AECOM

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Suffolk County Council
September 2009

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Suffolk Coastal District Council Local Development Framework Housing Allocation

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1 Introduction

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1.1 Introduction

In August 2009, Suffolk County Council (SCC) commissioned AECOM (formerly Faber Maunsell) to undertake a study to examine the broad transport implications of the current preferred housing allocation strategy to be taken forward under the Suffolk Coastal District Council (SCDC) Local Development Framework (LDF) Formal Submission Consultation.

This study builds on a previous study undertaken by AECOM in August 2008 which reported in transport terms on the options put forward under the 'Preferred Options' consultation process.

SCDC have requested that the previous assessment be updated to report upon the following:

- Allocation of 1000 dwellings to be dispersed across Felixstowe and Trimleys with a concentration on land between Walton and Trimley St. Mary;
- Allocation of 2000 dwellings east of Ipswich in the Martlesham Area and alternative scenarios where development may be spread over the five sites previously identified;
- The proposed provision of 870 new housing allocations across Market Towns within the SCDC area; and,
- The cumulative impacts of the current proposed housing allocations.

This report describes the methodology used to determine the broad impacts of the housing allocations on the highway network, and gives the broad conclusions. The results will assist in the investigation of the District Council's preferred option in each area

1.2 Objectives of the Study

This study seeks to meet the following objectives:

- To examine the transport implications of the above housing allocation options for Suffolk Coastal District, both separately and in combination.
- To consider the development sites 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.
- To consider the potential for improving sustainable transport in the area.

1.3 Study Restrictions

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

- No new survey work has been undertaken;
- No formal new transport network modelling work has been undertaken.
- No consultation relating specifically to this study has been undertaken at this stage;
- This study comprises an initial round of investigations and conclusions, without subsequent iteration or optimisation;
- Without detailed traffic data available, and with the large range of uncertainties it is not yet possible to identify in detail a comprehensive schedule of mitigation requirements and associated costs; and,
- The trip generation and distribution calculations are largely based on 2001 census data which is considered to be the most appropriate data available and is suitable for this study, however it should be highlighted that it is now 9 years old and mode splits in particular are likely to be slightly different now.

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

Given the high level context of this study the specific transportation measures cannot be identified or costed in detail, however a broad understanding of the likely transport mitigation measures required has been identified, where possible, along with key issues for consideration in taking forward the proposed allocations.

2 Background & Approach

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2.1 Background & Approach

The previous study (Suffolk Coastal – Ipswich Eastern Fringe & Felixstowe / Trimleys Transport Studies – Transport Evidence, July 2008), undertaken by AECOM, examined five possible locations on the eastern edge of Ipswich for provision of a housing allocation of 1050 dwellings and five at Felixstowe and the Trimleys for provision of a housing allocation of 1660 dwellings.

Following the Preferred Options Consultation and ongoing investigation by SCDC, broad locations for revised major housing allocations have been identified by SCDC in the district in three principal areas:

- The area to the east of Ipswich (2000 across the previous five locations examined);
- The area of Felixstowe and the Trimleys (1000 dwellings dispersed across Greenfield sites in Felixstowe and Trimleys); and,
- Market Towns (870 dwellings across the five towns).

As such within these broad areas, twelve potential housing allocation areas have been identified. For the purposes of this assessment, the three broad areas have been considered firstly 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 was allocated within Felixstowe and the Trimleys. This can also be said for traffic from sites allocated to the east of Ipswich or the Market Towns heading towards Felixstowe. An overview of the cumulative implications of development across each of the broad locations on the strategic highway network, and on the potential to support sustainable transport measures is considered.

The study considers the existing and proposed strategic employment areas in the surrounding area which would be expected to draw significant numbers of trips from the proposed allocation sites. These include:

- Adastral Business Park
- The Port of Felixstowe
- Ipswich Town Centre

An assessment year of 2024 is assumed, in keeping with the previous study and the LDF horizon of 2025. Along with background traffic growth over the study horizon, relevant large committed developments, which are likely to impact on the highway network in the vicinity of each area, are accounted for in this assessment.

In considering the committed developments, the anticipated growth in HGV traffic from Felixstowe Port has been considered as part of the base scenario against which the proposed allocations have been compared.

It should be highlighted that potential Park & Ride users have been treated as new car trips under the current assessment. Whilst use of the Park & Ride facilities should be promoted in the future, the level of use is difficult to determine at this stage.

This work has been carried out in the context of the approved East of England Plan, the emerging Suffolk Transport Strategy, the Suffolk Local Transport Plan (2006-2011) and other relevant Government guidance.

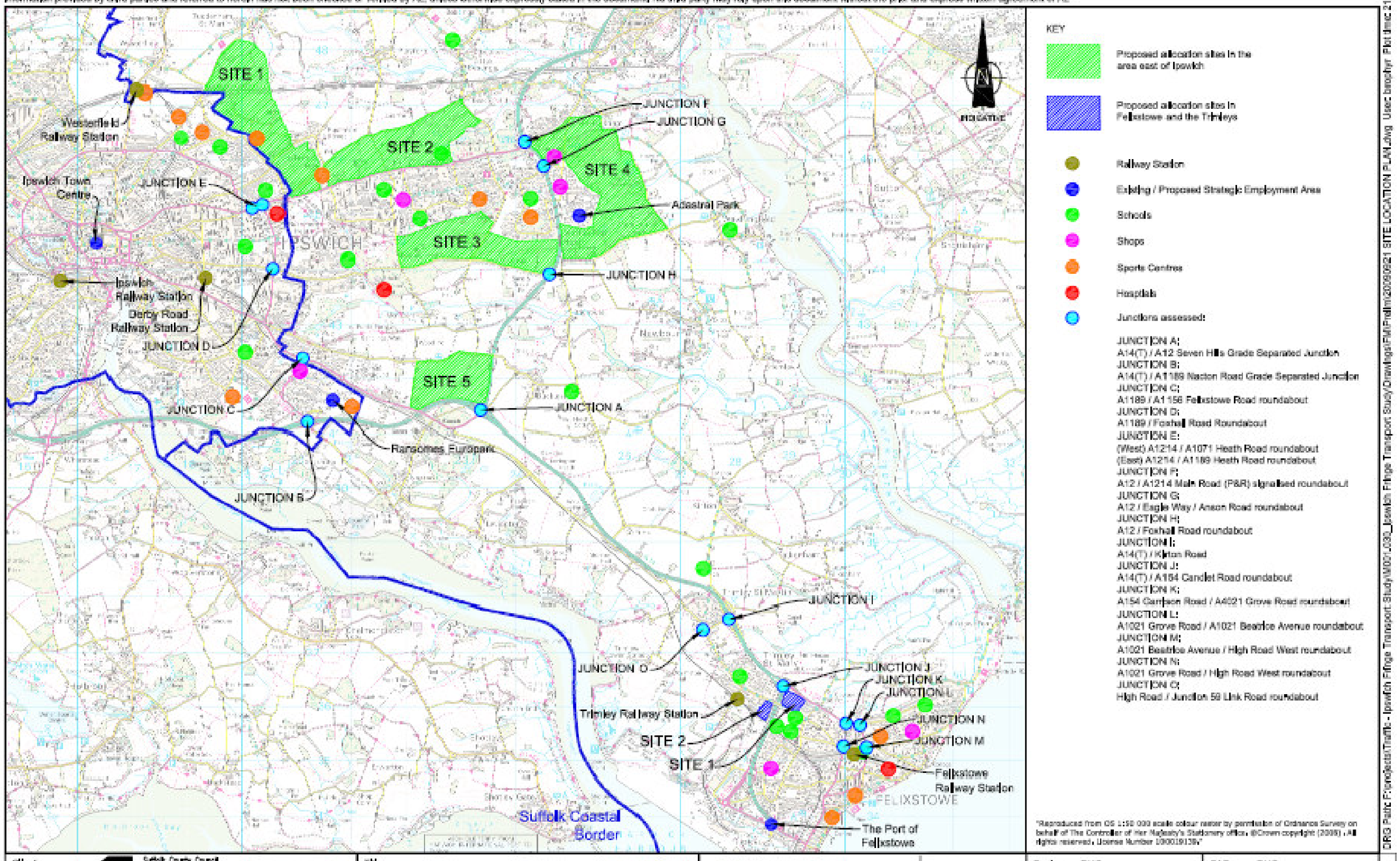
2.2 Study Area

The locations of the allocation sites in East of Ipswich and Felixstowe, are shown on **Drawing 60095679_001**. A more detailed breakdown of the scenarios under consideration is provided in Sections 3-5 of this report. The locations proposed across the district are summarised in Table 2.1.

Table 2.1: Proposed Housing Allocations Sites

Site	Area		
	Area to East of Ipswich	**Area of Felixstowe/ Trimleys**	**Market Towns**
1	Ipswich Boundary - Westerfield to Rushmere St Andrew (Village)	Northern side of High Road / High Street	Aldeburgh
2	North of A1214, Woodbridge Road	Southern side of High Road / High Street	Framlingham
3	South of Kesgrave/ Martlesham Heath	-	Leiston
4	South of Old Martlesham/ East of A12	-	Saxmundham
5	North-west of A14	-	Woodbridge

Source: SCDC Brief



KEY

- Proposed allocation sites in the area east of Ipswich
- Proposed allocation sites in Felixstowe and the Trimleys
- Railway Station
- Existing / Proposed Strategic Employment Area
- Schools
- Shops
- Sports Centres
- Hospitals
- Junctions assessed:

JUNCTION A:
A14(T) / A12 Seven Hills Grade Separated Junction
JUNCTION B:
A14(T) / A1189 Nacton Road Grade Separated Junction
JUNCTION C:
A1189 / A1156 Felixstowe Road roundabout
JUNCTION D:
A1189 / Foxhall Road Roundabout
JUNCTION E:
(West) A1214 / A1071 Heath Road roundabout
(East) A1214 / A1189 Heath Road roundabout
JUNCTION F:
A12 / A1214 Main Road (P&R) signalised roundabout
JUNCTION G:
A12 / Eagle Way / Anson Road roundabout
JUNCTION H:
A12 / Foxhall Road roundabout
JUNCTION I:
A14(T) / Kirton Road
JUNCTION J:
A14(T) / A154 Candlet Road roundabout
JUNCTION K:
A154 Garrison Road / A4021 Grove Road roundabout
JUNCTION L:
A1021 Grove Road / A1021 Beatrice Avenue roundabout
JUNCTION M:
A1021 Beatrice Avenue / High Road West roundabout
JUNCTION N:
A1021 Grove Road / High Road West roundabout
JUNCTION O:
High Road / Junction 59 Link Road roundabout

DRG Path: P:\projects\Traffic - Ipswich Fringe Transport Study\Work\030_Ipswich Fringe Transport Study\Drawings\FM\Fm\20090821 SITE LOCATION PLAN.dwg User: bscopher Plot time: 21-09-09

Client: Suffolk County Council, Director of Environment & Transport, Endeavour House, 8 Russell Road, Ipswich, IP1 2BX			
Project: Suffolk Coastal District Council LDF Housing Allocation Transport Assessment	Title: Transport Study Site Location Plan	AECOM House, 63-77 Victoria Street, St Albans, Herts AL1 3ER. Tel: +44 (0)1727 535000 Fax: +44 (0)1727 535099 www.aecom.com	Design: DHG / CAD: DHG Chk'd: BC / Appr'd: BC Date: August 2009 / Scale: NTS No. 60095678_001 / Rev: A A3

2.3 Overall Road Network

AECOM 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 the Market Towns;
- 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.
- High Street / High Road – Local road providing access the A14 and Felixstowe.

The A14 and A12 in particular carry out a strategic economic role in terms of facilitating the economic vibrancy of the area and the level of service currently offered by these routes should, where possible, be preserved. This is particularly relevant in the context of Lowestoft, Felixstowe and strategic employment/Industry growth sites close to Ipswich such as Sizewell and Adastral Park.

Within the routes identified above AECOM 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. Where detailed information was available the likely level of impact on these junctions has been identified. The location of these junctions in relation to the proposed allocation sites are shown on **Drawing 60095679_001**:

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;; 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 Candlet Road / A1541 Garrison Lane roundabout;
- High Road West / Garrison Lane signalised junction
- High Road West / Beatrice Avenue / Hamilton Road roundabout

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.

2.4 Study Scenarios

SCC and SCDC have outlined the following numbers of homes (shown in Table 2.2) that are put forward in the proposed LDF strategy. The SCDC report “Land Availability Housing – Approved and allocated sites for five or more units” dated April 2007 quotes somewhat higher values for committed development (shown in brackets within the Tables below where relevant).

Under the previous study SCDC stated that the higher housing numbers from the "Land Availability Housing" report should be used in the assessment. This is of relevance to the consideration of committed developments. This same approach has been adopted under the current strategy.

Table 2.2 : Potential Housing Allocations identified in the LDF (Dwellings)

Area East of Ipswich:	
With planning permission	420 *(822)
Potential on brownfield sites (urban capacity)	220
Allocations from Current Local Plan	0
Proposed New Allocations	2000
Total 2007 – 2024	2640
Area of Felixstowe/Trimleys:	
With planning permission	160 *(250)
Potential on brownfield sites (urban capacity)	250
Allocations from Current Local Plan	0
Proposed New Allocations	1000
Total 2007 – 2024	1410
Market Towns	
With planning permission	670
Potential on brownfield sites (urban capacity)	400
Allocations from Current Local Plan	150
Proposed New Allocations	870
Total 2007 – 2024	2090

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

In terms of the proposed allocation sites, AECOM 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, AECOM 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. On the basis of this, it has been assumed in this study that an average density of 40 dwellings per hectare applies to all sites. Each of the allocation sites in the east of Ipswich is capable of accommodating all of the dwellings at a density within the nationally prescribed range and as such this assumption is most relevant to Felixstowe and Trimleys, where the sites now put forward are of finite capacity.

In summary the scenarios tested under this study are defined below under each of the broad areas.

<u>East of Ipswich</u>

All five sites considered in the east of Ipswich have the potential for provision of the additional 950 beyond the 1050 dwellings proposed for Site 4 (Martlesham), and as such there are essentially 5 scenarios being tested. These are as follows:

Table 2.3: New Housing Allocation Scenarios – East of Ipswich

Scenario	Site	Description	Number of Dwellings
Scenario 1	Site 4	South of Old Martlesham/ East of A12	2,000
Scenario 2	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 1	Ipswich Boundary - Westerfield to Rushmere St Andrew (Village)	950
Scenario 3	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 2	North of A1214, Woodbridge Road	950
Scenario 4	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 3	South of Kesgrave/ Martlesham Heath	950
Scenario 5	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 5	North-west of A14.	950

Felixstowe and Trimleys

In the latest Core Strategy draft, SCDC have indicated that the general areas covered by 'Site 1' and 'Site 2' in the study area are the current preferred development locations for concentration of development, and the remaining greenfield allocations are currently unidentified and will be dispersed in nature.

On the basis of the density assumptions outlined previously, i.e. an average density of 40 dwellings per hectare on both plots, based on an approximate calculation of site areas, it is assumed Site 1 would accommodate 400 dwellings and site 2, 200 dwellings. Therefore, given a total housing allocation of 1000 dwellings, the remaining 400 dwellings would be dispersed across Felixstowe and Trimleys greenfield sites.

As such a single scenario is under consideration in the Felixstowe and Trimleys Area which comprises:

Table 2.4: New Housing Allocation Scenario – Felixstowe & Trimleys

Site	Description	Number of Dwellings
Site 1	Northern side of High Road / High Street	400
Site 2	Southern side of High Road / High Street	200
	Dispersed across remaining greenfield sites	400

Market Towns

Whilst specific allocations for specific sites have not been considered the proposed provision of 870 new allocations across five Market Towns suggests a relatively small scale development at each location. As such assessment of individual site in detail is not considered feasible or appropriate for a study of this nature. The strategic impact in transport terms of provision of a new housing allocation of 870 dwellings across the five Market Towns is however possible and has been assessed under this study.

2.5 Committed Developments

In addition to the proposed development sites, it is necessary to consider significant committed developments in the area, as these are likely to have an impact on the existing transport networks in the area, and have the potential to affect the feasibility of development of the proposed allocation sites.

Table 2.5 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 2.5: 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				
Bucklesham	-	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)

Since preparation of the previous AECOM study, updated figures from the 'Land Availability Report 2009' have been made available which discounts developments realised since the 2007 study. This is particularly pertinent for Kesgrave and we assume the reason for this is that a large proportion of the approved housing with planning consents has been constructed during this interim period. The traffic impact assessment for this study applies general traffic growth to historic count data for the period from 2008 to 2024 and as such the previous assumptions have been retained to ensure that all relevant planning applications are taken into account.

Table 2.5 shows that there are two dominant development areas 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.

AECOM 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

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. It is understood that the 158 dwelling brownfield site in Felixstowe known as the 'South Sea Front' site (application number C05/1723) was approved in April 2009, and this is also treated as a 'significant site'.

As previously mentioned, the figures given in Table 2.5 have been superseded by updated estimates from SCDC's most recent Land Availability Report 2009. Whilst the new figures are slightly different, they will not have a major impact on the results of this study. It should be noted that the 'South Sea Front' site in Felixstowe is not included on the most recent 2009 Land Availability Report because this covers the period from 1st April 2008 to 31st March 2009

The impact of the Felixstowe Port 'South reconfiguration scheme' which is predicted to generate some 1200 new jobs has been taken into account in terms of A14 traffic increases predicted in the Felixstowe Port Logistics Study (October 2008).

2.6 Strategic Employment Sites

SCC and SCDC have asked AECOM 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 Town Centre, which would appear from the census data to be the overall largest attractor of home to work trips within the area.

Adastral Park

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 node 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 centre, Suffolk Innovation Park, at the site, for which a planning application is under consideration.

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. Other services which operate in the vicinity of Adastral Park are the 63, 64 and 65 all of which operate an hourly service between Ipswich, Woodbridge and the Market Towns of Framingham, Saxmundham, Aldeburgh and Rendlesham and combine to provide a 15 minute frequency between Woodbridge and Ipswich. In addition the Park and Ride bus service which operates on a 10 minute frequency between Martlesham and Ipswich is within reasonably close proximity. This service currently does not stop between Ipswich Town Centre and the Martlesham Park & Ride Site. In addition the existing 172, 173 and 174 bus services provide a combined 2-hourly service between Felixstowe and Woodbridge via Martlesham, providing the only direct public transport service between Adastral Park and Felixstowe.

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 to rail connections, and cycle networks.

Port of Felixstowe

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.

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 suggests that provision of 1000 new allocations in Flexstowe raises the potential to provide local housing for these new jobs.

Ipswich Town Centre

Ipswich Town Centre 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.

Other existing or future significant employment areas in Ipswich, but based on Census do not represent such key focal points for work trips from the east of Ipswich, include:

- Hadleigh Road and Whitehouse Industrial Areas (both on the western side of Ipswich); and,
- Ipswich Hospital, Cranes site on Nacton Road, and Ransomes Europark in east of Ipswich.

These areas are considered in the context of sustainable transport links from the housing allocation sites.

3 Trip Generation & Distribution

3 Trip Generation & Distribution

3.1 Introduction

AECOM has utilised the 2001 Census data, National Travel Survey and TRICS database in order to estimate the potential person trip generation and distribution of the proposed housing allocation and committed development sites and to determine the likely distribution. Appendix A of this report details the methodology used to determine the trip rate/ generation and distribution.

A trip rate and distribution for each of the allocated sites, has been identified 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.

This same exercise has been undertaken for each of the committed developments assessed under this study. As stated previously, the relatively small scale of development at each Market Town location does not warrant assessment in detail under this study. However, in order to assess the strategic impact in transport terms, it has been necessary to identify trip generation for the Market Towns area in general along with broad distribution patterns such that the likely impact on the strategic road network can be assessed. This is also outlined in this Section.

3.2 Trip Generation (East of Ipswich & Felixstowe Area)

The wards used for extracting Census data of relevance to each site within the East of Ipswich and the area of Felixstowe and the Trimleys is shown in Table 3.1.

Table 3.1: Proposed Allocation Site Wards for Census data.

Area No. (Drawing 60095679_001)	2001 Census Ward	
	Area to the East of Ipswich	Area of Felixstowe and the Trimleys
1	Rushmere St Andrew	Felixstowe North
2	Kesgrave East	Felixstowe North
3	Kesgrave East	-
4	Martlesham	-
5	Nacton	-

The trip generation by all modes is given in Table 3.2, which demonstrates the output for the area to the east of Ipswich and Table 3.3 for the area of Felixstowe/ Trimleys:

Table 3.2: Estimated peak hour person trip generation for proposed allocations East of Ipswich (person trips per hour for the total dwelling allocation)

Trips By Mode		Trip Purpose								Total Trips by Mode	
		Work *(trips)*		***Education*** *(trips)*		***Shopping*** *(trips)*		***Other (Various)*** *(trips)*			
		AM	PM	AM	PM	AM	PM	AM	PM	**AM**	**PM**
Scenario 1 (2,000 Dwellings on Site 4)	Walk	83	74	506	38	29	76	156	262	**774**	**450**
	Cycle	80	72	23	2	1	3	5	13	**109**	**90**
	Car Driver	665	591	253	19	48	126	177	361	**1143**	**1097**
	Passenger	40	36	264	20	24	62	112	267	**440**	**385**
	Rail	9	8	23	2	1	3	6	15	**39**	**28**
	Local Bus	53	47	126	9	10	26	24	48	**213**	**130**
	Others	108	96	46	3	2	4	10	27	**166**	**130**
	Total	**1038**	**924**	**1231**	**93**	**115**	**300**	**490**	**993**	**2884**	**2310**
Scenario 2 (1,050 Dwellings on Site 4 and 950 Dwellings on Site 1)	Walk	58	51	520	39	30	78	161	269	**769**	**437**
	Cycle	63	56	24	2	1	3	5	14	**93**	**75**
	Car Driver	711	632	260	19	50	129	182	371	**1203**	**1151**
	Passenger	50	45	272	20	25	64	115	274	**462**	**403**
	Rail	14	12	24	2	1	3	6	16	**45**	**33**
	Local Bus	48	43	130	10	10	27	25	50	**213**	**130**
	Others	111	99	47	4	2	4	11	27	**171**	**134**
	Total	**1055**	**938**	**1277**	**96**	**119**	**308**	**505**	**1021**	**2956**	**2363**
Scenarios 3 & 4 (1,050 Dwellings on Site 4 and 950 Dwellings on Site 2 or 3)	Walk	58	52	519	39	30	78	160	268	**767**	**437**
	Cycle	73	65	24	2	1	3	5	14	**103**	**84**
	Car Driver	709	630	259	19	50	129	182	371	**1200**	**1149**
	Passenger	49	43	271	20	25	64	115	273	**460**	**400**
	Rail	17	15	24	2	1	3	6	16	**48**	**36**
	Local Bus	61	54	130	10	10	27	24	50	**225**	**141**
	Others	103	92	47	4	2	4	11	27	**163**	**127**
	Total	**1070**	**951**	**1274**	**96**	**119**	**308**	**503**	**1019**	**2967**	**2374**
Scenario 5 (1,050 Dwellings on Site 4 and 950 Dwellings on Site 5)	Walk	70	62	511	38	30	77	158	264	**769**	**441**
	Cycle	59	53	23	2	1	3	5	13	**88**	**71**
	Car Driver	687	610	255	19	49	127	179	365	**1170**	**1121**
	Passenger	45	40	267	20	24	63	113	269	**449**	**392**
	Rail	14	13	23	2	1	3	6	15	**44**	**33**
	Local Bus	45	40	128	9	10	27	24	49	**207**	**125**
	Others	130	115	46	3	2	4	10	27	**188**	**149**
	Total	**1050**	**933**	**1253**	**93**	**117**	**304**	**495**	**1002**	**2915**	**2332**

The vehicle trip rates were found to be 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.

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.

A new development of 2,000 dwellings or more would justify provision of supporting community infrastructure such as local retail, education and health facilities, providing the opportunity to design sustainably a community where external trip demand is minimised. It should be highlighted that this has not been taken account of when calculating the trip generation potential for Scenario 1 for east of Ipswich, with 2,000 dwellings on Site 4. As such arguably the external trip generation associated with non-work trips could be considerably less than specified above for this option.

Table 3.3: Expected person trips for Felixstowe & Trimleys Housing Allocation Option (person trips per hour for the total dwelling allocation)

Trip By Mode		Trip Purpose								Total Trips By Mode	
		Work *(trips)*		***Education*** *(trips)*		***Shopping*** *(trips)*		***Other (Various)*** *(trips)*			
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Site 1 (400 dwellings)	Walk	24	19	99	7	6	13	46	74	175	113
	Cycle	20	16	4	0	0	0	1	2	25	18
	Car Driver	117	94	49	3	10	21	33	50	209	168
	Passenger	12	10	52	4	5	10	22	41	91	65
	Rail	2	2	4	0	0	0	1	3	7	5
	Local Bus	5	4	25	2	2	4	4	7	36	17
	Others	23	18	9	1	0	1	2	4	34	24
	Total	**203**	**163**	**242**	**17**	**23**	**49**	**109**	**181**	**577**	**410**
Site 2 (200 dwellings)	Walk	12	10	49	3	3	6	23	37	87	56
	Cycle	10	8	2	0	0	0	1	1	13	9
	Car Driver	58	47	25	2	5	11	16	25	104	85
	Passenger	6	5	26	2	2	5	11	20	45	32
	Rail	1	1	2	0	0	0	1	1	4	2
	Local Bus	3	2	12	1	1	2	2	3	18	8
	Others	11	9	4	0	0	0	1	2	16	11
	Total	**101**	**82**	**120**	**8**	**11**	**24**	**55**	**89**	**287**	**203**
Dispersed (400 dwellings)	Walk	8	6	107	7	6	14	50	81	171	108
	Cycle	11	9	5	0	0	1	1	2	17	12
	Car Driver	154	125	54	4	11	23	36	54	255	206
	Passenger	14	11	56	4	5	11	24	44	99	70
	Rail	2	1	5	0	0	1	1	3	8	5
	Local Bus	7	6	27	2	2	5	5	7	41	20
	Others	25	20	10	1	0	1	2	5	37	27
	Total	**221**	**178**	**264**	**18**	**24**	**56**	**119**	**196**	**628**	**448**
TOTAL (1000 dwellings)	Walk	44	35	255	17	15	33	119	192	433	277
	Cycle	41	33	11	0	0	1	3	5	55	39
	Car Driver	329	266	128	9	26	55	85	129	568	459
	Passenger	32	26	134	10	12	26	57	105	235	167
	Rail	5	4	11	0	0	1	3	7	19	12
	Local Bus	15	12	64	5	5	11	11	17	95	45
	Others	59	47	23	2	0	2	5	11	87	62
	Total	**525**	**423**	**626**	**43**	**58**	**129**	**283**	**466**	**1492**	**1061**

Sites 1 and 2 in the Felixstowe and Trimleys area have a slightly lower vehicle trip rate than 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.

3.3 Trip Distribution (East of Ipswich & Felixstowe Area)

Using 2001 Census journey to work data it was possible to estimate trip distribution, by mode, for each site. Using this data it was possible to get an understanding of existing accessibility by sustainable modes for each area and also to establish the likely distribution of vehicular trips across the highway network for the purposes of our assessment of the impacts of each Scenario.

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 identified by separating destinations and manually assigning trips to specific routes through the study area.

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.

A summary of the existing journey to work by mode profile for each of the allocation sites is shown in the Table 3.4.

Table 3.4: Summary of existing journey to work split by mode for each allocations site

Site		Journey to Work Mode			
		Car Driver	Public Transport (Bus/ Train)	Cycle/ Walk	Other
East of Ipswich	1	69%	8%	7%	16%
	2 & 3	69%	9%	9%	13%
	4	64%	6%	16%	14%
	5	67%	5%	9%	19%
Felixstowe/ Trimleys	1 & 2	58%	3%	22%	17%
	Dispersed	70%	4%	8%	18%

Source: 2001 Census JTW data (see Appendix A)

The Tables below outline the overall work trip distribution for each site in the east of Ipswich and Felixstowe in terms of overall person trips and vehicular trips respectively.

Table 3.5: Summary of existing person trip distributions to work

Site		Journey to Work Destination for all modes				
		Ipswich	Felixstowe	*(Felixstowe Port)*	Martlesham (Adastral Park)	Other
East of Ipswich	1	54%	6%	*4%*	10%	30%
	2 & 3	44%	8%	*6%*	17%	31%
	4	32%	8%	*6*	29	31
	5	43%	8%	*6%*	10%	39%
Site		Journey to Work Destination for all modes				
		Ipswich	Felixstowe	*(Felixstowe Port)*	Martlesham (Adastral Park)	Other
Felixstowe / Trimleys	1	18%	63%	*32%*	4%	15%
	2	18%	63%	*32%*	4%	15%
	Dispersed	19%	60%	*38%*	4%	13%

Source: 2001 Census JTW data (see Appendix A)

Table 3.6: Summary of existing vehicle trip distributions to work

Site		Journey to Work Destination				
		Ipswich	Felixstowe	*(Felixstowe Port)*	Martlesham (Adastral Park)	Other
East of Ipswich	1	49%	7%	*(5%)*	11%	33%
	2 & 3	40%	10%	*(8%)*	15%	35%
	4	30%	10%	*(8%)*	20%	40%
	5	42%	9%	*(7%)*	10%	39%
Site		Journey to Work Destination				
		Ipswich	Felixstowe	*(Felixstowe Port)*	Martlesham (Adastral Park)	Other
Felixstowe/ Trimleys	1	22%	55%	*32%*	6%	17%
	2	22%	55%	*32%*	6%	17%
	Dispersed	19%	62%	*40%*	4%	15%

Source: 2001 Census JTW data (see Appendix A)

It should be noted that, for the area to the east of Ipswich, the bus mode share for Sites 1, 2, and 3 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 adjacent to including the Superoute 66 which also diverts through Kesgrave and Grange Farm.

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.

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.

However, this study also 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.

The poor level of non-car facilities for travel between the east of Ipswich and Felixstowe is highlighted in these results, with increasing proportions in vehicular travel over person trips.

For the Felixstowe sites, between 55% and 62% of residents who drive to work do so to a location in Felixstowe.

The results, in particular from the east of Ipswich, highlighted strong use of bus for access to Woodbridge, and rail for access to London (presumably along with either Park & Ride or bus).

3.4 Market Towns

For the purposes of including the traffic impacts from the market towns identified early in this report, the following trip rates and distribution have been adopted:

- 870 dwellings across Market Towns - trip generation and distribution characteristics associated with Woodbridge have been used.

3.5 Committed Developments

For the purposes of including the traffic impacts from the principal committed development clusters 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 the Felixstowe East ward have been used; and
- Felixstowe South Reconfiguration - the Felixstowe Port Logistics Study (October 2008) identifies the key land use issues and requirements likely to emerge from the proposed Felixstowe South Reconfiguration (FSR) in order to inform local and regional decision-making. In terms of traffic impacts, it is understood that the FSR development is likely to generate approximately 3,000 additional two-way movements per day in the design year 2023, and for the purpose of this assessment it has been assumed that this would equate to in the region of 400 two-way movements in both the AM and PM peak periods on the A14 between Felixstowe and Ipswich.

4 East of Ipswich

4 East of Ipswich

4.1 Introduction

In this Section the assessment of the proposed housing allocations for the east of Ipswich is presented. As stated the original studies, undertaken as part of the LDF strategy Preferred Options stage, investigated the potential impact of a housing allocation of 1,050 dwellings in East Ipswich at one of five potential allocation sites:

Site 1 Ipswich Boundary - Westerfield to Rushmere St Andrew (Village): located on the north eastern fringe of Ipswich Town Centre, bounded to the south by Woodbridge Road and to the west by Humber Doucy Lane. It extends to the north as far as Tuddenham and to the east as far as Rushmere Street.;

Site 2 North of A1214, Woodbridge Road: located adjacent to Site 1 on the eastern side. It is bordered by Playford Road to the north, Woodbridge Road to the south and Hall Road to the east;

Site 3 South of Kesgrave/ Martlesham Heath: bordered to the south by Foxhall Road, to the east by the A12 and to the west by Bell Lane. The site extends from Foxhall Road northward as far as the existing residential areas on Ropes Drive, Eagle Way, Dobbs Lane etc;

Site 4 South of Old Martlesham/ East of A12: located east of the A12, adjacent to Adastral Park. The site is bordered to the north by Martlesham, to the south and east by Newbourne Road and to the west by Adastral Park and the A12; and

Site 5 North-west of A14: located north west of the Seven Hills A12/A14 Interchange. The A12 and A14 border it to the east and south respectively while Bucklesham Road and Straight Road border it to the north and west respectively..

