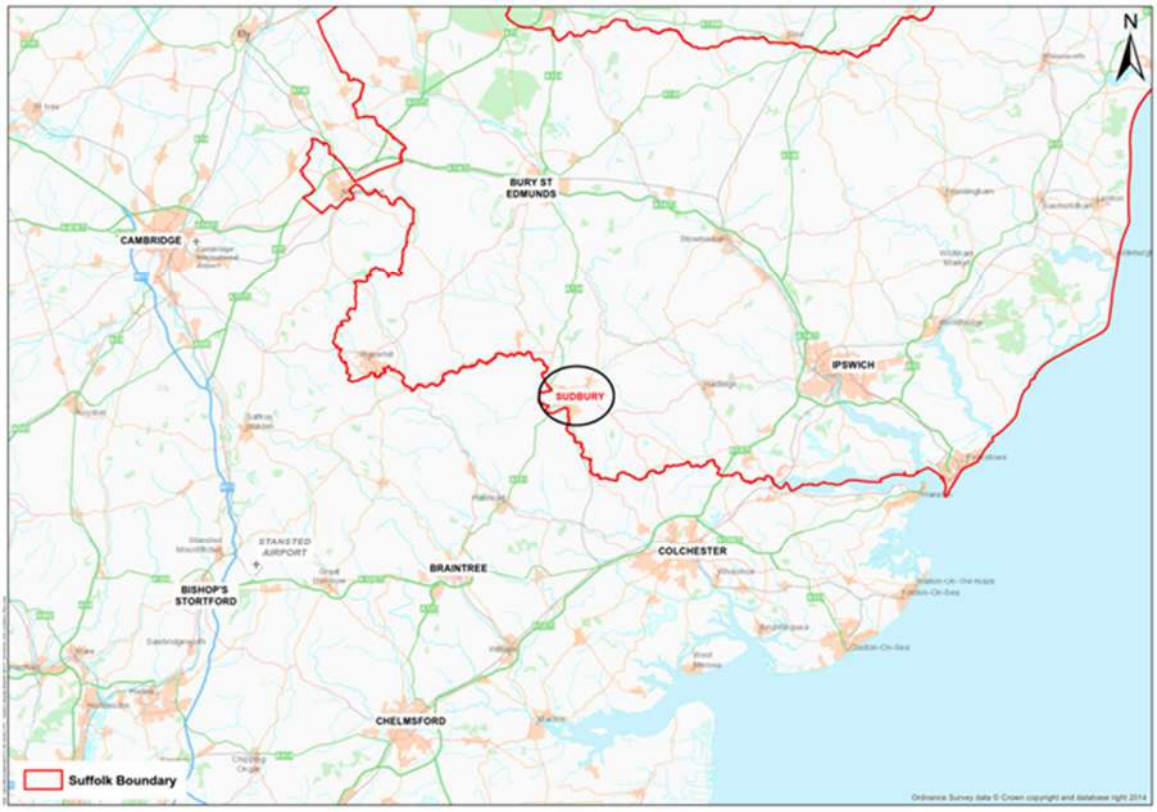
2 CURRENT SITUATION

2.1 SUDBURY AND ITS TRANSPORT SYSTEM

BACKGROUND

2.1.1. Sudbury is situated in the southwestern part of Suffolk and is the largest town in the district of Babergh with a population of approximately 22,000 (including the adjoining parish of Great Cornard). Sudbury is a vibrant, historic market town that acts as a district centre for surrounding villages. The town centre, with its Georgian and Victorian architecture mixed with Grade 1 listed churches, creates an attractive streetscape, drawing in residents and tourists alike, a further draw to tourists being the town's link with the 18th century painter Thomas Gainsborough.

Figure 2 – Map of Suffolk



2.1.2. Over the course of the twentieth century, Sudbury, together with Great Cornard, experienced substantial population and employment growth. New employment and retail areas were built in the town centre and at out-of-town centre locations to the south and east of Sudbury with housing growth in the northern parts of the town and in Great Cornard. Today the internationally recognised traditional silk weaving industry is still represented, but new industries and increased office use have developed as well.

2.1.3. Sudbury has a substantial history, famous Gainsborough landscapes, a strong economy and is located within a reasonable travel time of larger centres such as Cambridge, Ipswich, Colchester and Bury St Edmunds. The town has always played an important regional function; serving the

shopping, leisure, social and cultural needs of the residents and surrounding villages. Its history, beauty and culture have successfully attracted tourists to the town and region for decades.

2.1.4. The town's historic core is comprised of a medieval network of streets that are narrow and offer few alternative routes for motor vehicles. Although the town has seen substantial growth since the Second World War, due to the restrictions of its historic highway network this growth has not achieved its full potential and the beauty of the town centre remains hidden behind queues of vehicles.

Figure 3 – Map of Sudbury

SOCIO-ECONOMIC CHARACTERISTICS OF THE AREA

2.1.5. At the 2011 census, the population of Sudbury Parish was recorded as 13,063, this has increased by 10% since 2001. 60% of the population were recorded within the age group of 16 to 65, with more than 20% in the over 65-category, higher than the national figure of 16%. Of the residents over the age of 16, more than 70% were classified as economically active, 90% of whom were employed, the majority in full time employment. The employment rate was slightly lower than the national average of 91.5% (September-November 2011).

2.1.6. The census showed that the key employment activities in Sudbury are manufacturing (17%), wholesale and retail (17%) and human health and social work activities (12%). Mining and agriculture were the lowest employment sectors (0.3% combined).

2.1.7. The majority of dwellings in Sudbury are classified as 'whole house' or 'bungalow' (82.5%), and most of these are owned by the occupiers (61.6%). Car ownership is fairly high in Sudbury, with 72.5% of the households having access to one or more cars. This is slightly lower than the national average of 74.3%.

2.1.8. The 2011 census also showed that there were over 3,200 commute trips per day out of Sudbury, while over 8,100 commute trips came in to Sudbury from neighbouring areas; mainly from Babergh. Over 2,700 commute trips were internal Sudbury trips. The majority of these trips (59%) are made by cars.

2.1.9. While the data for Sudbury was not available, the ONS data for Babergh's productivity in 2015, measured as GVA, was £21,133 per head of population, 17.5% less than the national figure (£25,601).

LOCAL ROAD NETWORK

2.1.10. Sudbury lies at the intersection of the following principal roads:

- A134 (north) to Bury St Edmunds (primary road);
- A134 (south-east) to Colchester; and
- A131 (south) to Braintree and Chelmsford (primary road).

2.1.11. Other radial routes entering the town are:

- B1064 Sudbury Road to Long Melford in the north (formerly the A134);
- B1115 to Great Waldingfield (Waldingfield Road, then East Street nearer the town centre);
- Newton Road (formerly the A134) approaching the town centre from the east; and
- B1508 Cornard Road – the route to Great Cornard and Colchester in the south.

2.1.12. Sudbury's road network is constrained by the River Stour, which runs to the west and south of the town. The A131 and A134 form an important north-south corridor linking Thetford, Bury St Edmunds, Sudbury, Braintree and Chelmsford, with the A134 linking to Colchester.

2.1.13. Figure 4 shows a plan of the Sudbury road network, which is discussed in more detail in the following paragraphs.

Street, passing by shops, restaurants and town houses, including the birthplace of Thomas Gainsborough (1727-1788), the celebrated English portrait and landscape artist.

2.1.18. At the western end of Gainsborough Street, the A131 divides. The north bound section runs, as Gregory Street. More open in character than the preceding section, it serves older commercial premises, some newer residential properties and St Gregory's Church, where the road is bordered by trees and green space. It forms a signal controlled junction with Croft Road, then continues across the north side of the town centre as Gainsborough Road, a narrow street lined with Victorian houses, before completing its one-way circuit to the north of the town centre (as described in paragraph 2.1.16).

2.1.19. The western section of the A131 runs from the Gainsborough Street / Gregory Street junction as Stour Street. Stour Street is narrow, with narrow footways and lined with historic buildings, including Salter's Hall. At the edge of the built-up area, it continues as Cross Street, which is narrow and lined with terraces houses. The A131 crosses the River Stour on a single carriageway bridge, and continues south as Ballingdon Street and Ballingdon Hill, before continuing out of the town towards Braintree. The A131 is the only access into and through Sudbury from the southwest and forms part of the strategic lorry network for the area.

Roads within the town centre

2.1.20. Unlike some historic town centres, the one-way loop of the A131 in Sudbury does not remove the through route entirely from the historic core. Instead, the southern part of the A131 circuit runs directly through the market place, an important part of the historic and commercial centre of the town.

2.1.21. Within the one-way circuit of the A131, the most important shopping street is North Street, which has been extensively improved to create a more attractive environment for pedestrians. The rest of the road network within the town centre consists mainly of older residential streets such as Croft Road, Burkitts Lane, Weaver's Lane, and Church Walk. There are also car parks within the central area.

