1.2 Two alternative residential development scenarios have been developed for this assessment as follows:

- **Option A:** 1,400 privately owned residential properties, 1,200 of which are proposed on the Tank Farm site and 200 on land to the north of the A44 London Road; and,
- **Option B:** 840 privately owned and 560 affordable homes, again assumed to be split 1,200 on Tank Farm and 200 on land to the north of the A44 London Road.

### 2.2 TRIP RATES

2.2.1 Car trip rates applicable to privately owned houses were extracted from the TRICS database and are summarised in **Table 1**. The rates are unchanged from the 2016 report.

**Table 1: Privately Owned Housing TRICS Trip Rates:**

| Privately Owned Houses | Arrivals | Departures | Totals |
|------------------------|----------|------------|--------|
| AM (0800 - 0900)       | 0.225    | 0.500      | 0.725  |
| PM (1700 - 1800)       | 0.479    | 0.273      | 0.752  |

2.2.2 To assess the number of car trips generated by the 40% of affordable homes assumed as part of Scenario B, a further TRICS analysis was undertaken to extract rates applicable to "affordable houses", the results of which are presented within **Table 2** below:

**Table 2: Affordable Housing TRICS Trip Rates**

|                  | Arrivals | Departures | Totals |
|------------------|----------|------------|--------|
| AM (0800 - 0900) | 0.111    | 0.223      | 0.334  |
| PM (1700 - 1800) | 0.225    | 0.153      | 0.378  |



**2.1 RESIDENTIAL TRIP GENERATION**

2.1.1 Trip rates summarised in **Tables 1 and 2** were used to generate car trips resulting from each scenario as follows:

**Table 3: Scenario A Residential Trip Generation (1,400 residential units, 100% privately owned)**

| 1,400 Privately Owned Houses | Arrivals | Departures | Totals |
|------------------------------|----------|------------|--------|
| AM (0800 - 0900)             | 315      | 700        | 1015   |
| PM (1700 - 1800)             | 671      | 382        | 1053   |

**Table 4: Scenario B Trip Generation (1,400 residential units 60% privately owned, 40% affordable)**

| 840 Privately Owned Houses | Arrivals        | Departures        | Totals        |
|----------------------------|-----------------|-------------------|---------------|
| AM (0800 - 0900)           | 189             | 420               | 609           |
| PM (1700 - 1800)           | 402             | 229               | 632           |
| 560 Affordable Houses      | Arrivals        | Departures        | Totals        |
| AM (0800 - 0900)           | 62              | 125               | 187           |
| PM (1700 - 1800)           | 126             | 86                | 212           |
| <b>Combined Totals</b>     | <b>Arrivals</b> | <b>Departures</b> | <b>Totals</b> |
| <b>AM (0800 - 0900)</b>    | <b>251</b>      | <b>545</b>        | <b>796</b>    |
| <b>PM (1700 - 1800)</b>    | <b>528</b>      | <b>315</b>        | <b>843</b>    |

2.1.2 The results summarised in **Tables 3 and 4** demonstrate that the total quantum of car trips generated assuming delivery of 1,400 privately owned houses would be in the order of 1,000 vehicles during the AM peak and 1,050 during the PM peak.

2.1.3 As illustrated by the Scenario B assessment, if it is assumed that 40% of the homes proposed were to be classified as affordable, this would have the effect of reducing the predicted number of trips by around 20% in both AM and PM peaks to around 800 and 850 respectively.

**2.1 PROPOSED RESIDENTIAL DEVELOPMENT TRIP DISTRIBUTION**

2.1.1 The proposed distribution of trips resulting from the residential development has been based on the 2011 Census distribution of work trips by car. This distribution methodology remains broadly consistent with the approach adopted in the original 2016 report as the proportion and

distribution of work trips generated by the proposed development to / from destinations outside the town remains unchanged.

2.1.2 A minor (but important) alteration has been made to the assumed distribution of trips generated by the new development that remain within the town. Again, the proportion (20%) remains the same as in the 2016 assessment however, rather than being directed to / from the town centre as previously, it is assumed that these trips would be destined for / originate from a proposed employment development located to the north of the A44 London Road as per the scenarios, further details of which are discussed in the next section.

2.1.3 Based on the 2011 Census data the car trip distribution applicable to proposed residential properties is therefore as follows:

- 20% of departures / arrivals destined for / originate from areas within Chipping Norton itself;
- 9% of departures / arrivals destined for / originate from the A44 to the west of the town;
- 5% of departures / arrivals destined for / originate from Over Norton Road to the north of the town;
- 16% of departures / arrivals destined for / originate from Banbury Road to the north of the town;
- 34% of departures / arrivals destined for / originate from the A44 to the east of the town;
- 13% of departures / arrivals destined for / originate from Burford Road to the south of the town; and,
- 2% of departures / arrivals destined for / originate from West End to the south of the town.



### 3 CALCULATING EMPLOYMENT DEVELOPMENT TRIPS

3.1.1 Two alternative employment development scenarios have been developed for this assessment as follows:

- **Option A:** 9 hectares of B1 office based activity which is proposed on land between the A44 London Road and A361 Banbury Road; and,
- **Option B:** Development of 9 hectares of mixed B1 office and B8 warehouse facilities on land between the A44 London Road and A361 Banbury Road

#### 3.2 TRIP RATES

3.2.1 Car trip rates applicable to B1 office based activity and B8 warehousing were extracted from the TRICS database and are summarised in **Table 5**.

**Table 5: B1 Office & B8 Warehouse TRICS Trip Rates**

| B1 Office        | Arrivals | Departures | Totals |
|------------------|----------|------------|--------|
| AM (0800 - 0900) | 1.521    | 0.217      | 1.738  |
| PM (1700 - 1800) | 0.150    | 1.192      | 1.342  |
| B8 Warehousing   | Arrivals | Departures | Totals |
| AM (0800 - 0900) | 0.076    | 0.028      | 0.104  |
| PM (1700 - 1800) | 0.032    | 0.089      | 0.121  |

3.2.2 Trip rates summarised in **Table 5** were used to generate car trips resulting from each scenario as follows:

#### **Scenario A: 9Ha B1 Office Development**

3.2.3 To generate trips associated with the 9 hectares of B1 office development, a 25% site build-out rate has been assumed, with each building on average 1.5 storeys in height.

**Table 6: Scenario A Employment Trip Generation**

| 9 Ha. B1 Office  | Arrivals | Departures | Totals |
|------------------|----------|------------|--------|
| AM (0800 - 0900) | 513      | 73         | 587    |
| PM (1700 - 1800) | 51       | 402        | 453    |



**Scenario B: 9 Ha Mixed B1 Office & B8 Warehousing Development**

3.2.4 To generate trips associated with the 9 hectares of mixed-use employment development, the following assumptions have been applied:

- 50% of the 9Ha site is assumed to be built-out as B1 office development. Once again, a 25% site build-out rate has been assumed, with each building on average 1.5 storeys in height; and,
- 50% of the 9Ha site is assumed to be built-out as B8 warehousing. A 40% build-out rate and single-storey height has been assumed for this element of the development.

**Table 7: Scenario B Employment Trip Generation**

|                         |                 |                   |               |
|-------------------------|-----------------|-------------------|---------------|
| 50% B1 Office           | Arrivals        | Departures        | Totals        |
| AM (0800 - 0900)        | 257             | 37                | 294           |
| PM (1700 - 1800)        | 25              | 201               | 226           |
| 50% B8 Warehousing      | Arrivals        | Departures        | Totals        |
| AM (0800 - 0900)        | 14              | 5                 | 19            |
| PM (1700 - 1800)        | 6               | 16                | 22            |
| <b>Combined Totals</b>  | <b>Arrivals</b> | <b>Departures</b> | <b>Totals</b> |
| <b>AM (0800 - 0900)</b> | <b>271</b>      | <b>42</b>         | <b>313</b>    |
| <b>PM (1700 - 1800)</b> | <b>31</b>       | <b>217</b>        | <b>248</b>    |

3.2.5 Results summarised in **Tables 6** and **7** demonstrate that the total quantum of car trips generated assuming delivery of 9Ha of B1 offices would be in the order of 600 vehicles during the AM peak and 450 during the PM peak.

