

A Study of the Relationship between Transport and Development in the London Stansted, Cambridge, Peterborough Growth Area





Office of the
Deputy Prime Minister

Creating sustainable communities

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August 2004

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Office of the Deputy Prime Minister: London

The findings and recommendations in this report are those of the consultant authors and do not necessarily represent the views or proposed policies of the Office of the Deputy Prime Minister.

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CHAPTER 1

Introduction

1.1 Aims and objectives of the study

1.1.1 The aim of the study as originally conceived was to provide Government with an initial strategic view of alternative development options for delivering the objectives of growth in the London – Stansted – Cambridge – Peterborough area to 2021, and their implications for transport and other infrastructure. This initiative is part of the aspirations of the Sustainable Communities Plan to deliver 200,000 additional homes in London and the four housing growth areas of Ashford, Milton Keynes South Midlands, Thames Gateway and London–Stansted–Cambridge–Peterborough (LSCP).

1.1.2 The objectives of the study were defined as follows:

- To provide a strategic overarching assessment of the opportunities for high density urban development and major growth in the LSCP growth area, its relationship with the south east economy, and its potential contribution to regional growth;
- To provide an independent assessment of the optimum locations, timing, and volume of growth to contribute to Communities Plan policy goals, taking account of transport capacity, development options, sustainable development and private investment potential. The study was required to identify a range of different options for delivering growth based on existing, and if appropriate, new urban areas. It was also required to review the options for establishing major new centres outside London with the potential to become economically self sustaining;
- To build on existing studies of the major potential housing and employment development locations across the LSCP study area;
- To assess the relationship between transport and development enabling a comparative analysis of potential development options by scale and significance of any consequential transport problems; and
- To address the realism of economic growth projections, to establish whether the private sector believes it can deliver and sell houses in the locations and on the timescale envisaged, and to establish the links between housing growth and the availability of local employment.

1.1.3 The study was required to take into account the sustainable development objectives of the LSCP growth area, namely:

- To support the region's own economic growth and contribute to the wider objectives of the sustainable communities plan;

- To regenerate the more deprived parts of the sub-region;
- To create high quality, high density sustainable communities which minimise adverse environmental impacts; and
- To maximise the public transport modal share, minimising unsustainable long distance commuting and the use of strategic road and rail links by local traffic.

- 1.1.4 The study was set up as the draft Regional Planning Guidance (RPG14) for the East of England was being finalised. In January 2004, the Minister for Regeneration and Regional Development wrote to the Regional Planning Panel indicating the level of growth that he would expect to be achieved within the LSCP growth area by 2016 and 2021. He indicated that the Regional Planning Panel should be looking for between 35,000 and 40,000 dwellings above current RPG levels by 2016. This meant that the targets set by the Minister would require between 16,500 and 23,200 additional dwellings by 2021 over the targets in the draft RPG14. This was rationalised in the study to a further 18,000 dwellings by 2021. A draft of RPG14 was agreed by EERRA in February 2004, but was 'banked' pending the outcome of the further work to consider how the additional 18,000 dwellings might be accommodated. The influence on the study was to focus greater attention on meeting this revised target.
- 1.1.5 As the study has evolved, and with the increasing guidance that was forthcoming from EERRA, the Counties and Peterborough Unitary Authority (UA), so the significance of the study as an input to strategic policy making (i.e. the further consideration of RPG14) became more apparent. One issue that has been raised is the lack of any sustainability appraisal as part of this study in line with the appraisal that was conducted on the banked RPG14. However the policies that form the RPG will be subject to a sustainability appraisal (as part of a Strategic Environmental Appraisal) and their development will be informed not only by this study but also other studies which pertain to the LSCP growth area and the region as a whole. It should be noted that despite no formal sustainability appraisal for this study, sustainability has been an important element in looking at the constraints and the development of spatial options.

1.2 Conduct of the study

- 1.2.1 Progress of the study was overseen by a Technical Steering Group which was comprised of representatives of ODPM, DfT, GO-East, EERRA, EEDA, the Counties of Essex, Hertfordshire and Cambridgeshire, and the City of Peterborough. This group met six times throughout the study providing commentary on the technical output and guidance on the future conduct of the study.
- 1.2.2 In addition, a Stakeholder Group was convened from representatives of the constituent District Councils. This met three times. Individual District Councils were given the opportunity to comment on the detailed assumptions on the constraints affecting key settlements and on the allocations of draft RPG14 allocations of dwellings and jobs to districts and key settlements. The reconciliation of assumptions at the strategic level with local knowledge was a fundamental part of this study. There have been two meetings with District Council Members and other stakeholders at which reports on the progress of the study were given.

