Local Development Framework: Transport Impacts - Bury St Edmunds

Suffolk County Council and St Edmundsbury Borough Council
November 2009

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1 Introduction

1 Introduction

This Commission

1.1 Suffolk County Council (SCC) has commissioned AECOM to examine the transport impacts of possible future strategic growth in residential development in and around Bury St Edmunds. This work is to be undertaken in conjunction with St Edmundsbury Borough Council (SEBC). AECOM is a transport planning consultancy framework partner of SCC, and previously undertook a study to develop a transport strategy for Bury St Edmunds in 2005-06.

1.2 This report responds to an April 2009 brief from Suffolk County Council (SCC) to examine transport infrastructure issues related to the potential allocations of new residential and mixed use development sites around Bury St Edmunds, being considered by SEBC as part of its Local Development Framework investigations. The current commission is based on existing information, and is a limited desk study contributing to the overall considerations of the wider LDF impact implications.

1.3 This work has been carried out during the discussion and development of the evolving LDF proposals. SEBC published their Core Strategy Issues and Options Report in March 2008. The Submission Core Strategy Development Plan Document was published in July 2009. Policy CS11 in that Document outlined the broad location for the future strategic growth, as Policy CS11. Public consultation and strategy finalisation (including the finalisation of this Report) continued through the summer, to result in an autumn approval process prior to submission of the Core Strategy to the Secretary of State in January 2010.

This Report

1.4 This Final Report reflects discussion of earlier drafts, and has been produced after discussions in October. It starts with a review of the objectives and policy context of the work, before discussing the broad locations identified in the Submission Core Strategy Development Plan.

1.5 The transport impacts analysis comprises three Chapters. Firstly, a broad, accessibility and potential for sustainable travel approach is used to assess the locations. Next, a quantified approach to the road traffic impacts is described. Thirdly, the transport facilities' implications are explored.

1.6 This Report is a transport contribution to the debate on the possible direction and scale of development, and so the conclusions of the work are partial, to be considered by the authorities and stakeholders in conjunction with other aspects of the development debate.

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2 Objectives of Study

2 Objectives of Study

Objectives

2.1 This study aims to meet the following objectives:

- To examine the transport implications of the locations identified in Policy CS11 of the Core Strategy, separately and in combination;
- To consider them against the existing major centres of employment, based on information on existing commuting travel patterns;
- To consider the potential for more sustainable transport patterns, through development design for active mode facilities, through minimising the need to travel at source, and through the provision of access to modes of transport other than the private car;
- To identify the nature and scale of the impact of this scale of growth at key highway junctions, and to identify where possible first ideas for the development of mitigation measures; and
- To identify and discuss possible new transport facilities, particularly for more sustainable modes, which will be needed to support the developments.

This study forms part of an evolving and ongoing process, and not all of these objectives have been fully met.

Study Context and Limitations

2.2 This study has been carried out in the context of the approved East of England Plan, the emerging Suffolk Transport Strategy, and the Suffolk Local Transport Plan (LTP) 2006-2011. It has benefited from a series of discussions with officers of SCC and SEBC, but the analyses and conclusions have been drawn up by AECOM.

2.3 At this stage in the Core Strategy development, the commission has used the already available information and evidence base. No new transport or traffic survey fieldwork has been undertaken, and no formal transport network modelling has been undertaken.

2.4 Once the Local Development Framework has been developed further, and when specific proposals are being considered, further investigations and analyses will be required, tailored to the nature and location of the proposals.

3 Policy Context

3 Policy Context

Introduction

3.1 This work has been undertaken in the context of several relevant policy documents:

- East of England Plan (2008);
- Suffolk County Council Local Transport Plan 2006-2011;
- St Edmundsbury Core Strategy – Issues and Options Report (March 2009);
- Bury St Edmunds Transport Strategy (2006); and
- Submission Core Strategy Development Plan Document (July 2009).

East of England Plan (2008)

3.2 The East of England Plan is the revision to the Regional Spatial Strategy for the East of England, which was submitted to the Secretary of State (SoS) in December 2004. The original was then amended following changes suggested by the SoS and the consultation period which followed.

3.3 Overall the 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.

3.4 The Plan covers the counties of Norfolk, Suffolk, Cambridgeshire, Essex, Hertfordshire and Bedfordshire. It also contains relevant sections of the Milton Keynes South Midlands Sub-Regional Strategy (2005).

3.5 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.*"

3.6 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

3.7 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

3.8 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.*"

3.9 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*."

3.10 The possible locations that are under consideration for Bury St Edmunds 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 SS3: Key Centres for Development and Change

3.11 Bury St Edmunds 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.

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

3.13 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.

3.14 For St Edmundsbury Borough as a whole, between April 2001 and March 2021, there is a minimum dwelling provision of 10,000 new dwellings of which 1,960 dwellings had been built by March 2006. This leaves 8,040 dwellings to be built by March 2021.

Regional Transport Strategy (RTS)

3.15 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.

3.16 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

3.17 This policy is particularly relevant to influencing travel behaviour and the policies suggested could be applied to the potential sites in Bury St Edmunds to try and promote and ensure sustainable travel.

3.18 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.*"

3.19 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

3.20 This policy is aimed at urban areas including key centres, of which Bury St Edmunds in one. A range of measures which fit local circumstances should be implemented. For Bury St Edmunds 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

3.21 Bury St Edmunds 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."*

3.22 In relation to Bury St Edmunds, these improvements would benefit the residents of whichever potential site was selected, and should also go some way to promoting travel by alternative means to the car.

Policy T6: Strategic and Regional Road Networks

3.23 All of the potential sites for Bury St Edmunds 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 Road

3.24 The potential sites would also impact upon the local road network within Bury St Edmunds. SEBC identified Southgate Street, and Northgate Street roundabouts as key junctions within the town.

3.25 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

3.26 This policy is particularly relevant to increasing and improving sustainable access to the potential sites in Bury St Edmunds. 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 would provide residents of the potential sites with signed cycleways to destinations further afield as well as to Bury St Edmunds itself.

Policy T13: Public Transport Accessibility

3.27 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).*"

3.28 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.

Policy BSE1: Bury St Edmunds Key Centre for Development and Change

3.29 This policy focuses solely on Bury St Edmunds. It states:

"*Provision should be made for further employment, service and housing development that reflects the role of Bury St Edmunds as an important service centre between Cambridge and Ipswich. Employment growth should be of a scale to minimise the volume of long distance out-commuting from the town.*

Priority will be given to the development of vacant and underused land that respects and enhances the historic town centre. Development and transport strategies should promote a shift to non-car modes of travel."

3.30 As a result, whichever potential site is selected for development, it should be ensured that access by sustainable modes to key locations is provided, ideally with a focus on residents living and working within Bury St Edmunds to further reduce the need to travel.

Suffolk County Council Local Transport Plan 2006-2011

3.31 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.

3.32 The objectives identified in the LTP which can be considered relevant to Bury St Edmunds and therefore this assessment are:

- Improve public transport, walking and cycling, particularly in town centres;
- 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.

3.33 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.*"

3.34 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.

3.35 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.

3.36 The LTP aims to reduce congestion within Suffolk. Bury St Edmunds is identified as a congestion hot spot in Suffolk and therefore to address this, 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.

- **Improved rail passenger and freight services** – the LTP proposes to encourage better passenger services between Ipswich, Cambridge and Peterborough. A new station is also proposed at Moreton Hall which would increase passenger capacity for rail and when integrated with buses would improve passenger rail services in the Bury St Edmunds area.

3.37 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. The potential for Park and Ride in Bury St Edmunds would be investigated.
- **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.

3.38 Bury St Edmunds is identified in the LTP as a main town. The A14 is identified as posing several constraints to growth because of lack of capacity at junctions and the high usage of this road to access the town itself. This is exacerbated by the narrow roads and historic street patterns within Bury St Edmunds itself.

3.39 A 2005 report by the East of England Regional Assembly on the Newmarket to Felixstowe Corridor confirmed that the A14 interchanges in the vicinity of Bury St Edmunds were already at or approaching capacity and that measures to improve accessibility were needed.

3.40 SEBC has worked in partnership with SCC to produce a long term transport strategy for the town. The key issues highlighted are:

- New development proposals, including Cattlemarket and future growth, and impact on surrounding established communities; and
- A14 junction, including congestion and limited opportunities to cross the A14 and the railway.

3.41 This strategy proposed the following improvements:

- "*Improved bus and rail interchange facilities, linked to the proposed Station Hill redevelopment;*
- *Potential shuttle bus around the town centre linking car parks with the retail and historic centre;*
- *Real time passenger information;*
- *Better parking management to discourage commuter parking;*
- *Redesign of A14 junctions to improve capacity;*
- *Green travel planning, including a site plan for the proposed public service village development;*
- *School travel plans;*
- *Completion of the town's cycle networks linking residential areas to schools, employment sites and the town centre;*
- *Re-routing bus services within the town to provide better coverage; and*
- *Bus priority measures*."

3.42 The LTP includes proposals which are specific to Bury St Edmunds. The majority of these focus on improving public transport, walking and cycling and ensuring that the options are available to travel by other modes than the car. This complements the requirements of whichever potential site is recommended.

Bury St Edmunds Transport Strategy (2006)

3.43 In 2006 AECOM (then Faber Maunsell) prepared a draft Transport Strategy as a joint commission for SEBC and SCC. The commission was a high level one, reviewing policy, and including stakeholder consultation. All of the locations currently being considered in this commission had already been identified, and were considered as part of the wider development ideas.

3.44 The study included a detailed review of the local risks and opportunities. The strategy recommendations included the following:

- Evolutionary change away from the current dominance of the car mode, towards more sustainable modes;
- Preserve the urban heritage; and
- Start with relatively low cost interventions, and seek private sector contributions in the medium term;

The study's analysis of individual sites being considered in the current commission is considered later in this Report.

St Edmundsbury LDF Submission Core Strategy Development Plan Document (July 2009)

3.45 Following the start of this commission, the definitive Core Strategy Development Plan Document was published, inviting consultation and representation through the period to 7th October 2009. That Document, and in particular Policy CS11 – Bury St Edmunds Strategic Growth, has been used as the framework for the presentation of the investigations of this commission.

3.46 The Spatial Vision puts Bury St Edmunds at the heart of the Borough:

- Regionally important employment and retail opportunities, green open spaces, and historic and cultural assets;
- Strategic employment sites such as Suffolk Business Park;
- Possibilities for increased use of public transport walking and cycling;
- Strengthening of the educational and health facilities;
- Further development to be constrained by green buffer zones, and respect environmental capacity and the identity of surrounding villages.

Policy CS1 – the Spatial Strategy – allocates some 5,100 new dwellings to be located in Bury St Edmunds, beyond the existing commitments and allocations.

3.47 Policy CS7 – Sustainable Transport – emphasises the importance of spatial planning and design in moving to a lower dependence on the car mode, and establishes a hierarchy for new transport facilities provision with walking and cycling at the top.

3.48 Policy CS8 – Strategic Transport Improvements – seeks to secure improvements to the A14 J43 and J44, and to relieve the adverse impacts of traffic in Bury St Edmunds. It also calls for rail and bus service improvements.

3.49 Chapter 5 discusses staged strategic growth in Bury St Edmunds, summarised as Policy CS11, to take place in five broad locations:

i) 2011 onwards – growth to the north-west with some 900 homes, and a relief road linking the A1101 and the B1106;
ii) 2011 onwards – completion of the Moreton Hall urban extension, with 500 dwellings, dependent on the Eastern Relief Road to A14 J44 Rookery Crossroads;
iii) After 2016 – limited growth to the west, with 450 dwellings distinct from Westley, and with a relief road to the east of Westley village, to be considered in conjunction with plans to relocate the West Suffolk Hospital;
iv) After 2021 – long term strategic growth to the north-east, providing some 1,250 new dwellings; and

v) After 2021 – long term strategic growth to the south-east with 1,250 new dwellings, linked to improvements at the A134, and relief to the A14 junctions.

These five stages and locations total some 4,350 new dwellings around Bury St Edmunds, in addition to existing commitments, in the period to 2031. Other small dispersed brownfield locations are expected to provide opportunities for a further 750 new dwellings.

Conclusions on Strategy

3.50 In addition to the policy and strategy documents related to Bury St Edmunds reviewed in this Chapter, there have also been studies of the A14, its role and present performance. Notably, in 2005 there was a report on the Newmarket to Felixstowe Corridor Study. This examined the flow levels along the A14, particularly of heavy goods traffic, and suggested a range of possible measures to manage the traffic flows.

3.51 The policy context for planning in Bury St Edmunds is comprehensive – policies and strategies are in place at all levels, and are relatively congruent. There is, however, a marked lack of clarity on issues of funding and delivery. The ideas for a Community Infrastructure Levy (CIL – 'roof tax') would greatly clarify this aspect of planning. In addition, there is currently considerable uncertainty regarding the forecasting of economic and development growth pressures, and consequently uncertainty regarding the programming and delivery of enabling infrastructure and facilities.

3.52 The policies on the provision of new residential development land allocations are consistent, and worked through from the regional to the local. Delivery concerns include the funding of development, and the lack of comprehensive framework for the negotiation of the provision of public infrastructure and facilities.

3.53 The policies regarding the location of employment opportunities, particularly as regards the incentivisation of shorter and more sustainable local commuting patterns, are largely passive, with little real opportunity to influence or enable.

3.54 The policies regarding transport are consistent, but suffer from two main problems:

- The move to more sustainable travel habits, with fewer, shorter, and less carbon emitting trips, while inevitable and likely to happen through price, persuasion or policy in any case, is still not widely accepted in practice, and there is little firm evidence of policy impacts; and
- The mechanisms for delivering the required investment to encourage, and service, a marked change in travel habits are poorly matched to the challenges ahead.

3.55 The challenge for Bury St Edmunds, is to anticipate correctly the inevitable and rapid changes to behaviour for all travellers in the area, in the context of the creation of new sustainable developments.

4 Potential Sites

4 Potential Sites

Study Area

4.1 For the purposes of this study, AECOM has made the following assumptions regarding the broad locations identified in the Core Strategy. These assumptions have no formal status, and should not imply any decisions about specific sites. Precise assumptions are, however, necessary to consider the transport access issues. As the LDF process continues, the broad locations will be examined in more detail.

