Babergh Local Development Framework – Transport Impacts

Report by AECOM

Babergh District Council and Suffolk County Council
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1 Introduction

1 Introduction

1.1 Background

1.1.1 This Report has been prepared by AECOM, the transport planning consultancy partner providing support to Suffolk County Council. The work described here has been commissioned jointly by Babergh District Council (BDC) and Suffolk County Council (SCC). The detailed scope of work was described in a Proposal from AECOM dated 4 August 2009, responding to a draft Brief from BDC dated 17 July 2009.

1.1.2 The work concerns a review of the transport impacts implications of the spatial strategy and future growth within Babergh District, in particular the emerging proposals for the broad locations of housing provision being discussed as part of the development of the Babergh Core Strategy. The review concentrates on two main aspects of the impacts: the way in which the developments can achieve a high level of sustainable transport connections within the overall land use pattern; and the likely scale and location of specific car traffic impacts on the connections to the strategic road network.

1.1.3 The original programme envisaged a two month programme – broadly mid August through to mid October. This Draft Final Report has been issued in early November. Following discussions, this Final Report is being issued in January 2010.

1.1.4 The work undertaken for this review has been entirely based on existing sources; no new data collection has been undertaken. The transport analyses and judgements are intended to inform the LDF evidence base for BDC, in the context of the transport authority SCC's policies and practice. Where relevant, consideration has been given to the likely concerns of the Highways Agency. As the LDF develops, more detailed and quantitative analyses will be required. The work described here will in due course be complemented by specific Transport Assessments prepared by individual potential site developers.

1.2 The Babergh District Council LDF Process

1.2.1 The BDC LDF Process has already been through the following stages:

- The Core Strategy Issues and Options Report was published in March 2009, and consulted on in April and May 2009;
- Several parallel investigations have been undertaken during the LDF development to provide a supporting evidence base (including this Study); and
- The Preferred Options Report is planned for publication early in 2010, with consultation to follow; and

1.2.2 The process is moving forward recognising the County and Regional context, as the funding, and regional growth targets evolve.

1.3 Objectives of this Study

1.3.1 The objectives of this Study include the following:

- To provide a robust evidence base related to transport and access issues to inform and support the Development Plan Documents (DPDs) and the Core Strategy process;
- To draw conclusions on the overall spatial strategy, including comments on the broad options being discussed;

- To examine the broad locations put forward in the spatial strategy, and assess their possible transport facilities and infrastructure requirements; and
- To consider the methods for delivering the transport requirements.

This work forms an early part of an evolving process.

1.4 Contents

1.4.1 Following this Introduction, this Report is structured in five further chapters:

- Chapter 2 Transport policy background
- Chapter 3 Accessibility and sustainability review
- Chapter 4 Traffic Impact Assessment
- Chapter 5 Transport Infrastructure Review
- Chapter 6 Conclusions

1.4.2 The main text is supported by three Appendices:

- Appendix A Facilities and sites – active mode and bus accessibility
- Appendix B Traffic pattern analysis
- Appendix C Workshop summary

2 Policy Context

2 Policy Context

2.1 National Transport Policy

2.1.1 The Local Development Plan process has been moving forward in each local planning authority as a two stage process. The BDC LDF will consist of 3 DPDs: the Core Strategy, Site Specific Allocations, and the Development Management Policies. As part of this process, analytical work is needed to demonstrate the efficiency, feasibility, deliverability and consistency of the proposals. In particular, the proposals need to fit into the wider national, regional, and county policy contexts, particularly the requirements of PPS1, PPS12, and PPG13.

2.1.2 Nationally there are three evolving trends, building an established policy and appraisal framework:

- Within the established appraisal framework, policy and funding constraints are resulting in transport system interventions being smaller scale, and directed towards supporting sustainable modes, and encouraging behavioural change – existing funding channels are being reduced;
- The delivery mechanisms are increasingly seen as involving the private sector, seeking to maximise the contribution from developers, but in a recently depressed and difficult market; and
- A new programme of 'Delivering a Sustainable Transport System' is being initiated, seeking to research the best methods for delivering change from the current car dominated system.

Thus in the context of high regional targets for new housing delivery, the funding mechanisms are changing and becoming less clear, and the funds flowing through them are reducing.

2.1.3 At present, the guidance on the background trends in transport is being called into question – the previous steady growth targets are clearly not happening, and local judgements need to be made as to the regional traffic trends.

2.2 Regional Spatial Strategy and Transport Policy

East of England Plan (2008)

2.2.1 The East of England Plan takes account of the Regional Economic Strategy and the Regional Sustainable Development Framework to provide a regional vision to achieve sustainable development in the East of England. The Plan covers the counties of Norfolk, Suffolk, Cambridgeshire, Essex, Hertfordshire and Bedfordshire.

2.2.2 The objectives of the overall spatial vision of the Plan which are considered relevant to this assessment are:

"*To reduce the region's impact on, and exposure to, the effects of climate change by:*
Locating development so as to reduce the need to travel; and
Effecting a major shift in travel away from car use towards public transport, walking and cycling.
To address housing shortages in the region by:
Securing a step change in the delivery of additional housing throughout the region, particularly the key centres for development and change.
To realise the economic potential of the region and its people by:
Providing for job growth broadly matching increases in housing provision and improving the alignment between the locations of workplaces and homes; and
Ensuring adequate and sustainable transport infrastructure.
To improve the quality of life for the people of the region by:
Ensuring new development fulfils the principles of sustainable communities, providing a well designed living environment adequately supported by social and green infrastructure; and

Promoting social cohesion by improving access to work, services and other facilities, especially for those who are disadvantaged."

2.2.3 The spatial strategy of the East of England Plan encompasses nine policies. Those which are relevant will be examined further here.

Policy SS1: Achieving Sustainable Development

2.2.4 This states that the strategy aims to ensure that development:

"*Maximises the potential for people to form more sustainable relationships between their homes, workplaces, and other concentrations of regularly used services and facilities, and their means of travel between them.*"

Policy SS2: Overall Spatial Strategy

2.2.5 Policy SS2: Overall Spatial Strategy builds upon Policy SS1 and states that growth should be directed at the major urban areas of the region, namely where:

"*Strategic networks connect and public transport accessibility is at its best and has the most scope for improvement; and*
There is the greatest potential to build on existing concentrations of activities and physical and social infrastructure and to use growth as a means of extending and enhancing them efficiently."

2.2.6 New policies to be developed should:

"*Ensure new development contributes towards the creation of more sustainable communities in accordance with the definition above and, in particular, require that new development contributes to improving quality of life, community cohesion and social inclusion, including by making suitable and timely provision for the needs of the health and social services sectors and primary, secondary, further and higher education particularly in areas of new development and priority for regeneration; and*
Adopt an approach to the location of major development which prioritises the re-use of previously developed land in and around urban areas to the fullest extent possible while ensuring an adequate supply of land for development consistent with the achievement of a sustainable pattern of growth and the delivery of housing in accordance with Policy H1."

2.2.7 The possible locations that are under consideration for Hadleigh, Sudbury and the Ipswich Fringe are largely on greenfield sites, and will therefore need to ensure that sustainable transport options are provided so as to encourage residents to travel by modes other than the private car.

Policy E1 Job Growth

2.2.8 The RSS sets out indicative targets for the growth in employment through the Plan period from 2001 to 2021. For the Suffolk Haven Gateway area (covering Ipswich Borough, and Babergh and Suffolk Coastal Districts) this target is some 30,000 net new jobs. This challenging target , and the possible locations where these jobs might be located, needs to be kept in mind when considering the other aspects of the spatial strategy.

Policy SS3: Key Centres for Development and Change

2.2.9 Ipswich is identified in the East of England Plan as one of the key centres for development and change. These locations have been selected as they offer the greatest opportunity to make the most of existing infrastructure as well as improve what is already present.

2.2.10 As this study focuses on the provision of new housing, no emphasis has been made regarding the provision of employment in Ipswich. Therefore, any policies within the East of England Plan that refer to employment have not been discussed further in this report.

Policy SS4: Towns other than Key Centres and Rural Areas

2.2.11 Neither Hadleigh nor Sudbury have been designated as Key Centres in the East of England Plan. They therefore fall under Policy SS4.

2.2.12 This Policy aims to increase the economic and social sustainability of such towns through measures to:

- "*Support urban and rural renaissance;*
- *Secure appropriate amounts of new housing, including affordable housing, local employment and other facilities; and*
- *Improve the town's accessibility, especially by public transport.*"

2.2.13 Section 5 of the East of England Plan is dedicated to housing and should be read in conjunction with PPS3. AECOM has not reviewed PPS3 in relation to this study.

2.2.14 For Babergh District as a whole, between April 2001 and March 2021, there is a minimum dwelling provision of 5,600 new dwellings of which 1,340 dwellings had been built by March 2006. This leaves 4,260 dwellings to be built by March 2021.

Regional Transport Strategy (RTS)

2.2.15 The RTS forms Policy T1 of the East of England Plan. Its visions which are relevant to this study are:

To manage travel behaviour and the demand for transport to reduce the rate of road traffic growth and ensure the transport sector makes an appropriate contribution to reducing greenhouse gas emissions;
To encourage efficient use of existing transport infrastructure;
To enable the provision of the infrastructure and transport services necessary to support existing communities and development proposed in the spatial strategy;
To improve access to jobs, services and leisure facilities.

2.2.16 The East of England Plan then states that if these objectives are achieved then the following should result:

Improved journey reliability as a result of tackling congestion;
Increased proportion of the region's movements by public transport, walking and cycling;
Sustainable access to areas of new development and regeneration.

Policy T2: Changing Travel Behaviour

2.2.17 This policy is particularly relevant to influencing travel behaviour and the policies suggested could be applied to the potential broad directions of growth in Babergh District to try and promote and ensure sustainable travel.

2.2.18 The policy aims:

"*To bring about a significant change in travel behaviour, a reduction in distances travelled and a shift towards greater use of sustainable modes.*"

2.2.19 This could be achieved through the following policies:

"*Raise awareness of the real costs of unsustainable travel and the benefits and availability of sustainable alternatives;*
Encourage the wider implementation of workplace, school and personal travel plans;
Introduce educational programmes for sustainable travel;
Investigate ways of providing incentives for more sustainable transport use; and
Raise awareness of the health benefits of travel by non-motorised modes."

Policy T4: Urban Transport

2.2.20 This policy is aimed at urban areas including key centres, of which Ipswich is one. A range of measures which fit local circumstances should be implemented. For Ipswich these could include:

"*Ensuring urban extensions and other major developments are linked from the outset into the existing urban structure through safe, well designed pedestrian and cycling routes and a high standard of public transport;*
Capitalising on opportunities provided by new development to achieve area wide improvements in public transport services, footpaths and cycle networks;
Promoting public transport through quality partnerships or other agreements to deliver enhanced services, improved interchange, increased access, higher levels of public visibility, better travel information, and appropriate traffic management measures; and
Improvements to local networks for walking and cycling, including increasing the attractiveness and safety of the public realm.

Policy T5: Inter Urban Public Transport

2.2.21 Ipswich is identified as a Regional Transport Node. The East of England Plan states that improvements to public transport should take place at these nodes, and should include:

"*Improved access, particularly by sustainable local transport, to main line railway stations;*
Improvements to rail services to enhance capacity and passenger comfort; and
Facilities to support and encourage high quality interurban bus/coach services, particularly east-west links and other situations where rail is not available, co-ordinated with rail and local public transport."

Policy T6: Strategic and Regional Road Networks

2.2.22 Any development in the Ipswich Fringe would have an impact on the A14 Trunk Road. Policy T6 focuses on maintaining such strategic and regional road networks to ensure the following:

"*Improved journey time reliability as a result of tackling congestion;*
Improved access to key centres for development and change, strategic employment location and priority areas for regeneration;
Improved safety and efficiency of the network;
Mitigation of environmental impacts; and
Maintenance of the benefits from managing traffic demand."

Policy T8: Local Roads

2.2.23 The potential sites would also impact upon the local road network within Hadleigh, Sudbury and Ipswich.

2.2.24 This policy is therefore aimed at Local Authorities to:

"*Tackle congestion and its environmental impacts;*
Facilitate the provision of safe and efficient public transport, walking and cycling;
Provide efficient vehicular access to location and activities requiring it, particularly in areas of growth and where regeneration is dependent on improved access; and
Improve safety."

Policy T9: Walking, Cycling and other Non-Motorised Transport

2.2.25 This policy is particularly relevant to increasing and improving sustainable access to the potential broad directions of growth. This would be largely through walking and cycling. It is aimed to complete the National Cycle Network in this region by 2010 and to link it to local cycle networks. This could provide residents of any new developments with signed cycleways to destinations further afield as well as local towns and villages.

Policy T13: Public Transport Accessibility

2.2.26 Policy T13 states that:

"*Public transport provision, including demand responsive services, should be improved as part of a package of measures to improve accessibility. Public transport use should be encouraged through the region by increasing accessibility to appropriate levels of service of as high a proportion of households as possible, enabling them to access core services (education, employment, health and retail).*"

2.2.27 This policy is very relevant to the promotion of sustainable access to key services and the need to improve and build upon existing bus and rail services to provide residents with the option to not travel by car.

2.3 Suffolk County Council Policy

Suffolk County Council Local Transport Plan (2006 – 2011)

2.3.1 Suffolk County Council's Local Transport Plan (LTP) covers the period from 2006 to 2011 and focuses on how the County proposes to implement their transport strategy as well as outlining any longer term transport objectives for the County. The following plan – LTP3 – is starting to be outlined. During 2010, the LTP3 will be developed and the transition will begin. It is expected that LTP3 will be more closely integrated with the overall SCC policies for health,

environment and the economy, and will be drawn up in the expectation of reducing recources being channelled through the LTP process.

2.3.2 The objectives identified in the LTP which can be considered relevant to BDC and therefore this assessment are:

- Improve public transport, walking and cycling, particularly in town centres;
- Significantly improve bus and rail interchanges and facilities in Ipswich and ensure that the transport network caters to the needs of all users;
- Work with the Highways Agency to better manage and target investment on the A14 and improve safety by reducing conflicts between passenger transport and freight;
- Minimise the impact of traffic and transport infrastructure (including air quality) in market towns, villages and tourism hotspots to protect the county's environment and built heritage; and
- Maintain and improve Suffolk's transport network to support businesses and communities.

2.3.3 The vision for transport in Suffolk for the next 15 to 20 years is:

"*to deliver sustainable travel patterns that support Suffolk's ambitions to meet social and economic growth, enable regeneration and to fulfil its gateway role, whilst protecting its unique environment and quality of life.*"

2.3.4 Overall trends and statistics for the county reveal that:

There will be an overall 45% increase in car trips and 28% increase in heavy goods vehicle trips along the A14 corridor in the next 15 years;
Over 85% of Suffolk's working population are employed in the county;
The major commuting movements within the county are to and from Ipswich, Bury St Edmunds and the United States' military bases in Forest Heath;
Car ownership is high due to the rural nature of the county (rising by 7% between 2001 and 2003);
Motorcycles represent a high percentage of all licensed vehicles (5.2%);
Cycling and walking as modes of transport have declined over the past 10 years;
The car is used for short trips despite high levels of cycle ownership (70% of households) in the county; and
There is a high density of rights of way network in Suffolk with 73% of the population using the network weekly.

2.3.5 The accessibility section of the LTP highlights that accessibility within towns and urban areas is often considered adequate. However, in order for SCC to meet their aims of reducing congestion and improving air quality, more emphasis will need to be placed on walking and cycling. It is highlighted that this is particularly important in the main towns of the county where shorter distances mean that travelling by walking and cycling is more viable.

2.3.6 The overall aim of SCC's accessibility strategy is:

"to provide better opportunities to access employment, education, health, shopping and leisure, particularly for those people at risk from social exclusion due to location, income or other forms of disadvantage."

2.3.7 Babergh is highlighted in the LTP as a part of Suffolk to which there is poor access to market towns or major centres, and to general practitioners. It is therefore vital that any new developments are located in areas where this access is possible or where methods are in place to ensure that there is an adequate level of accessibility to those residents without access to a car.

2.3.8 The LTP aims to reduce congestion within Suffolk. Sudbury is identified as facing congestion problems in Suffolk. In order to reduce congestion as a whole, the LTP proposes investment in public transport infrastructure and sustainable travel. This includes:

Bus priority – buses play an important role in helping to reduce congestion. Reliability and punctuality are considered as key factors which will influence people's travel mode. SCC

aims to continue to introduce bus priority measures, including bus lanes. This is further detailed in Suffolk's Bus Strategy.
Improved provision and quality of bus services – the LTP aims to improve the provision of bus services through quality bus partnerships. This includes increased service reliability, better quality and availability of information via real time information displays, improved interchange facilities and improved waiting environments. SCC also aims to investigate the trial of a number of Kickstart schemes.
Improved provision and quality of facilities for pedestrians and cyclists – the County Council aims to implement detailed programmes of improvements to walking and cycling routes to encourage people to make short trips on foot or by bicycle. The overall aim is to provide good quality pedestrian facilities and improved cycle links to, within, and across town centres, linking transport facilities to key employment, education and shopping areas.
Improved Public Rights of Way – improvements to Public Rights of Way would allow these routes to be integrated with existing and new walking and cycling networks. Better maintenance is highlighted as a necessity.

2.3.9 The County also proposes a range of measures to target demand management. These include:

Availability and cost of car parking – these would include proposals to encourage a shift in commuting patterns through the promotion of green travel plans and secure cycle parking in existing and new developments.
Workplace travel planning – these would aim to bring about a shift in employees' mode of travel to work from the private car to a more sustainable mode.
Reducing the need to travel – SCC aims to reduce the need to travel as much as possible but also accepts that travel is a necessity and therefore will ensure that developments in Suffolk are well served by public transport, pedestrian and cycle facilities. They will ensure that resources are targeted towards schemes that promote long term sustainable travel and that appropriate developer contributions are received.

2.3.10 The LTP states that SCC will work with the Highways Agency in order to secure improvements to the A14/A12 Copdock interchange (which would reflect one of the options for broad locations to be considered in the Core Strategy) which would help reduce congestion at this junction.

2.3.11 Ipswich is identified in the LTP as a main town. As part of the town's status as Regional Interchange Centre, a significant level of new growth and development is expected. Consequently, sustainable transport modes are being encouraged. Public transport already plays an important role within Ipswich and Suffolk, although it is recognised that delays to increased car traffic could have an effect on viability of some bus services.

2.3.12 Bus priority measures have been introduced along London Road, which is one of the main corridors into Ipswich and as a result bus journey times have fallen.

2.3.13 As part of the 'Ipswich – Transport fit for the 21st Century' major scheme, improvements to public transport, walking and cycling accessibility is proposed. The package of measures includes:

- Better bus station facilities;
- Real Time Passenger Information;
- A new urban traffic management and control system;
- Improved pedestrian and cycle routes in and around the town centre;
- Introduction of a shuttle bus between the railway station and the town centre; and
- Collaboration with University Campus Suffolk, key business and school to develop travel plans.

2.3.14 Sudbury is named as one of the market towns in Suffolk which suffers from a high number of daily vehicle movements due to its strategic locations in the county. The Sudbury Western Bypass was rejected in 2003 and the following measures were identified to try to relieve congestion within the town:

- Provision of bus priority measures and associated infrastructure;

- A new bus loop service linking the development at Chilton with the town centre, railway station, Great Cornard and surrounding area;
- Improvements to bus stops with the possibility of introducing a real time passenger information system.

