
Suffolk Coastal – Ipswich Eastern Fringe & Felixstowe/Trimleys Transport Studies

August 2008

Project:	Suffolk Coastal – Ipswich Eastern Fringe & Felixstowe/Trimleys Transport Studies	Job No:	60045979
Subject:	Transport Evidence		
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1.0 Introduction

- 1.1 Suffolk County Council (SCC) and Suffolk Coastal District Council (SCDC) jointly commissioned Faber Maunsell (FM) to undertake a study to examine the broad transport implications of alternative housing developments for the Local Development Framework (LDF). This includes examination of five possible locations on the eastern edge of Ipswich and five at Felixstowe and the Trimleys. These two sets of five areas will be considered to the LDF horizon of 2025, with the possibility of continued growth, concentration and dispersal, all needing to be taken into account.
- 1.2 The results will assist, in the investigation of the District Council's preferred option in each area.
- 1.3 This Final Report follows several versions of a Technical Note, which contributed to the SCDC Report by the Head of Planning Services LPTG 10/08. It describes the methodology used to determine the broad impacts of the housing allocations on the highway network, and gives the broad conclusions.

2.0 Objectives

- 2.1 This study seeks to meet the following objectives:
- To examine the transport implications of the ten locations, separately and in combination, at the proposed and higher levels of dwelling numbers;
 - To consider them against the existing and proposed major centres of employment, based on information on existing commuting travel patterns;
 - To consider the potential scale of transport infrastructure and service improvements required to cater for the growth; and
 - To consider the potential for better sustainable transport patterns, through design and active mode facilities.

The work has been carried out in the context of the approved East of England Plan, the emerging Suffolk Transport Strategy, the Suffolk LTP2006-2011, and the relevant Government guidance. Three development scenarios will be considered: 2008 reference, 2025 full concentrated development, and a variant scenario. The objective has been to inform the SCDC LDF Task Group deliberations.

Restrictions

2.3 Given the time scales, it has been agreed with SCDC and SCC that the study has been progressed with the following restrictions to the study:

- No original new survey work has been undertaken;
- No formal new transport network modelling work has been undertaken.
- The studies has involved a round of discussions with the authorities directly involved (SCC, SCDC, IBC (Ipswich Borough Council) and HA (Highways Agency)) and will contribute to the LDF Task Group deliberations. No formal public or stakeholder consultation has been considered at this stage; and
- This study comprises an initial round of investigations and conclusions, without subsequent iteration or optimisation.

3.0 Background

Study Area

3.1 For the purposes of public consultation as part of the preparation of the Core Strategy, alternative broad locations for major new housing developments have been identified by SCDC in two principle areas:

- The area to the east of Ipswich;
- The area of Felixstowe and the Trimleys.

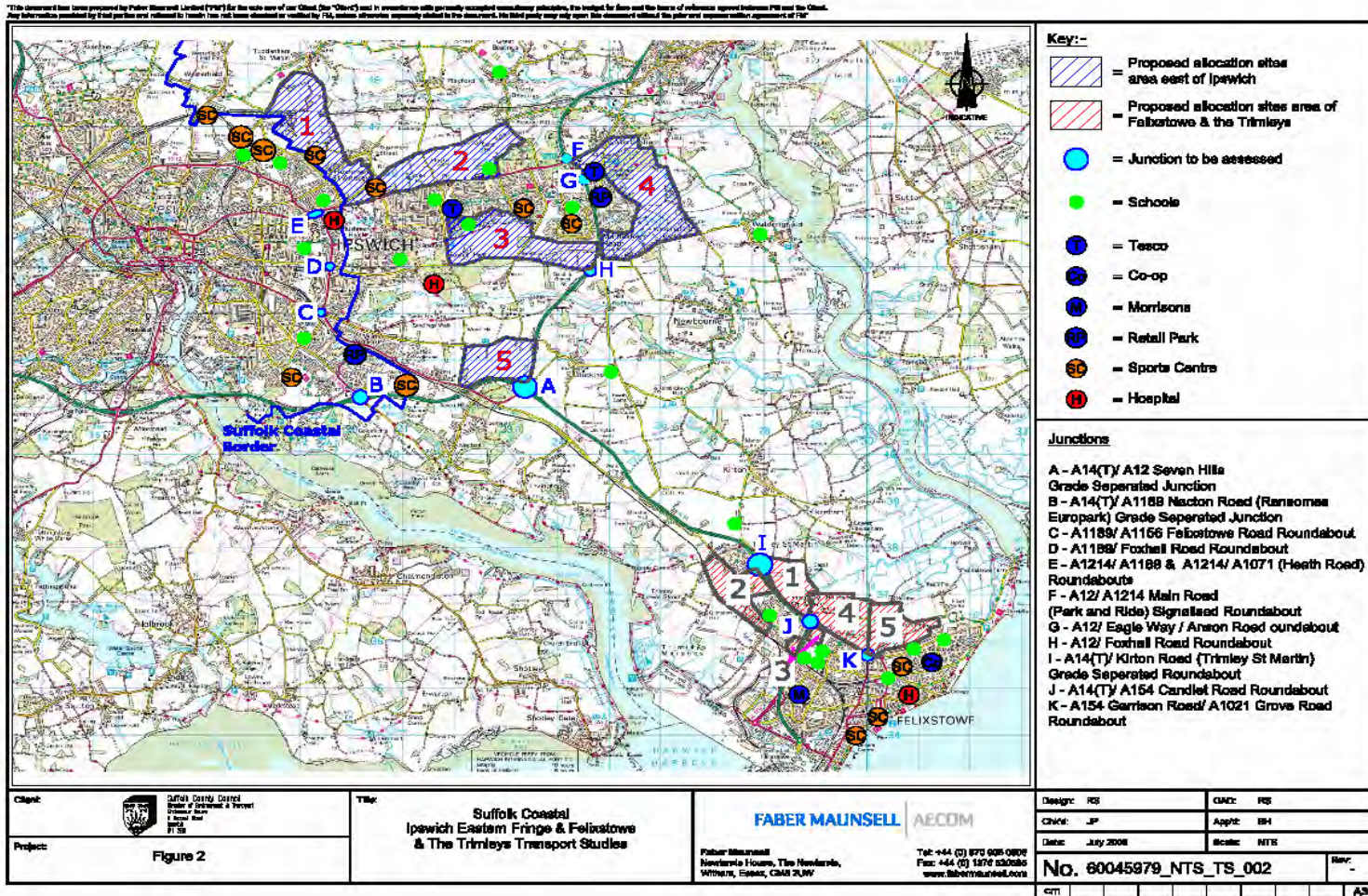
3.2 Within these two broad areas, ten potential housing allocation areas have been identified (five in each of the two broad areas). The location of these potential allocation sites is shown on Figure 1 and Table 1 outlines their locations:

Table 1: Potential Housing Allocations Sites

Site	Area	
	Area to East of Ipswich	Area of Felixstowe/ Trimleys
1	Ipswich Boundary - Westerfield to Rushmere St Andrew (Village)	North-east of A14
2	North of A1214, Woodbridge Road	Land between Trimley villages, railway line and A14
3	South of Kesgrave/ Martlesham Heath	South of Dockspur roundabout between Walton and Trimley St Mary
4	South of Old Martlesham/ East of A12	North of Candlet Road
5	North-west of A14	North of Felixstowe

Source: SCDC Brief

Figure 1: Potential Housing sites, and junctions of interest



- 3.3 SCDC has also asked Faber Maunsell to consider a potential site 6 within the Felixstowe/Trimleys area. This site would be located to the north west of Trimley St Martin. It is in a similar transport location to Site 1, and can be considered to have the same characteristics.
- 3.4 For the purposes of this assessment, the two broad areas have been considered in isolation from one another. This has been done on the basis that, if one considers the network in and around Ipswich affected by the allocation sites, the impact would be broadly the same for traffic arriving from /departing towards Felixstowe, regardless of which site (1 to 5) was allocated within Felixstowe and the Trimleys. This can also be said for traffic from sites allocated to the east of Ipswich heading towards Felixstowe.

Road Network

- 3.5 Figure 1 shows the broad location of all ten of the proposed allocation sites. From this Faber Maunsell has identified the following principal routes that may be affected by the allocation of housing at any of the potential sites identified:
- A14 – Trunk Road providing a route from Felixstowe to the A12(T)/ A14(T) Copdock interchange;
 - A12 – Principal Road providing a route from A14(T)/ A12 (Seven Hills interchange) towards Woodbridge;
 - A1214 – Local road providing a route from A12 Martlesham Park and Ride junction into Ipswich town centre;
 - A1156 – Local road providing a route from the A14 (T) / A12 Seven Hills interchange into Ipswich town centre;
 - A154 – Local road providing access to Felixstowe from the A14; and
 - Foxhall Road – Local Road providing a route from the A12/ Foxhall Road/ Newbourne Road roundabout into Ipswich town centre.
- 3.6 Within the routes identified above Faber Maunsell consider that the operation of the following junctions will be significant to the acceptability (in terms of network capacity) of the allocated number of dwellings at any individual allocation site. In order to assess the existing capacity and the impact of the allocated sites, some basic assessment of these junctions was undertaken. Assessments have been undertaken using simple volume/capacity reviews, using ARCADY at some important junctions where detailed information was available.
- 3.7 The junctions considered interesting for detailed assessment include the following (the location of these junctions in relation to the proposed allocation sites are shown on Figure 1):

The area to the east of Ipswich;

- A14(T) / A1189 Nacton Road (Ransomes Europark) Grade Separated Junction;
- A14(T) / A12 Seven Hills Grade Separated Junction;
- A12 / Foxhall Road / Newbourne Road Roundabout;
- A12 / Eagle Way / Anson Road Roundabout;
- A12 / A1214 Main Road (Martlesham Park and Ride) Signalised Roundabout;
- A1214 / A1189 and A1214 / A1071 (Heath Road) Double Roundabout;
- A1189 / Foxhall Road Roundabout;
- Foxall Road/Bell Lane; and
- A1189 / A1156 Felixstowe Road Roundabout.

The area of Felixstowe and the Trimleys.

- A14 / Kirton Road (Trimley St Martin) Grade Separated Roundabout;
- A14 / A154 Candlet Road / A14 Felixstowe Port Road (Dock Spur) Roundabout;
- A154 Garrison Lane / A1021 Roundabout.

3.8 The junctions identified comprise the 'study area' in terms of highway impact and are discussed with reference to individual allocation sites later in this report.

3.9 SCDC has also raised concerns regarding the impact of any allocation site development traffic on the junction of Foxhall Road and Bell Lane and High Road/ High Street (Trimley St Mary/ Martin and Walton). As part of this report, a broad assessment has been made of the likely impacts of the allocations sites at these particular junctions/ routes.

4.0 Potential Housing Allocations in Emerging LDF

4.1 SCC and SCDC have outlined the following numbers of homes (shown in Table 2) that are proposed in the emerging LDF. The SCDC report “Land Availability Housing – Approved and allocated sites for five or more units” dated April 2007 quotes somewhat higher values (shown in brackets within Table 2). For the purpose of this assessment, SCDC has stated that the higher housing numbers from the “Land Availability Housing” report should be used in the assessment.

Table 2 : Potential Housing Allocations identified in the LDF (Dwellings)

Area East of Ipswich:	
With planning permission	740 *(822)
Potential on brownfield sites (urban capacity)	210
Proposed Allocations	970
Total 2007 – 2024	1920 *(2002)
Area of Felixstowe/Trimleys:	
With planning permission	180 *(250)
Potential on brownfield sites (urban capacity)	300
Proposed Allocations	1620
Total 2007 – 2024	2100 *(2170)

Source SCDC brief and “Land Availability Housing – Approved and allocated sites for five or more units” dated April 2007

4.2 During the preparation of this report, slightly updated figures from the drafted Land Availability Report 2008 have been produced. These updated figures have been used in the two LDF task group reports for Ipswich and Felixstowe. Whilst the updated figures are slightly different, they will not have a major impact on the results of this study.

4.3 In terms of the proposed allocation sites, Faber Maunsell has undertaken a broad assessment to calculate the likely housing capacity of each of the alternative sites. In order to identify the likely housing density, Faber Maunsell has referred to PPG3. PPG3, paragraph 57 states that new housing in England has recently been built at an average density of 25 dwellings per hectare (dph), but more than half of this has been built at densities of less than 20dph. It states

that local authorities should seek to avoid very low densities, and densities of 30 – 50 dph are encouraged.

- 4.4 Following consultation with SCDC, it has been established that SCDC does not have adopted density standards. Each of the allocation sites is, however, capable of accommodating all of the dwellings at a density within the nationally prescribed range except for Site 3 in Felixstowe/ Trimleys.
- 4.5 Allocation sites 1-4 in the area to the east of Ipswich should also be able to accommodate (dependant on densities) an increase of 50% in the proposed number of allocated dwellings should the need arise.
- 4.6 Allocation sites 1, 2, 4, and 5 in Felixstowe/ Trimleys should each be able to accommodate an increase of approximately 19% in the proposed number of allocated dwellings should the need arise through the adoption of a higher density target. As stated, Site 3 will not be able to accommodate the entire number of allocation dwellings for Felixstowe and the Trimleys and if it is selected it will need to be combined with another site or sites.

Committed Development / Planning Permission

- 4.7 Table 3 illustrates valid planning consents as outlined in the report “Land Availability Housing – Approved and allocated sites for five or more units” (April 2007) for Ipswich Eastern Fringe and Felixstowe Peninsula, disaggregating the planning permission control totals from Table 2.

Table 3: Valid Planning Consents for Ipswich Eastern Fringe and Felixstowe

IPSWICH EASTERN FRINGE				
	Not Started (dwellings)	Under Construction (dwellings)	TOTAL (dwellings)	Settlement Type
Brightwell	-	-	-	1
Foxhall	-	-	-	1
Kesgrave	366	126	492	4
Little Bealings	-	1	1	1
Martlesham	79	3	82	2
Nacton	2	1	3	1
Playford	-	1	1	1
Purdis Farm	13	1	14	4
Rushmere St Andrew	204	25	229	1&4
TOTALS	664	158	822	
FELIXSTOWE PENINSULA				
Buckleham	-	1	1	1
Falkenham	-	-	-	1
Felixstowe	154	7	161	3
Hemley	-	-	-	1
Kirton	40	-	40	1
Levington	1	-	1	1
Newbourne	1	1	2	1
Stratton Hall	-	-	-	1
Trimley St Martin	21	1	22	1
Trimley St Mary	7	7	14	3
Waldringfield	5	4	9	1
TOTALS	229	21	250	

Source: Land Availability Housing – Approved and allocated sites for five or more units. April 2007)

4.8 Table 3 shows that there are two already permitted primary developments that have the potential to generate a significant amount of traffic. These are:

- 492 dwellings at Kesgrave; and
- 229 dwellings at Rushmere St Andrew.

The 161 dwellings in Felixstowe are understood to be dispersed around the town, and can be considered as general growth.

4.9 Faber Maunsell has treated these two major existing planning permissions as 'significant sites' along with the consideration of new proposed land allocation. They have been examined individually for trip generation and distribution in the period to 2025. This is discussed later in this report. The remaining sites are treated as minor sites that will be assumed to be included in the background traffic growth

4.10 The status of the brownfield sites has been investigated with SCC and SCDC. It was agreed that the area to the east of Ipswich has relatively few and dispersed sites, and therefore it has been assumed that the trip generation from allocations on brown field sites will be accounted for in the background growth. SCDC has confirmed that the 158 dwelling brownfield site in Felixstowe is the 'South Sea Front' site – this will be treated as a 'significant site'.

4.11 As previously mentioned, the figures given in Table 4 have been superseded by updated estimates from SCDC's most recent Land availability Report 2008. Whilst the new figures are slightly different, they will not have an major impact on the results of this study.

5.0 Trip Generation and Distribution for LDF Sites and Committed Development

5.1 Faber Maunsell has utilised the 2001 Census data, National Travel Survey and TRICS database in order to estimate the potential person trip generation of the proposed housing allocation and committed development sites and to determine the likely distribution.

5.2 In order to determine a trip rate and distribution for each of the allocated sites, Faber Maunsell has utilised data from the 2001 Census, including the Journey to Work by mode profile. The electoral Ward has then been obtained for each of the allocation sites, and then the available data from these Wards used to calculate a trip rate and distribution that can be considered individual to the ward and proposed allocation site.

5.3 The wards used for each site is shown in Table 4.

Table 4: Proposed Allocation Site Wards for Census data.

Area No. (See Figure 1)	2001 Census Ward	
	Area to the East of Ipswich	Area of Felixstowe and the Trimleys
1	Rushmere St Andrew	Trimleys with Kirton
2	Kesgrave East	Trimleys with Kirton
3	Kesgrave East	Felixstowe North
4	Martlesham	Felixstowe North
5	Nacton	Felixstowe East

5.4 Appendix A of this report details the methodology used to determine the trip rate/ generation using the 2001 Census data, National Transport survey and TRICS database. Figures 1 to 7 in Appendix A outline the calculations used. A summary of the proposed vehicular trip rate for each allocation site is shown in Table 5.

Table 5: Proposed vehicle trip rates for each allocation site (vehicles per hour per dwelling)

Area to East of Ipswich

Time Period		Site Number				
		1	2	3	4	5
08:00 - 09:00	Arrivals	0.13	0.13	0.13	0.12	0.12
	Departures	0.50	0.50	0.50	0.45	0.48
	Total	0.63	0.63	0.63	0.57	0.60
17:00 - 18:00	Arrivals	0.37	0.37	0.37	0.34	0.35
	Departures	0.23	0.23	0.23	0.21	0.22
	Total	0.61	0.60	0.60	0.55	0.57

Area of Felixstowe/ Trimleys

Time Period		Site Number				
		1	2	3	4	5
08:00 - 09:00	Arrivals	0.12	0.12	0.10	0.10	0.11
	Departures	0.47	0.47	0.39	0.39	0.42
	Total	0.60	0.60	0.49	0.49	0.53
17:00 - 18:00	Arrivals	0.35	0.35	0.29	0.29	0.31
	Departures	0.22	0.22	0.18	0.18	0.20
	Total	0.57	0.57	0.47	0.47	0.51

Source: Appendix A

5.5 The vehicle trip generation for each proposed allocation site as detailed in Appendix A has been assigned to the local road highway network in accordance with the 2001 Census journey to work data for the ward in which the allocation site is located. This data provides the destinations of places of work for existing residents within the Ward in 2001. The trip distribution has been calculated by separating destinations into specific routes through the study area.

