Suffolk County Council

LOCAL PLAN MODELLING FOR BABERGH & MID SUFFOLK, IPSWICH AND SUFFOLK COASTAL

Forecasting Report – Volume 1: Suffolk Coastal and Ipswich

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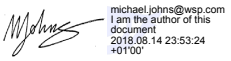
Signature	 michael.johns@wsp.com I am the author of this document 2018.08.14 23:53:24 +01'00'			
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REPORT PURPOSE

WSP have been commissioned to undertake an assessment of the emerging Local Plans for the following Local Planning Authorities (LPAs):

- Babergh District Council (BDC)
- Ipswich Borough Council (IBC)
- Mid Suffolk District Council (MSDC)
- Suffolk Coastal District Council (SCDC)

The purpose of this report is to assess the impact upon the highway network of scenarios for growth within the respective Local Plans for a forecast year of 2036 and to identify junctions that are likely to experience congestion in the future. This report specifically focuses on the modelling results to highlight junctions with capacity problems in Suffolk Coastal and Ipswich. A further report will be produced in relation to Babergh and Mid Suffolk. A separate report describes the methodology for all four local authorities.

For the purpose of the assessment of individual junctions within this report, the volume to capacity (V/C) percentage is used. V/C percentages above 100% show a traffic flow beyond its capacity. These locations show the greatest network stress and suggest delays are likely. At these locations the network may cease to function efficiently and blocking back from queuing may occur, constraining the capacity and causing congestion on adjacent links and junctions. Locations at which the V/C percentage is between 85-99% are also considered likely to experience congestion and are highlighted within the analysis.

WHAT HAS BEEN DONE

The Suffolk County Transport Model (SCTM) includes a strategic highway model built in SATURN which has been calibrated and validated to reflect traffic conditions for a base year of 2016. Traffic forecasts have been generated from this base year model to reflect a forecast year of 2036.

The forecast modelling contained within this report represents the cumulative impact of potential developments or potential growth areas coming forward up to 2036. Various scenarios in housing and job growth for the four LPAs have been tested in different model runs to determine the impact these distributions in growth have on the highway network.

An initial TEMPRO only forecast model, referred to as “Model Run 1” was initially carried out to provide the LPAs with an indication of where on the highway network the SCTM shows stress for a forecast year of 2036. This model run is not discussed in detail within this report as the housing and job growth assumptions within TEMPRO 7.2 are notably different to the targets detailed within the respective Local Plans. The resulting scenarios assessed within this report are therefore:

- Model Run 2 was carried out to test a core set of development assumptions in Suffolk Coastal and Ipswich
- Model Run 3 was carried out to test a core set of development assumptions in Babergh and Mid Suffolk
- Model Run 4 was carried out to test a scenario of additional development beyond the core assumptions in Suffolk Coastal

- Model Run 5 was carried out to test a further alternative scenario of additional development beyond the core assumptions in Suffolk Coastal

Further model runs will be undertaken under this commission for Babergh and Mid Suffolk to test additional preferred sites and allocations.

Details of potential development sites / broad locations for growth (assigned to SCTM zones) and scenarios for growth were provided by each LPA and included within the modelling, along with existing permissions and allocations, and completions since 2016.For instances where the cumulative number of jobs and housing from the individual sites was less than the proposed overall Local Plan target for the LPA, the Alternative Planning Assumptions tool in TEMPRO was utilised. TEMPRO was therefore used to account for the remainder of the Local Plan housing and job growth after the individual developments were taken into account. The approach of using TEMPRO for residual housing growth was undertaken for Babergh, Mid Suffolk and Suffolk Coastal. The approach of using TEMPRO for residual job growth was undertaken for Babergh, Mid Suffolk and Ipswich.

The exceptions to this were the housing growth in Ipswich, all of which was assigned to specific developments or potential broad growth areas identified for testing purposes, as the dwelling total for these closely matched the overall Local Plan target. In Suffolk Coastal, all of the Local Plan target job growth could be related to specific developments

WSP have previously undertaken traffic modelling to support the Waveney Local Plan. Model runs which include specific development assumptions in Suffolk Coastal also utilise the assumptions from the Preferred Option scenario for Waveney.

WHAT THE RESULTS SHOW

The model shows a growth in traffic by 2036.This growth in traffic is a result of changing patterns of travel behaviour and predicted future growth in housing and jobs across Suffolk. The transport modelling factors in an element of growth when predicting future traffic impacts and has been adapted for the purposes of this assessment to consider the specific growth locations identified in the named local authorities. The results cannot therefore be interpreted as simply as 'Local Plan vs no Local Plan', i.e. it could not reasonably be assumed that if there were no Local Plan traffic patterns would be the same in 2036 as they were in 2016.

The growth assumptions include for all the specifically considered development being tested for the Local Plan, but also growth generated through population growth, car ownership and relative vehicle operating costs through the use of the Department for Transport TEMPro software.

Numerous locations across the network are shown to have capacity issues, measured using the volume to capacity (V/C) percentage which compares the capacity of the network to the assigned traffic flow.

This report focuses in detail on the results of the model runs for the following LPAs:

- Suffolk Coastal District
- Ipswich Borough

The specific results from the modelling related to Babergh and Mid Suffolk will be found in the following document:

- Forecasting Report Volume 2 – Babergh and Mid Suffolk (to be completed at the time of production of this report) which outlines the junctions within Babergh and Mid Suffolk which show potential congestion issues because of traffic growth

WHAT DOES THIS MEAN

The analysis has shown that while many junctions may be close to or exceed capacity in 2036; there are also many parts of the network that will operate satisfactorily. Further, the development proposals assessed within the model would as part of their planning applications need to consider additional measures to help mitigate any impact.

It is also necessary to remember that improvements in capacity through the removal of bottlenecks whilst desirable in one location can have knock on impacts which would be less desirable than the existing congestion. For example, as traffic is more freely able to move into the network, the problem will simply move to another location. Equally, hard engineering and infrastructure solutions are not the only solutions available. Other solutions involve the optimisation of existing infrastructure and an emphasis on sustainable transport,

through for example personal travel planning. Over the lifetime of the plan it is reasonable to assume that policies on sustainable transport will help to mitigate some of the increase in stress, and technological changes, such as those associated with Connected and Autonomous Vehicles, have the potential to independently improve traffic flow and conditions.

WHAT IS BEING DONE TO ADDRESS THIS

A mitigation scenario has not been considered at this point of assessment. This is because the modelling detailed in the report has been used to determine whether the level of housing and job growth leads to congestion and to test alternative scenarios.

There are however committed highway infrastructure schemes across Suffolk which have been included within the appraisal. Specific schemes within Babergh, Ipswich, Mid Suffolk and Suffolk Coastal include the following:

- The Upper Orwell Crossings, Ipswich
- Ipswich Radial Corridor Route improvements on Felixstowe Road, Spring Road and in Kesgrave
- A12 corridor improvements associated with Brightwell Lakes[1] between the Martlesham roundabout and Seven Hills Interchange (A14 Junction 58)
- Bixley Road / Heath Road / Foxhall Road junction improvement
- Nacton Road / Maryon Road junction improvement
- Nacton Road / Rands Way / Landseer Road junction improvement

WHAT HAPPENS NEXT

Given the coverage of the SCTM it allows tests to be carried out for neighbouring local authorities within Suffolk.

It is therefore recommended that this assessment is updated to model the preferred options of all four authorities. Further work may need to be carried out to confirm the extent of any mitigation which may need to be required following the issues highlighted in this report and in further modelling. The impact of specific local plan development sites could also be assessed within the model to identify those areas of mitigation that will be required by developers to mitigate impacts of those specific developments

It is recommended that the junctions that have been identified as having the most significant impact are considered in further detail through isolated junction modelling to demonstrate the detailed impact and confirm that appropriate mitigation can be provided where required.

[1] Brightwell Lakes is the development formerly referred to as Adastral Park

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GLOSSARY

1 GLOSSARY

- **Adjusted Planning Data** – TEMPro (see below) allows for the use of alternative assumptions which are different to the standard set of assumptions. This allows for specific allocated developments to be discounted from the assumptions or to adjust the overall assumptions to tie in with alternative data sources.
- **AM Peak** – the morning peak hour (08:00 – 09:00)
- **Assignment** – A Traffic Assignment Model, in this case SATURN, has been used. An assignment model requires two general inputs – a "trip matrix" and a "network" (thought of as the "demand" and "supply" inputs – provided by the user). These are input into a "route choice" model which allocates or assigns trips to "routes" through the network, as a result total flows along links in the network may be summed and the corresponding network "costs" (e.g. times) calculated.
- **BDC** – Babergh District Council
- **Committed Development** – All land with current planning permission or allocated for development in adopted development plans (particularly residential development) (Planning Portal Glossary).
- **IBC** – Ipswich Borough Council
- **Local Plan** - A Local Plan is a set of documents that determine how development will be planned over time.
- **LPA** – Local Planning Authority
- **Matrix** – see Trip Matrix
- **MSDC** – Mid Suffolk District Council
- **Network** – specifies the physical structure of the roads, etc upon which trips take place and the parameters within it. In this report, parameters is being used as a generic descriptor of all of the pieces of information / options that go into the Saturn network, it is not a specific modelling term.
- **NTEM** – National Trip End Model, Latest version 7.2. The National Trip End Model produces estimates of person travel by all modes based on 2011 Census boundaries. The model outputs trip productions (e.g. homes) and trip attractions (e.g. sites of employment) in each zone (collectively known as trip-ends), which may be separated by mode, journey purpose, household car ownership category and time period.
- **NTM** – National Transport Model provides a means of comparing the consequences of national transport policies or widely-applied local transport policies, against a range of background scenarios which take into account the major factors affecting future patterns of travel. The model produces future forecasts of road traffic growth, vehicle tailpipe emissions, congestion and journey time (Department for Transport website).
- **PCU – Passenger Car Unit**, is a method used in Transport Modelling to allow for the different vehicle types within a traffic flow group to be assessed in a consistent manner. Measured to be 5.75 m. Factors used in the SCTM are 1 for a car or light goods vehicle and 2.3 for heavy goods vehicle.
- **Permitted Development** - Permission to carry out certain limited forms of development without the need to make an application to a local planning authority, as granted under the terms of the Town and Country Planning (General Permitted Development) Order (Planning Portal Glossary).
- **Person Trip Rate** – The number of people making a given trip as opposed to the number of vehicles making a trip.
- **PM Peak** – Afternoon Peak (17:00 – 18:00)
- **SATURN** – Simulation and Assignment of Traffic to Urban Road Networks is a suite of network analysis programs used to assess the impact of road-investment schemes. Current version 11.3.12U. See also assignment. Further information can be found here: https://saturnsoftware.co.uk/
- **SCC** – Suffolk County Council
- **SCDC** – Suffolk Coastal District Council
- **SCTM** – Suffolk County Transport Model
- **TEMPro** - TEMPro is the Trip End Model Presentation Program. The National Trip End Model (NTEM) forecasts and the TEMPro software are used for transport planning purposes. The forecast includes: population, employment, households by car ownership, trip ends, and simple traffic growth factors based on data from the National Transport Model. The current version, and the version used for this work, is NTEM 7.2. Further information can be found at: https://www.gov.uk/government/collections/tempro
- **Trip Matrix** – the "Trip Matrix" Tij specifies the number of trips from zone i to zone j

- **V/C Ratio** – Volume / Capacity Ratio. The assigned model flow is the volume of traffic in PCUs per hour, with the V/C percentage calculated as the volume relative to the capacity in percentage terms.
- **WDC** – Waveney District Council
- **WebTAG** – Web Transport Appraisal Guidance. Documentation produced by the Department for Transport (DfT) to assist in transport appraisal and modelling to ensure consistency and robustness.
- **Windfall Sites** – sites for housing that have yet to be identified, accounted for through background growth.
- **Zone Loading Point** – the origins and destinations of trips within a network

A further glossary of planning terms can be found here: https://www.planningportal.co.uk/directory/4/glossary

2

INTRODUCTION

2 INTRODUCTION

2.1 BACKGROUND

2.1.1. WSP have been commissioned to undertake an assessment of the impact of Local Plan development assumptions for multiple Local Planning Authorities (LPAs) within Suffolk. The focus of this report is on the modelling results for the following LPAs

- Ipswich Borough
- Suffolk Coastal District

2.1.2. The Local Plan development has been tested in terms of the impact on the highway network for a forecast year of 2036.The LPAs have provided WSP with information on different scenarios which have been considered for the respective Local Plans. These scenarios contain varying assumptions on the quantum and distribution of housing and job growth which will occur within each of the LPAs between 2016 and 2036.

2.2 TRANSPORT MODEL

2.2.1. The Suffolk County Transport Model (SCTM) has been developed by WSP as multi-purpose modelling toolkit to enable Suffolk County Council (SCC), LPAs and other parties to test a variety of transport related improvements including for example:

- Highway scheme appraisal
- Major public transport scheme appraisal
- Inputs for transport business cases and funding applications
- Inputs for environmental appraisals
- Local plan / core strategy assessment
- Development impact assessment.

2.2.2. The assessment within this report uses the Highway Assignment Model (HAM)[2] only as the focus of the modelling is on how the highway network within Suffolk is affected by the proposed housing and job growth with the emerging Local Plans. A highway only assignment is considered proportionate and sufficiently robust to test the assumptions for each LPA.