All sites, with the exception of Site 4, are located along local roads which connect Ipswich Town Centre to its eastern environs, namely Woodbridge Road, Foxhall Road and Felixstowe Road. Site 4 is located east of the A12 bordering Adastral Park. **Drawing 60095679_001, Section 1** shows the location of each of the proposed sites.

The strategy concluded that the preferred option, in transport terms, was for the allocation to be located on Site 4. It is now proposed to allocate a further 950 dwellings east of Ipswich, bringing the total development to 2,000 dwellings.

As outlined previously the five alternative scenarios put forward for east of Ipswich are as follows:

- Scenario 1: 2,000 dwellings on Site 4, east of the A12;
- Scenario 2: 1,050 dwellings on Site 4 plus a further 950 dwellings on Site 1;
- Scenario 3: 1,050 dwellings on Site 4 plus a further 950 dwellings on Site 2;
- Scenario 4: 1,050 dwellings on Site 4 plus a further 950 dwellings on Site 3; and,
- Scenario 5: 1,050 dwellings on Site 4 plus a further 950 dwellings on Site 5.

This section seeks to outline the existing walking and cycling provision to the sites, and the primary existing public transport provision. It also describes the existing local road network and potential vehicle accesses to the allocation sites. This Chapter provides a broad reference to the likely mitigation measures and deliverability issues relating to each Scenario put forward for east of Ipswich.

4.2 Sustainable Transport Accessibility

4.2.1 Existing Public Transport Provision

Existing Bus Services

Three main bus corridors exist for buses travelling to the east of Ipswich:

- Woodbridge Road. Woodbridge Road is the most heavily serviced with the Superoute 66 using this corridor along with the 63, 64, 65 and P&R services.
- Foxhall Road. During the peak periods, the 66B utilises this route.
- Felixstowe Road. Routes 75, 75A, 76 and 77 utilise the Felixstowe Road. It is important to note that none of the routes along Felixstowe Road currently service the Adastral park area.

Table 4.1 shows the frequency and routing of all services travelling to the East of Ipswich with a frequency of one per hour or more.

Table 4.1: Existing Bus Provision in the vicinity of East of Ipswich Sites

Route Number	Route	Monday – Friday Frequency	
63	Ipswich - Woodbridge - Framlington	Half Hourly	Combined service frequency of 4 per four between Ipswich and Woodbridge
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	
75	Ipswich - Felixstowe (Grange Farm)	Half hourly	Combined service frequency of 4 per four between Ipswich and Felixstowe
75A	Ipswich - Felixstowe (Grange Farm)	Hourly	
76	Ipswich - Old Felixstowe	Hourly	
77	Ipswich - Felixstowe Dock	Hourly	

*Routes 66A and 66B provide peak hour variants.

It can be seen from Table 4.1 that the nearby Park & Ride (P&R) service operates every ten minutes and, combined with Superoute 66 which operates twenty-four hours a day, Woodbridge Road is shown to be particularly well served.

The 172, 173 and 174 services operate a combined service frequency of 1 service per 2 hours between Felixstowe and Woodbridge, via Marltesham.

There is a need to preserve, and where possible improve, existing bus journey times into the future through traffic management measures in favour of bus travel. This should be the focus of any infrastructure improvements on existing or future bus corridors.

Potential for New Bus Services

With good layout focussed on bus stops, good prior marketing and information, and a direct and reliable bus service, a new area should be able to achieve a reasonable level of bus use. This paragraph provides a context to consider the **viability** of providing 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;

- Twice hourly services during the two hour 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.

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. This highlights that only one of the Scenarios can deliver a new commercial bus service in its own right.

This is quite a crude approach, but is a reasonable indicator of likely viability of new services. Other considerations which could support a new service include the potential for off-peak trip demands to contribute to the viability of a new service and the potential to link with other key hubs along a route to generate further patronage. Short term pump priming would be necessary with any new service, however longer term patronage growth along the corridor of a new service should ideally ensure that a viable commercial service can be provided in the long term.

A direct bus service with a short journey time is preferable to users, however convoluted routes with frequent stops tend to develop to generate the patronage needed to support services. This is where a balance must be achieved and a new service needs careful design to ensure that it represents an attractive alternative to car use.

Existing Rail Services

There are three train stations within Ipswich:

- Ipswich Rail Station; is the best serviced and provides direct services to the north and south including the following cities/towns: London, Birmingham, Cambridge, Ely, Peterborough, Stansted, Norwich, Chelmsford and Colchester.
- Westerfield Rail Station is serviced by direct services to London, Chelmsford, Colchester, Ipswich main station, Felixstowe and Lowestoft at a frequency of 2-3 per hour.
- Derby Road (Ipswich) Rail Station is serviced by trains which provide a direct route to Felixstowe, Ipswich main station, Chelmsford and London at a frequency of 1 per hour.

None of the stations above are within easy walking distance of any of the allocation sites.

Public Transport Accessibility of Sites

The accessibility of each site to the existing public transport services, is presented below:

- **Site 1:**
  At the southern end of the site, the Park & Ride service operates every ten minutes, stopping at the Hospital, and Superoute 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. Bus Route No's 63, 64 and 65 are also accessible at the southern end of the site. There is no direct service to the Felixstowe area within reasonable proximity to this site.

  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. Superoute 66 links Site 1 with Ipswich Train Station which operates quite a frequent service.

As such five bus routes and a rail service operate at least an hourly service close to the proposed site.

It is anticipated that an allocation of 950 dwellings would generate 101 bus trips in the AM peak and 60 bus trips in the PM peak along with 24 rail trips in the AM peak and 18 rail trips in the PM peak. The majority of key work destinations from the proposed site are well served by public transport, with the exception of Felixstowe Port, Nacton Road and Ransomes Europark. Without substantial further mode shift to public transport, the proposed development would not justify a new commercial bus service to the site in its own right, but it would greatly support existing services and potentially contribute to the need for increased frequency on existing routes.

- **Site 2:** This site benefits from similar bus services to that of Site 1 with good access to Ipswich Town Centre and Martlesham Heath via bus routes 63-66 and P&R services and good access to Ipswich Train Station via Superoute 66. There is no train station within close proximity to this site.

  It is anticipated that a housing allocation of 950 dwellings would generate some 114 bus trips in the AM peak and 72 bus trips in the PM peak along with in the order of 27 rail trips in the AM peak and 21 rail trips in the PM peak.

  As with Site 1, the majority of key work destinations from the proposed site are well served by public transport, with the key exception of Felixstowe Port, Nacton Road and Ransomes Europark. Without substantial further mode shift to public transport, the proposed development would not justify a new commercial bus service to the site in its own right, but it would greatly support existing services and potentially contribute to the need for increased frequency on existing routes.

- **Site 3:** Served by only one bus route (Superoute 66) which operates at least an hourly service. Superoute 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 Rail Station, and Martlesham. The site is also served be the peak hour variant 66B.

  It is projected that 950 dwellings on Site 3 would generate 114 bus trips in the AM peak and 72 bus trips in the PM peak along with 27 rail trips in the AM peak and 21 rail trips in the PM peak. The proposed quantum of housing at this location would clearly not justify a further bus service on Foxhall Road in its own right and as such without further travel demand provided along this bus corridor the potential to promote sustainable transport further would be limited. It is possible that the proposed employment growth at Adastral Park and the provision of the new housing Allocation on Site 4 would support provision of an improved frequency on the 66 route or provision of a new express service along the Foxhall Road. Ipswich Hospital would represent a strong hub for any new service with patronage demand likely across the day. The majority of work destinations from the proposed site are well served by public transport, with the key exception of Felixstowe Port, Nacton Road and Ransomes Europark.

- **Site 4:** Serviced by bus route No's 65 and 66, along with the peak hour variants 66B and 66A, and the nearby P&R services. The Park & Ride service operates every ten minutes and combined with Superoute 66 which operates twenty-four hours a day, the Site could be said to be relatively well served. Rail connections are provided through Superoute 66 and its peak hour variants the 66A and 66B.

1,050 dwellings on the site would generate 112 bus trips during the AM peak and 69 bus trips during the PM peak, along with 21 rail trips during the AM peak and 15 rail trips during the PM peak.

2,000 dwellings at this location is predicted to generate 213 bus trips during the AM peak and 131 bus trips during the AM peak, along with 39 rail trips during the AM peak and 28 rail trips during the AM peak.

The larger of the two housing allocations may justify provision of a new commercial bus service in its own right, however in combination with the proposed employment growth at Adastral Park either quantum of housing could be supported by additional commercial bus services. 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. Another alternative would be provision of a more direct service between Site 4, Adastral Park and Ipswich Town Centre. This would relieve capacity on the existing Superoute 66 and provide a shorter route for commuters from the site, further supporting sustainable travel. Situated directly adjacent to Adastral Park, there are obvious benefits in terms of sustainable access to key employment. There are however services from this area to Felixstowe or the Nacton Road area are currently very limited.

- **Site 5:** Benefits from the 75, 75A, 76 and 77 bus services which link the site with Felixstowe and Ipswich, including Ipswich Rail Station. These services provide a combined frequency of 5 buses per hour.

  It is estimated that 950 dwellings on Site 5 would generate 95 bus trips in the AM peak and 56 bus trips in the PM peak along with 24 rail trips in the AM peak and 18 rail trips in the PM peak.

  There is no direct public transport service between Site 5 and Adastral Park and given the quantum of housing put forward, in combination with the relatively remote location, the potential to provide a new bus service to this area is limited. In addition the development in its own right would not justify an additional bus service, although in combination with increased travel demand between Ipswich and Felixstowe the proposals would certainly support any increase in public transport capacity along the corridor.

4.2.2 *Existing Walking and Cycling Provision*

Pedestrian and cyclists facilities local to each individual allocation site are discussed below.

With respect to cycling within Ipswich, there are two National Cycle Routes which pass through the town, route 1 and route 51.

National Route 1 provides access to the north east and south west including settlements such as Beccles, Hadleigh and Woodbridge to the east. National Route 51 runs at a north west to south east orientation and passing through local settlements such as Felixstowe and Stowmarket.

- **Site 1:** 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 of numerous low traffic/ low speed routes into Ipswich. Ipswich hospital is also within both cycling and walking distance of the allocation site. National Cycle Route 1 passes through Kesgrave to the south west of the site, and connects Fakenham to Harwich passing through central Ipswich and provides a link to Felixstowe. This site, whist on the fringe of the walking catchment, offers the best potential for walking and cycle access to Ipswich Town Centre, the primary employment area for this catchment. Given is slightly more urban location the range of established local facilities in proximity is good.

- **Site 2:** 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 Cycle Route 1 passes through Kesgrave to the south west of the site. This site offers reasonable potential for cycle access to Ipswich Town Centre, Ipswich Hospital and Adastral Park. Local facilities are focussed largely on the Kesgrave area, on the opposite side of the Woodbridge Road.

- **Site 3:** Part of this site is bordered by a cycle track which links the northern part of the site to the local school, on the way towards Ipswich town centre, the Tesco store at Martlesham and Adastral Park via the network of on and off road cycle tracks National Cycle Route 1 passes through Kesgrave to the north of the site. The site could be said to have very good access on foot for example to the existing Tesco superstore at Kesgrave. Site 3 is quite remote from Ipswich Town Centre in walking and cycling terms but Adastral Park employment area is within reasonable walking and cycling distance if the barrier posed by the A12 can be overcome. The Suffolk County Council objective to deliver a new pedestrian and cycle bridge across the A12 from Kesgrave would greatly improve this accessibility.

- **Site 4:** The site benefits from the cycle tracks that link the area to Adastral Park, the Tesco superstore at Martlesham, and towards Ipswich town centre. National Route 1 passes through the site. Provision of sufficient new housing to justify supporting community infrastructure would provide the opportunity to provide quality walking and cycle permeability through the development and to adjoining areas. Separated from the Ipswich area by the A12 corridor the site is somewhat cut off in terms of pedestrian and cycle access. The current grade separated facilities provide links to the existing employment area, however existing links between the proposed new housing area, across the A12 are lacking. The Suffolk County Council objective to deliver a new pedestrian and cycle bridge across the A12 from Kesgrave would greatly improve this accessibility. Situated furthest from Ipswich Town Centre in geographic terms, pedestrian and cycle access to Ipswich Town Centre is poor.

- **Site 5**: 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 51 passes to the south west of the site via Nacton Road. However, it is somewhat remote with few facilities within walking distance in contrast to sites 1 – 4.

The modal share at all sites could be further promoted by improving existing facilities local to each site and ensuring that community infrastructure is provided within close proximity to maximise accessibility by slow modes.

4.2.3 Sustainable Transport Links to Key Employment Sites

Ipswich Town Centre

Ipswich Town Centre is a main destination in terms of employment trips. It is well served by a number of frequent bus routes, including 63, 64, 65, 66, 75, 75A, 76 and 77 along with the P&R bus services.

- Routes 63, 64, 65 and 66 and the P&R services link Sites 1 and 2 with Ipswich;
- Site 4 is linked via the P&R services and Superoute 66.
- Site 3 can avail of the Superoute 66 to reach Ipswich Town Centre.
- Bus routes 75, 75A, 76 and 77 link Site 5 with the town centre.

Site 1 and in a more limited way Site 2 are situated on the immediate urban fringe of Ipswich Town Centre and as such pedestrian and cycle access from these sites is quite good.

Adastral Park

Adastral Park is located in the Martlesham area of Ipswich. It is directly adjacent to Site 4 and as such any trips between the two would not impact on the external road network. Sites 1 and 2 and 3 are directly accessible to Adastral Park via Superoute 66 while Site 3 is also accessible via bus route 66B. Currently there are no direct bus routes linking Adastral Park with Site 5. Or cyclists and pedestrians is currently poor for Sites 3 and 5 with the A12 presenting a barrier.

Felixstowe Port

Felixstowe Port is located at the south of Felixstowe. Bus route 77 provides a direct hourly service to from Ipswich to Felixstowe Port, while bus routes 75, 75A and 76 provide four services per hour to Felixstowe Town. Currently only Site 5 has direct access to these routes. Westerfield Train Station is within cycling distance of Site 1 and provides an hourly service to Trimley Rail Station and Felixstowe Rail Station. Site 4 has direct access to the existing infrequent 172, 173 and 174 bus services between Woodbridge and Felixstowe.

Ipswich Hospital

Ipswich Hospital represents a significant employment generator within the East of Ipswich, and an important community facility. Located on Heath Road it is served by the 5, 11, 31 and Superoute 66 bus services.

Route 66 links Sites 1, 2, 3 and 4 with the Hospital. In addition Sites 1 and 2 are potentially within walking distance, whilst Sites 3 and 4 are within the cycling catchment. No direct bus routes from Site 5 currently exist and it lies outside the walking and cycling catchment.

Cranes Site, Nacton Road

This site is served by Route 2 which provides an hourly service to Ipswich Town Centre. No existing bus service connects the site with any of the housing allocation sites. Sites 1, 2, 3 and 5, could feasibly be within cycling distance of this location, although the quality of the route is inconsistent.

Ransomes EuroPark

In terms of the destination of work trips, this area is quite a low generator in terms of the Census 2001 data for the sites under consideration. However it is understood that Ransomes Europark is likely to undergo considerable growth as an employment centre. Ransomes Europark is located in the area of Warren Heath south east of Ipswich. Bus services 75A, 76, and 77 provide a combined 4 services per hour direct to the site. Site 5 is within easy walking distance and is also served by these bus services. Pedestrian facilities in the area may need to be improved to make the most of its close proximity. No direct bus routes from Sites 1-4 currently exist.

Hadleigh Industrial Estate, Whitehouse Industrial Estate

These industrial employment areas are situated on the western Fringe of Ipswich and as such access by sustainable modes would rely on connecting bus services from Ipswich Town Centre. All sites are reasonably well connected to Ipswich Town Centre in public transport terms and as such the level of accessibility to this area is broadly the same.

4.3 Vehicular Accessibility

4.3.1 *Existing Road Network*

Based on the location of the five allocation sites, key routes have been identified which are likely to be affected by the proposed scale of development in the east of Ipswich.

A housing allocation on any of the development sites is likely to impact upon the strategic roads in the vicinity, namely:

- A12 - Principal Road providing a route to the A14(T)/A12 (Seven Hills interchange) to the south or Woodbridge to the north; and
- A14 – Trunk Road providing a route from Felixstowe to the Seven Hills Interchange or A12(T)/ A14(T) Copdock interchange to the west.

Depending on the allocation sites chosen more localised impacts would occur largely on the following local routes:

- Sites 1 & 2: A1214/Woodbridge Road which is a local road providing link to Ipswich Town Centre to the west and A12/Ipswich eastern fringes to the east.
- Site 3: Foxhall Road which is a local road providing a link directly to Ipswich Town Centre and the A12/Adastral Park.
- Site 4: Foxhall Road and Woodbridge Road would both be impacted upon by traffic
- travelling into Ipswich Town Centre.
- Site 5: Felixstowe Road would be used to access Ipswich Town centre and the Seven Hills Interchange.

The impact of each of the scenarios on the above locations has been quantified and is presented below.

4.3.2 *Future Road Network*

No significant road improvements of relevance are currently committed in the Ipswich Eastern Fringe and none are proposed.

4.3.3 *Development Access*

For each site, AECOM 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 below:

- **Site 1:** 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.

  The Ipswich to Lowestoft rail line passes through the site severing the northern top most corner from the remainder of the Site.

  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.

  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 desirable in terms of environmental impact and road safety.

  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) have been assumed to join the A1124 at Bent Lane or Playford Road. Vehicles accessing Ipswich are assumed to use Woodbridge Road. Traffic to Felixstowe, Adastral Park and the A12 uses Woodbridge Road to access the A12 directly via the P&R Junction or via Heath Road and Foxhall Road.

- **Site 2:** 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.

  Highway access to Site 2 could be provided by:

  - A fourth arm on the A1214/ Ropes Drive West Junction;
  - The existing northern arm of the A1214/ Ropes Drive East junction;
  - 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. Access arrangements would need to tie in with junction improvements implemented along the A1214 corridor to preserve bus journey times into the future, much of which is likely to include signalisation of existing roundabouts.

  For the purposes of this assessment it has been assumed that traffic will access the A1124 only via a northern arm on the Ropes Drive West Roundabout. Vehicles accessing Ipswich are assumed to use Woodbridge Road. Traffic to Felixstowe, Adastral Park and the A12 uses Woodbridge Road to access the A12 directly via the P&R Junction or via Heath Road and Foxhall Road.

- **Site 3** 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. Dobb's 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.

  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.

  Any access arrangements would need to be cognisant of existing safety issues related to the school in the Grange Lane area.

  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.

  For the purposes of this assessment it has been assumed that traffic will access Foxhall Road only via a new junction between Bell Lane and Dobbs Lane. The majority of traffic to Ipswich would continue along Foxhall Road however traffic to Colchester Road will travel north along Heath Road to Woodbridge Road and Colchester Road; Traffic to Felixstowe would travel east along Foxhall Road to the A12 and on to the A14

via the Seven Hills Interchange; Traffic to Adastral Park would use the Anson Road access.

- **Site 4** 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.

  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.

  For the purposes of this assessment it has been assumed that a 50:50 split has been assumed for the Newbourne Road and Anson Road accesses to the A12. It can be assumed that traffic destined for Adastral Park would have no impact on the exterior road network. Traffic to Felixstowe would travel south on the A12 to Seven Hills and then east on the A14. Traffic to Ipswich would disperse evenly along the Foxhall Road and Woodbridge Road corridors.

- **Site 5** 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.

  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.

  It has been assumed that traffic will access the network via a new junction onto A1156 Felixstowe Road. Traffic to Adastral Park and Felixstowe is likely to use it the Seven Hills Interchange to access the A12 and A14 respectively. Traffic to Ipswich would travel along Felixstowe Road.

The routing of traffic from origin to destination was carried out using hand calculations, based on the vehicular trip distribution highlighted earlier in this Section. A broad synopsis of the assumptions used for the distribution is highlighted above. Traffic from all sites which is destined for Felixstowe/Felixstowe Port would be expected to travel on the A14 via the Seven Hills Interchange.

Based on the distribution assumptions used **Table 4.3** outlines the impact of each of the five design scenarios on the key road links/junctions in the vicinity. The design scenario which has the maximum impact on each road link/junction is also highlighted with grey shading.

These junctions are shown on **Drawing 60095679_001**.

Table 4.3: East of Ipswich Housing Allocation Scenarios - Traffic Impacts

Route		Morning Peak					Evening Peak				
		Scenario 1 2,000 Site 4	Scenario 2 1,050 Site 4 & 950 Site 1	Scenario 3 1,050 Site 4 & 950 Site 2	Scenario 4 1,050 Site 4 & 950 Site 3	Scenario 5 1,050 Site 4 & 950 Site 5	Scenario 1 2,000 Site 4	Scenario 2 1,050 Site 4 & 950 Site 1	Scenario 3 1,050 Site 4 & 950 Site 2	Scenario 4 1,050 Site 4 & 950 Site 3	Scenario 5 1,050 Site 4 & 950 Site 5
Seven Hills Junction	Total flow	411	255	368	368	496	305	197	305	305	429
A14 Junction 59	Total flow	112	98	116	116	112	108	94	111	111	107
A14 Junction 60	Total flow	112	98	116	116	112	108	94	111	111	107
A12 between Anson Road & Newbourne Road	Northbound	103	62	86	165	129	132	92	161	121	109
	Southbound	153	111	205	109	103	114	74	117	142	123
Woodbridge Road (West of A12)	Eastbound	39	52	256	20	22	110	73	168	58	63
	Westbound	149	86	140	78	85	69	61	211	36	40
Woodbridge Road (West of Heath Road)	Eastbound	41	22	56	26	25	117	62	160	73	71
	Westbound	157	195	215	98	95	22	47	101	46	45
Foxhall Road	Eastbound	39	20	20	256	20	110	58	58	168	58
	Westbound	149	78	78	251	78	69	36	36	117	36
Felixstowe Road	Eastbound	0	0	26	0	222	0	0	12	0	104
	Westbound	0	0	7	0	143	0	0	19	0	67

The following conclusions can be drawn from reviewing **Table 4.3**:

Seven Hills Interchange
- The Scenarios 1, 3 and 4, with a total housing allocation of 2,000 dwellings on Site 4 or 1,050 dwellings on Site 4 and 950 dwellings on Sites 2 or 3 will have a broadly similar impact on the Seven Hills Interchange.
- Scenario 2 with 1,050 dwellings on Site 4 and 950 dwellings on Site 1 is predicted to have the smallest impact on this junction.
- Scenario 5 will have the greatest impact on this interchange, as all traffic travelling eastbound on Felixstowe Road will journey through the interchange.

A14/Kirton Road Interchange
- All sites will have a similar impact on this junction.

A12 Corridor Between Anson Road and Newbourne Road
- Scenarios 3, 4 and 5 have a similar impact on this corridor. Scenario 1 will also be comparable to the above scenarios.
- Scenario 2 will have the smallest impact on this corridor.

Woodbridge Road/Foxhall Road/Felixstowe Road
- As anticipated Scenarios 2 and 3 will have the largest impact Woodbridge Road.
- Felixstowe Road would generate minimal traffic in all scenarios with the exception of Scenario 5.
- Scenarios 2, 3 and 5 would have minimal impact on Foxhall Road

4.4 Potential Mitigation Measures

4.4.1 Sustainable Transport Promotion

Firstly it is highlighted that the current assessment is based on local mode splits from 2001 Census Data and all future development should be implemented with a view to achieving improved mode splits in favour of non-car use.

Suffolk County Council is currently implementing residential travel planning projects within the County which focus on implementing personal travel planning for existing households. This optimises the potential for sustainable use of existing sustainable options, including car sharing. Car sharing could in fact offer a substantial benefit to residents accessing the key employment areas, in particular in light of the low potential for new bus services to Felixstowe based on the new housing allocations proposals alone. The SCC residential travel planning scheme should be implemented through all new housing developments and contributions sought to support it. In addition there is potential to improve existing sustainable access as outlined in the following sections.

4.4.2 Bus improvements

A number of shortfalls in the public bus services have been highlighted in the eastern Ipswich area. A list of potential improvements which could be of benefit, depending on the design scenario chosen, is presented below.

- Based on census data Felixstowe and Felixstowe Port would account for between 6% and 8% of employment trips from all sites in the east of Ipswich. Provision of a high frequency peak hour bus link between Sites 1-4, depending on the design scenario, and Felixstowe/Felixstowe Port could be investigated. An increase in frequency of the 172,173 and 174 service route would serve Site 4.
  Alternatively, the service could be provided as a diversion to the existing 75 route or as a new route. The new bus link could also improve connection to Ransomes Business Park which currently has no bus links to Sites 1-4. The proposal would be easier to implement for Scenarios 1 and 4, particularly Scenario 1, to ensure an efficient routing is achieved, where the potential route would provide for the reverse journey between Felixstowe residents and Adastral Park. The level of subsidy required to support this facility is too high to be borne by any one of the allocation scenarios for east of Ipswich.
- The provision of further peak hour services from Adastral Park to Ipswich along Woodbridge Road would be required. In addition improvements to bus journey times

along this route should be sought to improve and preserve the attractiveness of this dominant bus corridor. This is a proposal that is relevant to all scenarios, particularly Scenarios 1, 2 and 3.

- Under Scenario 1, and possibly Scenario 4, further utilisation of Foxhall Road by route 66 variants could be possible and would potentially provide shortened journey times. Adastral Park would provide patronage to support such a service and viability is likely. Subsidisation to support initial set up costs and start up provision would be necessary but not prohibitive. Improvements to junctions on Foxall Road would be required to preserve and, where possible, improve bus journey times achievable into the future.
- Scenario 5 would benefit from a peak hour bus service to and from Adastral Park. It is predicted that some 10% of residents of Site 5 would be employed in Adastral Park and the site would generate approximately 100 bus trips in the AM peak to all destinations. As such the service would not be justified based on 950 houses on Site 5 alone and would need either continuous subsidy or connection to another patronage generator to improve viability. This could be in the form of a variant of route 75, also providing a radial route between Adastral Park and Felixstowe.
- It should be noted when assessing potential for bus improvements that an allocation of 2,000 dwellings on one site would provide the greatest potential for improvements to bus services. Furthermore the allocation of 2,000 dwellings adjacent to a strategic employment site, as is the case of Site 4, would further support improvements to public transport services. As such Scenario 1 offers substantially more potential than the other scenarios to provide a new commercial bus service to promote sustainable access.
- It is likely that without connection to other significant generators Scenario 5 would require considerable subsidisation to support additional bus services, as the mass of trips generated would not support new service provision to any single destination.
- Any junction designs reviewed as part of the detailed assessment under the planning process to mitigate against the traffic impacts of the proposed sites should also be considered in the context of improving access for existing and proposed bus services, where possible preserving and improving existing journey times into the future.

4.4.3 *Rail Improvements*

None of the design scenarios would be anticipated to generate adequate train patronage to warrant improvements to rail services. Given the relatively local locations of the dominant work destinations for residents in the area, rail services do not provide for the key desire lines. Rail travel is generally used for longer distance commuting from the area.

All sites are however currently linked with Ipswich Train Station via bus routes and the improvement of these bus routes as described above could also improve accessibility to Ipswich Rail Station.

Potential to improve cyclist accessibility to Westerfeld Train Station from Site 1 should also be promoted through any development of that site.

4.4.4 *Walking and cycling proposals*

Sites 1 and 2 are located in the more urban environments of the five sites in question and in keeping with their location they have the best local pedestrian/cyclist facilities in their immediate vicinity. Any development of these sites would need to optimise access to the adjacent urban areas and existing bus corridor, by delivering cohesive routes through the site along key desire lines.

Sites 3 and 5 are the most rural of the sites and pedestrian/cyclist facilities are lacking at their locations. Whilst access to local amenities in Kesgrave is good at Site 3, Foxhall Road offers poor connectivity to Ipswich. Significant consideration will need to be provided to ensure these sites are adequately connected with Ipswich Town Centre in particular. Connection to existing bus routes from the site would need to be given significant consideration in the site design and phasing.

Site 4 is located adjacent to Adastral Park thus pedestrian/cyclist links to the business park should be easily provided. However crossing the A12 represents a considerable pedestrian and cyclist barrier when accessing from the west. It remains a long-term goal of SCC to provide an additional pedestrian/cyclist connection across the A12, south of the Barrack Square Roundabout. It is appropriate that this scheme should be supported through the development of Site 4. Whilst this site is directly adjacent to the Adastral Park employment centre it is one of the most remote from the other key employment generators and from Ipswich Town.

4.4.5 *Road Network Proposals*

In general ***transport investment linked with development should focus firstly on promoting sustainable transport options for local trips where other alternatives to single occupancy car use do or will exist.*** The provision of increased road capacity should be focussed on maintaining existing levels of capacity in particular on strategic traffic routes.

In terms of on-site road proposals, all Scenarios will require provision of at least two new access junctions, with an additional access from Site 4 likely to be required under all scenarios and at least one access junction required for the other sites. In terms of site infrastructure, the cost of this would be higher for Scenarios 2-5 than for Scenario 1 given the economies of scale achieved through provision of the larger housing quantum at one location. As Site 1 is severed by a railway line there is potentially further costs associated with the site infrastructure for Scenario 2, depending on the area of the site developed.

Improvements to increase the capacity of the A12 junctions along the stretch between Seven Hills and the P&R Junction will be necessary under all scenarios in order to preserve this route for strategic through traffic along the A12. It is worth highlighting, that as Table 4.3 indicates, the scale of improvements required at each junction, and associated cost, will vary for each Scenario and would be subject to detailed assessment. The potential to improve the P&R/ A12 junction should be focussed on improving access for public transport as this is a key node in terms of bus traffic and the demand for movement through this junction from the allocation sites can largely be met through sustainable transport options. In addition ensure that through-traffic on the strategic corridor remains unaffected in so far as is possible however the traffic impacts are most notable from Scenario 4 which includes provision of housing at site 3. Improvements are most likely to require signalisation and costs would be expected to be relatively high. It should be assumed that delivery of any Scenario would require improvement to 4 junctions on the A12.

All of the scenarios have a considerable impact of the Seven Hills Interchange. The most significant impact arises from Scenario 5, with Scenario 1 the next most significant. It is considered that considerable potential to provide further capacity at this junction exists, particularly given that it is largely unsignalised at present. It is likely that the signalisation of the interchange could provide adequate capacity to accommodate the extra demand.

Given the demand for movement to Felixstowe and the somewhat limited bus connections that exist, there is a projected increase in demand through the critical Junctions 59 and 60 along the A14. It is worth pointing out that the increase through Junction 59 would primarily be through-traffic on the mainline carriageway and would not interfere with the junction operation. It is suggested that this increase in demand would best be catered for through promotion of sustainable transport for movement to the area, through travel planning and where possible investment in bus service improvements. This is the case for all Scenarios.

Scenarios 2, 3 and to a lesser extent Scenario 1, would have the greatest impact per dwelling on Woodbridge Road. There is limited scope for creation of additional capacity along Woodbridge Road and the eastern fringe of the town centre and as highlighted under Section 4.4.2, the emphasis along this urban corridor to Ipswich Town should be on preserving and where possible improving bus journey times into the future, rather than on improving traffic capacity. This is likely to require improvements to at least five junctions along the corridor.

A small degree of additional local capacity may be required at sites 3 or 5 should they be developed given their relatively rural locations.

4.5 Mitigation Requirement Summary and Costs

This Section summarises the accessibility of each Scenario in the context of existing sustainable transport and roads facilities and potential to improve facilities, between the sites and existing and proposed employment and community facilities. Infrastructural investment of varying degrees is necessary to accommodate each Scenario assessed. Given the lack of data available at this stage and the uncertainties in relation to each scenario, it is not possible, at this stage, to identify an exhaustive or detailed schedule of mitigation measures. It is however necessary to understand the relative scale of mitigation required. As such key measures likely to be required are highlighted below for each Scenario.