1.3 The study area

1.3.1 The study area is the LSCP growth area (not including London) as revised in February 2004. The area comprises a complete administrative district council areas, which include:

- Hertfordshire districts: Broxbourne, East Hertfordshire, North Hertfordshire, Stevenage
- Essex districts: Braintree, Epping Forest, Harlow and Uttlesford
- Cambridgeshire districts: Cambridge City, East Cambridgeshire, Fenland, Huntingdonshire, South Cambridgeshire
- Peterborough Unitary Authority

1.3.2 The boundaries of the study area are shown in Figure 1.1.

Figure 1.1 LSCP growth area



1.4 Previous studies

1.4.1 A number of studies have been commissioned before this one. These include:

- The London – Stansted – Cambridge Sub Region Study (2001)
- The Cambridge Sub Region Study (2000)
- The Harlow Options Study (2003)
- The Stansted/M11 Corridor Options Study (2003)

1.4.2 The studies were reviewed and a comparison of there methodology and comparability is set out in Appendix A. A summary of the key finding of relevance to this study are referred to in Chapter 3.

1.4.3 The London – Stansted – Cambridge Study (2001) provided advice and guidance on a sustainable framework for future strategic land use planning in the growth area (as previously defined) to 2026 and beyond. The growth scenarios considered varied between 100,000 and 300,000 dwellings for the LSC area outside of London. The enhanced growth scenarios showed a significant increase above current RPG rates. The study made no comment on the ability to deliver these rates of development. The scenarios were used to form the basis for spatial options which tested the impacts of different distributions for different growth rates. The outputs from this study are considered in further detail in Chapter 3, section 3.3.

1.4.4 The Cambridge Sub-Region Study (2000) was undertaken to examine the requirements outlined by regional planning guidance (RPG6) for a vision and framework for the sub-region to accommodate projected growth to 2016. The Cambridge Sub Region includes parts of Suffolk which do not form part of LSCP growth area.

1.4.5 The Cambridge Sub Region Study developed three spatial patterns for development, which sought to accommodate 22,000 dwellings (the residual need once completions and planned growth had been taken into account). The options distributed growth to Cambridge City and also considered the role of market towns, larger villages and new settlements within the sub region. The strategy adopted within the current Peterborough and Cambridgeshire Structure Plan reflected a balance between the relative positive and negative impacts identified within the option assessment process. What is important in the context of this Study is not necessarily the results of the option evaluation process but that the identification and assessment of sites demonstrated that the sub region has significant capacity for growth both up to and post 2016.

1.4.6 The Harlow Options Study (2003) identified the development potential of the area around Harlow over the period to 2021, with a view to setting out the broad implications of further growth and to provide guidance on how the area could be developed in the most sustainable way. Four growth scenarios were initially identified in the Harlow options study, of between 20,000 and 48,000 new dwellings by 2021.

- 1.4.7 Following a broad and subjective assessment of the impact of the scenarios, the lowest growth option was discarded because of its failure to address the regeneration needs of the study area and its limited impact on accommodating the growth needs of the sub region. The highest growth option was discarded because it implies a scale and rate of development that, the consultants argued, would be difficult to deliver over the period to 2021 and would result in the loss of environmental quality, although there is no empirical evidence presented to support these conclusions. The two middle range options (28,500 and 37,100 houses) were then used as the basis to develop spatial options for accommodating growth.
- 1.4.8 The Peterborough Sub-Region Study (2003) was the first step in the production of a sub-regional strategy for Peterborough and was a summary of strengths and weaknesses of the sub-region rather than an examination of the implications of growth. The Peterborough Growth Area Study was subsequently commissioned and this is referred to in Section 1.6.
- 1.4.9 The Stansted/M11 Development Options Study (2003) was undertaken with the objective of assessing the implications of accommodating the additional growth resulting from the expansion of Stansted with up to three additional runways.
- 1.4.10 The growth forecasts produced for the Stansted M11 Study were more complex and aimed to highlight the growth that would occur as a result of different expansion options of the Airport by 2021 and 2036, over and above the underlying trends.
- 1.4.11 The conclusion of the work was that the development pressures associated with Stansted were relatively small when compared to growth in the region as a whole. This would nevertheless require substantial housing growth in the Stansted area. The implications of accommodating the growth rates were considered in detail in relation to the spatial options.