3.2.6 As illustrated by the Scenario B assessment, if a 50 / 50 mixed-use, B1 office / B8 warehouse development is brought forward for delivery on the site, this would have the effect of reducing the predicted number of trips in both AM and PM peaks to around 300 and 250 respectively.

**3.3 PROPOSED EMPLOYMENT DEVELOPMENT TRIP DISTRIBUTION**

3.3.1 As with the residential development scenarios, the proposed distribution of trips resulting from the two employment development scenarios has been based on the 2011 Census employment trip distribution. Once again, 20% of trips were assumed to remain internal within Chipping Norton (i.e. originate from one area of the town and be destined for another).



3.3.2 For the assessment, it is assumed that the 20% of employment trips originating from and remaining within the town will originate from / be destined for the new residential development centred on Tank Farm. This assumption is considered reasonable in the first instance as new jobs within the town are likely to be filled by new residents and assumes no alteration of existing employment trip patterns across the town. Even if delivery of new employment opportunities to the north of the town were to attract a proportion of existing residents of the town, the network impact of traffic generated would be negligible. This is because it is likely that a significant proportion of existing residential areas of the town lie within easy walking and cycling distance of the potential employment site. For more distant residents (i.e. those living on the southern side of the town) delivery of the eastern link road provides a convenient and viable route to get to and from work avoiding the sensitive central area network that it is reasonable to expect would be used by the majority.

3.3.3 Based on the 2011 Census data the car trip distribution applicable to proposed residential properties is therefore as follows:

- 20% of departures / arrivals destined for / originate from areas within Chipping Norton itself;
- 15% of trips would be from / to the A44 to the west of the town;
- 7% of trips would be from / to Over Norton Road to the north of the town;
- 24% of trips would be from / to Banbury Road to the north of the town;
- 14% of trips would be from / to the A44 to the east of the town;
- 17% of trips would be from / to Burford Road to the south of the town; and,
- 3% of trips would be from / to West End to the south of the town.

### 3.4 **ADJUSTMENTS TO THE RESIDENTIAL TRIP GENERATION TO AVOID DOUBLE COUNTING**

3.4.1 Both the outbound trips from residential properties and inbound trips to employment properties during the AM peak (and vice versa during the PM peak) that remain internal within the town are essentially the same trips. To avoid double counting, the outbound trips from residential properties during the AM peak remaining within the town have been removed from the



assessment, as have the corresponding proportion of inbound trips to residential properties during the PM peak.



## 4 BACKGROUND TRAFFIC REDISTRIBUTION

4.1.1 Using surveyed traffic flow data covering both AM and PM weekday peaks on the town centre network taken from the 2016 study, a redistribution exercise has been undertaken to reassign existing background traffic on the existing network onto a network incorporating the eastern link road connecting the A361 Banbury Road to the A361 Burford Road.

4.1.2 The resulting redistribution of existing traffic on the network makes the following assumptions:

- All existing traffic routed between the A361 Banbury Road and the A44 London Road to the east of the town would use the new link;
- All existing traffic routed between the A361 Banbury Road and the A44 London Road to the east of the town would use the new link;
- All existing traffic routed between the A361 Banbury Road and the A361 Burford Road to the south of the town would use the new link;
- Half of the existing traffic routed between the A361 Banbury Road and the B4450 West End would use the new link;
- All existing traffic routed between the A44 London Road to the east of the town and the A361 Banbury Road would use the new link;
- All existing traffic routed between the A44 London Road to the east of the town and the A361 Burford Road to the south of the town would use the new link;
- Half of the existing traffic routed between the A44 London Road to the east of the town and the A361 Burford Road to the south of the town would use the new link;
- Half of the existing traffic routed between the A44 London Road to the east of the town and the B4450 West End would use the new link; and,
- All existing traffic routed between the A44 London Road to the east of the town and the A361 Banbury Road would use the new link.

4.1.3 All remaining background traffic on the network remains assigned to its existing route.





## 4.2 APPLYING BACKGROUND GROWTH

4.2.1 To generate background traffic flows for the 2031 assessment year, growth factors from Temprow 7.2 were applied to the base surveyed count data recorded in 2016. As Temprow accounts for anticipated levels of development across the entire region (including Chipping Norton) it was necessary to make an adjustment to its assumptions about numbers of future houses and jobs in Chipping Norton to avoid double counting. The resulting AM and PM growth factors are as follows:

- 2016 to 2031 AM Peak period: +6.02%,
- 2016 to 2031 PM Peak period: +6.17%.

## 5 2031 BASELINE TRAFFIC ASSESSMENT

5.1.1 A comparison of the predicted 2031 Baseline traffic assuming no reassignment and 2031 Baseline traffic assuming reassignment onto the new eastern link has been undertaken to investigate the operational impact on key links and junctions around the town, a summary of which is presented below.

### 5.2 IMPACT ON LINK FLOWS

**Table 8: Comparison of 2031 Baseline Traffic Flows on Existing and Amended Network (incorporating eastern link)**

| Link   | 2031 Baseline (un-amended network) |       | 2031 Baseline (amended network) |      | 2031 Baseline (absolute difference between existing and amended network) |       | 2031 Baseline (percentage difference between existing and amended network) |      |
|--|------------------------------------|-------|---------------------------------|------|--|-------|--|------|
|  | AM                                 | PM    | AM                              | PM   | AM   | PM    | AM   | PM   |
| High Street  | 1,339                              | 1,404 | -253                            | -231 | 1,086  | 1,173 | -19%   | -16% |
| West Street  | 962                                | 1,026 | -135                            | -106 | 827  | 920   | -14%   | -10% |
| Burford Road (between junctions with Albion St. & West St.)    | 787                                | 770   | -17                             | -21  | 770  | 749   | -2%  | -3%  |
| Albion Street  | 728                                | 776   | -107                            | -114 | 621  | 662   | -15%   | -15% |
| Banbury Road (between new link road and Over Norton Road)      | 893                                | 905   | -256                            | -240 | 637  | 665   | -29%   | -27% |
| New Link (north between Banbury Road and A44 London Road)      | N/A                                | N/A   | 255                             | 241  | N/A  | N/A   | N/A  | N/A  |
| New Link (south between A44 London Road and A361 Burford Road) | N/A                                | N/A   | 361                             | 346  | N/A  | N/A   | N/A  | N/A  |

5.2.1 **Table 8** illustrates that the new link road would be expected to have a significant beneficial impact on the operation of the central area road network, reducing baseline AM and PM peak hour traffic flows along the High Street by c. 19% and 16% respectively. Delivery of the new eastern link would also be expected to significantly reduce flows along the southern section of the A361 Banbury Road, West Street and Albion Street.