Implementation of any of the housing allocations put forward would be subject to detailed assessment at planning stage.

Furthermore, to understand the implications of these mitigation requirements it is necessary to consider the potential scale of cost associated with each Scenario. This is difficult to identify with any certainty, as it depends on many issues such as a detailed assessment of the measures required, the time at which they would be carried out, the level of subsidy necessary, etc. For the purposes of this report generic assumptions have been adopted, based on an understanding of industry costs. Estimated broad costs have been included below. It should be highlighted that this solely provides an indication of the likely scale of cost involved.

4.5.1 Mitigation Requirements & Estimated Scale of Associated Cost

Scenario 1, which accommodates 2,000 houses on Site 4, directly adjacent to a key employment area, would put employment opportunities and homes together and make travel to work by non car means a more realistic option.

Accessibility to Felixstowe by non-car modes is poor. The potential to increase frequency of the 172, 173 and 174 services between Woodbridge and Felixstowe offers the most viable solution and it is considered that travel planning investment, such as promotion of car sharing would also greatly support promoting non-car access between Martelsham and Felixstowe.

Site 4 in Martlesham, is served by a number of bus services linking the Site to Ipswich Town Centre. This Scenario would justify provision of a new commercial bus service, thereby connecting with rail services and bus services to other outlying key employment areas. As this site benefits from both Foxhall Road and Woodbridge Road public transport corridors to Ipswich Town, investment in preserving bus accessibility along these routes would be expected and deemed reasonable.

The proposed quantum of development would justify provision of retail, health and educational facilities and in addition the area is quite well connected to the areas of Martlesham and even Kesgrave, particularly through the proposed new pedestrian and cycle bridge.

Cycle links at Adastral Park to Martlesham and Kesgrave are in place, though cycle links to Ipswich Town are lacking in places and the distance from Site 4 is considerable.

Given the location directly adjacent to Adastral Park and the larger quantum of housing proposed, the cost associated with delivering effective public transport solutions would be considerably less than for the other scenarios. Whilst Scenario 1 offers significant overall potential for reduced car reliance, the impact on the local road network, in particular the A12, is unavoidable and considerable improvement would be required at a number of A12 junctions to preserve existing service levels.

The broad mitigation measures likely to be required to support Scenario 1 are outlined below, with estimated costs highlighted.

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal

travel planning scheme. (Up to £40k per annum, potentially shared with the Adastral Park employment area, assume 50% support)

- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12. (£0.5million)
- Financial support to implement a new direct bus service to Ipswich. (up to £1million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 50% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists.)
- Contribution towards an improved direct service to Felixstowe. (up to £1million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 50% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists.)
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction. (£1million excluding land costs for 4 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor. (£0.75million, excluding land costs, for 3 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Provision of on-site infrastructure and a new access junction. The cost of this would be less than for the other Scenarios given the economies of scale achieved through provision of the larger housing quantum at one location, and the contribution towards access improvements from the Adastral Park expansion plans. (£0.75million)
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction. (£2million excluding land costs, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)

The estimated total cost of the mitigation measures for Scenario 1, excluding land costs and professional fees is in the region of £7.5 million, assuming 50% of infrastructure requirements are met by the proposed expansion of the Adastral Park Area.

All other scenarios include a reduced provision on Site 4 of 1050 dwellings which would achieve good accessibility in transport terms based on existing facilities, supported by employment growth on the Adastral Park site. The major issue with a lower level of provision on this site is the need for out commuting to education facilities, which is likely to generate further trips across the A12. This would necessitate the provision of improved pedestrian and cycle access across the A12, and as with Scenario 1, investment in the proposed new link across the A12 to Kesgrave. This assumes capacity can be provided to cater for the education needs at this location.

The implications, of providing the remaining 950 dwellings on one of the 4 remaining sites under Scenarios 2-5 is summarised below:

Scenario 2: Site 1 has a generally good relationship with existing local communities, schools, shopping areas and employment given its close proximity to the urban area. Site 1 would facilitate sustainable commuting into Ipswich through reasonable short walk and cycle distances, along with frontage to the Woodbridge Road bus corridor. The site also offers a good level of bus service to Adastral Park employment area. Cycle access to Adastral Park is also possible from this site along the Woodbridge Road although facilities are intermittent. This scenario also can avail of existing bus connections to

Market Towns to the north east of the Suffolk Coastal District where further growth is proposed.

Improvements to bus provision and facilities along the Woodbridge Road corridor would greatly support this Scenario, and this would require investment from other key developments along the corridor to support substantial improvements.

Accessibility to Felixstowe by non-car modes is poor. The potential to provide improved service, potentially with a new radial service, could be investigated although viability is questionable. Connection of the 172, 173 or 174 services to the Martlesham Park & Ride should also be explored. It is considered that travel planning and promotion of car sharing would offer the most viable alternative depending on current patterns.

Whilst this Scenario would offer less potential to support quality public transport improvements it would provide greater distribution of the housing allocation impacts across the area and the urban location does provide the opportunity to avail of significant existing sustainable infrastructure and services. The total impacts on the A12 would be broadly comparable to Scenario 1 and as such the mitigation requirements would be similar. The likely mitigation requirements and associated order of cost is summarised as follows:

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme. (Up to £80k per annum across the 2 locations, potentially shared with the Adastral Park employment area, assume 50% support)
- Improved cycle access to Westerfield Train Station. (£500k)
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12. (£0.5million)
- Financial support to implement a new direct bus service to Ipswich. (up to £1million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 50% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists.)
- Contribution towards an improved direct service to Felixstowe. (up to £1.5million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 30% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists. Increased subsidy likely due to the smaller mass of residences at each location and the increased route length required)
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction. (£1million excluding land costs, for 4 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor. (£0.75million, excluding land costs, for 3 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Provision of onsite infrastructure and new access junctions for Sites 1 and 4. Site 1 is severed by a railway line there is potentially further costs associated with the site infrastructure, depending on the area of the site developed. (£1.5million)
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction. (£2million excluding land costs, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)

The estimated total cost of the mitigation measures for Scenario 2, excluding land costs and professional fees is in the region of £9.25 million, which makes some allowance for contribution from the Adastral Park expansion plans.

Scenario 3: Site 2, whilst slightly more removed the Ipswich urban area than Site 1, would offer similar accessibility to both Ipswich Town Centre and the Adastral Park Area. Site 2 affords considerable frontage to the Woodbridge Road bus corridor offering a good level of bus service to both Adastral Park and Ipswich Town. Cycle access to both employment areas is also an attractive option, although facilities are intermittent. This scenario also offers bus access to Market Towns to the north east of the Suffolk Coastal District where further growth is proposed. Site 2 has a generally good relationship with existing local communities, schools, shopping areas and employment given its proximity to the urban area.

As with Scenario 2, investment in improvements to bus provision and facilities along the Woodbridge Road corridor would greatly support this Scenario.

Accessibility to Felixstowe by non-car modes is poor. The potential to provide improved service, potentially with a new radial service, could be investigated although viability is questionable. Connection of the 172, 173 or 174 services to the Martlesham Park & Ride should also be explored. It is considered that travel planning and promotion of car sharing would offer the most viable alternative depending on current patterns.

Whilst this Scenario would offer less potential to support quality public transport improvements it would provide greater distribution of the housing allocation impacts across the area and the urban location does provide the opportunity to avail of significant existing sustainable infrastructure and services. The total impacts on the A12 would be broadly comparable to Scenario 1 and as such the mitigation requirements would be similar. The likely mitigation requirements and associated order of cost is summarised as follows:

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme. (Up to £80k per annum across the 2 locations, potentially shared with the Adastral Park employment area, assume 50% support)
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12. (£0.5million)
- Contribution towards cycle facility improvements along Woodbridge Road (£0.5million)
- Financial support to implement a new direct bus service to Ipswich. (up to £1million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 50% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists.)
- Contribution towards an improved direct service to Felixstowe. (up to £1.5million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 30% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists. Increased subsidy likely due to the smaller mass of residences at each location and the increased route length required)
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction. (£1million excluding land costs, for 4 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor. (£0.75million, excluding land costs, for 3 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Provision of onsite infrastructure and new access junctions for Sites 2 and 4. (£1.0million)

- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction. (£2million excluding land costs, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)

The estimated total cost of the mitigation measures for Scenario 3, excluding land costs and professional fees is in the region of £8.75 million, which makes some allowance for contribution from the Adastral Park expansion plans.

Scenario 4: Site 3 has a reasonable level of existing bus service to Adastral Park and Ipswich Town Centre. It is served by one frequent and regular bus service, but few supporting services. The accessibility for pedestrians and cyclists to local facilities in Kesgrave is potentially strong, however facilities on Foxhall Road are poor and subject to safety issues. The location is relatively remote from Ipswich Town Centre and bus travel would represent the most significant sustainable access option to Ipswich Town Centre. The close proximity of Site 3 to Adastral Park is of significant benefit, although the A12 would represent a considerable barrier, justifying investment in the proposed new pedestrian and cycle link across the A12. The investment from in improvements to bus provision and facilities along the Foxhall Road corridor would greatly support this Scenario.

Like all sites, with the exception of Site 5, sustainable access to Felixstowe is poor and an improved bus service is unlikely to be justified based on the scale of development. The ability to provide improved service lies mainly with the potential to reroute and increase service on the 172, 173 and 174 services from Woodbridge to Felixstowe. It is considered that travel planning with the promotion of car sharing also offer potential to cater for this route.

Given the location close to Adastral Park delivering effective public transport improvements is quite feasible, assuming a direct route can be achieved and that attractive bus journey times can be preserved. This Scenario would have a very similar impact on the local road network to Scenario 1, and considerable improvement would be required at a number of A12 junctions to preserve existing service levels.

The broad mitigation measures likely to be required to support Scenario 4 are outlined below, with estimated costs highlighted:

- Provision of local improvements to pedestrian and cycle facilities on Woodbridge Road and Dobb's Lane (£1million)
- Local traffic capacity improvements are likely to be required along Foxhall Road. (£1million)
- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme. (Up to £80k per annum across the 2 locations, potentially shared with the Adastral Park employment area, assume 50% support)
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12. (£0.5million)
- Financial support to implement a new direct bus service to Ipswich. (up to £1million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 50% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists.)
- Contribution towards an improved direct service to Felixstowe. (up to £1.5million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 30% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists. Increased subsidy likely due to the smaller mass of residences at each location and the increased route length required)

- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction. (£1million excluding land costs, for 4 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor. (£0.75million, excluding land costs, for 3 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Provision of onsite infrastructure and new access junctions for Sites 3 and 4. (£1.0million)
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction. (£2million excluding land costs, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)

The estimated total cost of the mitigation measures for Scenario 4, excluding land costs and professional fees is in the region of £10.25 million, which makes some allowance for contribution from the Adastral Park expansion plans.

Scenario 5: Site 5 is served by a range of bus services linking the Site to Ipswich and Felixstowe town centres. Site 5 is the only site situated on a bus corridor to Felixstowe. No direct access to Adastral Park is currently available, nor is it likely to be justified based on current proposed densities. The most feasible alternative would be to reroute and increase frequency of the 172, 173 or 174 services which operate between Woodbridge and Felixstowe via Martlesham.

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, scenario 5 has a generally poor relationship with existing local communities, schools, shopping areas and employment. In the longer term it would benefit from the extension of Ransomes Europark and could contribute to improved bus links along the Felixstowe Road.

- Contribution towards local improvements to pedestrian and cycle facilities on Felixstowe Road. (£1million)
- Local traffic capacity improvements are likely to be required. (£1million)
- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme. (Up to £80k per annum across the 2 locations, potentially shared with the Adastral Park employment area, assume 50% support)
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12. (£0.5million)
- Financial support to improved bus services to Ipswich from both sites. (up to £3million for 5 years support, depending on level of subsidy required, assuming 25% support from projected expansion at Adastral Park. Length of contribution will depend on development phasing and will be required until a viable service exists.)
- Contribution towards an improved direct service to Felixstowe. (up to £1.5million for 5 years support, depending on level of subsidy required, shared with any growth of the Adastral Park employment area, 30% assistance assumed. Length of contribution will depend on development phasing and will be required until a viable service exists. Increased subsidy likely due to the smaller mass of residences at each location and the increased route length required).
- Contribution towards junction improvements to support bus travel along Felixstowe Road. (£1.5million excluding land costs, for 3 junctions).
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction. (£1million

excluding land costs, for 4 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)

- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor. (£0.75million, excluding land costs, for 3 junctions, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)
- Provision of onsite infrastructure and new access junctions for Sites 4 and 5. (£1.0million)
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction. (£2million excluding land costs, shared with any growth of the Adastral Park employment area, 50% assistance assumed.)

The estimated total cost of the mitigation measures for Scenario 5, excluding land costs and professional fees is in the region of £13.75 million, which makes some allowance for contribution from the Adastral Park expansion plans. This is expected to be considerably higher than other options due primarily to the fact that greater subsidisation of public transport services required to provide the level of service necessary to promote sustainable travel. This is due to the distribution of the proposed allocation across three bus corridors and the relatively small demand likely to be generated on each.

It is clear the estimated scale of cost associated with the mitigation measures for each Scenario varies between some £7.5 million for Scenario 1 and £13.75 million for Scenario 5. It should be noted that these costs are indicative and that further contribution towards some of these measures would be justified from other housing allocations within the district. This is dealt with further in Chapter 7. Key issues relating to the deliverability of the measures required and the implications of phasing of the measures are outlined in the next section.

4.6 Deliverability & Phasing

All mitigation measures would be expected to be developer funded.

The phasing of mitigation measures required will depend largely on how the provision of additional housing comes forward. Individual detailed planning applications will need to be assessed to identify with further clarity the improvements required and the full housing allocation will need to be taken into consideration in this assessment. The ultimate goal of the phasing programme should be to promote sustainable travel rather than provide additional road network capacity prematurely, thus avoiding an increasing in demand for single occupancy car travel.

It is clear that, with the exception of Scenario 1, there is likely to be a series of developers involved in delivering the housing allocation. This complicates the provision of the mitigation measures as the measures required will benefit multiple sites but may not be justified in isolation and in many cases could not be funded by any one part of the allocation.

It is recommended that the travel planning requirements are delivered by the developers through appropriate development management structures. This should be imposed as a planning condition and regulated through the Local Authority. An initial contribution for support services from the Local Authority would be required.

It is recommended that the physical measures required in close proximity to the sites are delivered by the Applicants, whilst a Community Infrastructure Fund is put in place to cater for the strategic improvements which would include the following:

- public transport service improvements,
- improvements to junctions along the A12,
- improvements proposed along each of the key corridors to preserve bus journey times,
- strategic pedestrian and cycle improvements.

The responsibility for delivering these strategic measures should ideally lie with the local authority such that they can be brought to fruition at an appropriate stage.

It is clear that in order to fully understand the level of CIF funding required further detailed consideration of the strategic measures necessary is required. The CIF fund would then require than a tariff system is adopted which identifies an appropriate contribution level on a per dwelling basis.

5 Felixstowe and Trimleys

5 Felixstowe and Trimleys

5.1 Introduction

In this Section the transport assessment of the proposed housing allocations for Felixstowe and Trimleys is presented. Original studies, undertaken as part of the LDF strategy, investigated the potential impact of a housing allocation of approximately 1,600 dwellings in Felixstowe and the Trimleys. Five potential allocation sites were investigated:

1. Northeast of the A14
2. Land between Trimley villages, railway line and A14
3. South of Dockspur roundabout between Walton and Trimley St Mary
4. North of Candelt Road
5. North of Felixstowe

The sites are all located close to the A14 and A154 but would be accessed through local roads which connect with Felixstowe, namely High Road / High Street, and the junctions 59 and 60 of the A14. The strategy concluded that sites 2, 3 and 4 were the preferred development sites, in transport terms. It is now proposed to allocate 600 fewer dwellings across the allocation sites in Felixstowe and Trimleys, bringing the total development to 1,000 dwellings and to allocate these across three new locations.

As stated previously, the sites now put forward to be allocated for new housing development, are shown in **Drawing 60095679_001**, **Section 2.**

Site 1 is located to the northwest of Felixstowe, bounded to the north by the A154 Candlet Road, to the west by the A14 Port of Felixstowe Road, to the south by High Road, and to the east by existing residential development on Ascot Drive and Treetops.

Site 2 is located to the northwest of Felixstowe, 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 existing residential development on Chatsworth Crescent and Welbeck Close.

Sites 1 and 2 are the current preferred development sites, and it is suggested that the remaining housing allocation which cannot be accommodated at sites 1 and 2 would be provided for through dispersed allocation across greenfield sites in the Felixstowe and Trimleys area.

As summarised previously in Section 2 of this report, the Housing Allocation scenario put forward for Felixstowe & Trimleys is assumed to be as summarised below:

- Site 1 Northern side of High Road / High Street 400 dwellings
- Site 2 Southern side of High Road / High Street 200 dwellings
- Dispersed across Greenfield sites 400 dwellings

This section seeks to outline the existing walking and cycling provision to the sites, and the primary existing public transport provision. It also describes the existing local road network and potential vehicle accesses to the allocation sites. This Chapter outlines a broad reference to the likely mitigation measures and deliverability issues relating to each site put forward for Felixstowe and Trimleys.

5.2 Sustainable Transport Accessibility

5.2.1 Public Transport Accessibility of Sites

Existing Bus Services

All allocation sites benefit from existing access to four bus services which operate at least an hourly service, and link the sites both to Ipswich town centre and Felixstowe. These are summarised in Table 5.1.

Table 5.1: Existing Bus Provision at Felixstowe & Trimleys Allocations Sites

Route Number	Route	Monday – Friday Frequency	
75	Ipswich - Felixstowe (Grange Farm)	Half hourly	Combined service frequency of 4 per four between Ipswich and Felixstowe
75A	Ipswich - Felixstowe (Grange Farm)	Hourly (between 1700 – 0000)	
76	Ipswich - Old Felixstowe	Hourly	
77	Ipswich - Felixstowe Dock	Hourly	

Both sites have bus stops currently located close to them. The closest stops are as follows:

- Site 1: High Road just west of the A14 and on High Street just west of Gulpher Road.
- Site 2: High Road just west of the A14.

As shown in Table 3.3, expected bus trips from the development sites would be around 100 two way trips in the morning peak and 50 two way trips in the evening peak period, based on 2001 Census mode shares for the area.

The existing 172, 173 and 174 services offer a combined 2 hourly frequency between Woodbridge and Felixstowe via Martlesham, which is very poor. An increased frequency across these services could provide an attractive service for new residents in Felixstowe.

As highlighted in Section 4, a mass of approximately 2,000 households would be required to justify provision of a viable new commercial bus service. This highlights the housing allocations for Felixstowe and Trimleys would not be sufficient in scale to justify a new service without significant subsidisation and/ or connection to another major generator of new public transport trips to Ipswich Central or Eastern Ipswich.

Existing Rail Services

Trimley Rail Station is located between west of Sites 1 and 2, and currently is served by an hourly rail service between Ipswich and Felixstowe. The service to Ipswich takes approximately 22 minutes. Connections to London Liverpool Street, Norwich, Cambridge, and Peterborough are easily made at Ipswich Station.

Currently, the station is unstaffed and tickets need to be bought on the train. Facilities include:

- Real time information board;
- Timetable information board;
- Bicycle stalls
- Free car parking (25 spaces)

Felixstowe station is located approximately 1km to the east of Sites 1 and 2, and provides the same hourly service to Ipswich as that running from Trimley.

The four key bus services mentioned in the previous section provide access to Felixstowe station.

Felixstowe station currently offers no designated parking for train users, although park and ride activity occurs with parking notable in nearby residential streets.

Reviewing Table 3.3, it can be seen that, based on 2001 usage and the proposed housing allocation of 1,000 dwellings, only 20 trips would be expected by rail from the allocation sites in the morning peak, and 12 in the evening peak. Substantial improvements to facilities would not be justifiable based on the mass of development proposed.

5.2.2 Walking and Cycling Accessibility

With respect to cycling 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, and to Felixstowe town centre. Part of the route runs through Trimley St Martin from Kirton and the areas to the north.

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 Sites 1, and 2 linking to the town centre and the Felixstowe Port area.

High Street and High Road both have footways on both sides providing a pedestrian route into Felixstowe. Trimley Rail Station can be accessed via Station Road off High Road.

The modal share at the proposed sites could be further promoted by improving existing facilities local to each site and ensuring that community infrastructure is provided within close proximity to maximise accessibility by slow modes.

5.2.3 Summary of Sustainable Accessibility

The Felixstowe and Trimleys areas offer good access to bus services linking Felixstowe and Ipswich, bus provision to other areas is however poor and there is very limited services to areas to the north or south.

Trimley Rail Station provides an hourly service to Ipswich which further provides access to London, Norwich, Cambridge and Peterborough. The sites are poised to benefit from strong pedestrian and cycle links to Felixstowe Town and Felixstowe Port, particularly given their close proximity.

The current level of car reliance for access to Felixstowe and Felixstowe Port is notable and should be addressed through promotion of existing facilities.

5.3 Vehicular Accessibility

5.3.1 Existing Road Network

Based on the location of the two allocation sites, key routes have been identified which may be affected by the proposed scale of development:

- A14 – Trunk Road providing a route from Felixstowe to the A12(T)/ A14(T) Copdock interchange.
- A154 – Local road providing access to Felixstowe from the A14.
- High Street / High Road – Local road providing access the A14 and Felixstowe.

Within the routes identified above AECOM 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:

- A14 / Kirton Road (Trimley St Martin) Grade Separated Roundabout;
- A14 / A154 Candlet Road / A14 Felixstowe Port Road (Dock Spur) Roundabout;
- A154 Candlet Road / A1541 Garrison Lane roundabout;

- High Road West / Garrison Lane signalised junction
- High Road West / Beatrice Avenue / Hamilton Road roundabout

As part of this report, a broad assessment has been made of the likely impacts of the allocations sites on these routes and junctions.

5.3.2 *Development Access*

Whilst there are no defined development proposals at this stage, it is considered that suitable access to the local road network could be achieved.

Highway access to site 1 could be provided via:

- A new access onto High Road.
- A new access onto the A154 Candlet Road.

Highway access to site 2 could be provided via:

- A new access onto High Road.

At this stage, for the purposes of trip distribution it is assumed that access to sites 1 and 2 will be via High Street / High Road, whilst access to the remaining allocation is assumed to be via the link road between High Road and Junction 59 with the A14.

Traffic to Ipswich and further afield would be expected to use the A14, whilst traffic into Felixstowe and the docks would be expected to use local routes along High Street / High Road.

From site 1 and 2, traffic to the A14 would be expected to travel north along High Street / High Road to the link road roundabout (junction O), and onto the A14 at junction 59 (Junction I). Traffic travelling toward Felixstowe and the port would travel along High Street / High Road to the signalised junction with Garrison Lane (Junction N) and potentially beyond to the roundabout with A1021 Hamilton Road (Junction M).

From the remaining allocation, traffic to the A14 would use the Junction 59 link road up to the A14 at junction 59 (Junction O). The majority of traffic travelling toward Felixstowe and the port would travel along the Junction 59 link road to the roundabout with High Street / High Road (Junction O), and then along High Street / High Road to the signalised junction with Garrison Lane (Junction N) and potentially beyond to the roundabout with A1021 Hamilton Road (Junction M). A small proportion of traffic to Felixstowe could be expected to use the A14 southbound, using the A154 Candlet Road at junction 60 (Junction J) to travel to the roundabout with Garrison Lane (Junction K) or further to the roundabout with Beatrice Avenue (Junction L).

Using the proportions derived from the Census data, **Table 5.2** shows the expected number of vehicle trips along the main routes discussed above.

Table 5.2: Summary of vehicle trip distribution on highway network

Route	Morning Peak 0800 - 0900		Evening Peak 1700 – 1800	
	Arrivals	Departures	Arrivals	Departures
Site 1				
High Street / High Road eastbound toward Felixstowe	38	96	65	43
High Street / High Road westbound toward A14 jn 59	21	54	37	24
Site 2				
High Street / High Road eastbound toward Felixstowe	19	48	33	21
High Street / High Road westbound toward A14 jn 59	11	27	18	12
Remaining dispersed allocation				

Link road to High Street / High Road eastbound	42	108	73	48
Link Road to A14 jn 59	30	77	52	35
Cumulative				
	Two-Way Flow		Two-Way Flow	
High Street / High Road between Site 2 access and A14 Link Road	262		212	
Link Road Between High Road and A14 jn 59	219		178	
High Street / High Road between Site 1 and Garrison Lane	350		284	

5.3.3 Potential New Link Road

The potential to develop a new link road between Candlet Road and High Street has been raised previously. This could cause significant redistribution of traffic on the local highway network, and also an opportunity to provide an alternative access into Site 1.

The potential provision of a new link road would reduce the impact of local trips along High Street and High Road, however the majority of this traffic is local and redistributing this traffic onto a more strategic route into the Town is not deemed to be good policy, particularly in light of the high level of existing car use for local trips in the area.

A new link would potentially encourage traffic currently using A14 junction 59 to access the Town and allocation sites 1 and 2 to redistribute to A14 junction 60, and then along the new link to High Street. This junction plays a critical role in maintaining access to Felixstowe and Felixstowe Port. A significant upgrade scheme is understood to have been put forward for Junction 60. Such a major junction upgrade at Junction 60 would not be deliverable within the allocation lands and the cost would be likely to be disproportionately high.

Junction 60 forms a major interchange along the strategic road network, and therefore the proposed development impact needs to be carefully considered. Reviewing the level of trips, it is considered unlikely that the Felixstowe developments would have a material impact on the operation at this junction. This is considered further with respect to cumulative impacts in Section 7.

If the link road discussed above were implemented, it is expected that a level of traffic redistribution would occur. It is assumed in this study that traffic would redistribute as follows:

- All traffic using the A14 to and from Sites 1 and 2 would use the new link road, accessing the A14 from junction 60 (Junction J), as opposed to travelling along High Road / High Street, and accessing the A14 from junction 59 (Junction I).
- Traffic from the remaining allocation would be largely unaffected by the proposed new link road.
- On this basis, it would be expected that the new link road would be used for 81 and 36 two way trips in the morning and evening peak hours respectively from the proposed new development sites. These trips would access the A14 at junction 60 (Junction J).
- As a result of this redistribution, trips from Sites 1 and 2 would no longer use the length of High Street / High Road up to junction 59 (junction I), thus any impact on this road would be further reduced.
- Beyond junction 59 of the A14, the distribution of trips would remain the same.
- It is worth noting that it is likely that a significant number of existing trips, particularly in the residential areas near to the proposed sites 1 and 2, would also redistribute to use

this new link, as opposed to travelling along High Road / High Street to junction 59, and hence the flows along the route west of the new link road are likely to be reduced.

5.3.4 Traffic Impact

Strategic Road Network

Given the relatively low level of trips onto the trunk road network in comparison with the existing level of traffic, it is not expected that the proposed development traffic would have a significant impact on the operation of the trunk road network, or any of its junctions, potentially with the exception of Junctions 59 and 60 along the A14, which would require detailed assessment to determine if mitigation would be required.

High Street / High Road

The worst case flows discussed in the previous section along High Street / High Road suggest an additional 374 and 284 vehicles in the morning and evening peaks respectively. As such, it is likely that the increase in traffic along the local road network, in particular along High Road / High Street could have an impact on congestion along the route.

Based on a Transport Strategy for the redevelopment part of the Trimley Estate in Felixstowe undertaken by WSP, and provided by SCC, existing flows along High Road / High Street are summarised in Table 5.3, with a comparison of potential impact based on the expected development flows.

Table 5.3: Existing trips along High Road / High Street

	Morning Peak 0800 – 0900		Evening Peak 1700 – 1800	
Scenario	Eastbound	Westbound	Eastbound	Westbound
Existing Flows	230	470	450	450
Development Flows	251	123	113	171
Potential Impact	109.1%	26.2%	25.1%	38%

It can be seen that as a result of the development worst case flows along High Road / High Street could increase significantly, in the morning peak possibly doubling the existing level of traffic travelling eastbound. In all cases, based on the assumptions developed here, it could be assumed that the development would have a significant impact on the route.

It should be noted that all the proposed allocation sites 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. Sustainable transport measures therefore could potentially reduce the impact show in Table 5.3. This is discussed further in section 5.4.

5.4 Mitigation Measures & Cost

5.4.1 Sustainable Transport Promotion

As highlighted in Chapter 2, the current assessment is based on local mode splits from 2001 Census Data and all future development should be implemented with a view to achieving improved mode splits in favour of non-car use. The SCC residential travel planning scheme within the County, which focuses on implementing personal travel planning for existing households, offers strong potential at this location where a high level of car use for local trips exists. Car sharing could in fact offer a substantial benefit to residents accessing the key employment areas, particularly Adastral Park. The SCC residential travel planning scheme should be implemented through all new housing developments and contributions sought to

support it. In addition there is potential to improve existing sustainable access as outlined in the following sections.

5.4.2 *Bus improvements*

Given the moderate levels of bus usage that could be expected to be generated by the proposed developments based on existing mode splits, it is likely that the existing services could support the additional development. However, it is unlikely that this number of trips could justify a new or diverted service.

Further liaison with bus operators would be required by the developers of the allocation sites to fully understand the existing patronage along the route, and discuss whether there is scope for increasing the frequency of bus services in the area, particularly to the Port which is likely to continue to develop new major employment opportunities.

Given the expected expansion of Adastral Park as a major employment centre, discussions with bus service operators should be undertaken to understand the feasibility of providing an increased bus frequency between Felixstowe, and Adastral Park. This is dealt with further within the Cumulative Assessment Section 7.

As a minimum, it is likely that developments would be expected to provide contributions to improving the quality of service along the existing bus routes, including providing new high quality bus shelters in and around the new development, and ensuring that the development sites are highly permeable to allow pedestrians quick access to the bus services along the existing routes.

Realistic mode shift to buses will require a wide range of measures including development travel plans, the provision of travel passes and travel packs to new residents to encourage bus use. Further improvements to the existing service frequencies along the existing transport routes would be difficult to prove viable for the locations in Felixstowe alone but an Area Travel Plan incorporating Felixstowe Port employment areas could harness sufficient finance and potential patronage to justify improvements.

5.4.3 *Rail improvements*

Currently there are very low levels of rail use in the area. Whilst the potential to create significant modal shift to rail is limited, it is expected that walking and cycling routes to the station are upgraded to ensure they are safe and convenient and encourage people to use the train.

Contributions may also be sought to provide improvements to the Trimley Rail Station. This will be particularly important with respect to encouraging mode shift away from the private car for longer trips, which will be necessary to reduce the impact of new development traffic along High Street / High Road.

5.4.1 *Walking and Cycling Proposals*

The development sites are reasonably accessible, with walking and cycling links to the surrounding area. With respect to walking, the development sites should be fully permeable and create a positive environment for all road users. In particular, there should be good links to public transport hubs, and local schools and amenities. These schemes may include, for example, new routes such as access onto Chatsworth Crescent to provide a better route access to rail services.

It is expected that as part of the planning process for new developments, local facilities and amenities will be considered in detail, and routes between the development and these areas will be improved to encourage walking and cycling in the area.

As noted above, there is currently an on-road cycle route along High Street / High Road. It would be expected that routes through the new developments would feed into this existing route to provide a continuous network, and encourage the use of cycling from the new development, particularly into Felixstowe and to the Port.

5.4.2 *Road Network Proposals*

In general ***transport investment linked with development should focus firstly on promoting sustainable transport options for local trips where other alternatives to single occupancy car use do or will exist.*** The provision of increased road capacity should be focussed on maintaining existing levels of capacity in particular on strategic traffic routes.

Strategic Road Network

Based solely on the Felixstowe allocation sites, the relatively low level of vehicle traffic expected to be generated by the development on the trunk road network, it is unlikely that any major highway improvements would be necessary, although further detailed assessment of the A14 junction 60 would be required along with the potential need for contribution to improvements at the A14 Sevenhills junction.

High Street / High Road

It has been shown that there could be a significant impact on traffic levels along High Street / High Road. It is firstly important to note that the proposed increase in traffic flows may not be acceptable to SCC and SCDC along the High Street / High Road, regardless of the possibility of providing mitigation schemes along the route.