1.5 Key issues from previous studies

- 1.5.1 Only the Cambridge Sub Region study and the Stansted/M11 study sought to link growth potential with capacity. Within these studies the methodology for determining settlement capacity was largely environmentally driven. In the Cambridge sub region and Stansted/M11 studies a range of other factors, which it was considered influenced settlement capacity (although individually do not determine it) were also analysed. These included retail constraints/town centre capacity, heritage issues, schools, health care, utilities (water supply), jobs/labour force balance, transport (public transport availability/capacity and urban congestion) and economic development/regeneration issues.

- 1.5.2 The extent to which environmental capacity actually determines settlement capacity requires judgement against these factors. Harlow is a case in point. All the studies undertaken in the M11 corridor expressed both the social and economic benefits of allocating significant growth to Harlow in the future. The LSC study and the Harlow options study both pointed to the potential of Harlow to become a new sub regional growth centre and economic driver. However, the Stansted/M11 study clearly highlighted significant constraints around Harlow and development on the scale required to realise its potential would exceed the identified environmental capacity. The same can be said for the Lee Valley, which is also affected by significant environmental constraints, but is identified as a major opportunity for growth in the LSC Study. The work on environmental capacity carried out in the Cambridge and Stansted/M11 studies was used in this study.
- 1.5.3 Infrastructure provision was also a key issue. The principles of sustainable development point to the efficient use of resources. Where possible, therefore, development should seek to locate where there is capacity over the need to invest in new infrastructure and services. Both the Cambridge sub region and the Stansted/M11 studies looked at this issue and aimed to identify where spare capacity existed within the study areas. However, the scale of development the strategies had to accommodate implied new investment in services and infrastructure as a pre requisite to development at most locations and it was therefore assumed in both studies that identified needs could be met, unless significant constraints to new investment were identified.

1.6 Current studies

- 1.6.1 There are a number of concurrent studies, which are due to be completed at approximately the same time as this study. They are:
- Peterborough Growth Area Study;
 - Hertfordshire Housing Development and Spatial Strategy Audit;
 - the LSC London Growth Assessment Study; and
 - detailed studies examining how best Harlow might be successfully grown.
- 1.6.2 The draft final report of the Hertfordshire Housing Development and Spatial Strategy Audit and the final report of the Peterborough Growth Area Study have been made available to the consultants.

Urban capacity

- 1.6.3 The most relevant findings of the Peterborough and Hertfordshire Studies for this study are the assumptions regarding urban capacity and the conclusions reached in relation to the potential of settlements to expand (through urban extensions). The assessment of urban capacity used in the Peterborough study differs from this study because they include allocated sites. In order to avoid double counting the urban capacity figures in this study do not include allocated sites. The Hertfordshire Study provides an updated urban capacity figure to rectify the discrepancy between the existing District and County figures. The updated figures broadly conform to the figures used within this study. Overall supply figures (which include completions, allocated land and urban capacity) used in this study are broadly in line with the Hertfordshire study for North Herts, Broxbourne and Stevenage. However, East Hertfordshire figures are lower in the Hertfordshire Study.

Potential capacity

- 1.6.4 In terms of greenfield land, the Peterborough study identified more potential greenfield land than this study. This is because of variances in the sites assessed and their capacity assumptions (such as density) which meant that the overall figures for land with development potential were higher in the Peterborough Study than in this study. This needs to be resolved at the local level following detailed assessments of the sites assessed. Whilst results do vary slightly between the studies, they do not differ to the extent to which they alter any of the conclusions reached in this study.
- 1.6.5 The Hertfordshire Study conclusions are broadly consistent in their overall assessment of greenfield capacity. There are variations in some of the settlement capacities mainly due to different methodologies used in each study being developed in response to different briefs and hence respond to different issues. In addition, Letchworth, Baldock and Buntingford were not assessed as part of the Hertfordshire Study. Both studies draw similar conclusions on the development potential around Stevenage and to the north of Harlow and Hitchin in terms of their environmental capacity.