5.3 IMPACT ON JUNCTION ENTRY FLOWS

**Table 9: Comparison of 2031 Baseline Junction Entry Flows on Existing and Amended Network (incorporating eastern link)**

| Junction  | 2031 Baseline (un-amended network) |       | 2031 Baseline (amended network) |       | 2031 Baseline (absolute difference between existing and amended network) |      | 2031 Baseline (percentage difference between existing and amended network) |      |
|---|------------------------------------|-------|---------------------------------|-------|--|------|--|------|
|   | AM                                 | PM    | AM                              | PM    | AM   | PM   | AM   | PM   |
| Over Norton Road / A361 Banbury Road / A44 London Road / High Street roundabout | 1,640                              | 1,685 | 1,286                           | 1,347 | -354   | -338 | -22%   | -20% |
| A44 High Street / New Street / A361 West End junction                           | 1,649                              | 1,705 | 1,431                           | 1,521 | -218   | -184 | -13%   | -11% |
| A361 West Street / Burford Road / B4450 West End mini-roundabout                | 1,084                              | 1,134 | 984                             | 1,055 | -100   | -79  | -9%  | -7%  |
| A361 Burford Road / Albion Street mini-roundabout                               | 1,256                              | 1,275 | 1,138                           | 1,152 | -118   | -123 | -9%  | -10% |
| A361 Banbury Road / New Eastern Link Road                                       | N/A                                | N/A   | 892                             | 906   | N/A  | N/A  | N/A  | N/A  |
| A44 London Road / New Eastern Link Road   | N/A                                | N/A   | 1,133                           | 1,071 | N/A  | N/A  | N/A  | N/A  |
| A361 Burford Road / New Eastern Link Road                                       | N/A                                | N/A   | 1,198                           | 1,185 | N/A  | N/A  | N/A  | N/A  |

5.3.1 **Table 9** illustrates that the new link road would result in a substantial redistribution of existing trips away from junctions on the existing town centre network. The impact is particularly marked at the Over Norton Road / A361 Banbury Road / A44 London Road roundabout where baseline AM and PM peak hour junction entry flows would be reduced by c. 22% and 20% respectively. There would also be a marked reduction in entry flows into the A44 High Street / New Street / A361 West End junction and both the A361 West Street / Burford Road / B4450 West End and A361 Burford Road / Albion Street mini-roundabouts.

## 6 ASSESSMENT OF FUTURE YEAR TRAFFIC SCENARIOS: SCENARIO A (BASE PLUS 1,400 PRIVATELY OWNED HOUSES, 9 HA B1 EMPLOYMENT AND FULL EASTERN LINK ROAD)

6.1.1 The following section assesses the operational impact on the network of additional trips associated with the delivery of Scenario A combined with the redistributed 2031 baseline flows.

### 6.2 IMPACT ON LINK FLOWS

**Table 10: Comparison of 2031 Baseline Traffic Flows (un-amended network) and Scenario A plus Baseline Trips on Amended Network (incorporating eastern link)**

| Link   | 2031 Baseline (un-amended network) |       | 2031 Baseline (Scenario A, amended network) |       | 2031 Baseline (absolute difference between existing and amended network) |      | 2031 Baseline (percentage difference between existing and amended network) |      |
|--|------------------------------------|-------|---|-------|--|------|--|------|
|  | AM                                 | PM    | AM  | PM    | AM   | PM   | AM   | PM   |
| High Street  | 1,339                              | 1,404 | 1,246                                       | 1,312 | -93  | -92  | -7%  | -7%  |
| West Street  | 962                                | 1,026 | 887   | 977   | -75  | -49  | -8%  | -5%  |
| Burford Road (between junctions with Albion St. & West St.)    | 787                                | 770   | 826   | 807   | +39  | +37  | +5%  | +5%  |
| Albion Street  | 728                                | 776   | 621   | 662   | -107   | -114 | -15%   | -15% |
| Banbury Road (between new link road and Over Norton Road)      | 893                                | 905   | 722   | 733   | -171   | -172 | -19%   | -19% |
| New Link (north between Banbury Road and A44 London Road)      | N/A                                | N/A   | 943   | 831   | N/A  | N/A  | N/A  | N/A  |
| New Link (south between A44 London Road and A361 Burford Road) | N/A                                | N/A   | 1,123                                       | 1,079 | N/A  | N/A  | N/A  | N/A  |

6.2.1 **Table 10** illustrates that the new link road would be expected to have a reasonably significant beneficial impact on the operation of the central area road network despite the addition of traffic resulting from the proposed development, reducing predicted AM and PM peak hour traffic flows along the High Street by c. 7% and 7% respectively when compared to the 2031 Baseline flow.



- 6.2.2 Additionally, the predicted AM and PM peak hour flows would be expected to reduce along both Albion Street, where they would reduce by c. 15% during both periods, and along the southern section of Banbury Road where flows would reduce by c. 19% during both periods.
- 6.2.3 Predicted traffic flows would increase marginally (by around +5% during both AM and PM peak periods respectively) along the stretch of Burford Road linking the two mini-roundabouts at West Street / West End and at Albion Street.

**6.3 IMPACT ON JUNCTION ENTRY FLOWS**

**Table 11: Difference between 2031 Junction Entry Flows (un-amended network) and Scenario A plus Baseline Trips on Amended Network (incorporating eastern link)**

| Junction  | 2031 Baseline (un-amended network) |       | 2031 Baseline (Scenario A, amended network) |       | 2031 Baseline (absolute difference between existing and amended network) |      | 2031 Baseline (percentage difference between existing and amended network) |     |
|---|------------------------------------|-------|---|-------|--|------|--|-----|
|   | AM                                 | PM    | AM  | PM    | AM   | PM   | AM   | PM  |
| Over Norton Road / A361 Banbury Road / A44 London Road / High Street roundabout | 1,640                              | 1,685 | 1,538                                       | 1,570 | -102   | -115 | -6%  | -7% |
| A44 High Street / New Street / A361 West End junction                           | 1,649                              | 1,705 | 1,631                                       | 1,700 | -18  | -5   | -1%  | 0%  |
| A361 West Street / Burford Road / B4450 West End mini-roundabout                | 1,084                              | 1,134 | 1,061                                       | 1,131 | -23  | -3   | -2%  | 0%  |
| A361 Burford Road / Albion Street mini-roundabout                               | 1,256                              | 1,275 | 1,194                                       | 1,211 | -62  | -64  | -5%  | -5% |
|   |                                    |       |   |       |  |      |  |     |
| A44 London Road / New Eastern Link Road   | N/A                                | N/A   | 2,113                                       | 1,988 | N/A  | N/A  | N/A  | N/A |
| A361 Burford Road / New Eastern Link Road                                       | N/A                                | N/A   | 1,486                                       | 1,458 | N/A  | N/A  | N/A  |     |

- 6.3.1 **Table 11** illustrates that the new link road would result in a small to medium scale redistribution of existing trips away from junctions on the existing town centre network. The impact is most notable at the Over Norton Road / A361 Banbury Road / A44 London Road roundabout where baseline AM and PM peak hour junction entry flows would be reduced by c. 6% and 7%



respectively. There would also be a small reduction in entry flows into the A44 High Street / New Street / A361 West End junction and both the A361 West Street / Burford Road / B4450 West End and A361 Burford Road / Albion Street mini-roundabouts.

## 7 ASSESSMENT OF FUTURE YEAR TRAFFIC SCENARIOS: SCENARIO B (BASE PLUS 1,400 HOUSES, 60% PRIVATELY OWNED / 40% AFFORDABLE HOUSES, 9 HA B1 & B8 EMPLOYMENT AND FULL EASTERN LINK ROAD)

7.1.1 The following section assesses the operational impact on the network of additional trips associated with the delivery of Scenario B combined with the redistributed 2031 baseline flows.