- 5.6 It is acknowledged that using the 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 distribution. Indeed, a proportion of trips, for example shopping and education will be internalised, and no account for this has been made for this. However, for the purposes of this assessment, it is considered a reasonable approximation. Full details of the assumed percentage trip distribution for each of the allocation sites are detailed in spreadsheets associated with Appendix B of this Report.
- 5.7 A summary of the existing journey to work by mode profile for each of the allocation sites is shown in the Table 6, together with a summary of the percentage travelling to the key employment sites (Table 7):

Table 6: Summary of existing journey to work split by mode for each allocations site

Site		Journey to Work Mode		
		Car	Public Transport (Bus/ Train)	Cycle/ Walk
East of Ipswich	1	69%	8%	7%
	2 & 3	69%	9%	9%
	4	64%	6%	16%
	5	68%	4%	9%
Felixstowe/ Trimelys	1 & 2	70%	4%	8%
	3 & 4	58%	3%	22%
	5	62%	3%	15%

Source: 2001 Census JTW data (see Appendix A)

Table 7: Summary of existing vehicle trip distributions to key employment areas

Site		Journey to Work Destination			
		Ipswich	Felixstowe	Felixstowe Port	Martlesham (Austral Park)
East of Ipswich	1	49%	7%	5%	11%
	2 & 3	40%	10%	8%	15%
	4	30%	10%	8%	20%
	5	42%	9%	7%	10%
Felixstowe/ Trimelys	1 & 2	22%	55%	32%	6%
	3 & 4	19%	62%	40%	4%
	5	21%	56%	33%	7%

Source: 2001 Census JTW data (see Appendix B)

- 5.8 From Table 5, it can be seen that overall the vehicle trip rates are broadly similar for each ward, with a two way trip rate for both the AM and PM peak of between 0.5 and 0.6 per dwelling respectively, although for the area to the east of Ipswich, the trip rates for site 4 are generally lower when compared to sites 1, 2, 3 and 5.

- 5.9 This is likely to be because of the sites proximity to Adastral Park allowing more trips to work to be made by other modes. This is reflected in the Journey to Work Census data which shows that both the car mode share is lower in site 4, and the percentage of walking and cycling to work is far greater.
- 5.10 Work undertaken by Integrated Transport Planning Ltd in support of proposals for the development of BT's land and Martlesham refers to a Travel to Work Survey to the Adastral Park site which has been undertaken by Suffolk County Council as part of the monitoring programme for the LTP. However, this details that the proportion of people arriving on foot is low (4.3%) compared to other major employers (10.4%). It is suggested that this is a function of Adastral Park being located on the edge of a built up area, with a significant residential area (Martlesham Heath) on only one side with the A12 acting as a significant barrier to journeys on foot.
- 5.11 The Adastral Park survey also reveals that cycle use is also significantly higher than elsewhere, with 12.4% arriving by cycle compared to 5.1% for other employers. It is suggested that this is likely to be the result of good cycle routes in the surrounding areas as well as cyclist facilities provided for Adastral Park employees. This would appear to compare favourably with the results of the earlier Census data.
- 5.12 It should be noted that for the area to the east of Ipswich, sites 1, 2, and 3 the bus mode share is greater than for sites 4 and 5 or for any of the Felixstowe/ Trimleys sites. This is likely to be due to the existing bus routes along the A1214 corridor which these Wards are located and the Super Route 66 which runs through Kesgrave and Grange Farm.
- 5.13 In support of this, the work undertaken by Integrated Transport Planning Ltd for the development of BT's land, details that the proportion arriving by bus is higher than for other employers in Suffolk (16.1% compared to 6.1%). It is suggested that this reflects the high quality of the Superoute 66 bus service.
- 5.14 Sites 3, 4 and 5 in the Felixstowe and Trimleys area have a significantly lower vehicle trip rate than sites 1 and 2 in Felixstowe/ Trimleys and all of the sites located to the east of Ipswich. This is reflected by the lower car mode share in these areas and the significantly higher walk and cycle to work from these wards. This is likely to be due to the proximity of these wards to the key employments sites within Felixstowe.
- 5.15 Table 8.0 shows the vehicle trip distribution to the key employment sites. For the Felixstowe sites, between 55% and 62% of residents who drive to work to a location in Felixstowe. This is likely to be explained by the relatively poor bus services to the Port.
- 5.16 An example of the trip generation by all modes is given in Table 8, which demonstrates the output for Site 4 in the area to the east of Ipswich and Table 9 for Site 1 & 2 in the area of Felixstowe/ Trimleys:

Table 8: Summary of Person Trip Generation for 970 dwellings at Site 4 (East of Ipswich) (person trips per hour for the total dwelling allocation)

Martlesham - Allocation Site 4

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	40	36	245	18	14	37	76	127	376	218
Cycle	39	35	11	1	1	1	3	6	53	43
Car Driver	322	287	123	9	23	61	86	175	555	532
Passenger	20	17	128	10	12	30	54	129	214	186
Rail	5	4	11	1	1	1	3	7	19	14
Local Bus	26	23	61	5	5	13	12	23	103	64
Others	52	47	22	2	1	2	5	13	81	63
Total	504	448	602	45	56	146	238	482	1400	1120

Source: Appendix A source spreadsheets

Table 9: Summary of Person Trip Generation for 1620 dwellings at Site 1 or 2 (Felixstowe/ Trimleys) (person trips per hour for the total dwelling allocation)

Trimleys and Kirton - Allocation Sites 1 & 2

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	29	25	405	30	23	61	125	209	582	326
Cycle	41	36	18	1	1	2	4	11	64	51
Car Driver	584	519	202	15	39	101	142	289	967	924
Passenger	52	46	212	16	19	50	90	213	372	325
Rail	6	5	18	1	1	2	4	12	30	21
Local Bus	26	23	101	8	8	21	19	39	155	91
Others*	94	84	37	3	1	3	8	21	140	111
Total	832	739	994	74	92	240	393	795	2311	1849

Source: Appendix A source spreadsheets

5.17 For the purposes of including the traffic impacts from the committed development sites identified early in this report, the following trip rates and distribution have been adopted:

- 492 dwellings at Kesgrave – trip generation and distribution characteristics associated with Sites 2 and 3 of the allocation sites to the east of Ipswich have been used.
- 229 dwellings at Rushmere St Andrew – trip generation and distribution characteristics associated with Sites 1 of the allocation sites to the east of Ipswich have been used;
- 158 dwellings in Felixstowe South Sea Front - trip generation and distribution characteristics associated with Sites 5 of the allocation sites in Felixstowe/ Trimleys have been used.

6.0 Accessibility

6.1 This section describes the existing local road network and potential vehicle accesses to the allocation sites. It also seeks to outline the existing walking and cycling provision to the sites, and the primary existing public transport provision. Full details of existing public transport connections are detailed in Appendix D of this report. Details of existing services such as schools and hospitals are detailed in Figure 2 of this report.

6.2 With good layout focussed on bus stops, good prior marketing and information, and a direct and reliable bus service, any new area can achieve a reasonable level of bus use. This paragraph provides a context to consider the viability of new bus services, based on the following notional assumptions:

A single, radial service, with other pick-up and drop off opportunities;
The 'anchor' housing area needs to provide 20 commuter passengers per bus;
Four, half hourly services during the commuting peak (plus of course, a good level of off-peak service)
A general level of commuter mode split of 8 percent using bus;
Half the bus commuters are working in the town centre; and
One employed resident per dwelling.

6.3 Combining these assumptions:

20 X 4 that is 80 bus commuters per day required to justify the radial route;
These are half of the total bus commuters, that is 160 bus commuters per day;
If these represent some 8 percent of the commuters, that gives a commuter total of $160/0.08$ that is 2,000 commuters – say 2,000 households.

This simplistic assumption suggests that a properly arranged residential development of about 2,000 households could justify a new commercial bus service.

Sites to the east of Ipswich

Site 1 – North of Rushmere St Andrew

Local Road Network

- a. The Site is located north-east of Ipswich in the Rushmere area and encompasses part of Rushmere St Andrew village. It is bounded to the north by Tuddenham Road, to the south by Playford Road and to the west by Humber Doucy Lane. Rushmere Street passes west to east through the southern portion of the site.
- b. The Ipswich to Lowestoft rail line passes through the site severing the northern top most corner from the remainder of the Site.
- c. With regards to highway access, given its location, it could have a number of minor accesses onto the local road network, primarily onto Humber Doucy Lane. A spine road within the development would allow traffic to select the most appropriate exit for their journey, thus reducing the impact on Humber Doucy Lane as a whole.

- d. A key benefit of the location of Site 1 is that it can gain access to a number of radial routes into Ipswich which will give access at a number of locations from Humber Doucy Lane onto the A1214 Colchester Road northern ring road and then into Ipswich. This is beneficial as it will not concentrate development traffic onto a single junction or route. Access to these routes is, however, via a number of minor C and B class roads, and an increase in traffic on the roads would not be acceptable in terms of environmental impact and road safety

Existing Public Transport Provision

- e. Table 10 provides an overview of the bus routes that operate at least an hourly service close to the proposed site. This includes five bus routes and a rail service.
- f. At the southern end of the site, the Park & Ride service operates every ten minutes, stopping at the Hospital, and Route 66 operates twenty-four hours a day (every fifteen minutes during the daytime) providing a good level of service between the site, Ipswich town centre, and Martlesham Heath.
- g. The northern end of the site also benefits from the train service at Westerfield rail station (between 3 and 4km from the centre of the site) which is on the Felixstowe – Ipswich line and Ipswich - Lowestoft line with an hourly service for most of the day.

Table 10: Bus Provision at Site 1

Route Number	Route	Monday – Friday Frequency
63	Ipswich - Woodbridge - Framlington	Hourly
64	Ipswich - Woodbridge - Saxmundham - Aldeburgh	Hourly
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

Existing Cyclist Provision

- h. There are no segregated on or off road cycle routes in the vicinity of the Site with the exception of at Heath Road roundabout, however there is availability to numerous low traffic/ low speed routes into Ipswich. The hospital is also within both cycling and walking distance of the allocation site. National Route 1 which connects Fakenham to Harwich passes through central Ipswich and provides a link to Felixstowe.

Accessibility Rating

- i. Site 1 has a good level of public transport provision especially to Ipswich town centre. However, there is a lack of formal cycle links, although there is good availability to existing low speed/ low traffic routes. Overall, the Site can therefore be considered as **Medium** in terms of accessibility by non-car modes.

Site 2 – North of the A1214

Local Road Network

- 6.11 The site is located three to five miles to the east of Ipswich town centre. It is bounded to the north by Playford Road, to the east by Hall Lane, to the south by Main Road and to the west by Bent Lane. Dr Watson’s Lane passes through the Site in a north-south direction.
- 6.12 Highway access to Site 2 could be provided by:
- A fourth arm on the A1214/ Ropes Drive West Roundabout;
 - The existing northern arm of the A1214/ Ropes Drive Roundabout could be improved;
 - Via the existing junction of the A1214/ Doctor Watson’s Lane (it is likely that this junction would require signalisation);
 - Access could also be gained to the development via Playford Road.

The above demonstrates that there are potentially a number of access options, but they would all tend to concentrate traffic onto the busy A1214 corridor when compared to Site 1.

Existing Bus Services

- 6.13 Site 2 benefits from the similar bus services of Site 1, in terms of providing at least an hourly service. Table 11 outlines these further. There is no rail station close to Site 2.

Table 11: Bus Provision at Site 2

Route Number	Route	Monday – Friday Frequency
63	Ipswich - Woodbridge - Framlington	Hourly
64	Ipswich - Woodbridge - Saxmundham - Aldeburgh	Hourly
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

Existing Cyclist Provision

- 6.14 There is an existing cycle track along parts of Woodbridge Road East and Main Road, and at Heath Road roundabout providing links to Ipswich town centre, the Tesco superstore at Martlesham and Adastral Park. National Route 1 which connects Fakenham to Harwich passes through central Ipswich and provides a link to Felixstowe and Beccles.

Accessibility Rating

- 6.15 Site 2, like Site 1 has a good level of public transport provision especially to Ipswich town centre. However, cycle links to and from the Site to the town centre are not as good, though links out of town towards Adastral Park are in place. Overall, the Site can therefore be considered as **Medium** in terms of accessibility by non-car modes.

Site 3 – North of Foxhall Road

Local Road Network

- 6.16 The site is located some four miles to the east of Ipswich town centre. It is bounded to the east by the A12, to the south by Foxhall Road and to the west by Bell Lane. Dodds Lane passes through the site in a north-south direction. The residential area of Kesgrave lies to the north of the western portion of the site, whilst the Martlesham Heath development is located to the north of the eastern portion of the site.
- 6.17 With regards to highway access, given its location, it could have a number of accesses onto the local road network, primarily:
 - Via the existing Foxhall Road Bell Lane/ Monument Farm Lane Junction (It is likely that this would require significant improvements to be made, for example conversion to a roundabout). Bell Lane could also provide a route to the A1214 if required and Monument Lane to more local destinations.
 - Via the Dobbs Lane/ Hall Road Junction (It is likely that this would require significant improvements to be made, for example conversion to a roundabout). Dobbs Lane can also provide access to a route to the A1214 if required and Hall Lane to more local destinations;
 - Directly onto Foxhall Road as a number of new junctions.
- 6.18 A key benefit of the location of Site 3 is that it can potentially be accessed form a number of locations. This may reduce the impact of the development at any one junction.

Existing Bus Services

- 6.19 Site 3 is only served by one bus route (service 66) operating at least an hourly service. This service is detailed in Table 12. Route 66 operates twenty-four hours a day (every fifteen minutes during the daytime) providing a good level of service between the site, Ipswich town centre, and Martlesham.
- 6.20 There could however be potential to develop a bus route along Foxhall Road to serve the site directly, building on the existing peak hour only Route 66B.

Table 12: Bus Provision at Site 3

Route Number	Route	Monday – Friday Frequency
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins

Existing Cyclist Provision

- 6.21 Part of this site is bordered by a cycle track which links the northern part of the site to the local school, part way towards Ipswich town centre, the Tesco store at Martlesham and Adastral Park via the network of on and off road cycle tracks. National Route 1 which connects Fakenham to Harwich passes through central Ipswich and provides a link to Felixstowe and Beccles. The site could be said to have very good access on foot for example to the existing Tesco superstore at Kesgrave.

Accessibility Rating

6.22 Site 3 is served by one frequent and regular bus service, but few supporting services. Cycle links to and from the Site to Kesgrave and Adastral Park are in place, but the links to Ipswich town centre can be considered as lacking. Overall, the Site can therefore be considered as **Medium** in terms of accessibility by non-car modes.

Site 4 – East of Adastral Park

Local Road Network

6.23 The site is located to the east of the Martlesham Heath area and Adastral Park. It is bounded to the north by Main Road, to the east by Newbourne Road and Waldringfield Road, to the south by Ipswich Road and to the west by the A12. Felixstowe Road passes through the northern tip of the site in a southwest to northeast direction.

6.24 With regards to highway access, given its location, it could have a number of accesses onto the local road network, primarily:

- Via the existing eastern arm of the A12/ Foxhall Road/ Newbourne Road Roundabout
- Via the existing eastern arm of the A12/ Anson Road/ Eagle Way Roundabout. This would require access through the existing industrial estate;
- To the east via a new junction onto Newbourne Road;
- A link/ loop road to distribute traffic between these access points through the site could also be provided. This could spread out and reduce the impact of a development at this location over these junctions which could be a key benefit.

Existing Bus Services

6.25 Table 13 shows the bus provision at Site 4. The nearby Park & Ride service operates every ten minutes and combined with route 66 which operates twenty-four hours a day, the Site is could be said to be relatively well served. It has been suggested that if Martlesham Park and Ride site were developed into a transport interchange served by several bus routes, there could be opportunities to providing a service between Adastral Park and the park and ride site.

Table 13: Bus Provision at Site 4

Route Number	Route	Monday – Friday Frequency
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

There are also peak hour only variants, Routes 66A and 66B.

Existing Cyclist Provision

6.26 Site 4 benefits from the cycle tracks that link the area to Adastral Park, the Tesco superstore at Martlesham, and east part way towards the town centre. There is also a cycle shop in the

vicinity of the site close to Adastral Park. National Route 1 which connects Fakenham to Harwich passes through central Ipswich and provides a link to Felixstowe and Beccles.

6.27 There are also accessible walking routes direct to Adastral Park, the Police Headquarters and Tesco at Kesgrave.

Accessibility Rating

6.28 Site 4 is served by a number of bus services linking the Site to Ipswich town centre. Cycle links at Adastral Park to Martlesham and Kesgrave are in place, though as with Sites 1 to 4, cycle links to town are lacking in places. Overall, the Site can therefore be considered as **Good** in terms of accessibility by non-car modes. This could, however, be improved further if the Martlesham park and ride was linked to the housing development.

Site 5 – North west of Seven Hills junction

Local Road Network

6.29 The site is located about 4.5 miles south-east of Ipswich town centre. It is bounded to the north by Bucklesham Road, to the east by the A12, to the south by the A14, and to the west by Straight Road. Junction 58 of the A14 lies to the south-eastern corner of the site.

6.30 Highway access to site 5 could be provided via:

- the existing junction of A1156 Felixstowe Road/ Straight Road;
- the existing junction of Bucklesham Road/ Straight Road;
- A roundabout access onto the A12 could be considered although it is likely that this would be cost prohibitive given the scale of development and the potential impact a new junction at this location could have on through traffic.

Existing Bus Services

6.31 Site 5 benefits from four bus services which operate at least an hourly service. These are detailed in Table 14, and link the Site both to Ipswich town centre and Felixstowe.

Table 14: Bus Provision at Site 5

Route Number	Route	Monday – Friday Frequency
75	Ipswich - Felixstowe (Grange Farm)	Half hourly
75A	Ipswich - Felixstowe (Grange Farm)	Hourly
76	Ipswich - Old Felixstowe	Hourly
77	Ipswich - Felixstowe Dock	Hourly

Existing Cyclist Provision

6.32 A cycle track links this site to the Priory Heath area of Ipswich, some two miles outside the town centre. It also passes by Sainsburys, Homebase and MFI and connects to a signed local route that provides direct access to the town centre via Braziers Wood and Gainsborough. National Route 1 which connects Fakenham to Harwich passes through central Ipswich and provides a

link to Felixstowe and Beccles. However, it is somewhat remote with few facilities within walking distance in contrast to sites 1 – 4.

Accessibility Rating

- 6.33 Site 5 is served by a range of bus services linking the Site to Ipswich and Felixstowe town centres. There are a number of cycle links in place from the Site to Ipswich town centre, and to the Ransomes Europark area. However, the site is somewhat remote from existing urban area and thus overall, the Site can therefore be considered as **Poor** in terms of accessibility by non-car modes.