2.2.3. The SCTM has been developed to an extent that it is able to serve as a high-level strategic assessment tool for various applications. However, no strategic model is capable of representing a whole county in fine detail, so the level of detail required for each application is reviewed prior to testing. It is often necessary to enhance a particular local area for a specific testing purpose.

2.2.4. A review of the SCTM within the four LPAs was undertaken with the need for additional network detail and zone disaggregation undertaken. This was undertaken for the 2016 base year model which underpins the forecast modelling undertaken to assess the Local Plans. The validation of the 2016 base year model is presented for each of the LPAs in TN1 – SCTM Base Year Validation Version 2.1 (July 2018).

[2] The SCTM comprises a Highway Assignment Model (HAM) built in SATURN, as well as a Public Transport Assignment Model (PTAM) and Variable Demand Model (VDM) developed in VISUM.

2.3 STUDY AREA

2.3.1. The study areas in this forecasting report focus on Ipswich Borough and Suffolk Coastal District.

2.3.2. Figure 1 shows the borough boundary for Ipswich Borough, detailing the strategic highway network and main urban areas.

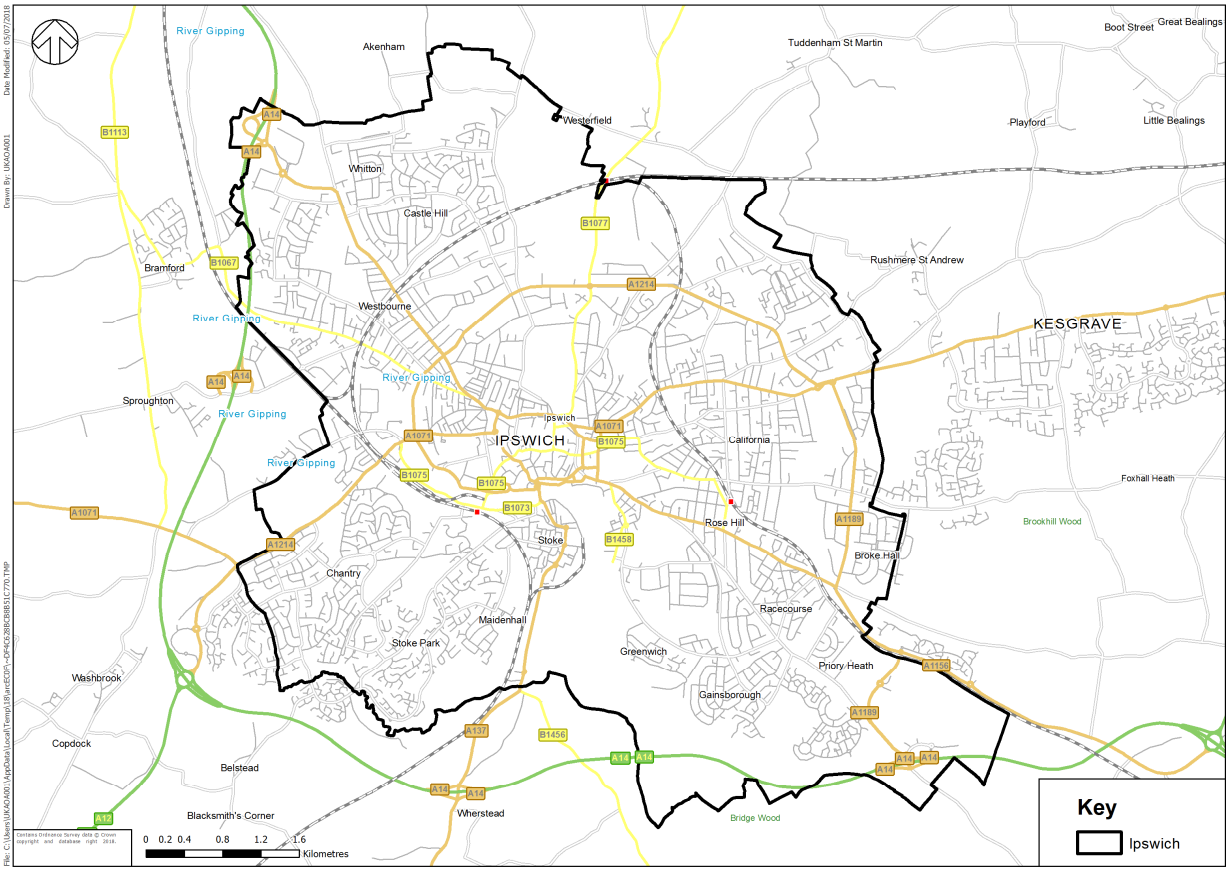


Figure 1 – Ipswich Borough boundary

2.3.3. The Ipswich Borough boundary covers the majority of the Ipswich urban area, though parts of the Ipswich urban area are included within the boundaries of Babergh, Mid Suffolk and Suffolk Coastal. Sections of the A14 are included within the Ipswich Borough boundary, including Junction 53 (Bury Road) and Junction 57 (Nacton).

2.3.4. Figure 2 shows the district boundary for Suffolk Coastal, detailing the strategic highway network and main urban areas.

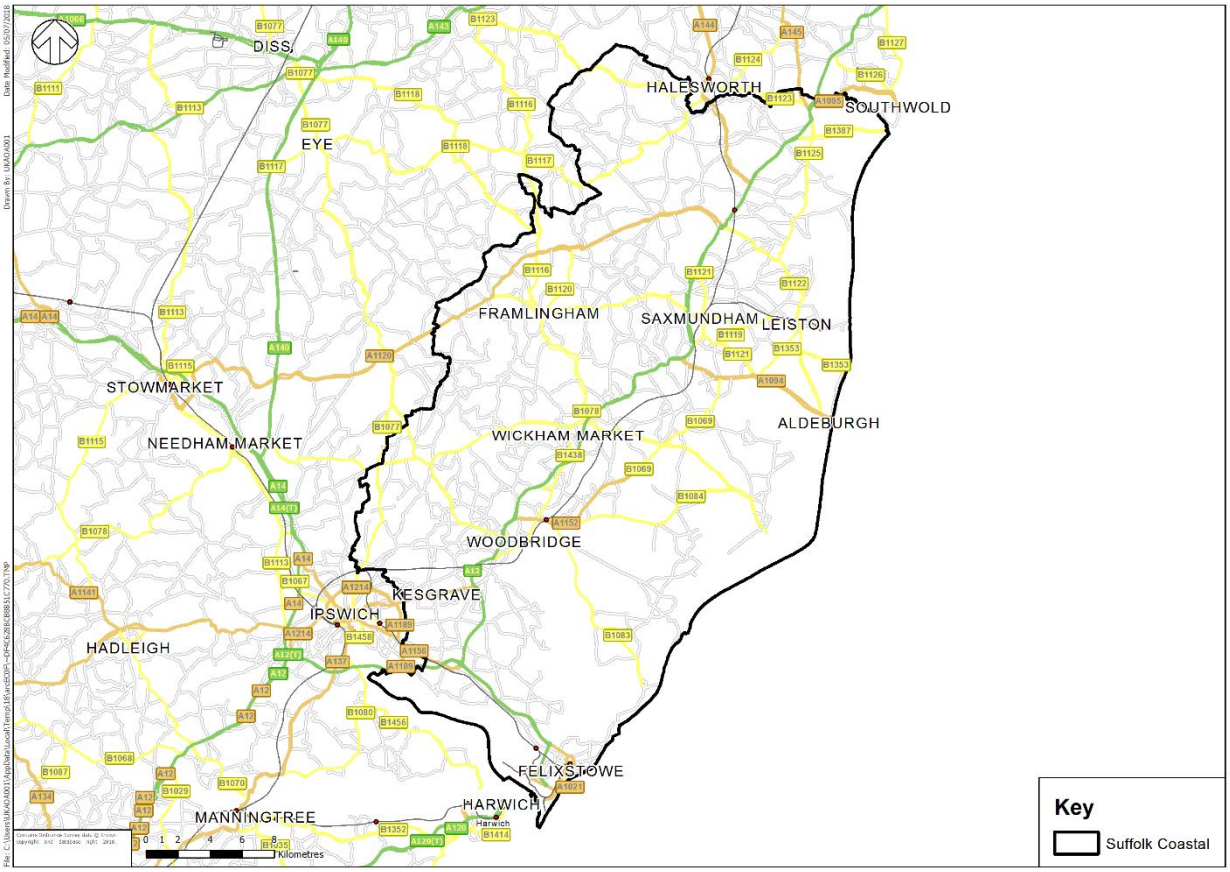


Figure 2 – Suffolk Coastal District boundary

2.3.5. There key strategic highway route through Suffolk Coastal is the A12, extending from the Seven Hills Interchange (A14 Junction 58) to Blythburgh. The A14 extends into Suffolk Coastal, culminating at Felixstowe.

2.4 FUTURE HIGHWAY SCHEMES

2.4.1. It is assumed the highway schemes in Table 1 will be in place by 2036 and have therefore been included within all forecast scenarios.

Table 1 – List of future highway schemes

District	Description	Mitigation
Ipswich	Bixley Road / Heath Road / Foxhall Road	Additional lane NB for Bixley Road / Additional lane SB for Heath Road
Ipswich	Nacton Road / Maryon Road	Turn WB Nacton to two lanes, and EB Nacton to one lane
Ipswich	Nacton Road / Rands Way / Landseer Road	Block access to Rands Way to create 3-arm junction
Ipswich	The Upper Orwell Crossings (TUOC)	Western roundabout leads to closure of minor Wherstead Road, priority controlled roundabout for eastern roundabout
Waveney	Lake Lothing Third Crossing, Lowestoft	Additional crossing within Lowestoft, priority controlled roundabouts at both ends
St Edmundsbury	Bury St Edmunds Eastern Relief Road	Now built and open, by included in forecast only as base year model is 2016 prior to opening
St Edmundsbury	Haverhill NW Relief Road	Relief Road between A1307 and A143
Waveney	Beccles Southern Relief Road	Relief Road between A145 and Ellough Road
Ipswich	Ipswich Radial Corridor Route improvements - Felixstowe Road	Capacity increase to Felixstowe Road & Bixley Road arms of roundabout with A1156 Bucklesham Road. Capacity increase at Bixley Road / Ashdown Way junction
Ipswich	Ipswich Radial Corridor Route improvements - Spring Road	Increased capacity at A1156 Grimwade Street / St Helen's Street. Upper Orwell Street reverted to one-way southbound only
Ipswich	Ipswich Radial Corridor Route improvements - Kesgrave	Ban of right turn from A1214 onto Dr Watson Lane. Signalised junction of A1214 / Bell Lane changed to priority controlled roundabout
Suffolk Coastal	Brightwell Lakes - A12 corridor improvement	A12 / Eagle Way / Anson Road roundabout signalisation
Suffolk Coastal	Brightwell Lakes - A12 corridor improvement	A12 / Eagle Way / Gloster Road roundabout signalisation
Suffolk Coastal	Brightwell Lakes - A12 corridor improvement	A12 / Foxhall Road / Newbourne Road roundabout signalisation
Suffolk Coastal	Brightwell Lakes - A12 corridor improvement	A14 Junction 58 signalisation
Suffolk Coastal	Brightwell Lakes - Main site access	Signalised junction between Gloster Road & Foxhall Road roundabouts
Suffolk Coastal	Brightwell Lakes - Other site accesses	Phase 2 access onto Newbourne Road, Phase 3 access onto link forming junction with Gloster Road
St Edmundsbury	Bury St Edmunds South Eastern Relief Road	Link road south of A14 Junction 44

2.5 FORECAST DEVELOPMENT ASSUMPTIONS

2.5.1. Each LPA provided details of the overall target in terms of housing and job growth up to 2036 detailed in their respective Local Plan. This is summarised in Table 2.

Table 2 – Overall proposed housing and job growth by LPA

LPA	Scenario	Housing growth (2016 to 2036)	Job growth (2016 to 2036)
Babergh	Core	8,780	3,300
Ipswich	Core	8,840	17,309
Mid Suffolk	Core	11,460	5,860
Suffolk Coastal	Core	11,990[3]	7,220
Suffolk Coastal	Scenario A	11,990	8,762
Suffolk Coastal	Scenario B	11,990	12,203

2.5.2. Core assumptions relate to housing and job growth already planned through existing permissions and allocations, as well as completions since 2016 (the SCTM base year). These are detailed in Appendix A of the MR1 Local Plan Modelling Methodology Report.

2.5.3. Scenario A assumptions involved all the "Core" developments, plus the following additional potential sites and areas shown in Table 3. These potential sites and areas are shown in Appendix B.

Table 3 – Scenario A developments

District	Description	Dwellings	Jobs / Land Uses
SCDC	Land north of Felixstowe	800[4]	Primary School, Local Centre, B1 Office, Leisure Centre
SCDC	Innocence Farm (B8 land use)	0	1,081 (B8 class jobs)
SCDC	Land south of Saxmundham	800	Primary School, B1 Office, B2, B8, Local Centre, Community Centre
SCDC	Trimley	250	0
SCDC	Felixstowe	150	0
SCDC	Trimley	150	0
SCDC	Rushmere	150	0
SCDC	Rushmere	100	0
SCDC	Aldeburgh	20	0
SCDC	Framlingham	25	0
SCDC	Framlingham	25	0

[3] This is the proposed Local Plan requirement, plus a 10% contingency which will be broadly reflected in the quantum of growth to be allocated.
[4] In addition to the 560 dwellings with outline planning permission on land to the north of Candlet Road

SCDC	Leiston	25	0
SCDC	Leiston	25	0
SCDC	Wickham Market	150	0
SCDC	Darsham and Yoxford	100	0
SCDC	Benhall	50	0
SCDC	Kelsale	50	0
SCDC	Blythburgh	25	0

2.5.4. Scenario B assumptions involved all the "Core" developments, plus the following additional potential sites and areas shown in Table 4. These potential sites and areas are shown in Appendix B.