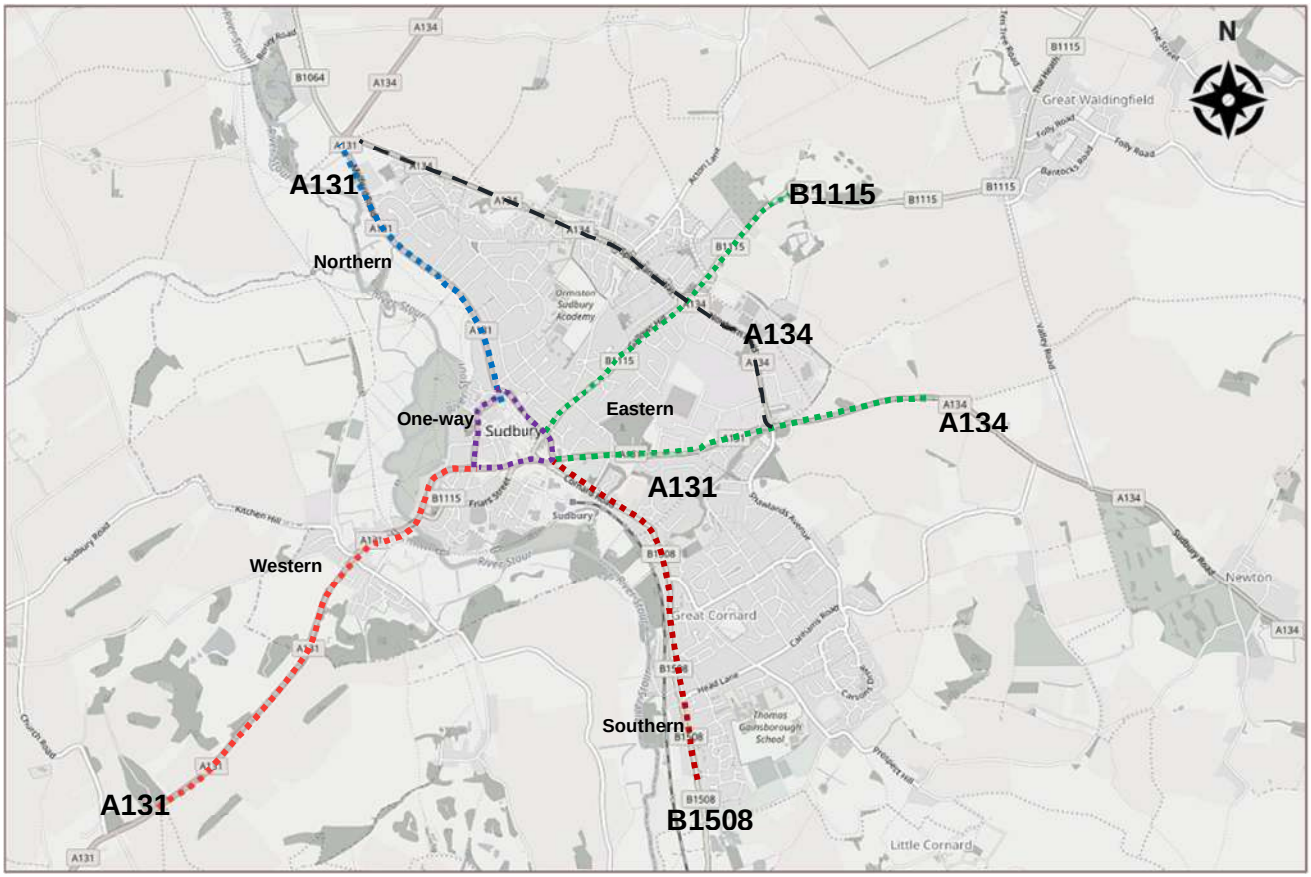
Links to the Strategic Road Network

2.1.22. The A131 / A134 corridor provides links to the strategic road network (A11, A12, A14 and A120):

- At Braintree, the A131 connects to the A120 Bishop's Stortford to Colchester road;
- At Bury St Edmunds, the A134 connects to the A14 Cambridge to Ipswich road;
- At Thetford, the A134 connects to the A11 which links Norwich to the M11 motorway; and
- At Colchester, the A134 connects to the A12 Chelmsford to Ipswich road.

2.1.23. Figure 5 shows the A131 / A134 and the important strategic connections of the route.

Figure 4 – Sudbury's highway network



A134

2.1.14. The A134 enters Sudbury from the north and bypasses the main parts of the town centre on the north-east side. From its junction with the A131 and B1064, it is a 7.3m single carriageway road (Springland's Way) with at-grade junctions and limited frontage access as far as its junction with the B1115. From here it continues as Northern Road, the single carriageway spine road of an industrial estate with priority junctions and some accesses, as far as its junction with Newtown Road, on the eastern side of the town. It continues in a south-easterly direction towards Colchester.

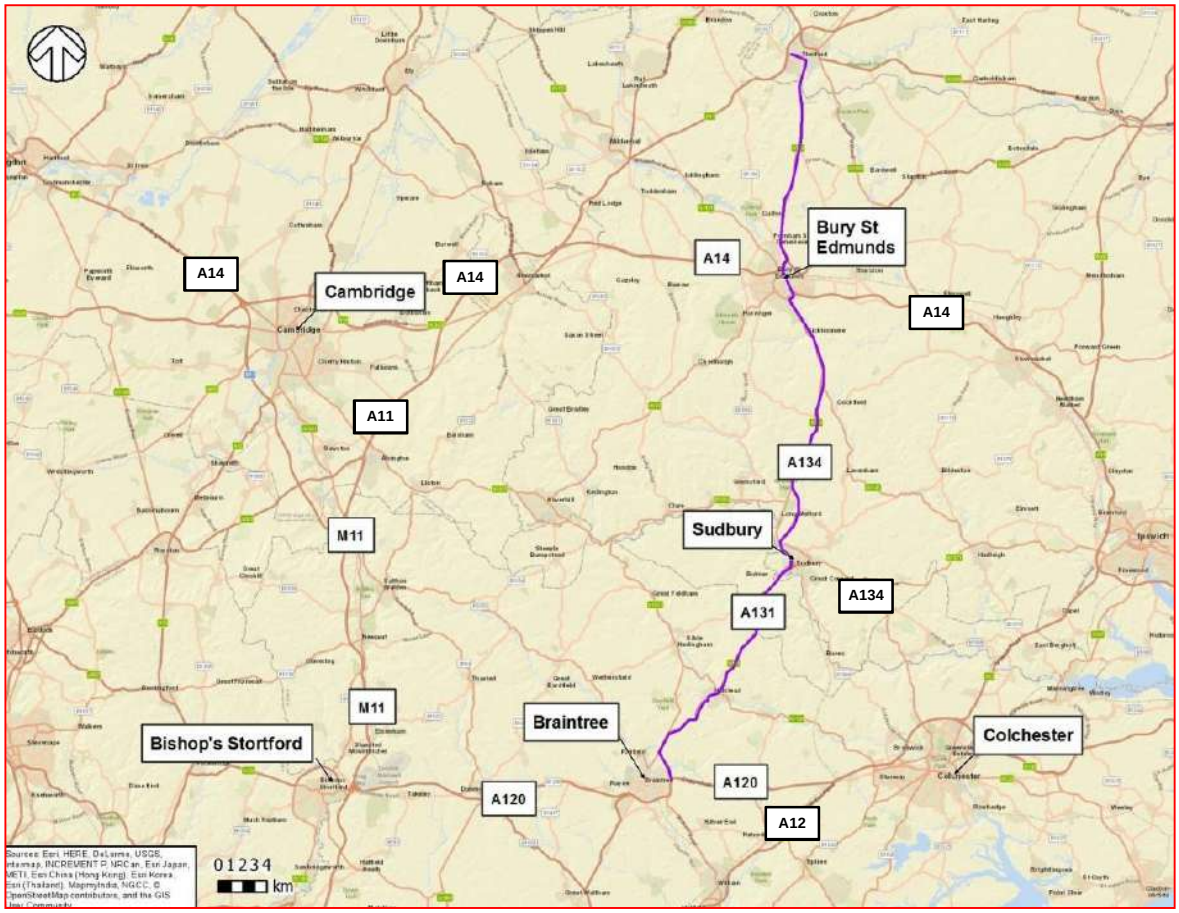
A131

2.1.15. The A131 to the north of the town forms an at-grade roundabout junction with the A134 and B1064. It runs as a single carriageway road, Melford Road, forming the western boundary of the built-up area, with residential frontages and numerous side road junctions on its eastern side.

2.1.16. At the northern edge of the town centre, the A131 follows a one-way system clockwise around the town. The eastern part of the loop is formed by Girling Street which serves mixed development: a supermarket, car parking, industrial and residential premises. It intersects with B1115 East Street at a signal controlled crossroads. At its junction with Newton Road, the A131 bears right, passing to the north of a roundabout junction with B1508 Cornard Road.

2.1.17. At the southern edge of the town centre, the A131 runs along King Street, with shops on the left side and St. Peter's Church on the right. It continues along the south side of the town's historic market square, with market stalls to the right and shops and banks to the left. It continues as Gainsborough

Figure 5 – A131 / A134 Corridor



PUBLIC TRANSPORT

Bus network

2.1.24. Sudbury is connected to other parts of Suffolk by the following bus routes (Table 2, Figure 6):

Table 2 – Main Bus Routes in Sudbury

Bus Route	Frequency
753 - Bures – Sudbury 753 - Sudbury - Bury St Edmunds	16 services per day
754 - Sudbury - Long Melford - Sudbury 754 - Colchester Town Centre - West Bergholt - Sudbury	24 services per day
84 - Colchester - Nayland - Leavenheath - Sudbury	13 services per day
91 - Ipswich - Hadleigh - Sudbury	11 services per day
Other lower frequency bus services	
84A - Honey Tye - Leavenheath - Sudbury	
89X - Sudbury - Bulmer Tye - Halstead - Braintree	
112 - Hadleigh - Bildeston - Sudbury	

236 - Sudbury - Clare
700 - Sudbury Town Service
715 - Stanstead - Lawshall - Sudbury
715 - Stanstead - Lawshall - Sudbury
716 - Long Melford - Sudbury
751 - Great Cornard - Sudbury - Long Melford - Bury St Edmunds
752 - Bures - Sudbury - Long Melford - Bury St Edmunds
756 - Colchester Town Centre - West Bergholt - Sudbury
756 - Sudbury - Long Melford - Clare
757 - Thomas Gainsborough School - Long Melford - Clare
F315 - Sudbury - Gestingthorpe - Wickham St Paul - Pebmarsh - Halstead
SC707 - Gt Waldingfield - Ormiston Sudbury Academy
Sudbury Health Centre - Great Cornard - Health Centre - Glemsford

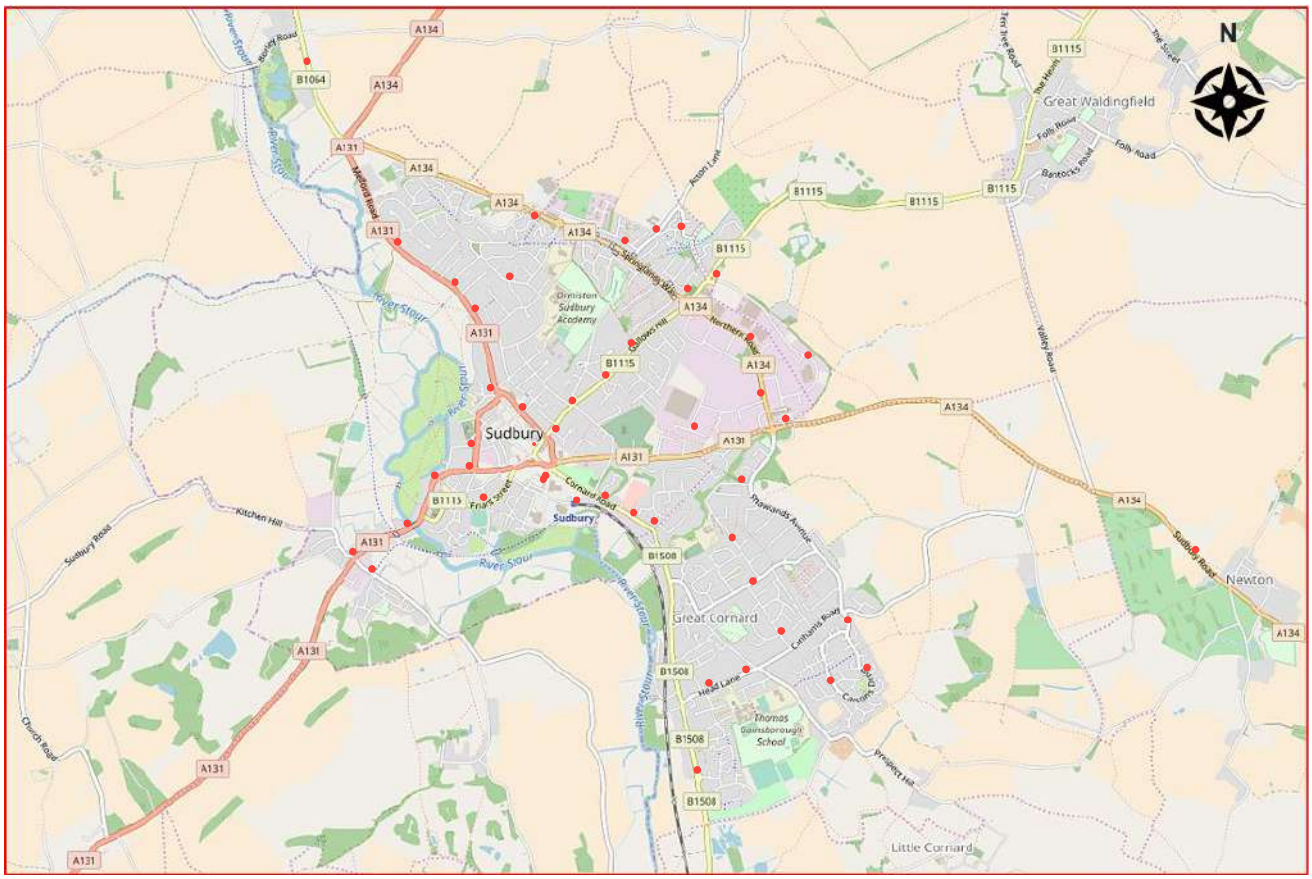
Figure 6 – Suffolk Bus Routes in Sudbury and Surrounding Areas[2]