Other studies

- 1.6.6 The LSC London Growth Assessment Study is still underway and it has not been possible to compare the detailed findings other than the general conclusion that population resident within the London part of growth area might well seek jobs within this study area, and at Stansted Airport in particular.
- 1.6.7 Further studies are being undertaken in the Harlow Area funded by the ODPM through the Growth Areas Fund. These include:
- Harlow Landscape and Environmental Study;
 - Transport Study;
 - Master Planning and Sustainability Principles; and
 - Regeneration.

1.6.8 These studies have not yet been completed but will have the potential to address a number of issues to a greater level of detail than this strategic level study. In particular, it should resolve the more complex nature of environmental constraints (and opportunities) around Harlow and will help to clarify the trade offs which would need to be made to accommodate growth.

1.6.9 Finally, two studies have been commissioned, both of which are to separately and independently assess the potential implications of the growth of Stansted Airport to a two runway Airport and the implication of this in terms of growth jobs and housing. Draft outputs from those two studies was made available at the latter stages of this study, just before finalising this Final Report.

CHAPTER 2

Methodology

2.1 Study overview and methodology

- 2.1.1 The aims of the Study are explained in the previous chapter. The process of examining how growth should best be achieved in an area as large as the LSCP growth area is complicated not only by the complex interrelationship between the settlements and economies that make up the area, but also by the differing aspirations that exist within each but also at the broader scale, i.e. those of the county, the region and of the Government.
- 2.1.2 The basis for this study has been to firstly identify the extent of committed growth within the Study Area, in terms of both housing and employment land and to test how best to achieve the dwellings and jobs growth aspirations contained in the current Draft RPG14 (February 2004). Testing has been on the basis of the ability of settlements (and areas) to absorb growth and then by considering the relationship of those areas to each other and the spatial rationale of achieving growth in those areas, relative not only to adjacent areas, but by considering broad policy objectives.
- 2.1.3 Hence, this study has comprised the following steps:
- **Strategic Development Context** – Review existing strategic studies, existing and emerging regional planning guidance and Structure Plan policies. The review is described in Chapter 3;
 - **Housing land supply** – Identify committed and planned growth within the Study Area, (dwellings and jobs) and hence determine residual growth (as compared to current draft RPG14), for which land needs to be identified. This is described in Section 4.2;
 - **Settlement growth potential** – Identify planning potential of settlements to accommodate growth. This is described in section 4.3;
 - **Employment forecasts** – analysis of the employment forecasts contained in the banked RPG14, both for the region as a whole and for the study area. This analysis is described in Chapter 5;
 - **Market Analysis** – Assess market constraints to achieving growth, in terms of jobs and also dwellings. The approach included the preparation of a database of land values and assess the views of housebuilders, utility providers and others involved in housebuilding to determine their views on the capacity that could be delivered and the constraints that might affect it. The study also examined the influences on the industrial, office and retail property markets and considered how they might perform over the study period. The methodologies and the analyses are described in Chapter 6;

- **Spatial Themes** – Identify spatial options for distributing residual growth. This was carried out in two parts. First there was a review of the concepts of spatial strategy (Chapter 7) and this was translated into the three spatial themes (Chapter 8) that were tested through the transport modelling process;
- **Transport Analysis** – identify transport implications of different spatial distributions. This process was an iterative one. There were two principal iterations, where lessons from the first group of tests were used to modify the distribution of dwellings and employment, which were then employed in the second round of tests. These tests are described in Chapter 9;
- **Sub Area and Corridor Analysis** – identify the potential of the different sub areas to accommodate growth given the above and identify relationship with adjacent corridors. Using the transport analyses and from the economic analysis and the analysis of environmental impact and capacity, an assessment was made of nine sub-areas which in aggregate, make up the study area. The objective was to identify the consequences on each sub-area of the range of growth assumptions that had been tested. This process is described in Chapter 10; and
- **Towards a preferred strategy** – Chapter 11 is the final chapter and describes the conclusions of the study. It presents options for accommodating growth within the study area rather than providing recommendations on a single preferred strategy.