Table 4 – Scenario B developments

District	Description	Dwellings	Jobs / Land Uses
SCDC	Land north of Felixstowe	1,500[5]	Primary School, Local Centre, B1 Office, Leisure Centre
SCDC	Land adj. 'Seven Hills' A12/A14 junction, Felixstowe Road (B1 & B2 land uses)	0	2,591
SCDC	Innocence Farm (B8 land use)	0	2,162
SCDC	Land north and east of the Manor House, Saxmundham	250	0
SCDC	Land south of Saxmundham	550	Primary School, B1 Office, B2, B8, Local Centre, Community Centre
SCDC	Rushmere	20	0
SCDC	Rushmere	20	0
SCDC	Rushmere	20	0
SCDC	Kesgrave	20	0
SCDC	Aldeburgh	20	0
SCDC	Framlingham	25	0
SCDC	Framlingham	25	0
SCDC	Leiston	25	0
SCDC	Leiston	25	0
SCDC	Wickham Market	200	0
SCDC	Darsham and Yoxford	150	0
SCDC	Benhall	100	0
SCDC	Kelsale	100	0
SCDC	Blythburgh	50	0

[5] In addition to the 560 dwellings with outline planning permission on land to the north of Candlet Road

2.5.5. The Scenario A and Scenario B development assumptions are also included in Appendix A of the Local Plan Modelling Methodology Report. Scenario A tested a lower level of growth at Felixstowe along with greater levels of growth around Ipswich and along the A12 corridor when compared to Scenario B.

2.5.6. Within Ipswich, the potential broad growth areas in Table 5 were included as part of the Core assumptions. These are the only significant remaining areas of undeveloped land within the Borough. The National Planning Policy Framework requires the Borough to meet its own development needs as far as possible and therefore the Council will need to demonstrate that it has robustly tested all possible locations. The broad areas are not development allocations. The modelling results will help to inform future decisions about suitable uses for land across the Ipswich strategic planning area.

Table 5 – Ipswich potential broad growth areas for testing

District	Description	Dwellings
IBC	NW Ipswich Broad Area 1	268
IBC	NW Ipswich Broad Area 2	150
IBC	NE Ipswich Broad Area	375
IBC	SE Ipswich Broad Area	500

2.5.7. Table 6 summarises the development assumptions which were made per Suffolk LPA in the model runs discussed in this results report. For Waveney, the assumptions used for the Preferred Option modelling undertaken to support the Waveney Local Plan were utilised.

Table 6 – Assumptions per Suffolk LPA by scenario

LPA / Scenario	Babergh	Ipswich	Mid Suffolk	Suffolk Coastal	Waveney	Forest Heath	St Edmundsbury
Model Run 2	TEMPRO	Core	TEMPRO	Core	Preferred Option	TEMPRO	TEMPRO
Model Run 4	Core	Core	Core	Scenario A	Preferred Option	TEMPRO	TEMPRO
Model Run 5	Core	Core	Core	Scenario B	Preferred Option	TEMPRO	TEMPRO

2.5.8. The purpose of the different model runs was to enable the LPAs to test different distributions of housing and job growth which could be utilised to inform a Preferred Option for the Local Plans going forward.

2.5.9. Chapter 3 of the Local Plan Modelling Methodology Report provides greater detail on the approach taken for each of the model runs and their associated development inputs.

3

RESULTS

3 RESULTS

3.1 VOLUME TO CAPACITY RATIO

3.1.1. Analysis has been undertaken to determine which junctions within the model are forecast to experience congestion. The Volume to Capacity (V/C) percentage has been focused on to determine which junctions are approaching or over capacity. The V/C percentage has been taken directly from SATURN and is based on a combination of flow, delay and capacity for each approach arm and turning movement at a junction.

3.1.2. Table 7 describes the typology used to distinguish between whether junctions are forecast to experience congestion problems in both peak hours or single peak hour, and considers the severity of the congestion.

Table 7 – Volume to capacity ratio categorisation

Type	Description
1	**100%+ both peaks**
2	**100%+ in one peak / 85-99% in other peak**
3	**100%+ in one peak / Less than 85% in other peak**
4	**85-99% in both peaks**
5	**85-99% in one peak / Less than 85% in the other peak**

3.1.3. Appendix A provides a comparison of the Overall V/C value for the junctions which fall within the categorisation defined in Table 7. Comparisons are provided showing the overall junction performance in each of the 2036 model runs.

3.2 DESCRIPTION OF AREAS USED IN SUMMARY

3.2.1. Analysis of the junctions in the forecast modelling which are shown to experience congestion have been split into the following areas:

- Saxmundham
- Suffolk Coastal - Felixstowe
- Suffolk Coastal – Kesgrave/Woodbridge
- Suffolk Coastal – Trimley St. Mary to Ipswich
- Suffolk Coastal – Rural Areas (North of Woodbridge)
- Ipswich
- A14 Corridor (Junction 53 – Bury Road to Junction 58 – Seven Hills)

3.2.2. Figures have not been produced for towns and rural areas north of Woodbridge (Wickham Market, Framlingham, Leiston) as these locations do not show significant congestion problems as a result of the forecast growth in traffic. All of the junctions within these towns and rural areas return volume to capacity ratios below 85% in both the AM & PM peak in 2036 in all model runs. Whilst the same applies to Saxmundham, as specific development options were tested the results are explained in more detail below. The modelling results suggest there will be no significant congestion issues in these areas as a result of the projected growth in housing and job growth detailed with the SCDC Local Plan and from the cumulative effect of housing and job growth in other districts. This conclusion will be revisited during the next stage of modelling, at which point the proposed allocations will be modelled. Where strategic scale growth is planned, further work is likely to be needed to understand traffic impacts in more detail and to inform mitigation.

3.2.3. Additional housing has been modelled in Model Runs 4 and 5 at Rushmere, within Suffolk Coastal but adjacent to Ipswich. In Model Run 4, 250 additional dwellings have been modelled, whereas in Model Run 5 the additional housing totals 60 additional dwellings. The results of this additional number of dwellings is discussed within the results section for Ipswich.

3.3 SUFFOLK COASTAL RESULTS SUMMARY

SAXMUNDHAM

3.3.1. No junctions are highlighted within Saxmundham and the surrounding area, including Leiston, as showing overall junction V/C values which are greater than 85% in any of the model runs.

3.3.2. The Chantry Road / B1121 signalised junction operates within capacity overall in all model runs. In terms of the individual links at each junction, the eastern B1119 Church Hill approach link shows the highest V/C value, reaching around 75% in the PM peak, and around 66% in the AM peak in Model Runs 2 and 4. In Model Run 5, the inclusion of the 250 dwellings associated with the "Land north and east of the Manor House, Saxmundham" site increases this V/C link value to 85% in the AM peak and 81% in the PM peak. Therefore, this indicates the addition of this development increases congestion at the Chantry Road / B1121 signals.

3.3.3. The site south of Saxmundham included in Model Run 4 (800 dwellings) leads to a V/C link value of 89% in the AM peak and 75% in the PM peak on the Kiln Lane junction directly onto the A12 (to the south of the site). 550 dwellings are included for this development in Model Run 5, which shows the V/C for this same link is 69% in the AM peak and 53% in the PM peak. This indicates this junction onto the A12 will experience increased congestion if there is allocated development south of Saxmundham

SAXMUNDHAM SUMMARY

3.3.4. The modelling results show in terms of overall V/C, junctions within Saxmundham operate within capacity. The Chantry Road / B1121 signals and A12 / Kiln Lane junction show increased congestion with the additional development which has been included in Model Run 5 and Model Run 4.

FELIXSTOWE

3.3.5. No junctions within Felixstowe in Model Run 2 show an overall junction V/C over 85% and do not fall within the typology detailed in Table 7. Figure 3 and Figure 4 show the junctions in Felixstowe by V/C type for Model Run 4 and Model Run 5 respectively.

Figure 3 – Felixstowe – MR4, Junctions with Overall V/C over or near capacity

3.3.6. The A154 Langer Rd / Beach Station Rd signalised junction (node 2866) is the only junction which has an overall V/C over 85% (in the PM peak).

Figure 4 - Felixstowe – MR5, Junctions with Overall V/C over or near capacity

3.3.7. The A154 Langer Rd / Beach Station Rd signalised junction (node 2866) is the only junction which has an overall V/C over 100% (in the PM peak).

3.3.8. The eastern approach to signalised Dock Spur roundabout (node 80409) has an overall V/C over 85% (in the PM peak).

3.3.9. The potential development at land north of Felixstowe which is included in Model Runs 4 and 5 is assumed to contribute to increased congestion at the Dock Spur roundabout and within Felixstowe. 1,500 dwellings were modelled for this development in Model Run 5. The cumulative effect of the traffic from this development and the Land at Candlet Road development (DC/15/1128/OUT – 560 dwellings) included within the core assumptions leads to the increased delay at this junction and along Candlet Road.

FELIXSTOWE JUNCTION ANALYSIS SUMMARY

3.3.10. The majority of junctions within Felixstowe are shown to operate within capacity within the various Local Plan distributions which have been modelled. No junctions in the AM peak fall within the categorisation in Table 7, and only two junctions in the PM peak which became an issue once the higher level of development has been included in Model Runs 4 and 5.

3.3.11. A154 Langer Rd / Beach Station Rd junction experiences over capacity V/C in the PM peak along the southern and western arms.

3.3.12. The Dock Spur roundabout in the PM peak has V/C nearing capacity on the A154 approach, and is over capacity for vehicles exiting the roundabout on to the A154. This high V/C value off the roundabout occurs because of blocking back from traffic trying to access the significant level of development which has been included north of Felixstowe. It is assumed that more detailed assessments would be carried out in relation to

land to the north of Felixstowe, and the access arrangements for this junction would be improved to ensure they do not lead to congestion along Candlet Road and at the Dock Spur roundabout.

3.3.13. As both junctions in Felixstowe which show V/C capacity issues are signalised, it is assumed both locations may be alleviated through signal optimisation or potentially through a redesign of the junction assuming it is cost-effective to do so. Potential mitigation and improvements at these locations would need to be tested using more detailed junction modelling.

KESGRAVE / WOODBRIDGE

3.3.14. Figure 5, Figure 6 & Figure 7 show the junctions in Kesgrave, Woodbridge and the surrounding area by V/C type for model runs 2, 4 and 5 respectively. This location does not include any potential major growth locations, however it is included as the modelling results indicate locations in this area along the A12, Foxhall Road and B1438 with capacity issues.

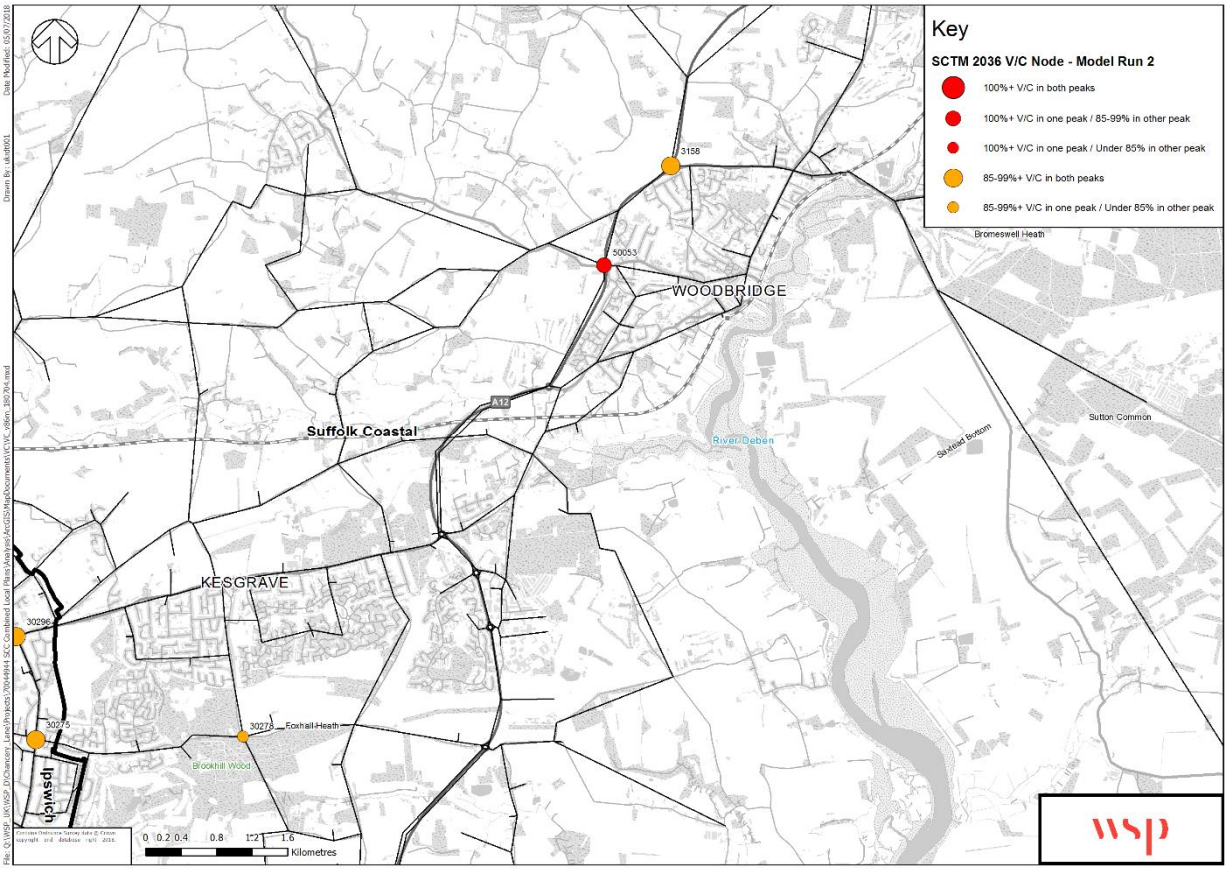


Figure 5 - Kesgrave & Woodbridge – MR2, Junctions with Overall V/C over or near capacity

3.3.15. The Foxhall Rd / Bell Ln priority junction (node 30278) is the only junction in the vicinity of Kesgrave which has an overall V/C over 85% (in the PM peak).