If the increases in traffic levels were considered acceptable, it is very likely that mitigation measures would be required to ensure that development on the proposed allocation sites does not have a negative impact on the existing road network. The junction upgrades are likely to include, but are not limited to, the roundabout between the junction 59 link road and High Road (Junction O), the signalised junction between High Road West and Garrison Lane (Junction N) and the roundabout with High Road West and Beatrice Avenue / Hamilton Road (Junction M).

The potential impact along this route will be highly dependent upon the achievable mode shift away from the private car as a result of sustainable transport measures discussed above, and the required mitigation schemes will need to be assessed in conjunction with these measures and associated realistic mode shift targets.

It is recognised that, given the number of additional trips based on existing mode split data, it may not be possible to mitigate against the impact of the proposed allocation site development along High Street / High Road. If this is the case, there may be a case to develop the new Link Road, discussed further below.

New Link Road

Given the low level of trips which would use the route as a result of proposed development it would not, on first inspection, justify implementing a new link road scheme. However, if a link road were provided, the route would be used by both the new development traffic and existing trips, all of which would redistribute away from High Street / High Road. This would have the effect of reducing flows along High Street / High Road, and could reduce the traffic impact along this route, hence mitigating the impact of development along this route.

Given the high levels of flows predicted along High Street / High Road, a new link road may provide the only solution to mitigation of traffic impact along the route.

The potential traffic redistribution will need to be considered in further detail to understand the potential benefits and drawbacks of the scheme.

Based on AECOM's broad experience of designing and costing such links, it could be expected that assuming a single carriageway of length 300m, would have a construction cost in the region of £550,000, which would include new highway and drainage works etc, but would not include design fees, contingency etc, nor would it cover the cost of providing two new junctions on Candlet Road and High Street. AECOM have not identified whether there are any site specific constraints which may affect the deliverability of such a scheme.

Whilst it appears the link road could be provided using land available for Site 1, clearly this would reduce the developable area which could be provided within Site 1.

Whilst the potential costs will need to be considered in further detail to understand the viability of the scheme, it would on first inspection appear that the scheme could be delivered, if it were required to allow the development of the allocation sites to move forward. The potential redistribution of local traffic would need to be examined further to determine the benefits of the scheme to the local road network.

5.5 Mitigation Requirement Summary and Costs

Given the lack of data available at this stage and the uncertainties in relation to hoe the allocation will be delivered, it is not possible, at this stage, to identify an exhaustive or detailed schedule of mitigation measures. It is however necessary to understand the relative scale of mitigation required. As such key measures likely to be required are highlighted below for each Scenario.

Implementation of any of the housing allocations put forward would be subject to detailed assessment at planning stage.

Furthermore, to understand the implications of these mitigation requirements it is necessary to consider the potential scale of cost associated. This is difficult to identify with any certainty, as it depends on many issues such as a detailed assessment of the measures required, the time at which they would be carried out, the level of subsidy necessary, etc. For the purposes of this report generic assumptions have been adopted, based on an understanding of industry costs. Estimated broad costs have been included below. It should be highlighted that this solely provides an indication of the likely scale of cost involved.

5.5.1 Mitigation Requirements & Estimated Scale of Associated Cost

It is proposed to provide up to 1,000 dwellings across the Felixstowe and the Trimleys area.

There are a number of bus services which run adjacent to the proposed development sites at a frequency of 1 hour or less. Buses run between Ipswich, Felixstowe and the port, although there is a limited service connecting the major employment site at Adastral Park to Felixstowe. Bus improvements as a result of the development will be dependent upon detailed liaison with bus operators, but will at a minimum include improvements to existing bus shelters and provision of '*Real Time Passenger Information*' facilities, and ensuring high quality access through the development to bus stops along the existing service routes. Potential for enhanced frequency of the 172, 173, 174 services should be explored.

Existing train use in the area is low, which could be attributed to the single hourly service running between Trimleys and Ipswich railway stations. It is expected that contributions to improve the Trimleys rail station, and improvements to walking routes between the development sites and the station would be implemented.

Assessment of expected vehicle trip generation and distribution has shown that the numbers of additional trips on the trunk road network will be modest in comparison to the existing levels of traffic, and would be unlikely to have a material impact on the operation of any trunk road junctions. In saying that, the impact on Junction 60 and Sevenhills junction on the A14 would need to be explored further.

The proposed developments are likely to have a more significant impact on the local road network, in particular along High Road / High Street. It is very likely that mitigation schemes will be required along this route to mitigate this impact. Appropriate mitigation may require a new link road between High Road / High Street and A514 Candlet Road to allow redistribution of traffic away from the route. Junction improvements could however address reduce the traffic impacts through enhanced signalisation, banned turns and associated traffic management measures.

If a new link road is brought forward, this is likely to cause a significant impact at junction 60 of the A14 as both development traffic and existing traffic is likely to redistribute away from the existing route along High Road / High Street up to junction 59. As such, implementation of a link road is likely to require traffic mitigation scheme at A14 junction 60.

The broad mitigation measures likely to be required to support the proposed allocations at Felixstowe and Trimleys are outlined below, with estimated costs highlighted.

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme. (Up to £20k per annum contribution to SCC to implement personal travel planning for 10 years).
- Contribution towards pedestrian and cycle improvements connection to Felixstowe and adjacent amenities, including the railway stations. (£0.5million)
- Contribution towards improvements to Trimleys Railway Station (£0.2million)
- Financial support to implement improved bus frequencies to Ipswich and Woodbridge. (up to £1million for 5 years support, depending on level of subsidy required,)
- Improvements to existing bus shelters and provision of '*Real Time Passenger Information*' facilities (£50k)
- Provision of on-site infrastructure and a new access junctions. The cost of this is difficult to determine given the proposed dispersed strategy. (Between to £0.5 and £1.5million depending on how the allocation is dispersed)
- Contribution towards junction improvements at the A12/ A14 Sevenhills junction based on proportional impact. (£1million)
- Provision of a new link road (£0.6million)
- Substantial improvements to 3 junctions along High Road, High Street (£1.5million)

The estimated total cost of the mitigation measures for the proposed Felixstowe and Trimleys , excluding land costs and professional fees is in the region of £5.8million.

It should be noted that these costs are indicative and subject to more detailed traffic and cost assessment. Key issues relating to the deliverability of the measures required and the implications of phasing of the measures are outlined in the next section.

5.6 Deliverability & Phasing

5.6.1 *'Dispersed Strategy' Implications*

The proposal to adopt a 'dispersed Strategy' across the Felixstowe and Trimleys area has a number of transport implications. It will be more difficult to ensure that a sustainable development layout can be achieved and to provide sustainable transport links efficiently. In considering planning applications for sites to deliver the proposed allocation, urban Brownfield sites adjacent to existing bus routes and within close walking distance of the train stations and town centre should take preference to ensure that car reliance is minimised.

In addition a 'dispersed strategy' poses significant difficulty in terms of delivering the necessary mitigation measures to support the overall allocation. It is critical that more detailed assessment is undertaken to ensure that the appropriate measures are refined and that a Community Infrastructure Fund is identified which identifies an appropriate tariff system per dwelling, such that the County Council can implement the required measures when appropriate.

5.6.2 *Phasing of Improvements*

All mitigation measures would be expected to be developer funded.

The phasing of mitigation measures required will depend largely on how the provision of additional housing comes forward. Individual detailed planning applications will need to be assessed to identify with further clarity the improvements required and the full housing allocation will need to be taken into consideration in this assessment. The ultimate goal of the phasing programme should be to promote sustainable travel rather than provide additional road network capacity prematurely, thus avoiding an increasing in demand for single occupancy car travel.

It is clear that, there is likely to be a series of developers involved in delivering the housing allocation. This complicates the provision of the mitigation measures as the measures required will benefit multiple sites but may not be justified in isolation and could not be funded by any one part of the allocation.

It is recommended that the travel planning requirements are delivered by the Council through contributions from the developers. This is likely to require an upfront lump sum payment.

It is recommended that the physical measures required in close proximity to the sites are delivered by the Applicants, whilst a Community Infrastructure Fund is put in place to cater for the strategic improvements which would include the following:

- Travel planning services;
- public transport service improvements,
- improvements to Sevenhills Junction,
- improvements to Junction 60 on the A14,
- The proposed link road, if required;
- Improvements to High Road/ High Street junctions;
- strategic pedestrian and cycle improvements.

The responsibility for delivering these strategic measures should ideally lie with the local authority such that they can be brought to fruition at an appropriate stage.

It is clear that in order to fully understand the level of CIF funding required further detailed consideration of the strategic measures necessary is required. The CIF fund would then require than a tariff system is adopted which identifies an appropriate contribution level on a per dwelling basis.

6 Market Towns

6 Market Towns

6.1 Introduction

The towns of Aldeburgh, Framlingham, Leiston, Saxmundham and Woodbridge perform important functions in the commercial, social and leisure activities of the district. They serve extensive rural catchment areas and also act as 'hubs' around which transport systems (both public and private) should operate to make them accessible to the majority of residents, particularly in rural areas.

The revised housing allocation numbers propose allocations across these market towns, and these are considered in more detail in this section.

6.2 Potential Housing Allocations in Emerging LDF

2008 to 2024 will have seen the total creation from all sources, except windfall of around 2000 new dwellings, dispersed over 5 market towns (Aldeburgh, Framlingham, Leiston, Saxmundham and Woodbridge) as summarised in **Table 6.1**. Less than half of this allocation will need to be on 'greenfield' sites:

Table 6.1: Potential Housing Allocations identified in the LDF

Scenario	Number of Dwellings
With planning permission	670
Potential on brownfield sites (urban capacity)	400
Proposed Allocations	870
Total 2009 – 2024	1940

It can be seen that 870 new allocations are proposed to be implemented across the following Market Towns including:

- Aldeburgh
- Framlingham
- Leiston
- Saxmundham
- Woodbridge

It is not possible to break down the delivery of the housing allocations on a town by town basis, in terms of scale and location, at this stage. It is however expected that the allocation would be distributed across the five towns resulting in somewhat reduced quantums to that being considered elsewhere in the District under this study. In terms of smaller scale developments, the local impacts are not critical to a study of this nature, however the cumulative impact these developments would have, in terms of access needs to the principal local generators such as Ipswich Town, Adastral Park and Felixstowe, and the potential implications for road capacity on the strategic road network, is of relevance to this study.

6.3 Market Towns

6.3.1 Aldeburgh

As a centre the town provides a range of services and facilities for its own residents and those of the surrounding villages, but lacks the facilities of other market towns such as secondary school provision and higher order leisure facilities. It also contains very little employment. Good transport links to the nearby centres of Leiston and Saxmundham are, therefore, important.

The majority of external trips would be expected to use the A1094 and the B1121, both which run toward the A12.

New development will occur through the development of previously developed land, including infilling. As such, the impact of new residential development is expected to be low, and the potential for new developments to fund improvements to the local highway network, public transport and walking and cycling facilities will need to be assessed on an individual development basis.

6.3.2 *Framlingham*

Framlingham is a historic market town and the only one within the district situated to the west of the A12. It is perhaps for this reason that the town has developed in such a way as to be largely self-contained with good levels of service provision; primary and secondary education; and a range of employment opportunities.

As a thriving centre with few constraints to development, the town has been identified as capable of accommodating significant levels of growth. As part of its continuing evolution, however, a significant brownfield land opportunity exists at Station Road.

Given the fact the town is presently reasonably self sufficient, it is unlikely that development in the area is likely to have a major impact on the existing transport situation in the area but would need to considered in detail through the planning process.

6.3.3 *Leiston*

Leiston currently provides a wide range of facilities serving not only to its own residents but those of its rural hinterland. It also provides employment, leisure and education facilities for all other small towns and villages over a wide geographical area. In recognition of the enhanced role that the town plays within the wider locality the Council is keen to see improvement and investment in its physical environment and further investment in social and community facilities.

The majority of external trips would be expected to use the B1119 toward Saxmundham and the A12 southbound, or the B1122 toward the A12 northbound.

The town contains a number of brownfield sites that may be considered suitable for new housing development.

Given the availability of facilities such as a high school and leisure centre which serve a wide rural catchment area, the Council will work with public transport providers to maintain and improve accessibility.

6.3.4 *Saxmundham*

Saxmundham is a small historic market town, constrained to the east by the river Fromus with its associated risk of flooding, and by the A12 to the west. It has good road and rail access being directly off the A12 and on the east coast rail route.

The town functions as a local retail, employment (including Kelsale cum Carlton) and service centre for residents and its hinterland. Significant levels of new housing have taken place in recent years.

There remain a number of brownfield opportunities within the town and outstanding opportunities for residential and employment expansion in the form of former local plan allocations which are still considered appropriate for those uses.

6.3.5 *Woodbridge*

Woodbridge, extending to the parishes of Melton and Martlesham, is the largest of the market towns, an historic centre sandwiched between the A12 to the west and the Deben estuary to the east.

The town is an important retail, employment and service centre including the Local Authority Council offices. The town also provides higher order leisure and education facilities and, therefore, provides an enhanced role to the surrounding area.

Opportunities for new housing development within the town are limited. However, there may be scope for some development.

The accesses into and out of the town from both Martlesham and Melton, therefore, have important gateway roles to play. The town has relatively good access provision with direct links to the A12 and the railway, with stations at both Woodbridge and Melton. The town is also generally well served by public transport providing access within the town and to a range of destinations outside. This is important for residents and for the tourist industry.

6.4 Traffic Impact

Using a similar approach to the other Housing Allocation areas, as described under Appendix A of this report, trip generation and distribution has been identified for the proposed Market Town allocations to provide a broad understanding of the likely scale of movement to key generators and the implications for the strategic road network. The need for broader mitigation for development of the Market Towns is then considered.

Vehicle trips beyond the local villages are likely to be served by various junctions along the A12. A review of census data for the villages shows that higher proportions of residents work from home, or are retired compared with the larger towns of Ipswich and Felixstowe. As such, the numbers of people travelling by work per household, would be expected to be lower than other areas in the District.

Table 6.1 below summarises the cumulative person trip generation, by all modes for the full proposed housing allocation across the Market Towns, highlighting an expected total generation in the order of 455 and 369 car trips in the AM and PM peak hours respectively.

Table 6.1 Estimated person trips, by mode and trip purpose, for proposed Market Town Housing Allocations.

Trip By Mode		**Trip Purpose**								**Total Trips By Mode**	
		Work *(trips)*		***Education*** *(trips)*		***Shopping*** *(trips)*		***Other (Various)*** *(trips)*			
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
TOTAL (870 dwellings)	Walk	61	49	215	15	13	28	100	162	**389**	**254**
	Cycle	22	18	10	1	0	1	2	5	**34**	**25**
	Car Driver	255	207	108	7	21	46	71	109	**455**	**369**
	Passenger	27	22	113	8	10	23	49	89	**199**	**142**
	Rail	8	7	10	1	0	1	3	5	**21**	**14**
	Local Bus	15	12	54	4	4	10	9	14	**82**	**40**
	Others	52	42	20	1	1	2	5	9	**78**	**54**
	Total	**440**	**357**	**530**	**37**	**49**	**111**	**239**	**393**	**1258**	**898**

Source: 2001 Census Data for Woodbridge outlying wards

These trips have been assigned manually to the road network based on census journey to work destinations, as described in Appendix A. The estimated car trip distribution across the study area road network is illustrated in Appendix B, from which the following key points can be established:

- Vehicular impact is expected to be most notable at the A12/ A1214 Woodbridge Road junction where a combined impact of, in the order of, 250 and 200 vehicle movements expected in the 2024 AM and PM Peak hours respectively. Interestingly, only approximately half this traffic is predicted to reach the Sevenhills junction, highlighting that the Ipswich Area is the destination for this traffic. A large proportion is heading for Woodbridge Road to and from Ipswich, where existing public transport links exist to the Market Towns and where a Park and Ride facility is provided with very good levels of bus service.

- Traffic is predicted to disperse across the study area south of the A1214/ A12 junction with reducing impact expected. Impact on the remaining A12 and A14 junctions within the study area is not considered significant enough to warrant investigation of mitigation measures.

The cumulative impacts across the strategic road network within the study area are dealt with in the next Chapter.

6.5 Mitigation

Overall the dispersal of this development over a wide area of Suffolk and across various different development sites means that the traffic impact can be expected to be limited.

It is considered that the potential traffic impacts for individual development proposals on allocated sites should be assessed as part of the planning process to ensure that local and strategic junctions are not adversely affected by proposals, and where a negative impact might occur, improvements are provided to mitigate against these impacts. Suggested mitigation measures are summarised below:

Sustainable Transport Promotion

The most effective way of managing car travel from the proposed allocations on the strategic network would be through personal travel planning for all residents. This would highlight the range of options which exist in terms of public transport, Park & Ride and car sharing. All new development in these areas should be promoted in as sustainable a manner as possible, promoting access to existing public transport and community facilities.

Public Transport Improvements

Development across the Market Towns would not justify provision of a financially viable new bus service, and destinations will vary for these areas. Providing a new service to cater for needs arising from the allocations would be infeasible. Existing public transport links are reasonably good given the rural areas and the strong self sustaining nature of the towns is in keeping with promoting sustainable travel behaviour through the District. Contributions could potentially be required to ensure that the required capacity on existing services can be delivered.

A12/ A1214 junction

The potential to provide additional capacity through the junction is limited without prohibitively high costs, which could not be borne by the allocations in the Market Towns alone. It is suggested that this impact would be most effectively mitigated against through investing in promotion of existing public transport and car sharing services to new residents of these areas. In addition, the calculations undertaken are based on 2001 Census data, and it is highly likely that mode shift away from private car use has occurred particularly from these areas, as congestion levels have increased over recent years. Overall this is not considered to be a critical issue.

6.6 Delivery & Funding

6.6.1 'Dispersed Strategy' Implications

The proposal to adopt a 'dispersed Strategy' across the Market Towns has a number of transport implications. It will be more difficult to ensure that a sustainable development layout can be achieved and to provide sustainable transport links efficiently. In considering planning applications for sites to deliver the proposed allocation, urban Brownfield sites adjacent to existing bus routes and within close walking distance local amenities within the Town Centres should take preference to ensure that car reliance is minimised.

In addition a 'dispersed strategy' poses significant difficulty in terms of delivering the necessary mitigation measures to support the overall allocation. It is critical that more detailed assessment is undertaken to ensure that the appropriate measures are refined and that a Community Infrastructure Fund is identified which identifies an appropriate tariff system per dwelling, such that the County Council can implement the required measures when appropriate.

6.6.2 *Phasing of Improvements*

All mitigation measures would be expected to be developer funded.

The phasing of mitigation measures required will depend largely on how the provision of additional housing comes forward. Individual detailed planning applications will need to be assessed to identify with further clarity the improvements required and the full housing allocation will need to be taken into consideration in this assessment. The ultimate goal of the phasing programme should be to promote sustainable travel rather than provide additional road network capacity prematurely, thus avoiding an increasing in demand for single occupancy car travel.

It is clear that, there is likely to be a series of developers involved in delivering the housing allocation. This complicates the provision of the mitigation measures as the measures required will benefit multiple sites but may not be justified in isolation and could not be funded by any one part of the allocation.

It is recommended that the travel planning requirements are delivered by the Council through contributions from the developers. This is likely to require an upfront lump sum payment.

It is recommended that the physical measures required in close proximity to the sites are delivered by the Applicants, whilst a Community Infrastructure Fund is put in place to cater for the strategic improvements which would include the following:

- Travel planning services;
- public transport service improvements,
- improvements to the A12/ A1214 Junction,
- improvements to Junction 60 on the A14,
- local pedestrian and cycle improvements.

The responsibility for delivering these strategic measures should ideally lie with the local authority such that they can be brought to fruition at an appropriate stage.

It is clear that in order to fully understand the level of CIF funding required further detailed consideration of the strategic measures necessary is required. The CIF fund would then require than a tariff system is adopted which identifies an appropriate contribution level on a per dwelling basis.

7 Cumulative Impacts

7 Cumulative Impacts

7.1 Introduction

In the previous sections, the impact of development of the allocation sites have been considered with respect to the local area. There is also a need to consider the impact of all the proposed allocations cumulatively. This section considers these potential cumulative impacts.

7.2 Committed Development

The following committed developments are included in the base scenario:

- 492 dwellings at Kesgrave
- 229 dwellings at Rushmere St Andrew
- 158 dwellings on the Felixstowe South Sea Front
- Felixstowe Port Expansion

These development areas need to be taken into account in assessing the predicted impacts of the proposed LDF housing allocation traffic against the base scenario.

7.3 Sustainable Accessibility

Substantial potential exists to promote sustainable transport for local trips throughout all allocations, in the Felixstowe area in particular. This should be a strong emphasis in delivering any of the housing allocations, and provision of road capacity improvements should be focussed on strategic routes where existing levels of service need to be maintained.

Equally shortfalls in existing public transport provision on existing corridors and more significantly between the areas of Felixstowe, Nacton Road and Adastral Park currently exist. Whilst providing for this movement pattern could not be sustained through any individual allocation, the proposed growth at key employment zones and the combined delivery of the housing allocation across the areas within the district could support a radial service. This should be investigated further to determine viability.

7.4 Traffic Impact

Drawing 60095679_001 shows the broad location of the proposed allocation sites in east of Ipswich and Felixstowe. It also illustrates the strategic road network under consideration for the purposes of this study. Key strategic junctions which require consideration in the broader view of housing allocation development for the district were deemed to be as follows:

- A14 / A12 interchange (Junction A).
- A14 Junction 59 (Junction I).
- A14 Junction 60 (Junction J).

This section assesses the level of the cumulative peak hour traffic impact likely at these locations.

7.4.1 The A14 / A12 Interchange (Junction A)

The A14 / A12 interchange provides key access for traffic travelling between Felixstowe and other areas to the north along the east coast and east towards London. As such, trips from the Felixstowe and Trimleys sites on the strategic highway are likely to use this interchange.

Equally, the junction will be used by a significant amount of traffic from the east of Ipswich for trips to major employment sites of Felixstowe and the Port.

This interchange is therefore considered highly significant in assessing the cumulative impact of the housing allocations in Felixstowe and Ipswich.

Whilst the potential trips at this junction have been quantified in isolation for each key allocations area: East of Ipswich, Felixstowe & Trimleys and the Market Towns, Table 7.1 summarises the expected cumulative level of trips, for each scenario investigated.

It should be noted that trips which continue along the A14 without entering the circulatory of the junction have been excluded from analysis due to a minimal impact on capacity of the junction.

Table 7.1: Cumulative peak hour vehicular trip distribution at A14 / A12 interchange

Scenario	Morning Peak 0800 – 0900	Evening Peak 1700 – 1800
	Development Traffic	Development Traffic
East of Ipswich Scenarios (2000 new allocations)		
Scenario 1 2,000 on Site 4	411	305
Scenario 2 1,050 on Site 4 and 950 on Site 1	255	197
Scenario 3 1,050 on Site 4 and 950 on Site 2	368	305
Scenario 4 1,050 on Site 4 and 950 on Site 3	368	305
Scenario 5 1,050 on Site 4 and 950 on Site 5	496	363
Felixstowe (1000 new allocations)	142	115
Market Towns (870 new allocations)	80	56
Cumulative Impact		
3870 dwellings (Scenario 1 East of Ipswich)	**633**	**476**
3870 dwellings (Scenario 2 East of Ipswich)	**477**	**368**
3870 dwellings (Scenario 3 East of Ipswich)	**590**	**470**
3870 dwellings (Scenario 4 East of Ipswich)	**590**	**470**
3870 dwellings (Scenario 5 East of Ipswich)	**718**	**534**

It can be seen from **Table 7.1** that the junction could be expected to be used by between 472-718 and 368-534 additional vehicles in the morning and evening peak hours respectively.

2008 traffic flow information has been made available to AECOM for the interchange. However the proposed housing allocations are not proposed to be completed until 2024 and as such the relative impact of the new housing should be assessed against predicted 2024 traffic flows. Growth rates were used to factor the background flows to 2024 levels and ***significant committed development were also accounted for***. It was concluded that the 2024 traffic flows at the interchange will be 5,601 vehicles in the morning peak and 5,215 vehicles in the evening peak.

It can therefore be concluded that the cumulative impact of the housing on the interchange is expected to range between 8.5%-12.8% in the morning peak and 7.1%-10.2% in the evening peak, dependant on the allocation scenario implemented in the east of Ipswich.

This is considered a significant impact at a junction which is currently experiencing capacity issues. It is recommended that this junction is assessed in detail to identify a scheme to cater for the cumulative future needs.

7.4.2 *A14 Junction 59 (Junction I)*

It should be noted that the majority of new trips would continue along the A14 without entering the circulatory of the junction, having minimal impact on the capacity of A14 Junction 59. As such these trips have been excluded from the analysis. There would not be expected to be any significant traffic exiting the A14 at junction 59 from the east of Ipswich sites. The traffic from the east of Ipswich and Market Towns would be expected to continue along the A14 up to junction 60, and would not use the grade separated roundabout. As such, it is considered that the impact on capacity at this junction would be solely as a result of the Felixstowe development sites. This impact is 155 two way trips in the AM Peak and 70 two way trips in the

PM. This level of impact is not considered to be critical, however further detailed assessment would be required, particularly in the context of the Port expansion.

7.4.3 A14 Junction 60 (Junction J)

The total cumulative additional traffic estimated from each of the housing allocations to travel through this junction in the peak hours is summarised below in Table 7.2.

Table 7.: Cumulative peak hour vehicular trip distribution at A14 Junction 60, Felixstowe

Scenario	Morning Peak 0800 – 0900	Evening Peak 1700 – 1800
	Development Traffic	Development Traffic
East of Ipswich Scenarios (2000 new allocations)		
Scenario 1 2,000 on Site 4	113	108
Scenario 2 1,050 on Site 4 and 950 on Site 1	83	94
Scenario3 1,050 on Site 4 and 950 on Site 2	116	111
Scenario 4 1,050 on Site 4 and 950 on Site 3	116	111
Scenario 5 1,050 on Site 4 and 950 on Site 5	113	107
Felixstowe (1000 new allocations)	3	0
Market Towns (870 new allocations)	28	22
Cumulative Impact		
3870 dwellings (Scenario 1 East of Ipswich)	**144**	**131**
3870 dwellings (Scenario 2 East of Ipswich)	**114**	**116**
3870 dwellings (Scenario 3 East of Ipswich)	**147**	**136**
3870 dwellings (Scenario 4 East of Ipswich)	**147**	**136**
3870 dwellings (Scenario 5 East of Ipswich)	**144**	**131**

These calculations assume that the potential link road associated with Sites 1 and 2 in Felixstowe is not brought forward, and as such there would not be expected to be significant levels of traffic joining the A14 at junction 60 from the Felixstowe allocation sites. Therefore, it is considered that the traffic impact at this junction would be primarily as a result of the East of Ipswich and Market Town sites.

This highlights a maximum predicted additional vehicular trips of 147 vehicles during the peak hours. This level of trips is unlikely to cause a significant impact on the operation of the junction.

However, if the link road were brought forward, the redistribution of Felixstowe allocation site traffic as well as existing local traffic would cause additional trips to use this junction. In this case, it is likely that the development, and accompanying link road, would cause a significant impact on this junction, and the development of an appropriate traffic mitigation scheme would be required.

It is clear that further detailed cumulative assessment of the need for a link road and of improvements to Junction 60 is required to ascertain the extent of infrastructure required.

7.5 Mitigation

7.5.1 Sustainable Travel

Whilst pedestrian and cycle facilities is an issue related more locally to each allocation area and should be dealt with on that basis. The cumulative public transport demand across the district requires consideration given the potential increased viability arising from complementary demand patters. For example whilst there is likely to be a demand from the East of Ipswich to Felixtsowe Port area, there is likely to be a complementary demand from Felixstowe housing allocations to Adastral Park employment area. These movements are in opposite directions in the peak periods, increasing the viability of the services, potentially reducing the level of subsidisation required. The cumulative demand strengthens the case for the following service improvements:

- Improvements to the Woodbridge Road and potentially services through the increased demand from both east of Ipswich and from the Market Towns;
- Improvement to the 172, 173 and 174 services would be supported by all of the allocations in the district, suggesting that achieving a reasonable peak hour frequency could be viable; and,
- Improvements to services along the Felixstowe Road to Ipswich would be beneficial to the Felixstowe area and could be more viable if Site 5 in east of Ipswich was brought forward.

Taking a view of the cumulative travel demands is essential in understanding which services are worth subsidising in the short term and it is clear that a joint subsidisation system would be beneficial. Collaboration with the bus operators is required to identify appropriate frequency, routings and most importantly subsidisation requirements.

7.5.2 *The A12/ A1214 Junction*

The combined impact of the allocations to the east of Ipswich and the Market Towns will have a considerable impact on this difficult junction. There is a need to understand these cumulative impacts in greater detail and to identify an appropriate mitigation scheme which would most likely involve further signalisation and potential rationalisation of junction approaches. This needs to be explored further to understand the land requirements, scheme design and associated cost.

7.5.3 *A14 / A12 Interchange (Junction A)*

Given the significant impact of the development sites at this junction, mitigation measures, such as a signalisation scheme, would be required to offset the residual additional trip generation from the development sites, following the implementation of measures to support mode shift away from car use. It is considered that an appropriate scheme is achievable but detailed assessment is required to understand the cost involved and the level of impact from each key area of the district such that an appropriate tariff contribution can be identified. All of the three key allocation areas: east of Ipswich, Market Towns and Felixstowe and Trimleys, lead to significant impact at this junction, most significantly the east of Ipswich.

7.5.4 *A14 Junction 59 (Junction I)*

The additional development traffic is unlikely to have a significant impact on the junction, however this will need to be considered in more detail following further assessment of existing junction flows and operation.

7.5.5 *A14 Junction 60 (Junction J)*

If the proposed new link road in Felixstowe is not implemented, it is unlikely that there will be a significant impact on junction operation, and therefore mitigation schemes are unlikely to be required.

If the proposed new link road is implemented, this will greatly increase the traffic accessing the A14 from this junction, and it is likely that this will have a significant impact on junction operation, and mitigation against these impacts will be required. Potential improvements would most likely involve widening of the junction approaches.

These conclusions will need to be considered in more detail following further assessment of existing junction flows and operation.

7.6 Delivery & Funding

7.6.1 *'Dispersed Strategy' Implications*

The proposal to adopt a 'dispersed Strategy' across the Market Towns and the Felixstowe areas pose difficulty in terms of delivering mitigation requirements. In addition, few of the allocations will give rise to strategic improvements in their own right, besides the proposed provisions in the east of Ipswich.

It is critical that more detailed assessment is undertaken to ensure that the appropriate measures are refined and that a Community Infrastructure Fund is identified with a tariff system per dwelling, such that the County Council can implement the required measures when appropriate.

7.6.2 *Phasing of Improvements*

All mitigation measures would be expected to be developer funded.

The phasing of mitigation measures required will depend largely on how the provision of additional housing comes forward. Individual detailed planning applications will need to be assessed to identify with further clarity the improvements required and the full housing allocation will need to be taken into consideration in this assessment. The ultimate goal of the phasing programme should be to promote sustainable travel rather than provide additional road network capacity prematurely, thus avoiding an increasing in demand for single occupancy car travel.

It is recommended that the physical measures required in close proximity to the sites are delivered by the Applicants, whilst a district wide Community Infrastructure Fund is put in place to cater for the strategic improvements which would include the following:

- Travel planning services;
- public transport service improvements,
- improvements to the A12/ A1214 Junction,
- improvements to the A14 Sevenhills Junction
- improvements to Junction 60 on the A14.

The responsibility for delivering these strategic measures should ideally lie with the local authority such that they can be brought to fruition at an appropriate stage.

It is clear that in order to fully understand the necessary level of CIF funding, further detailed consideration of the strategic measures necessary is required. The CIF fund would then require than a tariff system is adopted which identifies an appropriate contribution level on a per dwelling basis, which would ideally vary for each of the key allocation areas.

Further local CIF schemes would be appropriate to deliver local junction improvements, pedestrian and cycle facilities. These have been highlighted in the previous Chapters.

7.7 Summary

This section has considered the potential cumulative impact of development in Felixstowe, the East of Ipswich and the Market Towns in the context of the potential to improve public transport and capacity of the strategic road network.

As stated previously in the first instance investment should be focussed on reducing traffic impact and on promoting sustainable transport choices from the allocation sites. This should be facilitated through active travel planning, including investment in personal travel planning, and through innovative development design.