### 7.2 IMPACT ON LINK FLOWS

**Table 12: Comparison of 2031 Baseline Traffic Flows (un-amended network) and Scenario B plus Baseline Trips on Amended Network (incorporating eastern link)**

| Link   | 2031 Baseline (un-amended network) |       | 2031 Baseline (Scenario B, amended network) |       | 2031 Baseline (absolute difference between existing and amended network) |      | 2031 Baseline (percentage difference between existing and amended network) |      |
|--|------------------------------------|-------|---|-------|--|------|--|------|
|  | AM                                 | PM    | AM  | PM    | AM   | PM   | AM   | PM   |
| High Street  | 1,339                              | 1,404 | 1,188                                       | 1,265 | -151   | -139 | -11%   | -10% |
| West Street  | 962                                | 1,026 | 869   | 972   | -93  | -54  | -10%   | -5%  |
| Burford Road (between junctions with Albion St. & West St.)    | 787                                | 770   | 812   | 794   | +25  | +24  | +3%  | +3%  |
| Albion Street  | 728                                | 776   | 621   | 662   | -107   | -114 | -15%   | -15% |
| Banbury Road (between new link road and Over Norton Road)      | 893                                | 905   | 688   | 708   | -205   | -197 | -23%   | -22% |
| New Link (north between Banbury Road and A44 London Road)      | N/A                                | N/A   | 665   | 611   | N/A  | N/A  | N/A  | N/A  |
| New Link (south between A44 London Road and A361 Burford Road) | N/A                                | N/A   | 889   | 876   | N/A  | N/A  | N/A  | N/A  |

7.2.1 **Table 12** illustrates that the new link road would be expected to have a reasonably significant beneficial impact on the operation of the central area road network despite the addition of traffic resulting from the proposed development, reducing predicted AM and PM peak hour traffic flows

along the High Street by c. 11% and 10% respectively when compared to the 2031 Baseline flow.

7.2.2 The results indicate that the new link road would be expected to have significantly beneficial impact on predicted AM and PM peak hour flows along both Albion Street, where they would reduce by c. 15% during both periods, and along the southern section of Banbury Road where flows would reduce by c. 22% during both periods.

7.2.3 Predicted traffic flows would increase marginally (by around +3% during both AM and PM peak periods) along the stretch of Burford Road linking the two mini-roundabouts at West Street / West End and at Albion Street.

### 7.3 IMPACT ON JUNCTION ENTRY FLOWS

**Table 13: Difference between 2031 Junction Entry Flows (un-amended network) and Scenario B plus Baseline Trips on Amended Network (incorporating eastern link)**

| Junction  | 2031 Baseline (un-amended network) |       | 2031 Baseline (Scenario B, amended network) |       | 2031 Baseline (absolute difference between existing and amended network) |      | 2031 Baseline (percentage difference between existing and amended network) |      |
|---|------------------------------------|-------|---|-------|--|------|--|------|
|   | AM                                 | PM    | AM  | PM    | AM   | PM   | AM   | PM   |
| Over Norton Road / A361 Banbury Road / A44 London Road / High Street roundabout | 1,640                              | 1,685 | 1,449                                       | 1,499 | -191   | -186 | -12%   | -11% |
| A44 High Street / New Street / A361 West End junction                           | 1,649                              | 1,705 | 1,562                                       | 1,645 | -87  | -60  | -5%  | -4%  |
| A361 West Street / Burford Road / B4450 West End mini-roundabout                | 1,084                              | 1,134 | 1,039                                       | 1,111 | -45  | -23  | -4%  | -2%  |
| A361 Burford Road / Albion Street mini-roundabout                               | 1,256                              | 1,275 | 1,180                                       | 1,197 | -76  | -78  | -6%  | -6%  |
| A361 Banbury Road / New Eastern Link Road                                       | N/A                                | N/A   | 1,145                                       | 1,143 | N/A  | N/A  | N/A  | N/A  |
| A44 London Road / New Eastern Link Road   | N/A                                | N/A   | 1,806                                       | 1,732 | N/A  | N/A  | N/A  | N/A  |
| A361 Burford Road / New Eastern Link Road                                       | N/A                                | N/A   | 1,397                                       | 1,382 | N/A  | N/A  | N/A  | N/A  |





7.3.1 **Tables 13** illustrates that the new link road would result in a small to medium redistribution of existing trips away from junctions on the existing town centre network. The impact is most notable at the Over Norton Road / A361 Banbury Road / A44 London Road roundabout where baseline AM and PM peak hour junction entry flows would be reduced by c. 12% and 11% respectively. There would also be a small reduction in entry flows into the A44 High Street / New Street / A361 West End junction and both the A361 West Street / Burford Road / B4450 West End and A361 Burford Road / Albion Street mini-roundabouts.

## 8 COMPARISON WITH THE 2016 STUDY OUTPUT

- 8.1.1 Results of the 2017 assessment of Scenarios A & B illustrate the potential effectiveness of the delivery of the new eastern link road connecting the A361 Banbury Road to A361 Burford Road in both mitigating the impact of the new development itself and reducing existing traffic on key links within the existing highway network.
- 8.1.2 Regarding **Tables 10 -13**, both development scenarios A and B would appear to offer potential to reduce traffic levels on the sensitive High Street / West Street corridor, southern section of the A361 Banbury Road and through the Over Norton Road / A361 Banbury Road / A44 London Road, A44 London Road / New Street / A361 West Street and A361 West Street / Burford Road / B4450 West End junctions to below their current levels.
- 8.1.3 It is considered worthwhile giving brief consideration to assessing the network performance implications of Scenarios A & B in comparison to several of the previously tested possible development scenarios as undertaken in the 2016 study. Two previously tested scenarios are of interest, namely:
- Proposed development of 600 new privately owned residential units on the Tank Farm site without delivery of a new eastern link road, hereby referred to as Scenario 16A; and,
  - Proposed development of 1,500 new privately owned residential units on the Tank Farm site with delivery of a new eastern link road connecting the A44 London Road to the A361 Burford Road, hereby referred to as Scenario 16B.
- 8.1.4 Full details of the assessment undertaken are presented in **Appendix A** however, in summary a number of key conclusions were drawn, as follows:
- Both scenarios A and B would be expected to have a more marked beneficial impact on the operation of the existing network when compared to alternative development scenarios that were previously tested as part of the original 2016 study.
  - Predicted traffic flows along key sections of the existing highway network including High Street, West Street and Banbury Road are between 10% and 25% lower during AM and PM peak periods assuming delivery of Scenario A (including 1,400 new houses and 9 hectares of



employment land to the north and east of the town) compared to delivery of a development scenario assuming only 600 new houses are constructed on the Tank Farm site but not accompanied by delivery of the eastern link road. Principally this is because of, and highlights the benefit of, delivery of the eastern link road and the role it plays in alleviating pressure and traffic flow on the central area network;

- Assessment of the network implications of development Scenario A indicates that there is a clear benefit of extending the proposed eastern link road through to the A361 Banbury Road to the north-east of the town. This is because doing so would be expected to significantly enhance the opportunity for traffic originating from / destined for the A361 Banbury Road to the north of the town and A361 Burford Road to the south to redistribute onto the new link road, thereby avoiding the town centre network entirely.

## 9 MAXIMISING BENEFITS: ENCOURAGING SUSTAINABLE TRAVEL

9.1.1 The results of the traffic flow assessment presented within previous chapters, have been used as the basis to undertake an initial evaluation of potential mitigation options that might be appropriate and effective for implementation in relation to the existing and potential highways and transport network. Key issues and objectives that mitigation should seek to support include:

- Ensuring effective diversion of existing and newly generated traffic away from existing, sensitive highway links in and around the town centre onto the eastern link road wherever feasible and reasonable to do so.
- Promoting and supporting use of sustainable forms of travel for localised trip making as an alternative to car use, ensuring infrastructure and conditions delivered are suitable for all users including children, the elderly and other vulnerable user groups.
- Ensuring that the benefits of any potential reduction in traffic on the town's existing central area network are appropriately identified and "locked-in" through implementation of mitigation measures proposed. Attention should be paid to delivery of environmental enhancement of the town centre core, delivery of increased amenity for pedestrians and cyclists both within the town centre and key approaches and implementing measures to restrict and limit the opportunity for traffic levels within the town centre to creep back up towards pre-scheme levels.

