

# A428 Black Cat to Caxton Gibbet improvements

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Volume 9

9.43 Assessment of Traffic Flows at Dry Drayton & Madingley

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**A428 Black Cat to Caxton Gibbet  
improvements  
Development Consent Order 202[ ]**

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# 1 Background

- 1.1.1 Following discussions with Cambridgeshire County Council (CCC) regarding the A428 Stage 3 traffic forecasts, CCC raised concerns regarding the impacts of the A428 Black Cat to Caxton Gibbet Scheme (the Scheme) through the villages of Dry Drayton and Madingley. The concerns at these locations were noted in the CCC 'Modelling Issues Log' as ID's 11 and 12 and were as follows:
- a. AM pk. Increase in NEB flow through Dry Drayton of 70 pcu. PM pk. Scheme increases SWB flows through Dry Drayton by 100 pcu & NEB flows by 50 pcu.
  - b. AM pk. Increase in NB flow on Church Lane in Madingley of 73 pcu. PM pk. Scheme increases SB flows through Madingley by 100 pcu. Madingley residents are already asking for link to A14 "The Avenue" to be closed as result of A14 scheme, and A428 scheme adds to traffic passing through Madingley.
- 1.1.2 The two roads of concern have recently seen significant changes due to the A14 Cambridge to Huntingdon (C2H) scheme as local highway connectivity was altered between Girton (M11 J14) and Bar Hill (A14 J25). The major change was the building of a new link road (the A1307) between Huntingdon Road at Girton with Oakington Road North East of Dry Drayton.
- 1.1.3 The current highway network is shown in **Figure 1-1**. As the change to the routes through Dry Drayton and Madingley is on the northeast side of these villages, the analysis has been focussed on Oakington Road at Dry Drayton and The Avenue at Madingley.
- 1.1.4 Previously Oakington Road connected directly to the A14 at Dry Drayton junction where traffic could both join and exit the A14 in both directions. As part of the C2H scheme this junction was closed and part of Oakington Road became what is now the A1307 which now connects with the A14 at Bar Hill junction. Therefore, traffic from Dry Drayton travelling to Cambridge and beyond would now use the new A1307 link road or alternatively travel through Madingley, as The Avenue also connects into the A1307.
- 1.1.5 The change to The Avenue connectivity is more significant as in the former layout only northbound traffic could make use of the A14 junction. Northbound traffic from the M11, A14 and Huntingdon Road could access The Avenue but traffic from The Avenue could only access the A14 northbound carriageway and there was no access to The Avenue from the north or from The Avenue to the south.
- 1.1.6 With the revised layout, although traffic from the M11 (south) and A14 (east) can no longer directly access The Avenue, traffic from The Avenue can turn south at the junction with the new A1307. The other change of note is that traffic from the A14 (north) can access the A1307 and The Avenue as a new roundabout junction was built where Huntingdon Road connects with the new A1307 link road. There is still a connection onto the A14 northbound from the northern A1307 roundabout at Girton junction.

- 1.1.7 Therefore, access between The Avenue and other routes has generally improved following the completion of the C2H scheme, with access from the north and to Cambridge.
- 1.1.8 Another change that affects these two routes is Northstowe which is located nearby on the north eastern side of the A14, off the A1307. This is a large on-going housing development that will result in additional traffic in this area over the next 10 to 20 years.