2.4 Babergh District Council Core Strategy

Babergh District Council Core Strategy Issues and Options (March 2009)

2.4.1 Babergh District Council (BDC) is currently in the process of developing the Babergh Local Development Framework (LDF) which once complete will replace some saved policies of the Babergh Local Plan, Alteration No. 2, which was adopted in June 2006.

2.4.2 The Core Strategy forms part of the Babergh Development Framework and will set out the broad vision and policies for Babergh in the future. It mainly concerns the development and use of land and will outline the strategy for delivering broad development needs in housing, employment, leisure, transport, retail and other important areas in Babergh.

2.4.3 The Issues and Options Report was consulted on in April and May 2009. The Preferred Options Report will be consulted on in February and March 2010. Following this, the final Core Strategy will be produced and submitted to central government by the end of 2010.

2.4.4 The Spatial Strategy of the Issues and Options Report details five options for development within Babergh District. There are discussed in more detail in section 3 of this Report.

2.4.5 Babergh District is required to provide at least 5,600 dwellings based on the East of England Plan reviewed earlier. It is envisaged that 600 of these would be in the Ipswich Policy Area with the remaining 5,000 in the rest of the District. Even this minimum is challenging for the largely rural District. The East of England Plan is currently undergoing a review, with potentially higher housing growth targets to be accommodated within Babergh District.

2.4.6 It is identified that Sudbury and its immediate surrounding area would be sensitive to development because the following improvements are already identified without any additional development taking place:

- Belle Vue junction improvements;
- Sudbury bus station facilities and better rural bus interchange;
- A134 / A131 roundabout (road safety scheme);
- Improve access around the town for cyclists and pedestrians;
- Cross Street area traffic management;
- Measures to improve air quality in particular parts of the town; and
- Sudbury Western Bypass.

2.4.7 With regards to the Sudbury Western Bypass, BDC has safeguarded the route should a scheme come forward, although this is unlikely to be able to be justified under current priorities for central and regional funding. The proposal is not favoured by authorities in neighbouring Essex.

2.5 Assumptions for this Study

2.5.1 Within the BDC LDF process, BDC are only exploring the options for the broad locations for new housing development. The subsequent process should then look at the identification of the specific broad locations, then allocating quanta of dwellings between these broad locations, and finally the identification of the specific sites and connections to the transport networks. This process is examined in this study.

2.5.2 The Consultants have had to make a series of informal assumptions to start this process:

- The maximum dwelling numbers which can sensibly be accommodated at each broad location in the long term, independent of other alternative broad locations;
- The specific connection points from the broad locations to the existing local road networks;

- The probable scale of transport infrastructure and facilities investment likely to be undertaken in any case by the developer and local authorities;
- The reasonable upper and lower bound range of traffic generation levels, taking into account nearby existing 'business as usual' travel patterns, and the likely behavioural changes to more sustainable, lower car use, patterns in the near future; and
- The range of background travel growth in the region, and its likely impact on critical elements in the transport networks.

2.5.3 Using these Consultants' starting assumptions, the implications of the various housing spatial options are worked through, to result in a suggested list of costed transport interventions required for each broad location. Subsequent iterations of the process can consider these initial suggestions together with other sectorial environmental and community facilities studies, to support the site specific allocations.

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3 Accessibility Review

3 Accessibility Review

3.1 Spatial Strategy Options for BDC

3.1.1 The adopted RSS identifies the need for at least 5,600 dwellings within Babergh District (2001 to 2021). Some 2,200 dwellings have already been built (2001 – 2009). Thus the remaining target minimum is 3,400, with the implications of further growth up to 2021 and beyond needing to be explored.

3.1.2 The Spatial Strategy for BDC sets out five options for distributing development. These are:

1. Business as Usual ('No Change');
2. Maximum Urban Concentration;
3. Equitable Dispersion;
4. Rural Development; and
5. New Settlement.

1. Business as Usual ('No Change')

3.1.3 Under this option, the approach for distributing housing would be the same as that set out in the existing Local Plan for the District.

- Sudbury / Great Cornard: Would provide major scale development through the identification of a new large strategic greenfield site or several smaller sites at the edge of town. The approach would further promote Sudbury / Great Cornard's role as the largest urban area in Babergh District. Self containment would also be reinforced as a result.
- Hadleigh: The level of development would be less than that of Sudbury / Great Cornard. Despite this, a new development site or sites would need to be found on the edge of the town. Hadleigh would remain a small market town with some degree of self containment.
- Key Service Centres (KSCs) / Ipswich Fringe: Development within the Ipswich Fringe area is constrained by the A14 and limited land availability. Development would therefore be more likely in the larger villages which make up the KSCs.
- Other / Smaller Villages: Any development at these locations would be dictated by local housing needs and is likely to consist largely of affordable housing. It is likely to be in the form of infilling or redevelopment of other sites.
- Other Rural Areas / Open Countryside: Any new development is likely to be rare and would require justification.

2. Maximum Urban Concentration

3.1.4 Under this approach, the focus is on sustainability. Consequently, there would be significant growth in the Ipswich Fringe with some associated growth in Sudbury / Great Cornard, and Hadleigh. KSCs would see little growth and change.

- Sudbury / Great Cornard: Development would be spread evenly throughout the town with a significant greenfield site likely to need to be identified. There would be less development than under the Business as Usual option.
- Hadleigh: A new relatively large greenfield site would be needed to accommodate the growth under this option. Development would be more than under the Business as Usual option and this would need to be combined with a growth in the number of jobs to prevent out-commuting.
- Ipswich Fringe: The highest proportion of development (nearly one third of all development) would be located in the Ipswich Fringe under this option. A new large greenfield site would be needed and this would need to be bounded by the A14 to ensure that villages beyond the A14 are not engulfed by the development.

- KSCs: These would see little development under this option with villages having to accommodate only around 20 houses per year.
- Other Rural Areas / Open Countryside: No development is proposed for these areas under this option.

3. Equitable Dispersion

3.1.5 The Equitable Dispersion approach would ensure that there would not be a concentration of development in any one particular area and that this would be spread amongst locations.

- Sudbury / Great Cornard: The largest share of development would still be in Sudbury / Great Cornard under this option but this would be reduced compared to the Business as Usual option. At least one new urban edge development site would need to be identified.
- Hadleigh: A significant amount of greenfield land would be needed under this option to accommodate the amount of development proposed. The level of growth would be approximately double that proposed under the Business as Usual approach.
- Ipswich Fringe: As with Hadleigh, growth in the Ipswich Fringe area would be roughly double that of the Business as Usual approach. It is likely that two sites would need to be identified.
- KSCs: Growth in KSCs would be significantly greater than under the Business as Usual option. However, this growth would be spread over several locations.
- Other / Smaller Villages: Same as under Business as Usual.
- Other Rural Areas / Open Countryside: Same as under Business as Usual.

4. Rural Development

3.1.6 As the name suggests, there would be increased development in the KSCs and larger villages with less reliance on Sudbury / Great Cornard, Hadleigh and Ipswich Fringe.

- Sudbury / Great Cornard: Even though the emphasis is on larger villages, Sudbury / Great Cornard would receive the largest single share of development although this would be less than the Local Plan.
- Hadleigh: Growth would be greater than under the Local Plan and accompanying growth in employment and services would be needed.
- Ipswich Fringe: It is likely that two greenfield sites would be required to accommodate the level of growth.
- KSCs: Collectively these would see growth, but new sites on the edges of the villages would need to be found.
- Other / Smaller Villages: These would not need to accommodate growth but could support the larger villages.
- Other Rural Areas / Open Countryside: No change in approach.

5. New Settlement

3.1.7 A new community of between 1,000 and 1,500 dwellings, but allowing for future growth, would be provided. The development would not be realistic at such a small number of dwellings and so the proposals would have to be for a larger development over a longer period of time. This would then allow jobs and key services to be provided as part of the development.

- Sudbury / Great Cornard: There would be significantly less growth than recently. However, the town would still remain as the main centre for Babergh district.
- Hadleigh: As with Sudbury / Great Cornard, there would be significantly less growth. It is unlikely that land would need to be found on the edge of town.
- Ipswich Fringe: Approximately three quarters of all new dwellings would be located here. A new greenfield site would need to be found to accommodate these.
- KSCs: Development would be spread thinly with the larger villages seeing about half the level of growth allocated in the Local Plan.
- Other / Smaller Villages: No new housing would be provided at these locations.

- Other Rural Areas / Open Countryside: No change in approach.

3.2 Broad locations being considered

3.2.1 While the timing and scale of the various Spatial Strategy Options are still evolving under discussion, for the purposes of this initial transport assessment, assumptions need to be made concerning the broad of specific development sites, to enable consideration of connections to the existing and proposed neighbouring transport infrastructure. Judgements also need to be made regarding the likely detailed layout of residential areas, and the extent to which educational, employment, community and commercial facilities are provided within the site. Further, to simplify the analysis, precautionary upper bound numbers of dwellings suggested at each location need to be established (which would sum to more that the planned total allocation, but could occur with one or other Option mix).

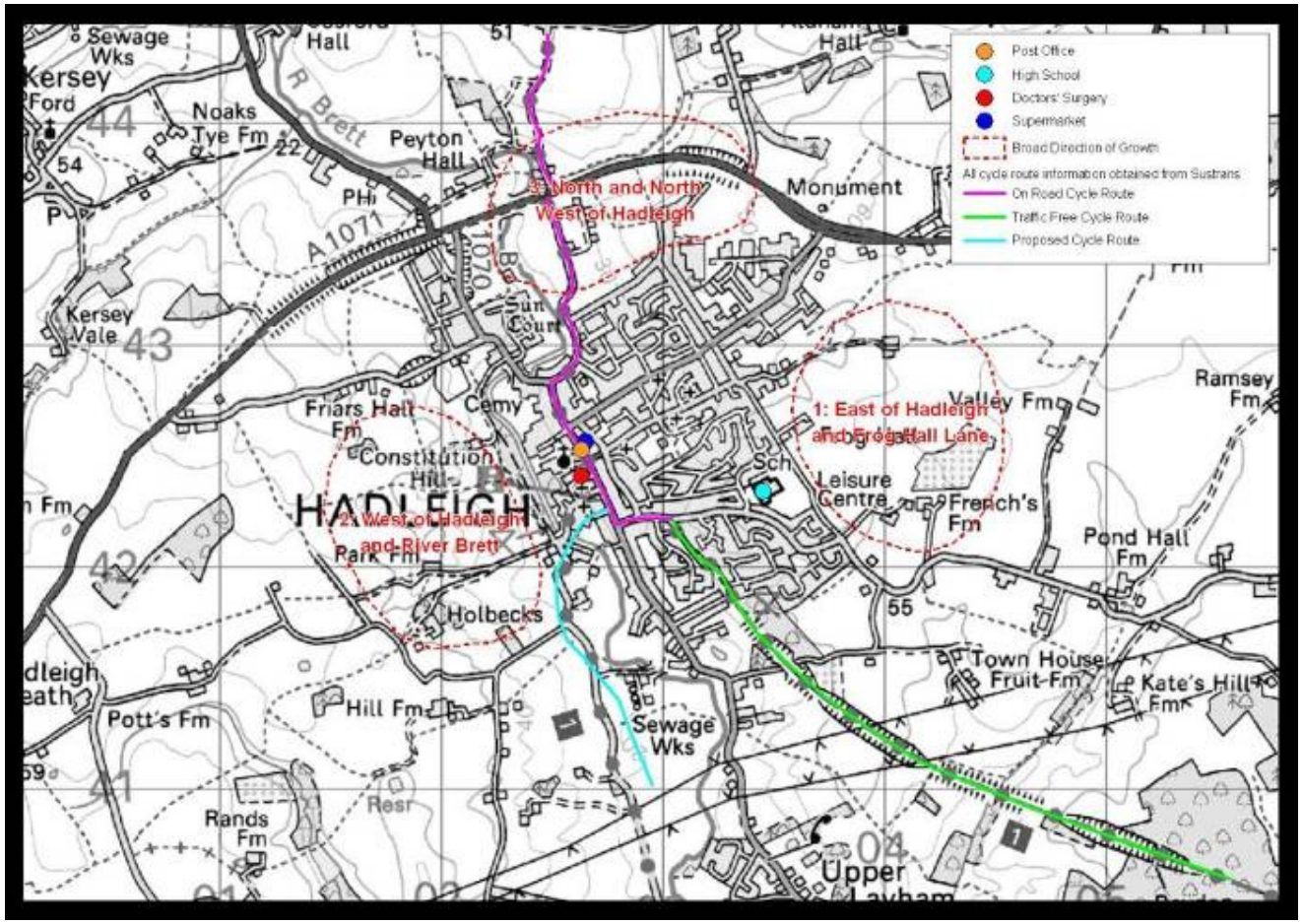
3.2.2 The Consultants, for the purposes of this initial transport assessment, have made the following assumptions regarding the broad locations:

Broad location	Potential maximum allocation (dwellings)
Hadleigh Area	
1: East of Hadleigh and Frog Hall Lane	1,100 possible at one broad location, or spread between them
2: West of Hadleigh and River Brett	
3: North and Northwest of Hadleigh	
Sudbury / Great Cornard Area	
4: Southwest of Sudbury	4,100 possible at one broad location, or spread between them
5: North of Sudbury	
6: East of Sudbury	
7: South and Southeast of Great Cornard	
Ipswich Fringe	
8: North of Copdock Interchange	1,600
(Key Service Centres)	(1,400)
TOTAL	8,200 including allocations to Key Service Centres

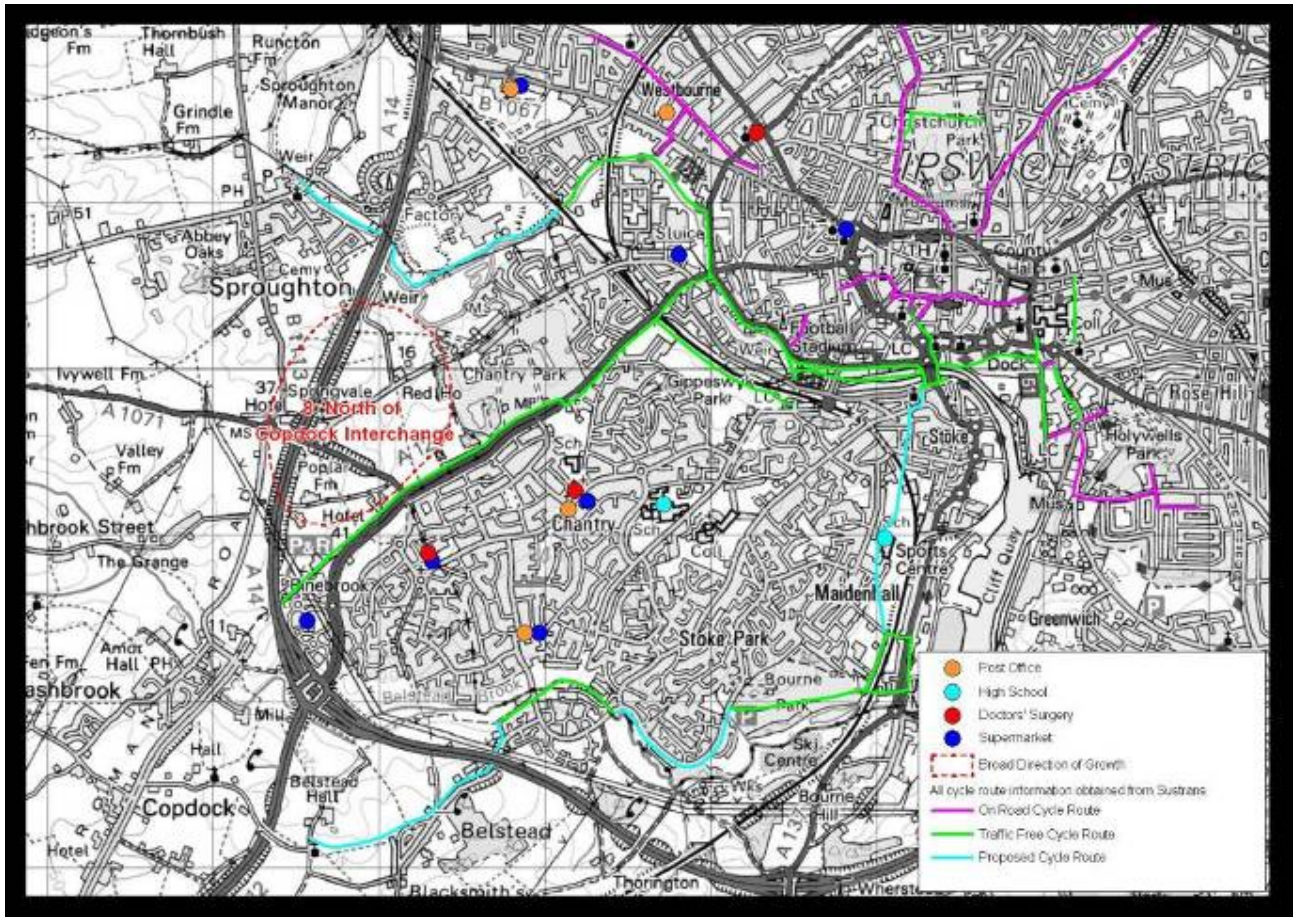
These eight broad options considered in the core strategy have been used in the following accessibility and traffic impact assessments. They are shown on the following three Figures.

3.2.5 As discussed further in Chapter 4, these options explore locations for housing with a capacity in excess of the East of England Plan minimum targets. No analysis has been undertaken regarding the Key Service Centres.

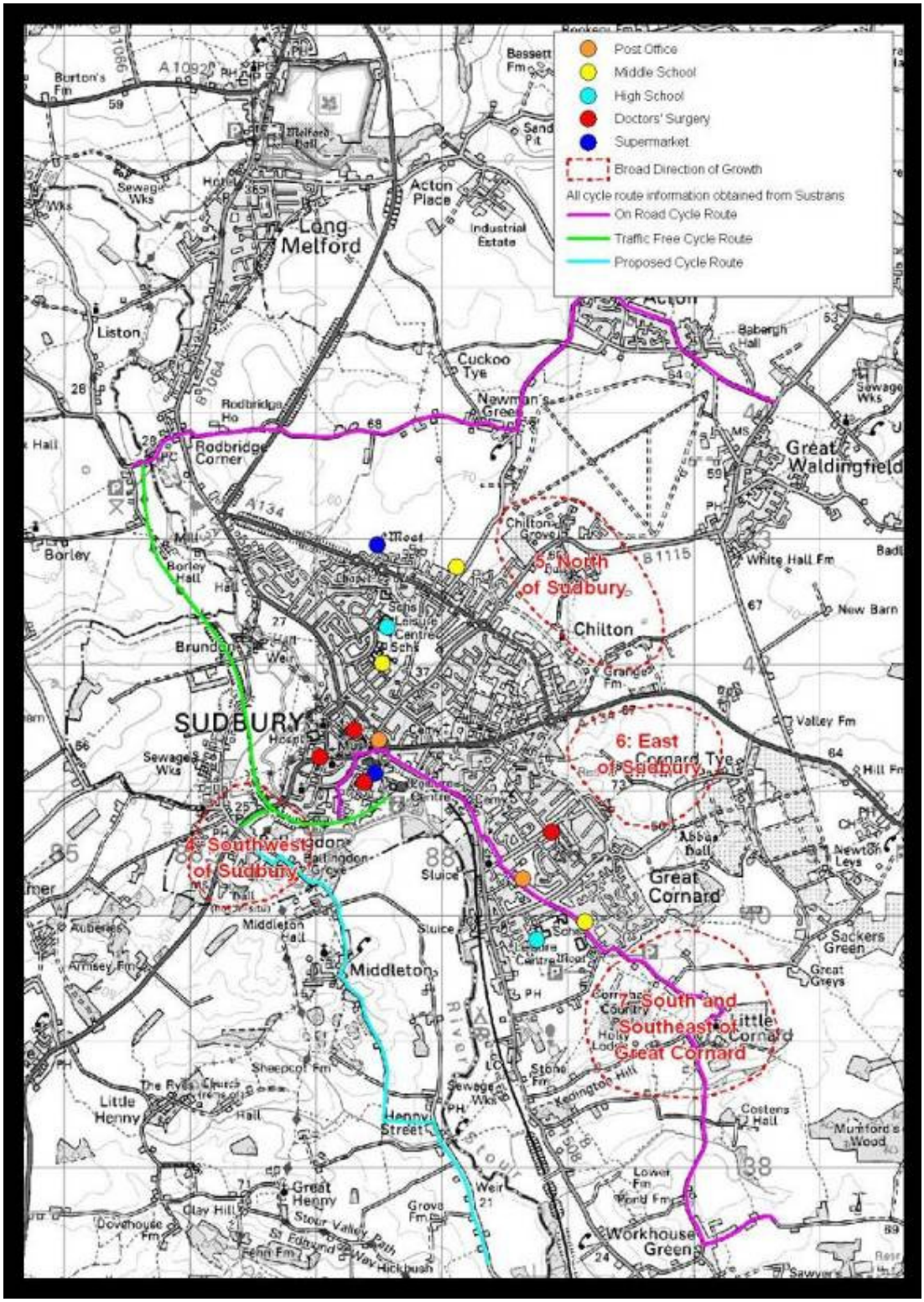
Three broad locations in the Hadleigh area



Broad location in the Ipswich fringe



Four broad locations in the Sudbury area



3.3 Existing accessibility of the broad locations

3.3.1 AECOM has assessed the existing level of accessibility and sustainability of each of the broad locations by public transport, walking and cycling, as well as taking into account the existing road network.