2.1.4 This report provides the results from the above areas of work. Appropriate appendices are provided in a separate document to this report providing the detailed methodologies for particular areas of work and relevant technical background information, these include:

- Appendix A: Review of sub-region studies
- Appendix B: Settlement growth potential methodology and results
- Appendix C: Employment forecast methodology
- Appendix D: Historic and Proposed Housing Completions by Local Authority
- Appendix E: Average Property Price, Oct-Dec 2003
- Appendix F: Transport modelling methodology
- Appendix G: Summary of transport statistics

2.2 Settlements examined as part of this study

- 2.2.1 This study has only examined settlements comprising 5,000 population. It is considered that smaller settlements would not form locations for strategic growth. The settlements which are thus considered are listed in Table 2.1 and illustrated in the Study Area diagram in Figure 1.1 above:

Table 2.1 Study area districts and settlements			
	Name	District	County
1	Cambridge	Cambridge City	Cambridgeshire
2	Chatteris	Fenland	
3	Whittlesey		
4	Wisbech		
5	March		
6	Huntingdon	Huntingdonshire	
7	Godmanchester		
8	Ramsey		
9	St Ives		
10	St Neots		
11	Brampton		
12	Sawtry		
13	Yaxley		
14	Ely	East Cambridgeshire	South Cambridgeshire
15	Littleport		
16	Soham		
17	Great Shelford		
18	Histon		
19	Northstowe		
20	Cambourne		
21	Sawston		
22	Histon/Impington		
23	Peterborough	Peterborough	Peterborough
24	Braintree	Braintree	Essex
25	Halstead		
26	Witham		
27	Chipping Ongar	Epping Forest	
28	Epping		
29	Loughton		

Table 2.1 Study area districts and settlements

	Name	District	County
30	Waltham Abbey		
31	Chigwell		
32	Harlow	Harlow	
33	Great Dunmow	Uttlesford	
34	Saffron Walden		
35	Stansted Mountfitchet		
36	Bishop's Stortford	East Hertfordshire	Hertfordshire
37	Buntingford		
38	Hertford		
39	Ware		
40	Sawbridgeworth		
41	Hitchin	North Hertfordshire	
42	Letchworth		
43	Baldock		
44	Royston		
45	Stevenage	Stevenage	
46	Broxbourne	Broxbourne	
47	Cheshunt		
48	Hoddesdon		

CHAPTER 3

Strategic Development Context

3.1 Introduction

- 3.1.1 This chapter provides a review of current strategic policy within the study area and considers the strategic spatial options and influences that have been identified through other studies.

3.2 Current Structure Plans

Cambridgeshire and Peterborough

CURRENT DEVELOPMENT STRATEGY

- 3.2.1 The extant Cambridgeshire and Peterborough Structure Plan was adopted in October 2003 and sets out the development framework for Cambridgeshire County Council and Peterborough Unitary Authority to 2016.
- 3.2.2 Some 70,200 new dwellings are to be accommodated within the Structure Plan area to 2016. New development will be concentrated in, and as expansions to, Cambridge City and Peterborough, and the market towns of Chatteris, Ely, Huntingdon, March, St Ives, St Neots, Wisbech, and to a lesser scale Ramsey and Whittlesey. A new settlement is also to be created between Longstanton/Oakington (subsequently, named Northstowe).
- 3.2.3 The Structure Plan area is divided into two sub-regions – the Cambridge sub-region and Peterborough UA and North Cambridgeshire. Table 3.1 below presents housing distribution across the plan area by local authority area.

Table 3.1: Cambridgeshire and Peterborough housing allocations by local authority area (1999-2016).

	Housing allocation	Percentage of total
Cambridge City	12,500	17.8
East Cambridgeshire	7,300	10.4
Fenland	8,100	11.5
Huntingdonshire	9,500	13.5
South Cambridgeshire	20,000	28.5
Peterborough	12,800	18.3
Total	70,200	100

Source: Cambridgeshire Structure Plan 2003

- 3.2.4 The above table demonstrates that South Cambridgeshire will accommodate the highest levels of growth. South Cambridgeshire is a predominantly rural district but its high level of housing allocation is partly explained by the proposed new settlement at Northstowe, which has an allocation of 6,000 for the period to 2016 and partly to accommodate growth around the Cambridge City urban fringe. Cambridge City and Peterborough UA contain the two main urban centres and are planned to take the next largest levels of growth.
- 3.2.5 The Structure Plan does not allocate employment land to the local authorities, but a number of strategic employment sites are allocated. These are: land at Alconbury Airfield; Northstowe new settlement; land at Hampton near Peterborough city centre; March trading park at March; the south west approach to Wisbech; and urban extensions to Cambridge. The town of Chatteris is identified as in need of economic regeneration with further housing development dependent on improving job prospects.