9.1.2 The proposed location of residential development approximately one kilometre to the east of the town centre and within a similar distance of key amenities including the town's secondary school to the south presents a significant opportunity to provide for localised trip making by sustainable modes of transport, particularly walking and cycling. Additionally, the potential allocation of a reasonably sizeable employment allocation on land adjacent to the northern side of the town would be expected to increase the local employment opportunities available. Whilst it is difficult to conclude that the resulting jobs would necessarily be filled by residents of the town (and thereby increase the opportunities for increasing the proportion of sustainable trip making for travel to work), it is necessary to ensure delivery of appropriate sustainable travel connections between new and existing residential areas of the town and key employment areas to maximise people's ability to travel sustainably wherever feasible to do so.



9.1.3 In part this can be achieved through ensuring appropriate walking and cycling infrastructure is delivered as part of the eastern link road delivery and through adoption of appropriate design standards within new developments that clearly prioritise walking and cycling over vehicle movements where appropriate to do so. However, there will also be a need to ensure that new infrastructure appropriately connects into existing cross and through-town routes that are themselves convenient, safe and effective options to prove attractive to users.

9.1.4 This is particularly important within the heart of the town centre that is itself a major destination for localised trips but that also provides key north – south walking and cycling links and acts as the town’s public transport hub. Appropriately managing traffic flows and the interaction of traffic and increased pedestrian activity within the central area of the town, particularly at junctions and other potential conflict points, will be key to success. Identifying appropriate options for management will require further consideration but should include:

- potential implementation of a 20 mile per hour zone covering the town centre road network;
- adoption of low-speed, pedestrian friendly design principles based upon guidance as set out within the Manual for Streets; and / or,
- signalisation of key junctions. This is a particular consideration at the A44 New Street / High Street / West Street junction where potential signalisation might be effective in addressing geometry constraints, accommodating the volume of pedestrian activity and regulating traffic flows into the town centre.

9.1.5 A key constraint in seeking to identify measures likely to be effective, is that there is no clear means of physically restricting access for through-traffic along the A44 High Street whilst simultaneously maintaining reasonable access into the town centre for visitors and servicing activity to occur. This is principally because of the need to maintain a viable route for east-west traffic on the A44 through the town for which there is no effective route to the south and via the eastern link.

9.1.6 With the above in mind, it is considered reasonable to conclude that the following features and constraints on the network will need retaining:

- Continued, convenient two-way traffic flows along the A44 High Street through the town centre;



- Open access into the High Street at both northern and southern ends of the town including continued access for goods vehicles into and through the town; and,
- Measures to assist pedestrians crossing the key links and navigating junctions within the town centre.

9.1.7 For the reasons set out above, it is not considered feasible to implement any fundamental alterations to the operation of the existing town centre network such as partial or full network closures to motorised traffic nor is it likely that delivery of the eastern link would prompt “game changing” reductions in the level of traffic on the town centre network as a stand-alone measure. In these circumstances, an initial assessment of the potential to introduce and implement what might be termed a “light touch” approach to mitigation has been undertaken, designed to encourage positive alterations to people’s daily travel habits and behaviour and, where feasible, support transition towards sustainable modes of travel through appropriate infrastructural investment and development.

## 9.2 LESSONS FROM ELSEWHERE: PLACEMAKING IN POYNTON

9.2.1 As with the 2016 study, a direct comparison has been made of the predicted level of traffic on key links and through key junctions on the town centre network associated with the development scenarios tested and observations of real-world traffic flows on, and the operation of, the area near the A523 London Road / Chester Road / Park Lane junction and Park Lane corridor in Poynton town centre.

9.2.2 Poynton is a town of approximately 15,000 inhabitants that lies approximately 18 km to the south-east of Manchester. It lies along the A523 Manchester – Macclesfield route (London Road) that runs through the town centre where it intersects with Chester Road and Park Lane, forming the Fountains Place junction. This junction accommodates in the order of 27,000 vehicle turning movements per 12 hour day (including 6% HGV’s). To the west of the junction, Park Lane forms the town’s principal retail street.

9.2.3 Until its reconfiguration in 2012, the junction operated as a four-armed signal controlled crossroads incorporating two-lane approaches to each arm of the junction. The junction was congested, had a poor safety record and its design significantly undermined the local environment and amenity for non-motorised highway users, particularly pedestrians and cyclists.

9.2.4 In 2012, signal control of the junction was removed and it was reconfigured and laid out as a simplified, double-mini roundabout arrangement (see **Figure 2**). The design was of a sufficiently high quality and used high quality materials and finishes to promote a greater sense of place, reduce traffic dominance in the area, improve the general environment and enhance amenity and safety for non-motorised highway users. The scheme reduced each entry to the junction to a single lane, significantly increased the space allocated to pedestrians in its vicinity and implemented a number of formal and informal pedestrian crossing points. A similar design approach was implemented along Park Lane.

**Figure 2: Fountains Place junction, Poynton following reconfiguration in 2012**



9.2.5 Since the scheme was implemented in 2012, the Fountains Place junction has continued to accommodate in the order of 27,000 vehicle turning movements per day despite the apparent reduction in approach lane capacity. Even though traffic flows have been maintained, safety at the junction has improved markedly and speeds are down. Anecdotal evidence indicates local footfall has increased benefitting local businesses.

9.2.6 The principal reasons for seeking to learn lessons from the operation of the network in Poynton town centre and drawing a direct comparison with data relating to Chipping Norton are:

- That the existing layout in Poynton comprises a double mini-roundabout layout that, whilst not identical, allows for reasonable comparison of its operational and capacity performance with the A44 London Road / Horsefair / A361 Banbury Road / Over Norton Road double mini-

roundabout (plus the A361 West Street / Burford Road / B4450 West End and A361 Burford Road / Albion Street stand-alone mini-roundabout junctions);

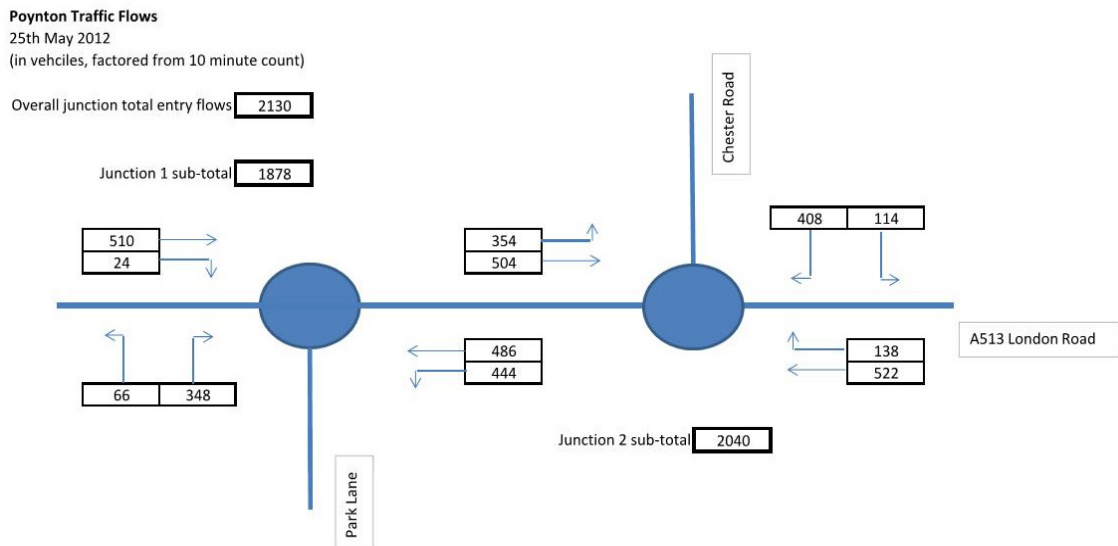
- That the existing layout of the junction in Poynton incorporates single entries to the junction on each of the approaches, as do most junctions assessed in Chipping Norton;
- That the overall quantum and turning proportions of traffic through the Poynton junction bear reasonable comparison to the various traffic flow scenarios tested on junctions within Chipping Norton; and,
- That the two towns are of a comparable size and have similarly scaled retail and service centres.