Sites at Felixstowe and the Trimleys

Local Road Network

- 6.34 Site 1 is located north-west of Felixstowe, and is bounded to the north by Capel Hall Lane, to the east partly by Brook Lane, and to the west by the A14. Junction 60 of the A14 lies to the south-eastern corner of the site and Junction 59 at the north western corner of the site. Site 1 is severed from the existing development at Trimley St Mary by the A14.
- 6.35 Highway access to site 1 could be provided via:
- Via Kirton Road, utilising the existing eastern arm of the A14 Junction 59;
 - Via Thurmans Lane under the A14 linking in with High Road;
 - Via a fourth arm to the A14 Junction 60 Dock Spur Roundabout.
- 6.36 Site 2 is located between the villages of Trimley St Martin and Trimley St Mary to the north-west of Felixstowe town centre. The site is bounded to the north by Kirton Road, to the east by the A14, to the south by Thurmans Lane and to the west by High Road. Junction 59 of the A14 lies to the north-eastern corner of the site.
- 6.37 Highway access to site 2 could be provided via:
- Via a new junction on the link road mid way between Junction 59 and the link road roundabout;
 - Via a new access onto Church Lane;
 - Via a new access onto Thurmans Lane.
- 6.38 Site 3 is split into two with one half on either side of the A14 Port of Felixstowe Road, north-west of the town centre. Although they are linked by High Road/ High Street which bridges the A14 Port of Felixstowe Road.
- 6.39 One half of the site is bounded to the north by the A154 Candlet Road, to the south by High Road, and to the west by the A14 Port of Felixstowe Road. The second half of the site is bounded to the north by High Road, to the east by the A14 Port of Felixstowe Road, to the south by the Felixstowe to Ipswich rail line, and to the west by Chatsworth Crescent and New Road.
- 6.40 Highway access to site 3 could be provided via:
- Two new accesses onto High Road (one for each site);
 - From a new access onto the A154 Candlett Road to the north if levels and proximity to the Dock Spur Roundabout permit.

- 6.41 Site 4 is located north of Felixstowe and is bounded to the south by the A14 and A154 Candlet Road. Gulpher Road passes through the site in a south-west – north-east direction.
- 6.42 Highway access to site 4 could be provided via:
 - Upgrading the existing northern arm of the A154 Candlett Road/ Garrison Lane Roundabout. At present, this arm provides access to allotments;
 - Upgrading the existing northern arm of the Grove Road/ Links Avenue Roundabout as a secondary more local access;
 - From a new access onto the A154 Candlett Road itself.
- 6.43 Site 5 is located north of Felixstowe. It is bounded to the north by Gulper Road, to the east by Ferry Road, and to the south by Upperfield Drive and Links Avenue. The roundabout where the A154 Candlet Road, A154 Garrison Lane, and A1021 Grove Road meet lies to the south-eastern corner of the site.
- 6.44 Highway access to site 5 could be provided via:
 - Upgrading the existing northern arm of the A154 Candlett Road/ Garrison Lane Roundabout. At present, this arm provides access to allotments;
 - Upgrading the existing northern arm of the Grove Road/ Links Avenue Roundabout as a secondary more local access;
 - From Ferry Road to the east.

Existing Bus Services

- 6.45 Sites 1 to 5 benefit from four bus services which operate at least an hourly service. These are detailed in Table 15 and link the Sites both to Ipswich town centre and Felixstowe. Sites 2 and 3 already have direct access on foot to these. However, sites 1, 4 and 5 are somewhat remote from these and would be required to cross a major road, in the case of site 1, the A14.
- 6.46 More residents located at sites 2 and 3 would support the existing services identified. Sites 1, 4 and 5 are more remote, and it is likely that new bus services would be required. Such services may compete with the existing services, although to what extent is unclear at this stage.
- 6.47 In addition, Trimley rail station is located between Sites 2 and 3 which at present provides an hourly rail service to Ipswich to Felixstowe. It is understood that the current station building is boarded up with no facilities available. The provision of additional dwellings within the vicinity of the station could help to promote and support the use of the station, and could reduce trips by the private car for both any new dwellings well as those already existing. The refurbishment of the station could form part of any mitigation measures provided.

Table 15: Bus Provision at Sites

Route Number	Route	Monday – Friday Frequency
75	Ipswich - Felixstowe (Grange Farm)	Half hourly
75A	Ipswich - Felixstowe (Grange Farm)	Hourly
76	Ipswich - Old Felixstowe	Hourly
77	Ipswich - Felixstowe Dock	Hourly

Existing Cyclist Provision

- 6.48 Within Felixstowe, there are two strategic cycle routes. The first of these is the Suffolk Coastal Route (National Route 41) which runs around the north of Felixstowe around the northern borders of the proposed allocation sites 1, 4 and 5. The route also runs to Felixstowe town centre. Part of the route runs through Trimley St Martin from Kirton and the areas to the north.
- 6.49 National Route 51 passes through Felixstowe and within it is National Route 1 which runs from Fakenham to Harwich. The route currently runs along High Road/ High Street adjacent to the Sites 2 and 3 and links into the town centre and the Felixstowe Port area.

Accessibility Rating

- 6.50 Site 1 is served by a range of bus services linking the Site to Ipswich and Felixstowe town centres, although the A14 separates the Site from the bus routes. The Site is close to National Route 1 providing a link to Ipswich and Felixstowe. However, it is physically remote being located on the outer edge of a built up area. Overall, the Site can therefore be considered as **Poor** in terms of accessibility by non-car modes.
- 6.51 Sites 2 and 3 are served by a range of bus services linking the Site to Ipswich and Felixstowe town centres, as well as an hourly rail service. The Sites are on National Route 1 providing a link to Ipswich and Felixstowe. Overall, the Sites can therefore be considered as **Good** in terms of accessibility by non-car modes.
- 6.52 Sites 4 and 5 are served by a range of bus services linking the Sites to Ipswich and Felixstowe town centres and are closer to Felixstowe town centre, but severed by the A154. National Route 1 providing a link to Ipswich and Felixstowe. Overall, the Sites can therefore be considered as **Medium** in terms of accessibility by non-car modes.

7.0 Strategic Employment Sites

- 7.1 SCC and SCDC has asked Faber Maunsell to consider the proposed allocation sites in terms of their accessibility to existing and proposed major centres of employment. SCC and SCDC has identified Adastral Park and Felixstowe Port as strategic employment sites. Also under consideration is Ipswich, which would appear from the census data to be the overall largest attractor of home to work trips within the area.

Adastral Park

- 7.2 Adastral Park is located in the Martlesham area of Ipswich and is the research establishment for British Telecom. It lies approximately 9km from the centre of Ipswich and is located immediately east of the A12. The A12/ A14 Seven Hills junction is approximately 4km to the south of Adastral Park and is a major route linking Felixstowe and the associated docks to the rest of the country. The A1214 meets the A12 at Martlesham and provides the principal east-west route into Ipswich. Foxhall Road to the south of Adastral Park provides another route into Ipswich. It is proposed to create a high-tech business cluster, Suffolk Innovation Park, at the site.
- 7.3 Adastral Park is currently directly served by the Super route 66 service, and its peak hour variants, 66A and 66B, with an existing bus stop within 150m to the north of the main gate. It is understood that at peak times, the buses on this route become full. There are other services within the vicinity which are detailed below.
- 7.4 There are existing pedestrian links to Adastral Park from Martlesham Heath across the A12 via a footbridge and via a subway, as well as cycle paths/ links from the site towards Ipswich. There is no rail service to Adastral Park though the area is served by a range of bus services, and cycle networks including a cycle shop.

Ipswich Site 1 North of Rushmere St Andrew

Existing Bus Services

- 7.5 Table 16 shows the bus services which operate at least an hourly service from Site 1 to locations near Adastral Park.
- 7.6 The Park & Ride service operates every ten minutes, and Martlesham Park and Ride, although not directly to Adastral Park. Route 66 (via the hospital) operates twenty-four hours a day (every fifteen minutes during the daytime) providing a good level of service between the site and Adastral Park.

Table 16: Bus Provision at Site 1 to Adastral Park

Route Number	Route	Monday – Friday Frequency
63	Ipswich - Woodbridge – Framlingham	Hourly
64	Ipswich - Woodbridge - Saxmundham - Aldeburgh	Hourly
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

Existing Cyclist Provision

- 7.7 There is an existing cycle track along parts of Woodbridge Road East and Main Road which link Site 1 to Adastral Park.
- 7.8 Overall, the Site can therefore be considered as **Medium** in terms of accessibility to Adastral Park by non-car modes.

Ipswich Site 2 – North of A1214

Existing Bus Services

- 7.9 Site 2 benefits from a similar bus services as Site 1, although the site itself is located closer to Adastral Park, and thus journey times may be shorter. Table 16 outlines these further.

Existing Cyclist Provision

- 7.10 There are existing cycle routes through Kesgrave and along Main Road that serve Adastral Park from this site. Overall, the Site can therefore be considered as **Medium** in terms of accessibility to Adastral Park by non-car modes.

Ipswich Site 3 – North of Foxhall Road

Existing Bus Services

- 7.11 Site 3 is linked to Adastral Park by only one bus route though this operates twenty-four hours a day on a fifteen minute basis during the daytime period. This route is detailed in Table 17.

Table 17: Bus Provision at Site 3 to Adastral Park

Route Number	Route	Monday – Friday Frequency
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins

Existing Cyclist Provision

- 7.12 As with Site 3, there are existing cycle links through Kesgrave that provide links to Adastral Park. Overall, the Site can therefore be considered as **Medium** in terms of accessibility to Adastral Park by non-car modes.

Ipswich Site 4 – East of Adastral Park

Existing Bus Services

7.13 Three bus services operate at least an hourly service between the Site and Adastral Park. These are detailed in Table 18.

Table 18: Bus Provision at Site 4 to Adastral Park

Route Number	Route	Monday – Friday Frequency
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

Existing Cyclist Provision

7.14 Site 4 benefits from cycle tracks that link the Site to Adastral Park. There is also a cycle shop in the vicinity of the site close to Adastral Park. Adastral Park is also within walking distance for most dwellings allocated at site 4 and thus the potential to reduce trips by the private car to this key employment site is highest out of all the proposed allocation sites.

7.15 Overall, the Site can therefore be considered as **Good** in terms of accessibility to Adastral Park by non-car modes.

Ipswich Site 5 north west of Seven Hills junction

Existing Bus Services

7.16 There are no direct bus services linking Site 5 to Adastral Park.

Existing Cyclist Provision

7.17 There are no direct cycle links between Site 5 and Adastral Park and the distance required to cycle to Adastral Park is likely to be too great and would require the cyclist to use the unfriendly A12 dual carriageway. Unless facilities were to be provided, such behaviour is likely to want to be discouraged.

7.18 Overall, the Site can therefore be considered as **Poor** in terms of accessibility to Adastral Park by non-car modes.

Felixstowe Sites 1 to 5

Existing Public Transport Provision

- 7.19 No direct bus services, which operate at least an hourly service, run between the Sites in Felixstowe and Adastral Park.

Existing Cyclist Provision

- 7.20 There are no existing cycle routes that provide a continuous link from the Sites to Adastral Park. In addition, the distance required to cycle to Adastral Park is likely to mean that cycling is not a realistic option.
- 7.21 Overall, the Sites can therefore be considered as **Poor** in terms of accessibility to Adastral Park by non-car modes.

Port of Felixstowe

- 7.22 The Port of Felixstowe is a container port of national importance. The 2001 Census information for the two wards within which the port is located suggests that 34 percent of the workers at the site lived within Felixstowe Town, 10 percent within the Trimleys, and the remaining 56 percent commute in from further afield.
- 7.23 Permission for a re-configuration of this Port is expected to result in the creation of 1,200 additional jobs. If the 2001 Census pattern continues, then about 44 percent, some 500 or more, will be drawn from the local area. This compares with the 1620 new dwellings being considered. This suggests that the dual provision of housing and jobs could result in the in-commuting to the port, and the out commuting by Felixstowe residents to jobs outside Felixstowe.

Ipswich Sites 1 to 4

Existing Public Transport Provision

- 7.24 There are no direct bus services operate to the Port of Felixstowe from Sites 1 to 4.

Existing Cyclist Provision

- 7.25 There are no direct cycle links between Sites 1 to 4 and the Port of Felixstowe, though National Route 1 between Fakenham and Harwich provides a signed cycle route for part of the route.
- 7.26 Overall, the Sites can therefore be considered as **Poor** in terms of accessibility to Felixstowe Docks by non-car modes.

Ipswich Site 5

Existing Public Transport Provision

- 7.27 Table 19 shows that one direct bus service operates at least an hourly service between Site 5 and the Port of Felixstowe.

Table 19: Bus Provision from Ipswich Site 5 to the Port of Felixstowe

Route Number	Route	Monday – Friday Frequency
77	Ipswich - Felixstowe Dock	Hourly

Existing Cyclist Provision

- 7.28 As with Sites 1 to 4, no direct cycle routes exist to the Port of Felixstowe, though the National Route 1 between Fakenham and Harwich provides a signed cycle route between for part of the route.
- 7.29 Overall, the Sites can therefore be considered as **Medium** in terms of accessibility to Felixstowe Docks by non-car modes.

Felixstowe Sites 1 to 5

Existing Public Transport Provision

- 7.30 As with Ipswich Site 5, only one bus service operates an hourly service direct to the Port of Felixstowe.

Existing Cyclist Provision

- 7.31 There are no direct cycle links between Sites 1 to 5 and the Port of Felixstowe, though National Route 51 between Fakenham and Harwich provides a signed cycle route for part of the route as does the Suffolk Coastal Route for some of the sites. Site 4 has a direct access onto the Suffolk Coastal Route via an underpass under the A154. Site 1 has to negotiate a major road junction (Junction 59 of the A14) before they can exit the site. From sites 2 and 3, the Port can easily be accessed using local roads through the built up area and parts of the National cycle network.
- 7.32 Overall, the Sites in general can be considered as medium in terms of accessibility to Felixstowe Docks by non-car modes, although Sites 2 and 3 already have direct access on foot to the existing bus service to Felixstowe Dock. Sites 1, 4 and 5 are somewhat remote from this service and would be required to cross a major road, in the case of site 1, the A14 to gain access. In terms of walking and cycling, site 1 would again appear remote in terms of accessibility to the key employment site. Sites 4 benefits from direct access onto the Suffolk Coastal Route via an underpass under the A154. However sites 2 and 3 benefit from giving direct access onto Route 51 and access onto quieter local roads in order to walk/ cycle to the employment area.

Ipswich Town Centre

7.33 Ipswich is the main destination within the study area in terms of employment trips. It is well served by a number of frequent bus routes, and has three rail stations (Ipswich, Westerfield, and Derby Road). Ipswich rail station is on the mainline between Norwich and London Liverpool Street with fast speed trains running half hourly to both Norwich and London. Westerfield and Derby Road rail stations are on the Ipswich to Felixstowe branch line which operates an hourly service Monday to Sunday. Ipswich also benefits from three Park & Ride sites (London Road, Martlesham, and Bury Road) with six buses an hour linking the first two sites to the town centre, and five buses an hour for the latter.

Ipswich Site 1

Existing Bus Services

- 7.34 Table 20 shows the bus services which operate at least an hourly service from Site 1 to Ipswich town centre.
- 7.35 The Park & Ride service operates every ten minutes (via the hospital), and route 66 (via the hospital) operates twenty-four hours a day (every fifteen minutes during the daytime) providing a good level of service between the site, and Ipswich town centre.
- 7.36 The site also benefits from the hourly service at Westerfield rail station (between 3 and 4km from the centre of the site) which is on the Felixstowe – Ipswich line and Ipswich - Lowestoft line with an hourly service for most of the day.

Table 20: Bus Provision at Site 1 to Ipswich Town Centre

Route Number	Route	Monday – Friday Frequency
63	Ipswich - Woodbridge - Framlington	Hourly
64	Ipswich - Woodbridge - Saxmundham - Aldeburgh	Hourly
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

Existing Cyclist Provision

- 7.37 There are no segregated on or off road cycle routes in the vicinity of the Site with the exception of at Heath Road roundabout, however there is availability to numerous low traffic/ low speed routes into Ipswich. The hospital is also within both cycling and walking distance of the allocation site.
- 7.38 Overall, the Site can therefore be considered as **Good** in terms of accessibility to Ipswich by non-car modes.

Ipswich Site 2

Existing Bus Services

7.39 Site 2 benefits from the similar bus services that operate at least hourly as Site 1. Table 21 above outlines these further.

Existing Cyclist Provision

7.40 Cycling provision for Site 2 is the similar as for Site 1 and relies upon the cycle route along Main Road. Thus, overall, the Site can therefore be considered as **Good** in terms of accessibility to Ipswich by non-car modes.

Ipswich Site 3

Existing Bus Services

7.41 Site 3 is linked to Ipswich town centre by only one bus route though this operates twenty-four hours a day on a fifteen minute basis during the daytime period, however the existing route along Foxhall Road could be extended. This route is detailed in Table 21.

Table 21: Bus Provision at Site 3 to Ipswich Town Centre

Route Number	Route	Monday – Friday Frequency
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins

Existing Cyclist Provision

7.42 Kesgrave, to the north of the Site, is served by a cycle route which provides a link part way to Ipswich town centre. Thus, overall, the Site can therefore be considered as **Medium** in terms of accessibility to Ipswich by non-car modes

Ipswich Site 4

Existing Bus Services

7.43 Three bus services operating at least hourly linking the Site to Ipswich town centre. These are detailed in Table 22.

Table 22: Bus Provision at Site 4 to Ipswich Town Centre

Route Number	Route	Monday – Friday Frequency
65	Ipswich - Woodbridge - Rendlesham	Hourly
66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins

Existing Cyclist Provision

7.44 Site 4 benefits from the existing cycle tracks that link the area part way towards the town centre. Thus, overall, the Site can therefore be considered as **Good** in terms of accessibility to Ipswich by non-car modes

Ipswich Site 5

Existing Bus Services

7.45 Site 5 benefits from four bus services which operate at least an hourly service. These are detailed in Table 23, and link the Site to Ipswich town centre. There is a nearby railway line, however there is no station.

Table 23: Bus Provision at Site 5 to Ipswich Town Centre

Route Number	Route	Monday – Friday Frequency
75	Ipswich - Felixstowe (Grange Farm)	Half hourly
75A	Ipswich - Felixstowe (Grange Farm)	Hourly
76	Ipswich - Old Felixstowe	Hourly
77	Ipswich - Felixstowe Dock	Hourly

Existing Cyclist Provision

7.46 A cycle track connects the Site to a signed local route that provides direct access to the town centre via Braziers Wood and Gainsborough. National Route 1 which connects Fakenham to Harwich passes by the site on its way to central Ipswich.

7.47 Thus, overall, the Site can therefore be considered as **Good** in terms of accessibility to Ipswich by non-car modes.

Felixstowe Sites 1 to 5

Existing Public Transport Provision

7.48 Table 24 provides details of the four bus services which operate at least an hourly service linking the Felixstowe sites to Ipswich town centre. Sites 2 and 3 also benefit from an hourly rail service from Trimley rail station which is on the Ipswich to Felixstowe line. As stated previously in this report, only sites 2 and 3 have direct access to these existing services.

Table 24: Bus Provision at Sites 1 to 5 to Ipswich Town Centre

Route Number	Route	Monday – Friday Frequency
75	Ipswich - Felixstowe (Grange Farm)	Half hourly
75A	Ipswich - Felixstowe (Grange Farm)	Hourly
76	Ipswich - Old Felixstowe	Hourly
77	Ipswich - Felixstowe Dock	Hourly

Existing Cyclist Provision

7.49 Felixstowe lies on National Route 1 which connects Fakenham to Harwich and passes through Felixstowe, Ipswich and Beccles. This provides a signed route from the Sites to Ipswich town centre.

7.50 Travel to Ipswich by foot or bicycle is unlikely to be a realistic alternative. However, the existing hourly bus services do give an alternative to travel by the private car. Thus, overall, the Site can therefore be considered as **Medium** in terms of accessibility to Ipswich by non-car modes.