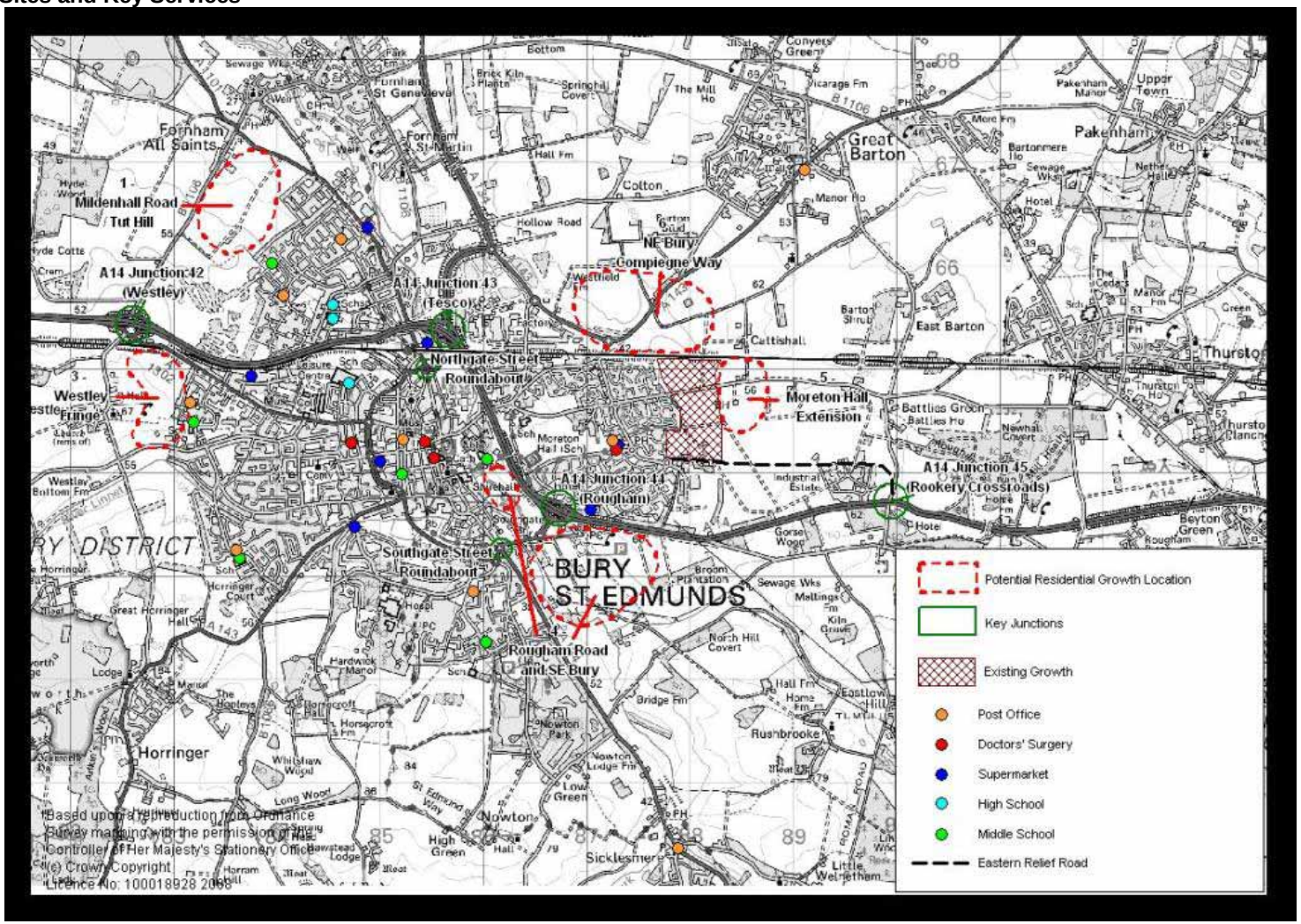
Table 1 – Potential Sites

Location No.	Location	Site Assumptions and numbering for this review
i)	North west of Bury St Edmunds, south of Fornham All Saints	Site 1 - Mildenhall Road / Tut Hill, south of Fornham All Saints
ii)	East of Bury St Edmunds, south of the railway line	Site 5 - Moreton Hall Extension
iii)	West of Bury St Edmunds	Site 3 - Between Westley and Bury St Edmunds
iv)	North east of Bury St Edmunds,	Site 6 – Adjacent and north of railway line, Compiegne Way, Berkley Homes site
v)	South east of Bury St Edmunds,	Site 4 - Adjacent to south side of A14 and Rougham Road, including Hopkins Homes site

4.20 'Site 2' was a site being promoted by developers for employment uses to the north of the A14 near Westley. This proposal has not been supported in the emerging Core Strategy.

4.21 AECOM has plotted indicative locations of the five assumed sites along with key services such as schools, doctors' surgeries, hospitals, supermarkets and post offices. These can be seen in Figure 1.

Figure 1 – All Sites and Key Services



Potential Sites

4.22 The potential broad location site areas have been estimated using a relatively low density of 30 dwellings per hectare. This allows for green space and other uses mixed in. By comparison, the existing Moreton Hall area has a density of 37 dwellings per hectare.

Site 1 – Mildenhall Road / Tut Hill

4.23 This site lies to the north west of Bury St Edmunds between the current residential area and the village of Fornham All Saints. It is bounded to the north west by the B1106 Tut Hill and to the north east by the A1101 Mildenhall Road. To the south west of the site is Bury St Edmunds Golf Club. Some 900 dwellings are allocated to this location from 2011 onwards in the Policy CS11.

4.24 The location is relatively unconstrained, but a buffer between the site and Fornham village would be required to prevent coalescence. It is envisaged that an internal distributor link road would also be incorporated into the plans which would allow the village to be bypassed by traffic which needs to access J42 of the A14.

4.25 For the purposes of this assessment it is assumed that access to and from the site will be from the B1106 Tut Hill or from Mildenhall Road, using the development orbital distributor link road.

Site 3 – Westley Fringe

4.26 This broad location is located to the west of Bury St Edmunds as an extension of the existing Westley estate residential area. It is bounded to the north by the railway line and the A1302 Newmarket Road,and to the west by Fornham Lane / Hill Road / Westley Lane. 450 dwellings are allocated in the Policy CS11, assumed to be developed in the north east corner of the site. Access is assumed to be using an internal distributor road, extending south from the A1302 Newmarket Road, linking to Westley Lane south of Westley village. This could provide some relief to Westley village from through traffic.

4.27 This broad location is also the preferred location for the relocation of West Suffolk Hospital.

Site 4 – Rougham Road and south east of Bury St Edmunds

4.28 This broad location is in two parts. The largest part of the site is located to the south east of Bury St Edmunds and is bounded by the A14 to the north and the A134 to the south west. The smaller portion of the site lies between the A14 and the central built up area of Bury St Edmunds. The CS11 allocation is some 1,250 dwellings after 2021. The portion of the site closer to the centre of Bury St Edmunds might be designated as open space with footpaths and cycle links, and any residential development would comprise adaptation of existing development.

4.29 Transport access issues include the following:

- One proposal for accessing the eastern part of this location is to introduce a new junction off the A14 with east facing slips only. Should this go ahead, the east facing slips at junction 44 (Moreton Hall / Sainsburys) of the A14 would be closed. However, consideration would need to be made to the weaving lengths between the proposed new junction and J44. This proposal, while feasible, would be expensive, and probably require wider sources of funding;
- An internal distributor road is also assumed which would link the area directly to the A134 Sudbury Road; and
- There is currently a lorry park on the site which would have to be relocated. This could be relocated near to junction 45 (Rookery Crossroad) of the A14, and a formal roadside facility developed there

4.30 AECOM has assumed that access to and from the CS11 allocation would be from Rougham Road and Rushbrooke Lane.

Site 5 – Moreton Hall Extension

4.31 Site 5 – Moreton Hall Extension would be to the east of the existing Moreton Hall development itself to the east of Bury St Edmunds. The railway line would act as the northern boundary to the site, and the proposed Eastern Relief Road would act as the southern boundary.

4.32 The CS11 Policy allocates 500 new dwellings in the plan period. Development is expected to commence from the existing eastern edge of the Moreton Hall area.

4.33 The 2006 Local Plan identifies a possible new railway station at Moreton Hall. The operational feasibility of this proposal is of concern. Bury St Edmunds and Thurston rail stations are both three minutes by train from the Moreton Hall area, so the rail operators are not likely to consider a further stop. There are proposals to improve walk and cycle access to the existing stations, and to seek an increase in the number of trains that stop at Thurston. For the accessibility assessment, AECOM has therefore discounted a possible new station at Moreton Hall.

4.34 Access to and from the site has been taken to be via Mount Road. Policy CS11 links this development with the completion of the proposed Eastern Relief Road connecting Moreton Hall, the Suffolk Business Park, the Rougham Road Industrial Estate, and the A14 Rookery Road J45. There will also need to be consideration of how convenient access to the town centre is achieved.

Site 6 – North-east of Bury St Edmunds, adjoining the A143 Compiegne Way

4.35 This site lies to the north of Site 5 – Moreton Hall Extension, but north of the railway line. It is intersected by the A143 Bury Road. The location and design layout of the residential development within the broad area has not yet been determined.

4.36 This site has been allocated 1,250 dwellings in Policy CS11.

4.37 This site is remote from the town centre with poor connections. There are also several pinch points on the road network due to constraints with crossing the railway line. It has been assumed by AECOM that access to the site would be onto the A143 Bury Road, and thence to Mount Road. There are serious and widespread transport access implications to be resolved at this location.

5 Accessibility and Sustainability

5 Accessibility and Sustainability

Introduction

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

5.2 Each mode of transport has been assessed in terms of existing provision to the potential sites. An overall site 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 C contains a plan for each site which shows the locations of key services, 1km and 3km buffers from the edge of the site as well as current bus routes which serve or pass close by to the site.

5.3 A view as to the potential for improving the accessibility to each of the potential sites by sustainable modes has also been included. As before, this is qualitative and does not take into account costs or any other restrictions which may be present.

Existing Road Network

5.4 Bury St Edmunds is the centre point for many radial routes out of the town to places like Thetford, Ixworth, Stowmarket, Sudbury, Haverhill, and Newmarket.

5.5 The principal routes which would be affected by the potential sites are:

- A14 – Trunk Road providing a east-west route through Bury St Edmunds linking Ipswich in the east and Cambridge to the west;
- A134 – Local road providing a north-south route through Bury St Edmunds linking Thetford in the north and Sudbury in the south;
- A143 – Local road providing a route north east out of Bury St Edmunds towards Diss;
- A143 – Local road providing a route south west out of Bury St Edmunds towards Haverhill;
- A1101 – Local road providing a route north west out of Bury St Edmunds to Mildenhall; and
- B1106 – Local road linking the A143 and A14 (junction 42) to the north of Bury St Edmunds.

5.6 The operation of the following junctions has been identified by SEBC and AECOM as significant to the acceptability (in terms of network capacity) of the allocated number of dwellings at any individual site. A trip generation assessment has been undertaken to determine the increase in traffic at each junction and a qualitative assessment of its impacts has been discussed. It should be noted that this has not included a quantitative analysis or the use of ARCADY to assess the operation of the roundabouts at this stage.

5.7 The junctions identified by SEBC are:

- A14 junction 42 (Westley);
- A14 junction 43 (Tesco);
- A14 junction 44 (Moreton Hall / Sainsburys);
- A14 junction 45 (Rookery Crossroads);
- A1101 Fornham Road / A1302 Compiegne Way / Northgate Street / Cannon Street / A1302 Tayfen Road (Northgate Street roundabout); and
- A1302 Rougham Road / A134 Sicklesmere Road / A1302 Cullum Road / Southgate Street (Southgate Street roundabout).

Walking and Cycling

5.8 Accessibility to each of the sites from the key services listed in paragraph 5.21 has been assessed.

5.9 AECOM has used the ‘Bury St Edmunds Cycle Map’ obtained from the SCC website to assess existing cycling provision in the area.

5.10 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.

5.11 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.

5.12 Table 2 details the accessibility to each site by foot and cycle.

Table 2 – Walking and Cycling Accessibility

	Site 1 – Mildenhall Road / Tut Hill	Site 3 – Westley Fringe	Site 4 – Rougham Road and SE Bury St Edmunds	Site 5 – Moreton Hall Extension	Site 6 – NE Bury St Edmunds Compiegne Way
Walking Facilities	Poor	Poor	Reasonable	Poor	Poor
Cycling Facilities	Poor	Poor	Reasonable	Reasonable	Poor
Overall existing walking and cycling accessibility	Poor	Poor	Reasonable	Poor	Poor

Public Transport

5.13 The level of both bus and rail access to each of the five sites has been reviewed. This information has been obtained from bus route timetables (Suffolk County Council website) and rail timetables (National Express East Anglia website).

Bus

5.14 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 site and the frequency of these services (see Table 3). This information has been obtained from bus timetables for Bury East, Bury Central and Bury West.

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

5.16 Following this, each site has then been given a rating in terms of accessibility to a variety of key services (those listed in paragraph 5.21), and an overall rating taking these ratings into account.

5.17 Information regarding each of the bus routes which currently serve or pass close to the sites can be found in Appendix B.

Table 3 – Bus Accessibility

	Site 1 – Mildenhall Road / Tut Hill	Site 3 – Westley Fringe	Site 4 – Rougham Road and SE Bury St Edmunds	Site 5 – Moreton Hall Extension	Site 6 – NE Bury St Edmunds Compiegne Way
No. of bus routes that serve the site	2	3	2	2	1
No. of bus routes that serve the site at least hourly	1	2	0	1	0
No. of bus routes that serve the site at least half hourly	1	2	0	1	0
Overall existing bus accessibility	Reasonable	Good	Poor	Reasonable	Poor

Rail

5.18 The proximity of the closest rail station to each of the sites and the frequency of the service from this station is shown in Table 4. 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.

5.19 The sites benefit from both Bury St Edmunds and Thurston rail stations, although the majority of sites are closer to Bury St Edmunds rail station. Both stations are on the Peterborough / Cambridge to Ipswich line.

5.20 Thurston rail station has an hourly service Monday to Saturday and a train every two hours on a Sunday. Bury St Edmunds has a more frequent service with a train at least every hour in each direction Monday to Saturday, and an hourly service on a Sunday.

Table 4 – Rail Accessibility

	Site 1 – Mildenhall Road / Tut Hill	Site 3 – Westley Fringe	Site 4 – Rougham Road and SE Bury St Edmunds	Site 5 – Moreton Hall Extension	Site 6 – NE Bury St Edmunds Compiegne Way
Distance to closest rail station	Just under 3km	Just over 3km	Just under 4km	About 4.5km (Bury St Edmunds) Just over 3km (Thurston rail station)	About 3.5km
Name of closest rail station	Bury St Edmunds	Bury St Edmunds	Bury St Edmunds	Bury St Edmunds and Thurston	Bury St Edmunds
Frequency of service from closest rail station	At least one train every hour in each direction (Mon-Sat)	At least one train every hour in each direction (Mon-Sat)	At least one train every hour in each direction (Mon-Sat)	Hourly (Mon-Sat)	At least one train every hour in each direction (Mon-Sat)

Key Services

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

- Schools (middle and high);
- Doctors' surgeries;
- Hospitals;
- Supermarkets;
- Post Offices; and
- Bury St Edmunds town centre.

5.22 Figure 1 shows the locations of the key services listed in paragraph 5.21. It should be noted that secondary education is under review in Suffolk, and a new secondary school is being considered for the Moreton Hall area.

5.23 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

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

- Bury St Edmunds town centre;
- British Sugar Corporation and adjacent industrial estates;
- Suffolk Business Park; and
- New industry/employment between Moreton Hall and Rougham Industrial Estate Business Park (identified in the Local Plan)

There is a longer term proposal to consolidate the hospital uses at a new site associated with the Westley fringe location.

5.25 Key services and key employment sites are considered important as they are the destinations which people regularly travel to and need access to. Therefore, if they are provided close by to where people live, the need to travel is reduced. Similarly, if they are further afield, if a good level of public transport provision combined with walking and cycling facilities are in place, this could encourage travel by more sustainable modes than the private car as well as increasing

accessibility for those without access to a private car. This would have the positive effect of improving social inclusion.