9.2.7 To ascertain a realistic estimate of the observed, “real-world” capacity of roundabout and double mini-roundabout junctions, observations of the existing operation of the A523 London Road / Chester Road / Park Lane double mini-roundabout junction in the centre of Poynton were undertaken in May 2012.

9.2.8 It should be noted that the traffic flows data presented within **Figure 3** below has been factored up from an initial on-site count that was undertaken over the course of a ten-minute period. However, its use as an indicative proxy for comparison is considered appropriate due to the geometrical similarity of the junction layout with key examples in Chipping Norton and because the observed counts are of the quantum of traffic that successfully negotiated passage through the junction during the observed period and not an estimate of demand.



**Figure 3: A523 London Road / Chester Road / Park Lane double mini-roundabout: Observed Traffic Flows**



9.2.9 Using observed data from Poynton as a proxy to estimate realistic maximum capacity, **Table 14** summarises the results of assessment undertaken to compare the predicted level of traffic through key junctions in and around Chipping Norton for all potential development scenarios considered as part of this study. In each case, comparison was made with three key indicators:

- Total traffic flows through the junction concerned with total observed flows successfully negotiating passage through the junction in Poynton;
- The proportion of right-turning / opposing movements predicted compared to the proportion of right-turning / opposing traffic movements observed in Poynton; and,
- The total number of right-turning / opposing movements predicted compared to the total number observed in Poynton.

**Table 14: Comparison of Traffic Flows through Key Junctions in Chipping Norton with A523 Junction, Poynton**

|  |             |      |      |     |      |
|--|-------------|------|------|-----|------|
|  |             |      |      |     |      |
| <b>A523 Junction, Poynton</b>  | 2130 (vehs) | 100% | 1620 | 76% | 100% |
| <b>A44 London Road / Horsefair / A361 Banbury Road / Over Norton Road Double Mini-roundabout</b> |             |      |      |     |      |
| 2031 Scenario A AM Peak  | 1538        | 72%  | 1206 | 78% | 74%  |
| 2031 Scenario A PM Peak  | 1570        | 74%  | 1178 | 75% | 73%  |
| <b>A44 New Street / High Street / A361 West End junction</b>                                     |             |      |      |     |      |
| 2031 Scenario A AM Peak  | 1631        | 77%  | 654  | 40% | 40%  |
| 2031 Scenario A PM Peak  | 1700        | 80%  | 734  | 43% | 45%  |
| <b>A361 West End / Burford Road / B4450 West Street mini-roundabout</b>                          |             |      |      |     |      |
| 2031 Scenario A AM Peak  | 1061        | 50%  | 541  | 51% | 33%  |
| 2031 Scenario A PM Peak  | 1131        | 53%  | 588  | 52% | 36%  |
| <b>A361 Burford Road / Albion Street mini-roundabout</b>   |             |      |      |     |      |
| 2031 Scenario A AM Peak  | 1194        | 56%  | 636  | 53% | 39%  |
| 2031 Scenario A PM Peak  | 1211        | 57%  | 634  | 52% | 39%  |

9.2.10 From the data presented in **Table 14** the following conclusions can be drawn:

- That total predicted traffic demand entering each of the four key junctions on the town centre network remain below the total observed traffic flows that were observed to

successfully negotiate the A523 Poynton junction as set out within **Figure 3** (2,130); and,

- That the proportion of anticipated right-turners / opposing traffic movements at each of the four key junctions (between 40% and 78%) bear favourable comparison to the observed proportions in Poynton (76%) and that (more importantly) the total number of anticipated opposing / right-turners through each of the junctions (between 541 and 1,246) remains below the number of opposing / right-turning movements through the Poynton junction (1,620) for all alternative potential development scenarios.

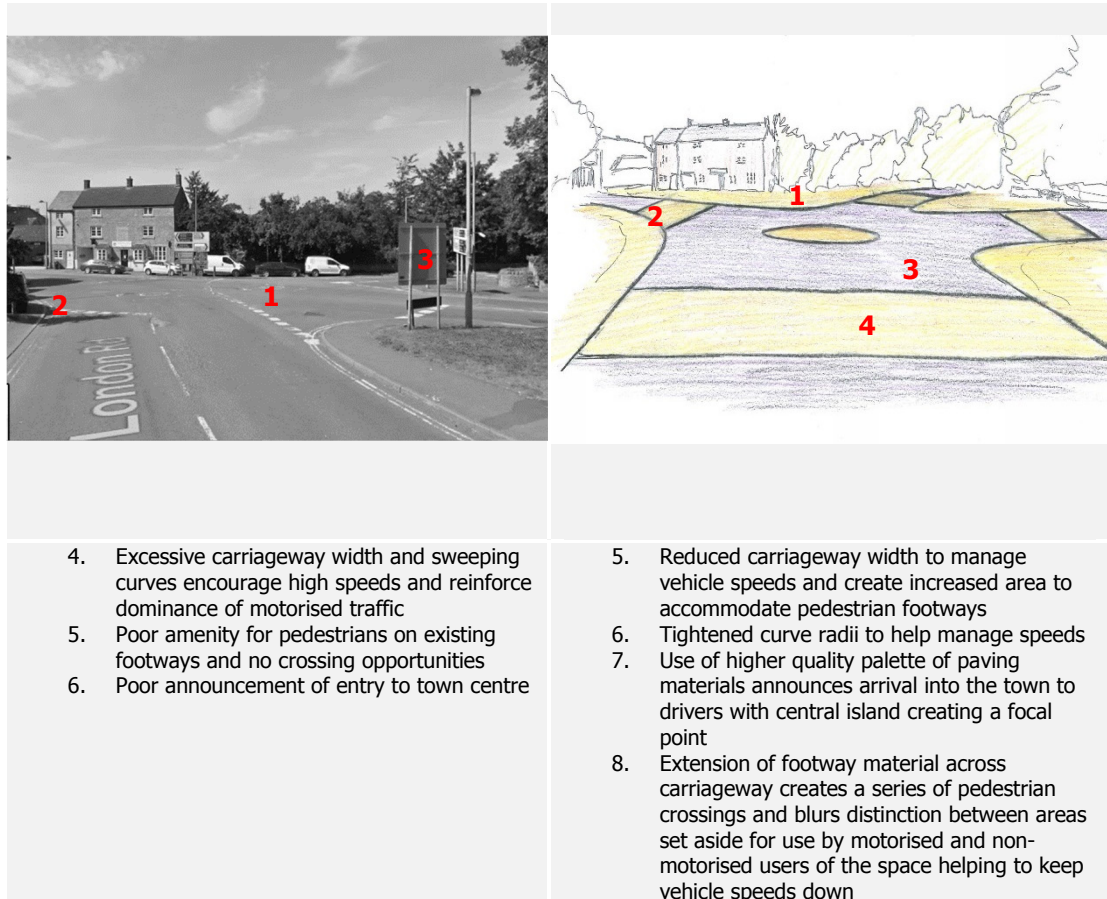
9.2.11 From the assessment undertaken, it is concluded that adoption of similar highway design principles to those employed in Poynton town centre would prove feasible in terms of providing appropriate and efficient management of the upper level predicted traffic volumes associated with the alternative development scenarios assessed whilst simultaneously allowing scope for significant improvement to be made to the town centre environment, improving conditions for pedestrians and calming traffic flows within the town centre.