8.0 Traffic Impact Analysis

8.1 Faber Maunsell has identified in agreement with SCDC and SCC a study area for the assessment of the allocation sites in terms of their impact on the local road network. Detailed trip generation and trip distribution analyses have been used to inform volume/ capacity investigations.

8.2 To date, Faber Maunsell has been able to source traffic flow surveys for the following junctions:

- Junction A - A14(T) / A12 Seven Hills Grade Separated Junction (date ??);
- Junction F - A12 /A1214 Main Road (Martlesham Park and Ride) Signalised Roundabout (Date);
- Junction G - A12 / Eagle Way / Anson Road Roundabout (Date);
- Junction H - A12 / Foxhall Road / Newbourne Road Roundabout (Date).

8.3 A local TEMPRO adjusted NRTF growth factor considered suitable for the junction have then been applied to these base traffic surveys. TEMPRO vehicle traffic growth, adjusted for NRTF, averages about 19 to 23 percent over the period 2008 to 2025 for the four TEMPRO zones in the study area. This is about 1 percent per annum over the next 17 years. These growth rates have been used, which implies an upper bound, with some double counting of growth with the local housing developments added here. Committed development flows are then added to give

a 2025 base case assessment. The allocation development flows can then be added and their impact quantified. The 2008 Base, 2025 plus Committed Development and 2025 plus Committed Development situations have been examined.

8.4 Due to the limited availability of traffic count data, only junctions A, F, G and H are shown in Table 26, which summarises the impact of the proposed allocation at each of the junctions, with the largest percentage increase noted for each junctions:

Table 26: Largest percentage Increase in 2025 traffic at junctions as result of allocation sites traffic

Junction Description:		Allocation Site									
		Ipswich					Felixstowe				
		1	2	3	4	5	1	2	3*	4	5
A	A14(T) / A12 Seven Hills Grade Separated Junction	2.7%	5.8%	5.8%	6.2%	30.8%	28.5%	28.5%	3.8%	20.5%	25.5%
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Grade Separated Junction Eastern Dumbell	?	?	?	?	?	?	?	?	?	?
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Grade Separated Junction Western Dumbell	?	?	?	?	?	?	?	?	?	?
C	A1189 / A1156 Felixstowe Road Roundabout	?	?	?	?	?	?	?	?	?	?
D	A1189 / Foxhall Road Roundabout	?	?	?	?	?	?	?	?	?	?
E (west)	A1214 / A1071 (Heath Road) Roundabouts	?	?	?	?	?	?	?	?	?	?
E (east)	A1214 / A1189 (Heath Road) Roundabouts	?	?	?	?	?	?	?	?	?	?
F	A12 / A1214 Main Road (Park & Ride) Signalised Roundabout	7.5%	15.5%	2.2%	7.1%	2.2%	1.9%	1.9%	0.2%	1.1%	1.7%
G	A12 / Eagle Way / Anson Road Roundabout	5.2%	7.9%	7.2%	37.9%	4.5%	4.7%	4.7%	0.5%	2.8%	4.6%
H	A12 / Foxhall Road Roundabout	1.6%	6.2%	28%	40.0%	3.4%	3.2%	3.2%	0.3%	1.9%	3.0%
I	A14(T) / Kirton Road (Trimley St Martin)	?	?	?	?	?	?	?	?	?	?
J	A14(T) / A154 Candlet Road Roundabout	?	?	?	?	?	?	?	?	?	?
K	A154 Garrison Road / A1021 Grove Road Roundabout	?	?	?	?	?	?	?	?	?	?

Note: Site 3 assumes only 300 dwellings

Source: Consultants' estimates

8.5 The table above also highlights percentage increases above 5%. For the purposes of this assessment, it has been assumed that there is a 5% threshold of materiality. If the allocation flows are in excess of a 5% increase, then it is recommended that a full junction assessment be carried out. In doing this, it will be possible to identify any capacity issues and consider mitigation measures that may be required.

Junction A - A14(T) / A12 Seven Hills Grade Separated Junction

- 8.6 For Junction A, the table shows that there are large percentage increases in flows as a result of allocation site traffic. For the sites to the east of Ipswich, only Site 1 has a percentage impact of less than 5%. This would suggest that no mitigation measures would be necessary at this junction if site 1 was allocated.
- 8.7 Site 5 and sites 1, 2, 4 and 5 in Felixstowe however result in a large increase in traffic flows entering the junction (30% the A1156 for Site 5 to the east of Ipswich, and between 20.5% and 28.5% on the westbound A14 off slip for sites 1, 2, 4 and 5 in Felixstowe/ Trimleys). This is unsurprising given the location of site 5 (east of Ipswich) as the junction is the first point of access to the strategic network to access such locations as Colchester. For the sites in Felixstowe, any trips external to Felixstowe have to pass through this junction. Thus, 1,620 dwellings in Felixstowe are likely to have a large impact at this junction.
- 8.8 It is unclear at this stage whether this would require mitigation at this junction, however such mitigation could include signalisation of the junction. It should be noted that the Highways Agency are likely, at the very minimum, to require an assessment of this junction to be made a part of the LDF process.

Junction F - A12 / A1214 Main Road (Park & Ride) Signalised Roundabout

- 8.9 For Junction F, the table shows that there are moderate percentage increases in flows as a result of the allocation traffic from sites 1, 2, and 4 in the area to the east of Ipswich. This is not surprising, given that all three sites, in particular site 2 relies on the A1214 corridor for access to and from the site. This is reflected in the 15.5% increases at this junction as a result of allocating housing at site 2.
- 8.10 Junction F is signalised at present and it is unclear at this stage whether the current junction layout would be adequate to accommodate this additional traffic.
- 8.11 None of the allocation sites in Felixstowe would appear to have an adverse impact at this junction.

Junction G - A12 / Eagle Way / Anson Road Roundabout

- 8.12 For Junction G, Table 26 shows that there are moderate percentages increases in flows as a result of the allocation site traffic from sites 1, 2 and 3 in the area to the east of Ipswich. For Site 2, this increase in traffic is a result of trips to destinations that require access to the A14 e.g Colchester.
- 8.13 For sites 1 and 3, these increases are generally the result of increases in traffic on the Eagle Way arm. The increase in traffic on this arm may be the result of the broad distribution applied (for trips to Martlesham, 25% to/ from Eagle Way and 75% to/ from Anson Road), when in reality, trips to Martlesham could take any number routes.
- 8.14 The relatively low existing traffic flows on this arm artificially inflate the scale of impact at this junction. If on closer study it is concluded that this is an accurate impact assessment, it is likely that this could be easily mitigated, for example through the provision of signals at this roundabout.

- 8.15 At Junction G, it is site 4 of the allocation sites to the east of Ipswich which has the largest impact (a 15.5% increase in traffic on the Anson Road arm). This is unsurprising given that the access assumptions for this site assume that this arm of the roundabout will provide access to the northern half of the site. Whilst it is not clear at this stage what impact this amount of traffic may have on this junction if the site were to be allocated, it is likely that this could be mitigated, for example through the provision of signals at this roundabout.
- 8.16 None of the allocation sites in Felixstowe would appear to have an adverse impact at this junction

Junction H - A12 / Foxhall Road Roundabout

- 8.17 For Junction H, the table shows that there is a moderate percentage increase in flows as a result of the allocation site traffic from site 2 in the area to the east of Ipswich (6.2%). As for Junction G, this increase in traffic at Junction H is a result of trips to destinations that require access to the A14 e.g Colchester.
- 8.18 It is unclear at this stage what impact this may have on Junction G, however it should be noted that the broad distribution of trips from this site does not account for those residents who may choose to travel west on the A1214 to join the A14 via the A1156 to destinations such as Stowmarket. Therefore, the percentage increase in trips at Junction G could be said to be worst case.
- 8.19 However, at Junction H, it is sites 3 and 4 to the east of Ipswich which have the largest impacts (a 28% increase in traffic on the Foxhall Road arm and 40% on the Newbourne Road arm respectively). Again, this is unsurprising given that the access assumptions for these sites. It should be noted that the existing flows on these arms of the junction are relatively low, and thus the addition of the allocation site traffic artificially inflates the scale of impact at this junction. If there were to be an issue in terms of capacity upon further analysis, it is likely that this could be mitigated, for example through the provision of signals at this roundabout.

High Road/ High Street Trimley St Martin/ Walton

- 8.20 SCDC has raised concerns regarding the impact of any allocation site development traffic on the High Road/ High Street through Trimley St Mary/ Martin and Walton. High Road/ High Street is a single carriageway extending from Garrison Lane to the east of Walton to the western boundary of Trimley St Mary, where the road continues westwards to join the A14 westbound carriageway.
- 8.21 It is understood from the work undertaken by WSP in support of the Transport Strategy for redevelopment part of the Trimley Estate in Felixstowe that data (provided by SCC), suggests that High Road/ High Street carries approximately 9,000 vehicles per day, of which 700 occur within the AM peak and 900 in the PM peak. It is understood that traffic flows along High Road/ High Street are tidal, with approximately two thirds of traffic heading westbound towards Ipswich in the AM peak. This would equate to approximately 460 vehicles heading westbound. The WSP report states that tidality is less pronounced PM peak. This would be understandable, as traffic returning from the A14 would do so via junctions 59 or 60 and thus would be more spread out. For the purposes of this assessment, Faber Maunsell has assumed a 50%/ 50% distribution for the PM peak.

8.22 In terms of the development sites, only those in Felixstowe are likely to have any noticeable impact on High Road/ High Street. The impact of the 5 sites within Felixstowe is shown in Table 27. It should be noted that for sites 1, 2, 4 and 5, the full 1,620 allocation has been considered. For site 3 the maximum number of dwellings possible for the site has been considered (300). In addition, site three has been split as it falls in the middle of High Street/ High Road. Table 26 shows percentage increases to the west and east of the site:

Table 27: Percentage Impact on High Road/ High Street

Allocation Site	No. of Dwellings	Approx. No. of Car Trips							
		AM				PM			
		Eastbound		Westbound		Eastbound		Westbound	
		Cars	% Increase on 2008 flows	Cars	% Increase on 2008 flows	Cars	% Increase on 2008 flows	Cars	% Increase on 2008 flows
1	1620	171	71.3%	45	9.8%	80	17.8%	127	28.2%
2	1620	427	177.9%	111	24.1%	198	44.0%	316	70.2%
3 to east of site 3	300	72	30.0%	9	2.0%	34	7.6%	54	12.0%
3 to west of site 3	300	11	4.6%	42	9.1%	31	6.9%	20	4.4%
4	1620	0	0.0%	0	0.0%	0	0.0%	0	0.0%
5	1620	0	0.0%	0	0.0%	0	0.0%	0	0.0%

8.23 Table 26 shows that sites 1, 2 and 3 may have a significant impact on the traffic levels already on High Road/ High Street. For site 1 there are generally alternative routes, for example via the A14 to destinations within Felixstowe, and thus the impact may not be as great as shown in the table.

8.24 Sites 4 and 5 are likely to have minimal impact on High Road/ High Street from the most part, although a portion of traffic from site 4 may access High Street via Gulphur Road.

8.25 Both sites 2 and 3 are likely to take there access directly from High Road/ High Street, and will therefore have a large impact on the existing traffic flow movements. It is unclear whether such an increase in traffic flow movements would be acceptable to SCDC on High Road/ High Street, however, it should be noted that both sites 2 and 3 have direct access to existing bus services and Trimley Station, and thus there is greater potential to decrease trips by the private car, not only for allocation site traffic, but also for existing traffic on the network.

Foxhall Road Junction with Bell Lane

8.26 SCDC has also raised concerns regarding the impact of any allocation site development traffic on the junction of Foxhall Road and Bell Lane just to the west of the proposed allocation site 3 in the area to the east of Ipswich.

8.27 In terms of the study area, Foxhall Road is a single carriageway road extending from its junction with the A12 and Newbourne Road (Roundabout) to the east to its junction with the A1189 Heath Road/ Bixley Road (Roundabout) to the west.

- 8.28 Bell Lane forms a staggered crossroads with Monument Farm Lane just to the east of the Foxhall Road Stadium. Bell Lane links Foxhall Road to the A1124. Monument Lane continues south and links with Purdis Road.
- 8.29 In terms of the development sites, only those in the area to the east of Ipswich are likely to have any noticeable impact on Foxhall Road and the Bell Lane junction. Of these sites, site 3 is likely to have the largest impact. Indeed, the Bell Lane junction could form part of the site access to the site 3 should it be allocated. Site 4 (southern section) may also have an impact on this link and junction.
- 8.30 Traffic flow data from the work being undertaken for the Ipswich model is available for this junction. For the purposes of this assessment, it has been assumed that Site 3 will take its primary access from a new junction between Bell Lane to the west and Dobbs Lane to the east.
- 8.31 The percentage impact of sites 3 and 4 are shown in Table 28.

Table 28: Percentage Impact on Foxhall Road at junction with Bell Lane

Site (East of Ipswich)	No. of Dwellings	Approx. No. of Car Trips											
		AM						PM					
		Eastbound			Westbound			Eastbound			Westbound		
		2008 Foxhall Rd Traffic Count	Dev. Traffic	% Increase	2008 Foxhall Rd Traffic Count	Dev. Traffic	% Increase	2008 Foxhall Rd Traffic Count	Dev. Traffic	% Increase	2008 Foxhall Rd Traffic Count	Dev. Traffic	% Increase
3	1620	514	48	9.3%	424	184	43.4%	475	136	28.6%	603	85	14.1%
4	1620		17	3.3%		66	15.6%		60	12.6%		31	5.1%

8.32 The above table show that both site 3 and 4 may have a significant impact on the traffic levels already on Foxhall Road, and could impact on the operation of the Bell Lane junction. This is unsurprising given that it has been assumed that site three will access Foxhall Road directly. In reality, Site 3 could be accessed from a number of locations, including Bell Lane, Dobbs Lane, or could connect into the existing Ropes Drive (Kesgrave). Without further analysis and assumptions regarding access, it is unclear whether the traffic from an allocation site at site 3 would adversely impact at the Bells Lane junction. However, it is likely that mitigation could be provided. This is likely to take the form of a roundabout type junction incorporating Foxhall Road, Bell Lane and Monument Farm Way.

Conclusion of traffic impact analysis

8.33 The conclusions of the traffic impact analysis at the junctions where data was available are partial and largely inconclusive. No major serious traffic impacts have been identified – impacts are either manageable, or capacity and access infrastructure are thought to be feasible, if possibly sometimes expensive. Further work to quantify these possible interventions will be required when the overall favoured sites are shortlisted.

9.0 Sustainability Ranking of Sites

- 9.1 In order to compare the development sites FM has created both the Transport Appraisal, and a more judgemental Sustainability Appraisal, described in Appendix E. The Sustainability Appraisal is based on DfT's NATA Objectives including the following:
- Accessibility;
 - Economy;
 - Environment;
 - Integration and;
 - Safety.
- 9.2 With regards to "Accessibility" FM has identified community services such as schools, retail parks, sports centres which are within 1km of this site. This is in compliance with the DfT which states the mean average length for a walking journey is 1km (0.6 miles) and cycling it is 4km (2.4), although journeys up to three times these distances are not uncommon for regular commuters. In addition, this section highlights accessibility to public transport and the strategic road network.
- 9.3 With regards to "Economy" FM has identified areas that will enhance the current and future local economy as well as identifying areas that will result in a significant cost, such as significant changes to the local highway network.
- 9.4 For the "Environment" FM has identified areas with a specific environmental allocations and therefore development sites that may have a detrimental impact on the environment. This also identifies sites that will be constrained for future expansion.
- 9.5 For "Integration" FM has identified which development sites would promote the integration of different types of transport such as bus, cycle and walking.
- 9.6 With regards to "Safety" FM will determine whether the site is close to an accident cluster. However, this has not been undertaken at this stage.
- 9.7 It should be noted that the Sustainability Appraisal provides a broad initial analysis of the sites, some of which is subjective and the list is not exhaustive. In addition a full Environmental Impact Assessment (EIA) and Safety Audit will be required for the chosen sites. The conclusions are not definitive, but add a wider view to the transport assessment.

Felixstowe

- 9.8 Sites 2 and 3 and 4 emerge as the preferred sites. While the outer site 2 has a higher existing vehicle trip rate than sites 3, 4 and 5, both sites 2 and 3 are well related to the existing linear settlement pattern comprising Felixstowe, Walton and the Trimleys, to the existing bus route corridor, and to the railway station at Trimley. The possibility of an allocation site (2 or 3) at this location supporting existing bus services and regeneration of Trimley Station could result in a reduction in the car driver mode share, not just for the allocation site, but for the wards as a whole. This could in part mitigate the issue of increased traffic on High Road/ High Street.

- 9.9 Site 4 would have good links to the town centre, and the possibility of two accesses direct to the A14.e town centre and to the expanding employment area at Felixstowe dock using well established walking and cycling routes through the existing built-up area. Although not served by the existing bus services, Site 4 does have direct access to Gulpher Road which passes under the A154 and links with Walton High Street and gives good access to Felixstowe Railway Station. Site 4 will have minimal impact on through traffic on High Road/ High Street as all trips out of Felixstowe could be via the A154 and A14.
- 9.10 Site 3 is too small on its own to accommodate the number of dwellings required and should therefore be combined with a second site.
- 9.11 Sites 1, 4 and 5 would constitute an expansion of the town to the north. Sites 1 and 5 are less well related to existing community facilities such as bus, rail, walking and cycling routes and are effectively severed from the existing built-up area by the A14 – A154 corridor.
- 9.12 If there is some underlying reason why sites 2 and 3 or 4 could not be allocated or combined in the way set out above, and development must be allocated on one of sites 1 or 5, then site 5 would be preferred, by virtue of its proximity to Felixstowe town centre and the railway station, and its relatively good relationship with the existing Old Felixstowe area. In addition, Site 5 is not as segregated from the existing settlement facilities as site 1 is by A14(T).
- 9.12.1.1 Site 1 (and by extension, areas further to the north-west) emerges as the least promising site, because of its distance from the town centre, coupled with its greater severance from the existing Trimley communities and their established public transport walk and cycle links. Although in purely highway terms, the A14 Trimley junction appears likely to be the least congested in the Felixstowe area, this would not in our view outweigh the perceived advantages of the other sites. The proposed site 6 would also have similar issues.

Ipswich Eastern Fringe

- 9.13 Site 5 emerges as the least favoured site, because of its poor relationship with existing local communities, schools, shopping areas and employment. Although it enjoys good access to the strategic road network and in the longer term would benefit from the extension of Ransomes Europark eastwards into Suffolk Coastal District, its weaknesses in the other factors would in our view outweigh these advantages. The concept of a new rail halt on the Ipswich – Felixstowe line is at first attractive, however it is very unlikely that a development of around 900 dwellings would create a sufficient level of demand to justify a new station in this location, particularly given the indirect service which would be possible.
- 9.14 Sites 1 – 4 present a mixed picture of benefits and disadvantages and ultimately the question must be, which criterion is the most important. The following discussion may assist in selecting the most suitable site.
- 9.15 If the primary objective is to facilitate commuting into Ipswich, whilst minimising the impact of private car trips, then site 1 would appear to be the most favourable given that access to the site could be spread out over a large area. Access to the site may be via a number of minor C and B roads and this may not be acceptable in terms of road safety, but could provide opportunities for strengthening radial bus services.
- 9.16 If the objective is to support the growth in employment at Adastral Park, then site 4 would appear most favoured. Indeed, the existing walking and cycling to work journey to work patterns

may be enhanced as the site will be closer to Adastral Park than many of the existing dwellings in Martlesham Ward. This would put employment opportunities and homes together and make travel to work by non car means a more realistic option.