Accessibility

5.26 For each site in turn, AECOM has plotted the key services identified in paragraph 5.21 along with the existing bus routes which run close to the site. The key facilities which fall within a 1km and 3km catchment are listed for each site in Appendix B.

5.27 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 and 3km respectively to represent actual likely walking and cycling distances in Appendices C1 to C5.

5.28 These plans provide a good indication as to the level of sustainability of each site with regards to existing transport provision. It should be noted that these plans only show the portions of a bus route in the immediate vicinity of a site, and therefore, those routes which end abruptly are unlikely to do so in reality.

5.29 An overall transport sustainability rating table for each site can be seen in Table 6. This is based on existing facilities as well as the potential to improve these in the future should the site in question go ahead.

Site 1 – Mildenhall Road / Tut Hill

5.30 This site is within a 1km walking distance of all key services except a doctors' surgery. All of these services are located within Mildenhall Road estate which lies adjacent to the site. This indicates that as long as footpath links are provided which connect the site to Mildenhall Road estate without the need to walk along the A1101 Mildenhall Road, this site offers a good level of accessibility and sustainable travel to key services. The A1101 Mildenhall Road is a busy and main arterial route into Bury St Edmunds from the north west. The link to Tut Hill could provide a further option linking towards the town.

5.31 With regards to cycling, most of the town centre is within the 3km cycle distance used. This means that the opportunities to cycle to work and for leisure exist. Mildenhall Road estate is traffic calmed and there is a suggested, albeit unsigned cycle route from this area to the town centre. The growing Western Way public service zone is just south of the A14 via Beetons Way. The main requirement for the development of walk and cycle linkages relate to providing access with areas south of the A14 and the railway line.

5.32 Bus route 82 provides a link to Bury St Edmunds town centre as well as Bury St Edmunds rail station and the bus station. Currently, this passes through Mildenhall Road estate that would adjoin the site. In order to potentially be of benefit to the residents of Site 1 - Mildenhall Road / Tut Hill, footpath links to connect the site to Mildenhall Road estate would be useful. This route currently operates half hourly and takes just over 15 minutes to travel from Mildenhall Road estate to the rail station. Therefore, this service offers a viable alternative to travelling to Bury St Edmunds town centre by car. There exists the possibility to slightly extend route 82 to better serve the potential new residential site.

5.33 Bus route 355 which provide a more direct route to the town centre could also be utilised by residents of the site, but would require them to travel to the village of Fornham All Saints to catch the bus. Currently, this service operates every two hours (Monday to Saturday only), and therefore in its present form is unlikely to attract residents of the potential site to use it to travel to and from Bury St Edmunds. However, the route does serve the areas of Lakenheath and Mildenhall and is therefore an option for residents who wish to access these areas. Development of this site could give the potential to increase this to an hourly service.

5.34 Both bus routes 82 and 355 connect to the rail station. The distance to the rail station from the centre of the site assuming that no footpath links to Mildenhall Road estate are possible would be just under 3km.

5.35 The A14 acts as a significant barrier to movement between Site 1 – Mildenhall Road / Tut Hill and the town centre. There are currently three routes which link the site and the town centre and provide a means of crossing the A14. These are:

- A14 Junction 42;
- Beetons Way; and

- A1101 Fornham Road.

5.36 Overall, Site 1 – Mildenhall Road / Tut Hill offers a reasonable level of access to key services, and existing bus services are in place to link the site to the town centre. However, links to employment sites, other than the town centre by sustainable modes is lacking. The A14 will also act as a barrier to the town centre area. Therefore, the site is considered to have a reasonable level of sustainable access with the potential to improve this further, if another north south crossing of the A14 and railway line is provided.

Site 3 – Westley Fringe

5.37 This site is within a 1km walking distance of some key services (namely two post offices, a middle school, and a supermarket). However, if this distance is increased to 3km, the whole of Bury St Edmunds town centre is considered accessible.

5.38 In order to increase the cycling potential of the site to all the services found in the town centre, links from the site through Westley estate and Horringer Court estates adjoining it would need to be provided. There is some cycle provision along the A1302 Newmarket Road into the town centre, and parts of Westley estate have been traffic calmed. This may offer the potential to improve upon existing links.

5.39 With regards to walking routes, aerial photography indicates some potential for establishing links from the site to Westley estate, and thence to the town centre.

5.40 Three bus routes (82, 83 and 356) pass close to the site. In order for residents of the site to maximise the potential of these route, footpath links between the site and Westley estate and Horringer Court estate through which the routes pass would have to be provided. Without these links, it is possible that residents would use bus route 83 and 356 to access the town centre, as these run along main roads which could be relatively easy to access from parts of the site. Alternatively, either route 82 or 83 could be extended to serve the site.

5.41 Bus routes 82 and 83 both operate half hourly (Monday to Saturday only) with a journey time of about 10 minutes to the bus station. Bus route 356 operates every other hour (Monday to Saturday only) and is unlikely to run a frequent enough service to attract people to use it regularly. However, the service does provide a link to Mildenhall, Red Lodge and Risby.

5.42 The bus routes would all provide a link to the town centre and the bus station. Route 83 could also act as a link between the site and the proposed employment at Moreton Hall.

5.43 Bury St Edmunds is the closest rail station to the potential site and is just over 3km from the site.

5.44 The proposed long term relocation of the hospital to this site would bring a major employer within walking and cycling distance. It is also likely to attract an increased level of bus provision to the area. Residents of Site 3 – Westley Fringe would therefore have access to a number of bus services linking to key destinations within Bury St Edmunds and further afield as well as a major employment site.

5.45 Overall, Site 3 – Westley Fringe has a low level of accessibility to existing key services by foot. This improves when cycling and travel by bus is taken into consideration. Nevertheless, the site lacks a range of services close by, and therefore it is likely that residents would be forced to travel. This accessibility would, however, improve considerably if the hospital relocation takes place, both by providing employment opportunities, and through consequent transport facilities.

Site 4 – South east Bury St Edmunds - Rougham Road

5.46 Accessibility to this site has only been considered for the residential portion of the site.

5.47 This site has some services within a 1km walk distance of the edge of the site. However, both the supermarket and one of the post offices are segregated from the site by the A14. The site lies close to junction 44 of the A14 which would offer a means of crossing this road, but it is unlikely that residents would choose to walk or cycle this. A footbridge does exist some 750 metres north along the A14. A new walk cycle link could be used to link directly to the Suffolk Business Park employment area.

5.48 Bury St Edmunds town centre is within a 3km cycle distance of the site, although this would be considerably further for residents who are living on the south eastern portion of the site. A cycle facility exists along the A1302 Cullum Road which could be extended and linked to cycle provision within the site itself. Additionally, a bridleway crosses through the north western portion of Site 4 along the river which could potentially be used by cyclists and walkers wishing to access the town centre. This bridleway connects with a cycle facility that would provide access to the town centre and Moreton Hall estate. However, in order for this to be a viable route, it would have to be ensured that it is safe and lit at night.

5.49 Bus route 753 operates every other hour (Monday to Saturday only) and passes to the west of the site along the A134 Sicklesmere Road. This provides access to the bus station and the northern part of the town centre. It also provides a direct link to West Suffolk Hospital. It is unlikely that this bus would be used as the main mode of travel by residents of the potential site due to its low frequency.

5.50 Bus route 384 travels along the A1302 Rougham Road to the north of the site and would provide a link to the proposed employment area of Moreton Hall. However, like route 753, it also only operates every other hour.

5.51 Bury St Edmunds is the closest rail station to the site at approximately just under 4km from the site.

5.52 The site is not very well located in terms of existing employment sites. The closest employment site is the current West Suffolk Hospital, but bus provision is poor. The A14 acts as a barrier between the potential site and employment sites near to Moreton Hall and Rougham Business Park. British Sugar Corporation and the industrial estates neighbouring this employment site are on the other side of Bury St Edmunds with no easy access except by car.

5.53 This location would require bus services to be extended to serve the site and link it with the town centre. A bus spine road through the site would enable residents from all parts of the site to easily access a bus service.

5.54 Overall, existing sustainable modes of travel and accessibility to key services from the site are lacking. However, the potential exists to build upon cycle and walking links that pass close by to the site. With regards to bus travel, the current services have a low frequency and these would need to be improved in order to attract people to use the bus. Therefore, the site has a reasonable level of accessibility. It should be noted that the site is potentially large, and a bus service that penetrates the site is likely to be appropriate, as part of careful master planning of layout, build out, and density issues.

Site 5 – Moreton Hall Extension

5.55 Site 5 – Moreton Hall Extension continues the eastwards greenfield development from recent Moreton Hall expansion. There are some local shops and facilities in the established part of Moreton Hall on Symonds Road, just 1 km away from the Extension. Other facilities are across the A14 in the town centre. There is a foot/cycle bridge which connects Shakers Lane (between The Bartons and Moreton Hall Estate) to an open space with links to the town centre.

5.56 Within 3km of the site, part of the town centre would be accessible as well as Thurston rail station. There are cycle facilities in place throughout Moreton Hall estate, The Bartons, St James's Park, and Drover's Went residential areas some of which form part of National Cycle Route 51. An existing bridge over the A14 provides direct access to the town centre. There are also cycle facilities along Eastgate Street which passes under the A14, and then links to the town centre.

5.57 There consequently exists the possibility to link these existing cycle facilities with ones provided as part of the site development. Links from the site to the east could also promote travel to Thurston rail station by cycle, using the Sustrans route along Mount Road.

5.58 Bus route 384 passes through the site and would therefore provide a connection to the town centre to the west and to Thurston to the east. However, this route only currently operates every other hour. This would provide residents of this site with an option to use either rail station, and increase the level of sustainability of this site with regards to longer distance journeys, but the frequency of the service would have to increase.

5.59 Bus route 83 operates half hourly (Monday to Saturday) which serves Moreton Hall estate provides an additional link to the town centre, but footpath links from the site to Moreton Hall would need to be in place for residents to be able to benefit from this service. An alternative would be to extend the bus service to serve the new site.

5.60 The distance from the centre of the potential site to Bury St Edmunds rail station is about 4.5km. Thurston rail station is slightly closer, at just over 3km.

5.61 The site is well located in terms of the employment site at Moreton Hall and the existing Rougham Business Park as well as the proposed employment / industry in this area. However, cycle and bus links to these employment areas are lacking.

5.62 Overall Site 5 – Moreton Hall Extension lacks accessibility to key services in the direct vicinity of the site. However, both cycling and bus links appear to be in place which would help increase the sustainable nature of this site in relation to the town centre and promote travel to key destinations by bike or bus. Both Thurston and Bury St Edmunds rail stations are accessible by bus which could influence longer distance travel by modes other than the private car.

Site 6 – Bury St Edmunds north-east Compiegne Way

5.63 This site only has a post office within 1km. The closest other key services with the exception of a supermarket are located within Bury St Edmunds town centre. Bury St Edmunds town centre is within a 3km distance of the site. However, the site is segregated from many of these by the A14 and the A143. Some cycle facilities exist in the vicinity of the site which could potentially provide a link to The Bartons area and then subsequent links to the town centre.

5.64 Bus route 337 runs through the site connecting it to Bury St Edmunds rail station, and the town centre. This would provide a good link. However, currently this service operates approximately every other hour or less, and therefore would be unlikely to attract residents to use this service. The frequency of the service would have to increase in order for it to be viable means of accessing the town centre.

5.65 Bury St Edmunds rail station is about 3.5km from the site and could offer the option of travelling longer distances by rail.

5.66 In terms of accessibility to employment, the site is well situated close to British Sugar and the neighbouring industrial estates which are all within a 1km distance of the site. It would probably be possible to walk or cycle to these employment sites. Other employment sites such as the proposed new industry/employment between Moreton Hall and Suffolk Business Park, and the existing Rougham Business Park are within a 3km distance from the site, but would require new walk/cycle links across the railway line, both towards the town centre, and south towards Suffolk Business Park.

5.67 Overall, Site 6 has a poor existing level of access to the town centre and surrounding area. The railway line and the A14 represent significant barriers between the site and other parts of Bury St Edmunds. Significant improvements would be required to the bus services and walking and cycling routes would need to be put in place for this site to potentially offer a reasonable level of sustainable accessibility.

Overall Sustainability

5.68 Table 5 highlights the overall existing and potential sustainability for each site. AECOM has rated overall and potential accessibility as follows (based on the information found in Tables 3 to 5):

- 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 site is likely to lack in sustainable access.

Sites 1, 3 and 5 are potentially 'Good'; Site 4 is potentially 'Reasonable', while Site 6 would require considerable wider development to the north east of Bury St Edmunds to enable it to be considered as having a 'Reasonable' sustainable transport potential.

Table 5 – Overall Existing and Potential Sustainability

	Site 1 – Mildenhall Road / Tut Hill	Site 3 – Westley Fringe	Site 4 – Rougham Road and SE Bury St Edmunds	Site 5 – Moreton Hall Extension	Site 6 – NE Bury St Edmunds Compiegne Way
Existing Sustainability	Reasonable	Reasonable	Poor	Poor	Poor
Potential Sustainability	Good	Good	Reasonable	Good	Reasonable

AECOM

6 Traffic Impact Analysis

6 Traffic Impact Analysis

Approach and Site Capacity

6.1 The traffic impact analysis conducted as part of this study was limited to consideration of the possible traffic impact of the five potential new locations; no detailed account was taken of the existing traffic generation and distribution in and through Bury St Edmunds. In summary, the process followed for each of the five sites 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.

6.2 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 site.

6.3 Each site 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 of each site. The wards used to represent each site are shown in Table 6.

Table 6 – Representative Wards for each Site

Site No.	Site	Representative Ward/s
1	Mildenhall Road / Tut Hill	Northgate St Olaves
3	Westley Fringe	Minden
4	Rougham Road – SE Bury St Edmunds	Southgate
5	Moreton Hall Extension	Moreton Hall
6	NE Bury St Edmunds Compiegne Way	Moreton Hall

6.4 Site 1 is covered by two wards: Northgate; and St Olaves. Site 1 has therefore been split equally, with it being assumed that half will display the same travel behaviour as those of Northgate ward, and the other half the behaviour of St Olaves ward.

6.5 As discussed in Chapter 4, a range of dwelling numbers has been considered for each broad location. These are shown in Table 7, with the formal Policy CS11 dwelling allocations on the right. Also shown are the upper bound notional assumptions made by AECOM, to represent a maximum long term development case. It should be stressed that these are consultants' informal assumptions.

6.6 As the design brief and facilities requirements for each site are developed, more detailed estimates can be derived.

Table 7 – Proposed Number of Dwellings per Site

Site No.	Site	Policy CS11 allocations
1	Mildenhall Road / Tut Hill	900
3	Westley Fringe	450
4	Rougham Road – SE Bury St Edmunds	1,250
5	Moreton Hall Extension	500
6	NE Bury St Edmunds Compiegne Way	1,250

Trip Generation

6.7 Appendix D 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/sites. Thus these trip rates could be considered precautionary as no account is made for measures to increase sustainable travel. Table 8 shows the vehicle trip rates for each allocation site taking into account 2001 Census data, the National Travel Survey and the TRICS database.