[2] www.suffolkonboard.com

2.1.25. The main bus stops in Sudbury, which are predominantly along the main corridors (Figure 7), are:

- Woodhall Road
- Acton Lane
- Banham Drive
- Bus Station
- Cats Lane
- Cavendish Way
- Chaucer Road
- Chilton Industrial Estate
- Churchfield House
- Gainsborough Heights
- Gregory Mills
- Hawkins Road
- Health Centre (Entrance)
- Homebase
- Horse and Groom
- Lucas Road
- Mill Lane
- Mountbatten Road
- Newton Road
- Northern Road
- Ormiston Sudbury Academy
- Post Office
- Priory Road
- Rayleigh Road
- Reynolds Road
- Rubens Walk
- Second Avenue
- Sports Ground
- Sudbury (Suffolk) Rail Station
- Suffolk Road
- Tesco
- The Firs
- Uplands Road
- Walnut Tree Lane
- Woodhall Road
- York Road
- Hilltop
- Sainsbury's

Figure 7 – Key Bus Stop Locations in Sudbury



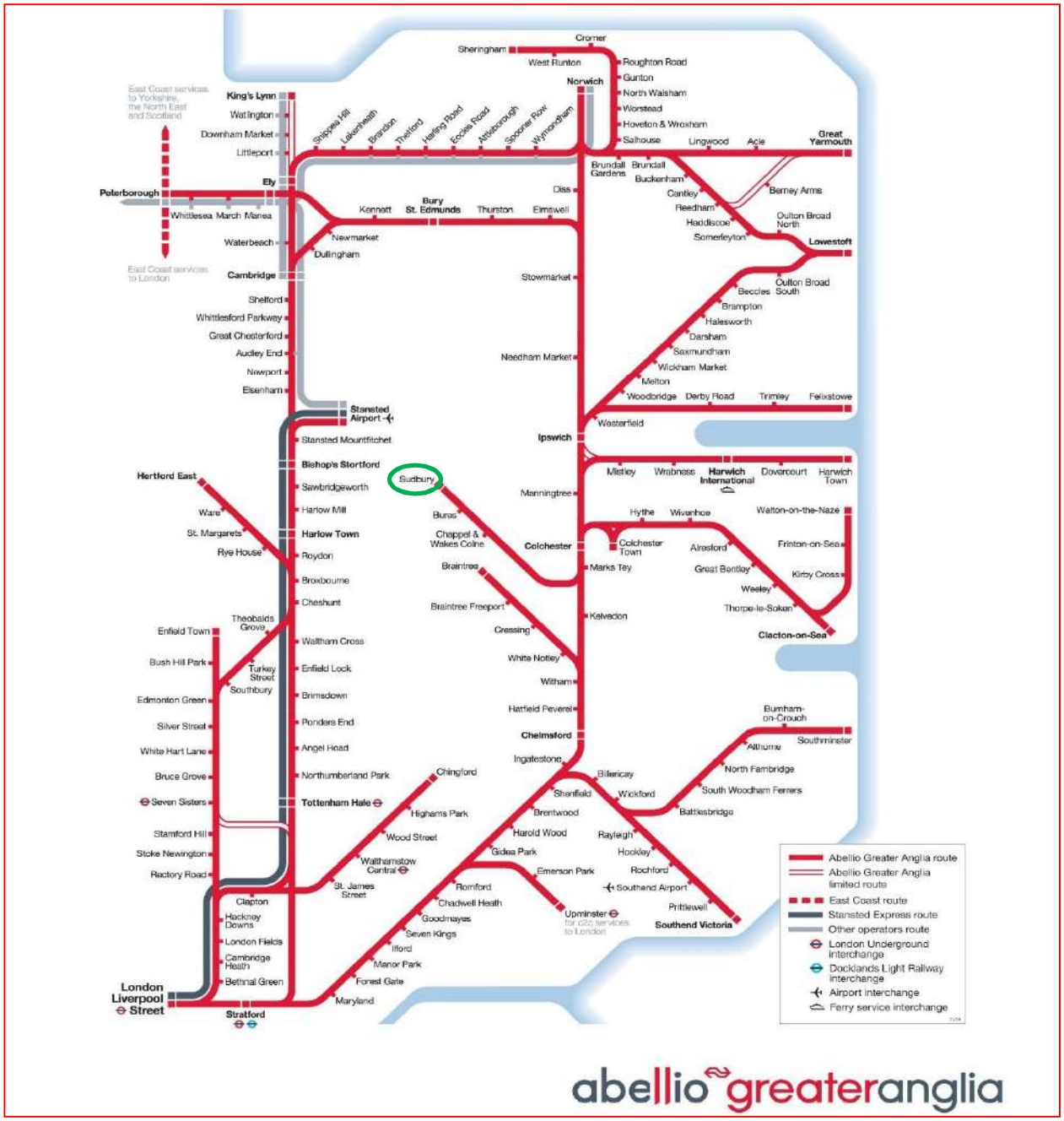
Rail network

2.1.26. Sudbury is the northern terminus of the single-track Gainsborough Line, a part of the East Anglia network (Figure 8).

2.1.27. The railway station is located at the southern edge of the town centre, having been re-sited in 1991 when the Kingfisher Leisure Centre was built. It is unstaffed, with a self-service ticket machine, and can accommodate two-coach trains only.

2.1.28. On weekdays, there are nineteen trains per day from Sudbury to Marks Tey, from where connection can be made to the wider rail network. The train journey from Sudbury to London Liverpool Street takes about 1 hour 20 minutes, and the journey to Ipswich takes about 55 minutes; both of these journeys include a change at Marks Tey.

Figure 8 – Suffolk Rail network[3]



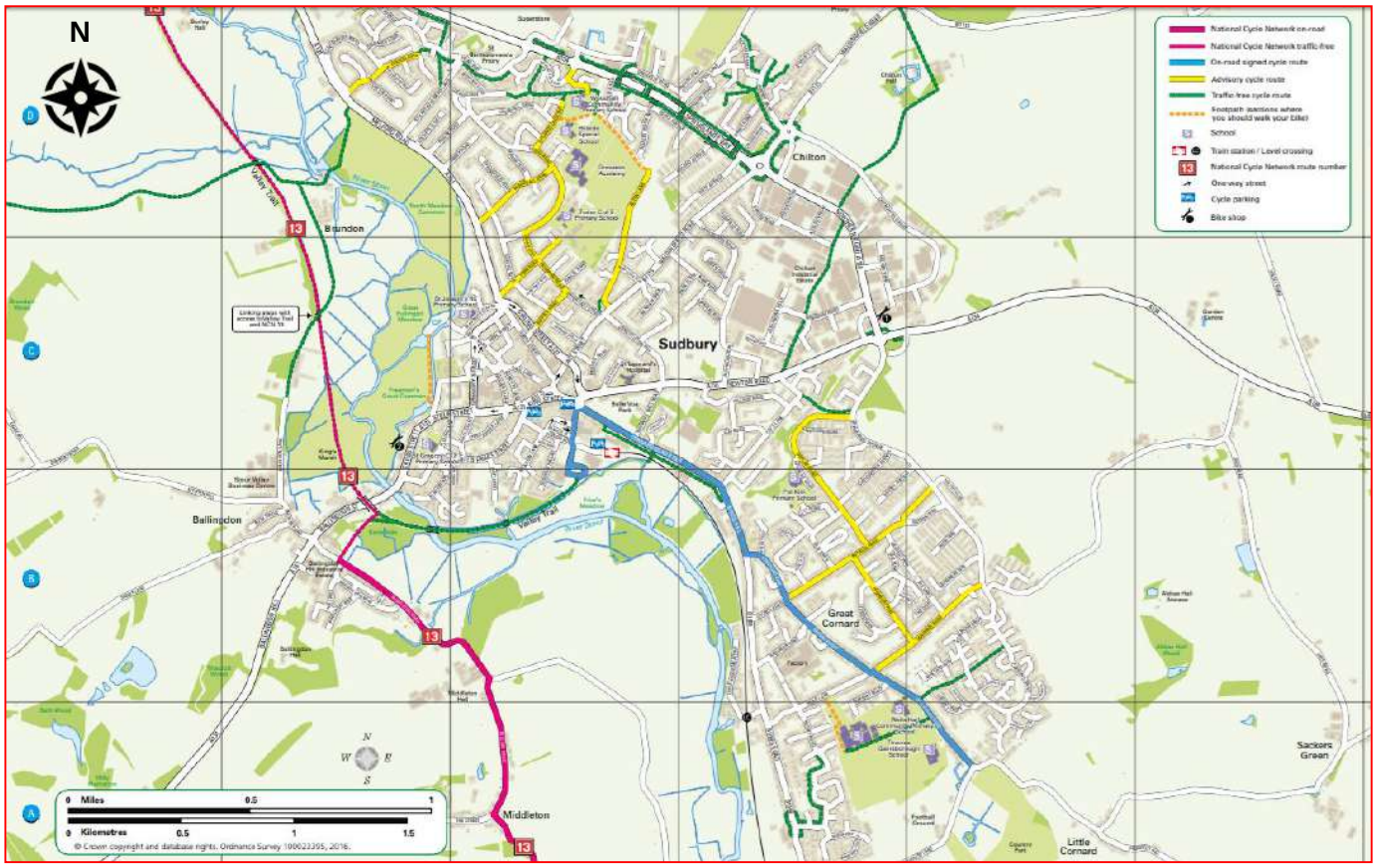
[33] www.suffolkonboard.com

WALKING AND CYCLING NETWORKS

Cycling

2.1.29. Sudbury has a limited number of designated cycle routes, including National Cycle Network 13. These trails connect to the wider Suffolk cycling trails, as shown in Figure 9.