The cumulative impact of travel demand across the key allocation sites within the district supports proposals to improve public transport connections, providing good potential to offer an enhanced quality bus network linking employment and housing allocation areas.

In terms of traffic impact on the strategic road network the following key junctions have been considered:

- The A12/ A1214 Junction
- A14 / A12 interchange (Junction A).
- A14 Junction 59 (Junction I).
- A14 Junction 60 (Junction J).

The traffic analysis does not account for any potential mode shift away from private car use, which is considered to be a robust basis for highlighting problem areas. Further detailed analysis would be required through promotion of the individual allocation sites.

The impact on the A12/ A1214 junction particularly with both the Market Town and the east of Ipswich allocations in place, will require provision of junction improvements. Such a scheme is likely to involve further signalisation of the junction and rationalisation of the junction approaches. This would need to be investigated further to identify a preferred scheme.

It is expected that the impact at the A14 / A12 junction will be significant, and therefore a mitigation scheme will be required to ensure this does not have a detrimental impact on the operation of the junction. Such a scheme is likely to involve full signalisation of the junction, which is considered feasible in deliverability and cost terms, given the scale of development put forward.

Junction 59 on the A14 is unlikely to be significantly affected by the cumulative development proposals, and therefore mitigation schemes may not be required. This would need to be further considered following a full review of existing junction conditions.

At junction 60, if a new link road is not implemented in Felixstowe, it is unlikely that there would be a significant impact at the junction as a result of the cumulative development traffic flows, and therefore mitigation schemes may not be required.

However, if a new link road is implemented, this is likely to cause significant redistribution of trips from junction 59 to junction 60, and it is likely that this will have a significant impact on the junction 60. As such, if the link road scheme is implemented, a traffic mitigation scheme is likely to be required at this junction. Potential improvements would most likely include approach widening. Such a scheme is likely to require investment and land beyond that which the proposed housing allocation could viably provide.

There is a clear need to develop CIF schemes across the district and local to each key area to ensure that the necessary mitigation measures can and will be implemented. Such a scheme would be based on a tariff per household system which would vary throughout the district. Further detailed understanding of the cost requirements is necessary to inform this process.

8 Summary & Conclusion

8 Summary & Conclusion

8.1 Introduction

Suffolk County Council (SCC) commissioned AECOM (formerly Faber Maunsell) to undertake a study to examine the broad transport implications of the current preferred housing allocation strategy to be taken forward under the Suffolk Coastal District Council (SCDC) Local Development Framework (LDF) Formal Submission Consultation. This report has considered the potential transport implications of the proposed housing allocations for the areas including:

- Allocation of 1000 dwellings to be dispersed across Felixstowe and Trimleys with a concentration on land between Walton and Trimley St. Mary;
- Allocation of 2000 dwellings east of Ipswich in the Martlesham Area and alternative scenarios where development may be spread over the five sites previously identified;
- The proposed provision of 870 new housing allocations across Market Towns within the SCDC area.

These areas have been considered both independently and cumulatively, and the report has outlined the implications, and discussed possible mitigation schemes which will aim to help bring the developments forward sustainably, and without negative impact on the existing transport networks.

This study seeks to meet the following objectives:

- To examine the transport implications of the above housing allocation options for Suffolk Coastal District, both separately and in combination.
- To consider the development sites 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.
- To consider the potential for improving sustainable transport in the area.

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

- No new survey work has been undertaken;
- No formal new transport network modelling work has been undertaken.
- No consultation relating specifically to this study has been undertaken at this stage;
- This study comprises an initial round of investigations and conclusions, without subsequent iteration or optimisation; and,
- Without detailed traffic data available, and with the large range of uncertainties it is not yet possible to identify in detail a comprehensive schedule of mitigation requirements and associated costs;
- The trip generation and distribution calculations are largely based on 2001 census data which is considered to be the most appropriate data available and is suitable for this study, however it should be highlighted that it is now 9 years old and mode splits in particular are likely to be slightly different now.

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

Give the high level context of this study the specific transportation measures cannot be identified or costed in detail, however a broad understanding of the likely transport mitigation measures required has been identified, where possible, along with key issues for consideration in taking forward the proposed allocations.

8.2 Study Approach

The study considers the existing and proposed strategic employment areas in the surrounding area which would be expected to draw significant numbers of trips from the proposed allocation sites. These include:

- Adastral Business Park
- The Port of Felixstowe
- Ipswich Town Centre

An assessment year of 2024 is assumed, in keeping with the previous study and the LDF horizon of 2025. Along with background traffic growth over the study horizon, relevant large committed developments, which are likely to impact on the highway network in the vicinity of each area, are accounted for in this assessment.

In considering the committed developments, the anticipated growth in HGV traffic from Felixstowe Port has been considered as part of the base scenario against which the proposed allocations have been compared.

It should be highlighted that potential Park & Ride users have been treated as new car trips under the current assessment. Whilst use of the Park & Ride facilities should be promoted in the future, the level of use is difficult to determine at this stage.

This work has been carried out in the context of the approved East of England Plan, the emerging Suffolk Transport Strategy, the Suffolk Local Transport Plan (2006-2011) and other relevant Government guidance.

The locations of the allocation sites in East of Ipswich and Felixstowe, are shown on **Drawing 60095679_001**.

8.3 East of Ipswich

The potential impact and mitigation measures required to accommodate 2,000 dwellings to the east of Ipswich has been investigated. Five scenarios have been assessed independently:

Scenario	Site	Description	Number of Dwellings
Scenario 1	Site 4	South of Old Martlesham/ East of A12	2,000
Scenario 2	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 1	Ipswich Boundary - Westerfield to Rushmere St Andrew (Village)	950
Scenario 3	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 2	North of A1214, Woodbridge Road	950
Scenario 4	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 3	South of Kesgrave/ Martlesham Heath	950
Scenario 5	Site 4	South of Old Martlesham/ East of A12	1,050
	Site 5	North-west of A14.	950

The impacts of these scenarios have been assessed with the following key findings:

Sites 1, 2 and 4 are best served by bus routes into and from Ipswich Town Centre while Site 5 is best served by routes to Felixstowe. Additional bus services will need to be investigated for any allocation site chosen and particular attention will be required for improving the link between sites 1-4 and Felixstowe. Express services to Ipswich Town Centre will also be required with the potential to link with the Park and Ride services also.

Local walking and cycling routes will need to be improved and publicised to promote a modal shift away from car use. One key long term goal of the SCC is a ped/cycle link across the A12 and this would provide a key linkage to Ipswich from Site 4 and Site 3.

It is proposed to provide additional capacity along the A12 from Seven Hills Interchange to the Park and Ride Roundabout, by signalising junctions. Additional capacity along transport corridors from the A12 to the town centre and within the town centre is not deemed within the best interests of the network. It is proposed to provide additional bus priority in exchange for additional private vehicle capacity in order to promote a modal shift to more sustainable methods of travel.

With the correct phasing of infrastructural improvements, adequate capacity for the proposed housing allocation should be made available along the A12. Capacity issues closer to Ipswich Town Centre will need to be investigated further as more detailed planning applications are assessed. The promotion of sustainable modes of travel is deemed key to the future operation of the road network.

The broad mitigation measures likely to be required to support **Scenario 1** are outlined below.

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme.
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12.
- Financial support to implement a new direct bus service to Ipswich.
- Contribution towards an improved direct service to Felixstowe.
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction.
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor.
- Provision of on-site infrastructure and a new access junction. The cost of this would be less than for the other Scenarios given the economies of scale achieved through provision of the larger housing quantum at one location, and the contribution towards access improvements from the Adastral Park expansion plans.
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction.

The estimated total cost of the mitigation measures for Scenario 1, excluding land costs and professional fees is in the region of £7.5 million, assuming 50% of infrastructure requirements are met by the proposed expansion of the Adastral Park Area.

All other scenarios include a reduced provision on Site 4 of 1050 dwellings which would achieve good accessibility in transport terms based on existing facilities, supported by employment growth on the Adastral Park site. The major issue with a lower level of provision on this site is the need for out commuting to education facilities, which is likely to generate further trips across the A12. This would necessitate the provision of improved pedestrian and cycle access across the A12, and as with Scenario 1, investment in the proposed new link across the A12 to Kesgrave.

The likely mitigation requirements for Scenario 2 is summarised as follows:

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme.
- Improved cycle access to Westerfield Train Station.
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12. (£0.5million)

- Financial support to implement a new direct bus service to Ipswich.
- Contribution towards an improved direct service to Felixstowe.
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction.
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor.
- Provision of onsite infrastructure and new access junctions for Sites 1 and 4. Site 1 is severed by a railway line there is potentially further costs associated with the site infrastructure, depending on the area of the site developed.
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction.

The estimated total cost of the mitigation measures for Scenario 2, excluding land costs and professional fees is in the region of £9.25 million, which makes some allowance for contribution from the Adastral Park expansion plans.

The likely mitigation requirements for Scenario 3 is summarised as follows:

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme.
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12.
- Contribution towards cycle facility improvements along Woodbridge Road
- Financial support to implement a new direct bus service to Ipswich.
- Contribution towards an improved direct service to Felixstowe.
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction.
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor.
- Provision of onsite infrastructure and new access junctions for Sites 2 and 4.
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction.

The estimated total cost of the mitigation measures for Scenario 3, excluding land costs and professional fees is in the region of £8.75 million, which makes some allowance for contribution from the Adastral Park expansion plans.

The broad mitigation measures likely to be required to support Scenario 4 are outlined below:

- Provision of local improvements to pedestrian and cycle facilities on Woodbridge Road and Dobb's Lane
- Local traffic capacity improvements are likely to be required along Foxhall Road.
- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme.
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12.

- Financial support to implement a new direct bus service to Ipswich.
- Contribution towards an improved direct service to Felixstowe.
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction.
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor.
- Provision of onsite infrastructure and new access junctions for Sites 3 and 4.
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction.

The estimated total cost of the mitigation measures for Scenario 4, excluding land costs and professional fees is in the region of £10.25 million, which makes some allowance for contribution from the Adastral Park expansion plans.

Scenario 5 mitigation measures are likely to include the following:

- Contribution towards local improvements to pedestrian and cycle facilities on Felixstowe Road.
- Local traffic capacity improvements are likely to be required.
- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme.
- Contribution towards the SCC pedestrian and cycle improvement scheme from Kesgrave across the A12.
- Financial support to improved bus services to Ipswich from both sites.
- Contribution towards an improved direct service to Felixstowe.
- Contribution towards junction improvements to support bus travel along Felixstowe Road. (£1.5million excluding land costs, for 3 junctions).
- Contribution towards junction improvements to support bus travel along the Woodbridge corridor, including the A12/ Woodbridge Road junction.
- Contribution towards junction improvements to support bus travel along the Foxhall Road corridor.
- Provision of onsite infrastructure and new access junctions for Sites 4 and 5.
- Undertaking of junction improvements at 4 junctions along the A12, including the A12/ A14 Sevenhills junction.

The estimated total cost of the mitigation measures for Scenario 5, excluding land costs and professional fees is in the region of £13.75 million, which makes some allowance for contribution from the Adastral Park expansion plans. This is expected to be considerably higher than other options due primarily to the fact that greater subsidisation of public transport services required to provide the level of service necessary to promote sustainable travel. This is due to the distribution of the proposed allocation across three bus corridors and the relatively small demand likely to be generated on each.

It is clear the estimated scale of cost associated with the mitigation measures for each Scenario varies between some £7.5 million for Scenario 1 and £13.75 million for Scenario 5. It should be noted that these costs are indicative and that further contribution towards some of these measures would be justified from other housing allocations within the district.

All mitigation measures would be expected to be developer funded.

It is recommended that the travel planning requirements are delivered by the developers through appropriate development management structures. This should be imposed as a planning condition and regulated through the Local Authority. An initial contribution for support services from the Local Authority would be required.

It is recommended that the physical measures required in close proximity to the sites are delivered by the Applicants, whilst a Community Infrastructure Fund is put in place to cater for the strategic improvements which would include the following:

- public transport service improvements,
- improvements to junctions along the A12,
- improvements proposed along each of the key corridors to preserve bus journey times,
- strategic pedestrian and cycle improvements.

The responsibility for delivering these strategic measures should ideally lie with the local authority such that they can be brought to fruition at an appropriate stage.

8.4 Felixstowe and Trimleys

It is proposed to provide up to 1,000 dwellings across the Felixstowe and the Trimleys area.

There are a number of bus services which run adjacent to the proposed development sites at a frequency of 1 hour or less. Buses run between Ipswich, Felixstowe and the port, although there is a limited service connecting the major employment site at Adastral Park to Felixstowe. Bus improvements as a result of the development will be dependent upon detailed liaison with bus operators, but will at a minimum include improvements to existing bus shelters and provision of '*Real Time Passenger Information*' facilities, and ensuring high quality access through the development to bus stops along the existing service routes. Potential for enhanced frequency of the 172, 173, 174 services should be explored.

Existing train use in the area is low, which could be attributed to the single hourly service running between Trimleys and Ipswich railway stations. It is expected that contributions to improve the Trimleys rail station, and improvements to walking routes between the development sites and the station would be implemented.

Assessment of expected vehicle trip generation and distribution has shown that the numbers of additional trips on the trunk road network will be modest in comparison to the existing levels of traffic, and would be unlikely to have a material impact on the operation of any trunk road junctions. In saying that, the impact on Junction 60 and Sevenhills junction on the A14 would need to be explored further.

The proposed developments are likely to have a more significant impact on the local road network, in particular along High Road / High Street. It is very likely that mitigation schemes will be required along this route to mitigate this impact. Appropriate mitigation may require a new link road between High Road / High Street and A514 Candlet Road to allow redistribution of traffic away from the route. Junction improvements could however address reduce the traffic impacts through enhanced signalisation, banned turns and associated traffic management measures.

If a new link road is brought forward, this is likely to cause a significant impact at junction 60 of the A14 as both development traffic and existing traffic is likely to redistribute away from the existing route along High Road / High Street up to junction 59. As such, implementation of a link road is likely to require traffic mitigation scheme at A14 junction 60.

The broad mitigation measures likely to be required to support the proposed allocations at Felixstowe and Trimleys are outlined below:

- Investment in sustainable travel promotion through effective travel planning, and support of the SCC residential travel planning programme or an alternative personal travel planning scheme.

- Contribution towards pedestrian and cycle improvements connection to Felixstowe and adjacent amenities, including the railway stations.
- Contribution towards improvements to Trimleys Railway Station
- Financial support to implement improved bus frequencies to Ipswich and Woodbridge.
- Improvements to existing bus shelters and provision of '*Real Time Passenger Information*' facilities
- Provision of on-site infrastructure and a new access junctions. The cost of this is difficult to determine given the proposed dispersed strategy.
- Contribution towards junction improvements at the A12/ A14 Sevenhills junction based on proportional impact.
- Provision of a new link road
- Substantial improvements to 3 junctions along High Road, High Street

The estimated total cost of the mitigation measures for the proposed Felixstowe and Trimleys , excluding land costs and professional fees is in the region of £5.8million. It should be noted that these costs are indicative and subject to more detailed traffic and cost assessment.

8.4.1 *'Dispersed Strategy' Implications*

The proposal to adopt a 'dispersed Strategy' across the Felixstowe and Trimleys area has a number of transport implications. It will be more difficult to ensure that a sustainable development layout can be achieved and to provide sustainable transport links efficiently. In considering planning applications for sites to deliver the proposed allocation, urban Brownfield sites adjacent to existing bus routes and within close walking distance of the train stations and town centre should take preference to ensure that car reliance is minimised.

In addition a 'dispersed strategy' poses significant difficulty in terms of delivering the necessary mitigation measures to support the overall allocation. It is critical that more detailed assessment is undertaken to ensure that the appropriate measures are refined and that a Community Infrastructure Fund is identified which identifies an appropriate tariff system per dwelling, such that the County Council can implement the required measures when appropriate.

8.4.2 *Phasing of Improvements*

All mitigation measures would be expected to be developer funded.

The phasing of mitigation measures required will depend largely on how the provision of additional housing comes forward. Individual detailed planning applications will need to be assessed to identify with further clarity the improvements required and the full housing allocation will need to be taken into consideration in this assessment. The ultimate goal of the phasing programme should be to promote sustainable travel rather than provide additional road network capacity prematurely, thus avoiding an increasing in demand for single occupancy car travel.

It is recommended that the travel planning requirements are delivered by the Council through contributions from the developers. This is likely to require an upfront lump sum payment.

It is recommended that the physical measures required in close proximity to the sites are delivered by the Applicants, whilst a Community Infrastructure Fund is put in place to cater for the strategic improvements which would include the following:

- Travel planning services;
- public transport service improvements,
- improvements to Sevenhills Junction,
- improvements to Junction 60 on the A14,

- proposed link road, if required;
- Improvements to High Road/ High Street junctions;
- strategic pedestrian and cycle improvements.

The responsibility for delivering these strategic measures should ideally lie with the local authority such that they can be brought to fruition at an appropriate stage.

8.5 Market Towns

There are five key market towns where it is proposed to allocate development sites to allow up to 870 dwellings to be brought forward, these include:

- Aldeburgh
- Framlington
- Leiston
- Saxmundham
- Woodbridge

Overall the dispersal of this development over a wide area of Suffolk and across various different development sites means that the traffic impact can be expected to be limited, but addressing the cumulative impacts in strategic terms will be difficult in the absence of an appropriate funding mechanism.

All new development in these areas should be promoted in as sustainable a manner as possible. Personal travel planning at all new developments would be beneficial in highlighting the range of options which exist in terms of public transport, Park & Ride and car sharing.

Development across the Market Towns would not justify provision of a financially viable new bus service but would support the enhancement of existing services to Ipswich, Adastral Park and Felixstowe.

The strong self sustaining nature of the towns is in keeping with promoting sustainable travel behaviour through the District.

There is potential for notable cumulative impact on the A1214/ A12 junction although the impacts would be insufficient to warrant physical improvements to cater specifically for the Market Towns allocations.

It is considered that the potential traffic impacts for individual development proposals on allocated sites should be assessed as part of the planning process to ensure that local and strategic junctions are not adversely affected by proposals, and where a negative impact might occur, improvements are provided to mitigate against these impacts.

8.6 Cumulative Impacts

This section has considered the potential cumulative impact of development in Felixstowe, the East of Ipswich and the Market Towns in the context of the potential to improve public transport and capacity of the strategic road network.

As stated previously in the first instance investment should be focussed on reducing traffic impact and on promoting sustainable transport choices from the allocation sites. This should be facilitated through active travel planning, including investment in personal travel planning, and through innovative development design.

The cumulative impact of travel demand across the key allocation sites within the district supports proposals to improve public transport connections, providing good potential to offer an enhanced quality bus network linking employment and housing allocation areas.

In terms of traffic impact on the strategic road network the following key junctions have been considered:

- The A12/ A1214 Junction

- A14 / A12 interchange (Junction A).
- A14 Junction 59 (Junction I).
- A14 Junction 60 (Junction J).

The traffic analysis does not account for any potential mode shift away from private car use, which is considered to be a robust basis for highlighting problem areas. Further detailed analysis would be required through promotion of the individual allocation sites.

The impact on the A12/ A1214 junction particularly with both the Market Town and the east of Ipswich allocations in place, will require provision of junction improvements. Such a scheme is likely to involve further signalisation of the junction and rationalisation of the junction approaches. This would need to be investigated further to identify a preferred scheme.

It is expected that the impact at the A14 / A12 junction will be significant, and therefore a mitigation scheme will be required to ensure this does not have a detrimental impact on the operation of the junction. Such a scheme is likely to involve full signalisation of the junction, which is considered feasible in deliverability and cost terms, given the scale of development put forward.

Junction 59 on the A14 is unlikely to be significantly affected by the cumulative development proposals, and therefore mitigation schemes may not be required. This would need to be further considered following a full review of existing junction conditions.

At junction 60, if a new link road is not implemented in Felixstowe, it is unlikely that there would be a significant impact at the junction as a result of the cumulative development traffic flows, and therefore mitigation schemes may not be required.

However, if a new link road is implemented, this is likely to cause significant redistribution of trips from junction 59 to junction 60, and it is likely that this will have a significant impact on the junction 60. As such, if the link road scheme is implemented, a traffic mitigation scheme is likely to be required at this junction. Potential improvements would most likely include approach widening. Such a scheme is likely to require investment and land beyond that which the proposed housing allocation could viably provide.

There is a clear need to develop CIF schemes across the district and local to each key area to ensure that the necessary mitigation measures can and will be implemented. Such a scheme would be based on a tariff per household system which would vary throughout the district. Further detailed understanding of the cost requirements is necessary to inform this process.

8.7 Further Assessment

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. There is however a clear need to gain a clearer understanding of the specific strategic schemes needed and the overall funding requirements to inform the development of CIF schemes to deliver the mitigation requirements.

AECOM

Appendices

Appendix A: Trip Generation & Distribution Calculations

Trip Generation

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

- 2001 Census
- National Travel Survey 2006
- 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 Drawing 60095679_001)	2001 Census Ward		
	Area to the East of Ipswich	Area of Felixstowe and the Trimleys	Market Towns
1	Rushmere St Andrew	Felixstowe North	Wards on the outskirts of Woodbridge
2	Kesgrave East	Felixstowe North	
3	Kesgrave East	Trimleys with Kirton	
4	Martlesham	-	
5	Nacton	-	

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 9 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, AECOM has applied the Journey to Work data from the 2001 Census. For Shopping, Education and Other Trips, AECOM has applied the mode shares outlined in Table 7.1 of the National Travel Survey.

In order to create a vehicle trip rate per dwelling AM and PM arrival and departures, AECOM has used the TRICS database. The average trip rates for private houses (all sites) has been calculated, and the 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 9 in separate spreadsheets.

Trip Distribution

The trip generation for each proposed allocation site as detailed 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 of car trips is shown in Figures 1 - 28 in separate spreadsheets, Appendix B.

For each site, AECOM 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 a new junction on the link road between Junction 59 and the link road roundabout
	2	Traffic will access the network via a new access onto High Street
	3	Traffic will access the network via a new access onto High Street

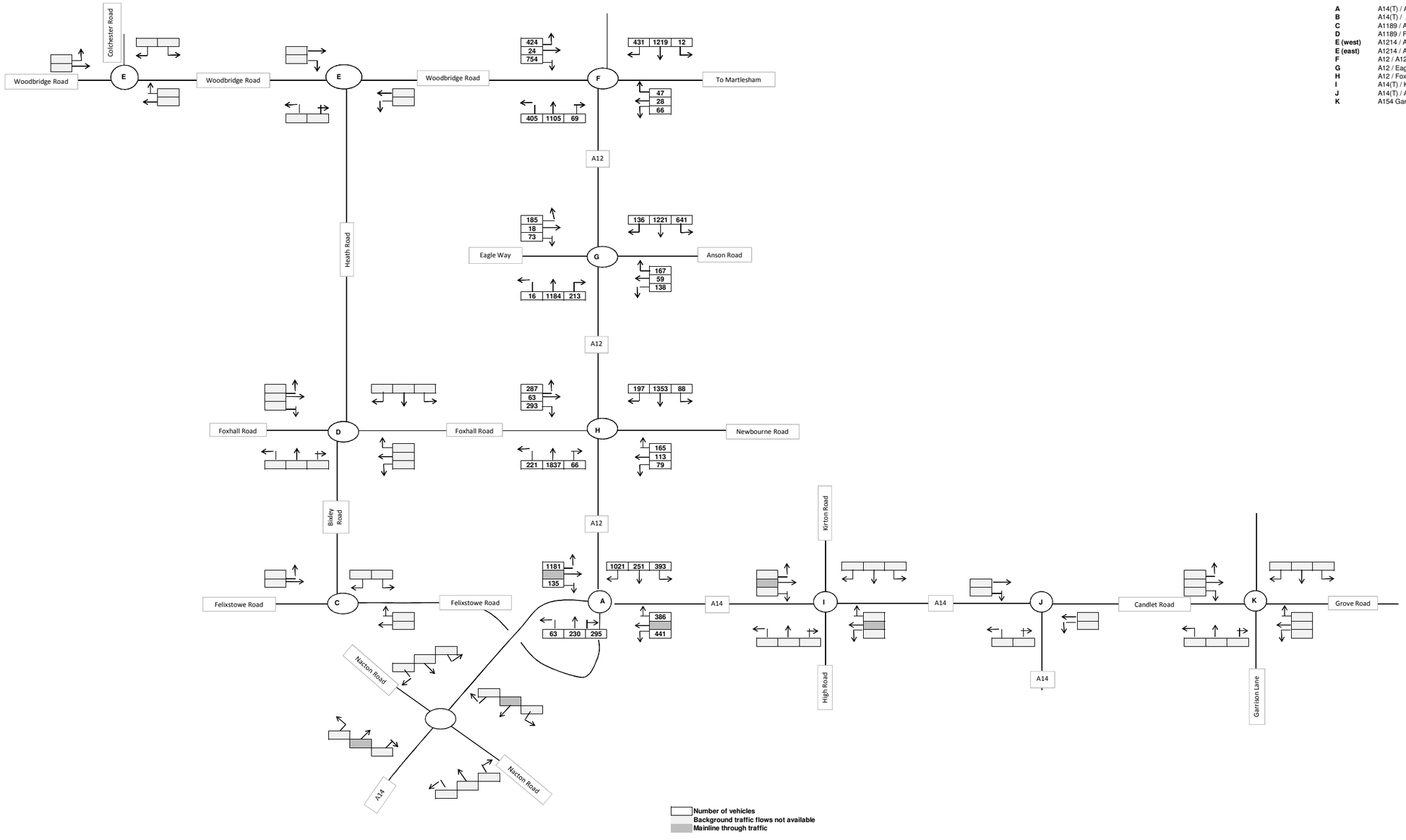
As discussed within the main report, for the purposes of including the traffic impacts from the significant committed development and brown field sites identified early in this report, a similar methodology to that used for the assessment of the allocation sites has been adopted.

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 North of Felixstowe, as identified under the previous AECOM study.

Appendix B: Traffic Flow Diagrams



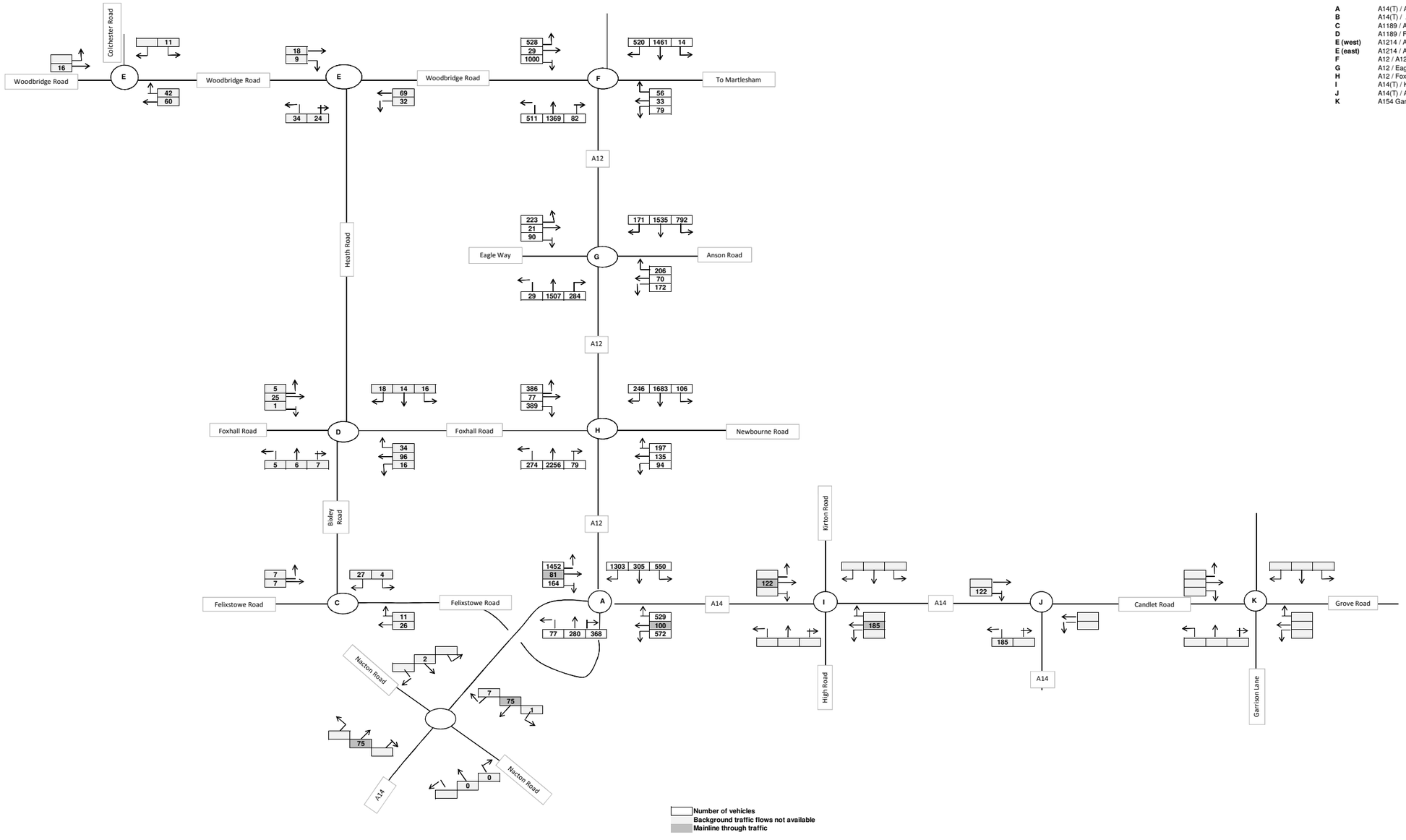
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 1: 2008 Base Year Flows
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 2: 2024 Background Traffic (Incl. Key Committed Development)
AM Peak (08:00-09:00)

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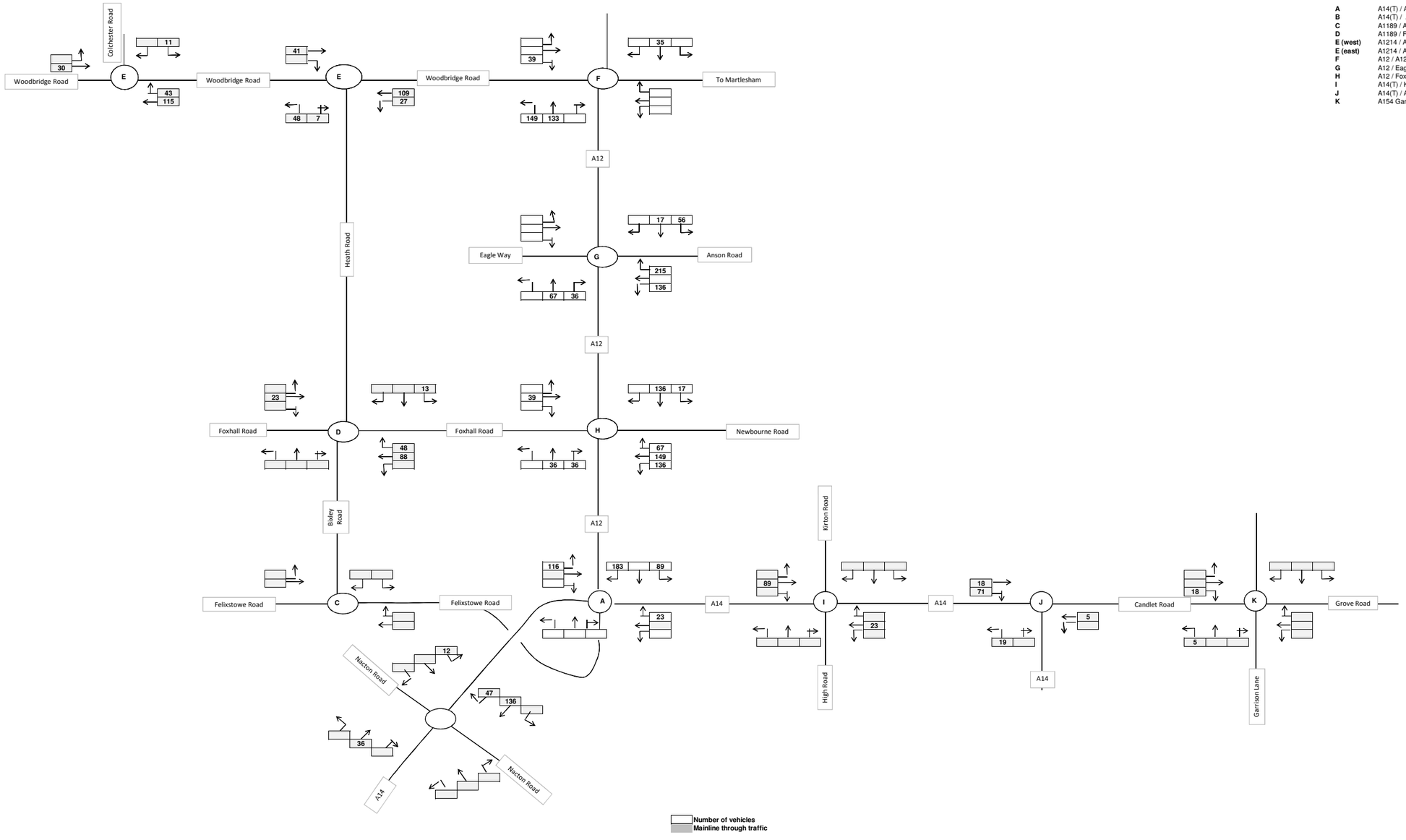