Table 8 – Vehicle Trip Rates for each Site (vehicles per hour per dwelling)

		Site Number				
		1	3	4	5	6
08:00 – 09:00	Arrivals	0.11	0.11	0.11	0.13	0.13
	Departures	0.41	0.42	0.43	0.50	0.50
	Total	0.52	0.52	0.55	0.63	0.63
17:00 – 18:00	Arrivals	0.31	0.31	0.32	0.37	0.37
	Departures	0.20	0.19	0.20	0.23	0.23
	Total	0.51	0.50	0.53	0.61	0.61

6.8 Overall, the trips rates are broadly similar for all five sites. Site 1 – Mildenhall Road / Tut Hill, and Site 3 – Westley Fringe have slightly lower trip rates. Site 5 – Moreton Hall Extension, and Site 6 – NE Bury St Edmunds Compiegne Way have slightly higher trip rates, due to their slightly more peripheral location to the town centre when compared to the other sites. An alternative to these precautionary base trip rates is also detailed below. Adopting a current best practice for sustainable transport provision could reduce the trip rates by some 20 percent. This equates to changing a high car use mode split of, say, 70 percent, to 56 percent, with the 14 percent moving to walk, cycle, and public transport.

6.9 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.

6.10 Applying the vehicle trip rates shown in Table 8 to the number of dwellings per site (see Table 7), the number of vehicle trips that would be generated per site has been calculated, as shown in Tables 9 and 10. The two Tables apply the CS11 broad location allocations to both trip generation rate assumptions: baseline (precautionary in Table 8 and with sustainable transport facilities and incentives in Table9.

Table 9 – Vehicle trip generation per site - CS11 dwelling allocations, and baseline (precautionary) car use (car trips per hour)

		Site Number				
		1	**3**	**4**	**5**	**6**
08:00 – 09:00	**Arrivals**	98	49	141	66	164
	Departures	373	187	542	251	628
	Total	471	236	683	317	793
17:00 – 18:00	**Arrivals**	279	139	404	186	464
	Departures	175	88	254	117	292
	Total	454	227	658	303	757

Table 10 – Vehicle trip generation per site – CS11 dwelling allocations, and sustainable transport facilities (car trips per hour)

		Site Number				
		1	**3**	**4**	**5**	**6**
08:00 – 09:00	**Arrivals**	78	39	113	53	131
	Departures	298	150	434	201	502
	Total	376	189	547	254	633
17:00 – 18:00	**Arrivals**	223	111	323	149	371
	Departures	140	70	203	94	234
	Total	363	181	526	243	605

6.11 The journey to work split by mode for each site has been calculated, and is presented in Table 11, 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 11 – Travel to Work Mode Share per Site

Site No.	Site	Travel Mode		
		Car	Public Transport (Bus / Train)	Walking and Cycling
1	Mildenhall Road / Tut Hill	53%	6%	23%
3	Westley Fringe	58%	3%	20%
4	Rougham Road SE Bury St Edmunds	59%	3%	19%
5	Moreton Hall Extension	72%	2%	11%
6	NE Bury St Edmunds – Compiegne Way	72%	2%	11%

(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)

6.12 Site 5 – Moreton Hall Extension and site 6 – NE Bury St Edmunds Compiegne Way have significantly higher car share modes and lower walking and cycling modes when compared to the other sites. As before, this could be because of the location of these sites is further away from the town centre and its associated facilities and services.

6.13 Site 1 – Mildenhall Road / Tut Hill has the highest proportion of travel by public transport of all the sites at 6%. This indicates that the area must have a relatively good level of public transport when compared to the other areas for the travel mode share to be noticeably higher than for the other areas. Therefore, the potential exists to not only improve public transport usage at Site 1 – Mildenhall Road / Tut Hill, but also at the other sites. The range shown in this 2001 data is similar to the assumption regarding the shift possible with the provision of sustainable transport facilities assumed for Table 9.

Trip Distribution

6.14 The Journey to Work data has also been used to identify the work destinations of trips which originate in the relevant wards of Bury St Edmunds. 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.

6.15 Destinations have been grouped into seven broad directions for simplicity. These are:

- North and northeast – A134 to Thetford area and A143 to Diss;
- East – A14, Ipswich area;
- South – A134, Sudbury area and beyond;
- West – A14, Newmarket, Cambridge area;
- North west – A1101, Mildenhall area and beyond;
- South west – A143, Haverhill area and beyond;
- Central – Bury St Edmunds.

6.16 For each site, the percentage distribution to these seven directions has been calculated based on the existing distribution from 2001 Census data for the associated ward/s for car driver. The results are shown in Table 12.

6.17 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 Site based on 2001 Census Data

	Site 1 – Mildenhall Road / Tut Hill	Site 3 – Westley Fringe	Site 4 – Rougham Road – SE Bury St Edmunds	Site 5 – Moreton Hall Extension	Site 6 – NE Bury St Edmunds – Compiegne Way
North	3.17%	2.08%	2.22%	4.21%	4.21%
East	9.13%	9.03%	11.04%	10.75%	10.75%
South	2.47%	9.42%	11.63%	3.20%	3.20%
West	7.35%	12.38%	8.07%	14.34%	14.34%
North west	13.53%	8.63%	8.74%	12.37%	12.37%
South west	2.74%	3.27%	2.52%	2.54%	2.54%
Central	61.62%	55.19%	55.78%	52.59%	52.59%

6.18 Site 1 – Mildenhall Road / Tut Hill is shown to have the highest percentage of trips to the central area of Bury St Edmunds by car when compared to the other sites. This is in spite of the relative proximity of this site to the central area when compared to other sites. Site 1 – Mildenhall Road / Tut Hill is shown to have a double the proportion of people using public transport to travel to work when compared to the other sites. Therefore, this indicates the potential for a further shift towards travel to work by public transport especially to the central area.

6.19 A relatively high proportion (13.53%) of Site 1 - Mildenhall Road / Tut Hill workers travel in a north west direction towards the A1101 and Mildenhall. This is to be expected because of the position of this site. In contrast, the proportion of people travelling to the east (9.13%) and south (2.47%) is relatively low compared to other sites. Again this is likely to be explained by the location of the site and the need to cross Bury St Edmunds to travel in these directions.

6.20 Site 3 – Westley Fringe has the lowest proportion of people travelling to work in the east (9.03%), but a high proportion (9.42%) travelling south and south east (3.27%). To travel east, residents of this site would need to join the A14 which travel through Bury St Edmunds. However, the site is well placed to use the local low capacity routes to travel south and south west,.

6.21 Site 4 – Rougham Road – SE Bury St Edmunds has a high proportion of people travelling to work in the east (11.04%) and south (11.63%). Once again, the location of the site is well placed to access the A14 and the A134 towards Sudbury. Just under 56% of all trips for work by car are to the central area. As seen in Table 12, only 3% of trips are made by public transport. There therefore exists the potential to decrease the percentage of car trips for work which are to the central area.

6.22 Site 5 – Moreton Hall Extension and Site 6 – NE Bury St Edmunds – Compiegne Way have the same travel behaviour characteristics. A high percentage of car driver journeys for work are to the west (14.34%) and the east (10.75%). Travel in both these directions is likely to use the A14. Moreton Hall ward is located close to junction 44 of the A14, but these sites are further afield than the current Moreton Hall ward boundary and therefore access to the A14 is not as clear cut. The requirement for the Eastern Relief Road also needs to be considered, which would enable residents of Site 5 – Moreton Hall Extension who wish to travel east towards Ipswich to use junction 45 (Rookery Crossroads). Therefore, the actual trip distribution of trips generated by these two sites may vary from that of their counterpart ward.

6.23 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 Appendices E6 to E10, based on the CS11 broad location dwelling allocations, and the higher (precautionary) car trip rates to provide a highest level of car traffic scenario.

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7 Interventions and Infrastructure

7 Interventions and Infrastructure

Self containment

7.1 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 site 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.

7.2 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 site has been realised, but out-travel habits already established. Larger developments have more opportunities to fund and deliver such design features.

7.3 The full implementation of these design features, particularly a full range of schools, are considered to have the potential to reduce peak hour travel of up to 5 percent.

7.4 Site 1 – Mildenhall Road/Tut Hill and Site 3 – Westley Fringe, already have reasonable accessibility to facilities, as listed in Appendix B (although neither has a local doctors' surgery). The proposed scale of new development under policy CS11 at these sites is relatively low, and so substantial new integrated self containment design features are likely to be limited.

7.5 Sites 4 – Rougham Road SE Bury St Edmunds, Site 5 – Moreton Hall extension, and Site 6 – Bury St Edmunds NE Compiegne Way, are not so well served at present, and would benefit from a design brief including a strong self-containment focus

7.6 The Moreton Hall extension will, however, have the potential to be integrated more closely into the existing Moreton Hall community.

Walk and Cycle facilities

7.7 As shown in Appendix C, the proposed broad locations are all within 3kms of the town centre-considerably less in the case of Site 3 Bury St Edmunds SE Rougham Road. This means that there is considerable potential for a shift to walk and cycle for a wide range of trips for all purposes. There are three general problems to be addressed:

- The severance inflicted by the A14 and the railway;
- The lack of preferential treatment of cyclists as they approach the town centre, both in terms of priority and cycle parking; and
- Conversely, the priority given to cheap and convenient car parking, for commuters as well as visitors.

7.8 Improved walk and cycle crossings of the A14 are needed at a number of locations, both to provide orbital links between residential areas and adjacent work and education facilities, and to provide more, and more direct, links to the town centre. From west to east:

- A new crossing west of Beetons Way;
- A new crossing linking Northgate Avenue and Thingoe Hill;
- Improved pedestrian and cycle facilities under the A14 at Fornham Road and Eastgate Street;

- Better approach links to the existing cycle bridge between Eastgate Street and J44; and
- A new link between Suffolk Business Park and south of the A14.

7.9 The railway line also inflicts considerable severance, and new walk and cycle crossings are required to offer convenient and direct routes:

- A through route within the railway station itself;
- Improved facilities on Fornham Road / out Northgate under the railway;
- Improved facilities on Compiegne Way under the railway, and Hollow Road over the railway;
- The longer term potential of Site 6NE Bury St Edmunds Compiegne Way would be enhanced by a new walk cycle route linking across the railway to Moreton Hall, both west of Otterwell Road, and further to the east.

7.10 New and improved crossings of the major barriers need to be complemented by improved 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.

7.11 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.

Bus services and facilities

7.12 As described in Appendix A, the existing bus service level in Bury St Edmunds comprises a series of two hourly services to outlying villages, and a half hourly service providing indirect access to the town centre from some parts of the residential areas. 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.

7.13 A much higher level of frequency – four or preferably six buses per hour – is needed to link directly between the main centres of outlying residential and employment locations and the town centre and railway station. These need to be co-ordinated with a parallel and perhaps overlapping pattern of school bus provision.

7.14 Bury St Edmunds has a good bus station, but it is some way from the centre of the shopping and employment areas, and there is limited need for bus to bus interchange. The links between the railway station and the town centre need to be reinforced, with more services running through to turn round at or pass through the railway forecourt. The bus penetration of the town centre needs to be examined, to seek improvements to the convenience of the bus stops for shoppers.

New road infrastructure to support the proposed broad locations of development

7.15 All of the proposed broad locations will require some form of internal or peripheral road facilities to provide vehicular access to, and distribution within, the development. As with the issues of self containment, this will require addressing in the design brief, to ensure the roads are safe, form part of the development, and are sub-servient to walk and cycle access.

7.16 Site 1 – Mildenhall Road / Tut Hill is likely to include a new orbital distributor link between the eponymous roads – Mildenhall Road running to the north of Bury St Edmunds from J43, and Tut Hill linking to A14 J42. This road will allow choice of route to access the A14, but will need to be considered jointly with bus priority provision on Mildenhall Road. It is considered that this road will be an integral part of the development, serving both accessing the residential areas, and providing for a small amount of through traffic.

7.17 Site 3 – Westley Fringe – this development will essentially be accessed from the A1302 Newmarket Road, with an internal distributor road. It is desirable that this link continues to the south west, to provide a bypass to the existing Westley village (and to the existing weak railway over bridge near the A14 J42) and join Hill Road south of Westley village. The relatively small

dwelling allocation suggested in Policy CS11 is unlikely to justify all the features desirable in this route, which may be triggered by fuller development or the planned new hospital site.

7.18 Site 4 – Rougham Road Bury St Edmunds SE – is located near to the highly congested A14 J44, and the A1302 Rougham Road route into the south of the town centre. This site has the advantage of being located near to the centre, and on the town centre side of the A14. The site presents considerable concerns regarding internal roads and their connection to the A134 or the A1302. A north south route, linking across the A14 to the Suffolk Business Park and Moreton Hall could provide some useful orbital options, and could also work with walk and cycle crossings of the A14. A separate new A14 junction is not thought to be likely or desirable, being in close proximity to A14 J44. It could, however, form part of an elongated junction associated with the closure of the west facing slips at the A14 J44, and their replacement further east. Such a junction change would be expensive, and would need to be considered as part of the wider development of Bury St Edmunds, not just this Site.

7.19 Site 5 – Moreton Hall Extension – has a relatively small allocation in CS11, but is conditional on the provision of the Eastern Relief Road to the A14 Rookery Road J45. The residential development of itself is unlikely to support the road funding. It could, however, be combined with the wider development of employment land along the corridor. It would also be convenient to continue an orbital route for local traffic and walk / cycle facilities, possibly based on Kempson Way or other new routes through the Suffolk Business Park.

7.20 Site 6 – NE Bury St Edmunds Compiegne Way – this longer term development will require a detailed study, working with existing ideas, to develop a viable transport access plan.

Impacts on existing road infrastructure

7.21 Detailed work on background traffic growth has not been undertaken, and definitive traffic impact assessments will be needed to quantify the likely problems. Based on the connection assumptions given in Chapter 4, and the ultimate site capacity impacts estimated in Chapter 5, the traffic patterns shown in Appendix E have been estimated.

7.22 Site 1 – Mildenhall Road / Tut Hill – the traffic impact is split roughly two thirds on Tut Hill towards A14 J42 (and most then using Newmarket Road to access Bury St Edmunds town centre) and one third approaching Northgate along Mildenhall Road. The broad location is largely independent of the other proposals, and has scope for flexibility and management of both walk cycle and bus facilities. Accordingly, this broad location is seen as not having significant traffic impacts on the County and Highway Agency networks.

7.23 Site 3 – Westley Fringe - this site has two major phasing issues – the rate of dwelling buildout, and the relocation of the hospital. Both these raise issues on traffic impacts and their management and mitigation with new road infrastructure. The starting CS11 allocation is likely to have only a small impact on the A14 J42, but increase the congestion on the Newmarket Road, particularly the Risbygate Street / Parkway junction.

7.24 Site 4 – Rougham Road / Bury St Edmunds SE is likely to have problematic traffic impacts, given the existing congestion on the A1302 and at A14 J44. Several options exist for the mitigation or avoidance of these impacts, but their costs need to be considerd in a wider development context.

7.25 Site 5 – Moreton Hall Extension – will need some new road traffic connections to allow full build out, given its relation to A14 J44 both for accessing the A14, and crossing to the town centre.