- 9.17 If a balance is to be struck between the needs of Ipswich and Martlesham Heath as employment destinations, then sites 2 or 3 could be selected. Site 3 would tend to favour increased use of the existing Superoute 66 bus priority corridor, whilst minimising additional motor vehicle traffic along the busy Woodbridge Road corridor. It is less well related to local facilities such as schools than Site 2 and may have a material impact on the Foxhall Road/ Bell Lane junction/ corridor.
- 9.18 In terms of highway impact, Site 1 with its numerous links into the built-up area of Ipswich, would lend itself to a dispersed pattern of motor vehicle trip generations, unlikely to exacerbate problems at any one problem location. However, access onto the network will be via minor B and C class roads which may be unacceptable in terms of road safety.
- 9.19 Site 2 would tend to focus additional traffic on the busy Woodbridge Road corridor, whereas site 3 would give rise to a significant increase in flows along Foxhall Road, which is perhaps less busy but, because of its alignment and characteristics, more sensitive to traffic flow increases. Site 3 could also increase traffic at the sensitive Bell Lane junction which may require upgrading.
- 9.20 Site 4 would focus traffic at the existing roundabout junctions in Martlesham Heath, but a careful choice of access arrangements (for example good connections through Adastral Park and a loop road running through site 4 would effectively disperse this demand over a number of junctions rather than focussing it at one problem location. This would require changes to the existing access and security arrangements for the BT site.

10.0 Conclusions

- 10.1 This wide ranging transport assessment has been able to provide general guidance to contribute to the overall assessment of the alternative sites for housing development. While much of the analysis has been qualitative, and partial, it has been concluded that all sites are feasible – to a greater or lesser degree – from the transport point of view. No over-riding concerns have been identified.
- 10.2 For the east of Ipswich sites, the detailed analyses are summarised in Table 29. This shows the generally medium to good scores – sites on the edge of Ipswich generally benefit from convenient access links, are close to the centre of employment, and do not cause critical environmental problems. While Sites 1, 2, and 3 are all 'Medium' there are concerns about the loadings on A1214 or the Foxall Road. Site 4 is considered the best on transport grounds, while Site 5 is considered the worst.

Table 29: East of Ipswich Area Sites – Transport Summary

Criteria	Site 1 Rushmere	Site 2 N of A1214	Site 3 S of Kesgrave	Site 4 E of Martlesham	Site 5 NW of A14
Highway access	Several minor radials (Medium)	Focused on A1214 (Medium)	Several busy radials (Medium)	Good spread along the A12 (Good)	Single busy A12 junction (Poor)
PT and active mode access	(Medium)	(Medium)	(Medium)	(Good)	(Poor)
Access to employment centres	(Good)	(Good)	(Medium)	(Good)	(Medium)
NATA Sustainability score	(Medium)	(Good)	(Medium)	(Medium)	(Poor)
Overall transport ranking	(Medium)	(Med-Good)	(Medium)	(Good)	(Poor)

10.3 The equivalent summary for the Felixstowe and the Trimleys sites is given in Table 30. Site 3 is a small site, and needs to be considered jointly with another, but is the best performing, being close to the Port, and fitting in with existing facilities. Of the two ‘Medium’ sites, Site 2 is the more remote from the town centre, and raises concerns about the traffic on the Trimley High Street, while Site 4 provides a good fit to complement Site 3. Sites 1 and 5 are not favoured.

Table 29: Felixstowe and the Trimleys Area Sites – Transport Summary

Criteria	Site 1 NE of A14	Site 2 Between Trimleys	Site 3 Walton & TrimStM	Site 4 N ofCandlet Rd	Site 5 N of Felixstowe
Highway access	Several possible connections (Good)	Several possible connections (Good)	Several possible connections (Good)	Several possible connections (Good)	Several possible connections (Good)
PT and active mode access	(Poor)	(Good)	(Good)	(Medium)	(Medium)
Access to employment centres	(Poor)	(Poor)	(Medium)	(Medium)	(Medium)
NATA Sustainability score	(Poor)	(Good)	(Good)	(Medium)	(Poor)
Overall transport ranking	(Poor)	(Medium)	(Good)	(Medium)	(Poor)

10.4 It must be emphasised that this analysis has provided one isolated input to the debate on the relative merits of the groups of sites. While the results are considered robust, and indicate no critical concerns, they need to be considered together with non-transport factors.

Appendix A - Trip Generation

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

- 2001 Census
- National Travel Survey 2006
- DfT Focus on Personal Travel.

The Census Ward each of the proposed allocation sites falls within has been identified. This is detailed in Table 1 below:

Table 1: Proposed Allocation Site Wards for Census data.

Area No. (See Figure 1)	2001 Census Ward	
	Area to the East of Ipswich	Area of Felixstowe and the Trimleys
1	Rushmere St Andrew	Trimleys with Kirton
2	Kesgrave East	Trimleys with Kirton
3	Kesgarve East	Felixstowe North
4	Martlesham	Felixstowe North
5	Nacton	Felixstowe East

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

The actual figures used are shown in the spreadsheet outputs Figures 1 to 7 of this Appendix.

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

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose. A summary of this and the percentages that this equates to is shown in Table 2.

Table 2: Average number of trip 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 defines a trip as being one way, thus 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 Table 3.

Table 3: Trip Distribution by purpose 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 trips per household per day (weekday) =

Proposed Number of Dwellings.

X

Average Number of Trips Per Household.

X

10% 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 Table 3 above.

These trips can then be assigned to the mode. For the Commuter and Business trips, Faber Maunsell has applied the Journey to Work data from the 2001 Census. For Shopping, Education and Other Trips, Faber Maunsell 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, Faber Maunsell 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.

Full details and calculations are shown in the Figures 1 to 7 in separate spreadsheets.

Appendix B - Trip Distribution

The trip generation for each proposed allocation site as detailed in Appendix A has been assigned to the local road highway network in accordance with the 2001 Census journey to work data for the ward in which the allocation site is located. These wards are detailed in Table 1 of Appendix A. This data provides the destinations of places of work for existing residents within the ward. The trip distribution has been calculated by separating individual destinations into specific routes through the study area.

It is acknowledged that using the Journey to Work data for all peak hour trips is not precisely correct, as journeys associated with education and shopping for example may have a different distribution. However, for the purposes of this assessment, it is considered appropriate.

The trip distribution applied for car trips is shown in Figures 1 – 11 in separate spreadsheets, while Figures 12 to 22 detail this distribution applied to the predicted car trip generation.

For each site, Faber Maunsell has had to make a number of assumptions regarding the likely allocation site access in order to distribute the traffic accordingly. The site access assumptions for each site are detailed in the table below:

Table 1: Site access assumptions for each allocation site for basis of distribution

Site		Site Access Assumption
East of Ipswich	1	All traffic with destinations within Ipswich/ Colchester bound/ Bury St Edmunds bound is assumed to disperse over one of the routes to the north of the study area. Trips to the east (e.g Martlesham) has been assumed to join the A1124 at Bent Lane or Playford Road.
	2	Traffic will access the A1124 only via a northern arm on the Ropes Drive West Roundabout
	3	Traffic will access Foxhall Road only via a new junction between Bell Lane and Dobbs Lane
	4	50% of traffic will access the network via the A12/ Anson Road/ Eagle Way Roundabout via the Anson Road arm. 50% of the traffic will access the network via the A12/ Foxhall Road/ Newbourne Road Roundabout via the Newbourne Road arm.
	5	Traffic will access the network via a new junction onto A1156 Felixstowe Road.
Felixstowe/ Trimleys	1	Traffic will access the network via the eastern arm (Kirton Road) of the A14 Junction 59 only
	2	Traffic will access the network via a new junction between the Link Road Roundabout and the A14 Junction 59 only
	3	Both sites will access the network via new junctions on High Road/ Street
	4	Traffic will access the network via an upgrade to the existing northern arm of the A154 Candlet Road/ Garrison lane Roundabout only
	5	Traffic will access the network via an upgrade to the existing northern arm of the Grove Road/ Links Avenue Roundabout only.

As discussed within the main report, for the purposes of including the traffic impacts from the significant committed development and brown field sites identified early in this report, a similar methodology to that used for the assessment of the allocation sites has been adopted.

For the 492 dwellings at Kesgrave, it is understood that these will be located at Grange Farm. Thus, it has been assumed that trips from these dwellings will access the network via one of the existing junctions from Kesgrave onto the A1124 i.e. the A1214/ Ropes Drive junction. The trip distribution adopted is therefore identical to the distribution assumed for Site 2 of the allocation sites to the east of Ipswich. The trip rates used are also the same as for Site 2.

For the 229 dwellings at Rushmere St Andrew, it is understood that these will be located at Bixley Farm. Thus it has been assumed that trips from these dwellings will access the existing network via one of the existing junctions on Foxhall Road i.e. the junction of Foxhall Road and Broadlands Way or Foxhall Road and Bixley Drive. The trip distribution adopted is based on that for Site 1 of the allocation sites to the east of Ipswich. However, it has been assumed that traffic travelling into Central Ipswich will do so via Foxhall Road, and will not have the benefit of being a spread out as the distribution adopted for Site 1. The trip rates used are also the same as for Site 1.

For the 158 dwellings at South Beach brown field site, Felixstowe, it has been assumed that all trips within Felixstowe are internalised and will not impact on any of the junctions identified within the study area. For trips to destination outside of Felixstowe, trip distribution adopted is one based on that for site 5 of the allocation sites in Felixstowe/ Trimleys. The trip rates used are also the same as for Site 5.

Appendix D – Bus Route Information

Ipswich

	Route No.	Route	Frequency				Operator	Other
			Mon - Fri	Weekday peak hours	Sat	Sun		
1	62A	Ipswich - Bixley Farm - Woodbridge - Wickham Market	Three times daily	No service	Three times daily	Every other hour	First	Mon to Sat service is an evening service
	62B	Ipswich - Bixley Farm - Woodbridge - Rendlesham	Twice daily	No service	Twice daily	Every other hour	First	Mon to Sat service is an evening service
	63	Ipswich - Woodbridge - Framlington	Hourly	Hourly	Hourly	No service	First	
	64	Ipswich - Woodbridge - Saxmundham - Aldeburgh	Hourly	Hourly	Hourly	No service	First	
	64A	Benhall Primary School - Aldeburgh	Twice daily	No service	No service	No service	First	
	65	Ipswich - Woodbridge - Rendlesham	Hourly	Hourly	Hourly	No service	First	
	66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins	Every 20 mins	Every 15 mins	Half hourly	First	Service throughout the night
	66A	Ipswich rail station - Martlesham Heath	Twice daily	No service	No service	No service		
	70	Ipswich - Grundisburgh - Woodbridge	Twice daily	No service	Twice daily	No service	First	
	70A	Ipswich - The Bealings - Woodbridge	Twice daily	No service	Twice daily	No service	First	
	160	Ipswich - Woodbridge - Samundham	Daily	No service	Daily	No service	Country Travel	
	162	Ipswich - Rushmere - Ipswich	Twice daily	No service	No service	No service	Anglian Bus	
	165	Ipswich - Kesgrave - Leiston	Every other hour	Every other hour	Every other hour	No service	Anglian Bus	
	P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins	Every 10 mins	Every 10 mins	No service		
	Rail	Felixstowe - Ipswich	Hourly	Hourly	Hourly	Hourly	National Express	

2	62A	Ipswich - Bixley Farm - Woodbridge - Wickham Market	Three times daily	No service	Three times daily	Every other hour	First	Mon to Sat service is an evening service
	62B	Ipswich - Bixley Farm - Woodbridge - Rendlesham	Twice daily	No service	Twice daily	Every other hour	First	Mon to Sat service is an evening service
	63	Ipswich - Woodbridge - Framlington	Hourly	Hourly	Hourly	No service	First	
	64	Ipswich - Woodbridge - Saxmundham - Aldeburgh	Hourly	Hourly	Hourly	No service	First	
	64A	Benhall Primary School - Aldeburgh	Twice daily	No service	No service	No service	First	
	65	Ipswich - Woodbridge - Rendlesham	Hourly	Hourly	Hourly	No service	First	
	66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins	Every 20 mins	Every 15 mins	Half hourly	First	Service throughout the night
	66A	Ipswich rail station - Martlesham Heath	Twice daily	No service	No service	No service		
	160	Ipswich - Woodbridge - Samundham	Daily	No service	Daily	No service	Country Travel	
	162	Ipswich - Rushmere - Ipswich	Twice daily	No service	No service	No service	Anglian Bus	
	165	Ipswich - Kesgrave - Leiston	Every other hour	Every other hour	Every other hour	No service	Anglian Bus	
	P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins	Every 10 mins	Every 10 mins	No service		

3	66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins	Every 20 mins	Every 15 mins	Half hourly	First	Service throughout the night
	66A	Ipswich rail station - Martlesham Heath	Twice daily	No service	No service	No service		
	173	Felixstowe Ferry - Trimley - Woodbridge	Every other hour	No service	Every other hour	No service	Country Travel and Beestons	
	174	Felixstowe - Trimley - Woodbridge	Daily	No service	No service	No service	Beestons	
	178	Ipswich - Bucklesham - Woodbridge	Three times daily	No service	Three times daily	No service	Beestons	

4	65	Ipswich - Woodbridge - Rendlesham	Hourly	Hourly	Hourly	No service	First	Service throughout the night
	66	Bourne Bridge - Ipswich - Martlesham Heath	Every 15 mins	Every 20 mins	Every 15 mins	Half hourly	First	
	66A	Ipswich rail station - Martlesham Heath	Twice daily	No service	No service	No service		
	172	Felixstowe - Trimley - Kirton - Woodbridge	School service	No service	No service	No service		
	173	Felixstowe Ferry - Trimley - Woodbridge	Every other hour	No service	Every other hour	No service	Country Travel and Beestons	
	174	Felixstowe - Trimley - Woodbridge	Daily	No service	No service	No service	Beestons	
	178	Ipswich - Bucklesham - Woodbridge	Three times daily	No service	Three times daily	No service	Beestons	
	179	Ipswich - Kirton - Woodbridge	Infrequent	No service	Infrequent	No service	Beestons	
P&R	London Road - Ipswich rail station - Martlesham	Every 10 mins	Every 10 mins	Every 10 mins	No service			

5	75	Ipswich - Felixstowe (Grange Farm)	Half hourly	Half hourly	Hourly	No service	First
	75A	Ipswich - Felixstowe (Grange Farm)	Hourly	No service	Hourly	Hourly	First
	76	Ipswich - Old Felixstowe	Hourly	Hourly	Hourly	No service	First
	77	Ipswich - Felixstowe Dock	Hourly	Hourly	Hourly	No service	First
	77A	Ipswich Schools - Old Felixstowe	Twice daily	No service	No service	No service	First
	163	Felixstowe - Nacton - Ipswich	Three times daily	No service	Three times daily	No service	Country Travel and Beestons
	178	Ipswich - Bucklesham - Woodbridge	Three times daily	No service	Three times daily	No service	Beestons
	179	Ipswich - Kirton - Woodbridge	Infrequent	No service	Infrequent	No service	Beestons

Felixstowe

Route No.	Route	Hours of operation			Frequency				Operator
		Mon - Fri	Sat	Sun	Weekday			Sun	
					Mon - Fri	peak hours	Sat	Sun	
1	75 Ipswich - Felixstowe (Grange Farm)	05:55 - 19:27	05:55 - 18:53	No service	Half hourly	Half hourly	Hourly	N/A	First
	75A Ipswich - Felixstowe (Grange Farm)	18:52 - 23:27	18:52 - 23:27	07:55 - 23:57	Hourly	N/A	Hourly	Hourly	First
	76 Ipswich - Old Felixstowe	07:33 - 18:11	08:08 - 18:14	No service	Hourly	Hourly	Hourly	N/A	First
	77 Ipswich - Felixstowe Dock	07:31 - 18:55	07:41 - 18:37	No service	Hourly	Hourly	Hourly	N/A	First
	77A Ipswich Schools - Old Felixstowe	School days only	No service	No service	Twice daily	N/A	N/A	N/A	First
	163 Felixstowe - Nacton - Ipswich	Three times daily	Three times daily	No service	Three times daily	N/A	Three times daily	N/A	Country Travel and Beestons
	170 Felixstowe - Woodbridge - Diss - Eye Rail	Felixstowe - Ipswich	05:04 - 23:22	06:27 - 23:52	11:02 - 20:57	Hourly	Hourly	Hourly	Hourly
2	75 Ipswich - Felixstowe (Grange Farm)	05:55 - 19:27	05:55 - 18:53	No service	Half hourly	Half hourly	Hourly	N/A	First
	75A Ipswich - Felixstowe (Grange Farm)	18:52 - 23:27	18:52 - 23:27	07:55 - 23:57	Hourly	N/A	Hourly	Hourly	First
	76 Ipswich - Old Felixstowe	07:33 - 18:11	08:08 - 18:14	No service	Hourly	Hourly	Hourly	N/A	First
	77 Ipswich - Felixstowe Dock	07:31 - 18:55	07:41 - 18:37	No service	Hourly	Hourly	Hourly	N/A	First
	77A Ipswich Schools - Old Felixstowe	School days only	No service	No service	Twice daily	N/A	N/A	N/A	First
	163 Felixstowe - Nacton - Ipswich	Three times daily	Three times daily	No service	Three times daily	N/A	Three times daily	N/A	Country Travel and Beestons
	170 Felixstowe - Woodbridge - Diss - Eye Rail	Felixstowe - Ipswich	05:04 - 23:22	06:27 - 23:52	11:02 - 20:57	Hourly	Hourly	Hourly	Hourly
3	75 Ipswich - Felixstowe (Grange Farm)	05:55 - 19:27	05:55 - 18:53	No service	Half hourly	Half hourly	Hourly	N/A	First
	75A Ipswich - Felixstowe (Grange Farm)	18:52 - 23:27	18:52 - 23:27	07:55 - 23:57	Hourly	N/A	Hourly	Hourly	First
	76 Ipswich - Old Felixstowe	07:33 - 18:11	08:08 - 18:14	No service	Hourly	Hourly	Hourly	N/A	First
	77 Ipswich - Felixstowe Dock	07:31 - 18:55	07:41 - 18:37	No service	Hourly	Hourly	Hourly	N/A	First
	77A Ipswich Schools - Old Felixstowe	School days only	No service	No service	Twice daily	N/A	N/A	N/A	First
	163 Felixstowe - Nacton - Ipswich	Three times daily	Three times daily	No service	Three times daily	N/A	Three times daily	N/A	Country Travel and Beestons
	170 Felixstowe - Woodbridge - Diss - Eye Rail	Felixstowe - Ipswich	05:04 - 23:22	06:27 - 23:52	11:02 - 20:57	Hourly	Hourly	Hourly	Hourly
4	75 Ipswich - Felixstowe (Grange Farm)	05:55 - 19:27	05:55 - 18:53	No service	Half hourly	Half hourly	Hourly	N/A	First
	75A Ipswich - Felixstowe (Grange Farm)	18:52 - 23:27	18:52 - 23:27	07:55 - 23:57	Hourly	N/A	Hourly	Hourly	First
	76 Ipswich - Old Felixstowe	07:33 - 18:11	08:08 - 18:14	No service	Hourly	Hourly	Hourly	N/A	First
	77 Ipswich - Felixstowe Dock	07:31 - 18:55	07:41 - 18:37	No service	Hourly	Hourly	Hourly	N/A	First
	77A Ipswich Schools - Old Felixstowe	School days only	No service	No service	Twice daily	N/A	N/A	N/A	First
	163 Felixstowe - Nacton - Ipswich	Three times daily	Three times daily	No service	Three times daily	N/A	Three times daily	N/A	Country Travel and Beestons
	170 Felixstowe - Woodbridge - Diss - Eye Rail	Felixstowe - Ipswich	05:04 - 23:22	06:27 - 23:52	11:02 - 20:57	Hourly	Hourly	Hourly	Hourly
5	75 Ipswich - Felixstowe (Grange Farm)	05:55 - 19:27	05:55 - 18:53	No service	Half hourly	Half hourly	Hourly	N/A	First
	75A Ipswich - Felixstowe (Grange Farm)	18:52 - 23:27	18:52 - 23:27	07:55 - 23:57	Hourly	N/A	Hourly	Hourly	First
	76 Ipswich - Old Felixstowe	07:33 - 18:11	08:08 - 18:14	No service	Hourly	Hourly	Hourly	N/A	First
	77 Ipswich - Felixstowe Dock	07:31 - 18:55	07:41 - 18:37	No service	Hourly	Hourly	Hourly	N/A	First
	77A Ipswich Schools - Old Felixstowe	School days only	No service	No service	Twice daily	N/A	N/A	N/A	First
	163 Felixstowe - Nacton - Ipswich	Three times daily	Three times daily	No service	Three times daily	N/A	Three times daily	N/A	Country Travel and Beestons
	170 Felixstowe - Woodbridge - Diss - Eye Rail	Felixstowe - Ipswich	05:04 - 23:22	06:27 - 23:52	11:02 - 20:57	Hourly	Hourly	Hourly	Hourly