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 3: East of Ipswich Scenario 1 Traffic Distribution
AM Peak (08:00-09:00)

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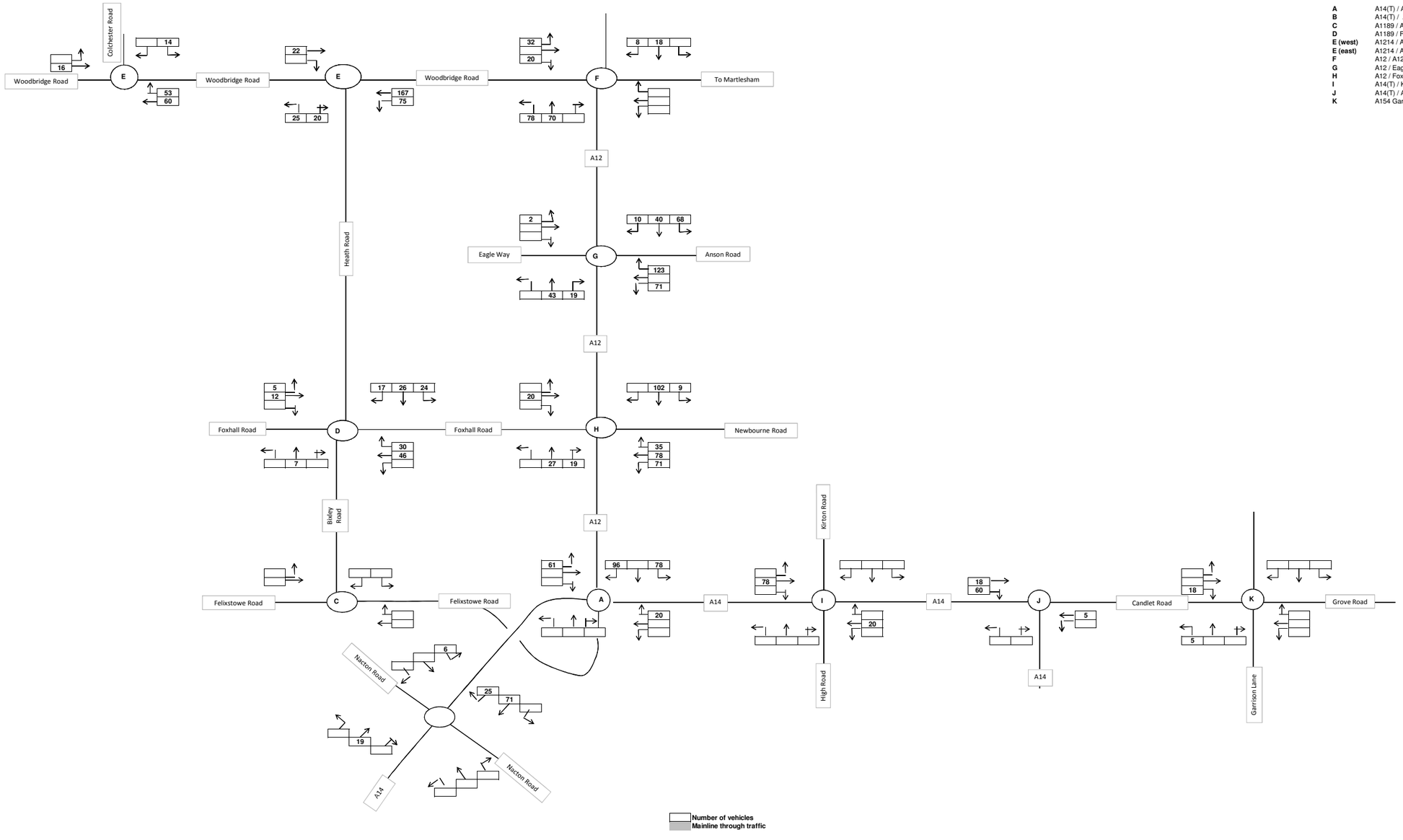

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 4: East of Ipswich Scenario 2 Traffic Distribution
AM Peak (08:00-09:00)

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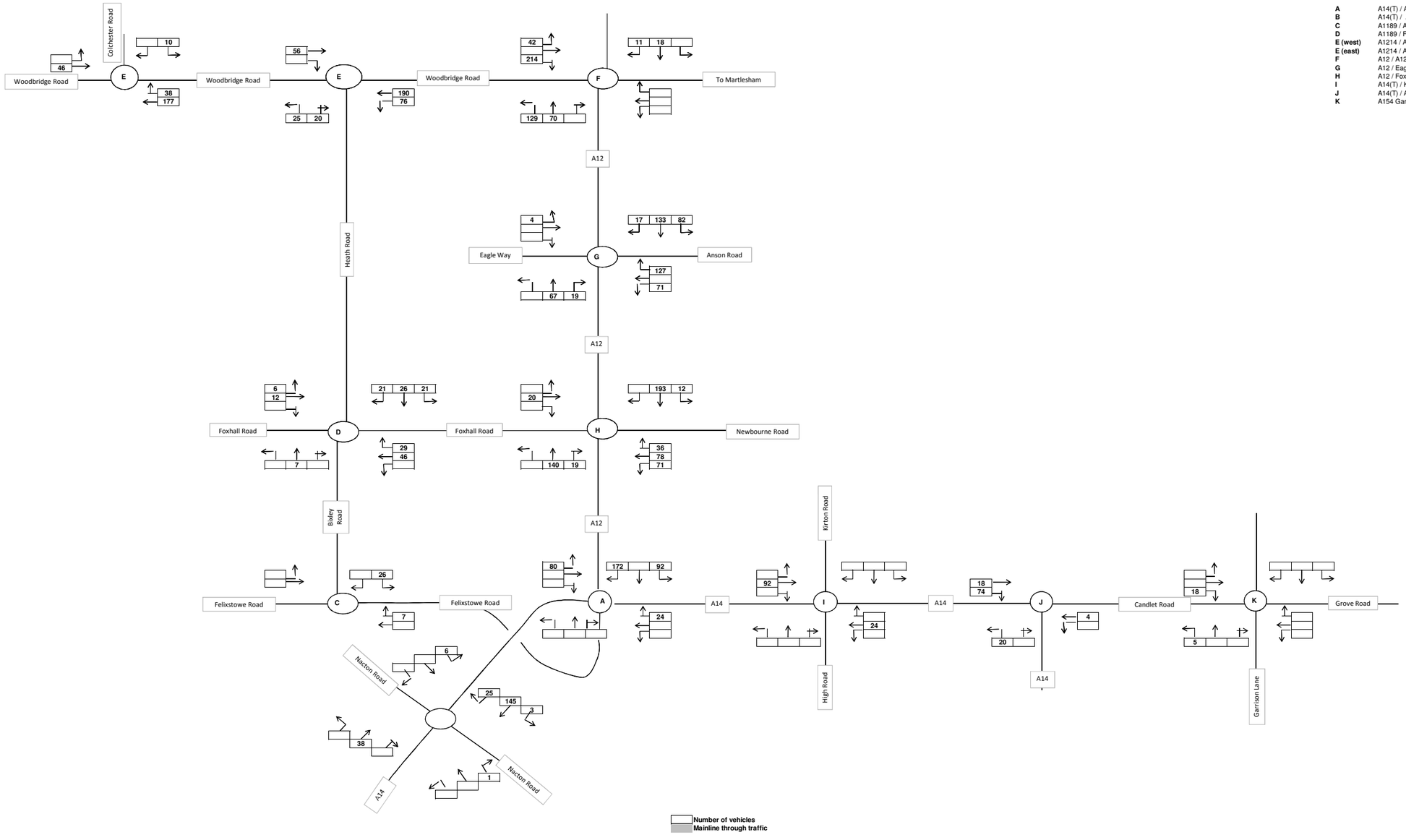

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 5: East of Ipswich Scenario 3 Traffic Distribution
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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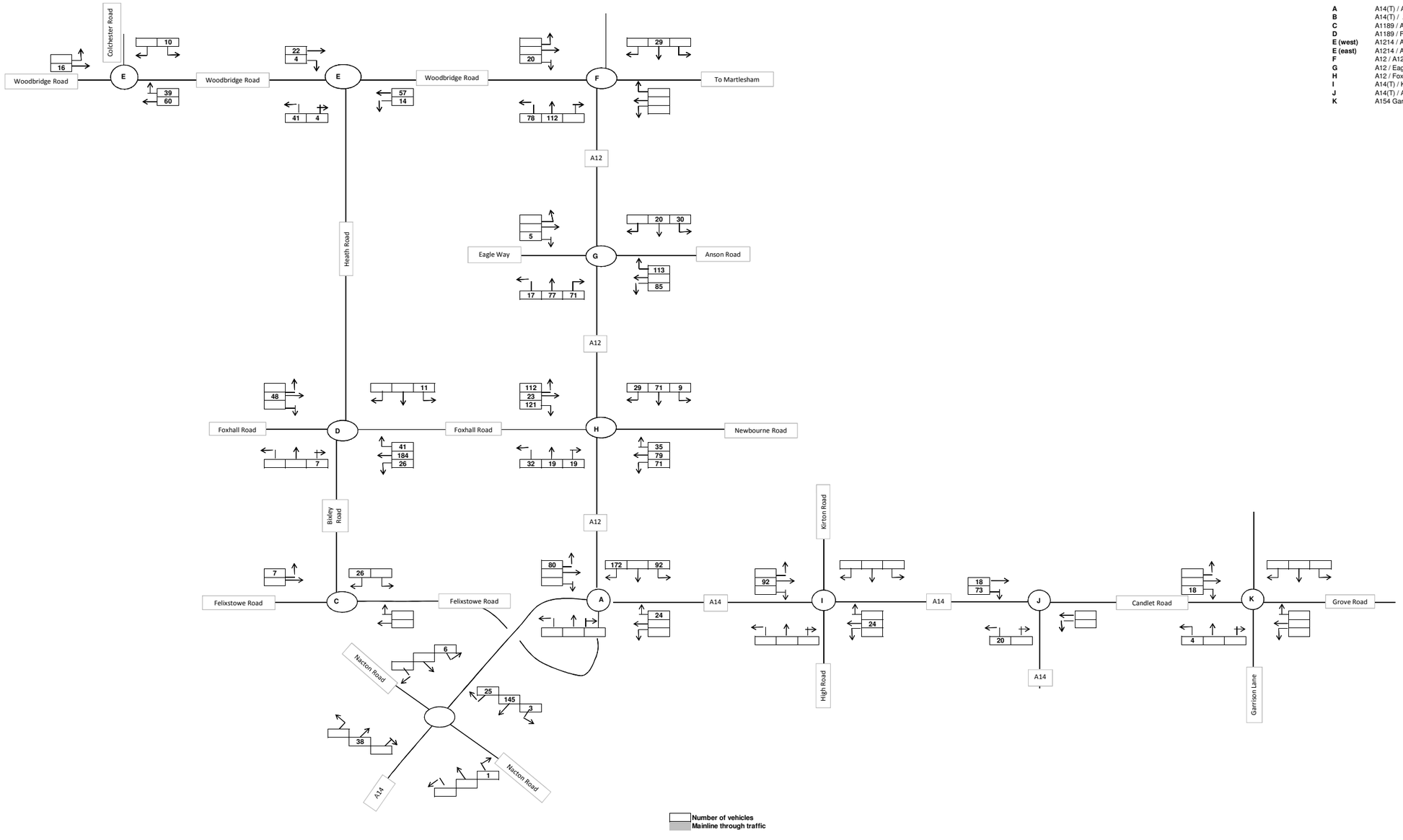

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 6: East of Ipswich Scenario 4 Traffic Distribution
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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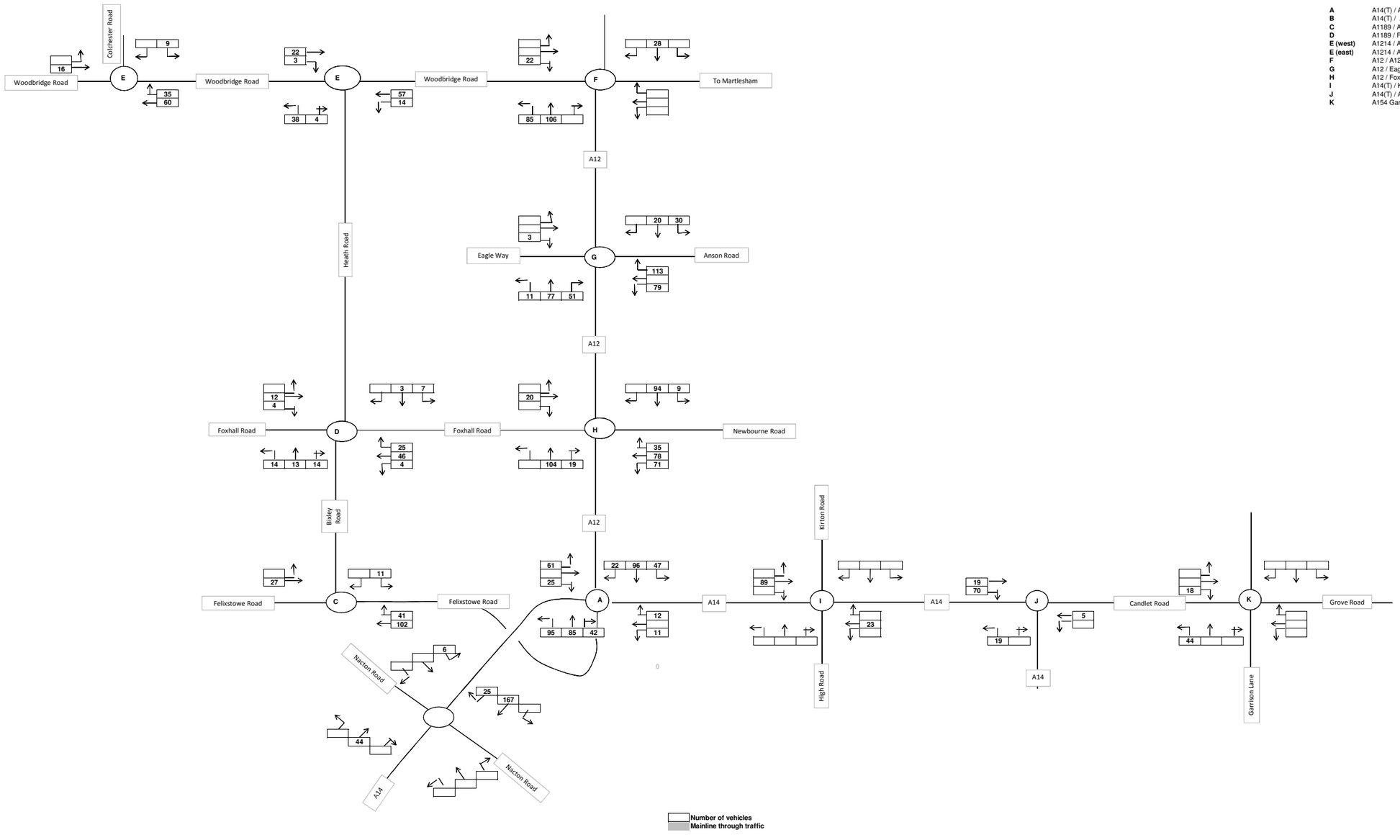
Approved: Bevin Carey



Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 7: East of Ipswich Scenario 5 Traffic Distribution
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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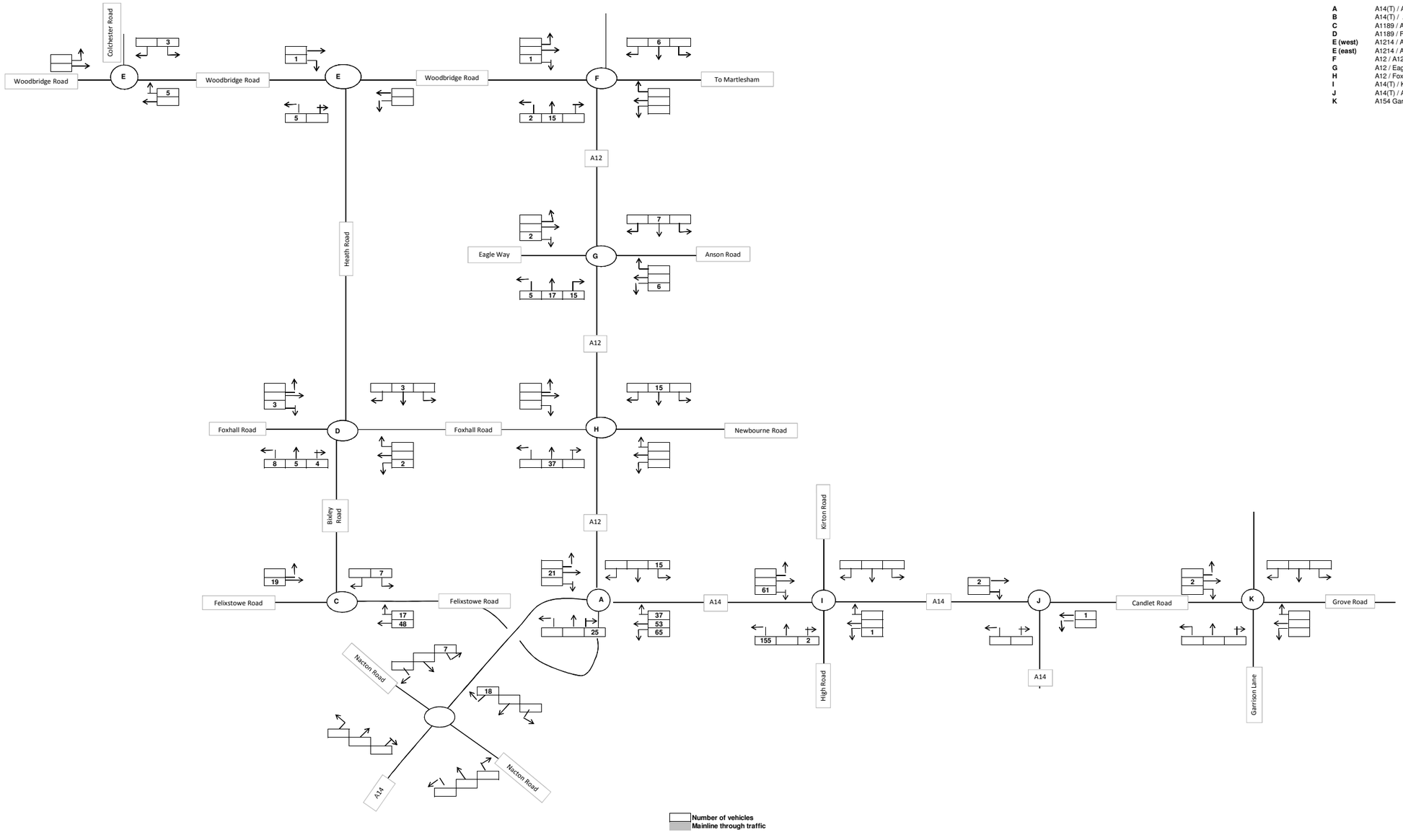
Approved: Bevin Carey



Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 8: Felixstowe Traffic Distribution
AM Peak (08:00-09:00)

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Proposed Strategy Transport Appraisal

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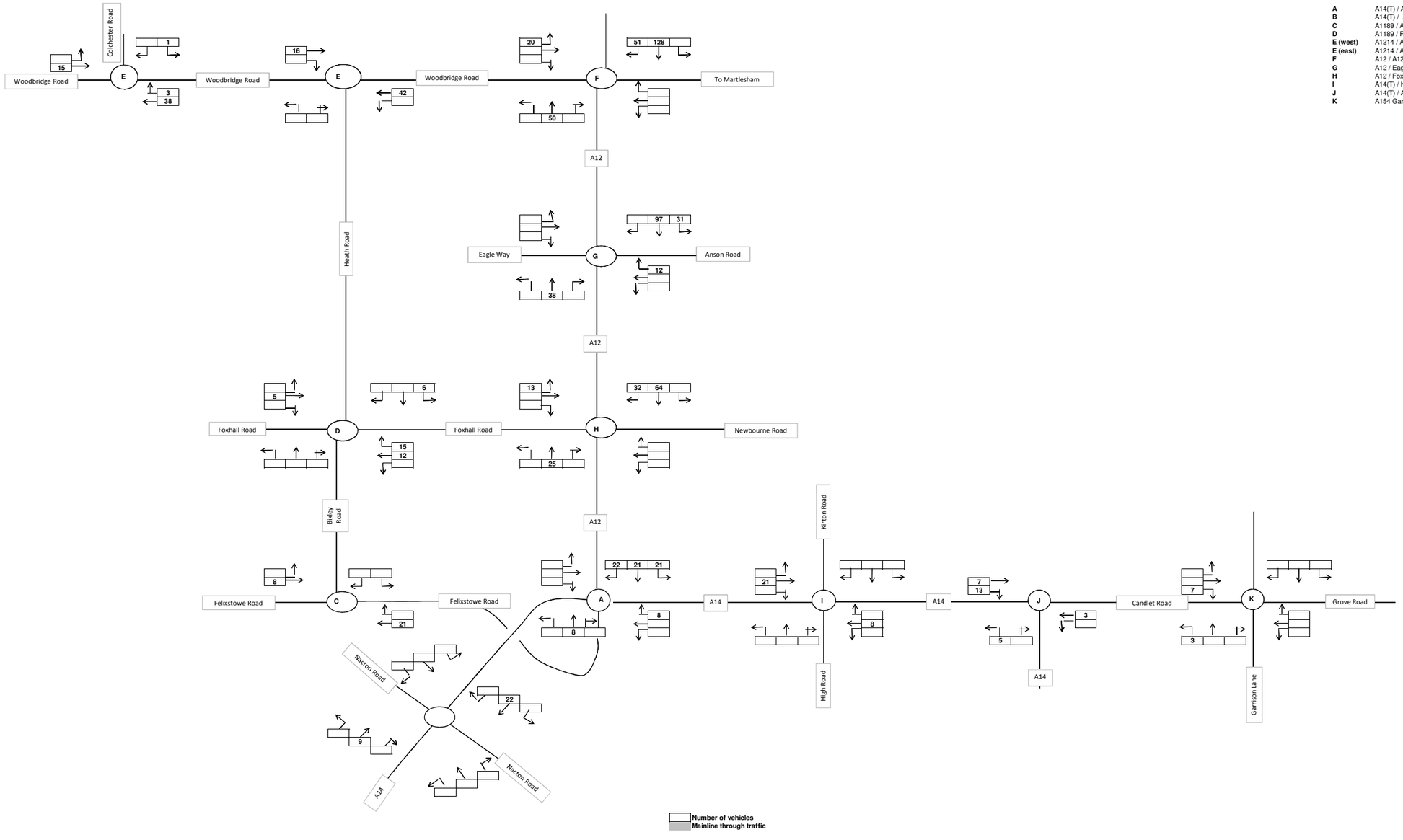

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 9: Market Towns Traffic Distribution
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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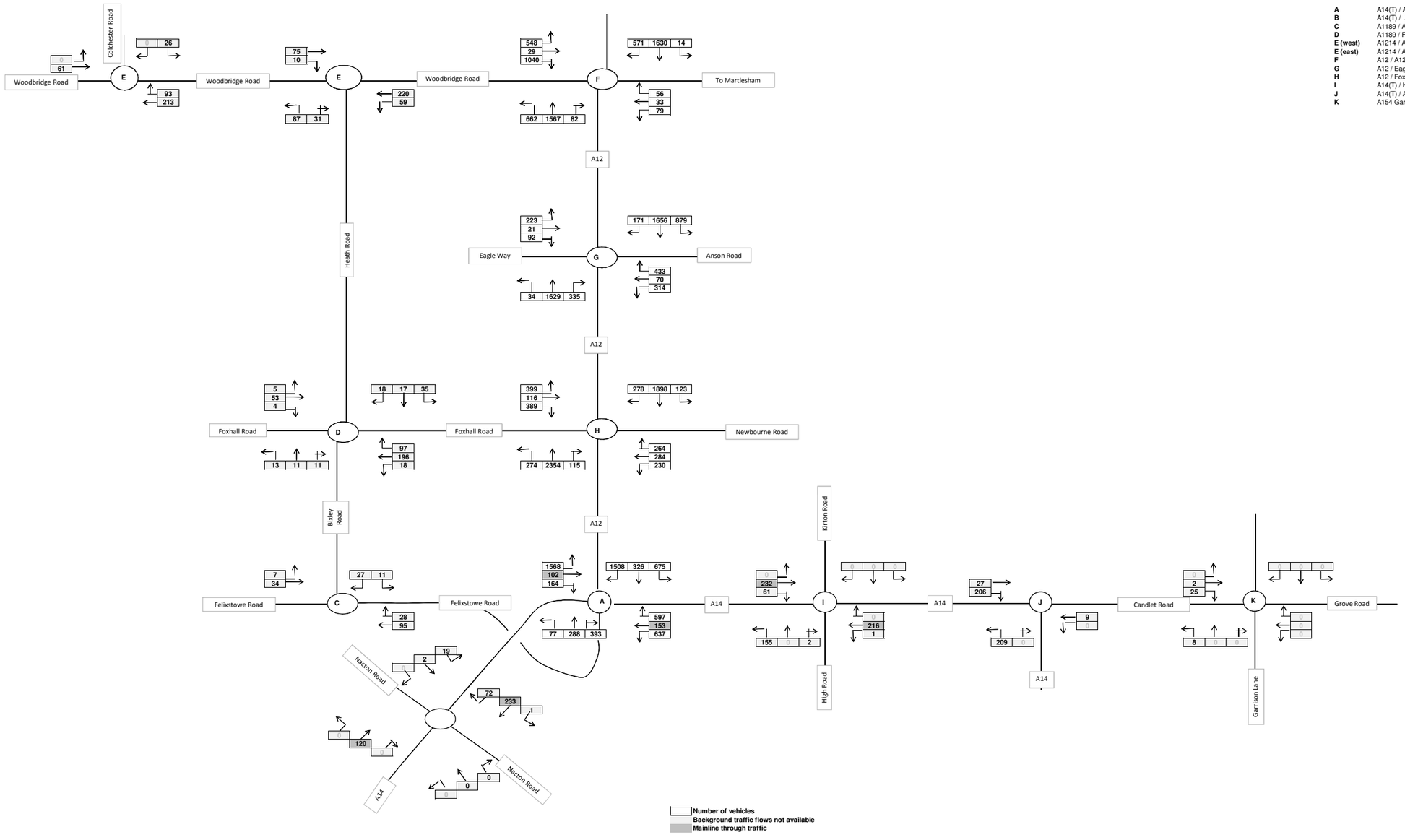

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 10: 2024 Traffic Distribution Incl. Scenario 1 Housing Allocations
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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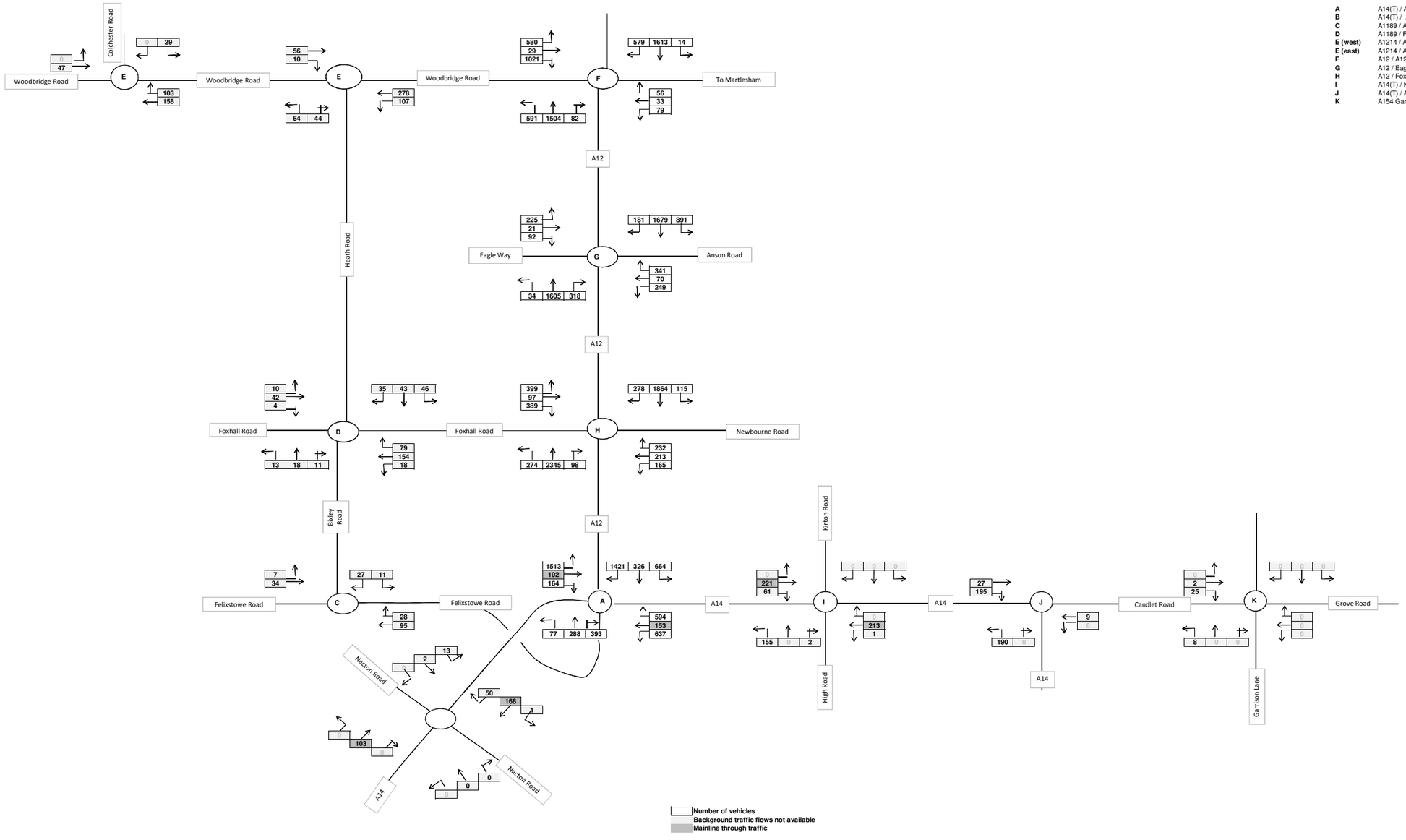