3.3.16. The A12 / B1079 Grundisburgh Road roundabout (node 50053) and the A12 / A1152 Woods Lane roundabout (node 3158) have a V/C above 85% (in both peaks) in Woodbridge. The A12 / B1079 Grundisburgh Road roundabout is over capacity (100%+) in the AM peak.

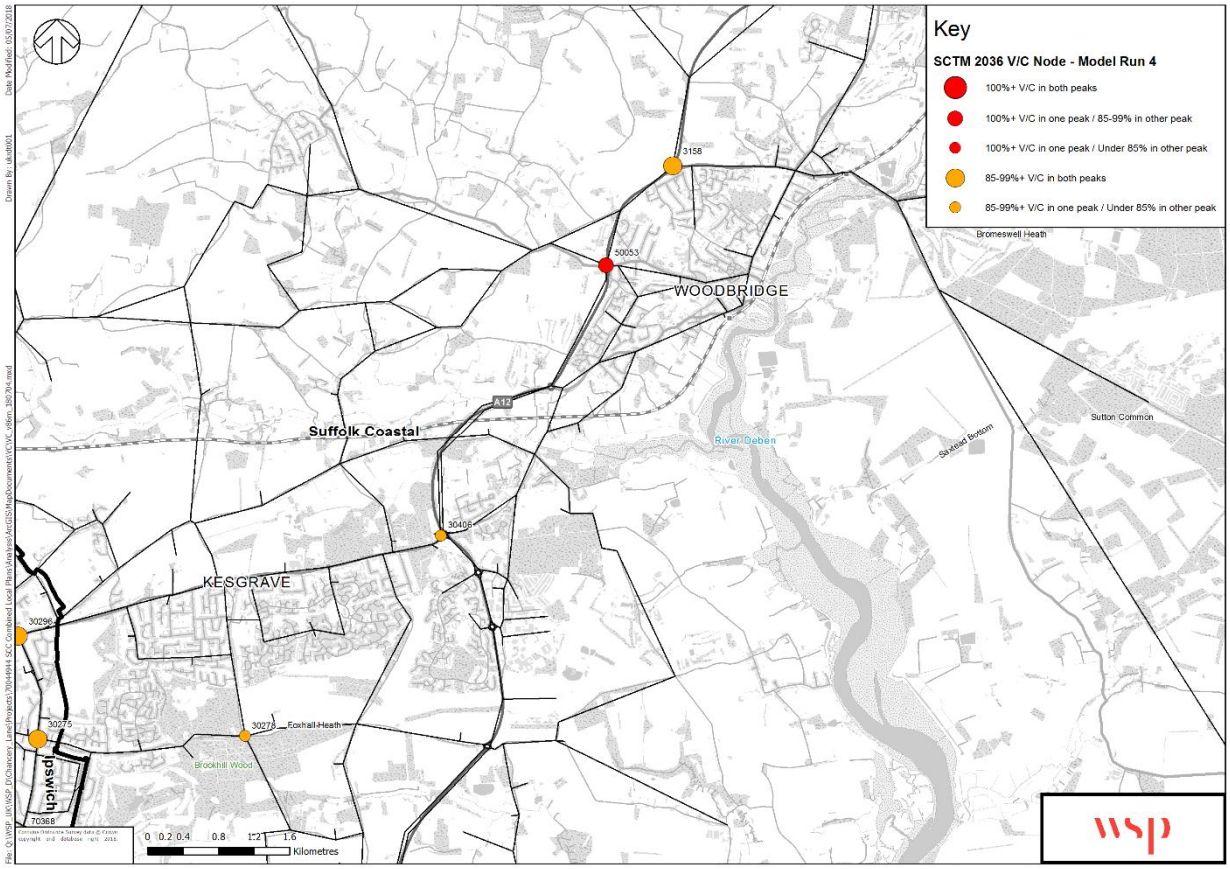


Figure 6 - Kesgrave & Woodbridge – MR4, Junctions with Overall V/C over or near capacity

3.3.17. Model Run 4 shows similar junctions near capacity to Model Run 2. The A1214 western approach to the A12 / A1214 Martlesham roundabout (node 30406) also has a V/C over 85% in the AM peak.

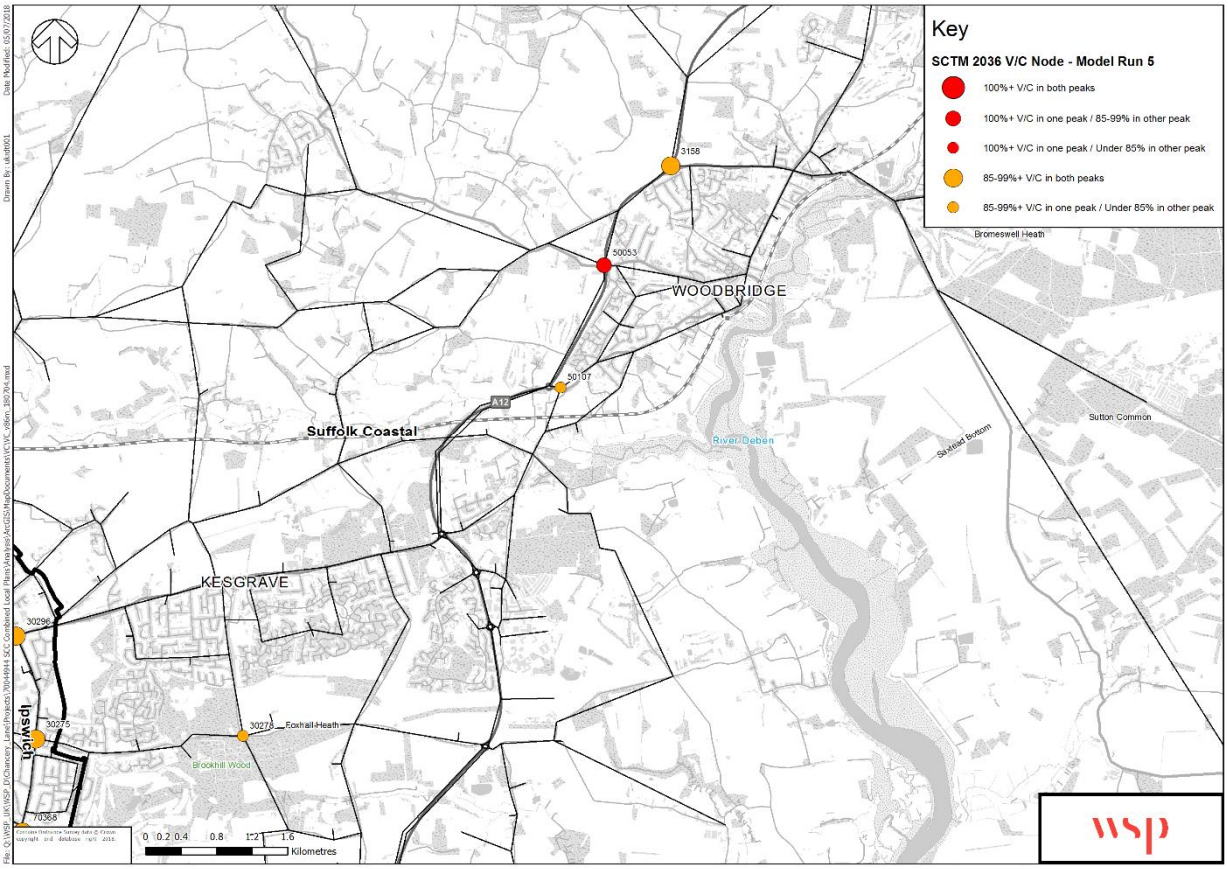


Figure 7 - Kesgrave & Woodbridge – MR5, Junctions with Overall V/C over or near capacity

3.3.18. Model Run 5 shows similar junctions near capacity to Model Runs 2 and 4. An additional junction which shows congestion in Model Run 5 is the B1438 / Top St roundabout (node 50107) also has a V/C over 85% in the PM peak. This junction flags as an issue as traffic in the model opts to use the B1438 rather than the A12, as the A12 roundabouts around Woodbridge show congestion problems. In addition, the modelling shows a significant increase in flow on Top Street potentially as a result of delays at the Martlesham Roundabout. This junction consistently shows a similar overall V/C issue in Model Runs 2, 4 and 5. However, in Model Run 5 the overall junction V/C reaches 85%, whereas it is at 84% in Model Runs 2 and 4.

KESGRAVE / WOODBRIDGE JUNCTION ANALYSIS SUMMARY

3.3.19. The majority of junctions around Kesgrave and Woodbridge are shown to operate within capacity in terms of their overall junction V/C percentage.

3.3.20. The Foxhall Rd / Bell Ln priority junction (node 30278) in the PM peak is near capacity on the eastern approach towards Ipswich.

3.3.21. Two of the A12 roundabouts around Woodbridge are near capacity on A12 approaches and approaches from Woodbridge.

3.3.22. V/C values are relatively high along the A12 from the A14 (J58) to Woodbridge. The worst affected junctions are the A12 roundabouts at Woodbridge.

TRIMLEY ST. MARY TO IPSWICH

3.3.23. **Error! Reference source not found.** shows the A14 corridor between Trimley St. Mary and Ipswich for Model Run 2.

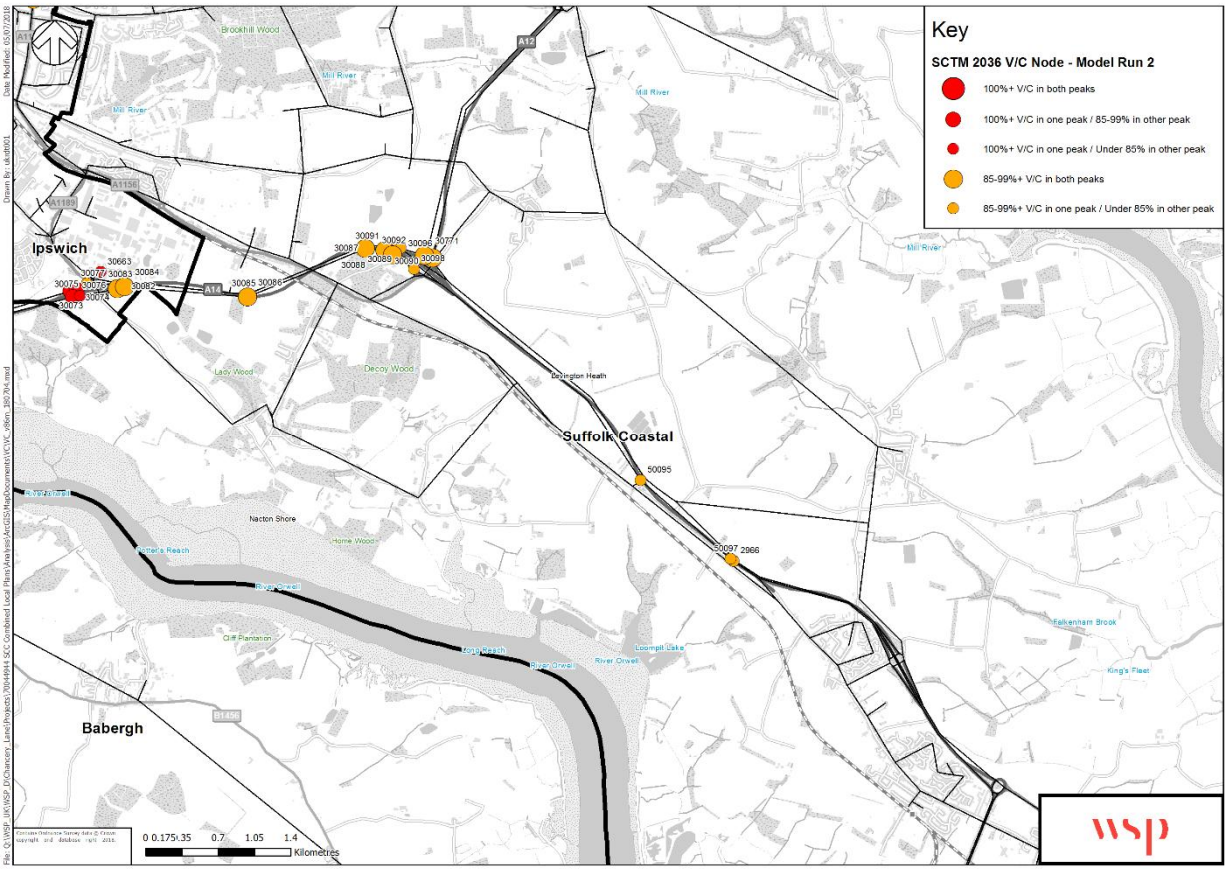


Figure 8 - Suffolk Coastal, Trimley St Mary to Ipswich – MR2, Junctions with Overall V/C over or near capacity

3.3.24. Various sections of the A14 Junction 58 Seven Hills interchange have a V/C above 85%. The following sections of the A14 Junction 58 have a V/C above 85% in both peaks:

- The A14 eastbound left-hand filter lane to the A12 (node 30771)
- The A12 southbound approach (node 30096, signalised). Both joining and circulating movements are near capacity)

3.3.25. The A14 western approach has a V/C over 85% in the PM peak.

3.3.26. The A1156 northbound joining the A14 Junction 58 (node 30098, signalised) has a V/C above 85% in the AM peak. This occurs from blocking back along the A14 towards Ipswich. The blocking back leads to overcapacity for all traffic using the on-slip to the A14 westbound.