3.3.2 Each mode of transport has been assessed in terms of existing provision to the potential broad locations. An overall assessment has then been undertaken. It should be noted that this is a qualitative assessment and is based on research using bus and rail timetables, aerial photography and cycle maps for the area. No on site research has been undertaken. Appendix A contains a plan for each broad location which shows the locations of key services, 1km, 3km and 5km buffers from the edge of the broad locations as well as current bus routes which serve or pass close by to the broad locations.

3.3.3 A view as to the potential for improving the accessibility to each of the potential broad locations by sustainable modes has also been included. This is qualitative and does not take into account costs or any other restrictions which may be present.

Walking and Cycling

3.3.4 AECOM has used the Sustrans website and information provided by the cycling officer at SCC to assess existing cycling provision in the area.

3.3.5 Aerial photography has been used to assess the potential for walking links and to view current footpaths in the area. It should be noted that this is not an exhaustive method and therefore more detailed analysis would need to be undertaken to properly assess the walking links in the area.

3.3.6 AECOM has rated walking and cycling on the following scale:

Good = existing facilities in place;
Reasonable = some signs of existing facilities but improvements would be needed to promote these modes further; and
Poor = no existing facilities in place, or such a low level that substantial improvements would need to be made.

3.3.7 Table 1 details the accessibility to each broad location by foot and cycle. In general, the broad locations are currently poorly served with walk and cycle facilities. Only the constrained Broad location 4, immediately to the southwest of Sudbury, has good walk and cycle accessibility, because of its location close to the town centre. All other broad locations will require some further walk and cycle facilities to improve their accessibility to services.

Table 1 – Walking and Cycling Accessibility

Area and broad location		Walking Facilities	Cycling Facilities	Overall	Comments
Hadleigh	1	Poor	Reasonable	Poor	• No formal cycle facilities. • All services and employment areas accessible by cycle using existing road network (mainly residential roads). • Town centre and key services not within reasonable walking distance, although Lady Lane industrial estate accessible by foot. • Broad location has potential to connect to existing developments.
	2	Reasonable	Reasonable	Reasonable	• Proposed walk/cycle route skirts southern edge of broad location. • There is direct access to town centre and key services via Duke Street. • Broad location segregated from town centre by river which likely to act as constraint. • All services and employment areas accessible by cycle using existing road network.
	3	Reasonable	Reasonable	Reasonable	• On road cycle facilities provided into town centre. • All services and employment areas accessible by cycle using existing road network. • Most key services within 1km walk. • Lady Lane industrial estate within easy walking distance.
Sudbury	4	Good	Good	Good	• Mostly within 1km of town centre and some key services. • Traffic free cycle route would provide a connection to an existing on road route to the town centre. • A cycle route is proposed which would provide connections further afield. • Cycle route connects area to rail station. • Area segregated from town centre by river although a bridge exists to reach town centre.
	5	Reasonable	Reasonable	Reasonable	• No formal cycle facilities. • Potential to use existing road network to connect to town centre and key services by cycle. • However, town centre and key services not within acceptable walking distance. • Part of broad location within walking and cycling distance of Chilton industrial estate and employment opportunities.
	6	Reasonable	Reasonable	Reasonable	• No formal cycle facilities. • Potential to use existing roads for cycle access. • Town centre and key services not within an acceptable walking distance. • Within walking and cycling distance of Chilton industrial estate and employment opportunities.
	7	Poor	Poor	Poor	• Existing on road cycle route passes through broad location and provides connection to town centre and rail station. • Town centre and key services not within walking distance of broad location, although there are some key services available locally. • Area a little isolated from key employment opportunities within Sudbury itself.
Ipswich	8	Reasonable	Reasonable	Reasonable	• Traffic free cycle route passes through the area and provides connections to rail station and town centre by linking to on road cycle routes. • Town centre and key services not within walking distance. • Key services found in the Chantry area are segregated by the A1214 London Road. • A cycle route is proposed which would connect with an existing traffic free route into Sproughton.

Public Transport

3.3.8 The level of bus (and rail where applicable) access to each of the broad locations has been reviewed. This information has been obtained from bus route timetables (Suffolk County Council website) and rail timetables (National Express East Anglia website). Appendix A lists the findings.

Bus

3.3.9 With regards to bus accessibility, AECOM has reviewed the existing level of bus service in terms of the number of routes that currently serve the broad location and the frequency of these services (see Table 2). This information has been obtained from bus timetables for Hadleigh & Surrounding Area, Sudbury & Surrounding Area, Ipswich South, and Ipswich West.

3.3.10 Research has shown that few bus services operate on a Sunday. Therefore, the introduction of a Sunday service would help increase accessibility.

3.3.11 Following this, each broad location has then been given a rating in terms of accessibility to a variety of key services (as set out in Appendix A) and an overall rating taking these ratings into account.

3.3.12 None of the areas examined currently have 'Good' bus accessibility, as could be expected given their locations on the edge of rural towns. Only the locations to the east of Sudbury, and the Ipswich fringe, have reasonable bus services at present.

Table 2 – Bus Accessibility

	No. of bus routes that serve the area	No. of bus routes that serve the area at least hourly	No. of bus routes that serve the area at least half hourly	Overall existing bus accessibility
1: East of Hadleigh and Frog Hall Lane	10	1	0	Poor
2: West of Hadleigh and River Brett	11	1	0	Poor
3: North and Northwest of Hadleigh	11	1	0	Poor
4: Southwest of Sudbury	8	2	0	Poor
5: North of Sudbury	8	2	0	Poor
6: East of Sudbury	10	4	1	Reasonable
7: South and Southeast of Great Cornard	8	2	1	Poor
8: North of Copdock Interchange	3	2	0	Reasonable

Rail

3.3.13 The proximity of the closest rail station to each of the broad locations and the frequency of the service from this station is shown in Table 3. The distance has been measured along existing roads although it should be noted that no footpath shortcuts that may exist have been taken into account.

3.3.14 Only the broad locations in Sudbury and Ipswich Fringe would have access to a rail station. Hadleigh does not have a rail service and therefore no rail accessibility has been calculated for this town.

3.3.15 Ipswich is on the mainline to both London and Norwich. It also provides connections to Felixstowe, Lowestoft, Bury St Edmunds and Cambridge. Sudbury is on the branch line to Marks Tey which is on the mainline to London.

Table 3 Rail Accessibility

	Distance to closest rail station	Name of closest rail station	Frequency of service from closest rail station
1: East of Hadleigh and Frog Hall Lane	No rail station therefore not applicable		
2: West of Hadleigh and River Brett			
3: North and Northwest of Hadleigh			
4: Southwest of Sudbury	2km	Sudbury	At least one train every hour to / from Marks Tey to connect with mainline (Mon to Sun)
5: North of Sudbury	3km		
6: East of Sudbury	3km		
7: South and Southeast of Great Cornard	4km		
8: North of Copdock Interchange	4km	Ipswich	At least three trains every hour to / from London (Mon to Sat) and two trains every hour (Sun). Approx two trains an hour to other destinations.

3.3.16 Ipswich rail station has a good level of service with three trains an hour (Monday to Saturday) to and from London. This reduces to two trains an hour on a Sunday. To other destinations such as Norwich, there are approximately two trains every hour.

3.3.17 Sudbury is at the end of the branch line which connects Sudbury and Marks Tey. Marks Tey is on the mainline and from here there are approximately two trains every hour to London.

3.4 Potential accessibility of the broad locations

Key Services

3.4.1 The key services that have been referred to in this assessment are:

Schools (middle and high);
Doctors' surgeries;
Hospitals;
Supermarkets;
Post Offices.

These were mapped earlier in this Chapter, and are listed in Appendix A.

3.4.2 It should be noted that secondary education is under review in Suffolk, and in some areas there is a two tier school system in operation (primary and high) whereas in others, the three tier system still operates (primary, middle and high). No reference has been made to primary schools. This is because it is assumed that a primary school would be provided as part of the development.

Key Employment Sites

3.4.3 The employment sites that have been taken into consideration in this study are:

- Lady Lane Industrial Estate, Hadleigh;
- Hadleigh Town Centre;
- Chilton Industrial Estate, Sudbury;
- Woodhall Business Park, Sudbury;
- Sudbury Town Centre;
- Farthing Road Industrial Estate, Sproughton;
- White Horse Industrial Estate, Ipswich; and
- Ipswich Town Centre.

3.4.4 Key services and key employment sites are the two main categories of travel destinations considered in the review of walk/cycle and public transport accessibility.

Accessibility

3.4.5 PPG13: Transport states that 2km is considered an acceptable walking distance to facilities with 5km an acceptable cycling distance. AECOM has used crowfly radii of 1km, 3km and 5km respectively to represent actual likely walking and cycling distances, as shown in Appendix A.

3.4.6 The following paragraphs discuss each broad location in turn. Table 4 then suggests an overall potential accessibility rating by the more sustainable modes.

1: East of Hadleigh and Frog Hall Lane

3.4.7 This broad location to the East of Hadleigh has no existing cycle facilities but the nature of the town is such, that it would be possible to cycle along the roads. The town centre would be approximately 2-3km from the broad location meaning that the majority of any development located here would be within cycling distance of key services.

3.4.8 Lady Lane Industrial Estate is located north of this broad location and would be within walking and cycling distance.

3.4.9 Currently, the level of public transport provision is poor in the vicinity of this broad location. However, route 91 which links Hadleigh with both Sudbury and Ipswich, and route 773, the town service for Hadleigh, could both be extended to serve any development in this broad location.

3.4.10 The frequencies of both services could also be increased. Route 91 currently operates hourly so this could be increased to half hourly whereas the Hadleigh Town Service only operates three buses per day.

2: West of Hadleigh and River Brett

3.4.11 This broad location to the west of Hadleigh is largely within 1km of the town centre and therefore well positioned in terms of distance to key services. However, the River Brett is likely to act as a barrier to accessing these services because of the low number of river crossings that are currently in place.

3.4.12 In terms of walking and cycling, the town centre and key services are accessible by foot and on cycle. Lady Lane Industrial Estate to the north east of the town would be accessible by cycle.

3.4.13 As the broad location is so close to the town centre, it would be able to take advantage of all the bus services that serve Hadleigh. However, only one route, route 91, passes relatively close to the broad location. This would allow direct links to both Ipswich and Sudbury. To further encourage future residents of a potential development west of Hadleigh, route 91 could be re-routed to serve the development with the frequency being increased from hourly to half hourly.

3: North and North West of Hadleigh

3.4.14 The broad location north of Hadleigh is connected to the town centre by existing on road cycle facilities. Additionally, the key services found in the town centre would be approximately 1km from this location and therefore would be accessible both by cycle as well as on foot.

3.4.15 This broad location would also benefit from the proximity of Lady Lane Industrial Estate which is within walking distance.

3.4.16 Only one bus service passes close to this broad location which would link any development here with Whatfield, Elmsett and Ipswich. However, this service (route 107) only operates six times a day, six days a week. Therefore, in order to encourage any travel by public transport, the frequency of this service would need to be increased and possibly re-routed so as to directly serve any development.

3.4.17 Nevertheless, any development in the broad location north of Hadleigh would be within 1km or so of other services which pass through Hadleigh town centre.

4: Southwest of Sudbury

3.4.18 The broad location to the southwest of Sudbury is largely within 1km of the town centre. This means that it would have excellent accessibility to key services that are located here. However, the River would act as a constraint in accessing the town centre.

3.4.19 An existing traffic free cycle route passes through this broad location which would connect it to the rail station. Another cycle route is also proposed which would link this broad location to the south.

3.4.20 Two bus routes pass through this broad location. The first is the Halstead Village Link service which provides direct connections to Halstead and operates on an hourly basis. The other is the Sudbury Town Service which also operates hourly and would link the broad location to other parts of Sudbury.

3.4.21 The proximity of the town centre means that there is the potential for residents of any development in this broad location to access the bus services which pass through the town centre. The rail station would also offer links to the main line at Marks Tey.

5: North of Sudbury

3.4.22 This broad location is not served by any existing cycle routes although there is the potential to use existing roads for cycle access to the town centre and key services. However, the broad location is not within easy walking distance of the town centre. The existing Springfield Road weal and cycle overbridges, if refurbished, could form a ‘gateway’ to the north of the town.

3.4.23 Chilton Industrial Estate is located to the north east of Sudbury and therefore offers employment opportunities which are accessible by cycle and on foot from this broad location.

3.4.24 A few bus services pass close by to this broad location. These would offer links to Ipswich, Hadleigh, Colchester and other parts of Sudbury. However, none of these routes currently pass through this broad location and therefore existing services would need to be re-routed. The frequency of these services would also need to increase to at least half hourly in order to be seen as an attractive mode of transport.

3.4.25 The services would provide access to the rail station which would further increase the potential for travel by more sustainable modes of transport.

6: East of Sudbury

3.4.26 This broad location is to the east of Sudbury. It has a reasonable level of walking and cycling routes in place. Although none of the cycling routes are formal, there exists the possibility to use the existing road network for trips by bicycle.

3.4.27 The town centre and its associated services are not considered to be within easy walking distance of the broad location. However, there are some key services provided in the Great Cornard area which could be accessed instead.

3.4.28 Public transport to the broad location is also considered reasonable due to the number of different routes which operate in the vicinity. These include routes which would provide connections to Hadleigh, Ipswich, Colchester and Great Cornard.

3.4.29 Currently, these routes operate hourly but frequency improvements would make these routes more attractive. They also serve to connect the broad location to the rail station albeit in a round-about way.

7: South and Southeast Cornard

3.4.30 This broad location has an existing poor level of walking and cycling accessibility. There is an on road cycle route which connects this broad location to the rail station and the centre of Sudbury.

3.4.31 The distance from the broad location to the town centre is over 3km and therefore considered too far to walk. However, some key services exist within Great Cornard itself which are considered to be more accessible.

3.4.32 The level of bus service to the broad location is deemed as poor because only two routes pass close by. One of these operates half hourly although this is the Sudbury – Great Cornard service and therefore does not provide for connections further afield. Nevertheless, both routes would provide links to the rail station.

8: North of Copdock Interchange

3.4.33 This broad location is well situated in terms of walking and cycling as well as public transport. An existing traffic free cycle route passes close by to this location and would provide a direct access to the rail station.

3.4.34 Key services and Ipswich town centre are not considered to be within a reasonable walking distance although there is a reasonable level of bus service in operation which would provide direct links to the town centre.

3.4.35 Chantry, to the south of the broad location offers a number of key services. However, London Road acts a barrier in accessing this area of Ipswich from the broad location.

3.4.36 Four bus routes pass through the broad location area approximately on an hourly basis. Of these one operates on a Sunday. These routes provide connections to Hadleigh, Sudbury and Ipswich town centre.

3.5 Potential accessibility of the broad locations

3.5.1 The accessibility of all the broad locations can be improved. However, the potential for doing this varies depending on the broad location, as discussed in the previous Chapter, and explored in more detail in Chapter 5. Table 4 summarises the potential for improvement for each broad location, using the following qualitative measures:

Good = existing facilities in place or the potential to provide a good level of sustainable access;
Reasonable = some signs of existing facilities but improvements would be needed to promote these modes further or a some sustainable facilities likely to be present in the future; and
Poor = no existing facilities in place or such a low level that substantial improvements would need to be made, or even with improvements, the broad location is likely to lack in sustainable access.

Table 4 – Potential Accessibility of All Broad Locations

	Walking	Cycling	Public Transport	Overall
1: East of Hadleigh and Frog Hall Lane	Poor	Reasonable	Reasonable	Reasonable
2: West of Hadleigh and River Brett	Reasonable	Reasonable	Reasonable	Reasonable
3: North and Northwest of Hadleigh	Reasonable	Reasonable	Reasonable	Reasonable
4: Southwest of Sudbury	Good	Good	Reasonable	Good
5: North of Sudbury	Reasonable	Reasonable	Reasonable	Reasonable
6: East of Sudbury	Reasonable	Reasonable	Good	Reasonable
7: South and Southeast of Great Cornard	Poor	Poor	Poor	Poor
8: North of Copdock Interchange	Reasonable	Reasonable	Good	Reasonable

3.5.2 The broad location to the southwest of Sudbury offers the best potential for accessibility by walk, cycle and bus modes. All three modes of transport have the potential to be good should improvements be made.

3.5.3 Two other broad locations have good scores on potential bus access. These are:

- 6: East of Sudbury; and
- 8: North of Copdock Interchange.

3.5.4 The broad location in Ipswich has the potential for a good level of walking and cycling because of the Suffolk Centre Sixth Form College that is proposed to open in 2010 in the northern part of Chantry. As part of this development it is proposed to provide a good level of walking and cycling links to the broad location. The broad location would be able to benefit from these links.

3.5.5 Overall, all of the broad locations being considered for housing development have the potential to achieve a significant shift of residents' behaviour to sustainable modes, but at varying levels of cost, convenience, and impact on the existing urban structure.

4 Traffic Impact Assessment

4 Traffic Impact Assessment

4.1 Traffic impacts approach

4.1.1 The traffic impact analysis conducted as part of this study was limited to consideration of the possible traffic impact of the eight potential broad locations of growth; no detailed account was taken of the existing traffic generation and distribution in and through Hadleigh, Sudbury and the Ipswich Fringe area. In summary, the process followed for each of the eight broad locations of growth was as follows:

- The 2001 Census journey to work data for nearby representative wards was examined, to establish a baseline for the current rates of mode split and car traffic activity;
- Site density and characteristics assumptions were made for each of the potential locations, and the TRICS 2008b database and the National Travel Survey used to suggest overall levels of car trip generation for the residential activity; and
- Trip distribution was estimated using the 2001 journey to work information.