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Appendix E - Sustainability Tables Explanation

TECHNICAL TABLE

Site Characteristics

Site Capacity – Approximate size of the entire allocation site area in Ha

Likely Tariff Income – This is based on the assumption that developers are required to pay £10,000 per unit for transport

Community access – According to DfT the mean average length for a walking journey is 1km (0.6 miles) and cycling it is 4km (2.4), although journeys up to three times these distances are not uncommon for regular commuters. Based on this FM has identified schools which are within 1km of the development sites (See Figure xx). FM has also identified sports centres, hospitals and superstores within close proximity to the sites (See Figure xx)

Existing Road Network

Local Road Network – Description of the existing local road network efficiency and congestion

Strategic Road Network – Description of the existing strategic road network efficiency and congestion, based on the East of England stress maps

Existing Public Transport

Number of bus routes that serve the site

Number of buses with at least a 1 hour service – This is based on weekday peak hour trips

Number of buses with at least a 30 minute service – This is based on weekday peak hour trips

Park and Ride service – This provides information on the service such as the origin and destination and also the frequency

Proximity to railway station – Approximate distance in km

Frequency of rail service – Frequency plus origin and destination

Existing Walking and Cycling Facilities

Walking facilities – Description of walking facilities

Cycling facilities – Description of cycling facilities

Pedestrian connections (concentric circles) – What conclusions can be drawn from observation of concentric circles

Cycle connections (concentric circles) – What conclusions can be drawn from observation of concentric circles

Potential Improvements

Infrastructure improvements – Local network

Infrastructure improvements – Strategic network

Public Transport Improvements – Such as new bus routes, new bus stops or improvements to current services

Walking and cycling improvements – Such as increased cycle ways improved pedestrian facilities

Railway Station – Does the development include a new railway station?

Quality Bus Route – Does the development include a quality bus route?

Trip Generation

Trip generation – Based on xx dwellings for the following modes: walk, cycle, car driver, car passenger, rail, local bus, and others for both the AM and PM

Public Transport Patronage

Commuting

Non work

Potential increase in bus passengers

Road Traffic Impact

Percentage increase in flow on the local road network

Percentage increase in flow on the strategic road network

Junction Analysis

Absolute and proportional flow changes at significant junctions

PICADY

ARCADY

Employment Access Analysis

Access to Felixstowe Port – This includes access via walking, cycling and public transport

Access to Ipswich Town Centre – This includes access via walking, cycling and public transport

Access to Adastral Park – This includes access via walking, cycling and public transport

NATA ASSESSMENT TABLE

Accessibility

Will the development reduce the need to travel by car (i.e. is the development easily accessible to employment sites)

This is based on the Technical Table “Employment Access Analysis” availability of public transport, cycle and walking routes to employment sites

Will the development have good accessibility to community services and facilities? (e.g. schools, doctors and shops)

This is based on the Technical Table “Community Access” proximity to local schools, shops, sport centres and other community services. FM added all service to get a final score i.e. the higher the score the more accessible the site.

Does the site have good access to the strategic road network (i.e. the A12 and the A14)

Better access to the strategic road network may result in a reduced impact on the local road network.

Does the development have good existing Public Transport Links?

This is based on the Technical Table “Existing Public Transport”

Economy

Is land available for expansion?

Is the development constrained by environmental allocations or developments?

Will this development promote regeneration (is the site near employment)?

Is the site improve a socially deprived area, will the site be near employment?

Will this development require significant changes to the highway infrastructure?

This is based on the Technical Table "Potential Infrastructure improvements"

Environment

Will the development have a detrimental impact on the environment? (It is acknowledged that all sites will remove open land and generate traffic, this question therefore seeks to identify further detrimental impacts)

Is the site on a flood plain?

Based on Environment Agency website

What is the environmental quality of the land?

Based on magic.gov maps

Integration

Does the development promote integration of different types of transport?

Integration of bus, rail, cycling and walking.

Safety

Is the site close to an existing accident cluster site?

Ipswich

NATA Objective	Sustainability Appraisal Objectives	Site One	Site Two	Site Three	Site Four	Site Five
Accessibility	Will the development reduce the need to travel by car (i.e. is the development easily accessible to employment sites)?	Good access	Good access	Reasonable	Good access	Reasonable access
	Will the development have good accessibility to community services and facilities? (e.g. schools, doctors, shops)	Reasonable access	Good access to school	Good access to schools	Reasonable access	Poor access to schools
	Does the site have good access to the strategic road network (i.e the A12 and A14)?	The site is 4km from the A12	The site is 1.5 km from the A12	The site is adjacent to the A12	The site is adjacent to the A12	The site is adjacent to the A12 and A14
	Does the development have good existing Public Transport links?	Good service	Good service	Poor service	Reasonable service	Reasonable service
Economy	Is land available for expansion?	Yes, possibly to the north east	Yes, possibly to the north of the site	Possibly to the south of the site	Yes, possibly to the east and south of the site	Yes, possibly to the north of the site
	Will this development promote regeneration (is the site near employment)?	This site is closest to Ipswich Town centre and may promote regeneration	The site is neither near an employment site or the town centre	The site is neither near an employment site or the town centre	This site is close to Adastral park and may promote regeneration	The site is outside the urban fringe with no local employment sites. This site does not, therefore, promote regeneration
	Will this development require significant changes to the highway infrastructure?					
Environment	Will the development have a detrimental impact on environment? (It is acknowledged that all sites will remove open land and generate traffic, this question therefore seeks to identify further detrimental impacts).	This site is in an environmentally sensitive area	No further impacts identified at this time	No further impacts identified at this time	This site includes an area of woodland which may be lost to the development	This site may have the greatest impact because it is outside the urban fringe. It may have a detrimental impact on wildlife corridors.
	Is the site on a flood plain?	No	No	No	No	No
	What is the environmental quality of the land (statutory allocations)?	Part of the site is in an environmentally sensitive area.	No environmental allocations	No environmental allocations	Adjacent to an Area of Outstanding Natural Beauty	No environmental allocations
Integration	Does the development promote integration of different types of transport	If this site included a new rail point then it would promote integration of bus and rail	There is no integration of bus and rail at this site.	There is no integration of bus and rail at this site.	There is no integration of bus and rail at this site.	If this site included a new rail point then it would promote integration of bus and rail
Safety	Is the site close to an existing accident cluster site	This has not been assessed at this stage	This has not been assessed at this stage	This has not been assessed at this stage	This has not been assessed at this stage	This has not been assessed at this stage

Positive
Negative
Uncertain

Caveat - this is a broad assessment a full Environmental Impact Assessment (EIA) and Safety Audit will be required at a later stage. This assessment provides a broad initial analysis of the sites.

Ipswich

Technical Analysis		Site One	Site Two	Site Three	Site Four	Site Five
	Site Capacity	200Ha	200Ha	200Ha	200Ha	100Ha
	Potential number of dwellings	1600 - 4000	1600 - 4000	1600 - 4000	1600 - 4000	800 - 2000
	Likely Tarrif Income (£10,000 per unit for transport)	16,000,000 - 40,000,000	16,000,000 - 40,000,000	16,000,000 - 40,000,000	16,000,000 - 40,000,000	8,000,000 - 20,000,000
Site Characteristics	Community access - proximity to local schools	3 schools within 1km of the site	4 schools within 1km of the site	5 schools within 1km of the site	2 schools within 1km of the site	No schools within 1km of the site
Existing Road Network	Local Road Network	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion
	Strategic Road Network (Stress Maps)	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion
Existing Public Transport	Number of bus routes that serve the site	14	12	5	9	8
	Number of bus routes with at least a 1 hour service	6	5	1	3	3
	Number of bus routes with at least a 30min service	2	2	1	2	1
	Park and Ride Bus service	Every 10 minutes (London Road - Ipswich rail station - Martlesham)	Every 10 minutes (London Road - Ipswich rail station - Martlesham)	N/A	Every 10 minutes (London Road - Ipswich rail station - Martlesham)	N/A
	Rail service adjacent to site but no station at present. Frequency of service.	Hourly Felixstowe to Ipswich and Woodbridge (railline runs through the site, station outside the site)	N/A	N/A	N/A	N/A
	Walking facilities	Description of walking facilities	Description of walking facilities	Description of walking facilities	Description of walking facilities	Description of walking facilities
Existing walking and cycling facilities	Cycling facilities	No segregated or off road cycle track	Cycle route providing links to Ipswich TC. National Route 1 link to Fakenham and Harwich, via Felixstowe and Ipswich.	A network of on and off road cycle tracks. National Route 1 link to Fakenham and Harwich via Felixstowe and Ipswich.	Cycle tracks and cycle shop. National Route 1 link to Fakenham and Harwich via Felixstowe and Ipswich.	Cycle track. National Route 1 link to Fakenham and Harwich via Felixstowe and Ipswich.
	Pedestrian connections (concentric circles)	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment
	Cycle connections (concentric circles)	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment
	Infrastructure improvements - Local network	xx	xx	xx	x	x
Potential Improvements	Infrastructure improvements - Strategic network	xx	xx	xx	x	x
	Public Transport improvements	xx	xx	xx	x	x
	Walking and cycling improvements	xx	xx	xx	x	x
	Rail Station	xx	xx	xx	x	x
	Quality bus routes	xx	xx	xx	x	x

Trip Generation (Based on xx dwellings)	Trip generation - Walk (AM/PM)	370 / 206	368 / 205 (Site 2&3)	368 / 205 (Site 2&3)	376 / 218	369 / 210
	Trip generation - Cycle (AM/PM)	36 / 28	46 / 37 (Site 2&3)	46 / 37 (Site 2&3)	53 / 43	32 / 24
	Trip generation - Car Driver (AM/PM)	615 / 588	612 / 586 (Site 2&3)	612 / 586 (Site 2&3)	555 / 532	582 / 557
	Trip generation - Passenger (AM/PM)	235 / 205	233 / 203 (Site 2&3)	233 / 203 (Site 2&3)	214 / 186	222 / 194
	Trip generation - Rail (AM/PM)	24 / 18	28 / 21 (Site 2&3)	28 / 21 (Site 2&3)	19 / 14	24 / 18
	Trip generation - Local Bus (AM/PM)	103 / 62	116 / 73 (Site 2&3)	116 / 73 (Site 2&3)	103 / 64	97 / 57
	Trip generation - Others (AM/PM)	85 / 67	77 / 60 (Site 2&3)	77 / 60 (Site 2&3)	81 / 63	103 / 83
	Total Trip generation (AM/PM)	1469 / 1174	1481 / 1185 (Site 2&3)	1481 / 1185 (Site 2&3)	1400 / 1120	1428 / 1142
Public Transport Patronage Impact (i.e mode split with quality bus)	Commuting?	xx	xx	xx	x	x
	Non work?	xx	xx	xx	x	x
	Potential increase in bus passengers?	xx	xx	xx	x	x
Road Traffic Impact	Percentage increase in flows on the local road network	xx	xx	xx	x	x
	Percentage increase in flows on the strategic road network	xx	xx	xx	x	x
Junction Analysis	Absolute and proportional flow changes at significant junctions	xx	xx	xx	x	x
	PICADY	xx	xx	xx	x	x
	ARCADY	xx	xx	xx	x	x
Employment Access Analysis (cycle, rail, bus)	Access to Felixstowe Port	No direct rail or bus routes. Cycle links non-existent	No direct rail or bus routes. Cycle links non-existent	No direct rail or bus routes. Cycle links non-existent	No direct rail or bus routes. Cycle links non-existent	Hourly bus service. No rail service. Cycle link via National Route 1 between Fakenham and Harwich via Ipswich and Felixstowe
	Access to Ipswich Town Centre	Thirteen bus routes, maximum frequency of every 10 minutes. Hourly rail service. Cycle links non-existent	Eleven bus routes, maximum frequency of every 10 minutes. No rail service. Cycle track for part of the way.	Five bus routes, maximum frequency of every 15 minutes. No rail service. Cycle track for part of the way.	Nine bus routes, maximum frequency of every 10 minutes. No rail service. Cycle track for part of the way.	Eight bus routes, maximum half hourly frequency. No rail service. Cycle link via National Route 1 between Fakenham and Harwich via Ipswich and Felixstowe.
	Access to Adastral Park	Nine bus routes, maximum frequency of every 10 minutes. No rail service. Cycle track for part of the way.	Nine bus routes, maximum frequency of every 10 minutes. No rail service. Cycle track for part of the way.	Four bus routes, maximum frequency of every 15 minutes. No rail service. Cycle track for part of the way.	Four bus routes, maximum frequency of every 10 minutes. No rail service. Cycle track for part of the way.	One infrequent bus route. No rail service. Cycle links non-existent.

Felixstowe

NATA Objective	Sustainability Appraisal Objectives	Site One	Site Two	Site Three	Site Four	Site Five
Accessibility	Will the development reduce the need to travel by car (i.e. is the development easily accessible to employment sites)?	Poor access	Good access	Good access	Reasonable access	Reasonable access
	Will the development have good accessibility to community services and facilities? (e.g. schools, doctors, shops)	Good access to schools	Reasonable access to schools	Reasonable access to schools	Good access to schools	Good access to schools
	Does the site have good access to the strategic road network (i.e the A12 and A14)?	Site is adjacent to A14	Site is adjacent to A14	Site is adjacent to A14	Site is adjacent to A14	The site is 1km from the A14
	Does the development have good existing Public Transport links?	Reasonable service	Reasonable service	Reasonable service	Reasonable service	Reasonable service
Economy	Is land available for expansion?	Yes, possibly to the north	No	No	Not if site 1 and 5 are developed because the remainder is flood plain	No, the surrounding area is flood plain
	Will this development promote regeneration (is the site near employment)?	This site is furthest from the port and the town centre	These two site promote regeneration as it utilises land with in the town	These two sites promote regeneration as they are utilising land with in the town	This site is on the urban fringe therefore promotes regeneration	This site is on the urban fringe therefore promotes regeneration
	Will this development require significant changes to the highway infrastructure?					
Environment	Will the development have a detrimental impact on environment? (It is acknowledged that all sites will remove open land and generate traffic, this question therefore seeks to identify further detrimental impacts).	This site is furthest from the town centre and not surrounded by development	This site is within the town	This is an "infill" site	This site forms part of the urban fringe	This site forms part of the urban fringe
	Is the site on a flood plain?	No, although it is very close to a flood plain east of the site	No	No	No, although it is very close to a flood plain north of the site	Yes, part of this site is within a flood plain
	What is the environmental quality of the land (statutory allocations)?	Part of the site is in an environmentally sensitive area	No statutory designation	No statutory designation	The site is in an environmentally sensitive area	The site is in an environmentally sensitive area
Integration	Does the development promote integration of different types of transport	This site is within 1km of the railway station	This site is within 1km of the railway station	These sites is within 1km of the railway station	This site is within 1km of the railway station	This site is within 1km of the railway station
Safety	Is the site close to an existing accident cluster site	This has not been assessed at this stage	This has not been assessed at this stage	This has not been assessed at this stage	This has not been assessed at this stage	

Positive
Negative
Uncertain

Caveat - this is a broad assessment a full Environmental Impact Assessment (EIA) will be required at a later stage. This assessment provides a broad screening of the sites

Felixstowe

Technical Analysis	Site One	Site Two	Site Three	Site Four	Site Five
Site Capacity	100Ha	100Ha	15Ha	100Ha	100Ha
Potential number of dwellings	800 - 2000	800 - 2000	120 - 300	800 - 2000	800 - 2000
Likely Tarrif Income (£10,000 per unit for transport)	80,000,000 - 20,000,000	80,000,000 - 20,000,000	1,200,000 - 3,000,000	80,000,000 - 20,000,000	80,000,000 - 20,000,000
Site Characteristics					
Community access - proximity to local schools	4 Schools within 1km of the site	2 Schools within 1km of the site	3 Schools within 1km of the site	5 Schools within 1km of the site	5 Schools within 1km of the site
Existing Road Network					
Local Road Network	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion
Strategic Road Network (Stress Maps)	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion	note on network efficiency/congestion
Existing Public Transport					
Number of bus routes that serve the site	7	7	7	7	7
Number of bus routes with at least a 1 hour service (weekday peak hour service)	4	4	4	4	4
Number of bus routes with at least a 30min service (weekday peak hour service)	1	1	1	1	1
Park and Ride Bus service	N/A	N/A	N/A	N/A	N/A
Proximity to Rail Station	Over 1km walking distance to Trimley Railway Station	1km walking distance to Trimley Railway Station	1km walking distance to Felixstowe Station	over 1km walking distance to Felixstowe Station	Over 1km walking distance to Felixstowe Station
Rail service adjacent to site but no station at present. Frequency of service.	Hourly Felixstowe to Ipswich	Hourly Felixstowe to Ipswich	Hourly Felixstowe to Ipswich	Hourly Felixstowe to Ipswich	Hourly Felixstowe to Ipswich
Existing walking and cycling facilities					
Walking facilities	Description of walking facilities	Description of walking facilities	Description of walking facilities	Description of walking facilities	Description of walking facilities
Cycling facilities	No formal cycle route	National Route 1 link to Fakenham and Harwich via Felixstowe and Ipswich.	National Route 1 link to Fakenham and Harwich via Felixstowe and Ipswich.	Signed on road cycle route	Signed on road cycle route
Pedestrian connections (concentric circles)	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment
Cycle connections (concentric circles)	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment	Look at map and make comment
Potential Improvements					
Infrastructure improvements - Local network	xx	xx	xx	x	x
Infrastructure improvements - Strategic network	xx	xx	xx	x	x
Public Transport improvements	xx	xx	xx	x	x
Walking and cycling improvements	xx	xx	xx	x	x
Rail Station	xx	xx	xx	x	x
Quality bus routes	xx	xx	xx	x	x