7.26 Site 6 – NE Bury St Edmunds Compiegne Way – will also need some new road connections to allow for full build out. The existing connections to the A14 and the town centre are via the circuitous A143 Compiegne Way and congested J43, or using unsuitable routes through Moreton Hall to access Eastgate Street.

Costs and affordability

7.27 The following section draws on the analyses and judgements made, and summarises the proposed transport facilities judged necessary to support the safe, convenient and sustainable connection of the broad locations to the existing networks and land uses, without detriment to the existing infrastructure. Expected distributor roads accessing and crossing developments are excluded, since they are an integral part of the development layout. The costs are highly speculative and indicative, based on unit costs from recent work, but without any specific local validation. They are used to suggest a range of per dwelling contribution which would be required.

Site 1 – Broad location between Mildenhall Road and Tut Hill (900 dwellings)

	Proposed facility	Indicative cost (£000) prior to occupation
Connection assumption	Developer to provide an internal distributor road giving an orbital link between the two boundary roads	Part of the development layout cost
Internal trip assumption	Basic local community and education facilities either within or nearby – no particular mixed uses	Part of the development layout cost
Smarter Choices campaign	Targeted information for new dwellings and schools, co-ordinated with wayfinding	£200
Walk/cycle links to neighbouring communities and the town centre	Opportunistic improvements to existing walk and cycle networks, a footbridge over the A14 between Thingoe Hill and Northgate Street, and a contribution to town centre cycle parking and wayfinding	£1,000
Bus service enhancement	Extension and reinforcement of the Route 81/82. Possible frequency increase to Route 355.	Revenue support over the first five years of occupation totalling £300
Traffic management measures	Bus priority facilities on Mildenhall Road	£500
New road infrastructure	None	-
TOTAL		£2,000
Per dwelling		£2.22

Site 3 – Broad location east of Westley (450 dwellings)

	Proposed facility	Indicative cost (£000) prior to occupation
Connection assumption	Developer to provide an internal distributor road joining the A1302 Newmarket Road, and providing a bypass to the existing Westley village, to join Hill Road south of the village.	Part of the development layout cost
Internal trip assumption	Limited internal opportunities, pending the relocation of the West Suffolk Hospital	
Smarter Choices campaign	Targeted information for new dwellings and schools, co-ordinated with wayfinding	£100
Walk/cycle links to neighbouring communities and the town centre	Opportunistic improvements to existing walk and cycle networks through the existing Westley estate, and a contribution to town centre cycle parking and wayfinding	£200
Bus service enhancement	Extension and reinforcement of the Route 83 to serve the Westley areas.	Revenue support over the first five years of occupation totalling £300
Traffic management measures	Extensive bus priority on Newmarket Road	£1,000
New road infrastructure	The Hospital proposals could trigger the need for further infrastructure, and contribute to the southern part of the distributor road.	Not considered essential
TOTAL		£1,600
Per dwelling		£3.56

Site 4 – Broad location south east of Bury St Edmunds (1,250 dwellings)

	Proposed facility	Indicative cost (£000) prior to occupation
Connection assumption	Developer to provide a distributor road connecting to Rushbrooke Lane (and so to the A1302 Rougham Road) and the A134 Sicklesmere Road	Part of the development layout cost
Internal trip assumption	The design brief should allow for some mixed use and live/work units	Part of the development layout cost
Smarter Choices campaign	Targeted information for new dwellings and schools, co-ordinated with wayfinding	£200
Walk/cycle links to neighbouring communities and the town centre	Improved radial links to the town centre, and a new walk cycle and bus route crossing the A14 into Suffolk Business Park	£3,000
Bus service enhancement	New bus service needed connecting to the town centre, and crossing the A14 into Suffolk Business Park	Revenue support over the first five years of occupation totalling £500
Traffic management measures	Extensive improvements needed at least two Rougham Road junctions	£1,000
New road infrastructure	Some form of improved A14 access needed – possibly a new half junction and collector distributor links to J44	£5,000 partial contribution
TOTAL		£9,700
Per dwelling		£7.76

Site 5 – Broad location east of Moreton Hall (500 dwellings)

	Proposed facility	Indicative cost (£000) prior to occupation
Connection assumption	Direct connection to Mount Road (leading to Eastgate Street) Also link to Suffolk Business Park and Bedingfeld Way	
Internal trip assumption	Limited internal opportunities, but links to the existing Moreton Hall community facilities	
Smarter Choices campaign	Targeted information for new dwellings and schools, co-ordinated with wayfinding	£100
Walk/cycle links to neighbouring communities and the town centre	Design brief should facilitate links to existing Moreton Hall. An orbital walk, cycle and bus way route should link into Suffolk Business Park	£1,000
Bus service enhancement	Extension and reinforcement of the Route 80/83 to provide more direct links to the town centre, and a new service orbital connection to the Suffolk Business Park and across the A14.	Revenue support over the first five years of occupation totalling £200
Traffic management measures	Major improvements will be needed at Eastgate Street Improvements will be needed at A14 J44	£200 £300
New road infrastructure	The Eastern Relief Road linking to A14 J45 is required before the development is occupied, but the costs should be shared with the Suffolk Business Park.	£10,000 (but may be shared with other sites)
TOTAL		£11,800
Per dwelling		£23.60

Site 6 – Broad location north east of Bury St Edmunds (1,250 dwellings)

	Proposed facility	Indicative cost (£1,000) prior to occupation
Connection assumption	Developer to provide a distributor road connecting to south across the railway to the Moreton Hall Extension, linking through the development to the A143 Compiegne Way.	Part of the development layout cost
Internal trip assumption	The design brief should allow for some mixed use and live/work units	Part of the development layout cost
Smarter Choices campaign	Targeted information for new dwellings and schools, co-ordinated with wayfinding	£200
Walk/cycle links to neighbouring communities and the town centre	New walk and cycle links (and possibly busways) are required across the railway, to provide a direct radial route linking to the town centre, and a direct orbital route to Moreton Hall Extension and Suffolk Business Park	£2,000
Bus service enhancement	Extension and reinforcement of the Route 80/83 to provide direct links to the town centre, and an orbital connection to the Suffolk Business Park and across the A14.	Revenue support over the first five years of occupation totalling £400
Traffic management measures	Likely to be additional pressures on all A14 junctions – J43, J44, and J45	Possibly £1,000
New road infrastructure	Probably some new strategic road infrastructure will be needed	£10,000 (But may be shared with other sites)
TOTAL		£13,600
Per dwelling		£10.88

7.28 The following provisional conclusions on costs and affordability can be drawn from the summaries:

- The broad locations are all feasible – there are no 'showstoppers';
- The Mildenhall Road / Tut Hill and the Westley fringe sites have relatively low per dwelling likely transport costs;
- The Moreton Hall Extension site is allocated the full Eastern Relief Road cost, and so appears very expensive, given the small number of houses involved. It is recognised that the Suffolk Business Park Strategic Employment site will also make a contribution to its construction costs, and it will also be of benefit to other developments north-east of the A14;
- The two longer term development locations both appear to have significant, but not unreasonable, associated transport costs, although perhaps should share some of the Moreton Hall Extension costs.

7.29 The evolving Action Area Plan will contribute to a town wide shift away from car use within the town, and contribute to the mitigation of traffic congestion problems generally and particularly at the railway and A14 crossings. There is clearly scope for reductions in local car use by existing residents north east of the A14 in Moreton Hall, in addition to the initiatives being targeted at the new development areas.

7.30 While some contribution (perhaps £0.25M per annum) can be assumed to continue to be spent on local safety and sustainable transport schemes from SCC funding sources, the overwhelming majority of funding will need to come from developers' contributions. The 'per dwelling' figures given in the Site cost tables can be interpreted as upper bound figures; there is some limited double counting between Sites; some clearly identified major cost sharing with employment uses, and also the possibility of developers' contributions from smaller infill developments not considered individually.

8 Discussion and Conclusions

8 Discussion and Conclusions

Limitations and uncertainties

8.1 The work described here has been based on desk study of emerging ideas on the broad LDF locations of residential development, with only limited work on combining the impact of the sites, or considering the background traffic growth.

8.2 There is a lack of contextual background – on existing levels of congestion, likely background traffic growth, rate of shifts to more sustainable travel patterns, and the developer pressures for phased site development. The likely future scale of developer contributions and public funds to provide facilities for more sustainable travel behaviour are unclear. What is clear is that there is considerable potential for behavioural changes, given the compact size of the town, the possibilities for walk, cycle and bus facilities, and the current over-dominance of the car mode. This needs to be explored and detailed in the Action Area Plan.

Conclusions

8.3 There is a balance to be struck between careful phased build out of new developments, and achieving large scale 'critical mass' developments to fund infrastructure changes. There is also a balance between getting a high level of sustainable travel behaviour through targeting resources and travel planning as a requirement for new developments, and the use of developer funds to achieve general, community wide, travel behaviour changes.

8.4 The five broad locations for development, and their timing, are all sensible in transport terms. Given a large shift to sustainable transport modes, it is clear that Bury St Edmunds can accommodate the expected target growth in dwellings with relatively manageable impacts on the existing traffic systems and A14 junctions.

Recommendations

8.5 Work needs to start now to achieve the background shift away from car use to all sustainable transport modes.

8.6 Very detailed and phased design briefs are needed for the locations, to draw out the issues of early provision of community transport facilities, including bus stops, dwelling density patterns, and walk/cycle networks, ahead of full build out.

8.7 While this exercise has been sufficient for confirming the transport feasibility of the CS11 broad locations, the larger and longer term allocations will require more detailed traffic modelling to refine their impacts, and their contributions to the traffic levels at important junctions. It is recommended that some town wide traffic modelling is undertaken, to place individual Site developer's transport impact assessments in a consistent framework.

8.8 A standardised approach to development benefit capture, through some form of community infrastructure levy, is needed to provide a practical mechanism for funding sustainable transport measures not directly linked to specific sites.

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Appendix A – Bus Route Information

Appendix A – Bus Route Information

Appendices A1 to A5 provides further information regarding each of the existing bus routes which serve the sites or pass close by to the sites. This information has been obtained from the Bury Central, Bury East, and Bury West timetables issued by Suffolk County Council (dated April 2009).

Appendix A 1 – Site 1: Mildenhall Road / Tut Hill Bus Services

Bus Service	Route	Days of Service	Frequency
81/82	Mildenhall Road estate – Howard estate – Bury St Edmunds – Horringer Court and Priors estate	Mon to Sat	Half hourly
355	Lakenheath – Mildenhall – Fornham – Bury St Edmunds	Mon to Sat	Bi-hourly

Appendix A 2 – Site 3: Westley Fringe Bus Services

Bus Service	Route	Days of Service	Frequency
83	Westley estate – Bury St Edmunds – Moreton Hall	Mon to Sat	Half hourly
356	West Row – Mildenhall – Red Lodge – Risby – Bury St Edmunds	Mon to Sat	Bi-hourly

Appendix A 3 – Site 4: Rougham Road SE Bury Bus Services

Bus Service	Route	Days of Service	Frequency
753	Bury St Edmunds – Lavenham – Long Melford – Sudbury	Mon to Sat	Bi-hourly
384	Stowmarket – Woolpit – Thurston – Moreton Hall – Bury St Edmunds	Mon to Sat	Bi-hourly

Appendix A 4 – Site 5: Moreton Hall Extension Bus Services

Bus Service	Route	Days of Service	Frequency
80	Western Way to Moreton Hall	Mon to Sat	Half-hourly
83	Westley estate – Bury St Edmunds – Moreton Hall	Mon to Sat	Half hourly
384	Stowmarket – Woolpit – Thurston – Moreton Hall – Bury St Edmunds	Mon to Sat	Bi-hourly

Appendix A 5 – Site 6: NE Bury St Edmunds Compiegne Way Bus Services

Bus Service	Route	Days of Service	Frequency
337	Staunton – Walsham-le-Willows – Great Barton – Bury St Edmunds	Mon to Sat	Bi-hourly

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Appendix B – Key Services

Appendix B – Key Services

Appendices B1 to B5 list the key services for each site which are within 1km and 3km distances from the edge of the site.

Appendix B 1 – Site 1: Mildenhall Road / Tut Hill Key Services

	Within 1km	Within 3km
Post Offices	Lake Avenue St Olaves Precinct	Bury St Edmunds Glastonbury Road Ridley Road
Middle Schools	Howard Middle School	Horringer Court Middle School St James CEVA Middle School St Louis Catholic Middle School Westley Middle School
Upper Schools	County Upper School St Benedict's Catholic School	King Edward VI CEVC Upper School
Doctors' Surgeries	-	Dr Evans & Partners Dr P Kilner & Partners Dr D Watson & Partners
Supermarkets	Somerfield	Asda Tesco Tesco Express Waitrose

Appendix B 2 – Site 3: Westley Fringe Key Services

	Within 1km	Within 3km
Post Offices	Glastonbury Road Ridley Road	Bury St Edmunds Hardwick Lake Avenue St Olaves Precinct
Middle Schools	Horringer Court Middle School Westley Middle School	Hardwick Middle School Howard Middle School St James CEVA Middle School St Louis Catholic Middle School
Upper Schools	-	County Upper School King Edward VI CEVC Upper School St Benedict's Catholic School
Doctors' Surgeries	-	Dr Evans & Partners Dr P Kilner & Partners Dr D Watson & Partners
Supermarkets	Asda	Somerfield Tesco Tesco Express Waitrose

Appendix B 3 – Site 4: Rougham Road SE Bury Key Services

	Within 1km	Within 3km
Post Offices	Hardwick Moreton Hall	Bury St Edmunds Glastonbury Road Sicklesmere
Middle Schools	Hardwick Middle School St James CEVA Middle School	Horringer Court Middle School St Louis Catholic Middle School
Upper Schools	-	County Upper School King Edward VI CEVC Upper School
Doctors' Surgeries	Mount Farm Surgery	Dr Evans & Partners Dr P Kilner & Partners Dr D Watson & Partners
Supermarkets	Sainsburys Tesco Express	Tesco Tesco Express Waitrose

Appendix B 4 - Site 5: Moreton Hall Extension Key Services

	Within 1km	Within 3km
Post Offices	-	Great Barton Hardwick Moreton Hall
Middle Schools	-	St James CEVA Middle School
Upper Schools	-	-
Doctors' Surgeries	-	Dr Evans & Partners Dr P Kilner & Partners Mount Farm Surgery
Supermarkets	-	Sainsburys Tesco

Appendix B 5 - Site 6: NE Bury St Edmunds Compiegne Way Key Services

	Within 1km	Within 3km
Post Offices	Great Barton Moreton Hall	Bury St Edmunds Hardwick Lake Avenue St Olave's Precinct
Middle Schools	-	St James CEVA Middle School St Louis Catholic Middle School
Upper Schools	-	County Upper School King Edwards VI CEVC Upper School St Benedict's Catholic School
Doctors' Surgeries	Mount Farm Surgery	Dr Evans & Partners Dr P Kilner & Partners Dr D Watson & Partners
Supermarkets	Tesco Express	Sainsburys Somerfield Tesco Tesco Express Waitrose