3.3.27. The A14 main carriageway has V/C values approaching capacity in both directions between Junction 57 and 58(nodes 30085, 30086).

3.3.28. There are V/C values approaching capacity on the A14 main carriageway eastbound between J59 and J58 (nodes 2966, 50097, 50095) in the AM peak. This starts after the merge from Trimley St Martin.

3.3.29. Model runs 4 and 5 (Figure 9 and Figure 10) show similar junctions near or at capacity to Model Run 2.

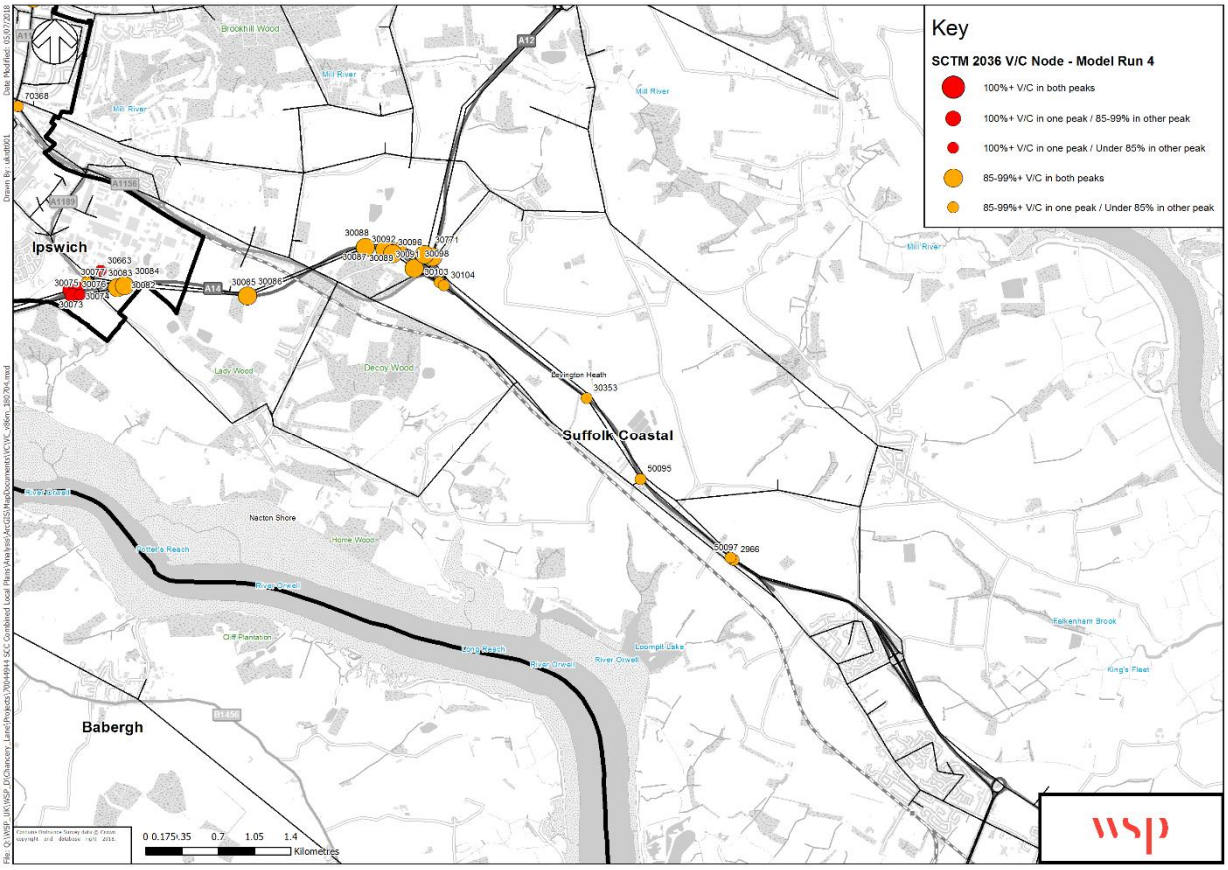


Figure 9 - Suffolk Coastal, Trimley St Mary to Ipswich – MR4, Junctions with Overall V/C over or near capacity

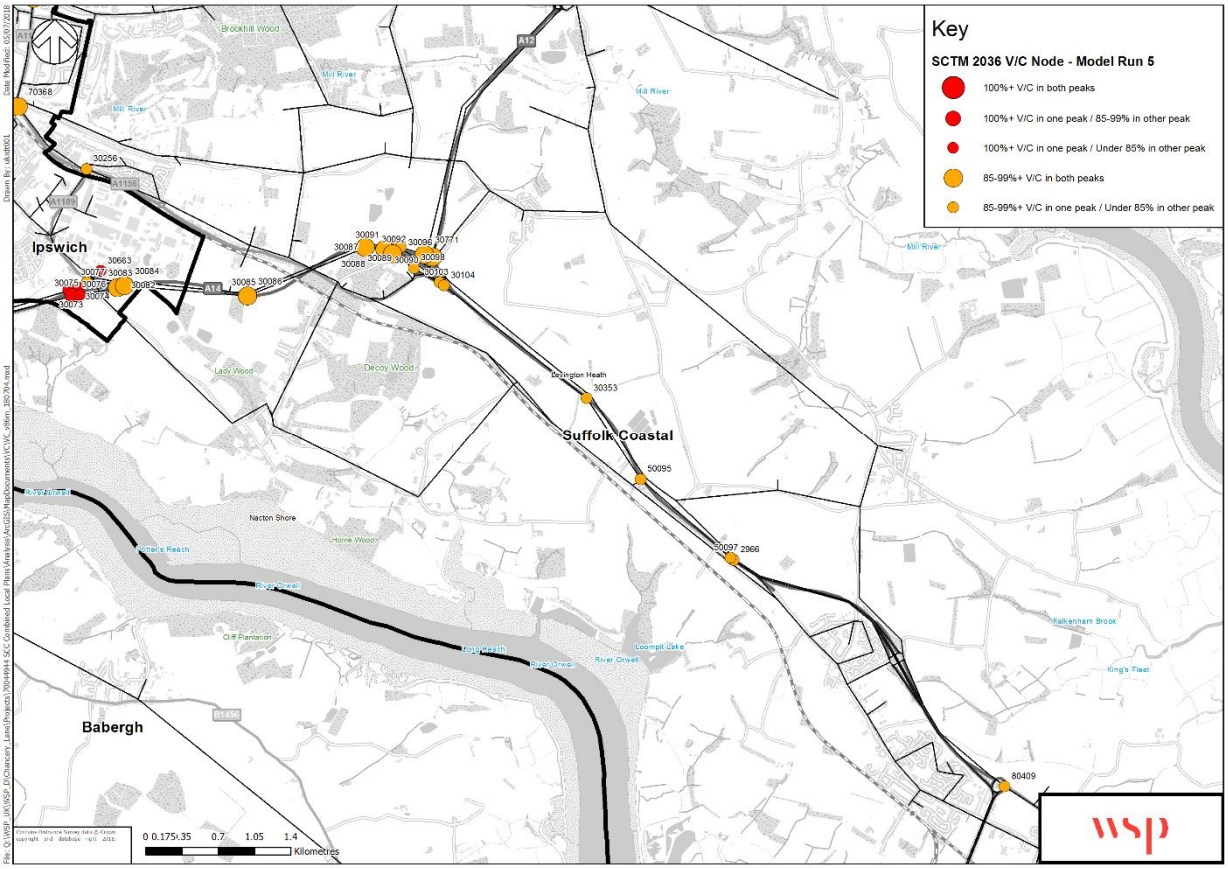


Figure 10 - Suffolk Coastal, Trimley St Mary to Ipswich – MR5, Junctions with Overall V/C over or near capacity

3.3.30. There is a small increase in V/C westbound approaching the A14 J58 in the AM peak, increasing the overall V/C above the 85% threshold at the J58 westbound diverge (node 30103)

3.3.31. The on-slip to the A14 westbound blocks back to the A1156 northbound approach in the PM peak as well as the AM peak in Model Run 4. This leads to overcapacity for all traffic using the on-slip at this junction.

INNOCENCE FARM

3.3.32. Model Runs 4 and 5 tested the inclusion of "Land at Innocence Farm" including 1,081 and 2,162 B8 class jobs respectively. The access for this development was modelled as allowing access directly onto Innocence Lane, equidistant between Brightwell Road and Croft Lane. This resulted in all traffic from the development opting to either use Kirton Road to access the Felixstowe / A14 Junction 59 or travel to Ipswich northbound via Bucklesham Road. Brightwell Road was not included in the model network, and this configuration mean no traffic opted to use the Innocence Lane left-in / left-out access directly onto the A14 between Junctions 58 and 59.

3.3.33. A sensitivity test was carried out including Brightwell Road and setting the access of the development close to junction of Brightwell Road / Innocence Lane. This resultant change in flow resulted in the majority of the development traffic opting to use the left-in / left-out A14 junction, and also lead to traffic re-routing via Brightwell Road rather than passing through Kirton.

3.3.34. This analysis therefore highlights the access arrangements for the Innocence Farm development are key in determining which direction traffic opts to travel in order to access the A14. Further modelling on the impact of this site will be undertaken in the future if required and to consider the access arrangements in more detail.

TRIMLEY ST MARY TO IPSWICH CORRIDOR ANALYSIS SUMMARY

3.3.35. The A14 main carriageway between J57 and J58 has a high V/C in the both peaks.

3.3.36. The A14 main carriageway from J59 to J58 westbound has a high V/C in the AM peak.

3.3.37. The A14 J58 has a high V/C in both peaks at the junctions for traffic on the A14 eastbound using the left turn filter lane to the A12

3.3.38. The A14 J58 has a high V/C in both peaks at the A12 approach to the signalised roundabout. Both the A12 approach and circulating roundabout flow are near capacity.

RURAL AREAS (NORTH OF WOODBRIDGE)

3.3.39. Rural locations in Suffolk Coastal District, north of Woodbridge do not show any junctions which have an overall V/C above 85%. Therefore, this analysis shows that overall, junctions in these areas operate with capacity in the various model runs.

3.4 IPSWICH RESULTS SUMMARY

3.4.1. Figure 11 shows the junctions in Ipswich by V/C type for Model Run 2.

Figure 11 - Ipswich – MR2, Junctions with Overall V/C over or near capacity

3.4.2. The A14 is over or near capacity around Ipswich (from junctions 53 to 58) in both peaks.

IPSWICH URBAN AREA

3.4.3. The A1214 ring road (Valley Road / Colchester Road) is near capacity at numerous junctions in both peaks:

- A1214 Woodbridge Road East / A1189 roundabout (node 30296)
- A1214 Colchester Road / Rushmere Road roundabout (node 20061)
- A1214 Colchester Road / Tuddenham Road roundabout (node 20048)

- A1214 Valley Road / Westerfield Road roundabout (node 20047)
- A1214 Valley Road / Henley Road (node 20044)
- A1214 Valley Road / Dale Hall Lane (node 20043)

3.4.4. There is also congestion on the A1214 in the vicinity of Scrivener Drive roundabout (node 5732).

3.4.5. Junctions on the following arterial routes into Ipswich also experience high V/C values in both peaks:

- Foxhall Road experiences high Overall V/C at Derby Road (node 20077, signalised) and at the A1189 (node 30275, roundabout).
- The A1156 Felixstowe Road experiences high Overall V/C at King's Way (node 30250, signalised) in the PM peak.
- B1067 Bramford Road / Sproughton Road (node 30142, signalised) experiences a high V/C on all approaches.

3.4.6. The Hawes St / Wherstead Road roundabout (node 30217) experiences a V/C at capacity from the Hawes St and The Upper Orwell Crossing (TUOC) approach in both peaks.

3.4.7. The Landseer Road / Clapgate Lane junction has a high V/C on all approaches in both peaks (node 30235, signalised)

3.4.8. St. Helen's St and Upper Orwell St junction (n10048) and Northgate St and Old Foundry Road (node 10067) also have an Overall V/C approaching capacity in the PM peaks.

3.4.9. Given the variation in development inputs in model runs 4 and 5 only occurs in Suffolk Coastal, the results for these model runs are very similar to model run 2 in terms of junctions within Ipswich which show high overall V/C ratios. In model runs 4 and 5, only one further junction is highlighted in Ipswich – the Hawes St / Station St roundabout approach (node 70315).