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 11: 2024 Traffic Distribution Incl. Scenario 2 Housing Allocations
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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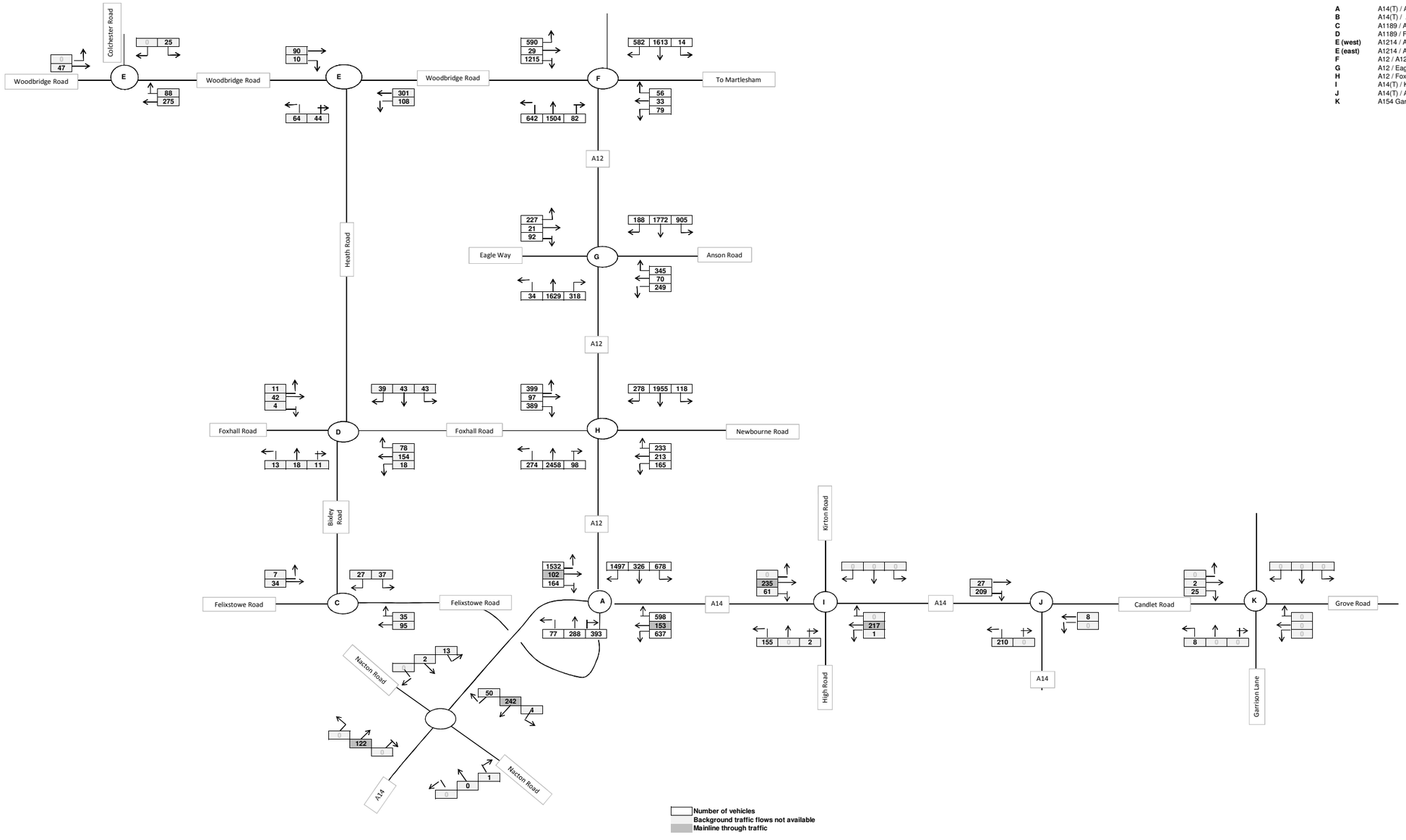

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 12: 2024 Traffic Distribution Incl. Scenario 3 Housing Allocations
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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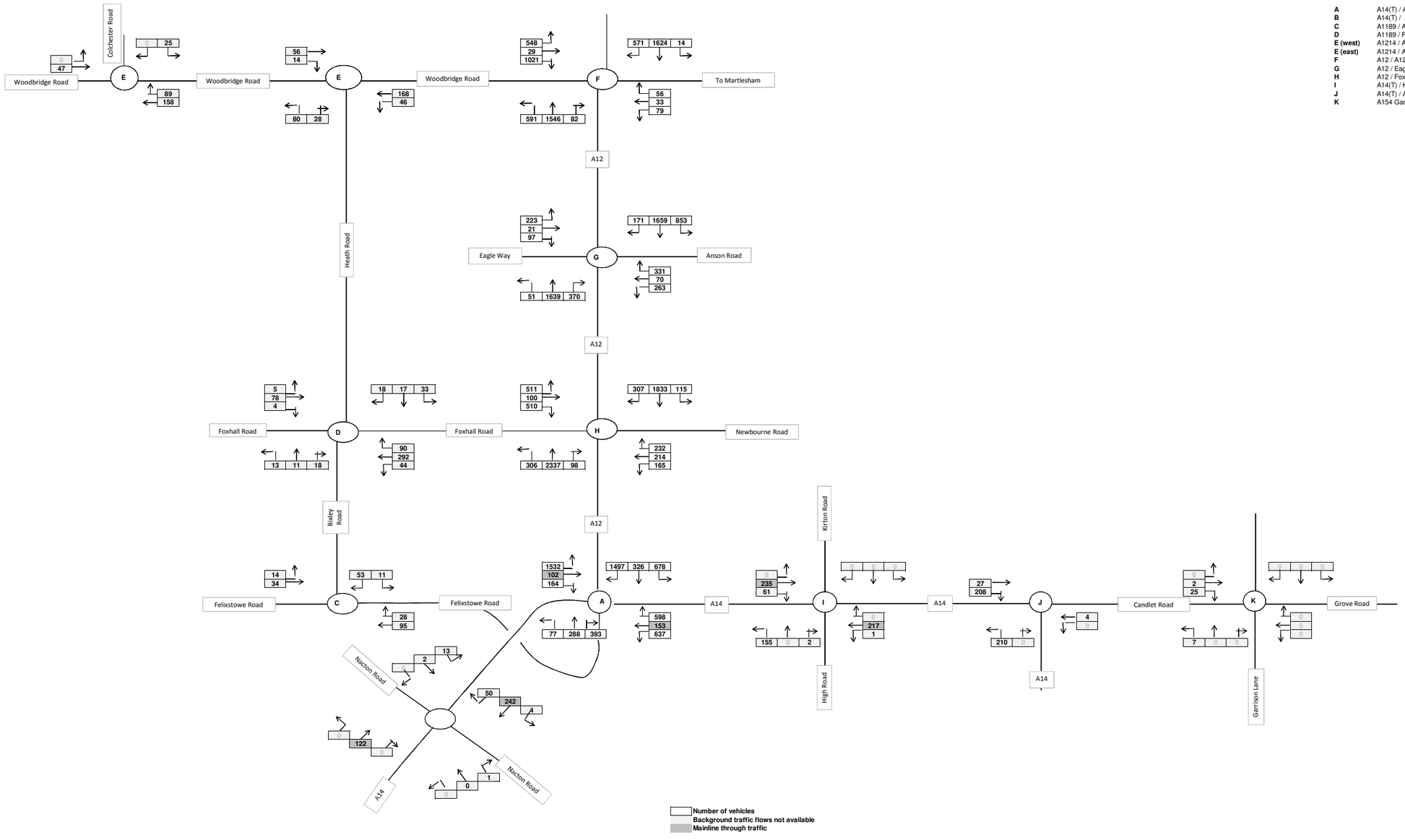

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 13: 2024 Traffic Distribution Incl. Scenario 4 Housing Allocations
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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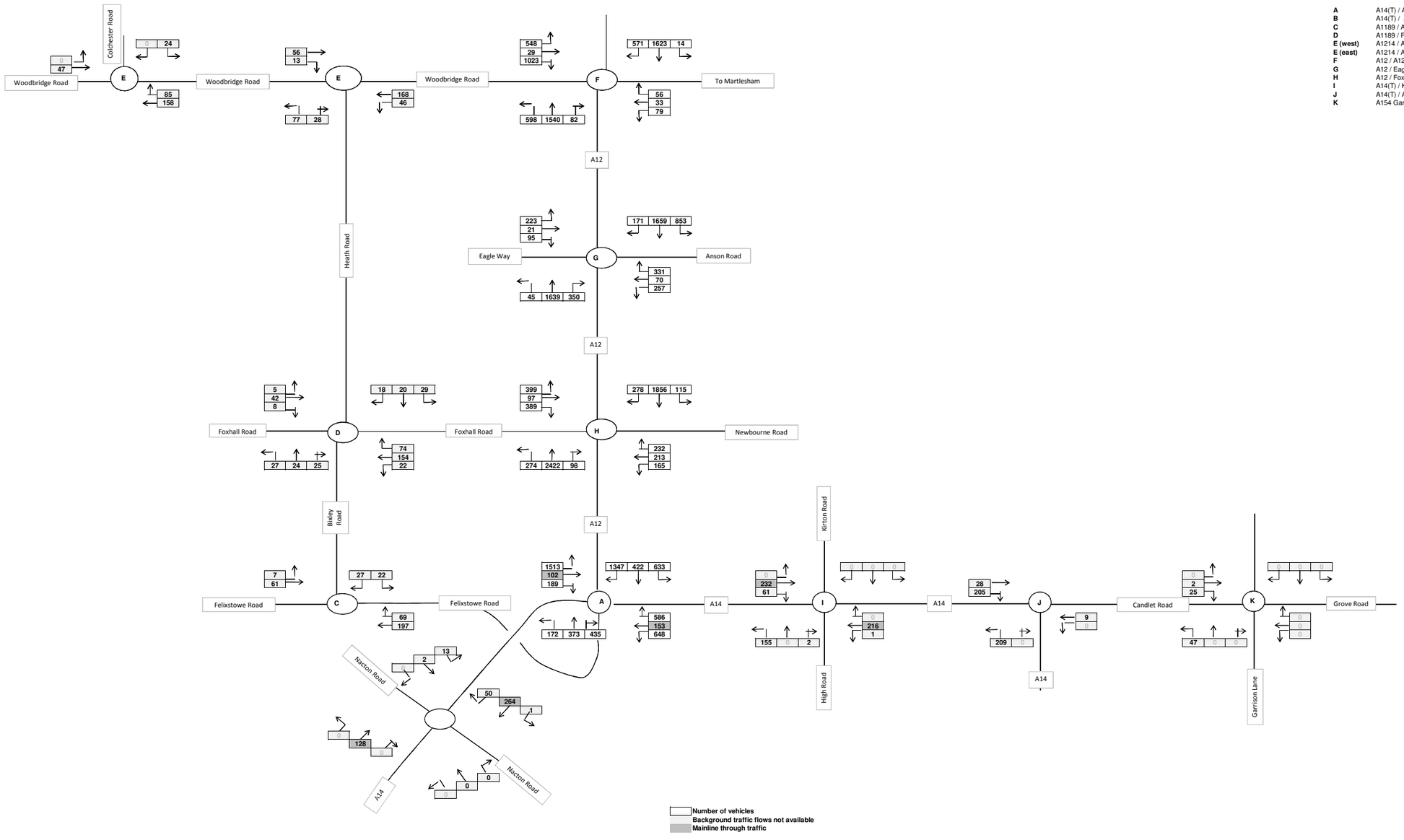

Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 14: 2024 Traffic Distribution Incl. Scenario 5 Housing Allocations
AM Peak (08:00-09:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

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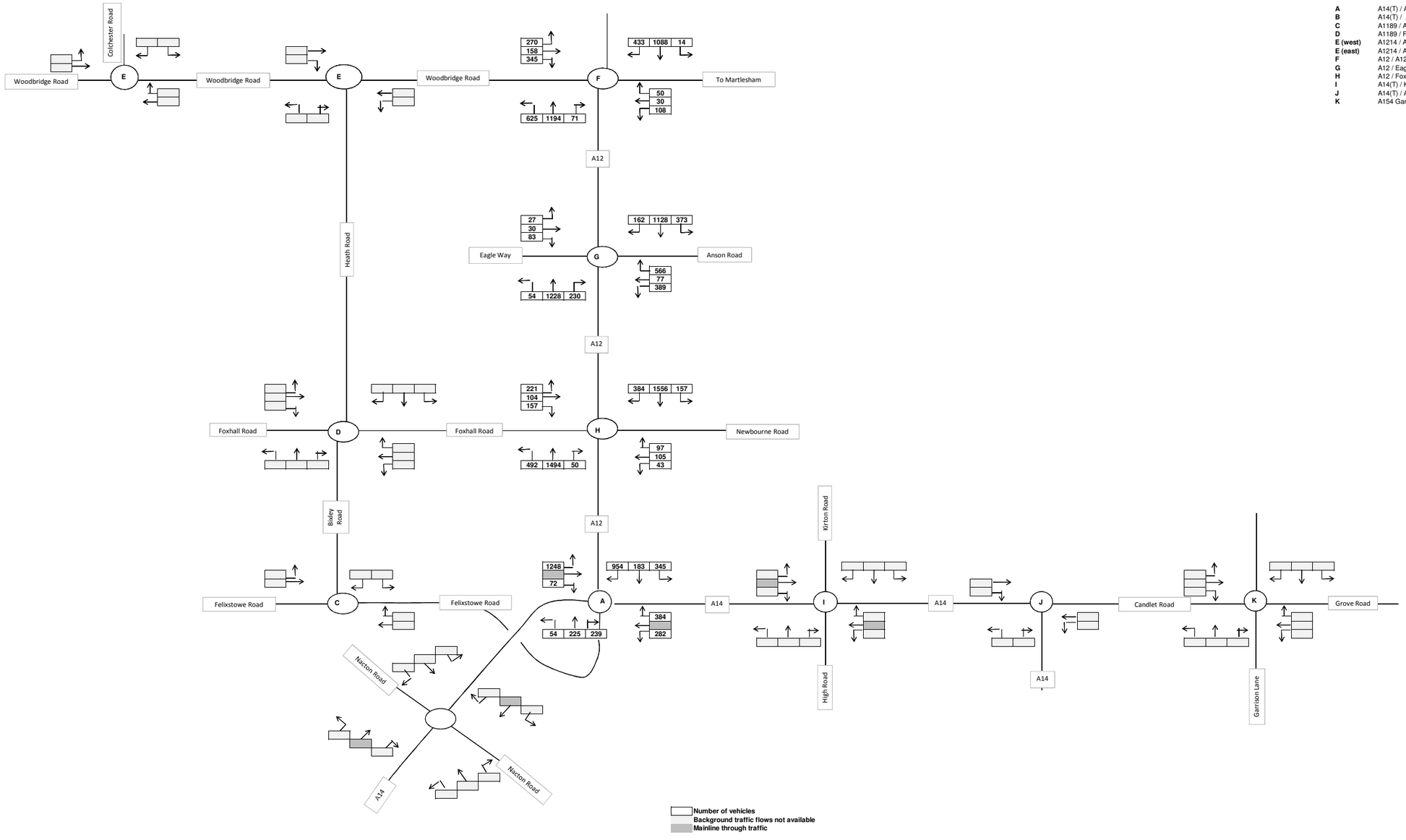


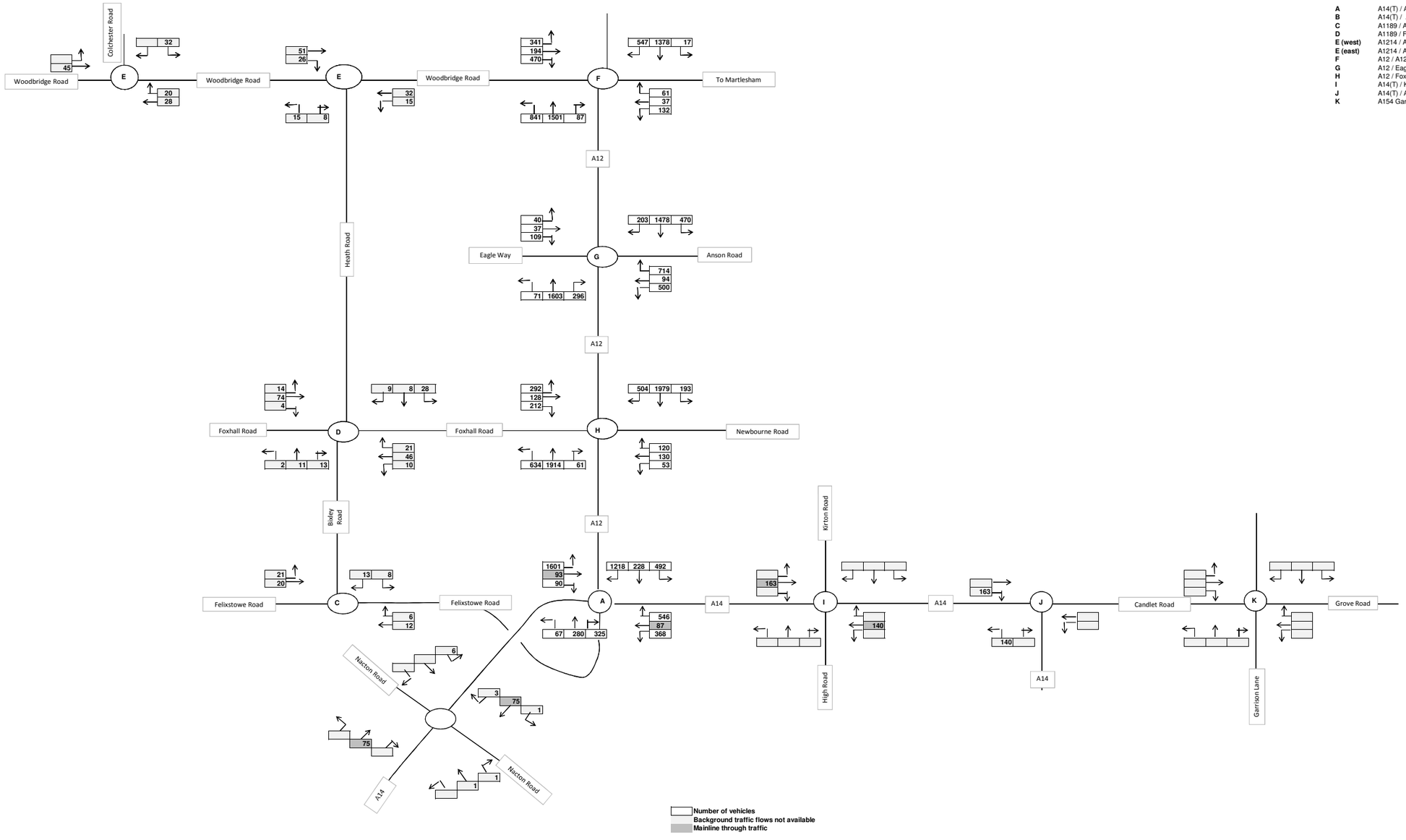
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 15: 2008 Base Year Flows
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



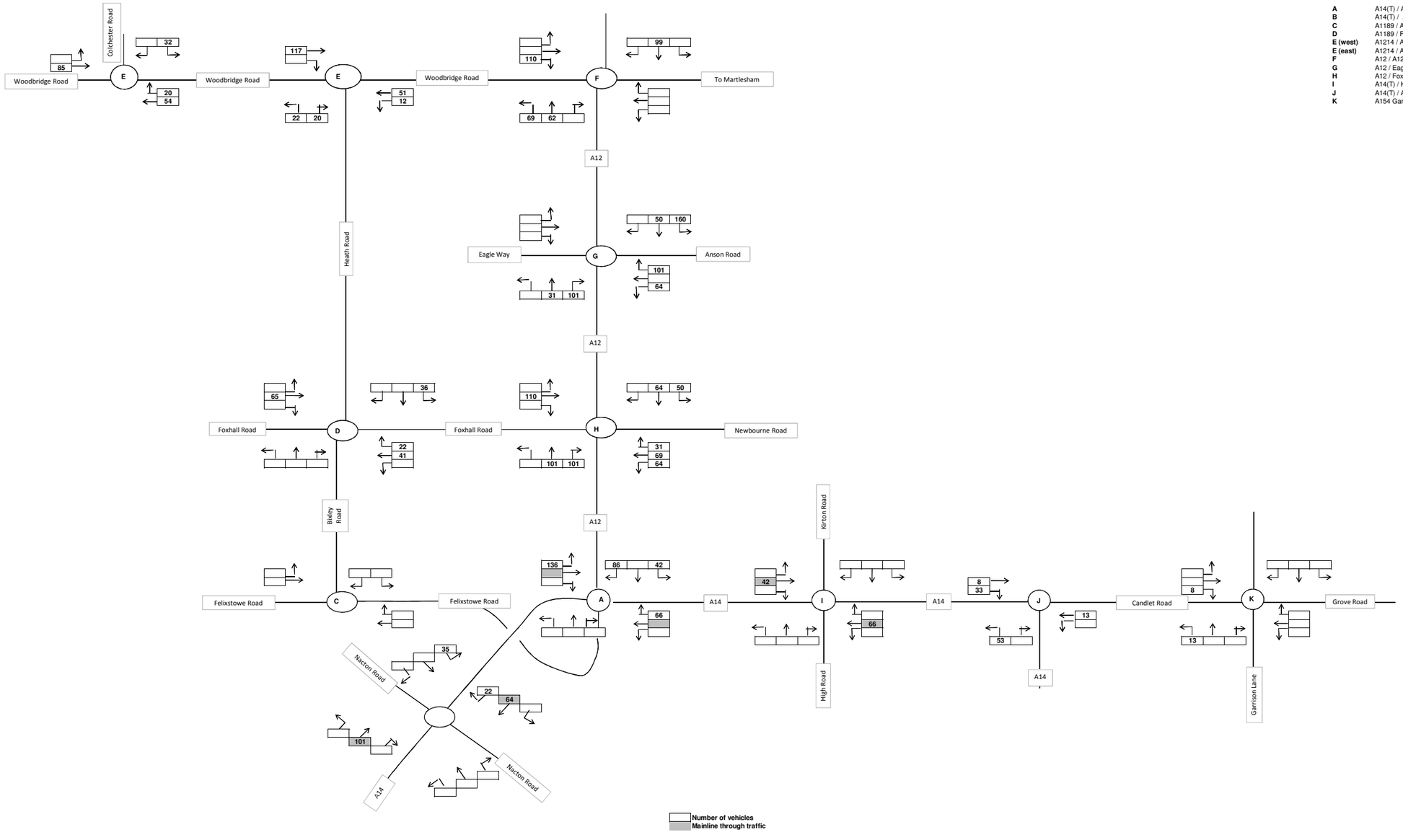
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 16: 2024 Background Traffic (Incl. Key Committed Development)
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



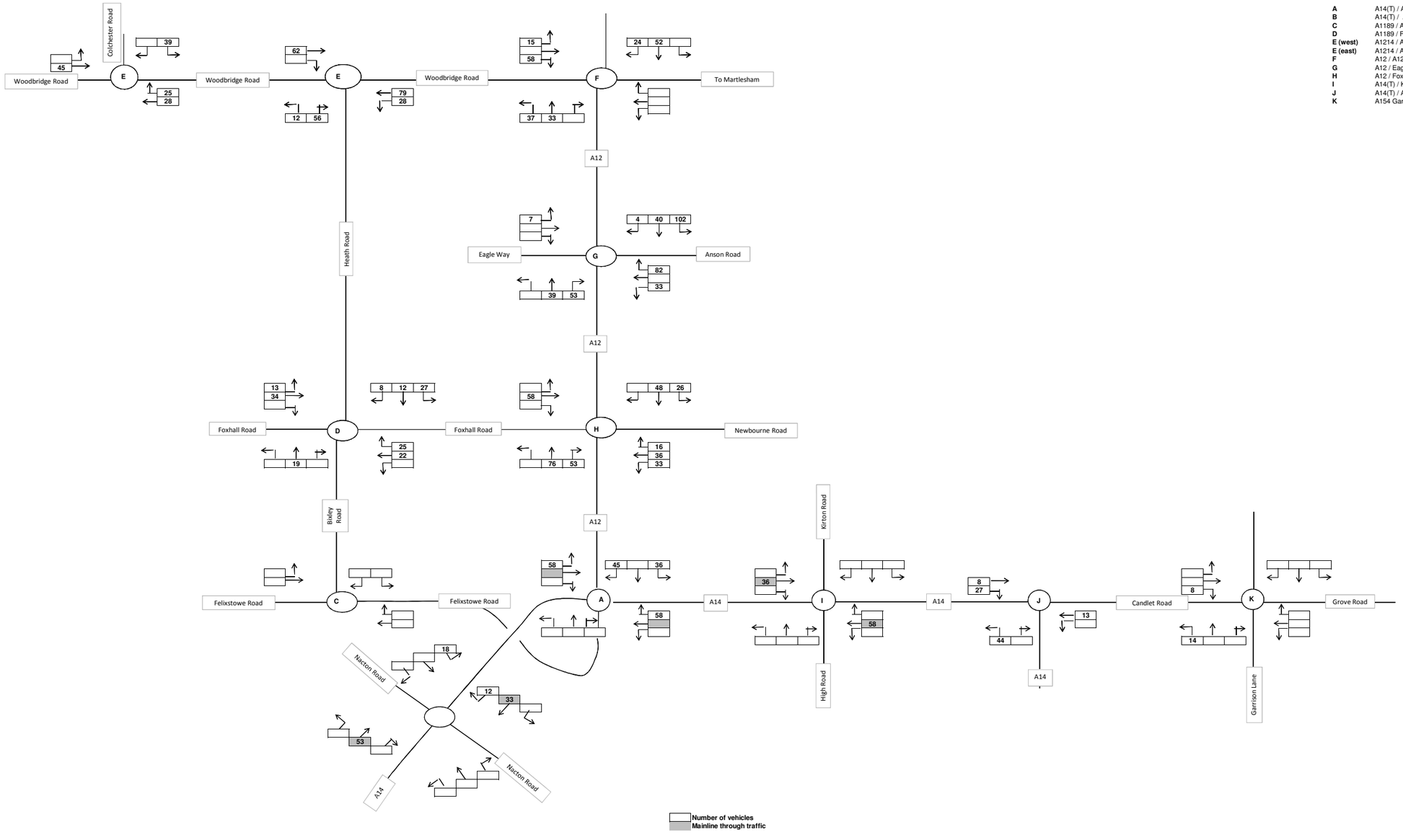
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 17: East of Ipswich Scenario 1 Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



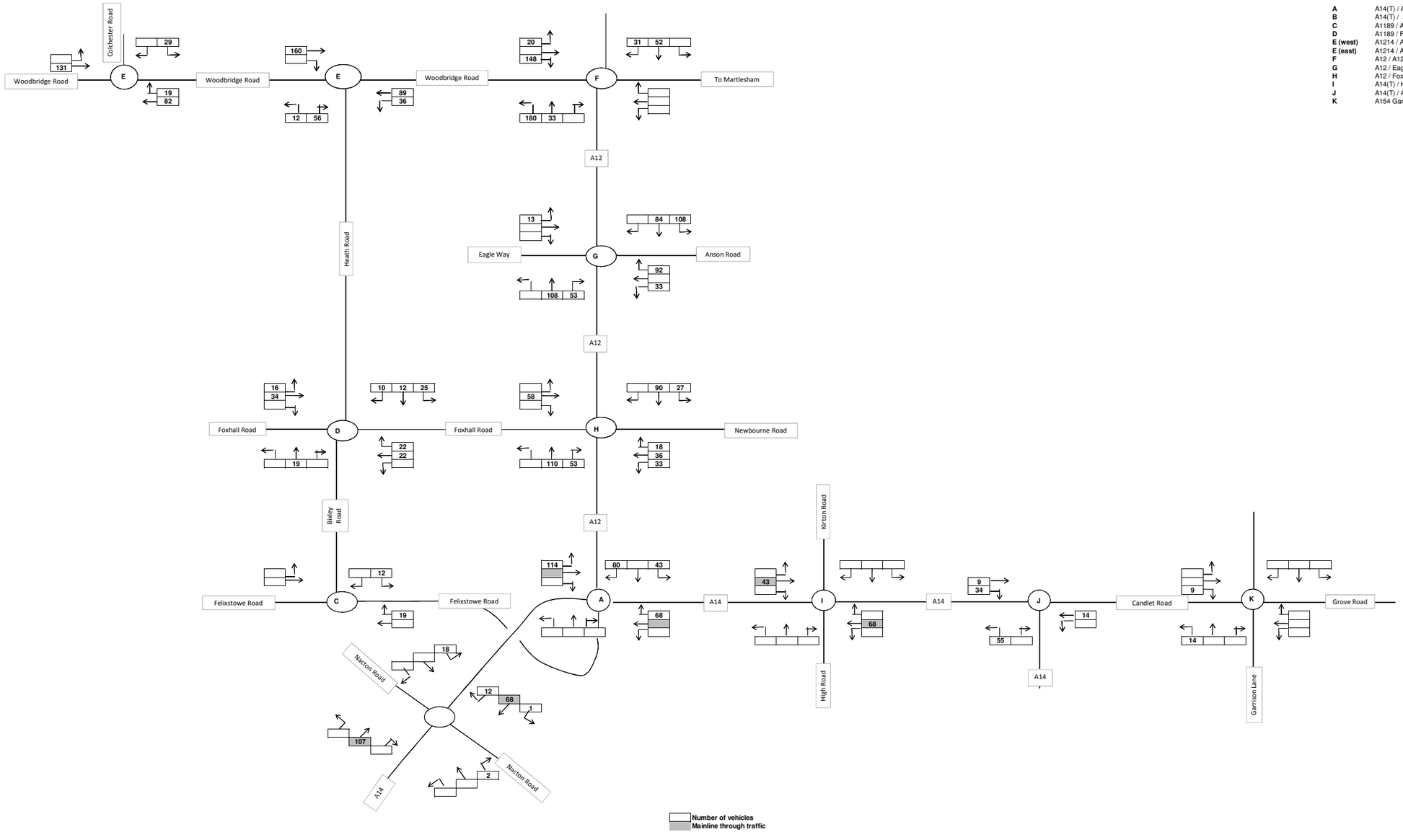
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 18: East of Ipswich Scenario 2 Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



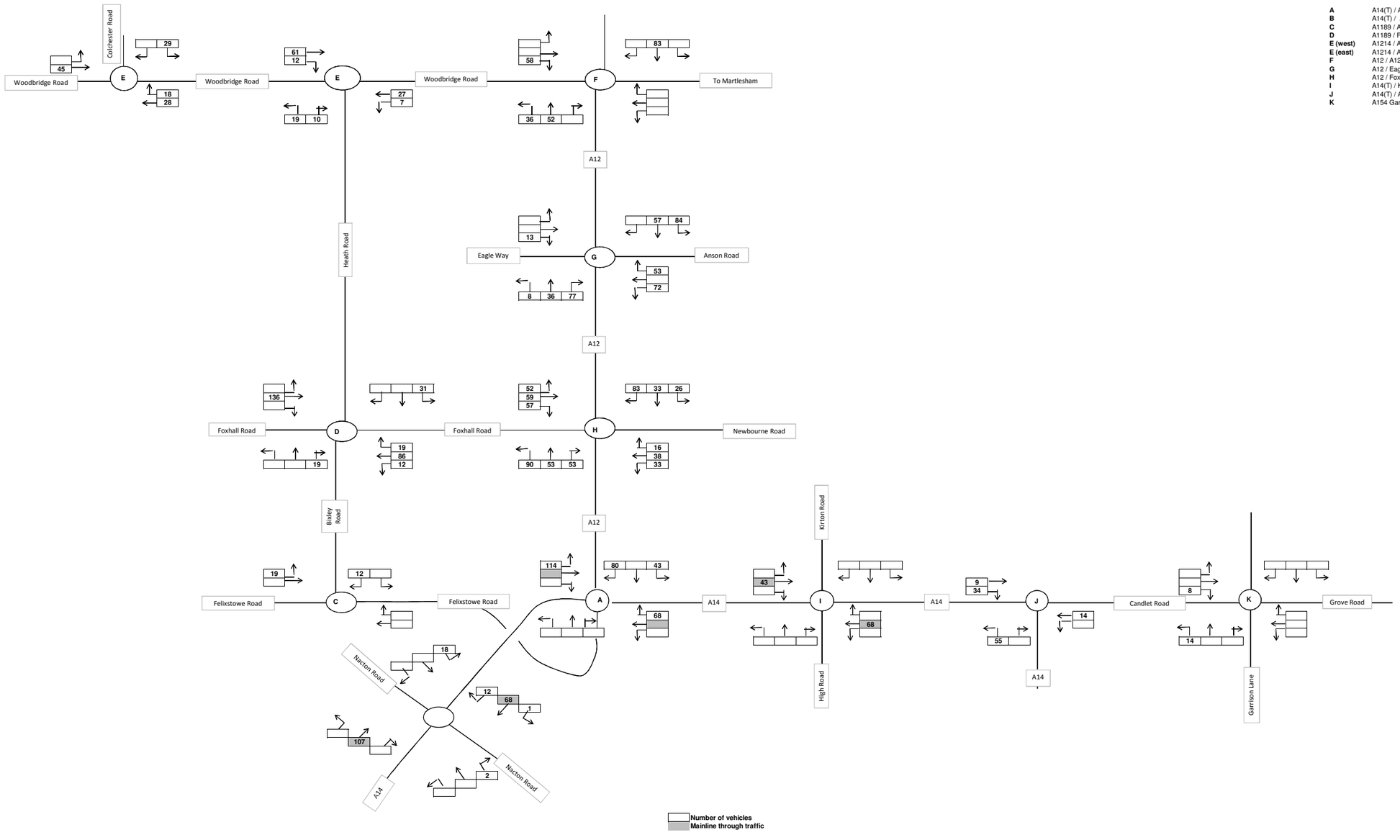
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 19: East of Ipswich Scenario 3 Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