Figure 9 - Cycle routes[4]



Walking

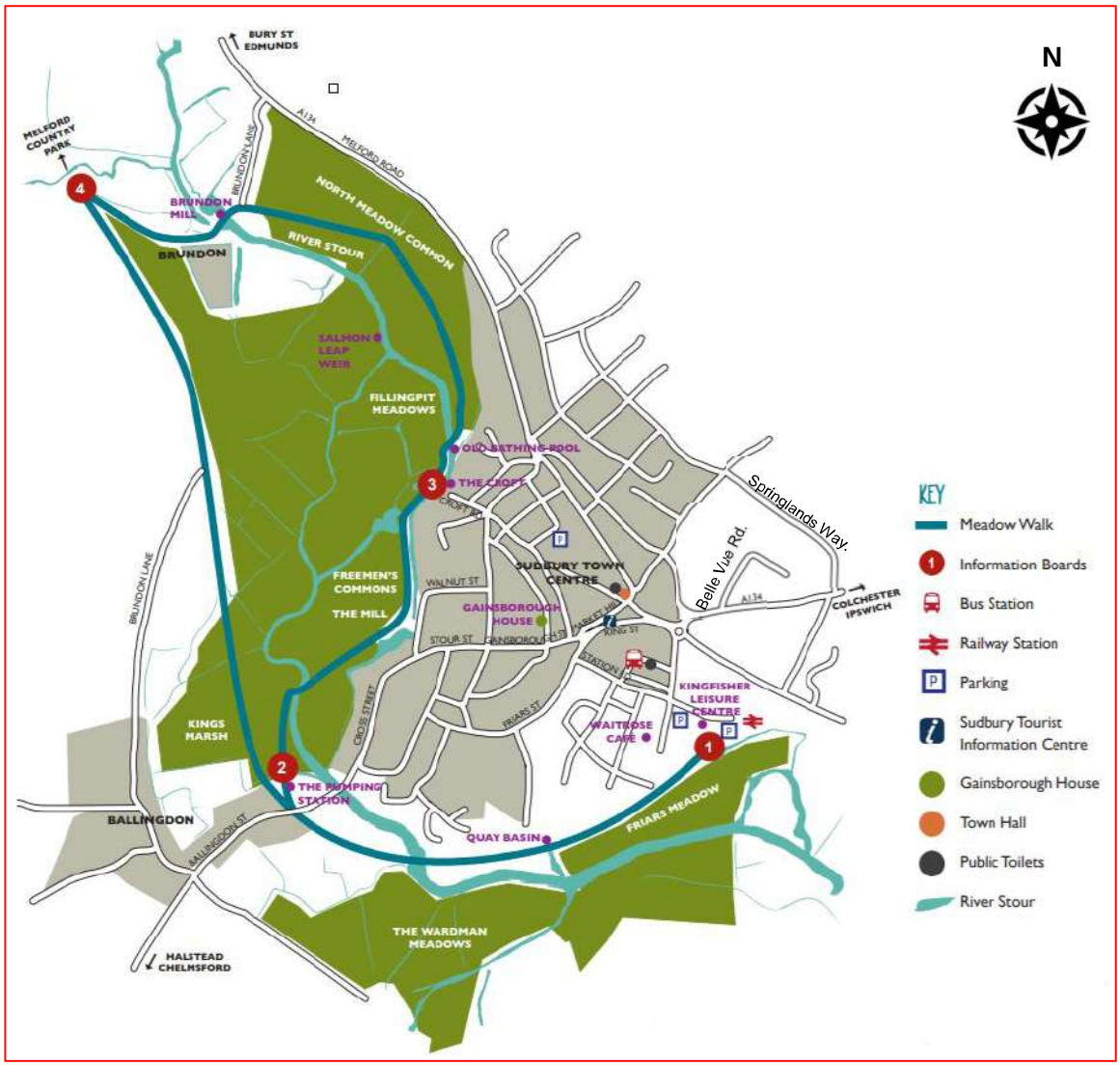
2.1.30. A 2009 Sudbury transport study undertaken by AECOM on behalf of Babergh District Council/Suffolk County Council concluded that the level of pedestrian infrastructure varied considerably across the Sudbury Town Centre. The study identified that the provision of pavements leading to the Town Centre were either poor quality/narrow, or only on one side of the road. The study also identified inadequate road crossings, notable at the Belle Vue Junction, impacting the ease of movement for pedestrians.

[4] https://www.suffolk.gov.uk/assets/Roads-and-transport/cycling/Sudbury-cycling-map.pdf

2.1.31. The study found that there was a comprehensive network of pedestrian infrastructure, including footpaths and bridges, on either side of Springlands Way (A134).

2.1.32. In terms of recreational walking routes, the Meadow Walk, which runs through the Water Meadows alongside the River Stour on the western side of the town links important visitor destinations in and around the town centre, as shown in Figure 10.

Figure 10 – Sudbury Walking Routes[5]



[5] http://mediafiles.thedms.co.uk/Publication/ee-stp/cms/pdf/Gainsborough-Trail-Meadow-Walk.pdf

2.2 TRANSPORT DEMAND AND LEVELS OF SERVICE

Overview

2.2.1. Travel in and around Sudbury, which has over 70% households with one or more cars, is dominated by use of the private car. 74% of Babergh residents use car as the main mode of travel to work, and there is a substantial level of through traffic, both private vehicles and freight traffic. The following section summarises the traffic conditions in Sudbury using the Suffolk County Transport Model (SCTM).

SUFFOLK COUNTY TRANSPORT MODEL

2.2.2. WSP was previously commissioned by SCC to develop the Suffolk County Transport Model (SCTM). The Highway Assignment Model element of the SCTM is a strategic model based in SATURN which covers Suffolk in its entirety. The SCTM has previously been validated for a base year of 2016 utilising Mobile Network Data (MND) provided by Telefonica as the main source of data for the traffic demand. The SCTM has been used to provide evidence of the current traffic conditions within Sudbury, discussed in this section. The SCTM is also used for analysis of future traffic conditions discussed later in this report.

2.2.3. For the purposes of this report, the SCTM 2016 base year daily flows were compared against the average daily flows from the commissioned 2018 Automatic Traffic Count (ATC) sites throughout Sudbury, which is shown in Figure 11 below.

Figure 11 – Two-way Daily Flows (ATC vs SCTM)

2.2.4. The figure above shows that the SCTM base year model is within 5% of observed values at nearly half the surveyed locations, with modelled flows within 20% at all surveyed locations. Hence it is considered appropriate to use the SCTM for the current assessment.

Highway Traffic

2.2.5. The SCTM has been used to derive estimates of 2016 daily traffic flows, which is referred to below as Average Annual Daily Traffic (AADT), in and around Sudbury. Daily traffic flows for the strategic road network in and around the town are presented in Figure 12. It is estimated there are 85,000 vehicular trips made within Sudbury per day, of these trips around 45,000 (54%) pass through Sudbury town centre.

2.2.6. The dominant strategic movements within Sudbury are the north-south A134 to/from A131 Ballingdon Hill, as well as east-west between the A134 to/from the A131.

2.2.7. This distribution of traffic is also reflected in the AM peak hour (0800-0900), average inter peak hour (1000-1600) and PM peak hour (1700-1800) flows as shown in Figure 13 to Figure 15.

Figure 12 - Existing AADT Vehicles (Sudbury Area)