3.4.10. Additional housing at Rushmere has been included as part of the Scenario A - Model Run 4 (250 dwellings) and Scenario B - Model Run 5 (60 dwellings) within Suffolk Coastal. In addition to this, 375 dwellings have been modelled in Ipswich included within Model Runs 2, 4 and 5 as part of the North East Ipswich broad area (see figures in Appendix B for these locations). The additional dwellings added within the Suffolk Coastal scenarios do not result in a significant change, in percentage terms, in terms of the conclusions regarding which junctions show capacity issues in this area along A1214 Colchester Road and Humber Doucy Lane, although junctions in this area are already experiencing capacity issues. The following junctions are shown to be approaching capacity in Model Runs 2, 4 and 5:

- A1214 Colchester Road / A1189 Heath Road: 86-87% V/C in the AM peak, 84-86% in the PM peak
- A1214 Colchester Road / Rushmere Road: 86-89% V/C in the AM peak, 91-93% in the PM peak

3.4.11. The additional SCDC Scenario dwellings in Rushmere within Model Runs 4 and 5, lead to an increase in the overall V/C at these junctions of 1-3%.

A14 CORRIDOR (JUNCTIONS 53 TO 57)

3.4.12. The A14 shows capacity issues at all junctions surrounding Ipswich. The main carriageway between Junction 55 (Copdock Interchange) and Junction 57 (Nacton Interchange) is close to or over capacity.

3.4.13. The A14 eastbound from J54 to J57 in the AM peak is over capacity along its entirety. The A14 westbound from J57 to J56 in the PM peak is at capacity.

3.4.14. The A14 Nacton Interchange (J57) off-slip diverges are near or at capacity. The off-slip eastbound is at capacity in the AM peak, the westbound on-slip is over capacity in the PM peak

3.4.15. The A14 Wherstead Interchange (J56) off-slip diverges are at or near capacity. The eastbound off-slip is at capacity in the AM peak, the westbound off-slip is at capacity in the PM peak. The eastbound on-slip is over capacity in the AM peak

3.4.16. The A14 Copdock Interchange (J55) off-slip diverges are at capacity. This is of particular issue for the westbound off-slip where there is blocking back to the A14 from the signals between the westbound off-slip and circulatory traffic. The eastbound on-slip merge is over capacity in the AM peak.

3.4.17. The A12 approach to the A14 (J55) Copdock Interchange signalised roundabout is significantly over capacity in both peaks (125+ V/C). These results show the level of delays at this approach would be considerable

3.4.18. At the A14 Sproughton Road (J54). The on-slip merge southbound is nearing capacity in both peaks.

At the A14 Claydon Interchange (J54), the on-slip merge southbound is nearing capacity in both peaks.

IPSWICH JUNCTION ANALYSIS SUMMARY

3.4.19. The A14 junctions around Ipswich all show capacity problems. This is most severe for Copdock (J55), Wherstead (J56) and Nacton (J57) interchanges. The main carriageway shows high levels of stress between Junction 55 and Junction 57 in both directions, including being over capacity in certain sections.

3.4.20. The A1214 experiences V/C levels near capacity primarily at key roundabouts and signals. The high V/C values are experienced for the majority of the A1214 ring road (Valley Road, Colchester Road) from the Dale Hall Lane priority junction to the A1189 Heath Road roundabout.

3.4.21. The A1214 also experiences high V/C values in the vicinity of the Scrivener Drive roundabout.

3.4.22. The further junctions (at roundabouts and signals) that have V/C levels near capacity are mainly situated on the arterial roads into Ipswich. The arterial roads primarily affected are Foxhall Road and Felixstowe Road.

3.5 A14 CORRIDOR RESULTS SUMMARY

3.5.1. The modelling in this report highlights multiple sections of the A14 between Junction 53 – Bury Road and Junction 59 – Trimley St Martin have congestion issues. In particular, the following junctions are shown to be over capacity (V/C 100%+) at specific approaches or associated slip roads:

- A14 Junction 54 – Sproughton Road
- A14 Junction 55 – Copdock Interchange; multiple parts of the junction
- A14 Junction 56 – Wherstead; multiple parts of the junction
- A14 Junction 57 – Nacton; multiple parts of the junction

3.5.2. The A14 main carriageway in both eastbound and westbound directions is shown to be over capacity (V/C 100%+) between Junction 56 (Wherstead) and Junction 57 (Nacton). The A14 main carriageway eastbound is also over capacity (V/C 100%+) between Junction 55 (Copdock) and Junction 56 (Wherstead).

3.5.3. The following A14 junctions are shown to have V/C values at certain locations which are approaching capacity (V/C 85-99%):

- A14 Junction 53 – Bury Road
- A14 Junction 58 – Seven Hills interchange

3.5.4. The A14 main carriageway is shown to be approaching capacity (V/C 85-99%) in both directions between Junction 57 (Nacton) and Junction 59 (Trimley St. Martin), as well as westbound between Junction 56 (Wherstead) and Junction 55 (Copdock).

3.5.5. It is considered viable improvements to the A14 will be identified by Highways England as part of their Road Investment Strategy 2 (RIS2). The impact of specific developments on the A14 corridor will be determined during the planning applications for the respective developments with contributions sought from developers where it can be determined the development has a significant impact on the A14.

3.5.6. It is assumed there will be local highway solutions within all of the districts which will ease congestion and could reduce the reliance of traffic to use the A14 as their main strategic route. It is also assumed non-highway based options, such as encouraging people to use more sustainable modes of transport can be undertaken to further ease congestion.

3.5.7. The results of the Local Plan modelling show it is key that mitigation is provided to ease congestion on the A14 in the future. Without these improvements, congestion on the A14 will act as a constraint on the ability of all local authorities to be able to deliver the level of housing and job growth included within their respective Local Plans, depending on the scale and location of this growth**.** It is concluded based on the initial modelling the A14 within Suffolk can accommodate the proposed housing and job growth detailed within the Local Plan provided appropriate solutions are identified and delivered.

4

CONCLUSIONS

4 CONCLUSIONS

4.1 INTRODUCTION

4.1.1. WSP have been commissioned to undertake an assessment of the emerging Local Plan for various Local Plans within Suffolk. The focus of this report is on the modelling results related to the following LPAs:

- Ipswich Borough Council (IBC)
- Suffolk Coastal District Council (SCDC)

4.1.2. The SATURN based Highway Assignment Model (HAM) within the Suffolk County Transport Model (SCTM) has been used to assess the forecast growth in housing and jobs. The SCTM has been updated and validated for a base year of 2016 to ensure it provides a suitable basis from which to generate 2036 traffic forecasts.

4.2 MODEL RUNS AND REPORTING

4.2.1. The following forecast model runs have been considered:

- Model Run 2 - to test a core set of development assumptions in Suffolk Coastal and Ipswich
- Model Run 4 - to test a scenario of additional development beyond the core assumptions in Suffolk Coastal
- Model Run 5 - to test a further alternative scenario of additional development beyond the core assumptions in Suffolk Coastal

4.2.2. The underlying methodology which was used to produce the forecast model runs discussed in this report is detailed within the following report:

- MR1 SCTM Methodology Report v1 (July 2018)

4.3 SUFFOLK COASTAL MODELLING RESULTS

4.3.1. The main locations under stress within Suffolk Coastal are the A14 and the A12. The strategic routes show junctions with V/C issues as a result of the cumulative impact of the traffic growth associated with all of the LPAs.

4.3.2. The A14 main carriageway between J57 and J58 has a high V/C in both peaks, and the A14 from J59 to J58 westbound has a high V/C in the AM peak.

4.3.3. The A12 roundabouts (with the B1079 and A1152 respectively) at Woodbridge also have a high V/C in both peaks.

4.3.4. The A14 J58 has a high V/C for most approaches. This is particularly true for traffic from the A14 eastbound using the filter lane to the A12, the A12 southbound approach, and circulating traffic on the roundabout.

4.3.5. The difference in junctions which shows stress in terms of their overall V/C in Model Runs 4 and 5 compared to Model Run 2 highlights the inclusion of the additional allocations north of Felixstowe, south of Saxmundham and at Innocence Farm do not have a significant impact in terms of overall junction V/C beyond Suffolk Coastal.

4.4 IPSWICH MODELLING RESULTS

4.4.1. The A1214 experiences V/C levels near capacity primarily at key roundabouts and signals. The high V/C values are experienced for the majority of the A1214 ring road (Valley Road, Colchester Road) from the Dale Hall Lane priority junction to the A1189 Heath Road roundabout.

4.4.2. The further junctions (at roundabouts and signals) that have V/C levels near capacity are mainly situated on the arterial roads into Ipswich. The arterial roads primarily affected are Foxhall Road and Felixstowe Road.

4.4.3. The Landseer Road / Clapgate Lane junction has a high V/C on all approaches in both peaks (node 30235, signalised)

4.4.4. St. Helen's St and Upper Orwell St junction (node 10048) and Northgate St and Old Foundry Road (node 10067) also have an Overall V/C approaching capacity in the PM peaks.

4.5 A14 CORRIDOR MODELLING RESULTS

4.5.1. The A14 shows sustained capacity issues between Junctions 53 and 58, impacting most off-slips and on-slips, but also the main carriageway between Junctions 55 (Copdock) and 57 (Nacton).

4.5.2. The A14 eastbound from J54 to J57 in the AM peak is at capacity along its entirety and the A14 westbound from J57 to J56 in the PM peak is at capacity.

4.5.3. The worst impacted slips are at Copdock roundabout where there is blocking back westbound back onto the A14. The A12 approach to the Copdock roundabout also has a very high V/C value in both peaks. This roundabout already experiences significant congestions and an additional level of grade separation is being considered by Highways England as part of RIS2.

4.5.4. It is considered viable improvements to the A14 around Ipswich will be identified by Highways England as part of RIS2 and a package of potential measures has been submitted by SCC to them for appraisal. The impact of specific developments on A14 corridor will be determined during the planning application for the respective developments with contributions sought from developers where it can be determined the development has a significant impact on the A14.

4.5.5. It is key that mitigation measures are provided to ease congestion on the A14 in the future. It is concluded the A14 within Suffolk can accommodate the proposed housing and job growth detailed within the respective Local Plans provided appropriate solutions are identified and delivered.

4.6 SUMMARY

4.6.1. The modelling detailed within this report is considered to be a robust basis which enables each of the LPAs to be able to test the transport impacts of the proposed housing and job growth within their respective Local Plans.

4.6.2. The SCTM will be updated in future with the local plan assumptions for neighbouring authorities.

4.6.3. It is therefore recommended that this assessment is updated, including to incorporate any assessments that have been carried out for neighbouring authorities, and that mitigation proposals identified in the studies are included to confirm the extent of any mitigation required. The impact of specific local plan allocations will be assessed within the model to identify those areas of mitigation that will be required by developers, to mitigate impacts.