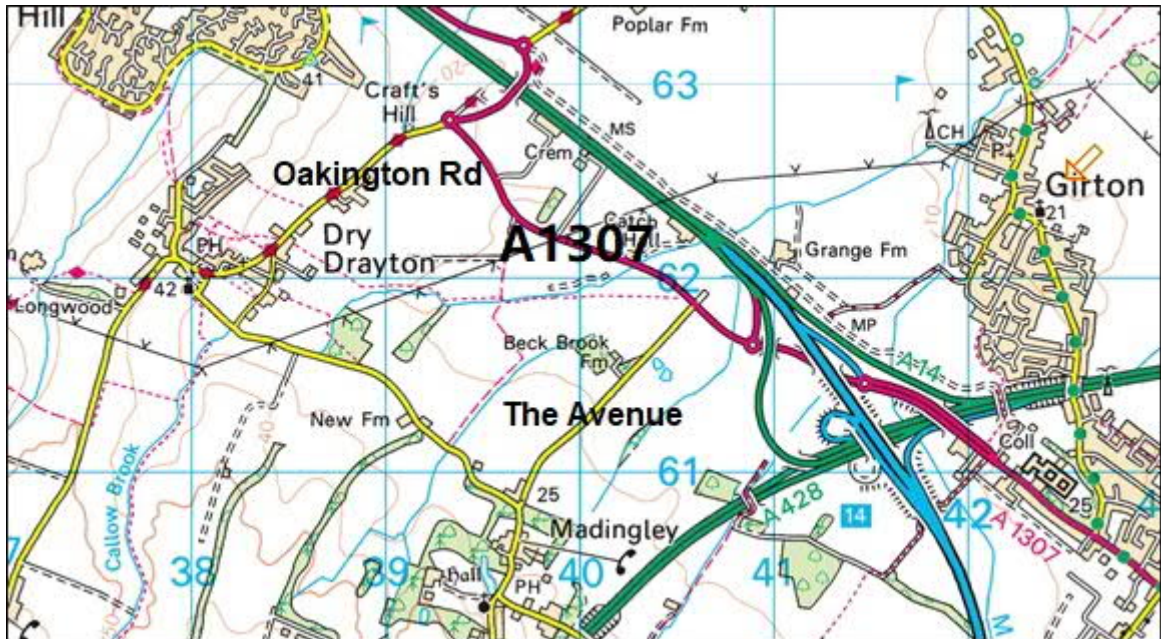


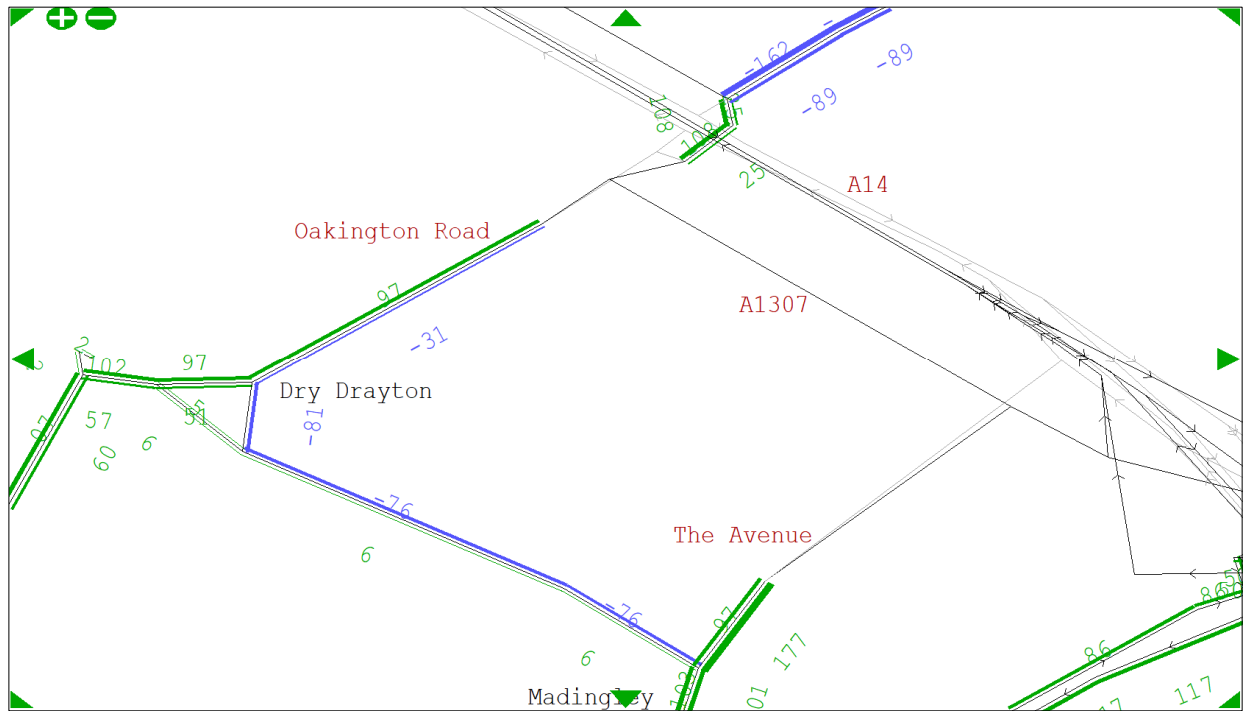
Figure 1-1: Post A14 C2H Highway Network