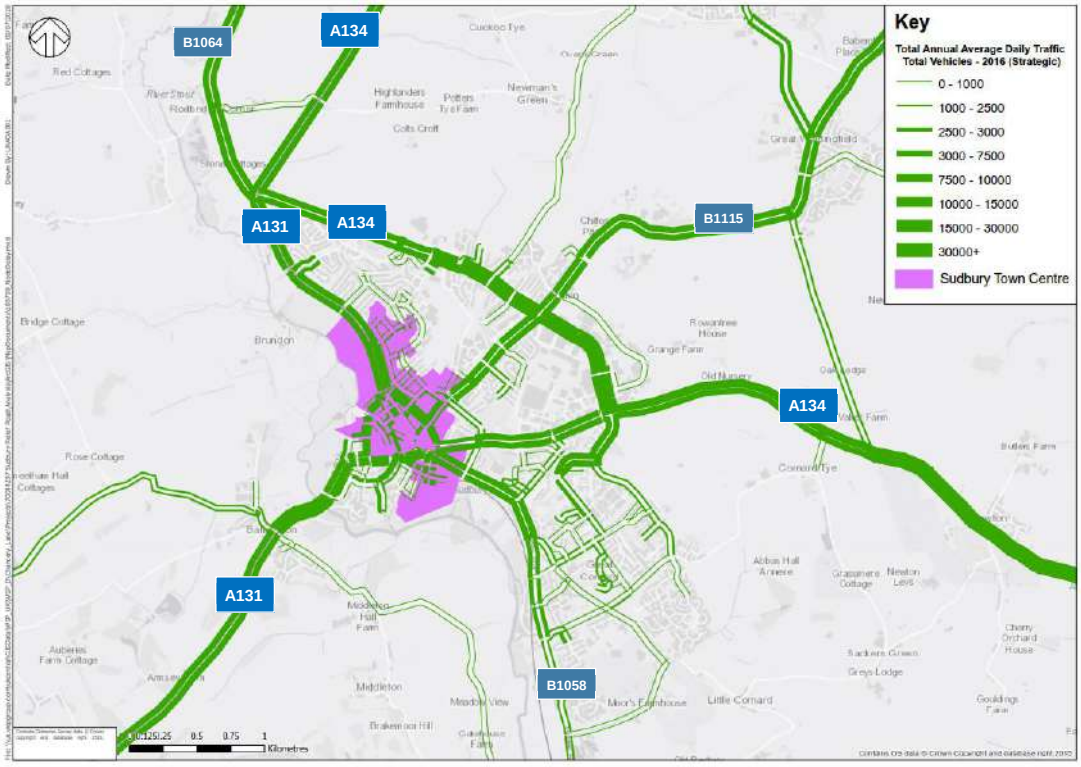


Figure 13 - Existing AM Peak Total Vehicles

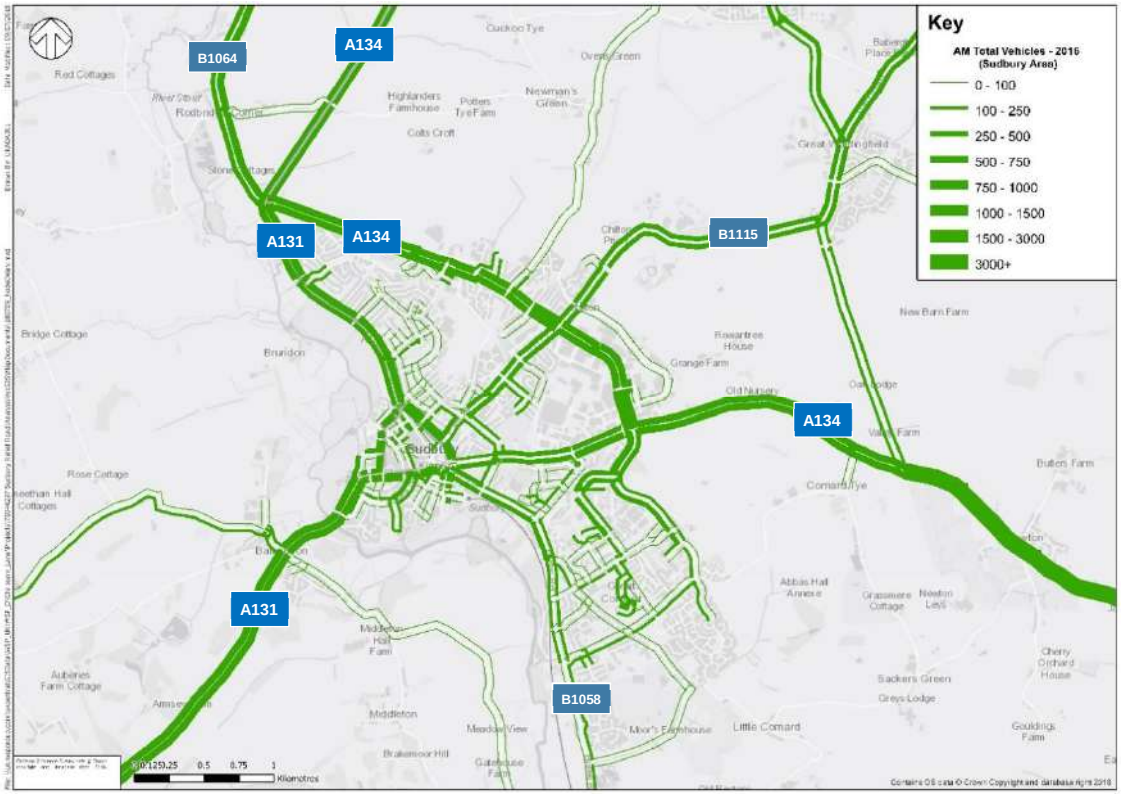
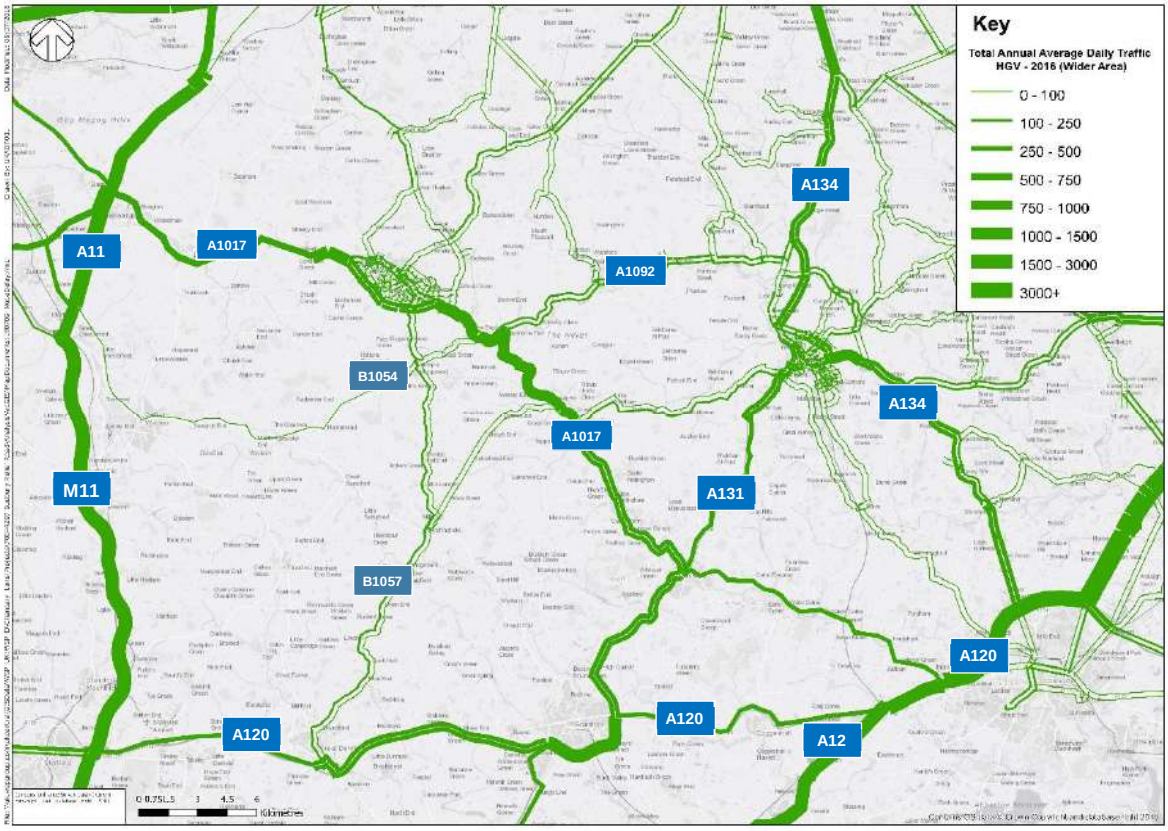


Figure 14 - Existing Inter Peak Total Vehicles

Figure 15 - Existing PM Peak Total Vehicles

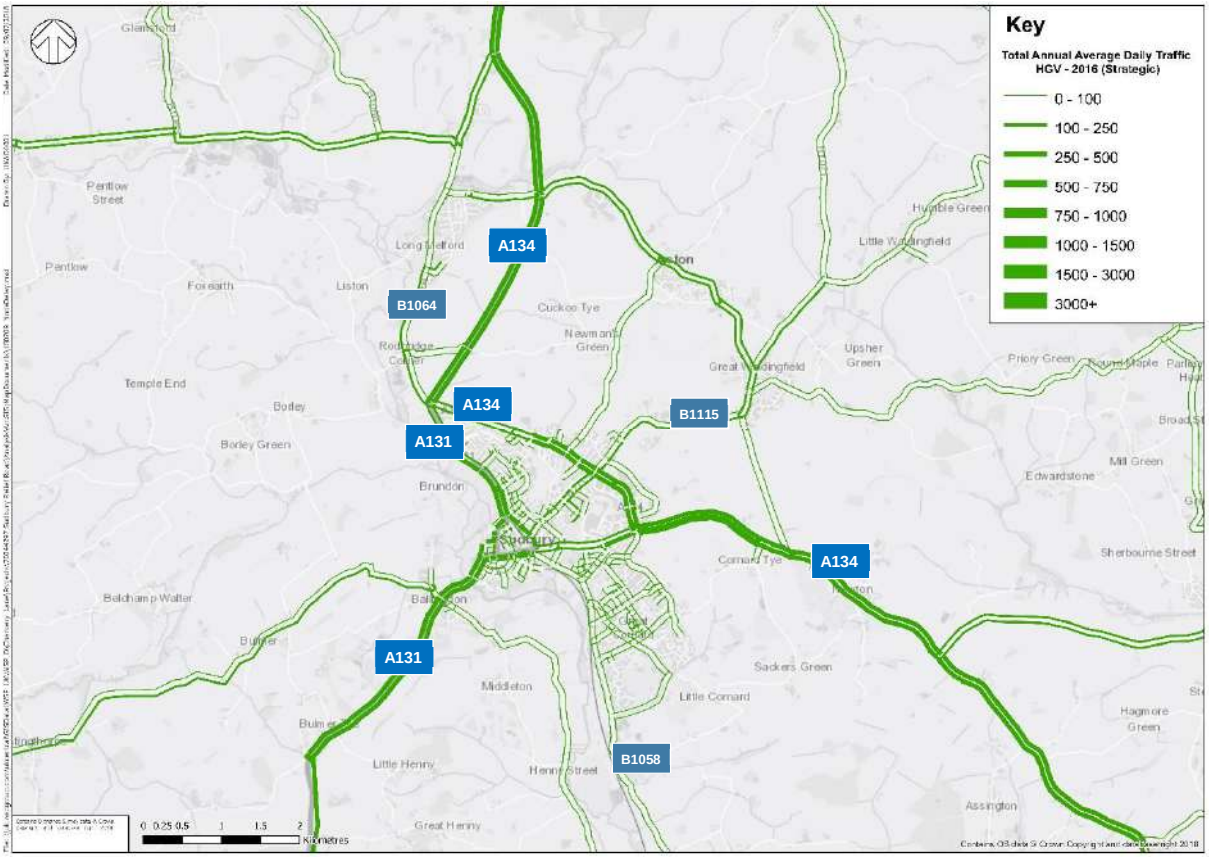
2.2.8. The SCTM includes HGVs as a specific vehicle class, separate from cars and LGVs, as part of the model assignment. Figure 16 shows the 2016 daily HGV traffic in south-west Suffolk and north-west Essex. As expected the M11 and A12 carry the largest volumes of HGV traffic. The A134 between Bury St Edmunds, Sudbury and Colchester as well as the A1017 between Haverhill and Braintree via the A131 are also shown to be key strategic routes for HGVs. The A131 in Sudbury and the A120 at Braintree also provide significant strategic routes for HGV traffic.

Figure 16 - Existing Daily HGV Flows (Wider Area)



2.2.9. Figure 17 shows the daily HGV traffic on the strategic highway network around Sudbury. It is estimated there are around 2,700 daily HGV trips on an average weekday within the Sudbury area. This shows a significant amount of HGV traffic routes via the A134 avoiding the town centre. However, there is also a high proportion of HGV movements which route through Sudbury town centre via the A131 – it is estimated that around 1,300 daily HGV trips pass through Sudbury town centre. This is close to 50% of all daily HGV traffic in the Sudbury area.

Figure 17 - Existing Daily HGV Flows (Strategic Area)



2.2.10. The analysis shows that A131 and A134 are important strategic routes for HGV traffic to move between key locations in Suffolk and Essex. Within the context of Sudbury, there is a significant proportion (over 50%) of HGV traffic which opts to route via the A134 avoiding the town centre. However, the HGV traffic which is required to route along the A131 has to traverse the Sudbury town centre gyratory system where it is more likely to cause congestion and delays.

Highway Level of Service

2.2.11. The SCTM is able to present the level of stress on the highway network in terms of Volume to Capacity (V/C) percentage ratios. This is used to highlight locations on the highway network which are close to (85-99%) or over capacity (100%+) and are likely to experience significant congestion during the peak periods. These highlighted locations will be sensitive to future increases in traffic. Information on the average delay in seconds at junctions is also presented as part of the analysis of highway capacity.