Trip Generation (Based on xx dwellings)	Trip generation - Walk (AM/PM)	582 / 326 (Sites 1&2)	582 / 326 (Sites 1&2)	598 / 355 (Sites 3&4)	598 / 355 (Sites 3&4)	578 / 332
	Trip generation - Cycle (AM/PM)	64 / 51 (Sites 1&2)	64 / 51 (Sites 1&2)	98 / 81 (Sites 3&4)	98 / 81 (Sites 3&4)	83 / 67
	Trip generation - Car Driver (AM/PM)	967 / 924 (Sites 1&2)	967 / 924 (Sites 1&2)	793 / 764 (Sites 3&4)	793 / 764 (Sites 3&4)	859 / 825
	Trip generation - Passenger (AM/PM)	372 / 325 (Sites 1&2)	372 / 325 (Sites 1&2)	340 / 297 (Sites 3&4)	340 / 297 (Sites 3&4)	355 / 310
	Trip generation - Rail (AM/PM)	30 / 21 (Sites 1&2)	30 / 21 (Sites 1&2)	29 / 21 (Sites 3&4)	29 / 21 (Sites 3&4)	37 / 28
	Trip generation - Local Bus (AM/PM)	155 / 91 (Sites 1&2)	155 / 91 (Sites 1&2)	137 / 79 (Sites 3&4)	137 / 79 (Sites 3&4)	135 / 76
	Trip generation - Others (AM/PM)	140 / 111 (Sites 1&2)	140 / 111 (Sites 1&2)	128 / 101 (Sites 3&4)	128 / 101 (Sites 3&4)	152 / 122
	Total Trip generation (AM/PM)	2311 / 1849 (Sites 1&2)	2311 / 1849 (Sites 1&2)	2123 / 1698 (Sites 3&4)	2123 / 1698 (Sites 3&4)	2198 / 1758
Public Transport Patronage Impact (i.e mode split with quality bus)	Commuting?	xx	xx	xx	x	x
	Non work?	xx	xx	xx	x	x
	Potential increase in bus passengers?	xx	xx	xx	x	x
Road Traffic Impact	Percentage increase in flows on the local road network	xx	xx	xx	x	x
	Percentage increase in flows on the strategic road network	xx	xx	xx	x	x
Junction Analysis	Absolute and proportional flow changes at significant junctions	xx	xx	xx	x	x
	PICADY	xx	xx	xx	x	x
	ARCADY	xx	xx	xx	x	x
Employment Access Analysis (cycle, rail, bus)	Access to Felixstowe Port	Hourly bus service. No rail service. National Route 51.	Hourly bus service. No rail service. National Route 51.	Hourly bus service. No rail service. National Route 51.	Hourly bus service. No rail service. National Route 51.	Hourly bus service. No rail service. National Route 51.
	Access to Ipswich Town Centre	Hourly bus service. No rail service. National Route 51 between Oxford and Colchester via Felixstowe.	Hourly bus service. Hourly rail service. National Route 51 between Oxford and Colchester via Felixstowe.	Hourly bus service. Hourly rail service. National Route 51 between Oxford and Colchester via Felixstowe.	Hourly bus service. No rail service. National Route 51 between Oxford and Colchester via Felixstowe.	Hourly bus service. No rail service. National Route 51 between Oxford and Colchester via Felixstowe.
	Access to Aداstral Park	Two bus services, maximum frequency of every other hour. No rail service. No direct cycle links.	Two bus services, maximum frequency of every other hour. No rail service. No direct cycle links.	Two bus services, maximum frequency of every other hour. No rail service. No direct cycle links.	Two bus services, maximum frequency of every other hour. No rail service. No direct cycle links.	Two bus services, maximum frequency of every other hour. No rail service. No direct cycle links.

Appendix A Figure 1
Rushmere St Andrew

Resident Population

6062

This is taken from the 2001 Census data for the Ward

Mode of Transport
Adopted for work trips
%

Underground / Light Rail / Tram	0.00%
Train	1.73%
Bus	6.37%
Taxi	0.30%
Car Driver	69.28%
Car Passenger	5.59%
Motorcycle	1.39%
Bicycle	3.90%
On Foot	2.74%
Other	0.14%
Work From Home	8.57%

This is taken from the 2001 Census data for the Ward

No. of Households

2376

This is taken from the 2001 Census data for the Ward

Average Household
Size

2.55

This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate
per Household (7day)

7.26

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate
per Household
(weekday) 1 Way

7.64

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

Daily Person Trip rate
per Household
(weekday) 2 Way

15.28

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.35	15.4%
Business	0.52	3.4%
Education	0.92	6.0%
Escort Education	0.64	4.2%
Other Escort	1.42	9.3%
Shopping	3.22	21.1%
Personal Business	1.54	10.1%
Visiting Friends	2.48	16.2%
Sport & Entertainment	0.96	6.3%
Holidays & Day Trips	0.57	3.7%
Others (including just walk)	0.66	4.3%
All Purposes	15.28	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose. The table to the left applies the percentage of trip purpose per weekday to the daily trips per household. This then also the number of trips by purpose to be calculated.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings	970
Number of Trips/ household/ weekday	14822
AM Peak Hour Trips (10% of weekday total)	1482
PM Peak Hour Trips (8% of weekday total)	1186

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	474	403
Business	59	71
Education	415	36
Escort Education	222	12
Shopping	59	154
Personal Business	163	213
Visiting Friends	30	166
Sport & Entertainment	15	59
Holidays & Day Trips	15	36
Others (including just walk)	30	36
All Purposes	1482	1186

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips to Work by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.00%	0	0
Train	1.73%	9	8
Bus	6.37%	34	30
Taxi	0.30%	2	1
Car Driver	69.28%	370	329
Car Passenger	5.59%	30	27
Motorcycle	1.39%	7	7
Bicycle	3.90%	21	18
On Foot	2.74%	15	13
Other	0.14%	1	1
Work From Home	8.57%	46	41
Total	100%	534	474

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	260	19
Cycle	1.9%	12	1
Car Driver	20.4%	130	10
Passenger	21.3%	136	10
Rail	1.9%	12	1
Local Bus	10.2%	65	5
Others	3.7%	24	2
Total	100.0%	637	47

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	15	39
Cycle	0.9%	1	1
Car Driver	41.9%	25	65
Passenger	20.7%	12	32
Rail	0.9%	1	1
Local Bus	8.8%	5	13
Others	1.4%	1	2
Total	100%	59	154

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips										
	Personal Business			Leisure			Other			TOTAL	
	Percentage of Trips by Mode	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	25.0%	41	53	17.7%	11	46	97.8%	29	35	80	134
Cycle	1.0%	2	2	1.8%	1	5	0.0%	0	0	3	7
Car Driver	42.3%	69	90	36.2%	21	94	2.2%	1	1	91	185
Passenger	23.1%	38	49	33.6%	20	88	0.0%	0	0	58	137
Rail	1.0%	2	2	2.2%	1	6	0.0%	0	0	3	8
Local Bus	5.8%	9	12	4.8%	3	13	0.0%	0	0	12	25
Others	1.9%	3	4	3.7%	2	10	0.0%	0	0	5	14
Total	100%	163	213	100.0%	59	261	100.0%	30	36	252	510

Aggregated Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)		AM	PM
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	15	13	260	19	15	39	80	134	370	206
Cycle	21	18	12	1	1	1	3	7	36	28
Car Driver	370	329	130	10	25	65	91	185	615	588
Passenger	30	27	136	10	12	32	58	137	235	205
Rail	9	8	12	1	1	1	3	8	24	18
Local Bus	21	18	65	5	5	13	12	25	103	62
Others*	55	49	24	2	1	2	5	14	85	67
Total	520	463	637	47	59	154	252	510	1469	1174

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile (Person Trips):

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling (Vehicle Trips)

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.13	0.50	0.63
17:00 - 1800	Trip Rate	0.37	0.23	0.61
0800 - 0900	Trip Generation	128	488	615
17:00 - 1800	Trip Generation	361	227	588

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.

Appendix A Figure 2
Kesgrave East

Resident Population

5729

This is taken from the 2001 Census data for the Ward

Mode of Transport
Adopted for work trips
%

<i>Underground / Light Rail / Tram</i>	0.00%
<i>Train</i>	2.36%
<i>Bus</i>	6.38%
<i>Taxi</i>	1.00%
<i>Car Driver</i>	69.21%
<i>Car Passenger</i>	5.34%
<i>Motorcycle</i>	1.52%
<i>Bicycle</i>	5.83%
<i>On Foot</i>	2.82%
<i>Other</i>	0.29%
<i>Work From Home</i>	6.15%

This is taken from the 2001 Census data for the Ward

No. of Households
Average Household
Size

2255
2.53

This is taken from the 2001 Census data for the Ward
This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate
per Household (7day)

7.22

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate
per Household
(weekday) 1 Way

7.61

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

Daily Person Trip rate
per Household
(weekday) 2 Way

15.22

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.34	15.4%
Business	0.52	3.4%
Education	0.91	6.0%
Escort Education	0.64	4.2%
Other Escort	1.42	9.3%
Shopping	3.21	21.1%
Personal Business	1.54	10.1%
Visiting Friends	2.46	16.2%
Sport & Entertainment	0.96	6.3%
Holidays & Day Trips	0.56	3.7%
Others (including just walk)	0.65	4.3%
All Purposes	15.22	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings	970
Number of Trips/ household/ weekday	14759
AM Peak Hour Trips (10% of weekday total)	1476
PM Peak Hour Trips (8% of weekday total)	1181

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	472	401
Business	59	71
Education	413	35
Escort Education	221	12
Shopping	59	153
Personal Business	162	213
Visiting Friends	30	165
Sport & Entertainment	15	59
Holidays & Day Trips	15	35
Others (including just walk)	30	35
All Purposes	1476	1181

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips top Work by Mode	Percentage of Work Force	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.00%	0	0
Train	2.36%	13	11
Bus	6.38%	34	30
Taxi	1.00%	5	5
Car Driver	69.21%	368	327
Car Passenger	5.34%	28	25
Motorcycle	1.52%	8	7
Bicycle	5.83%	31	28
On Foot	2.82%	15	13
Other	0.29%	2	1
Work From Home	6.15%	33	29
	101%	536	477

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	259	19
Cycle	1.9%	12	1
Car Driver	20.4%	129	10
Passenger	21.3%	135	10
Rail	1.9%	12	1
Local Bus	10.2%	65	5
Others	3.7%	24	2
Total	100.0%	635	47

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	15	39
Cycle	0.9%	1	1
Car Driver	41.9%	25	64
Passenger	20.7%	12	32
Rail	0.9%	1	1
Local Bus	8.8%	5	13
Others	1.4%	1	2
Total	100%	59	153

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips										
	Personal Business			Leisure			Other			TOTAL	
	Percentage of Trips by Mode	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	25.0%	41	53	17.7%	10	46	97.8%	29	35	80	134
Cycle	1.0%	2	2	1.8%	1	5	0.0%	0	0	3	7
Car Driver	42.3%	69	90	36.2%	21	94	2.2%	1	1	91	185
Passenger	23.1%	37	49	33.6%	20	87	0.0%	0	0	57	136
Rail	1.0%	2	2	2.2%	1	6	0.0%	0	0	3	8
Local Bus	5.8%	9	12	4.8%	3	12	0.0%	0	0	12	25
Others	1.9%	3	4	3.7%	2	10	0.0%	0	0	5	14
Total	100%	162	213	100.0%	59	260	100.0%	30	35	251	508

Aggregated Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)		AM	PM
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	15	13	259	19	15	39	80	134	368	205
Cycle	31	28	12	1	1	1	3	7	46	37
Car Driver	368	327	129	10	25	64	91	185	612	586
Passenger	28	25	135	10	12	32	57	136	233	203
Rail	13	11	12	1	1	1	3	8	28	21
Local Bus	34	30	65	5	5	13	12	25	116	73
Others*	48	42	24	2	1	2	5	14	77	60
Total	536	477	635	47	59	153	251	508	1481	1185

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile:

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.13	0.50	0.63
17:00 - 1800	Trip Rate	0.37	0.23	0.60
0800 - 0900	Trip Generation	127	486	612
17:00 - 1800	Trip Generation	359	226	586

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.

Appendix A Figure 3
Martlesham

Resident Population 4926

This is taken from the 2001 Census data for the Ward

Mode of Transport
Adopted for work trips
%

<i>Underground / Light Rail / Tram</i>	0.00%
<i>Train</i>	0.91%
<i>Bus</i>	5.08%
<i>Taxi</i>	0.12%
<i>Car Driver</i>	63.95%
<i>Car Passenger</i>	3.87%
<i>Motorcycle</i>	1.53%
<i>Bicycle</i>	7.74%
<i>On Foot</i>	7.98%
<i>Other</i>	0.36%
<i>Work From Home</i>	8.39%

This is taken from the 2001 Census data for the Ward

No. of Households 2043
Average Household
Size 2.41

This is taken from the 2001 Census data for the Ward

This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate
per Household (7day) 6.86

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate
per Household
(weekday) 1 Way 7.22

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

Daily Person Trip rate
per Household
(weekday) 2 Way 14.44

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.22	15.4%
Business	0.49	3.4%
Education	0.87	6.0%
Escort Education	0.61	4.2%
Other Escort	1.34	9.3%
Shopping	3.05	21.1%
Personal Business	1.46	10.1%
Visiting Friends	2.34	16.2%
Sport & Entertainment	0.91	6.3%
Holidays & Day Trips	0.53	3.7%
Others (including just walk)	0.62	4.3%
All Purposes	14.44	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings	970
Number of Trips/ household/ weekday	14007
AM Peak Hour Trips (10% of weekday total)	1401
PM Peak Hour Trips (8% of weekday total)	1121

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	448	381
Business	56	67
Education	392	34
Escort Education	210	11
Shopping	56	146
Personal Business	154	202
Visiting Friends	28	157
Sport & Entertainment	14	56
Holidays & Day Trips	14	34
Others (including just walk)	28	34
All Purposes	1401	1121

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips to Work by Mode	Percentage of Work Force	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.00%	0	0
Train	0.91%	5	4
Bus	5.08%	26	23
Taxi	0.12%	1	1
Car Driver	63.95%	322	287
Car Passenger	3.87%	20	17
Motorcycle	1.53%	8	7
Bicycle	7.74%	39	35
On Foot	7.98%	40	36
Other	0.36%	2	2
Work From Home	8.39%	42	38
	100%	504	448

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	245	18
Cycle	1.9%	11	1
Car Driver	20.4%	123	9
Passenger	21.3%	128	10
Rail	1.9%	11	1
Local Bus	10.2%	61	5
Others	3.7%	22	2
Total	100.0%	602	45

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	14	37
Cycle	0.9%	1	1
Car Driver	41.9%	23	61
Passenger	20.7%	12	30
Rail	0.9%	1	1
Local Bus	8.8%	5	13
Others	1.4%	1	2
Total	100%	56	146

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips										
	Personal Business			Leisure			Other			TOTAL	
	Percentage of Trips by Mode	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	25.0%	39	50	17.7%	10	44	97.8%	27	33	76	127
Cycle	1.0%	1	2	1.8%	1	5	0.0%	0	0	3	6
Car Driver	42.3%	65	85	36.2%	20	89	2.2%	1	1	86	175
Passenger	23.1%	36	47	33.6%	19	83	0.0%	0	0	54	129
Rail	1.0%	1	2	2.2%	1	5	0.0%	0	0	3	7
Local Bus	5.8%	9	12	4.8%	3	12	0.0%	0	0	12	23
Others	1.9%	3	4	3.7%	2	9	0.0%	0	0	5	13
Total	100%	154	202	100.0%	56	247	100.0%	28	34	238	482

Aggregated Adult Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)		AM	PM
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	40	36	245	18	14	37	76	127	376	218
Cycle	39	35	11	1	1	1	3	6	53	43
Car Driver	322	287	123	9	23	61	86	175	555	532
Passenger	20	17	128	10	12	30	54	129	214	186
Rail	5	4	11	1	1	1	3	7	19	14
Local Bus	26	23	61	5	5	13	12	23	103	64
Others*	52	47	22	2	1	2	5	13	81	63
Total	504	448	602	45	56	146	238	482	1400	1120

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile:

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.12	0.45	0.57
17:00 - 1800	Trip Rate	0.34	0.21	0.55
0800 - 0900	Trip Generation	115	440	555
17:00 - 1800	Trip Generation	327	205	532

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.