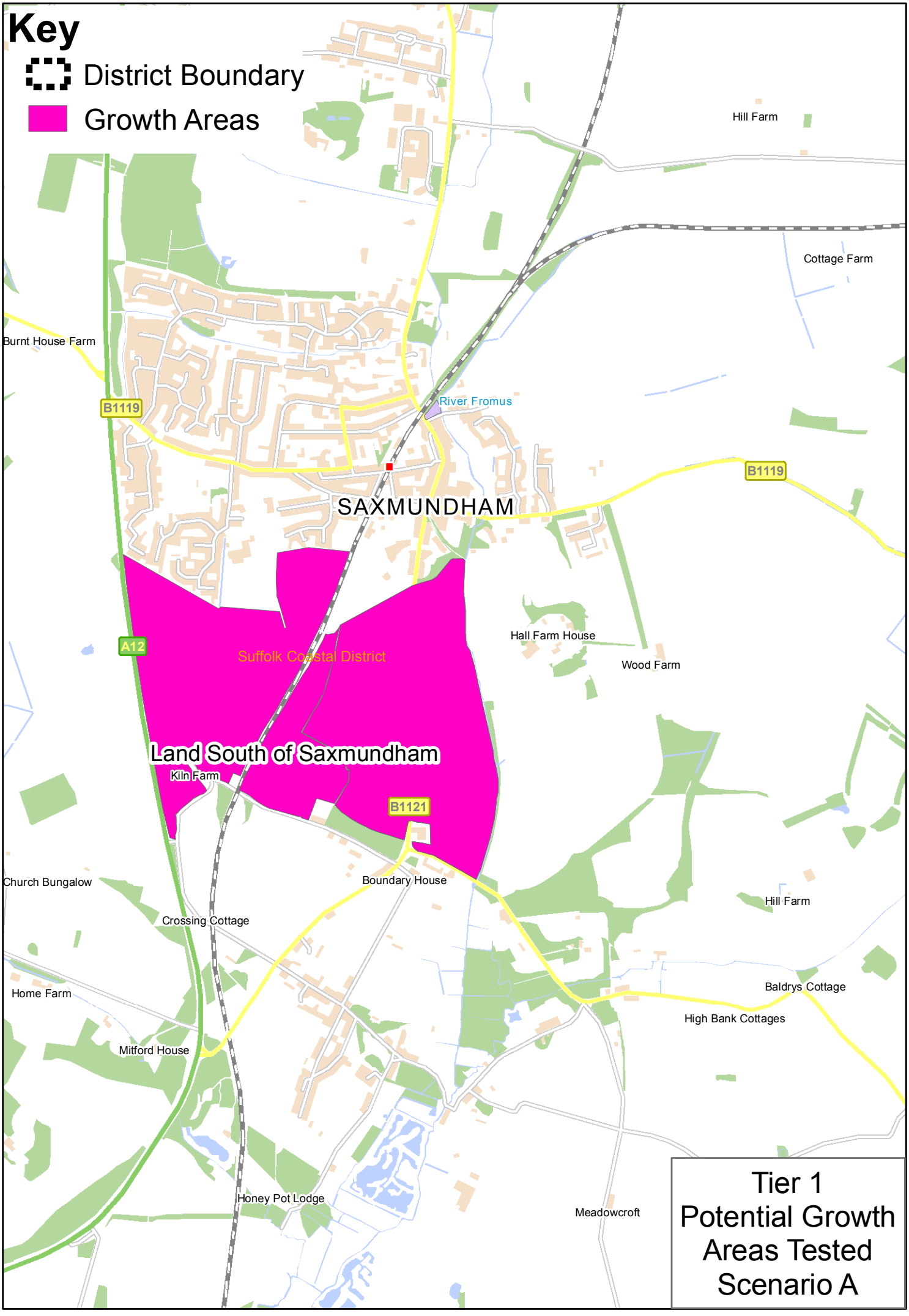
Appendix A

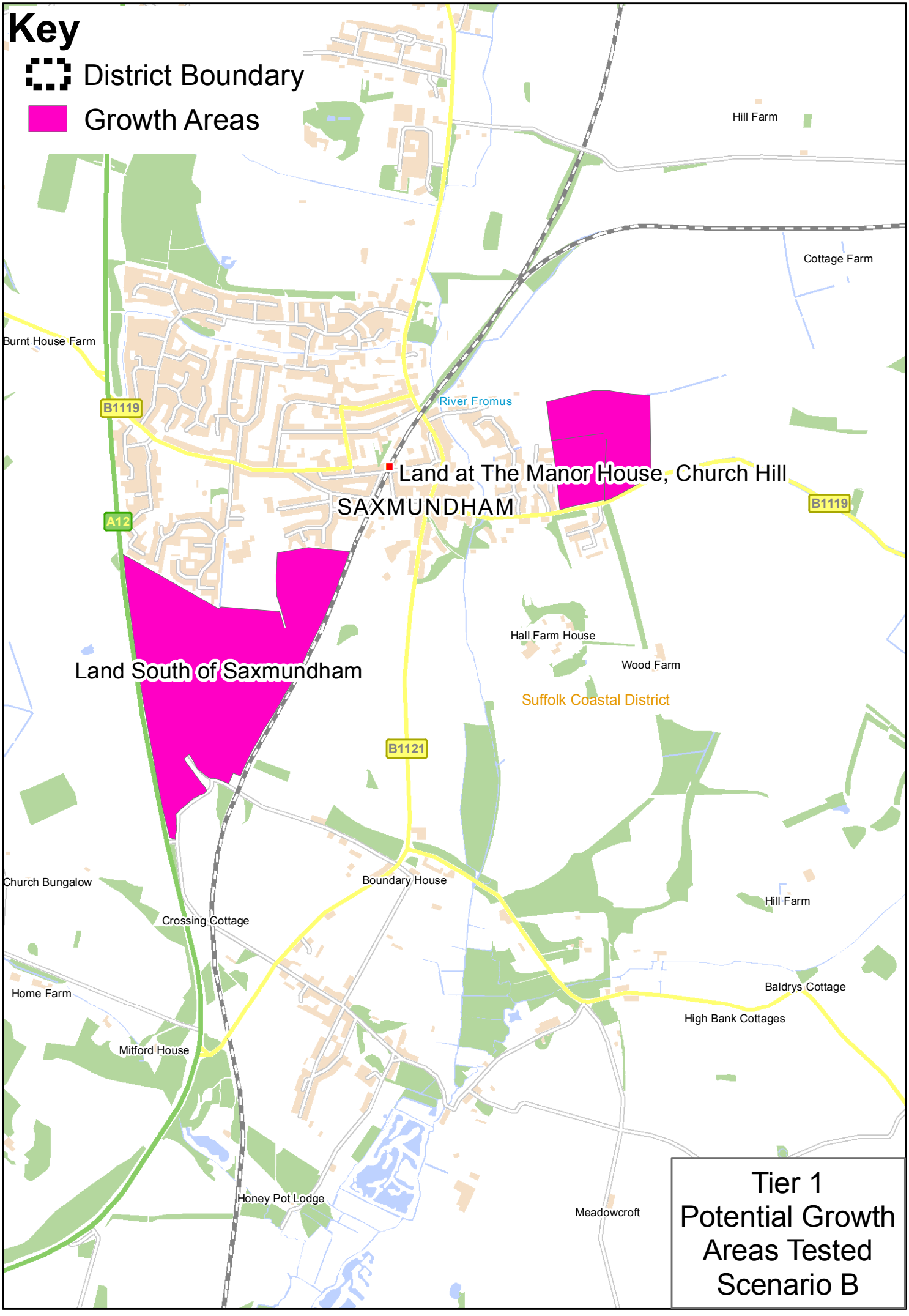
V/C SUMMARY TABLES

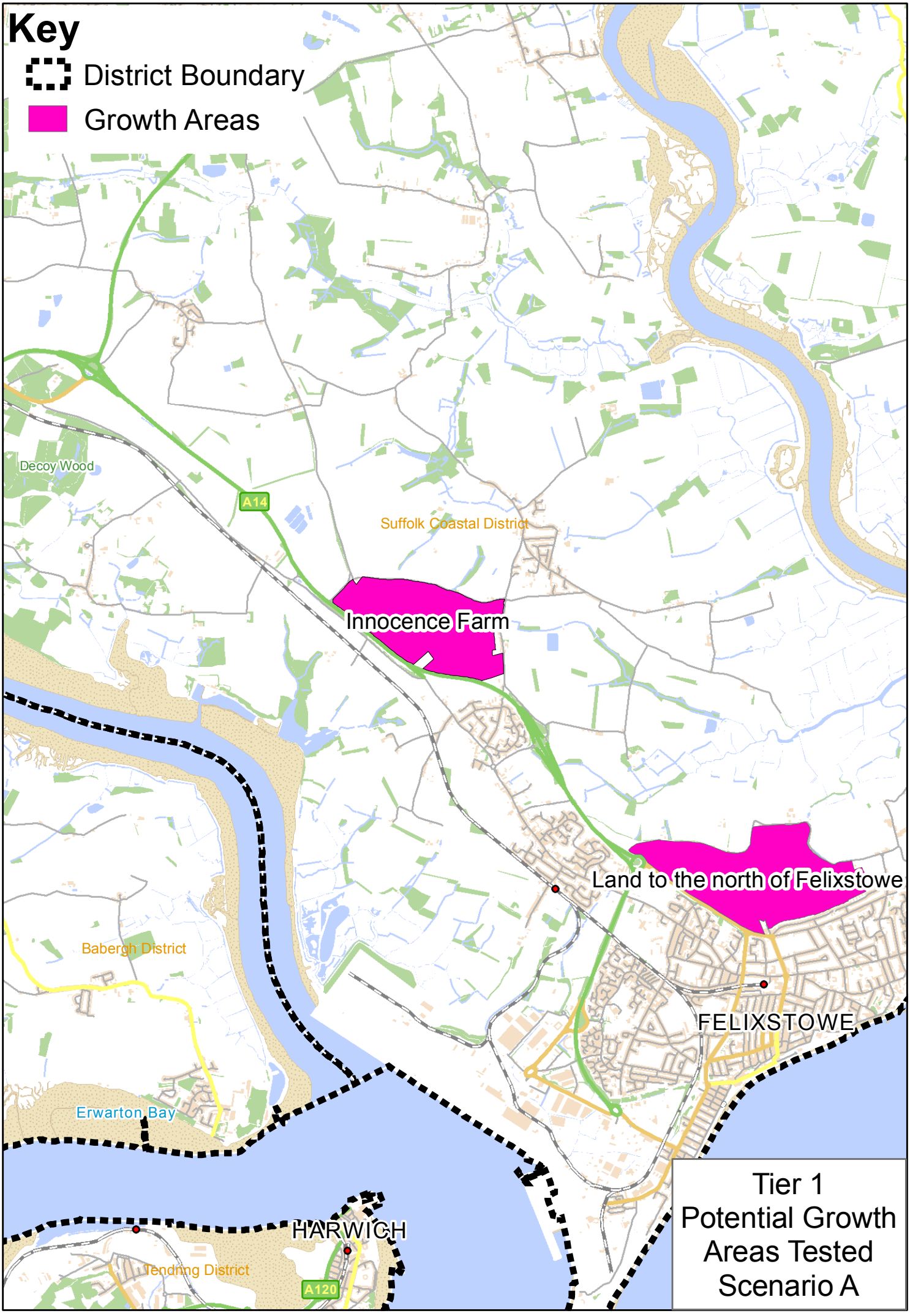
	Model Run 2		Model Run 3		Model Run 4		Model Run 5			
Node	AM V/C (%)	PM V/C (%)	AM V/C (%)	PM V/C (%)	AM V/C (%)	PM V/C (%)	AM V/C (%)	PM V/C (%)	Description	LPA
2966	87	72	90	68	89	76	91	76	A14 westbound (north of Trimley St Martin)	Suffolk Coastal
3158	89	93	90	89	91	95	91	94	A12 / Woods Lane	Suffolk Coastal
5732	94	113	102	106	96	114	96	114	A1214 SB (south of Scrivener Drive Roundabout	Babergh
10010	60	100	101	42	60	100	61	101	A1022 College St / Bridge St (by St Peter's)	Ipswich
10048	72	85	80	73	73	88	75	89	Upper Orwell Street / Old Foundry Road / St Helen's Street	Ipswich
10061	87	74	92	62	88	76	90	77	Grimwade Street / Fore Street 2	Ipswich
20043	81	95	84	88	83	94	83	94	Dale Hall Ln / A1214	Ipswich
20044	92	80	97	77	96	91	96	91	A1214 / Henley Road	Ipswich
20047	95	95	95	77	96	96	95	96	A1214 / B1077	Ipswich
20048	96	91	99	93	98	93	98	93	A1214 / Tuddenham Road	Ipswich
20061	86	91	86	90	87	93	89	91	Rushmere Road / Colchester Road	Ipswich
20077	85	87	93	77	86	89	87	92	Caudwell Hall Rd / Foxhall Rd	Ipswich
30004	86	85	86	86	86	85	86	85	A14 SB / Offslip Junction 53	Ipswich
30013	85	84	85	78	87	84	88	84	A1156 / A14	Ipswich
30031	77	85	62	87	73	82	72	81	A14 northbound (south of J54)	Babergh
30032	82	85	87	82	84	86	87	86	A14 / Sproughton Road - SB Merge	Babergh
30033	106	109	109	105	108	109	110	110	A14 SB - Mid Junction 54	Babergh
30034	100	100	100	100	100	100	100	100	A14 SB - South of Junction 54	Babergh
30035	77	85	62	87	73	82	72	81	A14 northbound (between J54-55)	Babergh
30036	100	100	100	100	100	100	100	100	A14 SB - South of Junction 54 / North of Copdock	Babergh
30037	77	85	62	87	73	82	72	81	A14 northbound (between J54-55)	Babergh
30038	100	100	100	100	100	100	100	100	A14 SB - South of Junction 54 / North of Copdock	Babergh
30039	100	100	100	100	100	100	100	100	A14 SB - Offslip Copdock	Babergh
30040	77	85	62	87	73	82	72	81	A14 northbound (north of J55)	Babergh
30049	102	83	102	80	102	82	102	83	A14 / A12 (Copdock) - Eastbound Merge	Babergh
30050	100	89	100	87	100	88	100	89	A14 SB - East of Copdock	Babergh
30051	86	104	113	96	103	107	105	108	A14 NB / Offslip Copdock	Babergh
30052	86	97	92	96	86	95	86	95	A14 NB East of Copdock	Babergh
30053	100	89	100	87	100	88	100	89	A14 SB - East of Copdock	Babergh
30054	86	97	92	96	86	95	86	95	A14 NB - East of Copdock	Babergh
30055	100	89	100	87	100	88	100	89	A14 SB - East of Copdock	Babergh
30056	86	97	92	96	86	95	86	95	A14 NB - East of Copdock	Babergh
30057	100	89	100	87	100	88	100	89	A14 SB - East of Copdock / West of Junction 56	Babergh
30058	100	89	100	87	100	88	100	89	A14 SB - Offslip Junction 56	Babergh
30059	86	97	92	96	86	95	86	95	A14 NB - West of Junction 56	Babergh
30060	73	86	81	85	73	85	74	84	A14 / A137 - Westbound Merge	Babergh
30063	102	78	103	77	103	76	103	76	A14 / A137 - Eastbound Merge	Babergh
30064	89	100	100	100	90	100	91	100	A14 NB - Offslip Junction 56	Babergh
30065	100	90	100	88	100	88	100	88	A14 SB - East of Junction 56	Babergh
30066	89	100	100	100	90	100	91	100	A14 NB - East of Junction 56	Babergh
30067	100	90	100	88	100	88	100	88	A14 SB - East of Junction 56	Babergh
30068	89	100	100	100	90	100	91	100	A14 NB - East of Junction 56	Babergh
30069	100	90	100	88	100	88	100	88	A14 SB - East of Junction 56	Ipswich
30070	89	100	100	100	90	100	91	100	A14 NB - East of Junction 56	Ipswich
30071	100	90	100	88	100	88	100	88	A14 SB - East of Junction 56	Ipswich
30072	89	100	100	100	90	100	91	100	A14 NB - East of Junction 56	Suffolk Coastal
30073	100	90	100	88	100	88	100	88	A14 SB - East of Junction 56	Ipswich
30074	100	90	100	88	100	88	100	88	A14 SB / Junction 57 Offslip	Ipswich
30075	89	100	100	100	90	100	91	100	A14 NB West of Junction 57	Ipswich
30076	77	103	100	93	78	103	79	104	A14 / A1189 - Westbound Merge	Ipswich
30077	95	46	91	51	95	44	93	42	A14 / A1189 - A14 offslip eastbound before roundabout	Ipswich
30082	73	87	70	81	73	89	73	92	A14 eastbound (east of J57)	Ipswich
30083	95	88	100	76	96	90	97	93	A14 westbound (J57, offslip diverge)	Ipswich
30084	94	87	100	76	96	90	97	92	A14 westbound (east of J57)	Ipswich
30085	68	90	69	80	69	91	69	96	A14 eastbound (between J57-58)	Suffolk Coastal
30086	95	88	100	76	96	90	97	93	A14 westbound (between J57-58)	Suffolk Coastal
30087	69	91	70	81	69	92	70	97	A14 eastbound (between J57-58)	Suffolk Coastal
30088	95	88	100	76	96	90	97	93	A14 westbound (between J57-58)	Suffolk Coastal
30089	69	91	70	81	69	92	70	97	A14 eastbound (between J57-58)	Suffolk Coastal
30090	69	91	70	81	69	92	70	97	A14 eastbound (J58 offslip diverge)	Suffolk Coastal
30091	95	88	100	76	96	90	97	93	A14 westbound (between J57-58)	Suffolk Coastal
30092	96	89	100	71	98	92	99	94	A14 A1156 junction - A14 wb on slip	Suffolk Coastal
30096	93	87	94	76	93	87	97	87	A12 / A14 Junction 58	Suffolk Coastal
30098	95	86	73	63	95	92	77	97	A14 / A12 - A1156 Entry	Suffolk Coastal
30142	79	89	86	85	81	91	83	91	B1067 / Sproughton Road	Ipswich
30217	92	91	89	81	92	92	91	93	Wherstead Road / Hawes Street / Virginia Street Roundabout	Ipswich
30224	64	102	103	88	76	104	85	104	Buck's Horns Lane	Babergh
30225	74	105	115	94	89	107	98	107	Buck's Horns Lane/Church Lane	Babergh
30235	94	86	94	66	95	87	97	89	Clapgate Lane/Landseer Road	Ipswich
30250	84	91	92	80	90	92	92	94	Felixstowe Road/King's Way/Cobham Road	Ipswich
30275	94	91	94	89	94	92	95	94	Heath Road / Foxhall Road	Ipswich
30278	73	87	71	75	72	87	73	89	Foxhall Road / Bell Lane	Suffolk Coastal
30296	86	85	86	84	86	85	87	86	A1214 / A1189	Ipswich
30663	116	40	108	42	115	40	111	40	The Havens (node)	Ipswich
30771	89	98	82	85	89	96	90	97	A14 / A12 onslip Junction 58	Suffolk Coastal
30797	103	92	101	92	108	95	109	96	Copdock Southern Side Circulatory	Babergh
30798	78	94	82	93	79	95	79	94	A12 / A14 Junction - A12 Northbound Offslip	Babergh
50034	105	104	109	98	106	105	105	106	B1113 / A1071	Babergh
50053	98	100	100	96	100	101	100	101	A12 / Grundisburgh Road	Suffolk Coastal
50095	86	70	89	66	89	75	90	76	A14 westbound (slips to/from Levington)	Suffolk Coastal
50097	87	72	90	68	89	76	91	76	A14 westbound (north of Trimley St Martin)	Suffolk Coastal
3153	78	74	86	63	80	78	81	78	B1079 Church Road / B1078 Swilland Road	Suffolk Coastal
10018	83	84	90	64	83	86	86	87	Star Lane A1156 / Grimwade Street	Ipswich
30135	79	74	92	67	86	78	88	78	B1113 / Lower Street / High Street	Babergh
30796	79	67	89	70	81	68	81	68	A14 / A12 (Copdock) - A14 WB Slip Node	Babergh
70043	79	70	88	58	81	71	81	70	Station Road / Wherstead Road	Ipswich
70368	84	81	87	75	88	85	90	88	A1156 Felixstowe Road (south of A1156 Felixstowe Road / A1189 Bixley Road	Ipswich
2866	58	81	54	79	60	90	66	101	Langer Road / Beach Station Road - Felixstowe	Suffolk Coastal
10067	7	14	7	14	7	98	7	99	Northgate Street / Old Foundry Road	Ipswich
30062	83	83	78	78	83	86	82	87	A137 / A14	Babergh
30103	80	71	84	65	86	76	88	77	A14 westbound (J58, offslip diverge)	Suffolk Coastal
30104	80	71	84	65	86	76	88	77	A14 westbound (east of J58)	Suffolk Coastal
30150	75	81	79	79	75	90	75	91	A1071 / Hadleigh Road	Babergh
30353	80	71	84	65	86	76	88	77	A14 westbound (east of J58)	Suffolk Coastal
70315	84	77	83	74	85	78	84	77	Hawes Street Ped Crossing	Ipswich
30256	78	65	82	64	83	68	90	74	Felixstowe Road / Ransomes Way	Suffolk Coastal
50107	71	85	71	82	69	85	69	86	B1438 Ipswich Road / Top Street Roundabout	Suffolk Coastal
80409	71	68	73	62	66	64	79	91	Dock Spur Roundabout (A154 approach/exit)	Suffolk Coastal