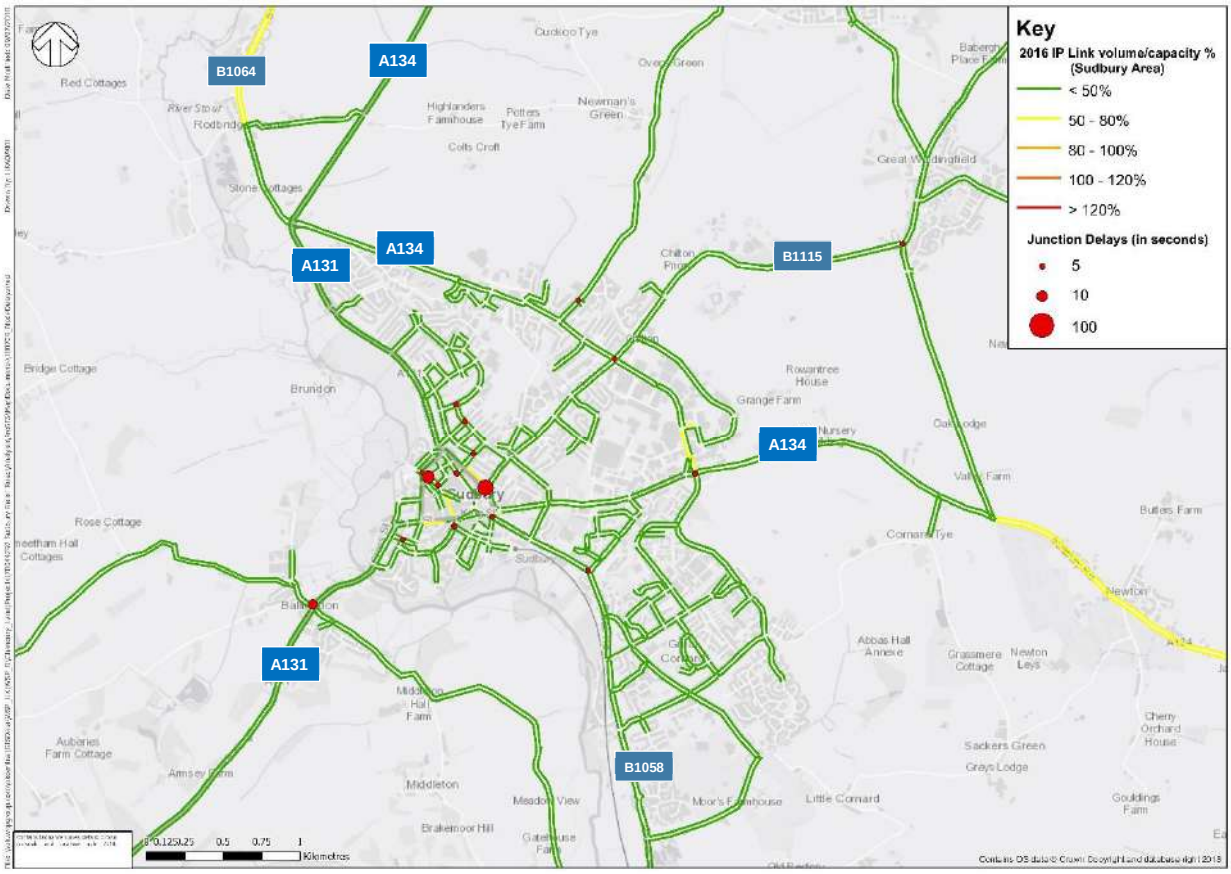
2.2.12. Figure 18 shows V/C on links and junction delay in the AM peak hour (0800-900).

Figure 18 – Existing V/C on links and junction delay - AM Peak

2.2.13. Figure 18 shows the A134 Northern Road is the location which is closest to being over-capacity. This location shows higher congestion due to the high density of employment land uses in this area and the associated traffic this generates.

2.2.14. Figure 19 shows the V/C on links and junction delay for an average inter peak hour (1000-1600)

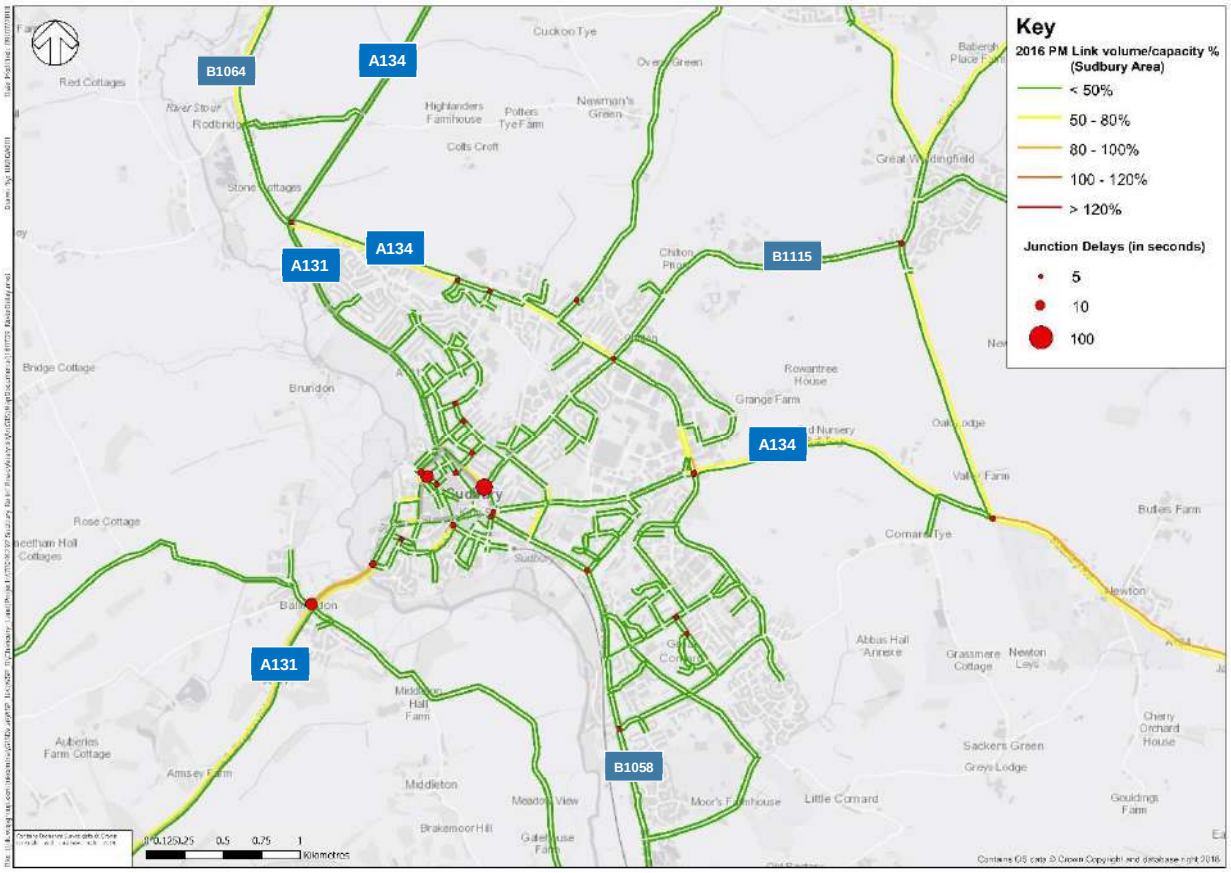
Figure 19 - Existing V/C on links and junction delay - Inter Peak



2.2.15. Figure 19 shows that majority of the highway network within Sudbury operates within capacity during the interpeak.

2.2.16. Figure 20 shows the V/C for links and junction delay in the PM peak hour (1700-1800).

Figure 20 - Existing V/C on links and junction delay - PM Peak



2.2.17. Figure 20 shows the A134 Northern Road approach to the roundabout (junction with the A134 Newtown Road/Shawlands Avenue) is close to capacity. This is assumed to be as a result of outbound traffic from the employment sites in these areas. The A131 to the south-west of Sudbury crossing the River Stour is also shown to be close to capacity.

In summary, based on the AM, inter peak and PM peak hour V/C percentages in Figure 18 to Figure 20 the following roads are shown to have existing congestion issues:

- A134 NB - between Windham Road and Milner Road (AM Peak);
- Milner Road EB – between Northern Road and Milner Road (AM Peak);
- A131 NB – between Bulmer Road and B1115 Church Street (PM Peak); and
- A131 SB – between East Street and Newton Road (PM Peak).

2.2.18. The following junctions are shown to experience the highest levels of delay:

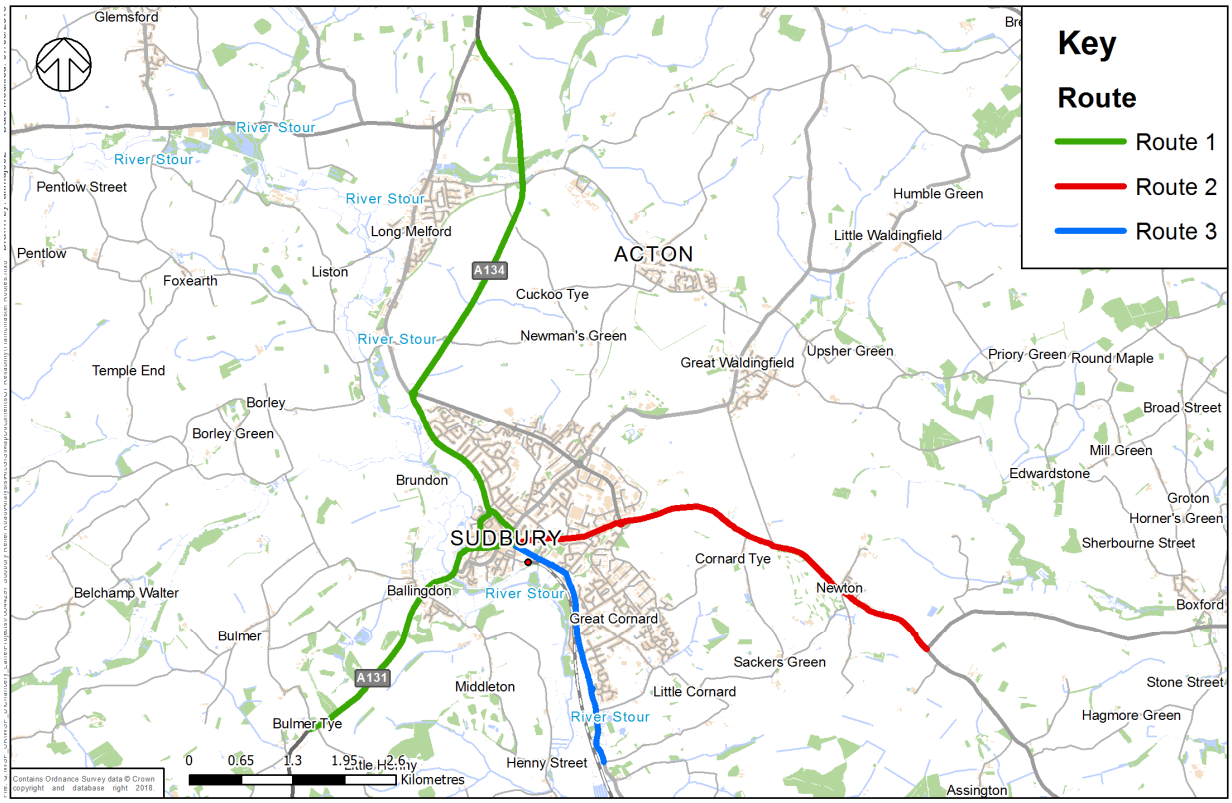
- A131 Girling Street / East Street;
- A131 Gainsborough Road / Croft Road;
- A131 Ballingdon Hill / A131 Ballingdon Street / Bulmer Road / Middleton Road;
- A131 / Hedingham Road;
- Junctions on A134 Newton Road; and
- A134 Assington Road / A1071.