THE CAMBRIDGE SUB REGION

- 3.2.6 Central to the strategic development of the plan area is the Cambridge sub region. The vision is that it will continue to develop as a centre of excellence and a world leader in the fields of higher education and research. This will foster expansion of the knowledge-based economy whilst protecting the historic character and the setting of Cambridge as a compact city and the character and setting of market towns and other settlements.
- 3.2.7 The strategy for the Cambridge sub region was underpinned by a rigorous assessment of the Cambridge sub region, which involved a full review of the Green Belt and development needs post 2016. The Structure Plan proposes to remove land from the Green Belt, which will provide 8,000 houses by 2016 and also a strategic reserve of circa 8,000 houses for development beyond 2016. Inherent within this review was the recognition of the development limits of the City and the role of the wider sub region in accommodating growth to support the continued economic development of the city. In the period to 2016 this would be achieved through release of land within the Green Belt and through the development of a new community on the edge of Cambridge, to provide a greater balance between jobs and homes. In order to ensure that development is sustainable, the radial corridors targeted for growth will be a key focus for investment to provide high quality public transport solutions to meet commuting needs.

THE PETERBOROUGH AND NORTH CAMBRIDGESHIRE SUB REGION

- 3.2.8 The Peterborough and North Cambridge sub region is dominated by Peterborough. The Structure Plan reinforces the potential of Peterborough as a major focus for growth within the East of England, through further expansion of housing and the employment base, together with sub regional services, including education and research facilities. Hampton to the south of Peterborough will be the major focus of the city's expansion.
- 3.2.9 The market towns are considered within the context of their rural setting to support the vision for them as local development locations and sustainable economic and social centres for surrounding rural areas, particularly Wisbech and March.

Essex

CURRENT DEVELOPMENT STRATEGY

- 3.2.10 The extant Structure Plan was adopted in April 2001 and covers the period to 2011. The Structure Plan sets out a vision for Essex and Southend, which includes the creation of *'a more prosperous, vigorous and competitive local economy'*. The core strategy for the plan area is *'that development should be concentrated in urban areas.... Priority will, however, be given to securing regeneration and renewal within identified Priority Areas for Economic Regeneration (PAERs) of Thames Gateway, Harlow, Clacton, Walton and Harwich.'*
- 3.2.11 The Thames Gateway South Essex area is identified for economic development but relatively limited housing development with the exception of Basildon (see Table 3.2 below). The districts abutting London i.e. Epping Forest and Brentwood are not identified as requiring economic regeneration and are constrained from significant housing development by the presence of the Green Belt.
- 3.2.12 Development is to be concentrated in existing urban areas and this is reflected in the district level distribution of housing within Chelmsford and Colchester taking the highest levels of development by percentage. Harlow is viewed as the primary economic driver for west Essex. The town is viewed as having an important role in accommodating development resulting from expansion of Stansted and as having a priority need for balanced housing and employment.
- 3.2.13 Provision is also made for all development relating to or associated with Stansted Airport to be located within the Airport site. However, industrial or commercial development unrelated to the Airport will not be permitted on the Airport site but will be directed to nearby towns where identified employment sites within adopted plans are located.

Table 3.2: Essex housing and employment land provision by local authority area.

District	Housing allocation	Percentage of total	Employment land allocation	Percentage of total
Basildon	7,650	10.6	87	14
Braintree	10,300	14.3	80	13
Brentwood	1,450	2	1	0.2
Castle Point	2,400	3.3	21	3.4
Chelmsford	11,650	16.1	73	11.8
Colchester	11,000	15.2	103	16.6
Epping Forest	2,400	3.3	24	4
Harlow	5,450	7.5	50	8
Maldon	2,800	3.9	21	3.4
Rochford	3,050	4.2	35	5.5
Southend	2,250	3.1	30	4.7
Tendring	6,250	8.7	80	12.8
Uttlesford	5,600	7.8	16	2.6
Total	72,250	100	621	100

Source: Essex & Southend on Sea replacement Structure Plan, April 2001 Hertfordshire