4.1.2 Judgements were then made as to how possible design, policy, and facilities interventions could impact on the degree to which more sustainable transport patterns of behaviour could be introduced at each broad location of growth.

4.1.3 Each broad location of growth was matched with its closest ward (in terms of distance and landuse) in order to obtain journey to work data that could be considered representative of the predicted travel patterns for that area. The representative wards used are shown in Table 5.

Table 5 – Representative Wards for each Broad Location

	Representative Ward
1: East of Hadleigh and Frog Hall Lane	Hadleigh South
2: West of Hadleigh and River Brett	Hadleigh South
3: North and Northwest of Hadleigh	Hadleigh North
4: Southwest of Sudbury	Sudbury South
5: North of Sudbury	Sudbury North
6: East of Sudbury	Great Cornard North
7: South and Southeast of Great Cornard	Great Cornard South
8: North of Copdock Interchange	Sprites

4.1.4 Hadleigh South ward has been used to represent two broad locations of growth even though neither location would fall within this ward. This is because AECOM has taken the characteristics of Hadleigh South ward to be more representative of what those broad locations are likely to demonstrate in the future. Hadleigh North ward contains a large industrial estate and part of the town centre, whereas Hadleigh South ward is deemed to be more residential and therefore more appropriate in this instance.

4.1.5 One of the broad locations for Hadleigh has however been represented by Hadleigh North ward. This is because this broad location is to the north of Hadleigh and close to the existing housing found here.

4.1.6 With regards to Sudbury, one of the broad locations has been represented by Great Cornard North ward. This is despite the fact that the broad location would fall within Great Cornard South ward. AECOM has deemed Great Cornard North ward to be more representative as it is

closer to Sudbury town centre and largely consists of housing. Great Cornard South ward in comparison is largely rural in nature.

4.1.7 Great Cornard South ward has been used for one of the Sudbury broad locations because this would be located within Great Cornard itself and quite far from the town centre. The travel characteristics of residents of this ward are likely to be similar to those of any new development located in this location.

4.1.8 In order to take into account the worst case scenario, AECOM has assumed the highest allocation of dwellings for each broad location based on information provided by BDC. This information is taken from the five options which were detailed in section 3 of this Report. The assumptions regarding the number of dwellings that can be potentially be accommodated for each area are shown in Table 6.

Table 6 – Proposed Number of Dwellings per Area

	Proposed Number of Dwellings
Hadleigh	1,100
Sudbury	4,100
Ipswich Fringe	1,600
KSCs	1,400

4.1.9 It should be noted that each broad location within an area has been analysed as having the same number of dwellings, to allow direct comparisons to be made.

4.1.10 AECOM has calculated the number of dwellings that a broad location could accommodate if a density of 40 dwellings per hectare was assumed. It should be noted that the areas of the broad locations has not been set and therefore has been based solely on estimates made by AECOM. For those broad locations which appear to be unable to accommodate the maximum allocation of dwellings, the density required to achieve this has also been calculated. This can be seen in Table 7.

Table 7 – Broad Location Density

	Maximum Allocation of Dwellings	Approx Area (ha)	Number of Dwellings that could be Accommodated at 40 dwellings per ha	Density required to accommodate Maximum Allocation (dwellings per ha)
1: East of Hadleigh and Frog Hall Lane	1,100	90	3,600	12
2: West of Hadleigh and River Brett	1,100	80	3,200	14
3: North and Northwest of Hadleigh	1,100	40	1,600	28
4: Southwest of Sudbury	4,100	90	3,600	46
5: North of Sudbury	4,100	120	4,800	34
6: East of Sudbury	4,100	80	3,200	51
7: South and Southeast of Great Cornard	4,100	160	6,400	26
8: North of Copdock Interchange	4,100	80	3,200	18

4.1.11 For simplicity, each broad location has been assumed to be able to accommodate the maximum allocation of dwellings for that area. In the case of Sudbury the broad allocation of new dwellings will need to be divided between two or more locations.

4.2 Trip generation

4.2.1 Appendix B of this report details the methodology used to determine the trip rate and generation. These trip rates are calculated to simulate existing residential trip generation for each of the wards/broad locations. Thus these trip rates could be considered precautionary as no account is made for measures to increase sustainable travel. Table 7 shows the vehicle trip rates for each broad location taking into account 2001 Census data, the National Travel Survey and the TRICS database.

Table 8 – Vehicle Trip Rates for each Broad Location of Growth (vehicles per hour per dwelling)

	AM			PM		
	Arrivals	**Departures**	**Total**	**Arrivals**	**Departures**	**Total**
1: East of Hadleigh and Frog Hall Lane	0.13	0.49	0.62	0.32	0.20	0.53
2: West of Hadleigh and River Brett	0.13	0.49	0.62	0.32	0.20	0.53
3: North and Northwest of Hadleigh	0.11	0.44	0.55	0.29	0.18	0.47
4: Southwest of Sudbury	0.09	0.34	0.43	0.22	0.14	0.37
5: North of Sudbury	0.12	0.45	0.57	0.29	0.19	0.48
6: East of Sudbury	0.13	0.48	0.60	0.31	0.20	0.51
7: South and Southeast of Great Cornard	0.14	0.55	0.69	0.36	0.23	0.59
8: North of Copdock Interchange	0.11	0.41	0.52	0.27	0.17	0.44

4.2.2 Overall, the trips rates show a broad range, with the (more remote and car dependent) Broad location 7 suggested as having a car trip rate some 60 percent higher than the Broad location 4 (close to Sudbury town centre). This shows the potential scope for reducing car travel by providing convenient close links to employment and community facilities.

4.2.3 Hadleigh is suggested to have a higher trip rate than the more peripheral areas of both Sudbury and Ipswich, because town is smaller in size, has a lower range of key services and facilities available, and does not have access to a rail station.

4.2.4 The Ipswich Fringe area has a trip rate comparable to parts of Sudbury because it is accessible by a range of public transport and has a range of key services. Therefore the need to travel by car will be reduced.

4.2.5 Applying the vehicle trip rates shown in Table 8 to the number of dwellings per broad location of growth (see Table 7) the number of vehicle trips that would be generated per broad location has been calculated, as shown in Tables 8.

Table 9 – Vehicle Trip Generation per Broad Location of Growth (car trips per hour)

	Max Dwellings	AM			PM		
		Arrivals	Deps	Total	Arrivals	Deps	Total
1: East of Hadleigh and Frog Hall Lane	1,100	141	539	680	355	224	579
2: West of Hadleigh and River Brett		141	539	680	355	224	579
3: North and Northwest of Hadleigh		125	480	605	314	198	512
4: Southwest of Sudbury	4,100	367	1,405	1,773	919	578	1,498
5: North of Sudbury		480	1,838	2,319	1,207	759	1,967
6: East of Sudbury		513	1,964	2,478	1,291	812	2,103
7: South and Southeast of Great Cornard		588	2,249	2,837	1,484	934	2,418
8: North of Copdock Interchange	1,600	150	574	724	376	236	612

4.2.6 These car trip generation estimates have been derived from merging several sources. The 2001 Census journey to work data alone is available to analyse the mode split and trip distribution. Using Journey to Work data for all peak trips is not precisely correct, as journeys associated with education and shopping for example may have a different mode and distribution. Indeed, a proportion of trips, for example shopping and education will be internalised, and no account has been made for this. However, for the purposes of this assessment, it is considered a reasonable approximation.

4.3 Trip distribution

4.3.1 The journey to work split by mode for each broad location has been calculated, and are presented in Table 10, using the ward/ broad location comparators suggested in Table 1. This shows the percentage of trips made by each mode, and forms a starting point for discussing the scope for encouraging the use of modes other than car.

Table 10 – Travel to Work Mode Share per Broad Location of Growth

	Travel Mode		
	Car	Public Transport (Bus / Train)	Walking and Cycling
1: East of Hadleigh and Frog Hall Lane	68%	5%	16%
2: West of Hadleigh and River Brett	68%	5%	16%
3: North and Northwest of Hadleigh	60%	5%	22%
4: Southwest of Sudbury	57%	5%	26%
5: North of Sudbury	64%	4%	21%
6: East of Sudbury	66%	5%	19%
7: South and Southeast of Great Cornard	73%	4%	10%
8: North of Copdock Interchange	62%	16%	13%

(Percentages do not sum to 100 because of respondents who work at home, or did not work at their usual place of work on the day)

4.3.2 All broad locations have a similar public transport mode share at 4-5% with the exception of the broad location on the Ipswich Fringe. This has a significantly higher public transport mode share of 16%. This is likely to be due to the high number of bus services that pass through or close by to the broad location linking it with Ipswich town centre and the rail station.

4.3.3 The broad location to the south and southeast of Great Cornard has the highest car mode share at 73% and lower walking and cycling mode shares. This is likely to be due to the peripheral nature of this broad location on the edge of Great Cornard.

4.3.4 Of all the broad locations, southwest of Sudbury has the lowest car mode share. As was the case with the low trip rates, this is likely to be because of its proximity to the centre of Sudbury and its associated key services.

4.3.5 The Journey to Work data has also been used to identify the work destinations of trips which originate in the relevant wards. This has allowed a percentage distribution to be calculated which gives a broad indication as to the direction of travel, and therefore the routes which would most likely be affected by any increase in trips.

4.3.6 Destinations for each area (Hadleigh, Sudbury and Ipswich Fringe) have been grouped into broad locations for simplicity. These can be seen in Table 11.

Table 11 – Trip Distributions per Area

	Hadleigh	Sudbury	Ipswich
North	A1141 – Stowmarket and Bury St Edmunds	A134 – Bury St Edmunds	A14 – Stowmarket, Diss and A14
South	B1070 – Colchester, Manningtree and A12	A131 – Halstead and Braintree	A12 – Colchester and A12
East	A1071 – Sudbury	A134 – Hadleigh, Ipswich and Colchester	A14 – Felixstowe and A14
		B1508 - Colchester	
West	A1071 – Ipswich	N/A	A1071 – Hadleigh and Sudbury
Central	Hadleigh	Sudbury	Ipswich

4.3.7 As can be seen in Table 1, there are two eastern distributions for Sudbury. This is because both the A134 and B1508 both head southbound towards Colchester. The broad location of growth will have an impact on which route is used and in some cases both routes will be used.

4.3.8 For each broad location, the percentage distribution has been calculated based on the existing distribution from 2001 Census data for the associated ward for car driver. The results are shown in Table 12.

4.3.9 It should be noted that it is a very broad level of analysis, and that changes in employment locations since the data was collected in 2001 could have had an effect on the distribution.

Table 12 – Distribution of Vehicle Trips per Broad Location of Growth based on 2001 Census Data

	North	South	East		West	Central
1: East of Hadleigh and Frog Hall Lane	7.93%	15.18%	26.37%		4.31%	46.22%
2: West of Hadleigh and River Brett	7.93%	15.18%	26.37%		4.31%	46.22%
3: North and Northwest of Hadleigh	3.08%	10.73%	19.59%		5.52%	54.53%
4: Southwest of Sudbury	15.85%	12.67%	9.81%	1.94%	N/A	59.73%
5: North of Sudbury	18.85%	10.85%	10.49%	0.51%	N/A	59.30%
6: East of Sudbury	8.94%	7.35%	18.92%	0.88%	N/A	63.91%
7: South and Southeast of Great Cornard	17.89%	9.06%	5.59%	9.02%	N/A	58.44%
8: North of Copdock Interchange	6.54%	10.77%	8.01%		3.68%	71.0%

4.3.10 All broad locations show the highest percentage of trips to their respective central areas. This is to be expected to some degree as this is where there is likely to be the highest concentration of employment and key services and facilities. However, there is still a significant difference percentage wise between trips to the central area of Ipswich and trips to the central area of Hadleigh. This is likely to be because of the greater range of employment and services offered by Ipswich when compared to Hadleigh.

4.3.11 The broad locations of growth to the east and west of Hadleigh both have quite a high percentage of trips (26%) to the east and to the south (15%). Sudbury is located to the east of Hadleigh with Colchester to the south. These are both towns that are likely to generate a certain amount of employment. These broad locations also generate a higher percentage of trips to the north (8%) when compared to the broad location in the north of Hadleigh (3%). This is likely because of the location of Lady Lane Industrial Estate to the north of Hadleigh.

4.3.12 The four broad locations in Sudbury differ in terms of their travel characteristics. Discounting travel to the central area of Sudbury, the broad location to the southwest of Sudbury has 16% of trips to the north, 13% to the south and 12% to the east. This shows that there is a relatively uniform distribution of trips out of Sudbury in all directions.

4.3.13 The broad location to the north of Sudbury has the highest percentage of trips to the north of all Sudbury broad locations at 19%. This is probably partly due to the fact that this broad location is on the northern side of Sudbury and therefore access towards Bury St Edmunds would not require any trips to travel through the centre of Sudbury on its one way system. Travel to the south and east is the same at 11%.

4.3.14 From the broad location to the east of Sudbury, the greatest percentage of trips is to the east at 20%. As with trips from the broad location to the north of Sudbury, this is likely to be due to the location of this broad location on the eastern side of Sudbury. The percentage of trips to the north and south are similar at 9% and 7% respectively.

4.3.15 The broad location to the south and southeast of Great Cornard has nearly 18% of trips to the north. This appears unusual as it would be expected that a broad location to the south of Great Cornard, and therefore to the south of Sudbury would result in trips to the south. Trips to the south in fact contribute the lowest percentage of trips which suggests that the amount of employment to the south is limited. Nearly 15% of trips are to the east towards large towns such as Colchester and Ipswich which offer a range of employment.

4.3.16 The broad location on the Ipswich Fringe generates a low percentage of trips to destinations outside its central area. Seventy-one percent of all trips generated are to the Ipswich central area. This is likely to be because of the significance of Ipswich to this location as offering a high level of employment.

4.3.17 These trip distributions have been applied to the trip generation (arrivals and departures) for the morning and evening peak hours shown. The results of this can be seen in Appendix B, where eight schematic diagrams are presented. Some partial, traffic impact related, conclusions are drawn in the next Section.

4.4 Review of broad locations

4.4.1 All results presented in Appendix B are based on allocating the total dwelling allocation for the town to the single broad location under consideration. That is, when dwellings are spread between broad locations, then only the partial proportion of trips should be considered. The following remarks are intended to identify the main pressures resulting from each individual broad location, without establishing any mix, or consequent overall absolute impact.

4.4.2 The three Hadleigh broad locations all show similar impacts on Angel Street and the High Street / Benton Street. The broad locations differ in their spread of access to the A1071, with the main issue being the safest and most convenient location to provide for the increased morning peak right turns onto the A1071, and to provide for the crossing flows to the A1141 Stone Street.

4.4.3 The impact of the Hadleigh broad locations on the A12 J31 Four Sisters junction adds of the order of one vehicle per minute to this left in left out junction. This is not considered to be a significant impact on this junction.

4.4.4 The Sudbury broad locations all have significant impacts on the town centre gyratory, both to access the town centre, and to access the A134 and the A131. Broad locations 5 and 6 to the east and north east are able to use the A134 Springlands Way to bypass the town centre. Broad location 4 to the southwest places considerable pressure on the town centre, but this broad location is unlikely to take the full dwelling allocation. Broad location 7 South of Great Cornard is considered to place the greatest potential pressure on the town centre gyratory, and this location is considered to have the largest potential dwelling capacity.

4.4.5 All the Sudbury broad locations examined are to the east of the town, and so the previously proposed Sudbury Western Bypass is not of direct impact. If brought forward, it would, however, relieve the town centre gyratory, and remove the capacity need (but not the public realm desirability) of considerable remodelling of the town centre circulation. Broad locations 6 and 7 to the east and south of Sudbury involve the development of spine roads, either through the potential housing development, or using existing roads on the eastern edge of the existing built up area. These broad locations have the potential to deliver a large part of an eastern relief road possibly providing some relief to the town centre gyratory.

4.4.6 The North of Copdock, Ipswich fringe Broad location 8 has a relatively low traffic impact. Town centre traffic is split between Hadleigh Road and London Road. The small amount of north oriented A14 traffic uses J54, and the additional load on the Copdock A14 J55 is relatively insignificant. This simple analysis is not sufficient for the critical and congested Copdock junction. Further work (possibly using the ITAMS Ipswich transport model) will be needed in due course.

5 Transport Infrastructure Review

5 Transport Infrastructure Review

5.1 The Workshop

5.1.1 At an interim stage in the Study, a Workshop was held to review the initial impact findings, particularly the scope for encouraging walk, cycle and bus modes through the improvement of facilities. The Workshop provided opportunities do discuss existing problems, to review the schemes and initiatives currently being considered, to review the likely direction and scale of impact from the possible future developments, and to review the potential sources of funding for implementing improvements.

5.1.2 The wide ranging discussion has been summarised in Appendix C. In this Chapter, the findings of the Workshop are explored in the context of three opportunities to encourage more sustainable travel patterns:

- Self- containment of the new residential developments;
- Walk and cycle facilities linking the residential developments to the surrounding employment opportunities and community facilities; and
- Bus services and facilities.

5.2 Broad locations requirements

5.2.1 A high degree of transport self containment can be specified in the design brief for new developments, This needs to consider the phasing and ultimate capacity of the broad location and the relationship with neighbouring local and town centres. Design features which can assist self containment include:

- Appropriate frequently used community facilities – schools, healthcare, local retail and leisure facilities – integrated into the pedestrian circulation pattern;
- Local delivery of less frequently used and specialist community facilities – library, specialist healthcare, young persons' activities – through a community hall; and
- A proportion of the dwelling units to have integrated office/workshop/atelier 'live/work' accommodation.

5.2.2 The early delivery of these is important, to establish a local community focus and to offer options for sustainable travel behaviour from the start. This usually is a problem, with facilities only delivered when the full development potential of the broad location has been realised, but out-travel habits already established. Larger developments have more opportunities to fund and deliver such design features.

5.2.3 The full implementation of these design features, particularly a full range of schools, are considered to have the potential to reduce peak hour car travel by up to 5 percent. This is an approximate estimate, but is considered a cautious minimum.

5.2.4 Broad locations 7: North of Copdock Interchange, 4: Southwest of Sudbury and 2: West of Hadleigh and River Brett already have reasonable accessibility to facilities, as listed in Appendix A. Therefore, development at these locations would not require a certain critical mass to support new key facilities and could broadly rely on existing services with a few minor improvements.

5.2.5 Broad locations 1: East of Hadleigh and Frog Hall Lane, 3: North and Northwest of Hadleigh, 5: North of Sudbury and 6: East of Sudbury are not so well served at present, and would benefit from a design brief including a strong self-containment focus. Broad location 7: South and Southeast of Great Cornard is likely to require a significant critical mass in order for trips to become significantly self-contained.

5.3 Walk and cycle facilities

5.3.1 As shown in Appendix A, the proposed broad locations are all within 3kms of the town centre, except for 7; South and Southeast of Great Cornard, and considerably less in the case of 4: Southwest of Sudbury and 2: West of Hadleigh and River Brett. This means that there is considerable potential for a shift to walk and cycle for a wide range of trips for all purposes.

Hadleigh

5.3.2 It is considered that there are relatively few current barriers to cycling and walking in Hadleigh, although given that Hadleigh is a market town, many of the footways are narrow and not conducive to conversion to a shared use facility. Given this, the provision of on-carriageway facilities should be considered to encourage cycling between the residential areas of the town, the town centre and key employment sites such as the Lady Lane Industrial Estate.