Network Average Speeds

2.2.19. WSP has obtained Trafficmaster GPS data for September 2015 to August 2016 from Suffolk County Council and Essex County Council. This data has been analysed to look at the journey times and journey time reliability along the following key routes within Sudbury which are shown in Figure 21:

- A131 / A134 – Between A1092 and Bulmer Tye
- A134 / Newton Road – Between A131 and A1071
- B1508 – Between A131 / Newton Road and and Kedington Hill (south of Great Cornard)

Figure 21 – Sudbury selected journey time routes



2.2.20. The Trafficmaster GPS data has been filtered to only include neutral weekdays for the following months: September to November 2015 and March to May 2016.

2.2.21. Trafficmaster GPS data often contains outliers, therefore the median travel time is considered the most appropriate measure of the travel time. Analysis has been undertaken of AM, IP and PM peak average speeds for each of the routes, this is presented in Figure 22 to Figure 39.

Figure 22 - Trafficmaster journey time average speed per section - Route 1 Northbound (AM Peak)

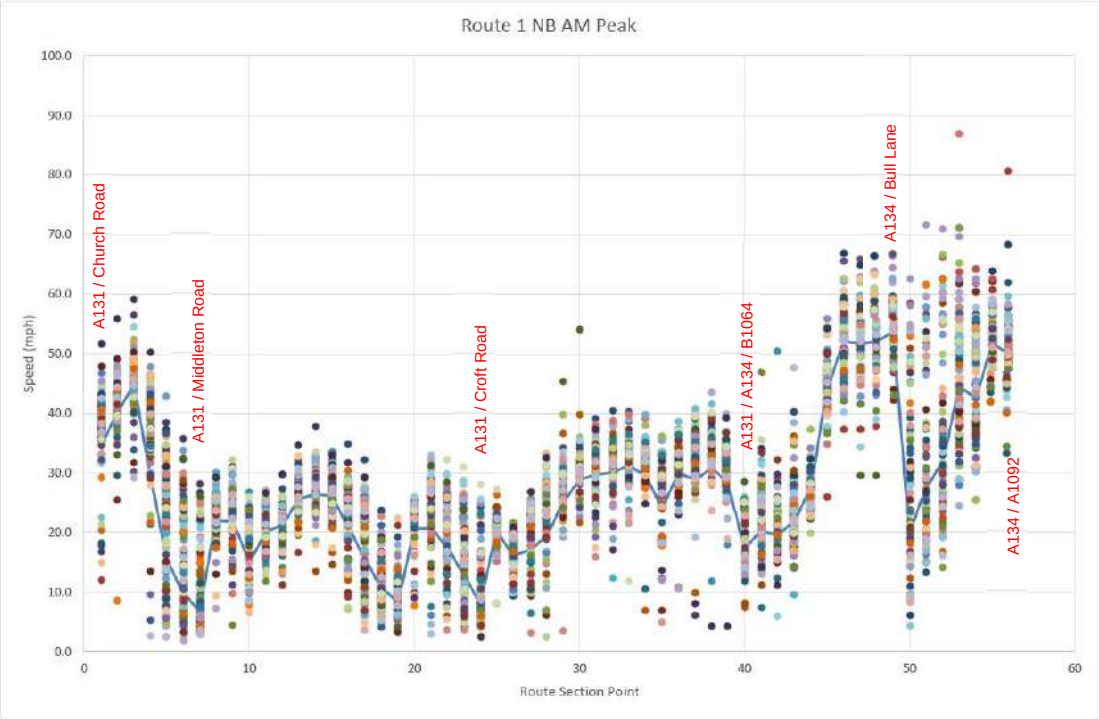


Figure 23 - Trafficmaster journey time average speed per section - Route 1 Northbound (Inter Peak)

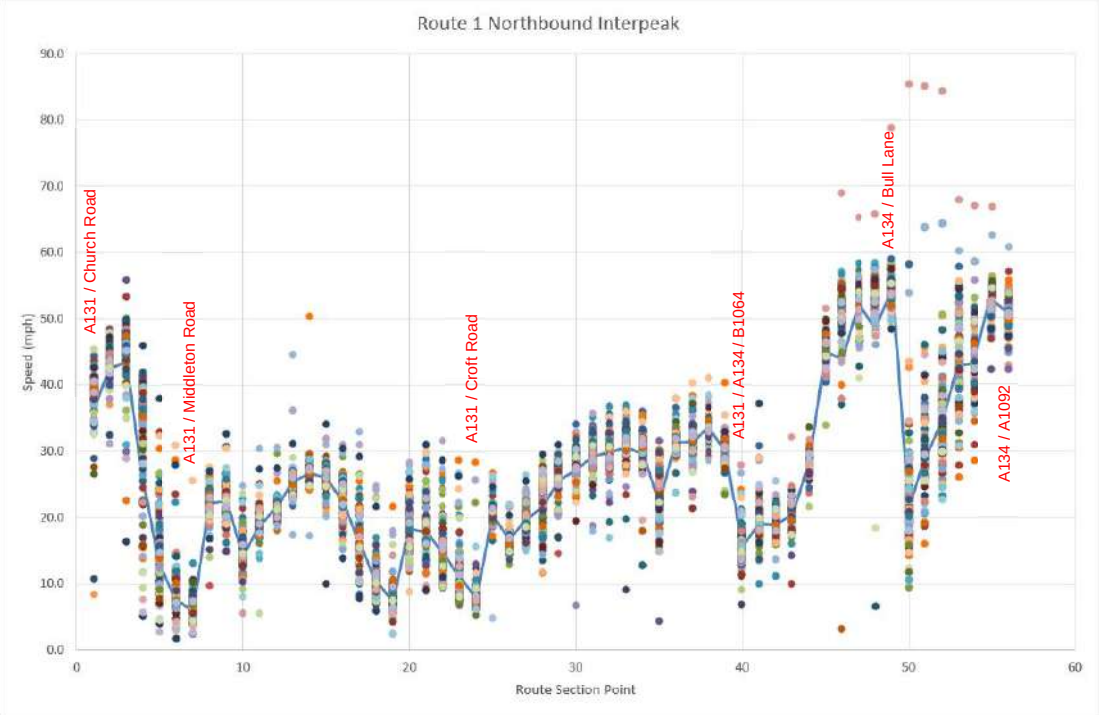
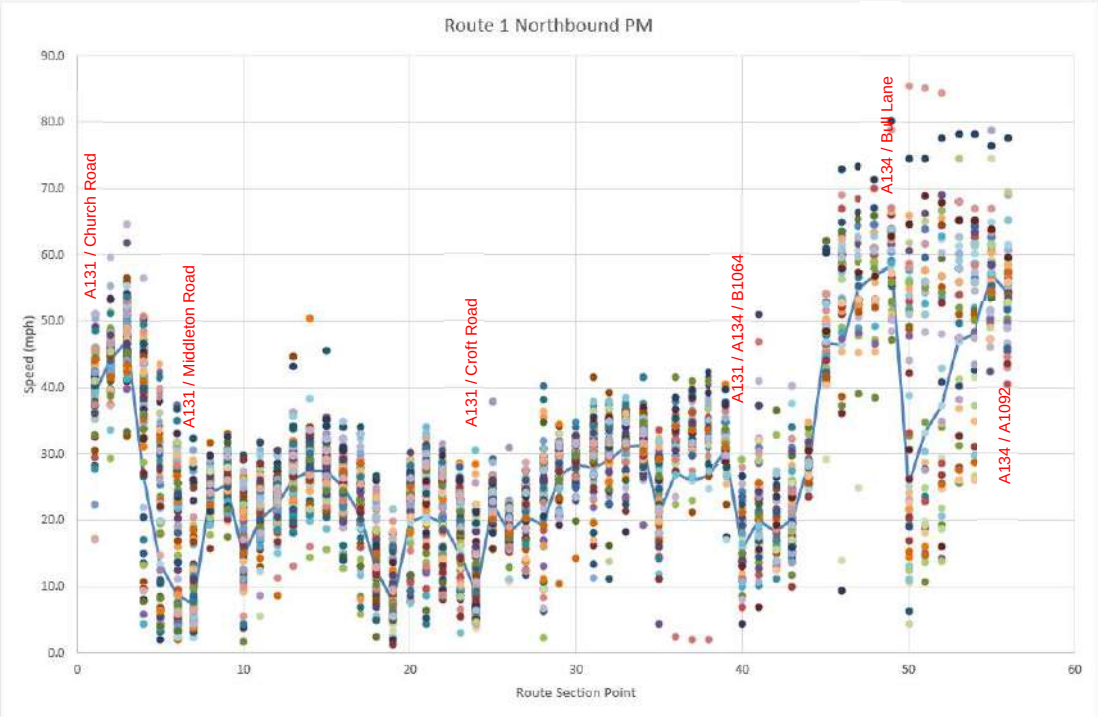


Figure 24 - Trafficmaster journey time average speed per section - Route 1 Northbound (PM Peak)



2.2.22. Figure 22, Figure 23 and Figure 24 show that the northbound approach at A131 / Middleton Road signalised junction has the slowest average speed in the AM, IP and PM peaks on Route 1, with an average speed of 7, 6 and 7mph, respectively. This is reflected in the 2016 base year SCTM results shown in Figure 18 to Figure 20, which indicate delays at this junction in all peak hours.