Appendix A Figure 4
Nacton

Resident Population 4237

This is taken from the 2001 Census data for the Ward

Mode of Transport
Adopted for work trips
%

<i>Underground / Light Rail / Tram</i>	0.29%
<i>Train</i>	1.53%
<i>Bus</i>	3.40%
<i>Taxi</i>	0.00%
<i>Car Driver</i>	67.08%
<i>Car Passenger</i>	4.69%
<i>Motorcycle</i>	1.15%
<i>Bicycle</i>	3.35%
<i>On Foot</i>	5.22%
<i>Other</i>	0.33%
<i>Work From Home</i>	12.97%

This is taken from the 2001 Census data for the Ward

No. of Households 1724
Average Household
Size 2.45

This is taken from the 2001 Census data for the Ward
This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate
per Household (7day) 6.99

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate
per Household
(weekday) 1 Way 7.36

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

Daily Person Trip rate
per Household
(weekday) 2 Way 14.72

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.27	15.4%
Business	0.50	3.4%
Education	0.88	6.0%
Escort Education	0.62	4.2%
Other Escort	1.37	9.3%
Shopping	3.11	21.1%
Personal Business	1.49	10.1%
Visiting Friends	2.38	16.2%
Sport & Entertainment	0.93	6.3%
Holidays & Day Trips	0.54	3.7%
Others (including just walk)	0.63	4.3%
All Purposes	14.72	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings	970
Number of Trips/ household/ weekday	14278
AM Peak Hour Trips (10% of weekday total)	1428
PM Peak Hour Trips (8% of weekday total)	1142

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	457	388
Business	57	69
Education	400	34
Escort Education	214	11
Shopping	57	148
Personal Business	157	206
Visiting Friends	29	160
Sport & Entertainment	14	57
Holidays & Day Trips	14	34
Others (including just walk)	29	34
All Purposes	1428	1142

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips to Work by Mode	Percentage of Work Force	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.29%	1	1
Train	1.53%	8	7
Bus	3.40%	17	16
Taxi	0.00%	0	0
Car Driver	67.08%	345	306
Car Passenger	4.69%	24	21
Motorcycle	1.15%	6	5
Bicycle	3.35%	17	15
On Foot	5.22%	27	24
Other	0.33%	2	2
Work From Home	12.97%	67	59
	100%	514	457

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	250	19
Cycle	1.9%	11	1
Car Driver	20.4%	125	9
Passenger	21.3%	131	10
Rail	1.9%	11	1
Local Bus	10.2%	63	5
Others	3.7%	23	2
Total	100.0%	614	46

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	14	38
Cycle	0.9%	1	1
Car Driver	41.9%	24	62
Passenger	20.7%	12	31
Rail	0.9%	1	1
Local Bus	8.8%	5	13
Others	1.4%	1	2
Total	100%	57	148

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips												
	Personal Business				Leisure				Other			TOTAL	
	Percentage of Trips by Mode	AM	PM		AM	PM		AM	PM	AM	PM		
Walk	25.0%	39	51	17.7%	10	45	97.8%	28	34	77	129		
Cycle	1.0%	2	2	1.8%	1	5	0.0%	0	0	3	7		
Car Driver	42.3%	66	87	36.2%	21	91	2.2%	1	1	88	179		
Passenger	23.1%	36	47	33.6%	19	84	0.0%	0	0	55	132		
Rail	1.0%	2	2	2.2%	1	6	0.0%	0	0	3	8		
Local Bus	5.8%	9	12	4.8%	3	12	0.0%	0	0	12	24		
Others	1.9%	3	4	3.7%	2	9	0.0%	0	0	5	13		
Total	100%	157	206	100.0%	57	251	100.0%	29	34	243	491		

Aggregated Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)		AM	PM
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	27	24	250	19	14	38	77	129	369	210
Cycle	17	15	11	1	1	1	3	7	32	24
Car Driver	345	306	125	9	24	62	88	179	582	557
Passenger	24	21	131	10	12	31	55	132	222	194
Rail	9	8	11	1	1	1	3	8	24	18
Local Bus	17	16	63	5	5	13	12	24	97	57
Others*	74	66	23	2	1	2	5	13	103	83
Total	514	457	614	46	57	148	243	491	1428	1142

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile:

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.12	0.48	0.60
17:00 - 1800	Trip Rate	0.35	0.22	0.57
0800 - 0900	Trip Generation	120	461	582
17:00 - 1800	Trip Generation	342	215	557

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.

**Appendix A Figure 5
Trimleys with Kirton**

Resident Population 6883

This is taken from the 2001 Census data for the Ward

Mode of Transport Adopted for work trips %		
Underground / Light Rail / Tram		0.00%
Train		0.74%
Bus		3.16%
Taxi		0.60%
Car Driver		70.22%
Car Passenger		6.21%
Motorcycle		2.53%
Bicycle		4.92%
On Foot		3.44%
Other		0.09%
Work From Home		8.08%

This is taken from the 2001 Census data for the Ward

No. of Households 2890
Average Household Size 2.38

This is taken from the 2001 Census data for the Ward
This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate per Household (7day) 6.77

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate per Household (weekday) 1 Way 7.13

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

Daily Person Trip rate per Household (weekday) 2 Way 14.26

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.20	15.4%
Business	0.48	3.4%
Education	0.86	6.0%
Escort Education	0.60	4.2%
Other Escort	1.33	9.3%
Shopping	3.01	21.1%
Personal Business	1.44	10.1%
Visiting Friends	2.31	16.2%
Sport & Entertainment	0.90	6.3%
Holidays & Day Trips	0.53	3.7%
Others (including just walk)	0.61	4.3%
All Purposes	14.26	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings	1620
Number of Trips/ household/ weekday	23108
AM Peak Hour Trips (10% of weekday total)	2311
PM Peak Hour Trips (8% of weekday total)	1849

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	739	629
Business	92	111
Education	647	55
Escort Education	347	18
Shopping	92	240
Personal Business	254	333
Visiting Friends	46	259
Sport & Entertainment	23	92
Holidays & Day Trips	23	55
Others (including just walk)	46	55
All Purposes	2311	1849

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips to Work by Mode	Percentage of Work Force	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.00%	0	0
Train	0.74%	6	5
Bus	3.16%	26	23
Taxi	0.60%	5	4
Car Driver	70.22%	584	519
Car Passenger	6.21%	52	46
Motorcycle	2.53%	21	19
Bicycle	4.92%	41	36
On Foot	3.44%	29	25
Other	0.09%	1	1
Work From Home	8.08%	67	60
	100%	832	739

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	405	30
Cycle	1.9%	18	1
Car Driver	20.4%	202	15
Passenger	21.3%	212	16
Rail	1.9%	18	1
Local Bus	10.2%	101	8
Others	3.7%	37	3
Total	100.0%	994	74

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	23	61
Cycle	0.9%	1	2
Car Driver	41.9%	39	101
Passenger	20.7%	19	50
Rail	0.9%	1	2
Local Bus	8.8%	8	21
Others	1.4%	1	3
Total	100%	92	240

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips										
	Personal Business			Leisure			Other			TOTAL	
	Percentage of Trips by Mode	AM	PM		AM	PM		AM	PM	AM	PM
Walk	25.0%	64	83	17.7%	16	72	97.8%	45	54	125	209
Cycle	1.0%	2	3	1.8%	2	8	0.0%	0	0	4	11
Car Driver	42.3%	108	141	36.2%	33	147	2.2%	1	1	142	289
Passenger	23.1%	59	77	33.6%	31	137	0.0%	0	0	90	213
Rail	1.0%	2	3	2.2%	2	9	0.0%	0	0	4	12
Local Bus	5.8%	15	19	4.8%	4	20	0.0%	0	0	19	39
Others	1.9%	5	6	3.7%	3	15	0.0%	0	0	8	21
Total	100%	254	333	100.0%	92	407	100.0%	46	55	393	795

Aggregated Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)		AM	PM
	AM	PM	AM	PM	AM	PM	AM	PM		
Walk	29	25	405	30	23	61	125	209	582	326
Cycle	41	36	18	1	1	2	4	11	64	51
Car Driver	584	519	202	15	39	101	142	289	967	924
Passenger	52	46	212	16	19	50	90	213	372	325
Rail	6	5	18	1	1	2	4	12	30	21
Local Bus	26	23	101	8	8	21	19	39	155	91
Others*	94	84	37	3	1	3	8	21	140	111
Total	832	739	994	74	92	240	393	795	2311	1849

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile:

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.12	0.47	0.60
17:00 - 1800	Trip Rate	0.35	0.22	0.57
0800 - 0900	Trip Generation	200	767	967
17:00 - 1800	Trip Generation	567	357	924

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.

Appendix A Figure 6
Felixstowe East

Resident Population 4005

This is taken from the 2001 Census data for the Ward

Mode of Transport Adopted for work trips %		
Underground / Light Rail / Tram		0.00%
Train		1.78%
Bus		1.66%
Taxi		0.36%
Car Driver		62.49%
Car Passenger		6.33%
Motorcycle		2.37%
Bicycle		7.63%
On Foot		6.51%
Other		0.18%
Work From Home		10.71%

This is taken from the 2001 Census data for the Ward

No. of Households 1768
Average Household Size 2.27

This is taken from the 2001 Census data for the Ward

This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate per Household (7day) 6.44

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate per Household (weekday) 1 Way 6.78

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

Daily Person Trip rate per Household (weekday) 2 Way 13.57

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.09	15.4%
Business	0.46	3.4%
Education	0.81	6.0%
Escort Education	0.57	4.2%
Other Escort	1.26	9.3%
Shopping	2.86	21.1%
Personal Business	1.37	10.1%
Visiting Friends	2.20	16.2%
Sport & Entertainment	0.85	6.3%
Holidays & Day Trips	0.50	3.7%
Others (including just walk)	0.58	4.3%
All Purposes	13.57	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings	1620
Number of Trips/ household/ weekday	21979
AM Peak Hour Trips (10% of weekday total)	2198
PM Peak Hour Trips (8% of weekday total)	1758

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	703	598
Business	88	105
Education	615	53
Escort Education	330	18
Shopping	88	229
Personal Business	242	316
Visiting Friends	44	246
Sport & Entertainment	22	88
Holidays & Day Trips	22	53
Others (including just walk)	44	53
All Purposes	2198	1758

88 387

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips top Work by Mode	Percentage of Work Force	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.00%	0	0
Train	1.78%	14	13
Bus	1.66%	13	12
Taxi	0.36%	3	3
Car Driver	62.49%	494	439
Car Passenger	6.33%	50	45
Motorcycle	2.37%	19	17
Bicycle	7.63%	60	54
On Foot	6.51%	52	46
Other	0.18%	1	1
Work From Home	10.71%	85	75
	100%	791	703

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	385	29
Cycle	1.9%	18	1
Car Driver	20.4%	193	14
Passenger	21.3%	201	15
Rail	1.9%	18	1
Local Bus	10.2%	96	7
Others	3.7%	35	3
Total	100.0%	945	70

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	22	58
Cycle	0.9%	1	2
Car Driver	41.9%	37	96
Passenger	20.7%	18	47
Rail	0.9%	1	2
Local Bus	8.8%	8	20
Others	1.4%	1	3
Total	100%	88	229

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips										TOTAL	
	Personal Business			Leisure			Other					
	Percentage of Trips by Mode	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
Walk	25.0%	60	79	17.7%	16	69	97.8%	43	52	119	199	
Cycle	1.0%	2	3	1.8%	2	7	0.0%	0	0	4	10	
Car Driver	42.3%	102	134	36.2%	32	140	2.2%	1	1	135	275	
Passenger	23.1%	56	73	33.6%	30	130	0.0%	0	0	85	203	
Rail	1.0%	2	3	2.2%	2	9	0.0%	0	0	4	12	
Local Bus	5.8%	14	18	4.8%	4	19	0.0%	0	0	18	37	
Others	1.9%	5	6	3.7%	3	14	0.0%	0	0	8	20	
Total	100%	242	316	100.0%	88	387	100.0%	44	53	374	756	

Aggregated Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	52	46	385	29	22	58	119	199	578	332
Cycle	60	54	18	1	1	2	4	10	83	67
Car Driver	494	439	193	14	37	96	135	275	859	825
Passenger	50	45	201	15	18	47	85	203	355	310
Rail	14	13	18	1	1	2	4	12	37	28
Local Bus	13	12	96	7	8	20	18	37	135	76
Others*	108	96	35	3	1	3	8	20	152	122
Total	791	703	945	70	88	229	374	756	2198	1758

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile:

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.11	0.42	0.53
17:00 - 1800	Trip Rate	0.31	0.20	0.51
0800 - 0900	Trip Generation	178	681	859
17:00 - 1800	Trip Generation	506	318	825

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.

Appendix A Figure 7
Felixstowe North

Resident Population 4299

This is taken from the 2001 Census data for the Ward

Mode of Transport Adopted for work trips %		
Underground / Light Rail / Tram		0.00%
Train		0.92%
Bus		2.50%
Taxi		0.97%
Car Driver		57.76%
Car Passenger		6.02%
Motorcycle		3.27%
Bicycle		9.95%
On Foot		11.68%
Other		0.15%
Work From Home		6.79%

This is taken from the 2001 Census data for the Ward

No. of Households 1965
Average Household Size 2.19

This is taken from the 2001 Census data for the Ward
This is taken from the 2001 Census data for the Ward

Daily Person Trip Rate per Household (7day) 6.22

Average Daily Trip per Household (1way) = 1038 (NTS total number of trips per person per year) X Average Household Size/ 365 days.

Daily Person Trip rate per Household (weekday) 1 Way 6.55

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

Daily Person Trip rate per Household (weekday) 2 Way 13.10

The NTS defines a trip as being one way, thus it is necessary to double the average daily trip per household figure to reflect two way trips i.e. arrivals and departures.

Weekday Trips per Household by Purpose (Trips % from Table 4.1 of NTS)

Purpose of Travel	Trips - 2 way (Household/ Weekday)	Trips %
Commuting	2.02	15.4%
Business	0.45	3.4%
Education	0.79	6.0%
Escort Education	0.55	4.2%
Other Escort	1.22	9.3%
Shopping	2.76	21.1%
Personal Business	1.32	10.1%
Visiting Friends	2.12	16.2%
Sport & Entertainment	0.83	6.3%
Holidays & Day Trips	0.48	3.7%
Others (including just walk)	0.56	4.3%
All Purposes	13.10	100.0%

Table 4.1 of the National Travel Survey provides details of the national average number of trips per persons by trip purpose.

Daily Trip Generation by purpose during peaks

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%

The peak periods considered are 08:00 - 09:00 and 17:00 - 18:00. Table 6.6b of the National Travel Survey shows that 10% and 8% of all weekday trips took place within these two peak periods. Table 7.12 of DfT Focus on Personal Travel provides a breakdown of the proportion of trips based on trip purpose and time of day (weekday) during the peak hours and this is shown in the table to the left. Based upon the above information, it is possible to estimate the potential weekday peak hour trips generated by the proposed allocation of dwellings at this site.

Proposed No. of Dwellings 1620
Number of Trips/ household/ weekday 21227
AM Peak Hour Trips (10% of weekday total) 2123
PM Peak Hour Trips (8% of weekday total) 1698

Proposed number of dwellings at allocation site

This is the total number of person trips (all day) for number of proposed dwellings (Proposed No. of Dwellings x Daily trip rate per household)

Proposed No. of Dwellings x Daily trip rate per household X 10% for the AM peak

Proposed No. of Dwellings x Daily trip rate per household X 8% for the PM peak

Both peak hour trips can then be applied to estimate the peak hour trip potential by trip purpose:

Purpose of Travel	AM Peak (08:00 - 09:00)	PM Peak (17:00 - 18:00)
Commuting	679	577
Business	85	102
Education	594	51
Escort Education	318	17
Shopping	85	221
Personal Business	233	306
Visiting Friends	42	238
Sport & Entertainment	21	85
Holidays & Day Trips	21	51
Others (including just walk)	42	51
All Purposes	2123	1698

The total number of person trips for the AM and PM peaks is then applied to the percentage journey purpose. The resulting trips are shown in the table to the left.

Assignment of Trips by Mode

Trips to Work

Trips to Work by Mode	Percentage of Work Force	AM Peak Trips	PM Peak Trips
Underground / Light Rail / Tram	0.00%	0	0
Train	0.92%	7	6
Bus	2.50%	19	17
Taxi	0.97%	7	7
Car Driver	57.76%	441	392
Car Passenger	6.02%	46	41
Motorcycle	3.27%	25	22
Bicycle	9.95%	76	68
On Foot	11.68%	89	79
Other	0.15%	1	1
Work From Home	6.79%	52	46
	100%	764	679

The resulting trips by purpose can then be assigned to the number of trips by mode. For trips to work, the 2001 Census Journey to Work profile for the Ward has been used. The resulting trips by mode are shown in the table to the left. It should be noted that the trips to work include the purposes 'commuting' and 'business'

Education and Escort Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	40.7%	372	28
Cycle	1.9%	17	1
Car Driver	20.4%	186	14
Passenger	21.3%	194	14
Rail	1.9%	17	1
Local Bus	10.2%	93	7
Others	3.7%	34	3
Total	100.0%	913	68

For education trips the National Travel Survey profiles have been used. The resulting trips by mode are shown in the table to the left.

Shopping Trips

Trips by Mode	Percentage of Trips by Mode	AM Peak Trips	PM Peak Trips
Walk	25.3%	22	56
Cycle	0.9%	1	2
Car Driver	41.9%	36	93
Passenger	20.7%	18	46
Rail	0.9%	1	2
Local Bus	8.8%	7	19
Others	1.4%	1	3
Total	100%	85	221

For Shopping trips (to the left) and Personal Business, Leisure and Other trips (table below), the National Travel Survey profiles have also been used. These trips can then be added together to create the aggregated person trips by mode and purpose. It should be noted that 'Leisure' includes the trip purposes visiting friends, sport and entertainment and holidays and day trips.

Other

Trips by Modes	Other Trips											
	Personal Business			Leisure				Other			TOTAL	
	Percentage of Trips by Mode	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
Walk	25.0%	58	76	17.7%	15	66	97.8%	42	50	115	192	
Cycle	1.0%	2	3	1.8%	2	7	0.0%	0	0	4	10	
Car Driver	42.3%	99	129	36.2%	31	135	2.2%	1	1	130	266	
Passenger	23.1%	54	71	33.6%	29	125	0.0%	0	0	82	196	
Rail	1.0%	2	3	2.2%	2	8	0.0%	0	0	4	11	
Local Bus	5.8%	13	18	4.8%	4	18	0.0%	0	0	18	36	
Others	1.9%	4	6	3.7%	3	14	0.0%	0	0	8	20	
Total	100%	233	306	100.0%	85	374	100.0%	42	51	361	730	

Aggregated Person Trips

Trips By Mode	Trip Purpose								Total by Mode	
	Work		Education		Shopping		Other (Various)		AM	PM
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Walk	89	79	372	28	22	56	115	192	598	355
Cycle	76	68	17	1	1	2	4	10	98	81
Car Driver	441	392	186	14	36	93	130	266	793	764
Passenger	46	41	194	14	18	46	82	196	340	297
Rail	7	6	17	1	1	2	4	11	29	21
Local Bus	19	17	93	7	7	19	18	36	137	79
Others*	85	76	34	3	1	3	8	20	128	101
Total	764	679	913	68	85	221	361	730	2123	1698

*this includes work from home, motorcycle and taxi trips.

Arrivals/ Departures and Trip Rate/ Dwelling

Privately owned dwellings in TRICS (all sites suggests the following arrivals and departures profile:

Peak Period		Arrivals	Departures	Total
0800 - 0900	Arrivals/ Departures % Split	20.7%	79.3%	100.0%
17:00 - 1800	Arrivals/ Departures % Split	61.4%	38.6%	100.0%

The table above gives the aggregated trips by mode and purpose for the AM and PM peak. However, no details are provided on the arrival and departure profiles. In order to estimate an arrival and departure profile, person trip rates for private housing have been used. The person trip rates and the resulting arrivals/ departure profile is shown in the table to the left.

Allocation Site Trip Rate/ Dwelling

Peak Period		Arrivals	Departures	Total
0800 - 0900	Trip Rate	0.10	0.39	0.49
17:00 - 1800	Trip Rate	0.29	0.18	0.47
0800 - 0900	Trip Generation	164	629	793
17:00 - 1800	Trip Generation	469	295	764

The table to the left is the resulting vehicle trip rate i.e. total car driver trips divided by the proposed number of dwellings multiplied by the appropriate arrival/ departure profile.