5.3.3 It was also suggested that there is an imbalance between the number of vehicles and pedestrians in the town centre. To combat this, measures need to be taken to maximise the number of internal trips within Hadleigh being made by foot and cycle.

Potential intervention measures could include the following:

- Provision of on-carriageway cycle facilities along George Street to give penetration from the east of the town into the heart of the town centre and the bus interchange;
- Provision of on-carriageway cycle facilities along Angel Street to give penetration from the east of the town into the heart of the town centre and the bus interchange and also provide a route to / from Lady Lane Industrial Estate;
- Provision of on-carriageway cycle facilities along Station Road to give penetration from the east of the town into the heart of the town centre and the bus interchange and also provide a route to / from Hadleigh High School;
- Provision of cycle facilities to link Angel Street, George Street and Station Road via Magdalen Road and the bus interchange; and
- Provision of secure cycle parking at the Magdalen Road car park to encourage multi-modal trips to work (bicycle the bus for example to workplaces in Ipswich).

Sudbury

5.3.4 There is already an extensive network of walk / cycle facilities in and around the town itself, although there are a number of links which are either missing or require improvement. Suffolk County Council suggested the main barrier to cyclists is the one-way system within Sudbury.

5.3.5 Given this, Suffolk County Council has detailed a number of schemes which could be provided to linkages between existing foot and cycle provision and increase accessibility by these modes to key services and workplaces.

5.3.6 Potential intervention measures could include the following:

- Convert existing footpath across Friars Meadow to bridleway / cycle track and surface. Convert existing pedestrian area through Kingfisher Leisure Centre to cycle route. This will increase accessibility to the railway station and town centre from the south and east of the town via a dedicated off carriageway route.
- Provide an on road advisory cycle lane Long Melford Road from its junction with Brundon Lane to North Street. Modify the existing island at North Street to provide a Melford Road / North Street link for cyclists. These measures will increase accessibility into Sudbury town centre from the north-west and will allow cyclists to by-pass the one way system.
- Convert the existing footpath running alongside Sudbury Upper School / Tudor Primary School to a bridleway / cycle track. In addition, provide a link from this route onto Clarence Road at Tudor Primary School. These measures will provide an off carriageway route to / from the schools of Sudbury.
- Upgrade existing footpath to cycle track between Talbot Road and Mayflower Way and Mayflower Way to Uplands Crescent. This will link two existing routes and increase

accessibility to Woodhall Business Park. It will also provide an alternative route to the A134.

- Resurface existing right of way between A134 and St Bartholomew Lane to provide access for cyclists and the disabled. This will link existing properties in north-west Sudbury to the existing network to the south and east.
- Convert footpath to cycle track between Acton Lane and Waldingfield Road. This will provide access to the schools from east Sudbury and provide another route towards the town centre and Chilton Industrial Estate to / from dwellings in north-west Sudbury.
- Springlands Way (Waldingfield Road to Clermont Road). Upgrade existing bridges and upgrade northern footway to shared use facility. Provide shared use facility link on southern side of Springlands Road to join facilities at Waldingfield Roundabout. As part of these works cycle facilities can be provided across all arms at the Waldingfield Roundabout and the Woodhall Business Park roundabout. Upgrade existing footway and bridge between First Avenue and Essex Avenue to a cycle track. This will increase accessibility to / from Woodhall Business Park, the existing Tesco store and Chilton Industrial Estate. It will also link in with the strategic cycle route along Waldingfield Road to the town centre.
- Upgrade existing footway to a cycle track along Northern Road between Newton Road and Waldingfield Road. Upgrade footpath to cycle track between Windham Road and Northern Road. This will provide off carriageway cycle facilities to increase accessibility and penetration into the Chilton Industrial Estate.
- Upgrade existing footway on Waldingfield Road between Landsdown Road and Harp Close Road to provide cycle link between Acton Way / Waldingfield Road off road cycle track (see above) and zebra crossing at Hart Close Road. This will provide a link between both proposed and existing cycle routes towards the town centre and to / from the schools.
- Convert the existing footway to a shared use facility between Poplar Road and Oxford Close, Great Cornard. This will provide a link to / from Pot Kiln Primary School and link in with other routes towards Sudbury town centre.
- Convert existing footway to shared use facility between Minsmere Way and Pot Kiln Road and Pot Kiln Road to Poplar Road. This will provide an off-carriageway route north/ south through the heart of Great Cornard to / from Sudbury town centre.
- There area also a number of other proposals in Great Cornard as part of the Great Cornard Cycling Strategy.

These facilities should provide increased network connectivity, and 'end to end' routes from the residential areas to the work and town centre areas. Secure cycle parking facilities need to be provided at the closest convenient locations to the town centre.

5.3.7 A parallel programme to control and manage car parking is also needed to support a shift to sustainable modes. This could include parking controls on public commuter parking and focussing parking tariffs to penalise long stay parkers.

Ipswich Fringe

5.3.8 Following discussions with Suffolk County Council and Babergh District Council, there is already an extensive network of walk / cycle facilities to / from the broad location towards Ipswich town centre. These are primarily focused on the existing segregated off road route along the A1214. New walking and cycle routes are proposed as part of the Suffolk Centre development. This would provide a link for pedestrians and cyclists between Sproughton and the Centre, as well as a link to the countryside.

5.3.9 Given this, Suffolk County Council has detailed a number of schemes which could be provided to linkages between existing foot and cycle provision and increase accessibility by these modes to key services and workplaces. Any allocation at this location would need to provide facilities to link in with these existing routes.

5.4 Bus services and facilities

Hadleigh

5.4.1 As described in Appendix A, the existing bus service level in Hadleigh comprises a series of local services, however their routes and timetables are limited. The key existing service is the hourly service between Ipswich and Sudbury which provides access to the town centre and passes close by to the broad locations. While this provides a minimal level of service to non-car available travellers, it falls well short of a convenient service likely to attract existing car users.

5.4.2 A new bus station has been provided which acts as a focal point for buses and Hadleigh acts as a hub for demand responsive services from outlying rural areas. The services that operate in Hadleigh are commercial and therefore it cannot be demanded that operators re-route. The local authority and developers would need to liaise with operators to try to ensure that any new development is served by a bus service.

5.4.3 Penetration of bus routes into any new residential areas is needed. It is unlikely that the proposed scale of development will be able to justify a completely new bus service, but should be able to improve existing ones. A much higher level of frequency (at least three per hour) is needed to link directly between the main centres of outlying residential and employment locations and the town centre as well as key employment destinations such as Ipswich and its railway station.

Sudbury

5.4.4 As described in Appendix A, there is a number of existing bus services in Sudbury, of which two to four run at least hourly. The key existing services include the hourly town service, the hourly service towards Ipswich and the hourly service towards Colchester each of these pass broadly close to the broad areas and should be capable of being extended to service such allocations. These services provide a minimal level of service to non-car available travellers and fall well short of a convenient service likely to attract existing car users.

5.4.5 The existing Sudbury bus station needs to be improved and Babergh District Council is actively promoting the redevelopment of the bus station site and surrounding property. There is a consultation on this at the end of November. Plans are also in place to re-launch town services with commercial operators as part of the Chilton development. The rail line is largely a commuter line. It has an hourly service and takes half an hour to reach Marks Tey.

5.4.6 It is likely that the proposed scale of development may be able to justify additional bus services, or provide significant improvements to improve existing ones. A much higher level of frequency (at least four per hour) is needed to link directly between the main centres of outlying residential and employment locations and the town centre and railway station as well as key employment destinations such as Ipswich and Colchester.

Ipswich Fringe

5.4.7 As described in Appendix A, there already a number of relatively high frequency bus services running adjacent to this broad location, including the London Road park and ride site. These services run to the town centre and railways station are therefore well placed to reduce car mode share for journey to work trips. These services should be able to be extended to service serve any allocation in this area with few problems.

5.5 Road improvements

Hadleigh

5.5.1 Only a limited amount of traffic management and public realm improvement is considered necessary for Hadleigh town centre.

5.5.2 The main road improvement requirement concerns improving the safety and operational convenience for traffic joining or crossing the A1071, without creating a major increase in capacity. All improvements should take account of the needs of improved inter-urban bus routes.

5.5.3 No improvements or mitigation measures are considered necessary at the A12 / A1070 J31 Four Sisters junction as a result of development at Hadleigh.

Sudbury

5.5.4 Sudbury town centre has considerable existing traffic and air quality problems around the existing large gyratory. While the town as a whole is a reasonable location for development, there will be a need for any growth in the town centre traffic to be mitigated and minimised through a comprehensive town centre management re-assessment.

5.5.5 A Sudbury Western Bypass was proposed in the BDC Local Plan. It continues to be supported in principle by BDC and SCC, but is highly unlikely to be capable of being brought forward through regional government funding. In addition, Essex County Council and Braintree District Council are understood to be against the proposal. Since the broad locations for both housing and employment are to the north and east of Sudbury developer contributions to a Western Bypass would be problematic to negotiate.

5.5.6 Broad locations 6 and 7, to the east and south of Sudbury, have the potential to provide the majority of an indirect relief road linking the B1508 Bures Road with the A134, and the new employment land to the north of Sudbury, with only limited need for expenditure in addition to normal development access roads.

Ipswich Fringe

5.5.7 As stated in Section 4.4, the theoretical additional traffic loading on the A14/A12 Copdock interchange is relatively insignificant. The junction itself is, however, considerably congested, and improvements are being considered. Two issues are considered to need addressing to mitigate the traffic impact of development at the Ipswich Fringe location:

- The need to improve bus priority on the corridor and junctions into Ipswich centre, and link to the park and ride; and
- (subject to further study) to make a contribution to future Copdock enhancements.

5.6 Possible costs and funding

5.6.1 A detailed discussion of the possible facilities, and their broad costs, has not yet taken place. There are however, sufficient ideas in play, and approximate costs available from other sources, to suggest a broad outline of the scale of programme required to provide the transport facilities required for each community. At this stage, the suggestion is broken down by the maximum dwelling allocations, but not by the specific site assumptions.

5.6.2 The ideas are intended to represent a strong move towards encouraging travel by more sustainable modes, and indeed minimising the need for longer distance motorised trips.

5.6.3 Table 13 shows the suggestions made, and is offered for discussion. At first examination, the following comments are put forward:

- Overall, the costs are considered low, and suggesting a relatively low contribution per dwelling. This may be because the costs are underestimated, or that adding significant

additional dwellings to existing market towns can be done at relatively low transport infrastructure cost, but possibly high environmental impact.

- The costs per dwelling for Hadleigh could well be much higher if the dwelling allocation is spread around, so perhaps a cost of £5,000 per dwelling for transport facilities is more reasonable.
- The costs for Sudbury currently exclude an allowance for a possible Western Bypass. If the relatively large number of new dwellings is split between the north and eastern broad locations, the per dwelling cost could be relatively low – say about £2,000 per dwelling.
- The Ipswich fringe broad location, already well located with respect to road infrastructure and bus facilities, could well represent the most cost effective location for new dwellings in Babergh.

Table 13 Indicative costs for discussion and refinement (£000)

	Hadleigh	Sudbury	Ipswich Fringe
	1,100 dwellings	4,100 dwellings	1,600 dwellings
Walk /cycle schemes			
Town centre improvements	400	600	N/A
On road radial routes	300	600	200
Missing links	300	300	200
Secure bike parking	100	200	N/A
Within development routes	Part of developer's cost		
Bus services and facilities			
Interchange facilities and shelters	100	1,000	50
New supported urban services	400	800	100
Road improvements			
Town centre circulation	200	1,000	N/A
Strategic junction improvements	500	200	400
Major schemes		Western bypass NOT considered £500 for part of eastern relief route	
Site access	Part of developer's cost		
Smarter choices programmes			
Programme at £200 per dwelling	300	800	300
TOTAL	2,600	6,000	1,250
Total per dwelling	2.4	1.5	0.8

5.6.4 It is considered at this stage that the costs, even if some way above the indicative figures, are of an order of magnitude that would be considered acceptable for developers' contributions. (Subject to the needs of other infrastructure requirements). Care will, however, be required to maximise developer contributions in the initial stages of development, to establish good habits of sustainable travel.

6 Conclusions

6 Conclusions

6.1 Discussion of Broad locations for new housing developments

6.1.1 The three main locations being considered represent markedly different opportunities for growth. The Hadleigh proposal represents a low key addition of some 1,100 to an existing market town of some 8,000. While several interventions will be required in the transport sector, they are relatively low key and achievable. The Sudbury proposal is larger in scale (adding some 4,100 to some 12,000 existing residents) and will require larger and more problematic transport system interventions. Given the scale of the proposed new development, however, the infrastructure and facilities requirements may well work out less expensive per dwelling than for the Hadleigh situation. The Ipswich Fringe represents a yet different situation, opportunistically infilling a well served area of suburban Ipswich.

6.1.2 Because the three main centres of potential development are so different, but all broadly feasible in transport terms, it makes sense to move forward with all three.

6.1.3 There is little to choose between the Hadleigh broad locations of growth in transport terms. The relatively low housing growth target is in keeping with the limited expectations for local employment growth. Further work will be required on the costing of infrastructure and facilities for each broad location to explore their relative cost effectiveness.

6.1.4 None of the individual Sudbury broad locations represent sufficient capacity to accommodate the maximum allocation. While the location to the southwest is conveniently close to the town centre, if fully developed it would result in difficult to mitigate transport problems. The location to the south of Great Cornard has considerable capacity, but would require careful further study to examine its relationship with the existing town, and to quantify the impact on the town centre.

6.1.5 The two broad locations to the north east and east of Sudbury are more closely associated with the existing urban area and can make more use of the A134 Springlands Way to avoid the town centre. They are also closer to the possibilities for future employment opportunities to the north of the town.

6.1.6 Overall, there is a tension between taking advantage of small additions to existing communities on the one hand, and establishing larger new residential developments able to establish their own new standards of travel behaviour, and able to fund significant new community infrastructure, on the other.

6.2 Specific issues

6.2.1 This study has started to accumulate the required transport evidence base for the ongoing LDF process, but much remains to be done as the investigations progress towards individual developer site Transport Assessments. At this early stage, the following specific issues have already been identified:

- In Hadleigh, the options for improving the safety and capacity of the junctions with the A1071;
- In Hadleigh, the opportunity provided by the new bus station needs to be grasped and developed, together with improving the urban realm conditions in Angel Street and the High Street;
- In Hadleigh, negotiating improvements to the frequency and coverage of the bus services;
- In Sudbury, the town centre needs to be redesigned, to take account of the proposals for re-provisioning the bus station, and to provide better walk and cycle routes into and around the town centre;
- In Sudbury, review the current and future use of the Springlands Way overbridges;
- In Sudbury, negotiating improvements to the frequency and coverage of the bus services;

- In Ipswich, examine the bus and traffic use of the Hadleigh Road and the London Road, as the Suffolk 6th form Centre comes into use.

6.2.2 The scale of proposed development, the capacity and standard of the local roads, and the remoteness from the A14 and A12 means that there will be negligible impact from Hadleigh and Sudbury developments on the Highways Agency roads. The work so far indicates the the Ipswich fringe broad location will not have a significant impact of the A14 J55 and J54, but this will need to be examined in more detail when the proposals are developed further.

6.3 Conclusions

6.3.1 This Study forms the first step in assembling a robust evidence base related to transport and access issues to inform the LDF process. At this initial stage, the overall residential spatial strategy is considered sensible and feasible in transport terms. It is relatively easily integrated into the District and County transport strategies and is broadly consistent with the current policies and likely future trends.

6.3.2 Initial investigations have reviewed the likely walk, cycle, and bus facilities required to service the new broad locations of development, and to reduce the dependence on the car. The outline requirements for transport infrastructure investments are considered to be within the likely funding availability of the private sector.

6.3.3 The emphasis will be on funding diffuse networks of walk and cycle facilities, and for town centre improvements. Thus traditional methods of negotiating with developers will need to be extended, and possibly replace by new mechanisms, such as the Community Infrastructure Levy.

Appendix A – Accessibility to Facilities

Appendix A - Accessibility to Facilities

Appendix A contains the following in relation to accessibility to facilities:

- Bus timetable information for each area;
- Key services for each broad location of growth;
- Plans for each area showing the broad locations of growth and the location of key services;

Appendix A 1 – Hadleigh Bus Services

Route No.	91	462	107	94	90	730	731	755	756	773	772
Route	**Sudbury – Hadleigh – Ipswich**	**Hadleigh – Stowmarket**	**Hadleigh – Whatfield – Elmsett – Ipswich**	**Hadleigh – Capel St Mary – Tattingstone - Ipswich**	**Ipswich – Hadleigh**	**Bildeston – Hadleigh – East Bergholt – Manningtree**	**Bildeston – Hadleigh – East Bergholt – Manningtree**	**Colchester – Hadleigh – Ipswich**	**Colchester – Hadleigh – Ipswich**	**Hadleigh Town Service**	**Hadleigh – Kersey**
Days of Operation	**Mon to Sat**	**Mon to Fri**	**Mon to Sat**	**Mon to Sat**	**Sunday only**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Fri**	**Tues and Fri**
Frequency	**Hourly**	**Variable**	**6 per day**	**Daily**	**5 per day**	**3 per day**	**2 per day**	**2 per day**	**2 per day**	**3 per day**	**2 per day**
1: East of Town and Frog Hall Lane	Passes. Could be extended.	Discounted as low frequency.	-	Discounted as low frequency.	Passes close by. Could be extended.	Discounted as low frequency.	Discounted as low frequency.	Discounted as low frequency.	Discounted as low frequency.	Has potential but frequency would need to be increased	Discounted as low frequency.
2: West of town and River Brett	Passes close by. Could be extended. River might act as constraint.		Would need to be re-routed.		Would need to be re-routed.					Has potential but frequency would need to be increased	
3: North and north west of town to Hadleigh bypass	Would need to be re-routed to serve broad location .		Passes close by. Could be re-routed.		Would need to be re-routed.					Has potential but frequency would need to be increased	

Appendix A 2 – Sudbury Bus and Rail Services (continues overleaf)

Route No.	S1 (700)	1	S5	11, 12, 13	84	91	111	236	370, 372, 373	323	708
Route	**Sudbury town service**	**Ashen – Great Yeldham – Sudbury**	**Sudbury – Great Cornard – Sudbury**	**Sudbury – Halstead Village link**	**Sudbury – Nayland – Colchester**	**Sudbury – Hadleigh – Ipswich**	**Sudbury – Bildeston – Ipswich**	**Sudbury – Glemsford – Haverhill**	**Bury St Edmunds – Sudbury**	**Greenstead Green – Twinstead – Sudbury**	**Lavenham – Bildeston – Sudbury**
Days of Operation	**Mon to Fri**	**Thurs only**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Thurs only**	**Thurs only**
Frequency	**Hourly but route varies**	**Daily**	**Half hourly**	**Hourly**	**Hourly**	**Hourly**	**Every two hours**	**Hourly**	**4 per day**	**Daily**	**Daily**
4: Southwest of Sudbury	Route serves broad location. Could increase frequency	Discounted. Frequency too low.	-	Route serves broad location. Could increase frequency	-	-	Discounted. Frequency too low.	-	Discounted. Frequency too low.	Discounted. Frequency too low.	Discounted. Frequency too low.
5: North of Sudbury	Route serves broad location. Could increase frequency.		-	-	Route passes edge of broad location. Could extend.	-		-			
6: East of Sudbury	Passes close to broad location. Could be extended.		Route passes close by. Could extend.	-	Route passes close by. Could extend.	Route passes close by. Could extend.		-			
7: South and Southeast of Great Cornard	-		Route passes close by. Could extend.	-	-	-		-			