Hertfordshire

CURRENT DEVELOPMENT STRATEGY

- 3.2.14 The Structure Plan was adopted in 1998 and covers the period to 2011. The County Council has undertaken technical work to identify the required changes in rolling the plan forward to 2016 within an Alterations First Deposit Plan (referred to as the Alterations Plan), which was published in March 2003. However, County Council has put the EiP on hold pending progress with RPG 14. Both Plans are reviewed within this chapter.
- 3.2.15 The adopted Structure Plan states that development is to be concentrated in the following settlements: Abbots Langley; Baldock; Berkhamsted; Bishop's Stortford; Borehamwood; Bushey; Cheshunt; Chorleywood; Croxley Green; Harpenden; Hatfield; Hemel Hempstead; Hertford; Hitchin; Hoddesdon; Letchworth; Potters Bar (including Little Heath); Radlett; Rickmansworth; Royston; Sawbridgeworth; South Oxhey, Carpenters Park and Eastbury; St Albans; Stevenage; Tring; Waltham Cross; Ware; Watford; Welwyn Garden City.
- 3.2.16 The main development strategy within the Alterations Plan remains substantively unchanged from the current adopted Plan. It aims at broadly maintaining the general settlement pattern in Hertfordshire, while making the best use of the resources. However, the Alterations Plan allocates no further strategic allocations and states that no new areas of special restraint will be identified in Local Plans other than those already identified, as this will be addressed by the Regional Planning Body for the East of England after it has considered relevant emerging issues and studies. East Hertfordshire has been identified to cater for the possibility of growth beyond 13,300 employees at Stansted Airport. Land to accommodate these dwellings would only be released if the Airport were to employ more the 13,300 people in the Plan period. The distribution of dwellings by local authority is set out in Table 3.3 below for both the extant Plan and the Alterations Plan.

Table 3.3: Hertfordshire housing allocation by local authority area

District	Adopted Structure Plan (1991-2011)		Alterations Plan (2001-2016)	
	Housing allocation	Percentage of total	Employment land allocation	Percentage of total
Basildon	7,650	10.6	87	14
Broxbourne	5 400	8.3	4,200	8.5
Dacorum	7 200*	11	4,950	10.1
East Hertfordshire	11 100	17.1	6,750	13.7
Hertsmere	4 600	7.1	3,750	7.6
North Hertfordshire	10 400**	16	6,450	13.1
St Albans	6 300	9.7	7,050	14.3
Stevenage	5 700**	8.8	2,700	5.5
Three Rivers	4 000	6.2	3,150	6.4
Watford	4 700	7.2	4,350	8.8
Welwyn Hatfield	5 600	8.6	5,850	11.9
Total	65 000	100	49,200	100

Source: Hertfordshire Structure Plan 1998 and Hertfordshire Structure Plan Alterations 2001-2016 – Deposit Draft Version.

Note: * includes 1,000 dwelling strategic allocation around the periphery of Hemel Hempstead.

** includes strategic allocation to the west of the A1(M). 1,000 in Stevenage and 2,600 in North Herts

- 3.2.17 In the adopted Plan the housing allocations are distributed fairly evenly across the county although East and North Hertfordshire have a substantially higher proportion and there is a significant allocation to Stevenage. As is the situation with Essex, the local authority areas closest to London (Hertsmere, Three Rivers and Watford) have the lowest percentages of development.
- 3.2.18 Relatively little change has occurred in the distribution of houses within the Alterations Plan. However, Stevenage and North Hertfordshire have a decreased housing allocation as a result of the proposed deletion of development to the west of Stevenage (within North Hertfordshire District and Stevenage Borough). St Albans and Welwyn Hatfield have an increased percentage of housing development.
- 3.2.19 The Structure Plan does not allocate employment land to the local authorities but identifies strategic employment locations. These are:
- Leavesden Studios, Watford;
 - British Aerospace, Hatfield, Welwyn Hatfield;
 - Essex Road, Hoddesdon, Broxbourne;
 - Centennial Park, Elstree, Hertsmere;
 - Three Cherry Trees Lane, Hemel Hempstead, Dacorum; and
 - Park Plaza, Waltham Cross, Broxbourne.

- 3.2.20 These identified employment sites are located in the southern part of the county although economic growth is to be fostered across the county.
- 3.2.21 Within the Alterations Plan there are proposed areas of priority for strategic employment, which includes the Lee Valley Priority Area for Economic Regeneration and the west and central area of Hertfordshire. Identified strategic employment sites include:
- Essex Road, Hoddesdon, Broxbourne
 - Park Plaza, Waltham Cross, Broxbourne
 - Leavesden Park, near Watford
 - Three Cherry Trees Lane, Hemel Hempstead, Dacorum
 - Hatfield Aerodrome, Welwyn Hatfield.
 - The land at Three Cherry Trees Lane, Hemel Hempstead and Park Plaza, Waltham Cross has been identified where priority will be given to specialised technological activities or other activities which are in the national or regional interest.