## 2 Assessment

- 2.1.1 The C2H scheme was completed in May 2020. It is likely that the impacts of COVID-19 restrictions will have affected traffic volumes since then and comparisons of observed pre and post opening traffic flows would not be consistent. Traffic volumes have therefore been taken from the A428 Strategic Traffic Model for the 2015 base year and 2025/40 forecast years (DM/DS) as the basis for assessing the impacts of C2H
- 2.1.2 The volume of traffic on Oakington Road in the 2015 model is significantly greater than that on The Avenue at around 310 PCU hourly southbound and 280 PCU hourly northbound in the AM peak period. It is noted that the base model validated well against observed volumes. Traffic on this road tends to be longer distance than that on The Avenue due to there being direct access to the A14 in both directions and the route towards Oakington and beyond.
- 2.1.3 On The Avenue in the 2015 AM peak (average hour 0700-1000) the flows are relatively low, with 81 Passenger Car Units (PCU) southbound and 37 northbound and these validate well against observed flows. The majority of traffic has a trip end within the Cambridge area, with a small volume of longer distance traffic from the A14. Northbound traffic is generally destined for towns and villages off the A14 between Cambridge and Huntingdon.

### 2025 DM Forecasts

- 2.1.4 The 2025 Do Minimum (DM) model incorporates the A14 C2H scheme and therefore take account of the traffic reassignment effects of C2H and the new link road. Compared to 2015, in the AM peak the change in volumes on Oakington Road are mixed with an increase in traffic (97 PCU) northbound towards the A1307 but a reduction southbound of 31 PCU. There is a greater impact on The Avenue with an increase in both directions, 97 PCU northbound and 177 PCU southbound, as shown in **Figure 2-1**.



**Figure 2-1 : Flow Comparison – 2025 DM Less 2015 - AM Peak**

- 2.1.5 Most of the additional traffic on Oakington Road is due to traffic to and from Northstowe. Some traffic previously using Oakington Road and Madingley Road (between Dry Drayton and Madingley) switches to the A1307, which does not exist in the 2015 base year as the grey links show in **Figure 2-1**, and The Avenue as this becomes the shorter and quicker route. The Avenue is also a better standard of road than Madingley Road.
- 2.1.6 On The Avenue the increases are due to traffic from the north being able to access this road (144 PCU as shown in **Figure 2-2**, which accounts for 80% of the southbound increase) and also due to traffic being able to travel to Cambridge (56 PCU as shown in **Figure 2-3**, which accounts for nearly 60% of the northbound increase).