Route No.	716	715	753 (part a)	753 (part b)	Train
Route	**Sudbury – Long Melford (circular)**	**Stanstead – Lawshall – Sudbury**	**Sudbury – Bury St Edmunds**	**Colchester – Sudbury**	**Sudbury – Marks Tey**
Days of Operation	**Mon to Fri**	**Thurs only**	**Mon to Sat**	**Mon to Sat**	**Mon to Sun**
Frequency	**Approx half hourly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
4: Southwest of Sudbury	-	Discounted. Frequency too low.	-	-	Hourly route S1 serves the rail station. Hourly routes 11, 12, 13 could be extended so as to serve the rail station.
5: North of Sudbury	-		-	-	Hourly routes S1 and 91 provides link to rail station. Hourly route 84 could be extended so as to serve the rail station.
6: East of Sudbury	-		-	-	Half hourly route S5 and hourly route 91 serve the rail station.
7: South and Southeast of Great Cornard	-		-	Could re-route possibly.	-

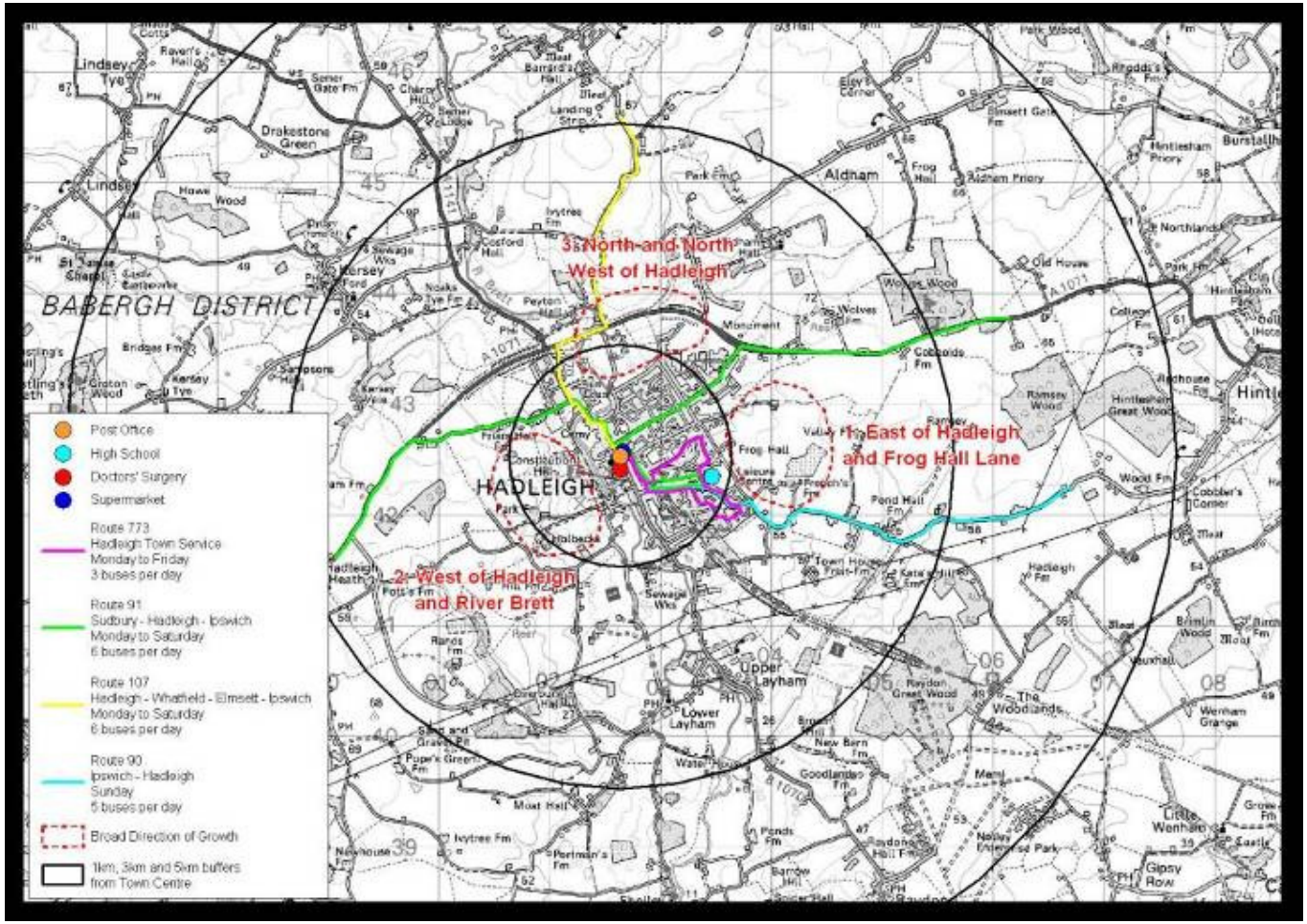
Appendix A 3 – Ipswich Fringe Bus Services

Route No.	90	91	107	110	111	93
Route	**Ipswich - Hadleigh**	**Sudbury – Hadleigh – Ipswich**	**Hadleigh – Whatfield – Elmsett – Ipswich**	**Ipswich – Bramford - Claydon**	**Ipswich – Bildeston – Sudbury**	**Colchester – East Bergholt – Capel St Mary – Ipswich**
Days of Operation	**Sunday only**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**	**Mon to Sat**
Frequency	**5 per day**	**Hourly**	**6 per day**	**Hourly**	**Several per day**	**Hourly**
8: North of Copdock Interchange	Route passes through broad location. Could increase frequency.	Route passes through broad location. Could increase frequency.	Route passes through broad location. Could increase frequency.	-	-	Route passes through through broad location.

Appendix A 4 – Hadleigh Key Services

	Within 1km	Within 3km
Broad Locations of Growth	2: West of town and River Brett	1: East of Town and Frog Hall Lane 3: North and north west of town to Hadleigh bypass
Post Offices	Hadleigh	-
Upper Schools	Hadleigh High School	-
Doctors' Surgeries	Hadleigh Health Centre	-
Supermarkets	Co-op	-

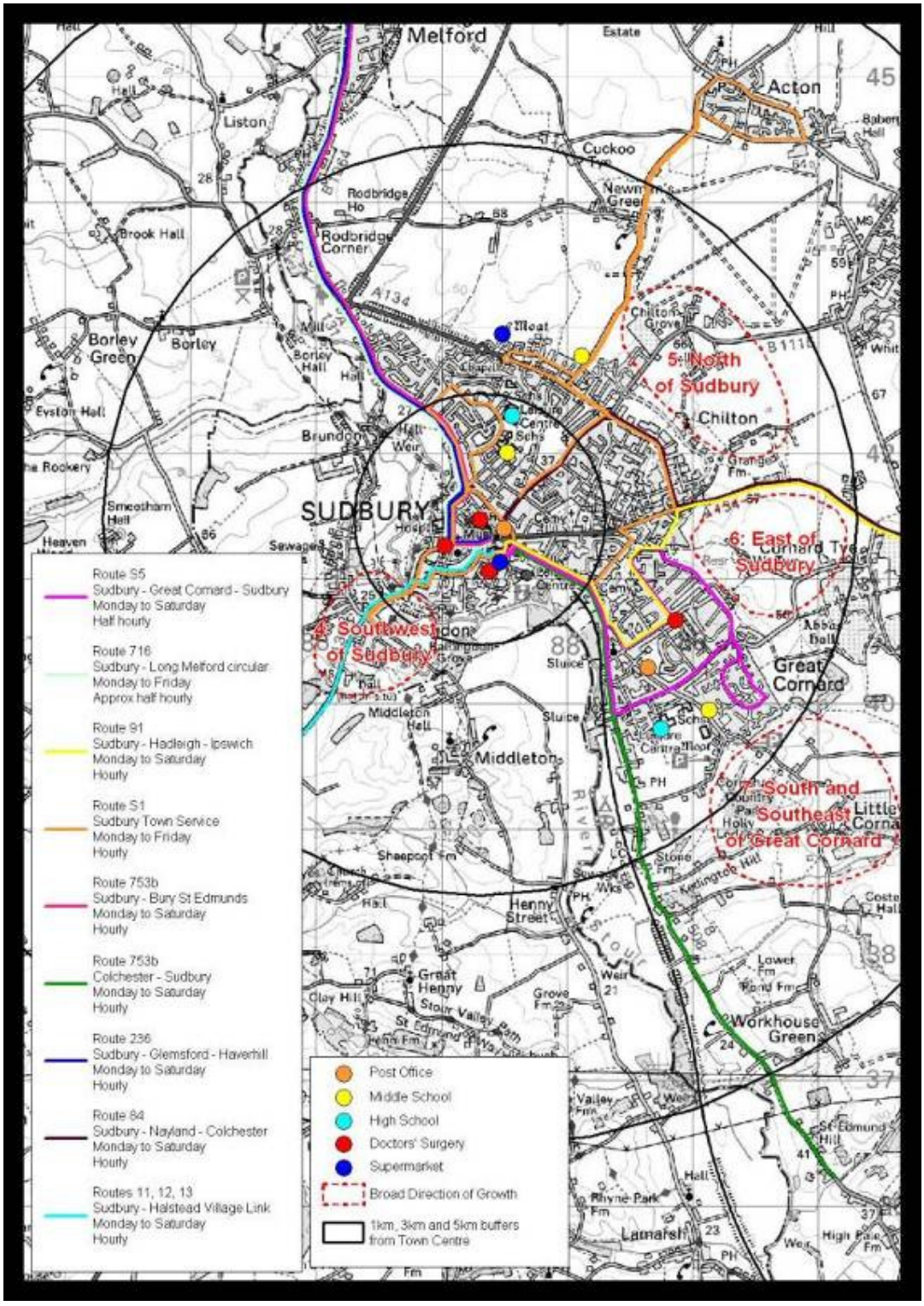
The distance buffers are taken from Hadleigh town centre.


3: North and North West of Hadleigh
1: East of Hadleigh and Frog Hall Lane
2: West of Hadleigh and River Brett
HADLEIGH
BABERGH DISTRICT
Aldham
Lindsey
Drakestone Green
Upper Layham
Lower Layham
Post Office
High School
Doctors' Surgery
Supermarket
Route 773
Hadleigh Town Service
Monday to Friday
3 buses per day
Route 91
Sudbury - Hadleigh - Ipswich
Monday to Saturday
6 buses per day
Route 107
Hadleigh - Whatfield - Elmsett - Ipswich
Monday to Saturday
6 buses per day
Route 90
Ipswich - Hadleigh
Sunday
5 buses per day
Broad Direction of Growth
1km, 3km and 5km buffers from Town Centre

Appendix A 5 – Sudbury Key Services

	Within 1km	Within 3km	Within 5km
Broad Locations of Growth	-	4: Southwest of Sudbury 5: North of Sudbury 6: East of Sudbury	7: South and Southeast of Great Cornard
Post Offices	Sudbury	Great Cornard	-
Middle Schools	Uplands Middle School	All Saints CEVC Middle School Great Cornard Middle School	-
Upper Schools	Sudbury Upper School and Arts College	Great Cornard Upper School and Technology Centre	-
Doctors' Surgeries	Hardwicke House Group Practice Meadow Lane Surgery Siam Surgery	Cornard Surgery	-
Supermarkets	Waitrose	Tesco	-

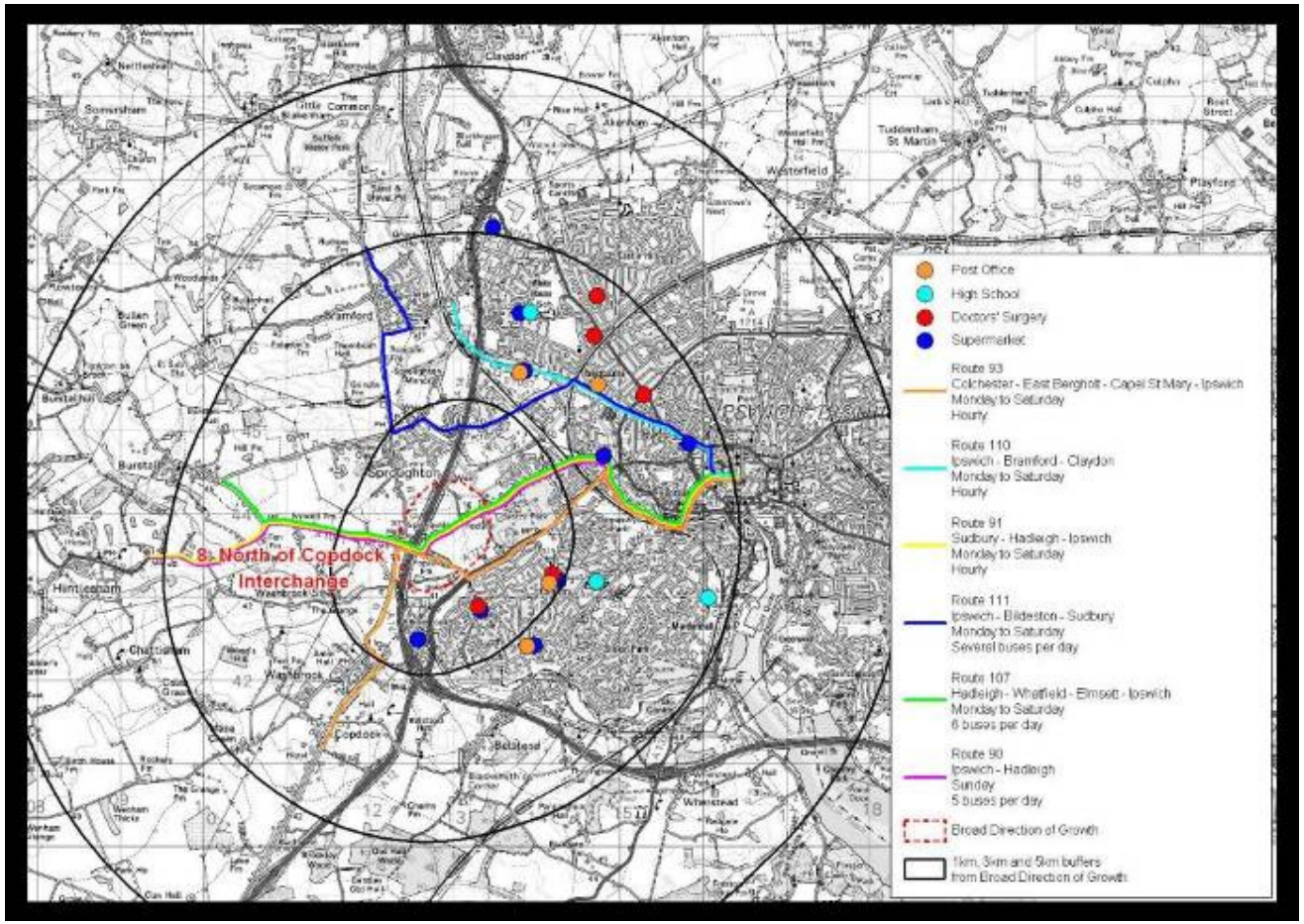
The distance buffers are taken from Sudbury town centre. It should be noted that there may be some services which are within 5km but that these have not been listed as they were deemed to fall outside the immediate area under consideration.


Melford
Acton
Liston
Cuckoo
Rodbridge Ho
Rodbridge Corner
Brook Hall
A134
Borley Green
Borley
Borley Hall
Eyston Hall
Brundon
Chilton Grove
5: North of Sudbury
Chilton
Grange Fm
SUDBURY
Smeetham Hall
Heaven
6: East of Sudbury
Great Cornard
4: Southwest of Sudbury
Middleton Hall
Middleton
Sluice
Sheepcot Fm
Henny Street
Great Henny
Clay Hill
Stour Valley Path
Workhouse Green
Lower Fm
Pond Fm
Valley Fm
Rhyne Park Fm
Lamarsh
Route S5
Sudbury - Great Cornard - Sudbury
Monday to Saturday
Half hourly
Route 716
Sudbury - Long Melford circular
Monday to Friday
Approx half hourly
Route 91
Sudbury - Hadleigh - Ipswich
Monday to Saturday
Hourly
Route S1
Sudbury Town Service
Monday to Friday
Hourly
Route 753b
Sudbury - Bury St Edmunds
Monday to Saturday
Hourly
Route 753b
Colchester - Sudbury
Monday to Saturday
Hourly
Route 236
Sudbury - Glemsford - Haverhill
Monday to Saturday
Hourly
Route 84
Sudbury - Nayland - Colchester
Monday to Saturday
Hourly
Routes 11, 12, 13
Sudbury - Halstead Village Link
Monday to Saturday
Hourly
Post Office
Middle School
High School
Doctors' Surgery
Supermarket
Broad Direction of Growth
1km, 3km and 5km buffers from Town Centre

Appendix A 6 – Ipswich Fringe Key Services

	Within 1km	Within 3km
Post Offices	Chantry	Adair Road Ellenbrook Green Surbiton Road
Upper Schools	-	Chantry High School and Sixth Form Centre Stoke High School Westbourne Sports College
Doctors' Surgeries	Hawthorn Drive Surgery The Derby Road Practice	Chesterfield Drive Practice Dr S Roberts & Partners Smith, McKay, Mowles & Swinglehurst
Supermarkets	Co-op (two branches) Tesco Extra	Co-op (two branches) Sainsburys Tesco Express (two branches)

The distance buffers are taken from the broad Ipswich Fringe growth location. Five kilometres has not been included here as this would cover Ipswich town centre and all its associated services.


8. North of Copdock Interchange
Post Office
High School
Doctors' Surgery
Supermarket
Route 93
Colchester - East Bergholt - Capel St Mary - Ipswich
Monday to Saturday
Hourly
Route 110
Ipswich - Bramford - Claydon
Monday to Saturday
Hourly
Route 91
Sudbury - Hadleigh - Ipswich
Monday to Saturday
Hourly
Route 111
Ipswich - Bildeston - Sudbury
Monday to Saturday
Several buses per day
Route 107
Hadleigh - Whatfield - Elmsett - Ipswich
Monday to Saturday
6 buses per day
Route 90
Ipswich - Hadleigh
Sunday
5 buses per day
Broad Direction of Growth
1km, 3km and 5km buffers
from Broad Direction of Growth

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Appendix B – Traffic Impact Analysis

Appendix B – Traffic Impact Analysis

B.1 Trip Generation

This Appendix describes the analysis of trip generation and trip distribution for each of the eight assumed broad locations, to suggest a precautionary upper bound road traffic impact.

In order to calculate a broad person trip generation for each of the proposed broad locations, AECOM has used a methodology based on the following documents:

- 2001 Census
- National Travel Survey 2007
- Department for Transport 'Focus on Personal Travel'.

From the 2001 Census data, the following information has been obtained:

- Total resident population of each ward;
- Journey to work data by mode;
- The number of households within each ward;
- Average household size of each ward

Data on person trip making has been taken from the National Travel Survey. The National Travel Survey provides a national view of personal travel information for the country as a whole.

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose. A summary of this and the percentages that this equates to is shown in Table B1.

Table B1 - Average Number of Round Trips per Person per Year

Purpose of Travel	Trips per person/ year	Trips %
Commuting	157	15.8%
Business	30	3.0%
Education	62	6.3%
Escort Education	43	4.3%
Shopping	198	20.0%
Other Escort	96	9.7%
Personal Business	103	10.4%
Visiting Friends (both at private home and elsewhere)	156	15.7%
Sport & Entertainment	63	6.4%
Holidays & Day Trips	41	4.1%
Others (including just walk)	44	4.4%
All Purposes	992	100.0%

Source: Table 4.1 of the National Travel Survey

Using the Census and National Travel Survey data, the annual average daily trip rate per household in each of the wards identified can be calculated.