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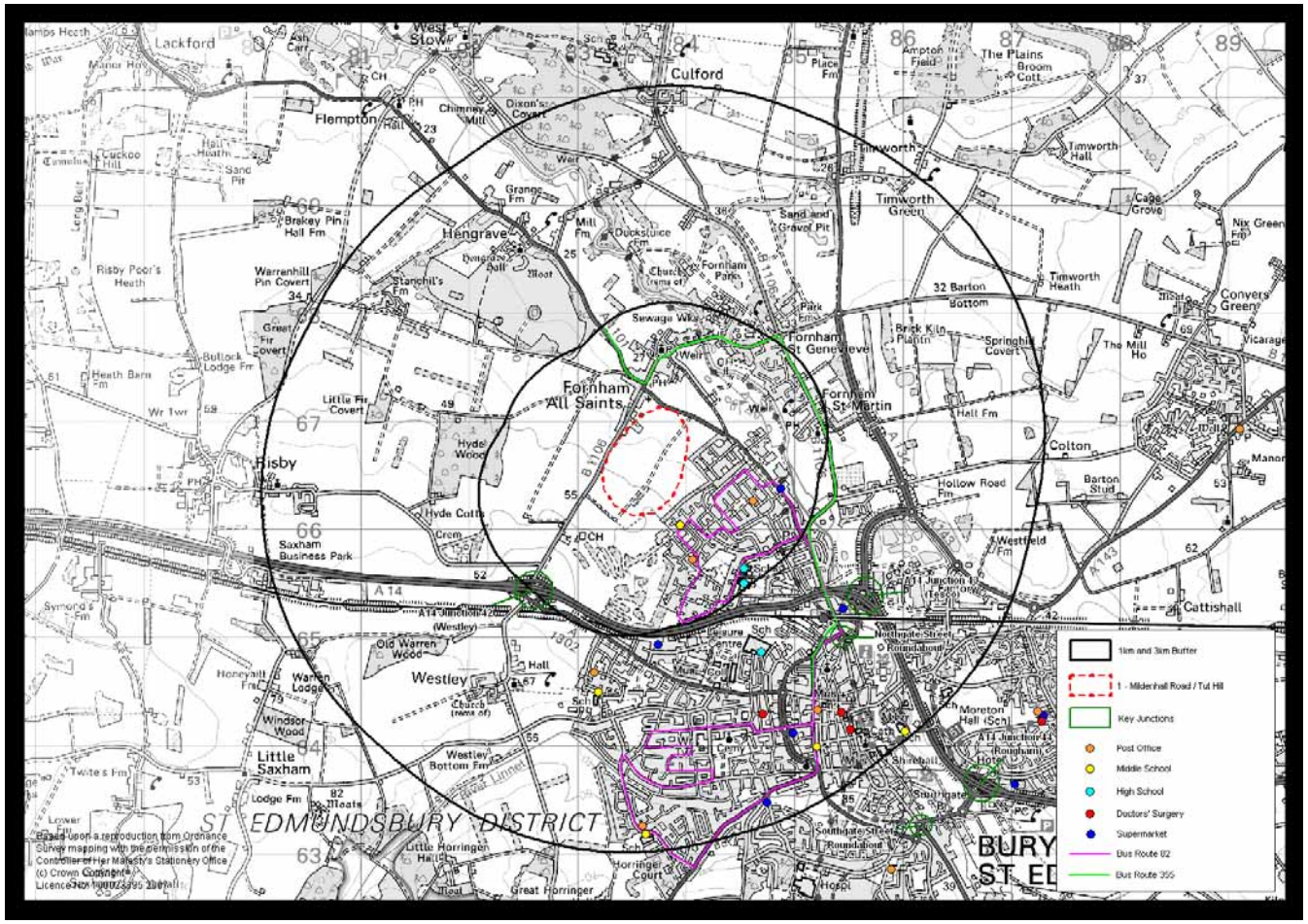
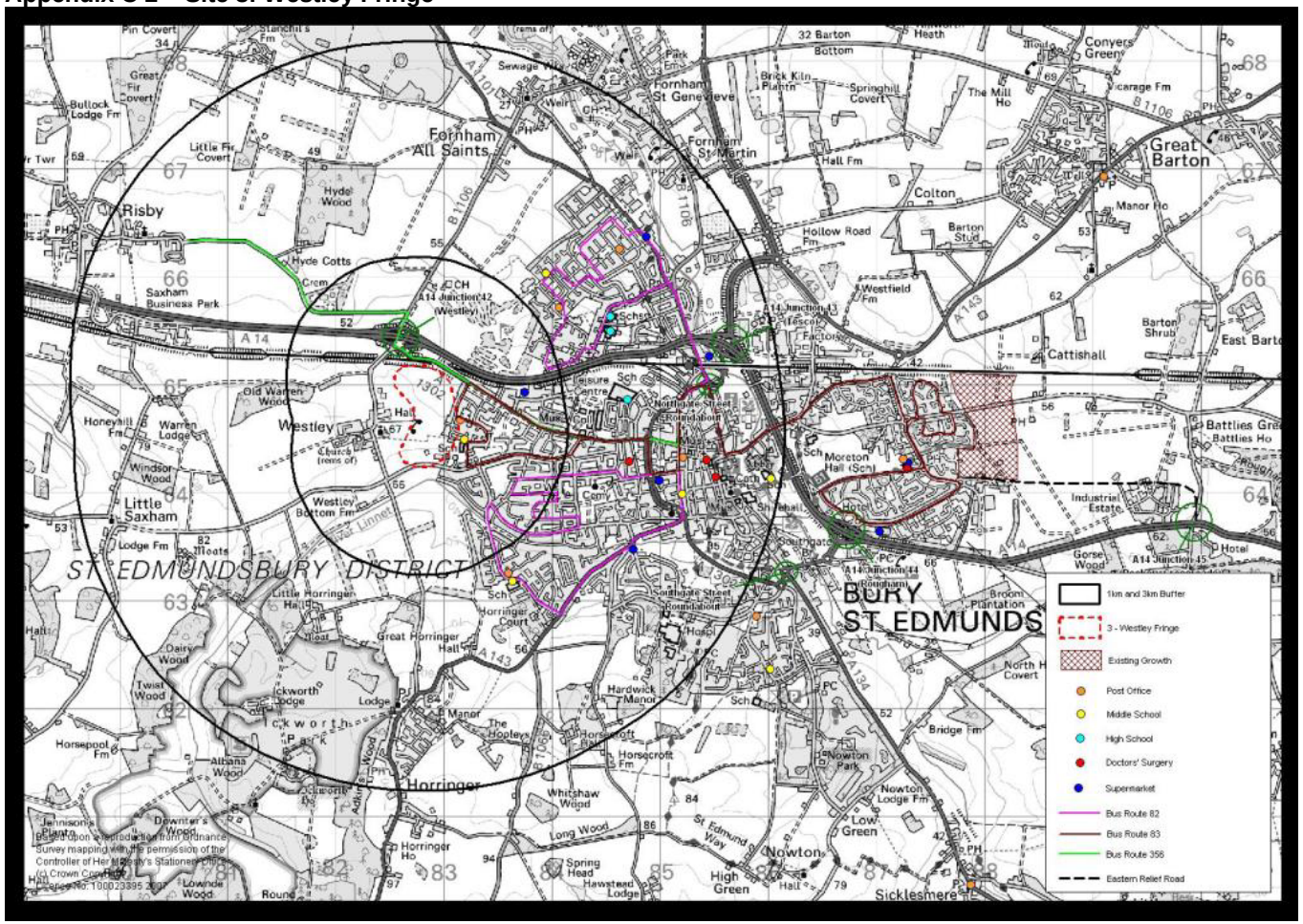
Appendix C – Site Accessibility

Appendix C – Site Accessibility

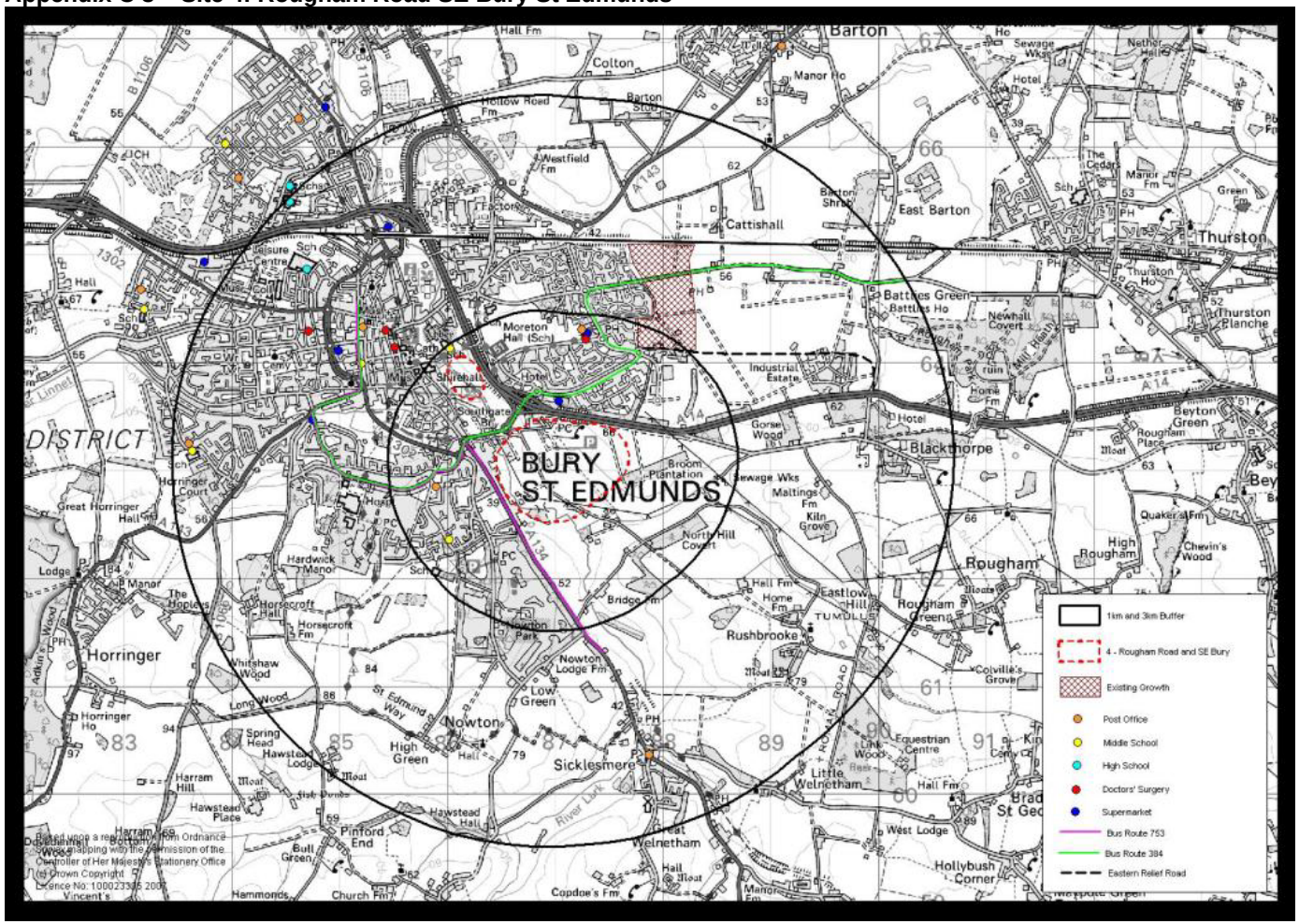
Appendix C 1 - Site 1: Mildenhall Road / Tut Hill