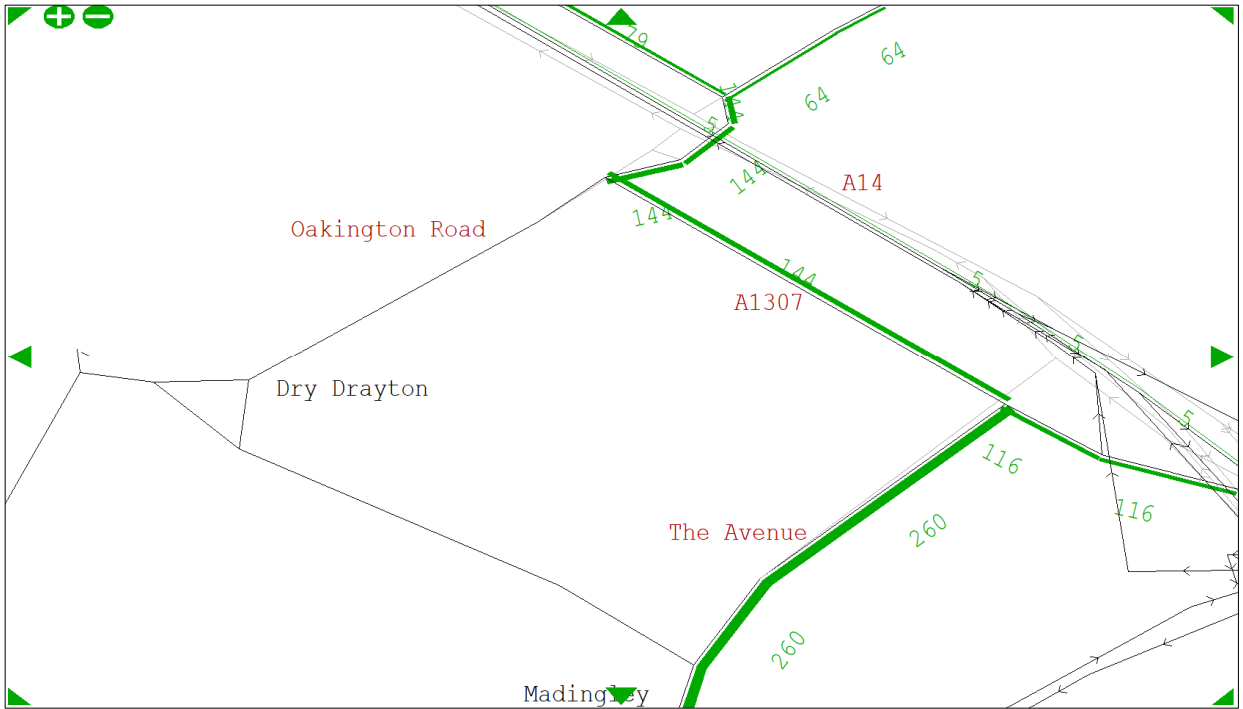


Figure 2-2 : Select Link Analysis on The Avenue – 2025 DM