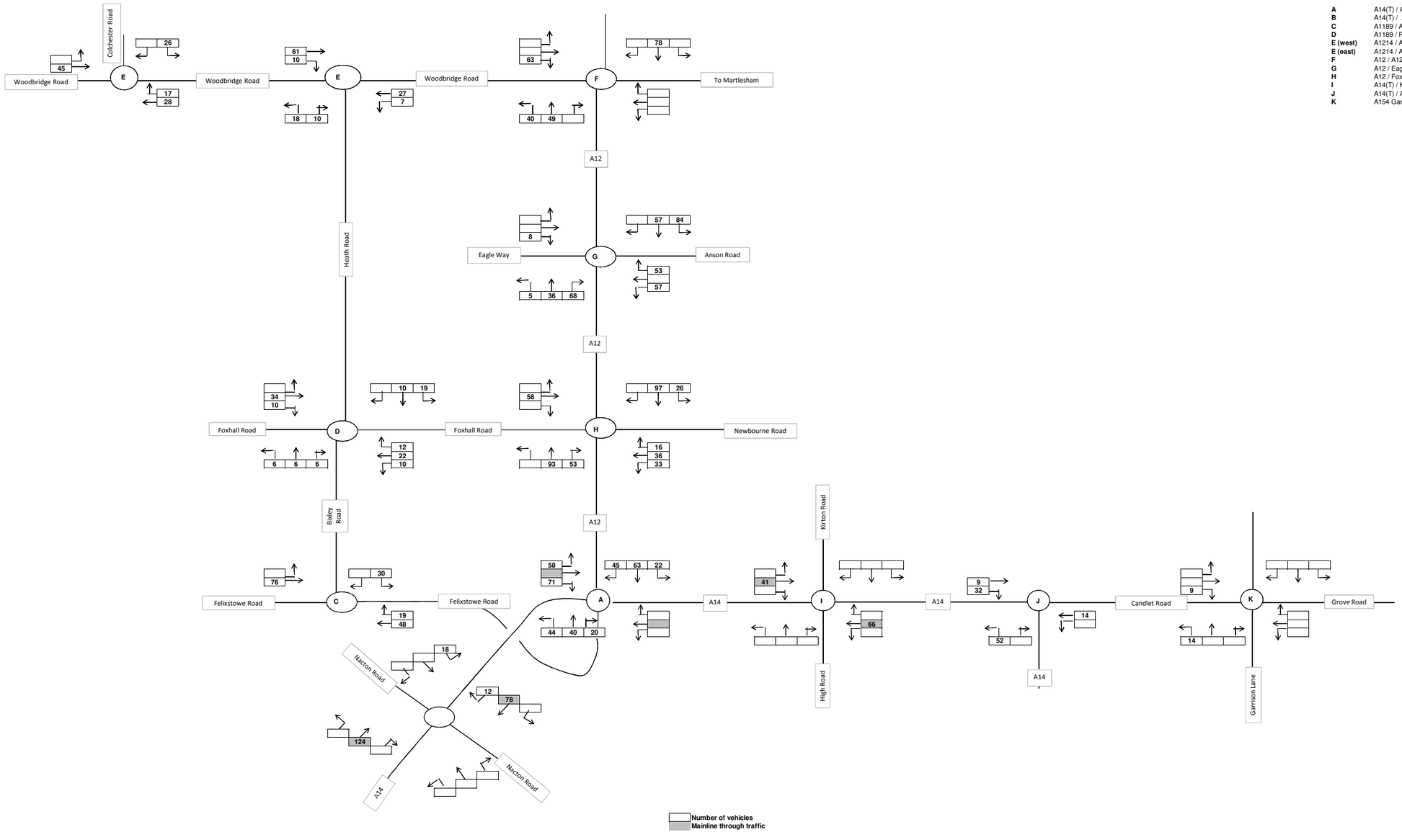
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 20: East of Ipswich Scenario 4 Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



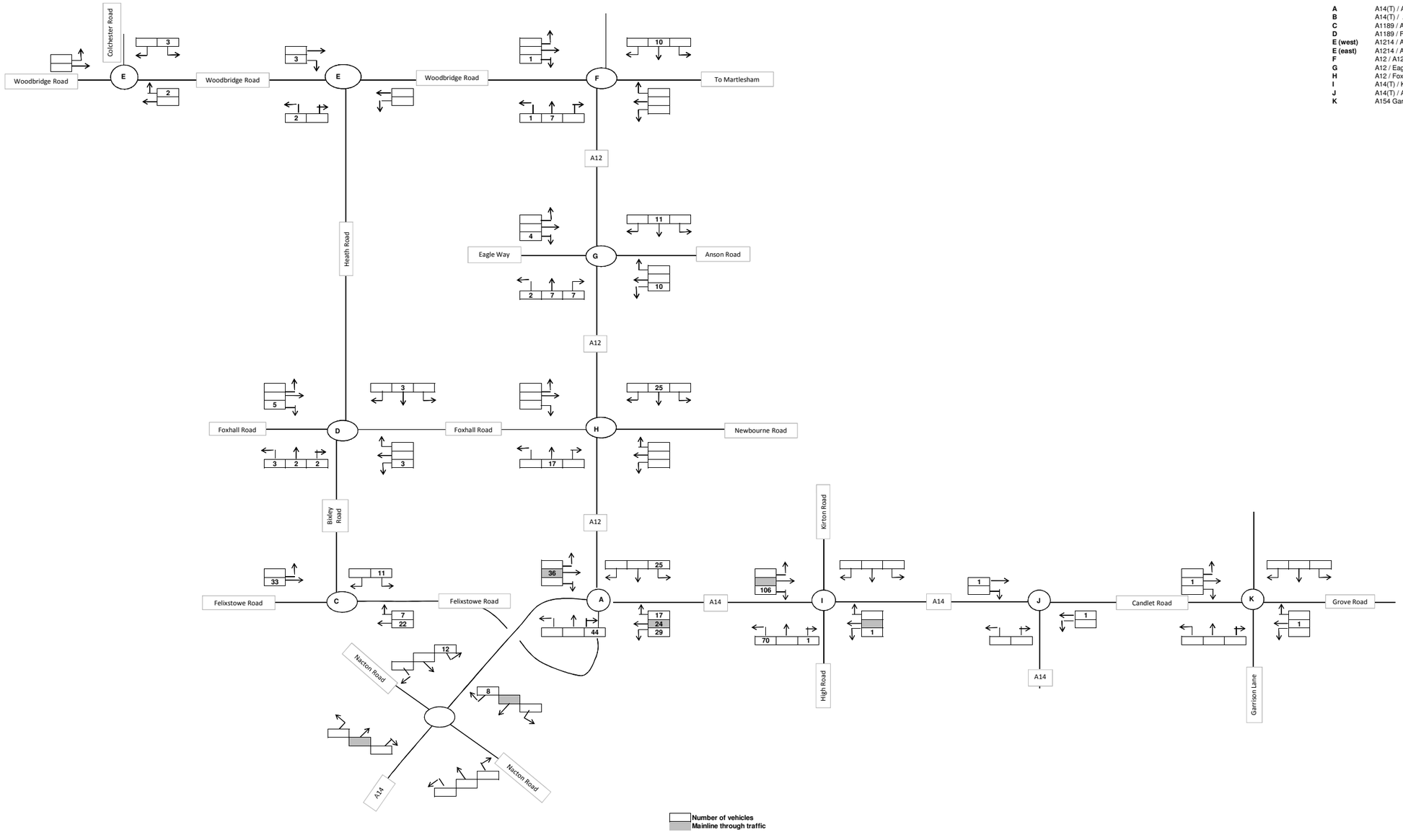
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 21: East of Ipswich Scenario 5 Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



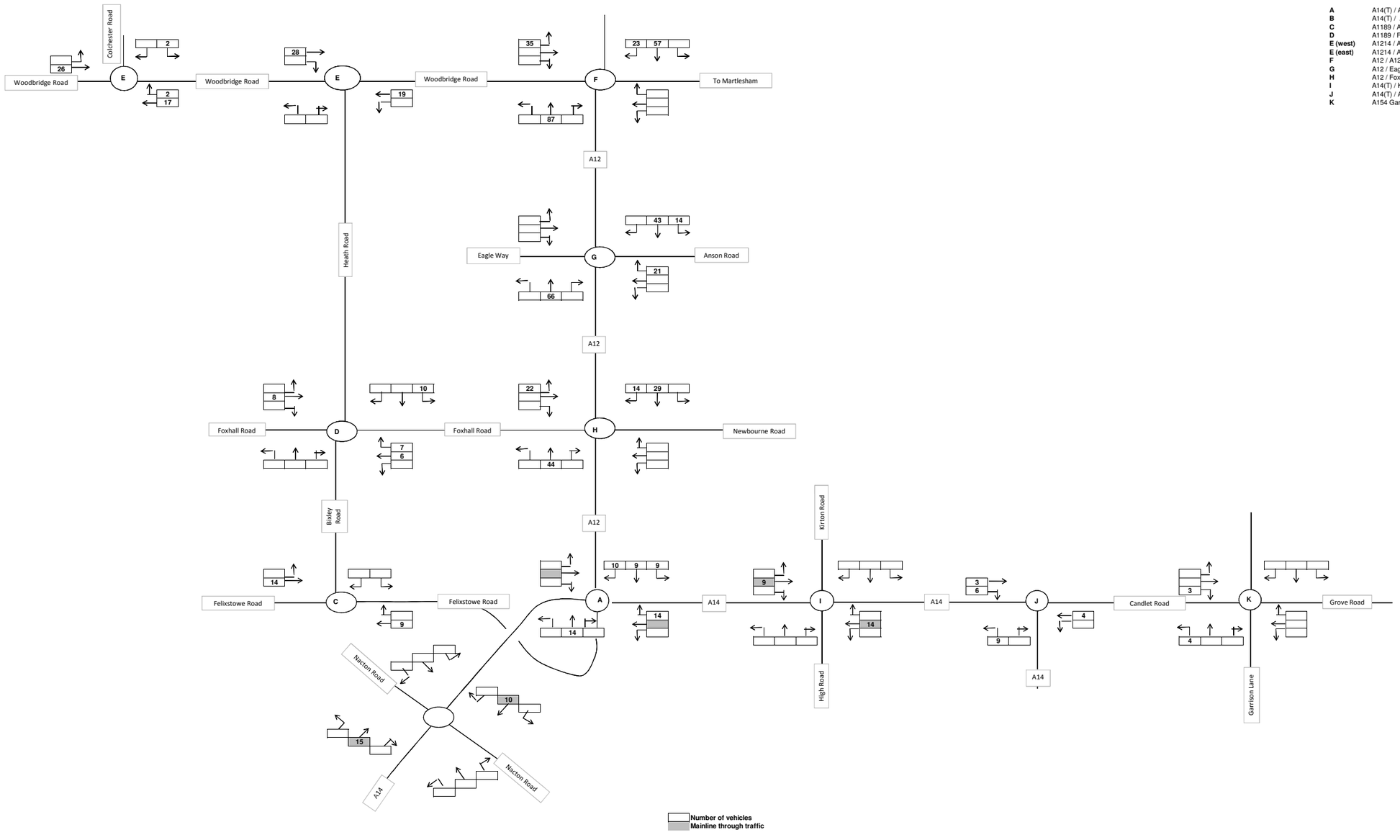
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 22: Felixstowe Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



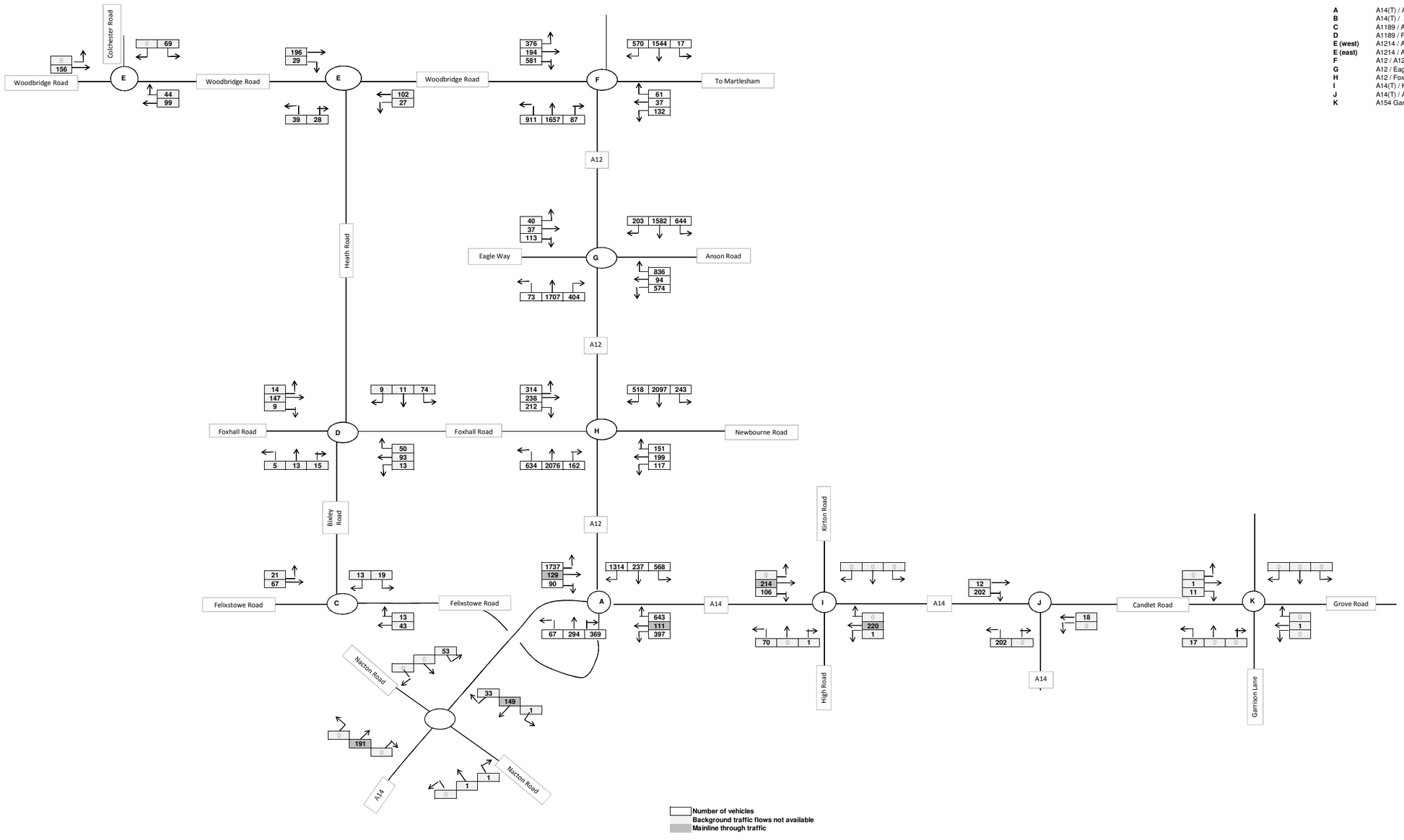
Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 23: Market Towns Traffic Distribution
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 24: 2024 Traffic Distribution Incl. Scenario 1 Housing Allocations
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey

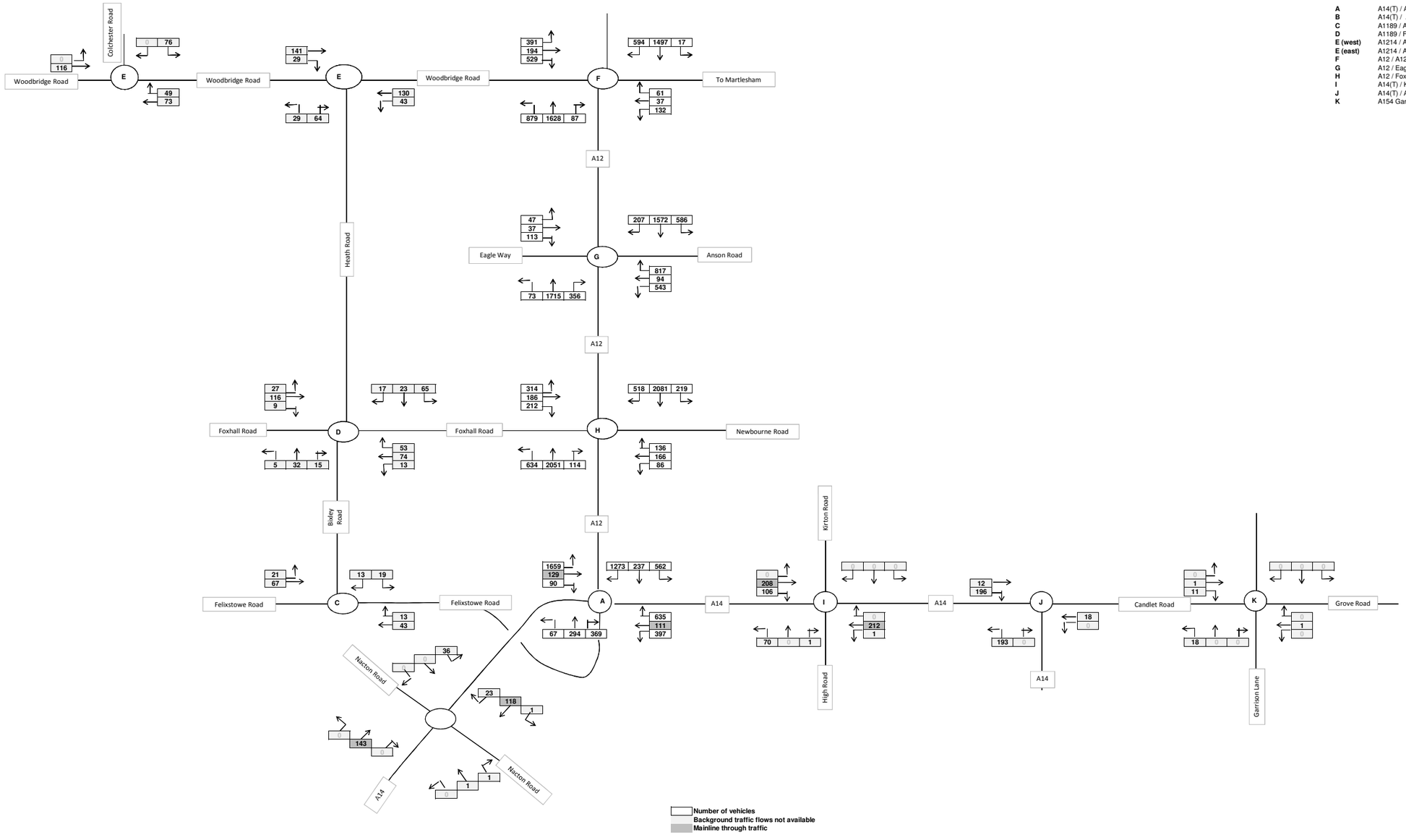
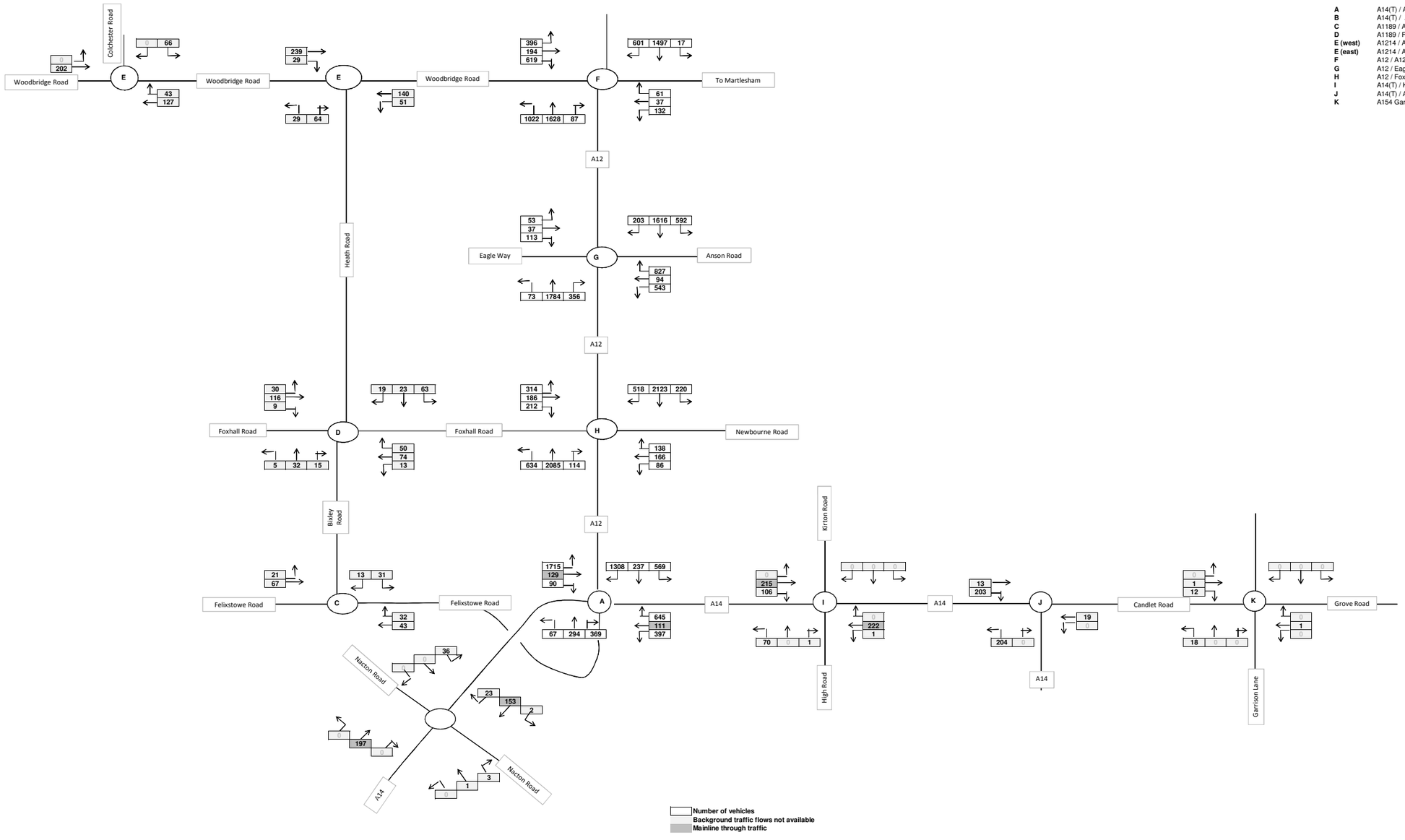


Figure 25: 2024 Traffic Distribution Incl. Scenario 2 Housing Allocations
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 26: 2024 Traffic Distribution Incl. Scenario 3 Housing Allocations
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey

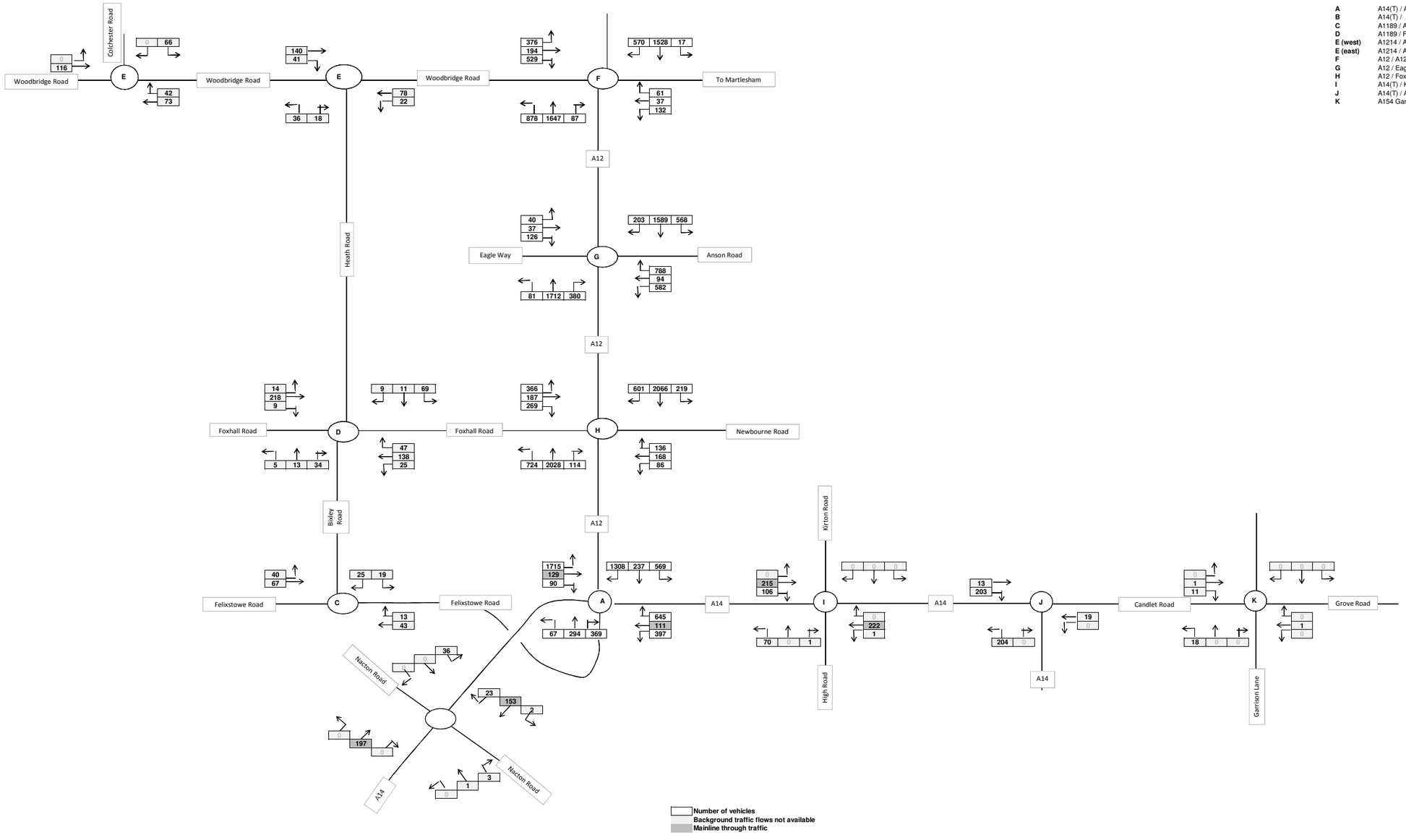
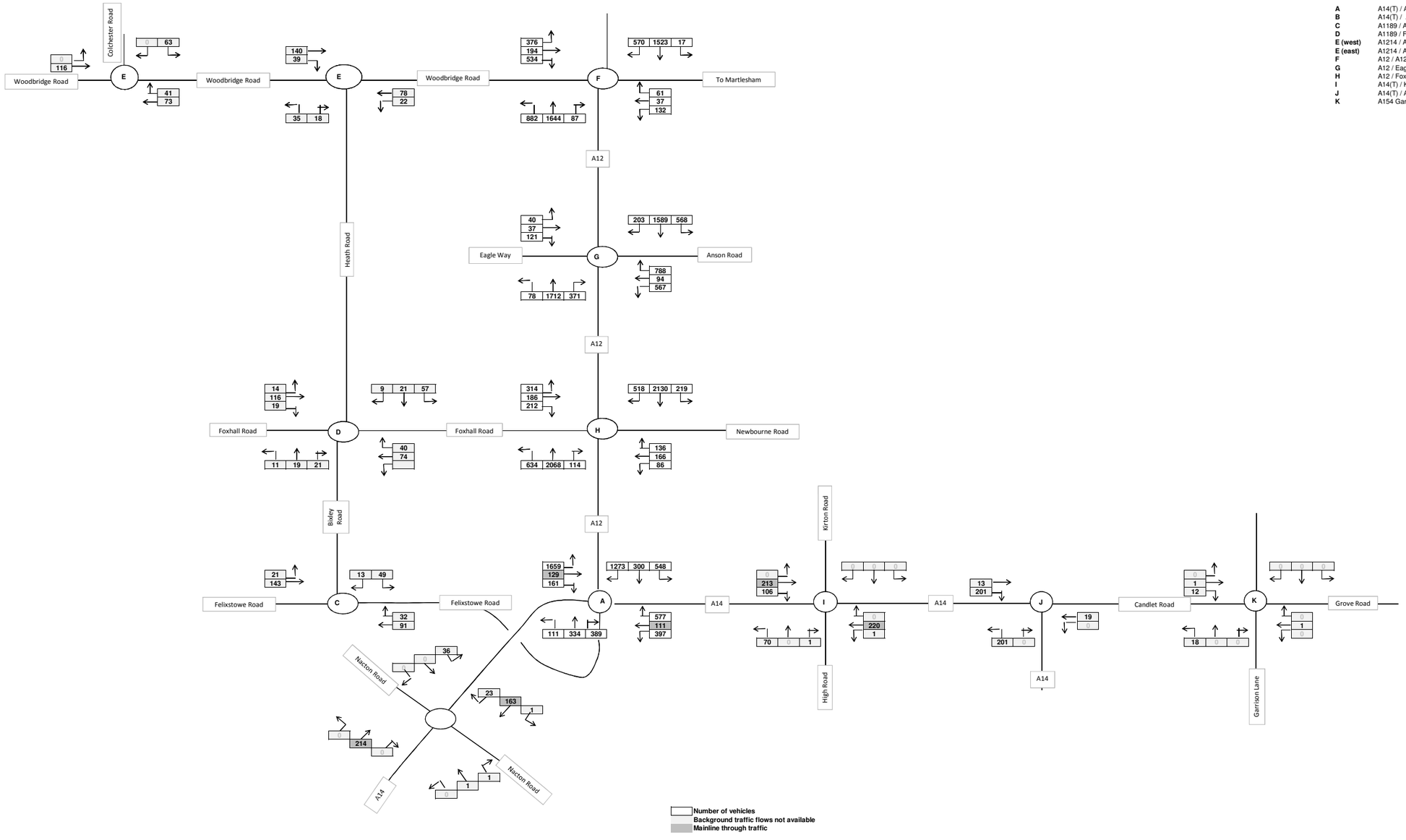


Figure 27: 2024 Traffic Distribution Incl. Scenario 4 Housing Allocations
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey



Junction Description:

A	A14(T) / A12 Seven Hills Grade Separated Junction
B	A14(T) / A1189 Nacton Road (Ransomes Europark) Junction
C	A1189 / A1156 Ipswich 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
G	A12 / Eagle Way / Anson Road Roundabout
H	A12 / Foxhall Road Roundabout
I	A14(T) / Kirton Road (Trimley St Martin)
J	A14(T) / A154 Candlet Road Roundabout
K	A154 Garrison Road / A1021 Grove Road Roundabout

Figure 28: 2024 Traffic Distribution Incl. Scenario 5 Housing Allocations
PM Peak (17:00-18:00)

Suffolk Coastal District Council Local Development Framework Housing Allocations
Proposed Strategy Transport Appraisal

Client: Suffolk County Council
Date: August 2009
Deisgn: Ronan Brophy
Checked: Derek Griffiths
Approved: Bevin Carey