Average Daily Trip per Household (one-way) = 992 (NTS total number of trips per person per year) X Average Household Size / 365 days.

Table 2.9 of the DfT 'Focus on Personal Travel' Document would suggest that for all trips, the weekday Monday to Friday average is 5.3% higher than the Monday to Sunday average. Therefore the weekday number of trips per household is 5.3% higher.

The NTS considers travel in round trips, and it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Table 8.3 of the National Travel Survey details that 12% and 8% of all weekday trips take place between the peak periods of 08:00 – 09:00 and 17:00 – 18:00 respectively.

Table 8.2 of DfT Focus on Personal Travel details of the proportion of trips based on the trip purpose and time of day during the peak hours. These proportions are broadly comparable with the proportions detailed in Table 8.3 of the National Travel survey. These proportions are shown in Table B2.

Table B2 – Trip Purpose Split during AM and PM Peak

Purpose of Travel	AM Peak (08:00 - 09:00	PM Peak (17:00 - 18:00)
Commuting	25%	36%
Business	4%	4%
Education	29%	2%
Escort Education	18%	1%
Shopping	4%	12%
Personal Business	14%	20%
Visiting Friends	2%	14%
Sport & Entertainment	1%	5%
Holidays & Day Trips	1%	3%
Others (including just walk)	2%	3%
All Purposes	100%	100%

Source: Table 8.2 of DfT Focus on Personal Travel

Using the information above, it is possible to estimate the weekday and peak hour trips generated at each of the broad locations based upon the ward in which they are located. The methodology for this is outlined below:

Number of weekday peak trips per broad location =

Proposed Number of Dwellings
X
Average Number of Trips per Household.
X
12% or 8% for the AM and PM Peaks respectively.

These trips can then be assigned to the mode. For the Commuter and Business trips, AECOM has applied the Journey to Work data from the 2001 Census. For Shopping, Education and Other Trips, AECOM has applied the mode shares outlined in Table 7.1 of the National Travel Survey.

In order to create a vehicle trip rate per dwelling AM and PM arrival and departures, AECOM has used the TRICS database. The average trip rates for private houses (all broad locations) has been calculated, the arrival and departure profile applied to the AM and PM trips from the

broad locations. The resulting trip generation rates and totals are given in Chapter 4 of the Report.

B.2 Trip Distribution

AECOM has distributed the traffic generated by the potential broad locations onto the road network based on the broad patterns found in 2001 Census data. Assumptions have been made, however, regarding the precise access points and routes used. The following eight Tables summarise the trip distribution assumptions made. The eight Figures at the end of this Appendix show the resulting traffic patterns, based on the precautionary broad location capacities, and the higher trip rates.

Table B3- Broad location 1: East of Town and Frog Hall Lane Trip Distribution

Location	Route Assumption
Eastbound (towards Ipswich)	All traffic: Froghall Lane to Lady Lane to A1071 east
Southbound (towards Colchester)	50% traffic: Froghall Lane to Station Road to B1070 south 50% traffic: Froghall Lane to Angel Street to B1070 south
Northbound (towards Stowmarket)	All traffic: Froghall Lane to Lady Lane to A1071 west to A1141 north
Westbound (towards Sudbury)	50% traffic: Froghall Lane to Lady Lane to A1071 west 50% traffic: Froghall Lane to Angel Street to Bridge Street to Gallows Hill to A1071 west
Town Centre	All traffic: Froghall Lane to Angel Street to High Street

Table B4 - Broad location 2: West of town and River Brett Trip Distribution

Location	Route Assumption
Eastbound (towards Ipswich)	All traffic: Coram Street to Gallows Hill to A1071 east
Southbound (towards Colchester)	All traffic: Coram Street to Bridge Street to A1071 east
Northbound (towards Stowmarket)	All traffic: Coram Street to Gallows Hill to A141 north
Westbound (towards Sudbury)	All traffic: Coram Street to A1071 west
Town Centre	All traffic:

	Coram Street to Bridge Street to High Street

Table B5 - Broad location 3: North and north west of town to Hadleigh Bypass Trip Distribution

Location	Route Assumption
Eastbound (towards Ipswich)	All traffic: Aldham Mill Hill to A1071 east
Southbound (towards Colchester)	All traffic: Aldham Mill Hill to Calais Street to High Street to B1070 south
Northbound (towards Stowmarket)	All traffic: Aldham Mill Hill to A1071 west to A141 north
Westbound (towards Sudbury)	All traffic: Aldham Mill Hill to A1071 west
Town Centre	All traffic: Aldham Mill Hill to Calais Street to High Street

Table B6 - Broad location 4: Southwest of Sudbury Trip Distribution

Location	Route Assumption
Eastbound (towards Colchester and Ipswich)	All traffic: A131 to One-way system to A131 to A134 east
Eastbound (towards Colchester)	All traffic: A131 to One-way system to B1508 south
Southbound (towards Braintree)	All traffic: A131 south
Northbound (towards Bury St Edmunds)	All traffic: A131 north
Westbound	Not applicable
Town Centre	All traffic: A131 to One-way system

Table B7 – Broad location 5: North of Sudbury Trip Distribution

Location	Route Assumption
Eastbound (towards Colchester and Ipswich)	All traffic: B1115 to A134 to A134 east
Eastbound (towards Colchester)	All traffic: B1115 to One-way system to B1508 south
Southbound (towards Braintree)	All traffic: B1115 to One-way system to A131 south
Northbound (towards Bury St Edmunds)	All traffic: B1115 to A134 west to A134 north
Westbound	Not applicable
Town Centre	All traffic: B1115 to One-way system

Table B8 - Broad location 6: East of Sudbury Trip Distribution

Location	Route Assumption
Eastbound (towards Colchester and Ipswich)	All traffic: Shawlands Avenue to A134 east
Eastbound (towards Colchester)	All traffic: Shawlands Avenue to A131 to One-way system to B1508 south
Southbound (towards Braintree)	All traffic: Shawlands Avenue to A131 to One-way system to A131 south
Northbound (towards Bury St Edmunds)	All traffic: Shawlands Avenue to A134 to A134 north
Westbound	Not applicable
Town Centre	All traffic: Shawlands Avenue to A131 to One-way system

Broad location B9 - Broad location - 7: South and Southeast of Great Cornard Trip Distribution

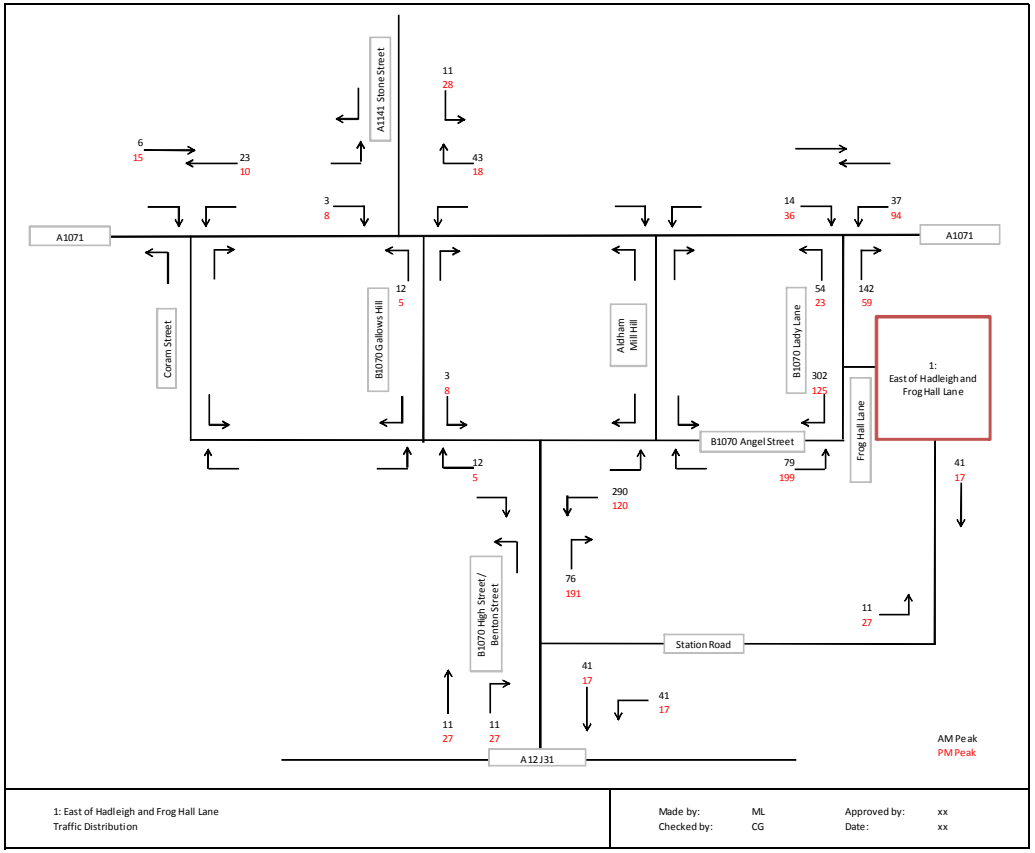
Location	Route Assumption
Eastbound (towards Colchester and Ipswich)	All traffic: Cut through local roads onto A134
Eastbound (towards Colchester)	All traffic: B1508 south
Southbound (towards Braintree)	All traffic: B1508 to One-way system to A131 south
Northbound (towards Bury St Edmunds)	All traffic: B1508 to One-way system to A131 to A134 north
Westbound	Not applicable
Town Centre	All traffic: B1508 to One-way system

Table B10 - Broad location 8: North of Copdock Interchange Trip Distribution

Location	Route Assumption
Eastbound (towards Felixstowe)	All traffic: A1071 to A1214 to A14 junction 55 east
Southbound (towards Colchester)	All traffic: A1071 to A1214 to A12 junction 33 south
Northbound (towards Stowmarket)	All traffic: A1071 to B1113 to Sproughton Road to A14 junction 54 north
Westbound (towards Hadleigh)	All traffic: A1071 west
Town Centre	50% traffic: Hadleigh Road 50% traffic: A1071 east

The results of these distribution assumptions are tabulated in the following graphics, and summarised in Chapter 4 of the Report.

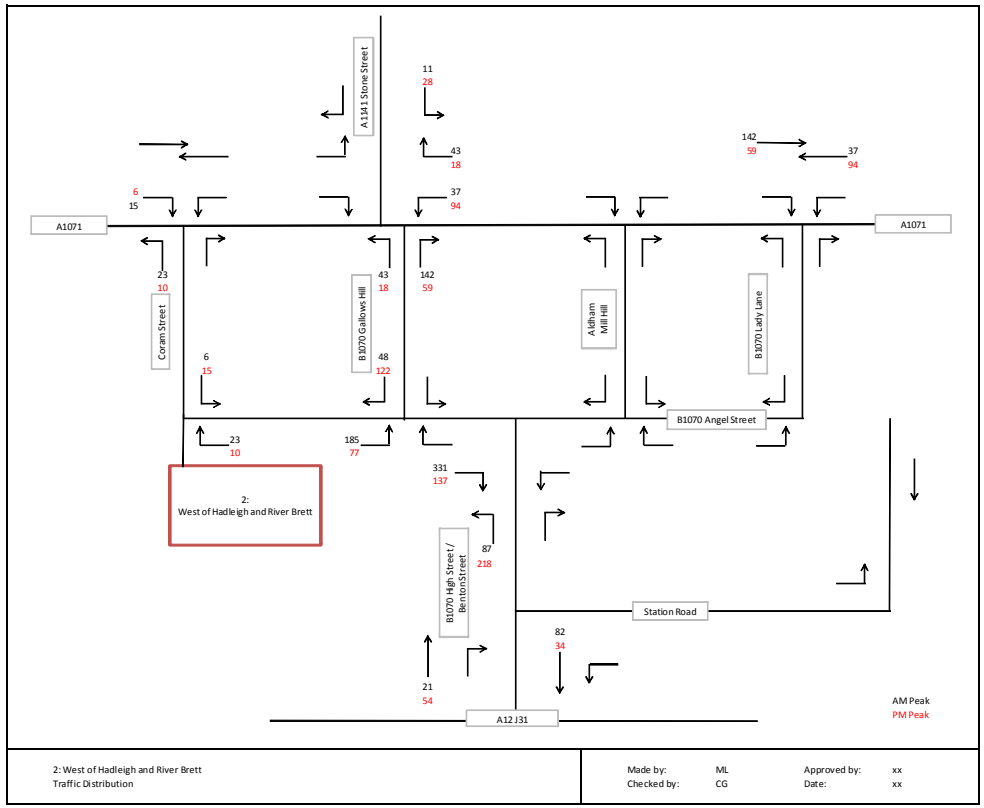
Broad location 1 – East of Hadleigh and Frog Hall Lane



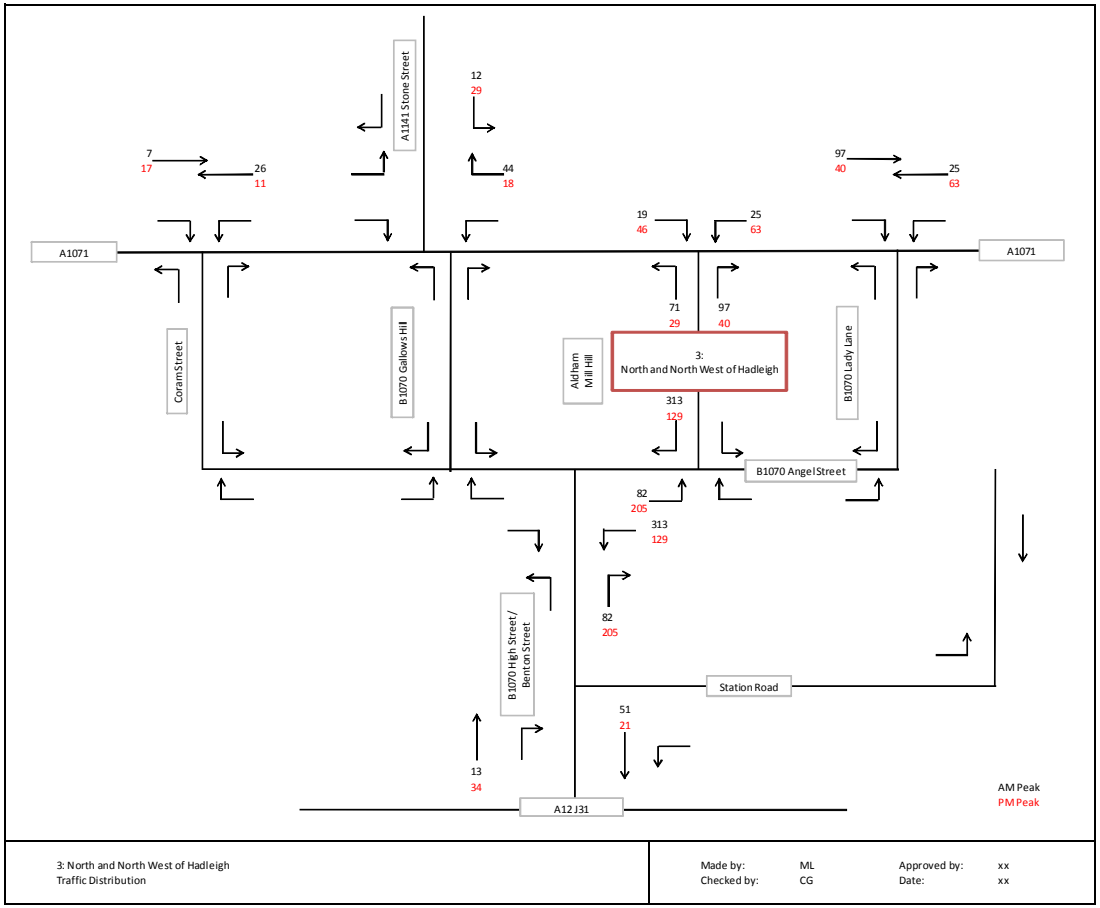
1: East of Hadleigh and Frog Hall Lane
Traffic Distribution

Made by: ML
Checked by: CG
Approved by: xx
Date: xx

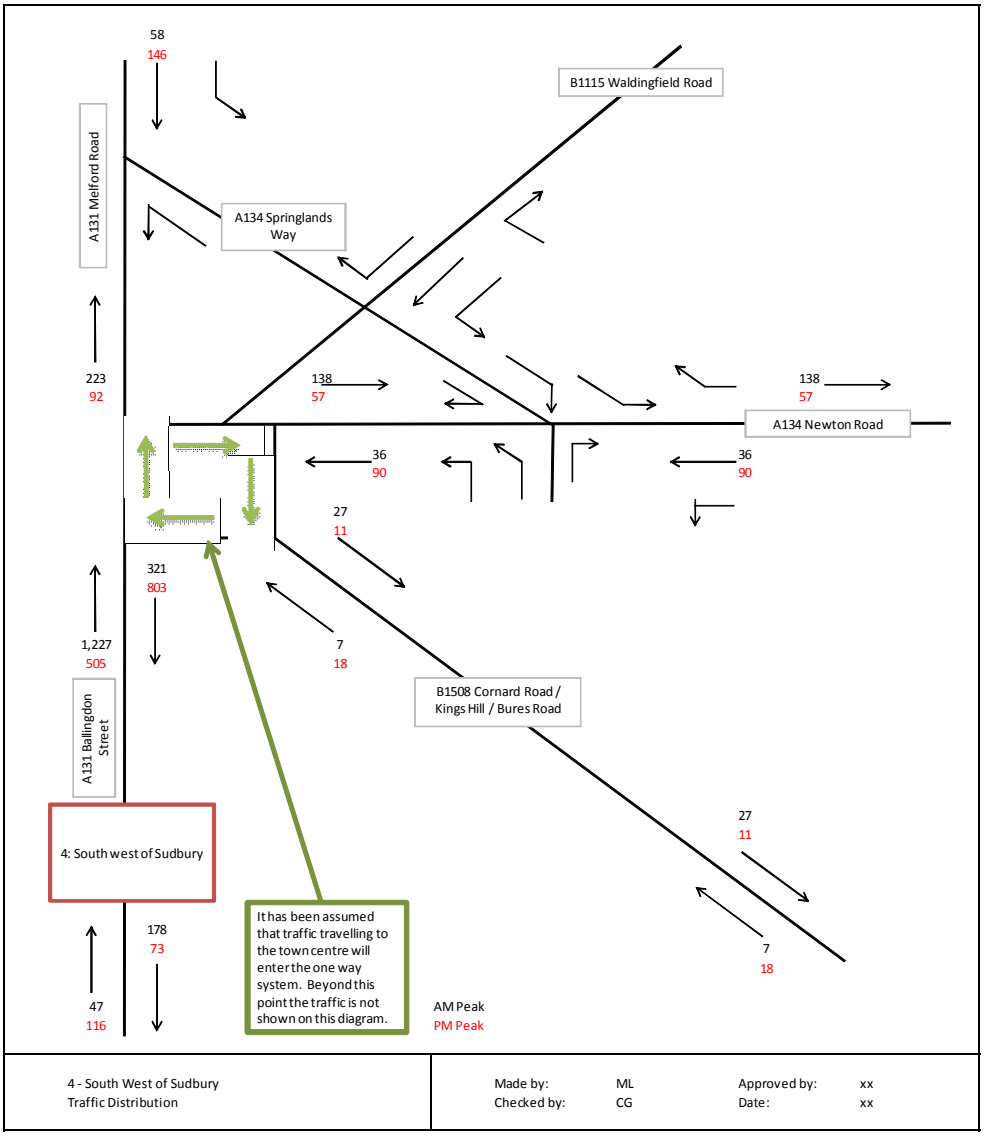
Broad location 2 – West Hadleigh and River Brett