9.2.12 Such measures would not necessarily constitute a radical departure from the general layout of the existing highway environment but could include features such as:

- Implementation of high-quality / unconventional paving / surfacing to create gateway feature junction designs at the northern and southern entrances to the town centre, rationalising entries to key junctions to a single lane on each approach, creating improved areas and both formal and informal crossing opportunities for pedestrians by reducing traffic speeds and creating a healthy ambiguity between areas of the highway set aside for the movement of motorised and non-motorised users;
- Continuation of high-quality and / or unconventional paving material along the A44 High Street corridor to calm traffic speeds, blur the distinction between areas of the highway set aside for motorised and non-motorised users and create increased opportunities to accommodate planting and additional formal and informal pedestrian crossing facilities.

9.2.13 Two indicative sketches of the kind of measures that might be considered for implementation are presented within **Figures 4 and 5** overleaf.

**Figure 4: Indicative amendments to the Over Norton Road roundabout**



**Figure 5: Indicative amendments to the A44 New Street / High Street / A361 West End junction**

|  |   |
|--|---|
|  |   |
| <ol style="list-style-type: none"> <li>1. Existing configuration of the junction as a priority T results in regular queues forming along the A361 West End as traffic not able to clear junction</li> <li>2. Two lane entry to junction from West End increases traffic dominance of the environment and undermines pedestrian amenity</li> <li>3. Little horizontal deflection for vehicles through junction from A44 High Street into A361 West End</li> </ol> | <ol style="list-style-type: none"> <li>1. Reconfiguration as a mini-roundabout style arrangement to slow vehicle speeds and allow a more balanced distribution of priority amongst vehicles arriving at the junction</li> <li>2. Reduced carriageway width to manage vehicle speeds and create increased area to accommodate pedestrian footways</li> <li>3. Tightened curve radii to help manage speeds</li> <li>4. Use of higher quality palette of paving materials announces arrival into the town to drivers with central island creating a focal point</li> <li>5. Extension of footway material across carriageway creates a series of pedestrian crossings and blurs distinction between areas set aside for use by motorised and non-motorised users of the space helping to keep vehicle speeds down</li> </ol> |

**9.3 SIGNALISATION OPTIONS**

9.3.1 An alternative approach to providing for better management and interaction of traffic and pedestrian flows on the town’s core highway network would be potential signalisation. This might be particularly advantageous at the A44 New Street / High Street junction due to existing geometry constraints, the limited corridor space available and complex mix of interactions between different user groups.

9.3.2 Whilst signalisation might be expected to provide some automatic prioritisation of vulnerable and less visible user groups within the highway environment, care should be taken to ensure that such an approach is combined with measures to ensure appropriate control of vehicle

speeds and enhancement in the status of pedestrians and other vulnerable road users. This might be achieved through measures including implementation of a 20 m.p.h. speed restriction on sensitive sections of the town’s highway network and through adoption of an unconventional approach to design, an indicative sketch of which is shown in **Figure 6**.

**Figure 6: Indicative signalisation option for the A44 New Street / High Street junction**

|  |  |
|--|--|
|    |   |
| <ol style="list-style-type: none"> <li>1. Existing configuration of the junction as a priority T results in regular queues forming along the A361 West End as traffic not able to clear junction</li> <li>2. Two lane entry to junction from West End increases traffic dominance of the environment and undermines pedestrian amenity</li> <li>3. Little horizontal deflection for vehicles through junction from A44 High Street into A361 West End</li> <li>4. Existing junction geometry quite tight and signalisation would allow vehicles to turn without impeding oncoming traffic</li> </ol> | <ol style="list-style-type: none"> <li>1. Implementation of signal control and installations could be achieved in a relatively low key manner with the need for installations minimised</li> <li>2. Use of unconventional materials in the highway could reinforce requirement for low speeds and raise status of pedestrians and other vulnerable road users</li> <li>3. Signalisation could help address existing geometry issues at the junction</li> </ol> |

**9.4 NEXT STEPS**

9.4.1 Work undertaken to date as presented within this report provides a first step investigation of the likely traffic flow implications of several alternative development scenarios in and around Chipping Norton together with an indicative assessment of supporting mitigation options to maximise the benefits of additional development and potential additional highways infrastructure for existing areas of the town, particularly the central area.



9.4.1.1 Whilst the assessment has considered the high-level feasibility of and developed outline improvement options focussed on enhancing pedestrian / cycle routes and amenity for vulnerable highway users, further, more detailed work is recommended in the following areas to inform development of a coherent emerging strategy as details of development proposals become more clear:

- Detailed investigation of pedestrian activity and user needs within and through central areas of the town, particularly along the High Street;
- Detailed assessment of the needs of pedestrians and cyclists travelling between areas of new residential development, the town centre and potential areas of new employment located to the north of the town;
- Detailed assessment of the pedestrian / cycle connectivity between existing residential areas of the town and areas of new development, particularly potential employment land to the north of the town; and,
- Providing for appropriate pedestrian connections between areas of residential development (both proposed and existing) and public transport services located in the town centre.



# Appendices





## Appendix A – Scenario Comparisons

## COMPARISON OF 2017 SCENARIO A DEVELOPMENT WITH 2016 BASE + 600 RESIDENTIAL UNITS (16A): 2031 TRAFFIC NETWORK ASSESSMENT

The following section assesses the operational impact on the network of additional trips associated with the delivery of development Scenario A as outlined previously compared to Scenario 16A, the operational impacts of which were previously assessed in the 2016 study.

### IMPACT ON LINK FLOWS

**Table 15: Comparison of predicted 2031 Traffic Flows associated with 2017 Scenario A (incorporating adjusted TEMPRO) and Scenario "16A"**

| Link   | "16A" Scenario |       | 2017 Scenario A |       | Absolute difference between 2017 Scenario A & "16A" |      | Percentage difference between 2017 Scenario A & "16A" |      |
|--|----------------|-------|-----------------|-------|---|------|---|------|
|  | AM             | PM    | AM              | PM    | AM  | PM   | AM  | PM   |
| High Street  | 1,601          | 1,686 | 1,324           | 1,408 | -277  | -278 | -17%  | -16% |
| West Street  | 1,097          | 1,178 | 947             | 1,053 | -150  | -125 | -14%  | -10% |
| Burford Road (between junctions with Albion St. & West St.)    | 899            | 872   | 881             | 868   | -18   | -4   | -2%   | -3%  |
| Albion Street  | 781            | 839   | 665             | 716   | -116  | -123 | -15%  | -15% |
| Banbury Road (between new link road and Over Norton Road)      | 1,026          | 1,052 | 768             | 788   | -258  | -264 | -25%  | -25% |
| New Link (north between Banbury Road and A44 London Road)      | N/A            | N/A   | 962             | 850   | N/A   | N/A  | N/A   | N/A  |
| New Link (south between A44 London Road and A361 Burford Road) | N/A            | N/A   | 1,149           | 1,108 | N/A   | N/A  | N/A   | N/A  |

**Tables 14** illustrates that delivery of the 2017 development Scenario A (inclusive of 1,400 new homes for private ownership, 9 hectares of employment land and a new eastern link road connecting the A361 Banbury Road to the A361 Burford Road) results in significant reductions in predicted traffic levels on the majority of the town's existing network when compared to the "16A" development scenario (that includes 600 new privately owned homes on the Tank Farm site and no new link road).