AM Southbound

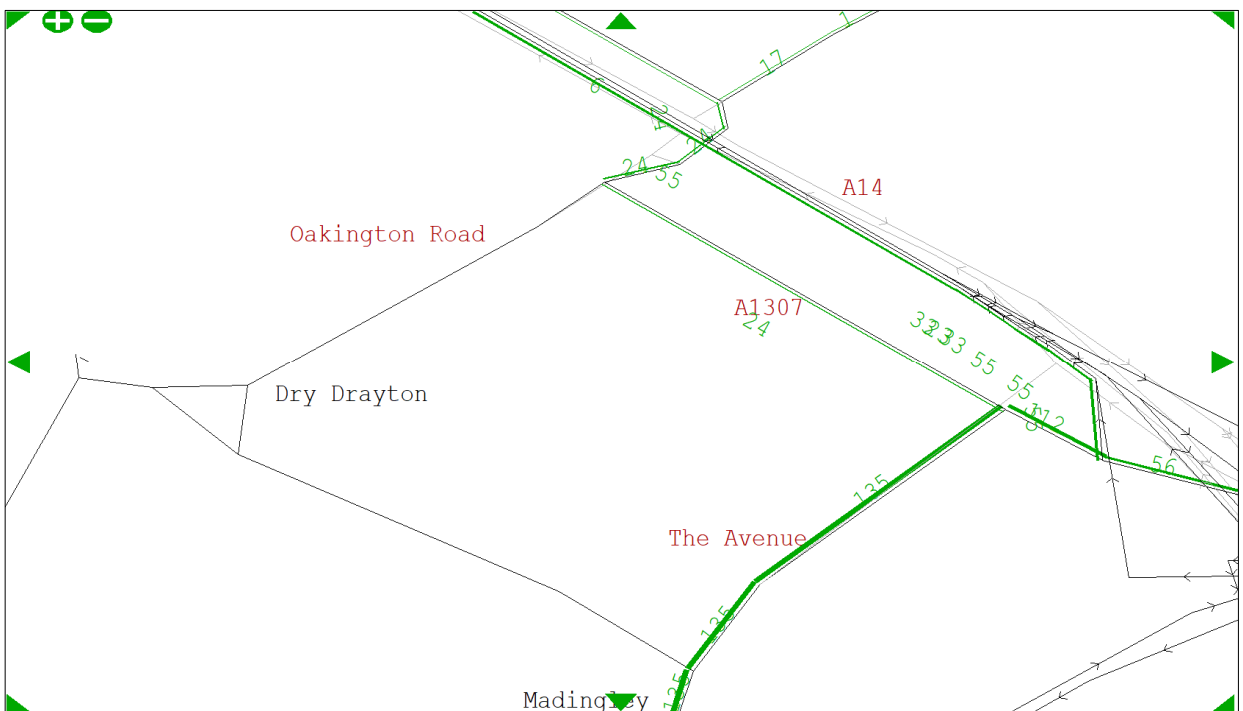
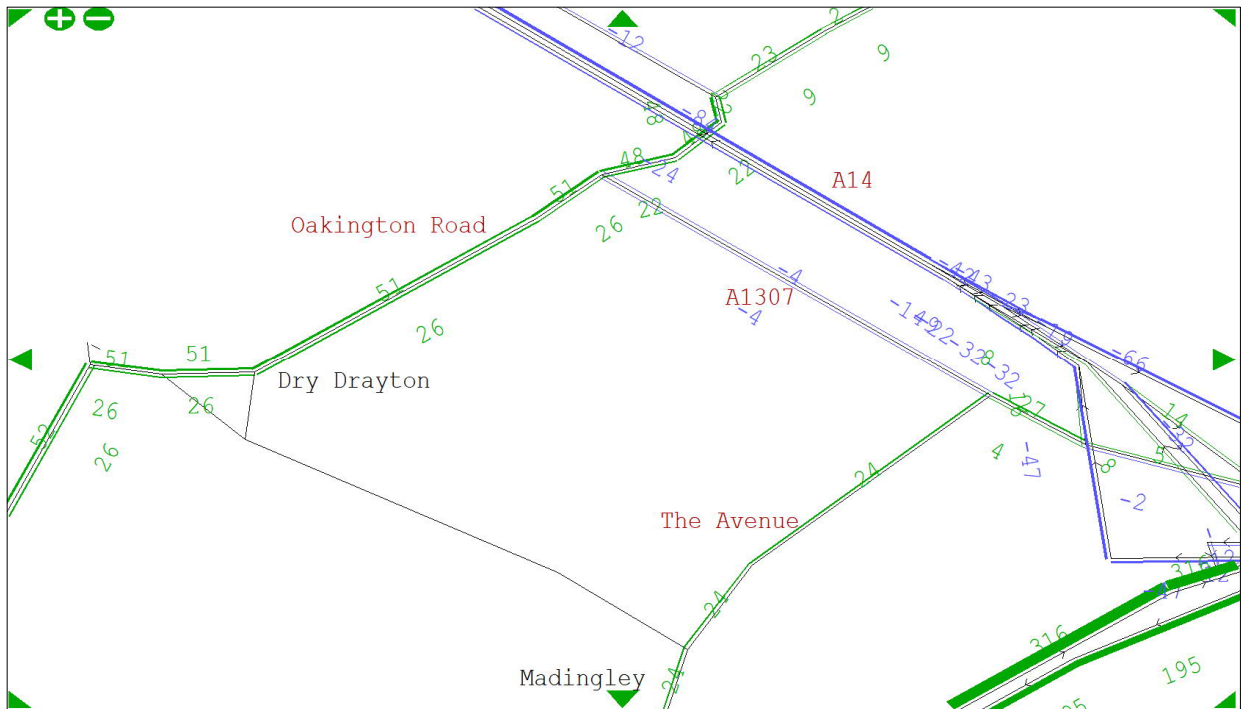