Figure 25 - Trafficmaster journey time average speed per section - Route 1 Southbound (AM Peak)

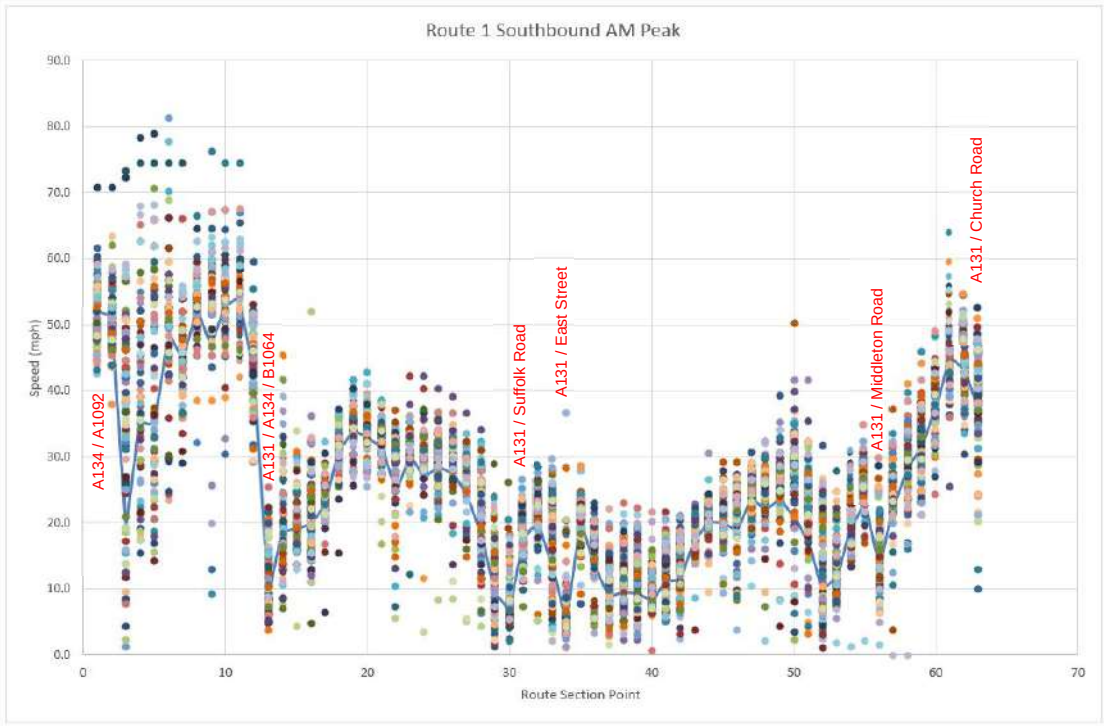


Figure 26 - Trafficmaster journey time average speed per section - Route 1 Southbound (Inter Peak)

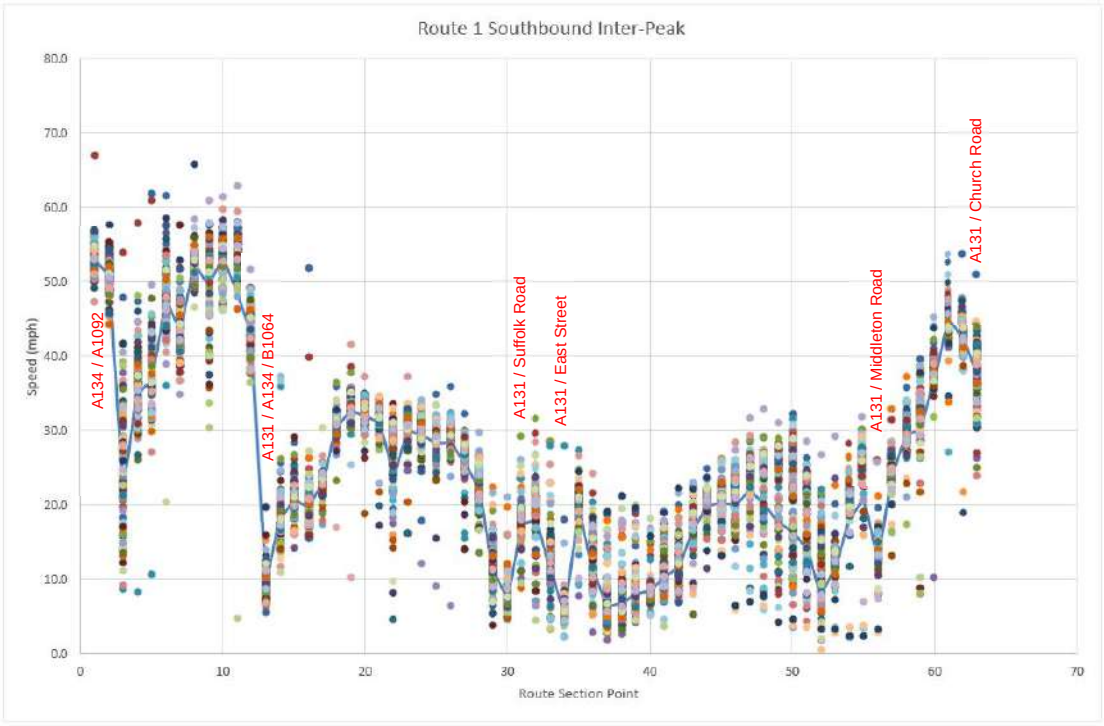
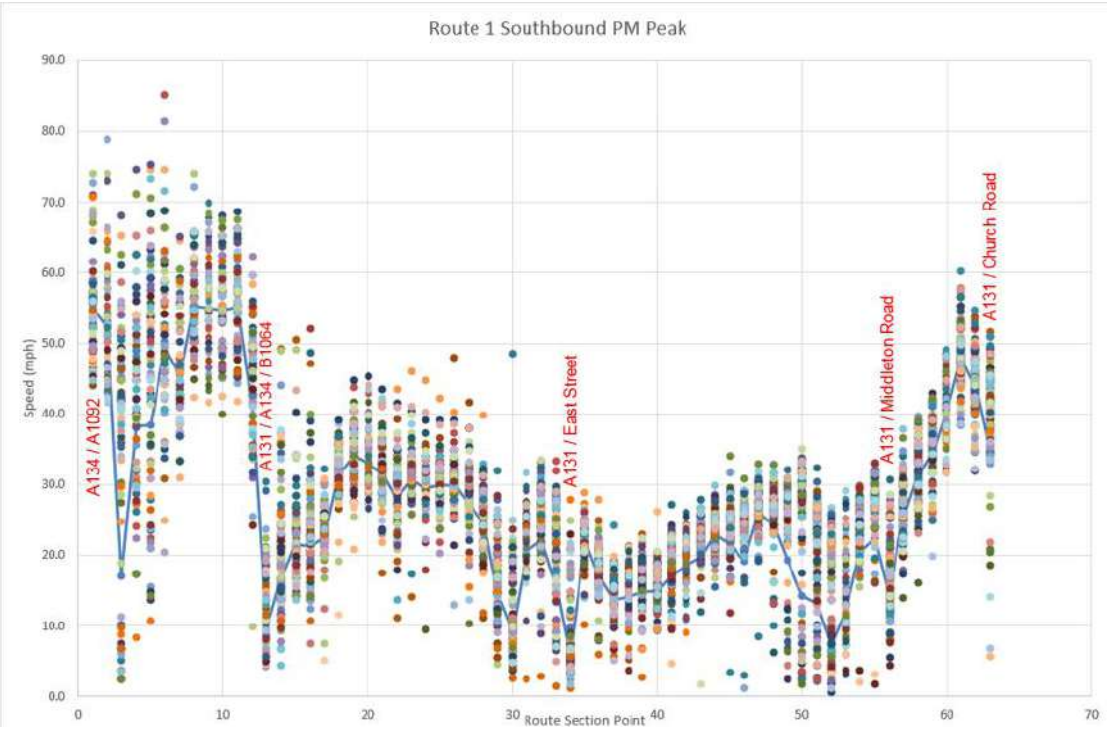


Figure 27 - Trafficmaster journey time average speed per section - Route 1 Southbound (PM Peak)



2.2.23. Figure 25, Figure 26 and Figure 27 show that the section towards A131 / East Street junction has the slowest average speed in the AM, IP and PM peaks on Route 1 SB, with an average speed of 5-6mph. This is reflected in the 2016 base year SCTM results shown in Figure 18 to Figure 20, which indicate delays on A131 / East Street junction in all peak hours.

Figure 28 - Trafficmaster journey time average speed per section - Route 2 Eastbound (AM Peak)

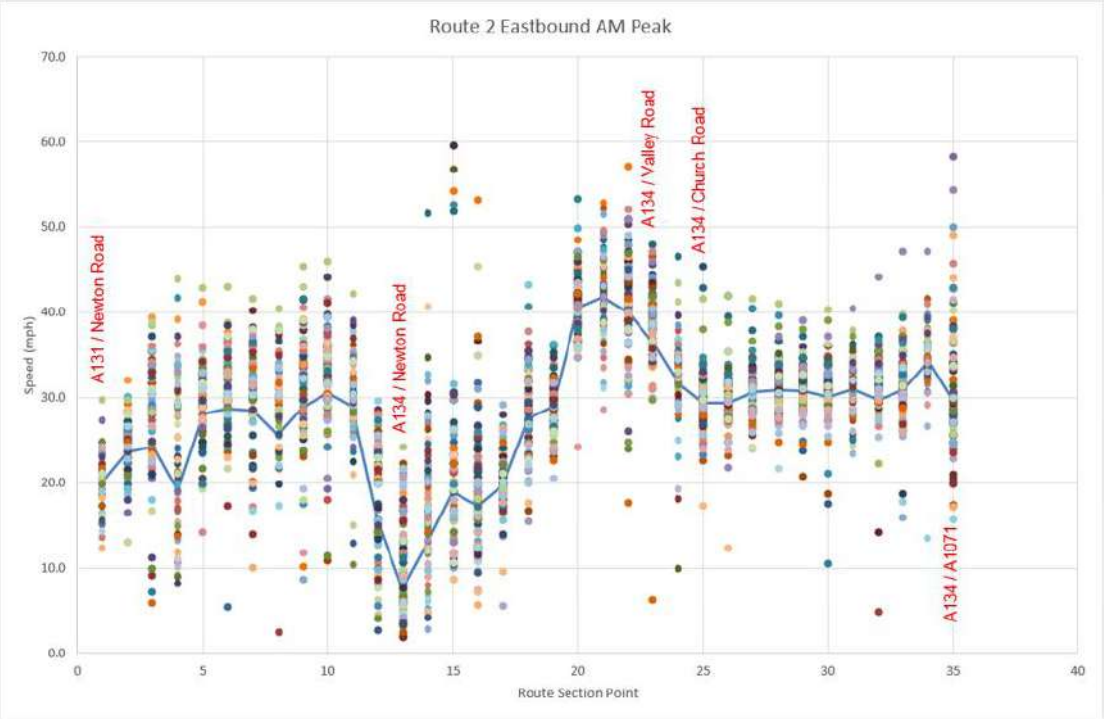


Figure 29 - Trafficmaster journey time average speed per section - Route 2 Eastbound (Inter Peak)