The potential benefits are particularly marked along the southern section of the A361 Banbury Road where predicted AM and PM peak flows are each some 25% lower when compared to scenario "16A". There are also notable benefits along High Street, West Street and Albion Street where predicted flows would be between 10% and 17% lower.

**IMPACT ON JUNCTION ENTRY FLOWS**

**Table 16: Comparison of predicted 2031 Junction Entry Flows associated with 2017 Scenario A (incorporating adjusted TEMPRO) and Scenario "16A"**

| Junction  | "16A" Scenario |       | 2017 Scenario A |       | Absolute difference between 2017 Scenario A & "16A" |      | Percentage difference between 2017 Scenario A & "16A" |      |
|---|----------------|-------|-----------------|-------|---|------|---|------|
|   | AM             | PM    | AM              | PM    | AM  | PM   | AM  | PM   |
| Over Norton Road / A361 Banbury Road / A44 London Road / High Street roundabout | 2,040          | 2,116 | 1,631           | 1,681 | -409  | -435 | -20%  | -21% |
| A44 High Street / New Street / A361 West End junction                           | 1,871          | 1,952 | 1,734           | 1,825 | -137  | -127 | -7%   | -7%  |
| A361 West Street / Burford Road / B4450 West End mini-roundabout                | 1,227          | 1,178 | 1,132           | 1,217 | -95   | +39  | -8%   | +3%  |
| A361 Burford Road / Albion Street mini-roundabout                               | 1,402          | 1,438 | 1,276           | 1,305 | -126  | -133 | -9%   | -9%  |
| A361 Banbury Road / New Eastern Link Road                                       | N/A            | N/A   | 1,344           | 1,325 | N/A   | N/A  | N/A   | N/A  |
| A44 London Road / New Eastern Link Road   | N/A            | N/A   | 2,194           | 2,076 | N/A   | N/A  | N/A   | N/A  |
| A361 Burford Road / New Eastern Link Road                                       | N/A            | N/A   | 1,572           | 1,555 | N/A   | N/A  | N/A   | N/A  |

**Tables 15** illustrates that delivery of the 2017 development Scenario A would result in significant reductions in the predicted level of traffic entering key junctions on the town’s existing network when compared to the "16A" development scenario.

The impact is particularly marked at the Over Norton Road / A361 Banbury Road / A44 London Road roundabout where baseline AM and PM peak hour junction entry flows would be c. 20% and 21% lower respectively. Except for the A361 West Street / Burford Road / B4450 West End junction during the PM peak, entry flows into the A44 High Street / New Street / A361 West End



junction and both the A361 West Street / Burford Road / B4450 West End and A361 Burford Road / Albion Street mini-roundabouts would also be lower in overall terms.



## COMPARISON OF 2017 SCENARIO A DEVELOPMENT WITH 2016 BASE + 1,500 RESIDENTIAL UNITS & PARTIAL EASTERN LINK ROAD (16B): 2031 TRAFFIC NETWORK ASSESSMENT

The following section assesses the operational impact on the network of additional trips associated with the delivery of development Scenario A as outlined previously compared to Scenario 16B, the operational impacts of which were previously assessed in the 2016 study.

### IMPACT ON LINK FLOWS

**Table 17: Comparison of predicted 2031 Traffic Flows associated with 2017 Scenario B (incorporating adjusted TEMPRO) and Scenario "16A"**

| Link   | "16A" Scenario |       | 2017 Scenario B |       | Absolute difference between 2017 Scenario B & "16A" |      | Percentage difference between 2017 Scenario B & "16A" |      |
|--|----------------|-------|-----------------|-------|---|------|---|------|
|  | AM             | PM    | AM              | PM    | AM  | PM   | AM  | PM   |
| High Street  | 1,460          | 1,591 | 1,324           | 1,408 | -136  | -183 | -10%  | -13% |
| West Street  | 1,259          | 1,337 | 947             | 1,053 | -312  | -284 | -33%  | -27% |
| Burford Road (between junctions with Albion St. & West St.)    | 1,109          | 1,093 | 881             | 868   | -228  | -225 | -26%  | -26% |
| Albion Street  | 750            | 800   | 665             | 716   | -85   | -84  | -13%  | -12% |
| Banbury Road (between new link road and Over Norton Road)      | 1,130          | 1,160 | 768             | 788   | -362  | -372 | -47%  | -47% |
| New Link (north between Banbury Road and A44 London Road)      | N/A            | N/A   | 962             | 850   | N/A   | N/A  | N/A   | N/A  |
| New Link (south between A44 London Road and A361 Burford Road) | N/A            | N/A   | 1,149           | 1,108 | N/A   | N/A  | N/A   | N/A  |

**Tables 16** illustrates that delivery of the 2017 development Scenario A results in significant reductions in predicted traffic levels on most the town’s existing network when compared to the "16B" development scenario (that includes 1,500 new privately owned homes on the Tank Farm site and a new link road to the east of the town connecting the A44 London Road to the A361 Burford Road).

The potential benefits are particularly marked along the southern section of the A361 Banbury Road where predicted AM and PM peak flows are each some 47% lower when compared to scenario "16B". There are also notable benefits along West Street and Burford Road (between its junctions with West Street and Albion Street) where predicted flows would be around 30% lower in each case. Predicted traffic flows on High Street would also be noticeably lower (between 10% and 13%) during both AM and PM peak periods.

**IMPACT ON JUNCTION ENTRY FLOWS**

**Table 18: Comparison of predicted 2031 Junction Entry Flows associated with 2017 Scenario B (incorporating adjusted TEMPRO) and Scenario "16A"**

| Junction  | "16A" Scenario |       | 2017 Scenario B |       | Absolute difference between 2017 Scenario B & "16A" |      | Percentage difference between 2017 Scenario B & "16A" |      |
|---|----------------|-------|-----------------|-------|---|------|---|------|
|   | AM             | PM    | AM              | PM    | AM  | PM   | AM  | PM   |
| Over Norton Road / A361 Banbury Road / A44 London Road / High Street roundabout | 2,037          | 2,118 | 1,631           | 1,681 | -406  | -437 | -20%  | -21% |
| A44 High Street / New Street / A361 West End junction                           | 1,907          | 1,987 | 1,734           | 1,825 | -173  | -162 | -9%   | -8%  |
| A361 West Street / Burford Road / B4450 West End mini-roundabout                | 1,420          | 1,482 | 1,132           | 1,217 | -288  | -265 | -20%  | -18% |
| A361 Burford Road / Albion Street mini-roundabout                               | 1,585          | 1,610 | 1,276           | 1,305 | -309  | -305 | -19%  | -19% |
| A44 London Road / New Eastern Link Road   | N/A            | N/A   | 2,194           | 2,076 | N/A   | N/A  | N/A   | N/A  |
| A361 Burford Road / New Eastern Link Road                                       | N/A            | N/A   | 1,572           | 1,555 | N/A   | N/A  | N/A   | N/A  |

**Tables 17** illustrates that delivery of the 2017 development Scenario A would result in significant reductions in the predicted level of traffic entering key junctions on the town's existing network when compared to the "16B" development scenario.

The impact is particularly marked at the Over Norton Road / A361 Banbury Road / A44 London Road roundabout, A361 West Street / Burford Road / B4450 West End junction and A361 Burford



Road / Albion Street junction, where baseline AM and PM peak hour junction entry flows would be in the order of 20% lower in all cases.