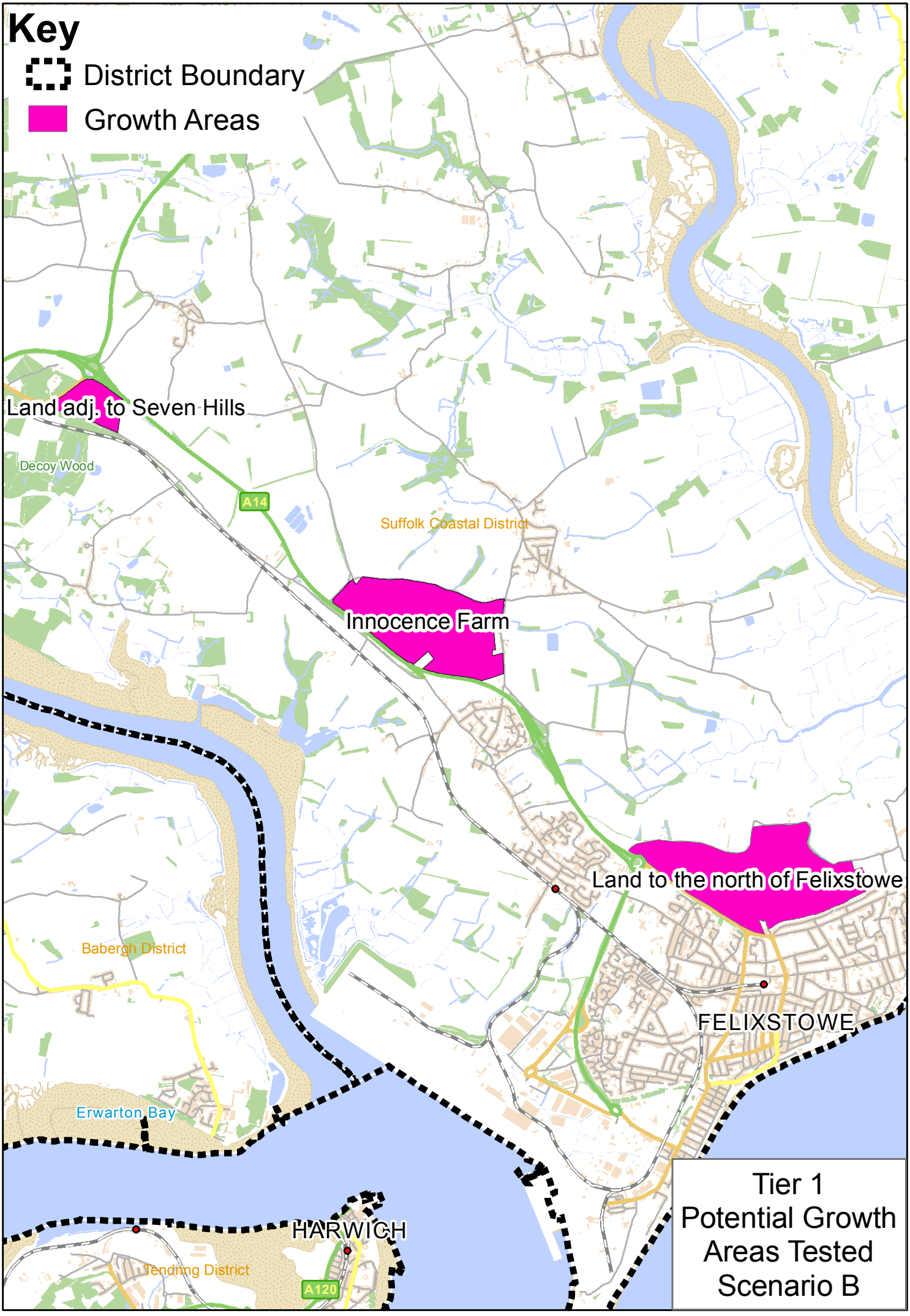
Appendix B

SCDC GROWTH AREAS & IBC BROAD AREAS


Key
District Boundary
Growth Areas
Hill Farm
Cottage Farm
Burnt House Farm
B1119
River Fromus
B1119
SAXMUNDHAM
A12
Suffolk Coastal District
Hall Farm House
Wood Farm
Land South of Saxmundham
Kiln Farm
B1121
Church Bungalow
Boundary House
Hill Farm
Crossing Cottage
Home Farm
Baldrys Cottage
High Bank Cottages
Mitford House
Honey Pot Lodge
Meadowcroft
Tier 1
Potential Growth
Areas Tested
Scenario A


Key
District Boundary
Growth Areas
Hill Farm
Cottage Farm
Burnt House Farm
B1119
River Fromus
Land at The Manor House, Church Hill
SAXMUNDHAM
B1119
A12
Land South of Saxmundham
Hall Farm House
Wood Farm
Suffolk Coastal District
B1121
Church Bungalow
Boundary House
Hill Farm
Crossing Cottage
Home Farm
Baldrys Cottage
High Bank Cottages
Mitford House
Honey Pot Lodge
Meadowcroft
Tier 1
Potential Growth
Areas Tested
Scenario B


Key
District Boundary
Growth Areas
Decoy Wood
A14
Suffolk Coastal District
Innocence Farm
Land to the north of Felixstowe
Babergh District
FELIXSTOWE
Erwarton Bay
HARWICH
Tendring District
A120
Tier 1
Potential Growth
Areas Tested
Scenario A


Key
District Boundary
Growth Areas
Land adj. to Seven Hills
Decoy Wood
A14
Suffolk Coastal District
Innocence Farm
Land to the north of Felixstowe
Babergh District
FELIXSTOWE
Erwarton Bay
HARWICH
Tendring District
A120
Tier 1
Potential Growth
Areas Tested
Scenario B

Key

District Boundary

Potential Growth Scenario

Blythburgh
25 dwellings

Blythburgh
25 dwellings

Darsham and Yoxford
100 dwellings

Kelsale
50 dwellings

Framlingham
25 dwellings

Framlingham
25 dwellings

Leiston
25 dwellings

Benhall
50 dwellings

Leiston
25 dwellings

Aldeburgh
20 dwellings

Wickham Market
150 dwellings

Rushmere
150 dwellings

Rushmere
100 dwellings

Trimley
150 dwellings

Trimley
250 dwellings

Felixstowe
150 dwellings

Tier 2
Potential Growth Scenarios for Testing
Scenario A

Key

- District Boundary
- Potential Growth Scenario
- IBC Broad Areas

North West Ipswich broad area 268 dwellings

North West Ipswich broad area 150 dwellings

North East Ipswich broad area 375 dwellings

Rushmere 150 dwellings

Rushmere 100 dwellings

South East Ipswich broad area 500 dwellings

Mid Suffolk District

Suffolk Coastal District

Ipswich District (B)

Babergh District

Tier 2 Potential Growth Scenarios for Testing Scenario A

Key

District Boundary

Potential Growth Scenario

Blythburgh
50 dwellings

Blythburgh
50 dwellings

Darsham and Yoxford
150 dwellings

Kelsale
100 dwellings

Framlingham
25 dwellings

Framlingham
25 dwellings

Leiston
25 dwellings

Benhall
100 dwellings

Leiston
25 dwellings

Aldeburgh
20 dwellings

Wickham Market
200 dwellings

Rushmere
20 dwellings

Rushmere
20 dwellings

Kesgrave
20 dwellings

Rushmere
20 dwellings

Tier 2
Potential Growth Scenarios for Testing
Scenario B

Key

- District Boundary
- Potential Growth Scenario
- IBC Broad Areas

North West Ipswich broad area 268 dwellings

North West Ipswich broad area 150 dwellings

North East Ipswich broad area 375 dwellings

Rushmere 20 dwellings

Rushmere 20 dwellings

Rushmere 20 dwellings

South East Ipswich broad area 500 dwellings

Tier 2 Potential Growth Scenarios for Testing Scenario B

WSP House
70 Chancery Lane
London
WC2A 1AF

wsp.com