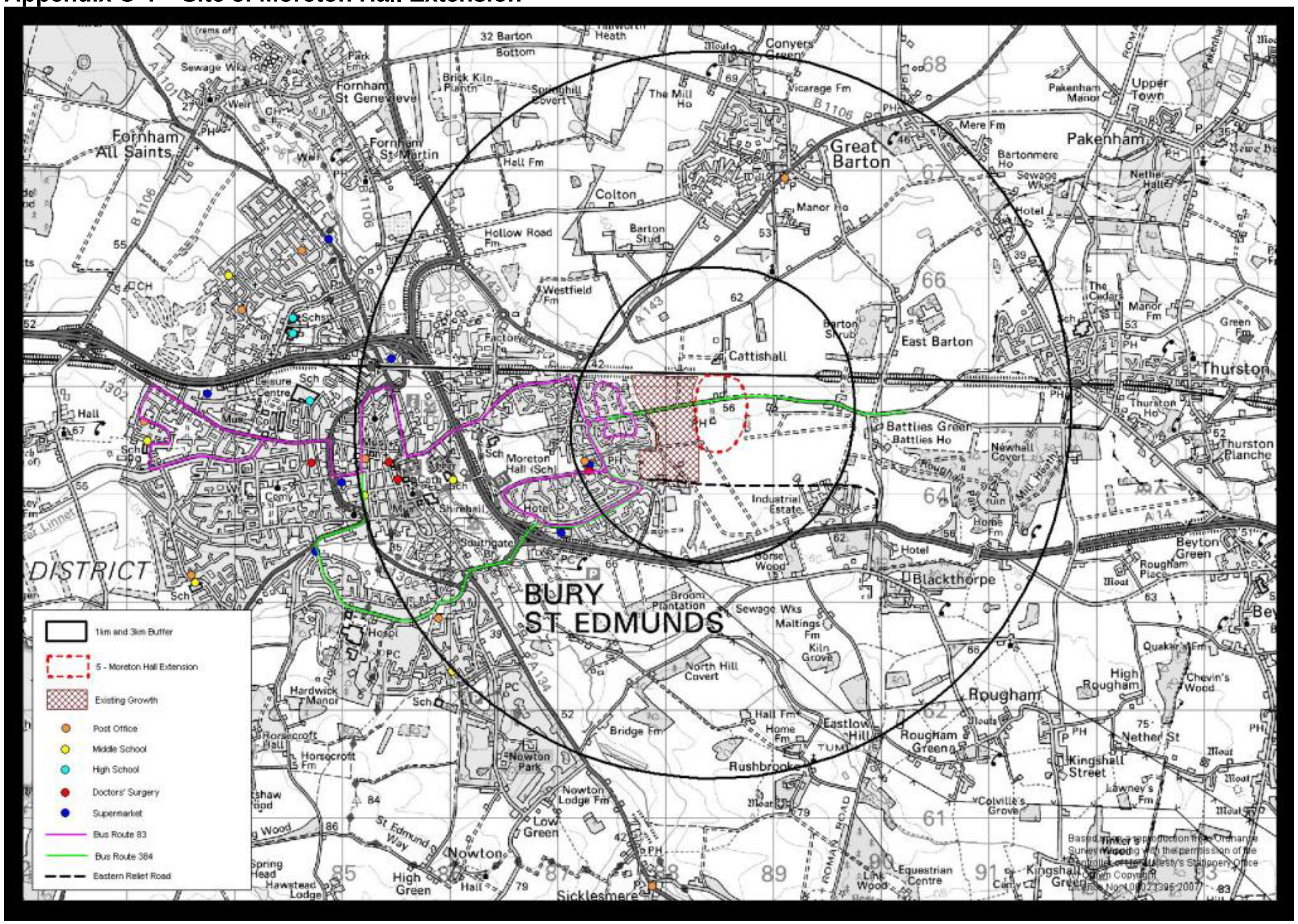
Appendix C 2 – Site 3: Westley Fringe



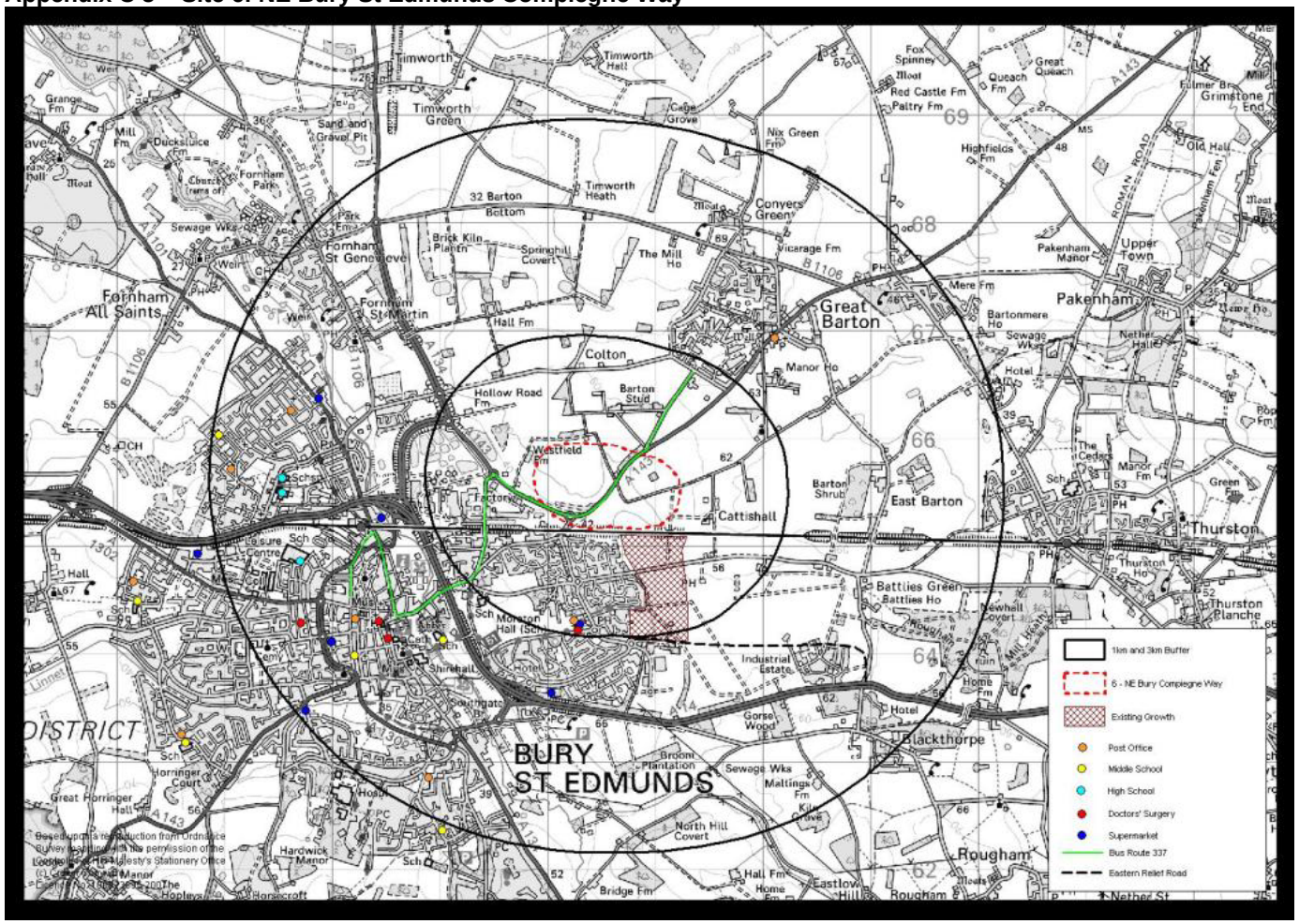
Appendix C 3 – Site 4: Rougham Road SE Bury St Edmunds



Appendix C 4 – Site 5: Moreton Hall Extension



Appendix C 5 – Site 6: NE Bury St Edmunds Compiegne Way



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Appendix D – Trip Generation

Appendix D – Trip Generation

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

- 2001 Census
- National Travel Survey 2006
- 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 Appendix D1 below:

Appendix D 1 – Average Number of Round Trips per Person per Year

Purpose of Travel	Trips per person/ year	Trips %
Commuting	160	15.4%
Business	35	3.4%
Education	62	6.0%
Escort Education	44	4.2%
Shopping	219	21.1%
Other Escort	97	9.3%
Personal Business	105	10.1%
Visiting Friends (both at private home and elsewhere)	168	16.2%
Sport & Entertainment	65	6.3%
Holidays & Day Trips	38	3.7%
Others (including just walk)	45	4.3%
All Purposes	1037	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 (1way) = 1037 (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 6.6b of the National Travel Survey details that 11% and 8% of all weekday trips take place between the peak periods of 08:00 – 09:00 and 17:00 – 18:00 respectively.

Table 7.12 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 6.6a of the National Travel survey. These proportions are shown in Appendix D2 below:

Appendix D 2 – Trip Purpose Split during AM and PM Peak

Purpose of Travel	AM Peak (08:00 - 09:00	PM Peak (17:00 - 18:00)
Commuting	32%	34%
Business	4%	6%
Education	28%	3%
Escort Education	15%	1%
Shopping	4%	13%
Personal Business	11%	18%
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 7.12 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 allocation sites based upon the ward in which they are located. The methodology for this is outlined below:

Number of weekday peak trips per site =

Proposed Number of Dwellings.

X
Average Number of Trips Per Household.

X
11% or 8% for the AM and PM Peaks respectively.

Both of the peak hour trip generations can then be applied by journey purpose as identified in Appendix A2 above.

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 sites) has been calculated, the arrival and departure profile applied to the AM and PM trips from the allocation sites.

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Appendix E – Trip Distribution

Appendix E – Trip Distribution

AECOM has distributed the traffic generated by the potential sites onto the road network based on the patterns found in 2001 Census data. However, with regards to the actual routes taken by the vehicles, AECOM has made a number of assumptions as to the likely routes that these vehicles would take.

Appendices E1 to E5 summarise the trip distribution assumptions made; Appendices E6 to E10 give schematic figures for the peak hour trips based on the precautionary site capacities, and the higher trip rates.

Appendix E 1 – Site 1: Mildenhall Road / Tut Hill Trip Distribution

Direction	Route Assumption
Westbound (towards Cambridge)	All traffic: B1106 to A14 junction 42 west
Eastbound (towards Ipswich)	All traffic: B1106 to A14 junction 42 east
Northbound (towards Thetford)	All traffic: B1106 to A134
Southbound (towards Sudbury)	50% traffic: B1106 to A14 junction 42 to A1302 to Southgate Street roundabout to A134 50% traffic: A1101 to Northgate Street roundabout to A1302 to A134
Town Centre	50% traffic: B1106 to A14 junction 42 to A1302 25% traffic: A1101 to Northgate Street roundabout to Northgate Street 25% traffic: A1101 to Northgate Street roundabout to A1302
North west (towards Mildenhall)	All traffic: B1106 to A1101
South west (towards Haverhill	50% traffic: B1106 to A14 junction 42 to A1302 to A143 50% traffic: A1101 to Northgate Street roundabout to A1302 to A143

Appendix E 2 – Site 3: Westley Fringe Trip Distribution

Direction	Route Assumption
Westbound (towards Cambridge)	All traffic: A1302 to A14 junction 42 west
Eastbound (towards Ipswich)	All traffic: A1302 to A14 junction 42 east
Northbound (towards Thetford)	All traffic: A1302 to A14 junction 42 east to A14 junction 43 to A134
Southbound (towards Sudbury)	All traffic: A1302 to Southgate Street roundabout to A134
Town Centre	All traffic: A1302
North west (towards Mildenhall)	All traffic: A1302 to A14 junction 42 to B1106
South west (towards Haverhill	All traffic: A1302 to A14 junction 42 to Fornham Lane

Appendix E 3 – Site 4: Rougham Road SE Bury St Edmunds Trip Distribution

Direction	Route Assumption
Westbound (towards Cambridge)	All traffic: Rushbrook Lane to A1302 to A14 junction 44 west
Eastbound (towards Ipswich)	50% traffic: Rushbrook Lane to A1302 to A14 junction 44 east 50% traffic: Rushbrook Lane to A14 junction 45 east
Northbound (towards Thetford)	All traffic: Rushbrook Lane to A1302 to A14 junction 44 west to A14 junction 43 to A143
Southbound (towards Sudbury)	All traffic: Rushbrook Lane to A1302 to Southgate Street roundabout to A134
Town Centre	50% traffic: Rushbrook Lane to A1302 Southgate Street roundabout to Southgate Street 50% traffic: Rushbrook Lane to A1302 to Southgate Street roundabout to A1302
North west (towards Mildenhall)	50% traffic: Rushbrook Lane to a1032 to A14 junction 44 west to A14 junction 43 to A1302 to Northgate Street roundabout to A1101 50% traffic: Rushbrook Lane to A1302 to Southgate Street roundabout to A1302 to A14 junction 42 to B1106
South west (towards Haverhill	All traffic: Rushbrook Lane to A1032 to Southgate Street roundabout to A1032 to A143

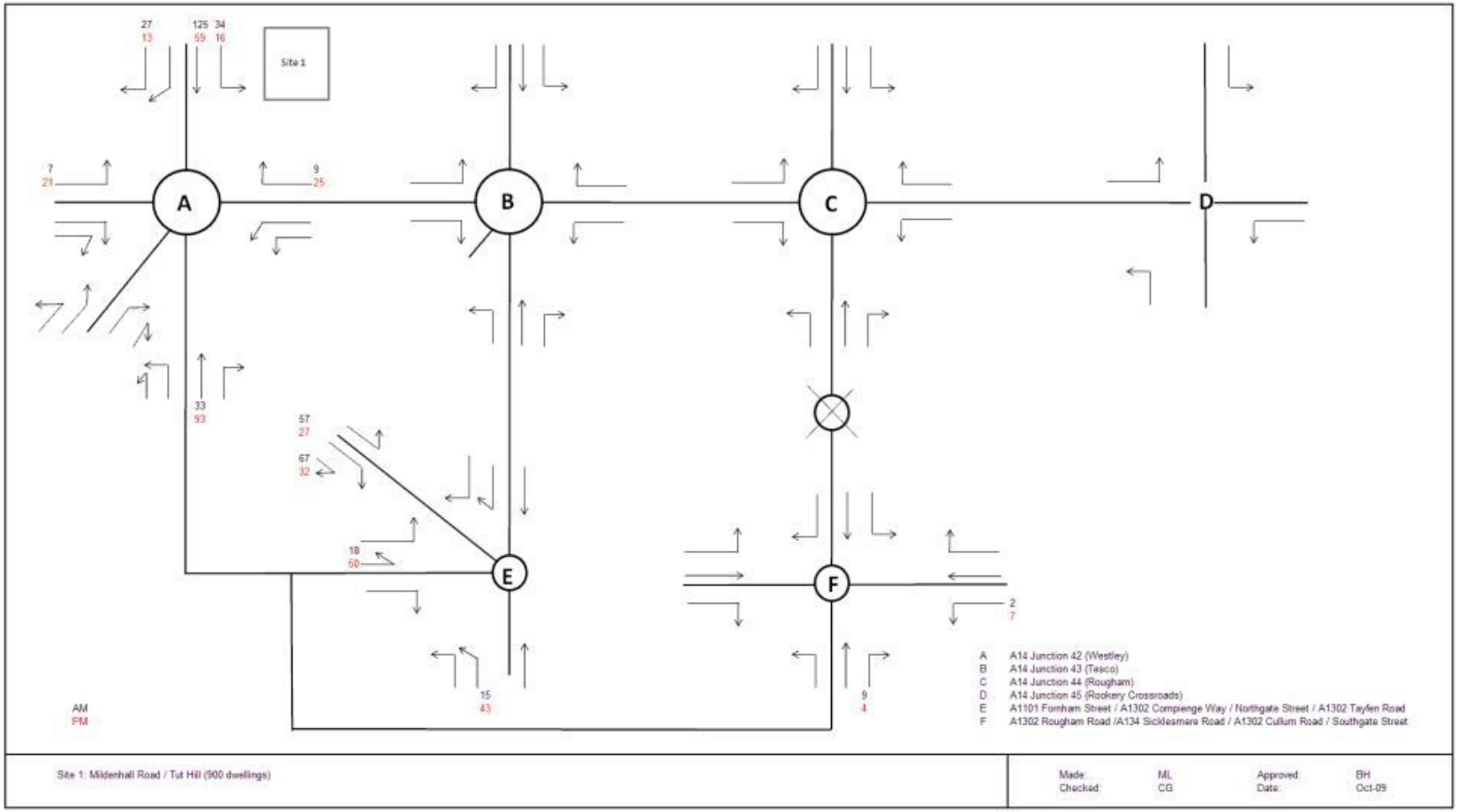
Appendix E 4 – Site 5: Moreton Hall Extension Trip Distribution

Direction	Route Assumption
Westbound (towards Cambridge)	All traffic: Mount Road to A14 junction 45 west
Eastbound (towards Ipswich)	All traffic: Mount Road to A14 junction 45 east
Northbound (towards Thetford)	All traffic: Mount Road to A143
Southbound (towards Sudbury)	All traffic: Mount Road to A14 junction 45 west to A14 junction 44 to A1302 to Southgate Street roundabout to A134
Town Centre	All traffic: Mount Road
North west (towards Mildenhall)	All traffic: Mount Road to A1443 to A14 junction 43 to A1302 to Northgate Street roundabout to A1101
South west (towards Haverhill	All traffic: Mount Road to A14 junction 45 west to A14 junction 44 to A1302 to Southgate Street roundabout to A1302 to A143