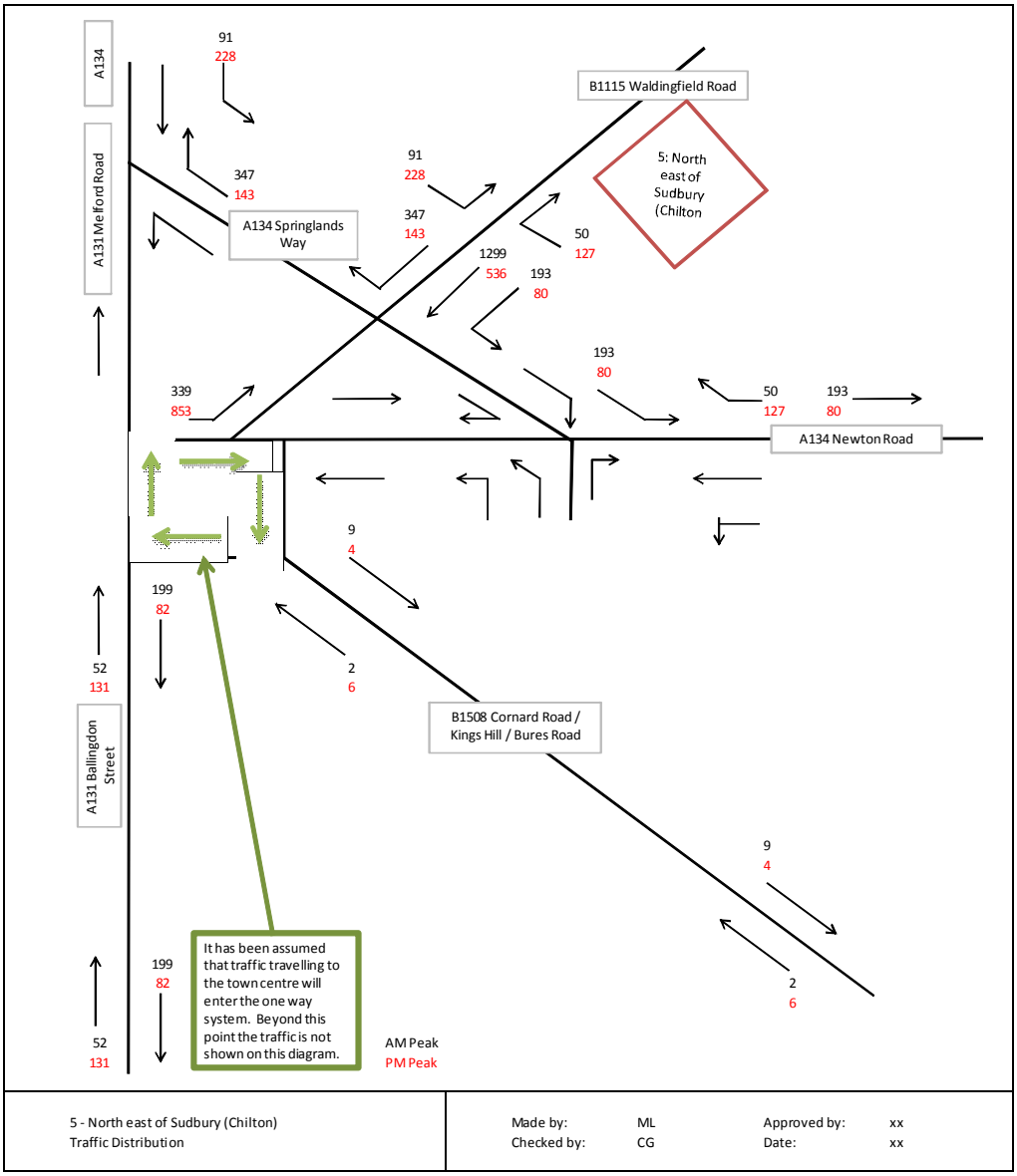
Broad location 3 – North and North West of Hadleigh



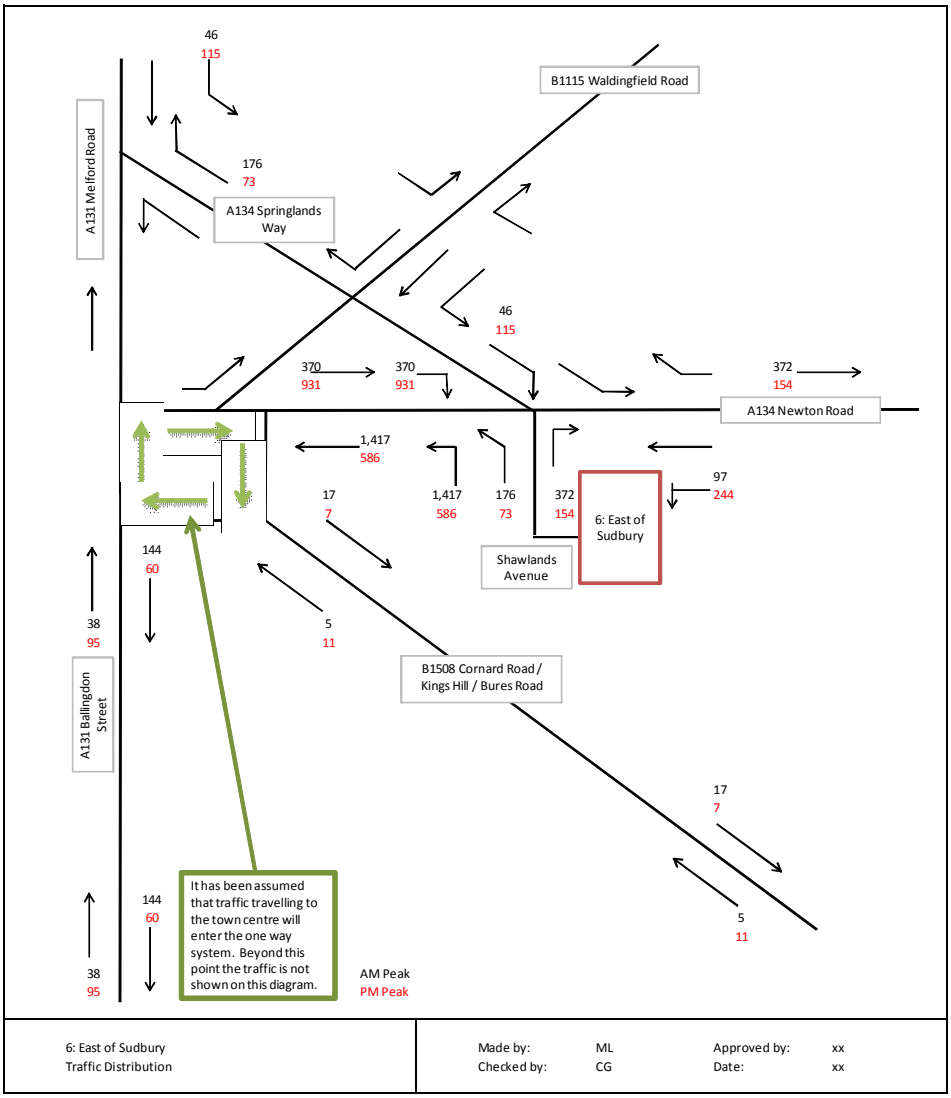
Broad location 4 – South West of Sudbury



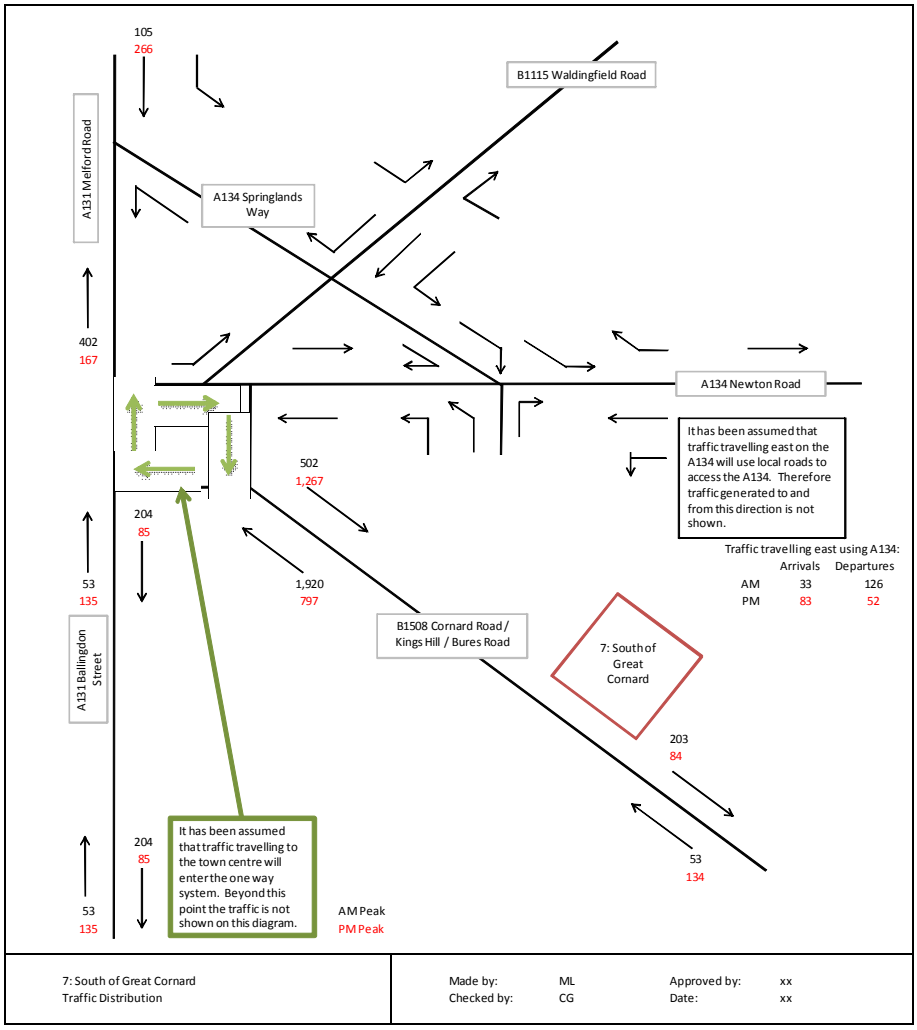
Broad location 5 – North East of Sudbury (Chilton)



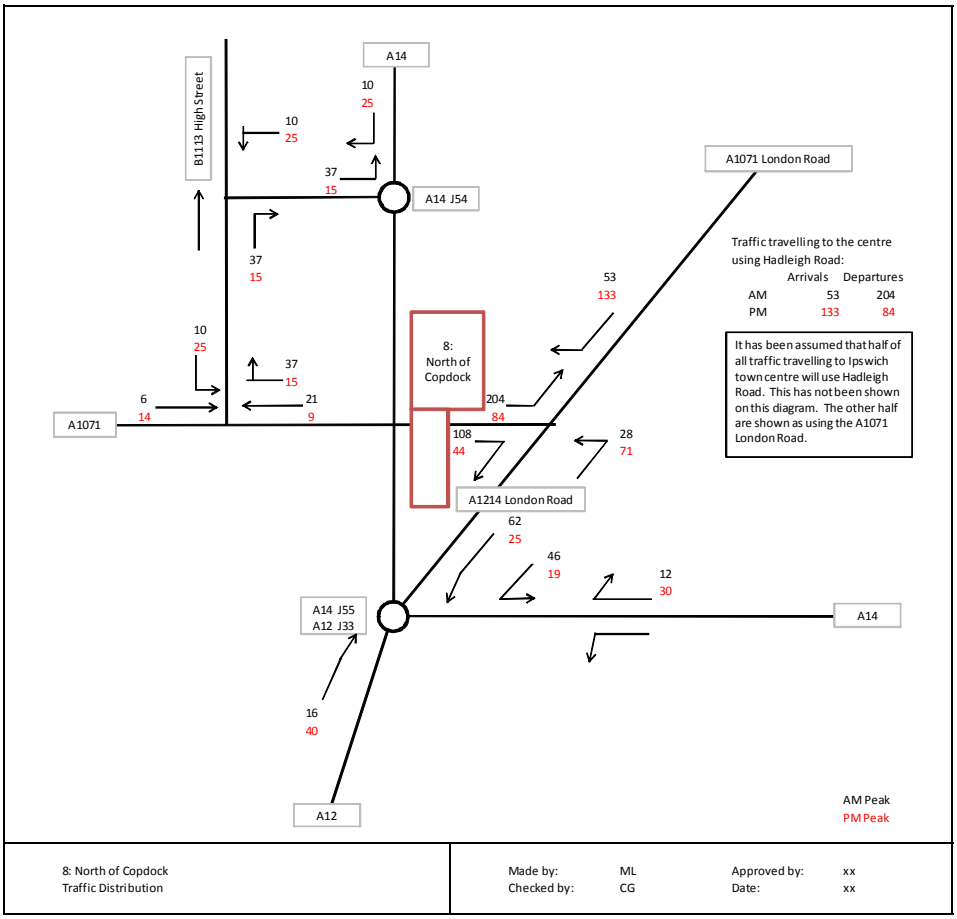
Broad location 6 – East of Sudbury



Broad location 7 – South of Great Cornard



Broad location 8 – North of Copdock



8: North of Copdock Traffic Distribution	Made by: Checked by:	ML CG	Approved by: Date:	xx xx

Appendix C – Transport Facilities Proposals

Appendix C – Transport Facilities Proposals

This Appendix summarises the information discussed at the Workshop held on Thursday 1 October 2009.

6.3.4

	General	Walking and Cycling	Public Transport	Roads
Hadleigh	• 436 to 1,090 dwellings. • Need to consider open space and impact of development on setting of town. • Largely self contained town with approximately 50% internalisation. • An industrial estate is located to the north of the town. • Facilities are better than usual for size of town. • Middle schools have now closed and school system is two tier. [There are no middle schools in Hadleigh according to the Suffolk County Council website. Although there are middle schools in other parts of Suffolk]. • A new leisure centre is currently being built. • Prominent landscape to the west of town. • BDC is seeking to keep 'gap' between the bypass and the town to the north as open.	• National Cycle Network Route 1 currently runs along disused rail line. • No particular cycle issues exist in Hadleigh. • Exists possibility of making the High Street more cycle friendly. • Most of Hadleigh is within walking distance of town centre and key services. • Hadleigh is a traditional market town and so the footways are narrow. • There is an imbalance between vehicles and pedestrians in the town centre. • Any development to the west of town would be cut off from the town centre by the river. • Any development north of the town would be peripheral. • Any development to the east of the town would be convenient but a significant walking distance from the High Street. • Some cycle parking in place in Market Place. No cycle parking in the new bus station. • Would need to consider how any existing/potential cycle routes from any new developments to major attractors could be improved.	• A new bus station has been provided which acts as a focal point for buses. • Routeing problems exist as the Ipswich service loops around the town and it is not clear which side of the road you need to wait on. • Penetration of bus routes into any new residential areas is needed. • Hadleigh acts as a hub for demand responsive services from outlying rural areas. • The services that operate in Hadleigh are commercial and therefore cannot demand that operators re-route, but local authorities would liaise with operators to try to ensure that any new development is served by a bus service. • Unlikely to be able to justify additional bus services as a result of new development but should be able to improve existing ones.	• Car parking is at capacity and possibility of introducing car parking charges through Babergh District. • There are lots of listed buildings along the B1070 which itself is a narrow road and subject to HGV and safety problems. • East/west routes are generally problem free. • North/south routes have issues. • A1071/Aldham Mill Hill staggered junction causes safety issues for vehicles making north/south movements. • A1071/Gallows Hill/Stone Street dog leg junction causes safety issues. • A1071/Lady Lane junction is on the inside of a bend and this could cause issues. Potential to convert this to a roundabout. • Vehicles queue to turn right into Coram Street from the A1071 causing problems for vehicles going straight ahead. • Improvements should not be of such a scale so as to attract new traffic.

Sudbury	• 1,090 to 4,088 dwellings. • Any development in Great Cornard is likely to have a significant environmental impact due to the valley. • Any development to the south and west of the town centre likely to impact on the approach and town centre road network and produce severe environmental impacts on the river/meadows.	• Plans exist to refurbish cycle/footbridges which cross Springlands Way. Possibility of removing two of these to reduce bridge maintenance costs and to replace them with toucan crossings. However, this would require steps to be provided and therefore is unlikely. • The one way system is a barrier to cyclists. • Suffolk County Council has worked on Cycle Network Plan for Great Cornard. • Would need to consider how any existing/potential cycle routes from any new developments to major attractors could be improved.	• The existing bus station needs to be improved. BDC is actively promoting the redevelopment of the bus station site and surrounding property. There is a consultation on this at the end of November. • Plans are in place to relaunch town services with commercial operators as part of the Chilton development. • Need to link any new development with the town centre and rail station. • The rail line is largely a commuter line. It has an hourly service and takes half an hour to reach Marks Tey. • The idea of a rail halt at Great Cornard is unlikely to go ahead as trains need to meet the London bound trains at Marks Tey. Plus the halt is not far from the main rail station at Sudbury. • A good bus link to the rail station is needed.	• Improvements are proposed at Belle Vue junction, to allow a right turn into Newton Road possible. • There are no current plans to improve any other junctions in Sudbury. • There are air quality and on street parking issues along Cross Street. • The lorry park near the town centre causes safety, congestion and pollution issues. • The leisure centre, rail station and shops are all accessed off Eastern Road which can cause safety and congestion problems. • The western bypass of Sudbury is mentioned in the Local Plan for Babergh, and therefore it is Babergh District's policy to promote it. However this is unlikely to go ahead for some years.

Ipswich Fringe	• 245 to 1,635 dwellings. • There is a high percentage of bus journey to work. • There is a Park & Ride site nearby. • The Suffolk Centre will be a 6th form centre and opens in September 2010 with the aim of promoting travel to the Centre by bus and cycle.	• New walking and cycle routes are proposed as part of the Suffolk Centre development. This would provide a link for pedestrians and cyclists between Sproughton and the Centre, as well as a link to the countryside. • Existing walking/cycling route along A1214/A1071. • Would need to consider how any existing/potential cycle routes from any new developments to major attractors could be improved.	• Few bus routes along London Road due to a low number of frontages. • Park & Ride bus uses London Road which has bus priority measures in place. • Good level of bus service along Hadleigh Road due to high number of frontages. • Proposals to increase length of bus lane up to the railway bridge.	• May be some issues along Hadleigh Road. • A14 is very noisy and would have serious impacts on any new housing nearby unless major mitigation was provided. • Highways Agency likely to be concerned because of the A14 and Copdock Interchange.
Key Service Centres (KSCs)	• 273 to 1,363 dwellings. • Taken to be large villages as defined in the Local Plan, although this may change in the Core Strategy. List provided earlier to AECOM by email. • KSCs should be considered opportunistically, but development should generally be directed towards the most sustainable centres. • Need to accept that sustainability will be low and that there will be a high level of car driver trips. • Key services are likely to be present which should reduce trips to an extent.	• Some minor works may be possible, but the scale of development (approximately 100 dwellings on average per KSC) is unlikely to be sufficient to generate improvements to existing facilities or the provision of new facilities. Likely to be a high dependence on the car.		