Figure 2-3 : Select Link Analysis on The Avenue – 2025 DM AM Northbound







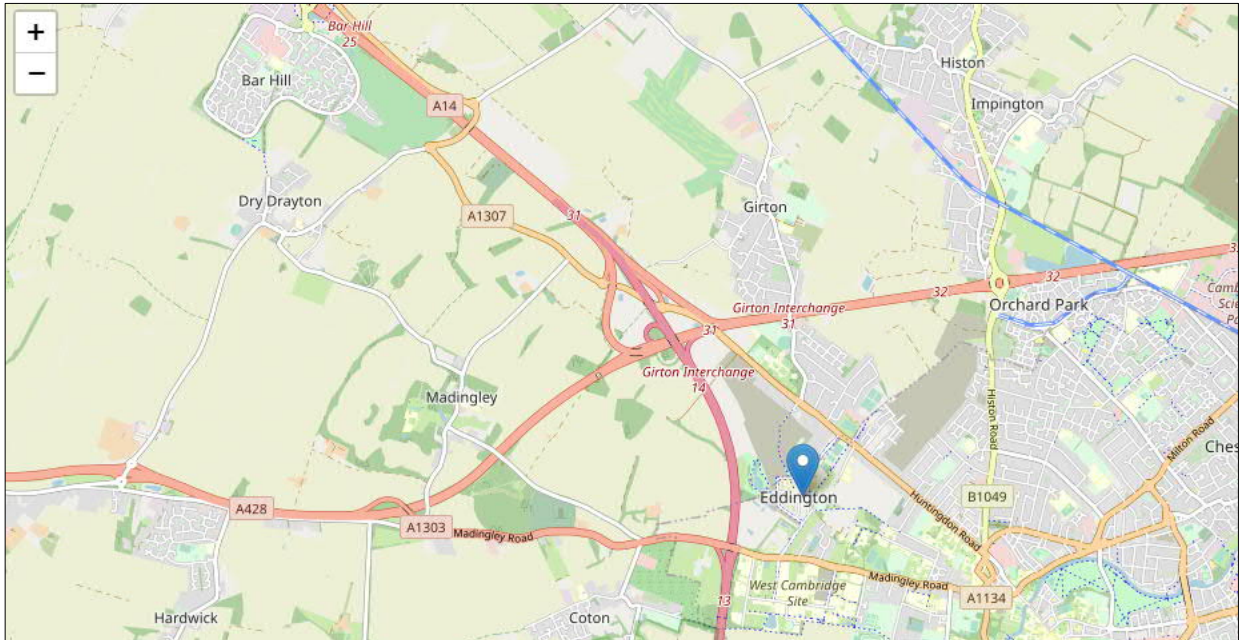
**Figure 2-5 : Flow Comparison – 2025 AM Peak - DS Less DM**

2.1.9 In the PM peak, the forecast changes in 2025 as a result of the Scheme are generally lower than those in the AM peak with the larger increase on The Avenue being northbound rather than southbound.

### 2040 DM Forecasts

- 2.1.10 For the 2040 DM model, other than the A14 C2H scheme there are no other network changes in the immediate area. Compared to 2015, in the AM peak there is an increase on Oakington Road of 151 PCU northbound towards the A1307 but no change in the southbound direction. There is a greater impact on The Avenue with an increase in both directions of 270 PCU northbound and 290 PCU southbound.
- 2.1.11 Approximately 85% of the additional northbound traffic on Oakington Road is a result of additional traffic to Northstowe. As in 2025, some traffic previously using Oakington Road and Madingley Road switches to the A1307 and The Avenue as this becomes the shorter and quicker route.
- 2.1.12 On The Avenue, the increase is due to traffic from the north being able to access this road (which accounts for 75% of the southbound increase) and also due to traffic being able to travel south to Cambridge (which accounts for nearly 50% of the northbound increase).
- 2.1.13 Some of the increase is due to trips to and from the NW Cambridge development which is only connected to the A1303 in the model network but in reality can also access the A1307. This is illustrated in **Figure 2-6**. A connection into the A1307 would result in less traffic travelling through Madingley.

2.1.14 This issue and the one of incorrect link lengths was corrected in the Sensitivity Test using the 2020 Uncertainty Log [DCO APP-249]. A comparison of the 2040 AM Sensitivity Test model against the standard model gives very similar traffic volumes on both Oakington Road and The Avenue.



**Figure 2-6 : Connectivity between A1303/A1307 and the North West Cambridge Development**

- 2.1.15 With the A428 Scheme in place, the change in volumes in the 2040 AM peak are relatively modest and similar to 2025. On The Avenue there is forecast to be an additional 40 PCU northbound and a small reduction southbound. On Oakington Road the increase is around 65 PCU northbound and 37 southbound. These additional trips are likely to be a result of a change in traffic routing and trip distribution.
- 2.1.16 Overall, in the PM peak, the forecast changes in 2040 are generally lower than those in the AM peak although directionality tends to be reversed, with the larger increase on The Avenue being northbound rather than southbound.

## 3 Conclusions

- 3.1.1 This assessment has shown that although there are increases in traffic volumes on the routes through Dry Drayton and Madingley, these are mostly due to the impacts of the recently completed A14 Cambridge to Huntingdon scheme and the resultant change in network connectivity. Additional development at Northstowe is another reason for additional traffic on these routes in future years.
- 3.1.2 Although the A428 Scheme does result in some further increase in traffic in 2025 and 2040, these increases are relatively modest and compared to the without Scheme scenario, only accounts for around 7% of the change from 2015 to 2040 on The Avenue in the AM peak period.