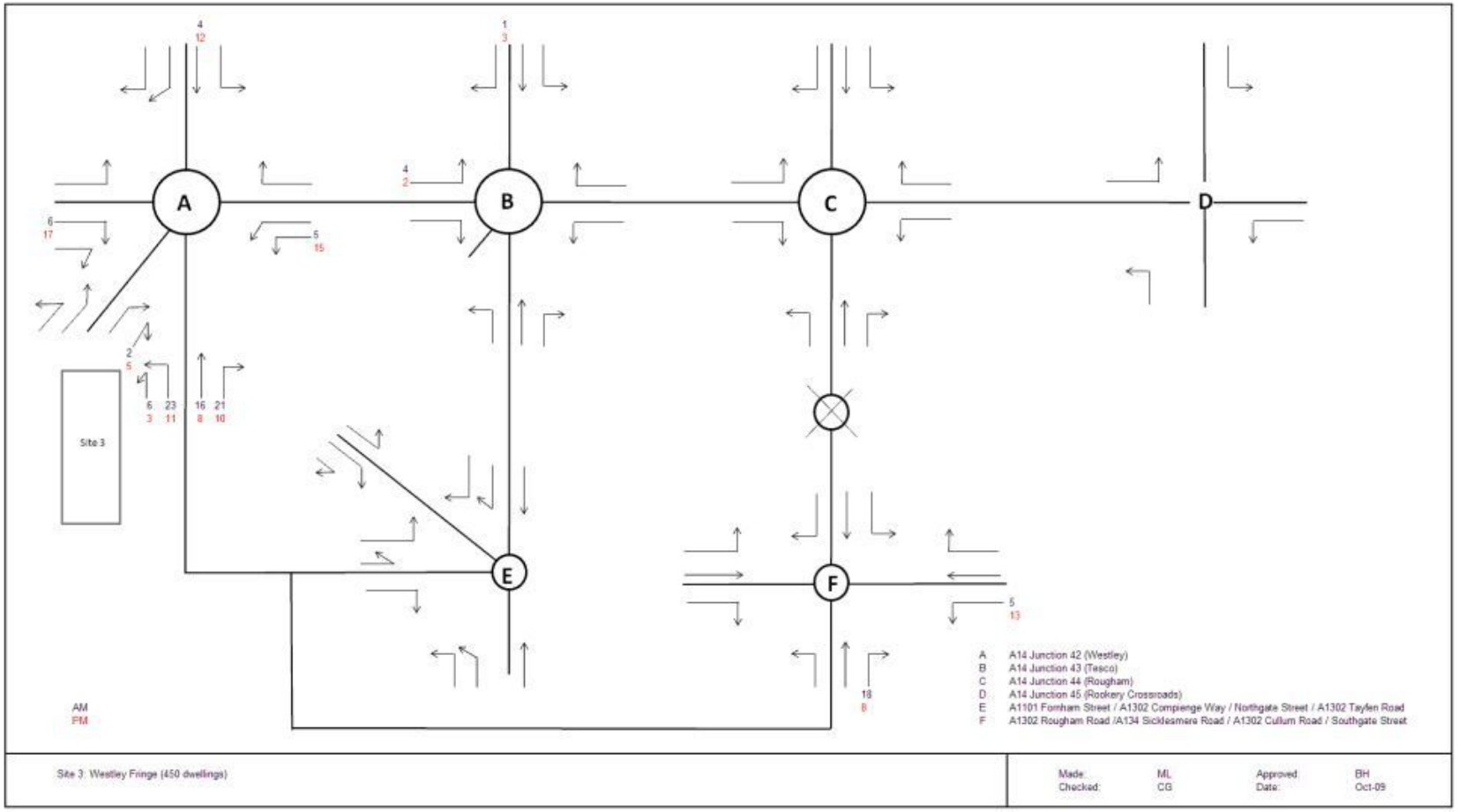
Appendix E 5 – Site 6: Bury St Edmunds NE Compiegne Way Trip Distribution

Direction	Route Assumption
Westbound (towards Cambridge)	All traffic: A143 to A14 junction 43 west
Eastbound (towards Ipswich)	All traffic: A143 to A14 junction 43 east
Northbound (towards Thetford)	All traffic: A143
Southbound (towards Sudbury)	All traffic: A143 to A14 junction 43 east to A14 junction 44 to A1302 to Southgate Street roundabout to A134
Town Centre	50% traffic: A143 to A14 junction 43 to A1302 to Northgate Street roundabout to Northgate Street 50% traffic: A143 to A14 junction 43 to A1302 to Northgate Street roundabout to A1302
North west (towards Mildenhall)	All traffic: A143 to A14 junction 43 to A1302 to Northgate Street roundabout to A1101
South west (towards Haverhill	All traffic: A143 to A14 junction 43 east to A14 junction 44 to A1302 to Southgate Street roundabout to A1302 to A143

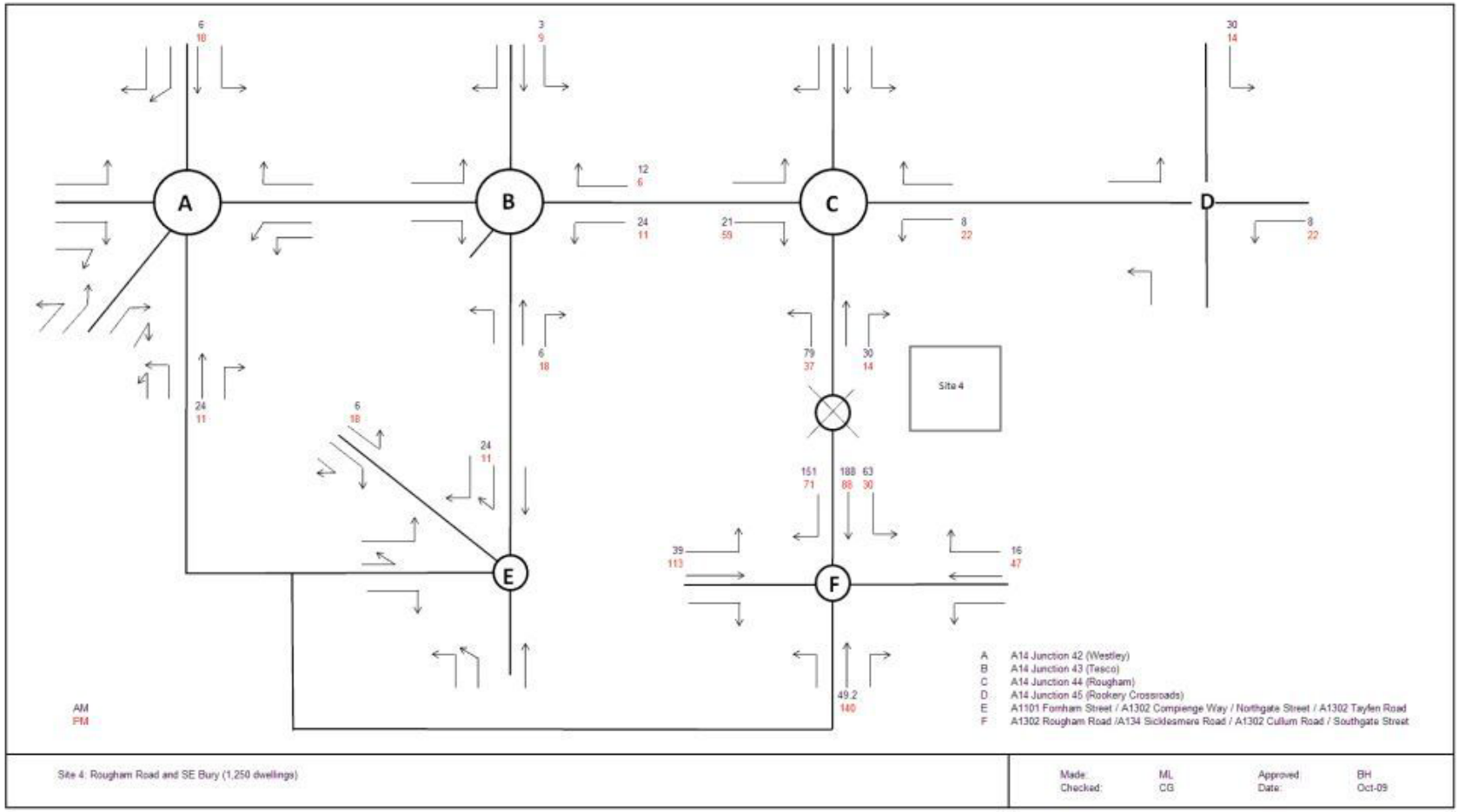
Appendix E 6 – Site 1: Mildenhall Road / Tut Hill Trip Distribution Diagram



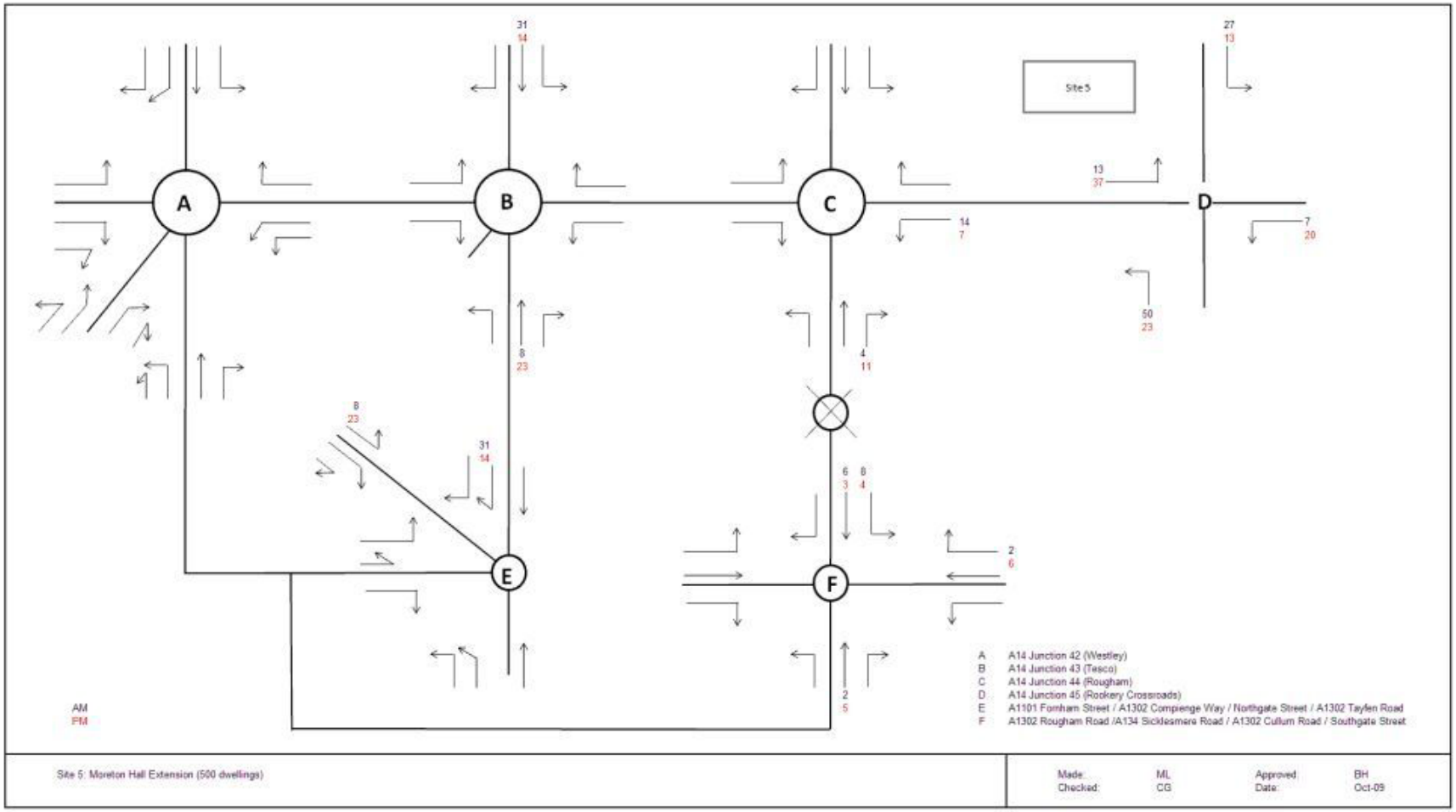
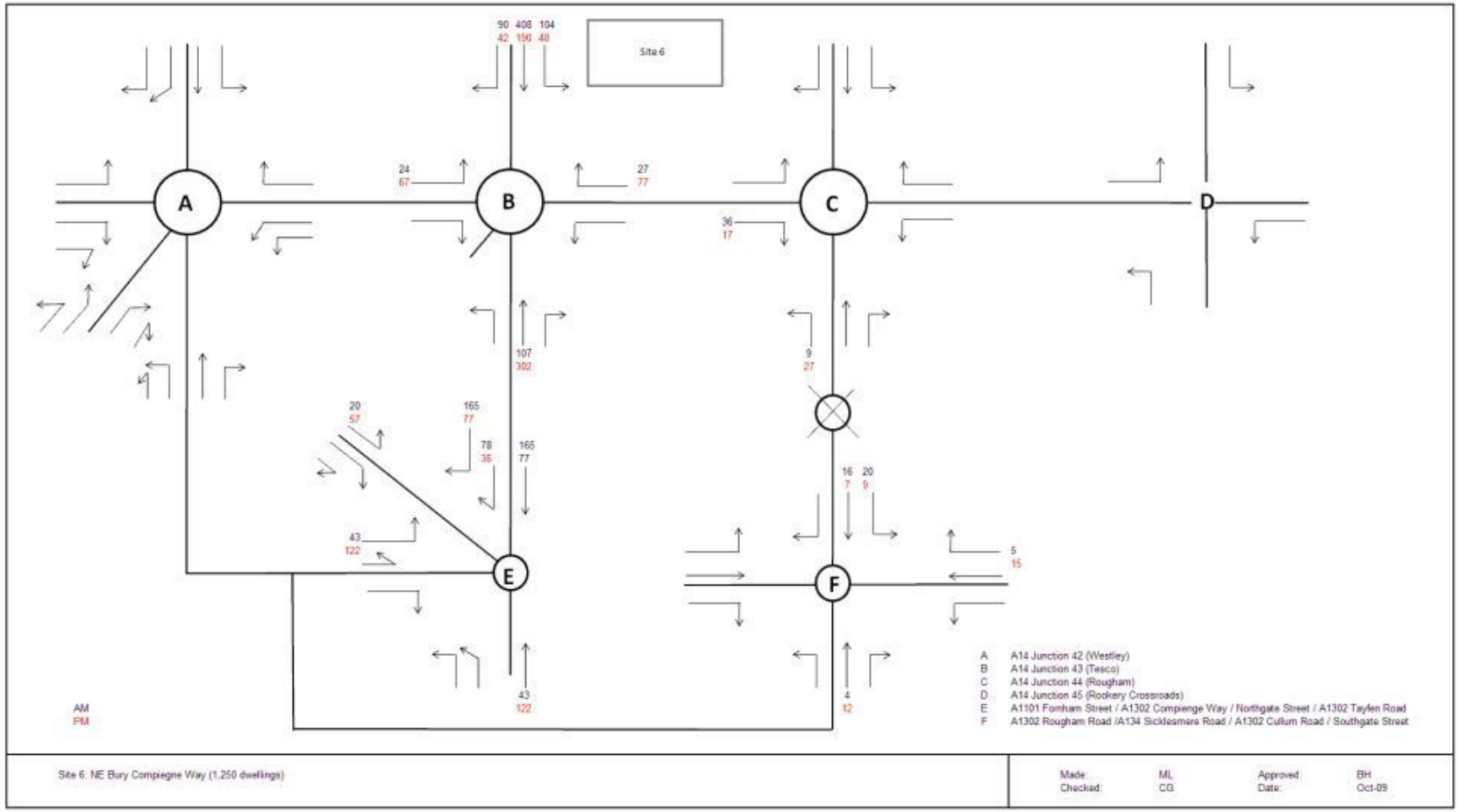
Appendix E 7 – Site 3: Westley Fringe Trip Distribution Diagram



Appendix E 8 – Site 4: Rougham Road and SE Bury St Edmunds Trip Distribution Diagram



Appendix E 9 – Site 5: Moreton Hall Extension Trip Distribution Diagram



Appendix E 10 – Site 6: Bury St Edmunds NE Compiegne Way Trip Distribution Diagram