3.3 London-Stansted-Cambridge (LSC) Sub Region Study

- 3.3.1 Whilst this study preceded Draft RPG 14, it remains relevant to the LSCP growth area because it specifically considered spatial options within the M11 corridor. The study was commissioned before the designation of the corridor as a growth area within the Communities Plan, but its need was identified in RPG 9 (2000).
- 3.3.2 The LSC study was carried out by ECOTEC Research and Consulting Ltd with David Lock Associates, Land Use Consultants and Oscar Faber. The primary aim of the study was to provide advice and guidance on a sustainable framework for future strategic land use planning and transportation for the Study area up to 2026 and beyond. The terms of reference for the study were to explore the options for long term spatial development and transport arrangements and to consider how trends, key issues, development needs and pressures, and structural relationships are likely to change and develop over time.
- 3.3.3 The spatial development frameworks were to have regard to:
- projections for economic and employment growth and development needs;
 - urban and economic regeneration;
 - environmental constraints and environmental capacity;
 - existing characteristics/spatial inter-relationships;

- impacts and implications of different growth scenarios;
- implications for further potential increase at Stansted; and
- spatial location of any further development within the study area.

3.3.4 The Study area for the LSC stretches from Stratford and Poplar in the south, to Cambridge in the north, and from Hertford in the west to Braintree in the east. The methodology for the LSC Study involved the identification of four spatial patterns, which were tested using three growth scenarios. The four options were developed from a synthesis of spatial aspirations for the sub-region derived from the Stakeholder consultation.

3.3.5 The four options were:

- **Spatial Pattern 1: Continuity** development largely following the existing settlement pattern and allocated to each settlement largely in proportion to their current size. The distribution of new development followed a sequential approach with brownfield opportunities given priority over greenfield development.
- **Spatial Pattern 2: Regeneration development** focused primarily on the Priority Areas for Economic Regeneration (PAERS) and other areas in need of regeneration. Growth outside the regeneration areas was assumed to be more constrained, and in particular, growth stimulated by Cambridge and Stansted was assumed to be limited to regeneration areas. The majority of growth outside London was thus limited to the PAERS (Harlow and the Upper Lee Valley). Harlow was assumed to be a focus for both housing and employment growth, with Braintree as a secondary focus for housing and employment development outside London.
- **Spatial Pattern 3: Economic Growth Poles development** focused in areas close to or very accessible to the main centres of economic growth in the sub-region, including the Cambridge sub-region, Stansted and the eastwards extension of the City of London. Around Stansted it was assumed that the amount of new development in comparison to the existing levels of urbanisation would be significant, especially for growth scenarios 1 and 2. Around Stansted this included Harlow, Braintree and a number of other settlements in the central rural belt such as Bishop's Stortford, Hertford, Dunmow and villages along A120.
- **Spatial Pattern 4: New Towns and Settlements** development of major new settlements or towns in accommodating the growth in the sub-region linked to strengthening east-west links. It was acknowledged that this option was better suited to the high growth scenario. It was assumed that new settlements would help spatial restructuring of the wider area and that they would be able to support the key economic drivers. The potential corridors identified with this option were A10/Cambridge/Letchworth – Hitchin rail line, A11/A505 and A120.

3.3.6 The growth scenarios used in the LSC Study represented different views as to the level of growth that might have to be accommodated in the sub-region (but were not put forward as forecasts). The growth scenarios were defined, as follows:

- **Option 1 – Maximising strategic opportunities** for economic development by fully exploiting the long term potential of the key economic drivers. This scenario assumed that Stansted would expand to two runways and that it would be handling 30mppa by 2016 and 50mppa by 2026. It assumed the continued growth of Cambridge, the development of Stratford with the Channel Tunnel Rail Link (CTRL) and successful regeneration within the PAERS and Thames Gateway.
- **Option 2 – Regional scale growth** based on the concept that the study area outside London will act as a regional growth area in the rest of the South East (ROSE) in terms of long term housing provision. The levels of labour availability were used to determine potential growth in employment. In this scenario it was assumed that passenger numbers at Stansted would increase from 25mppa in 2016 to 40mppa in 2026, the maximum throughput on one runway.
- **Option 3 – Indigenous growth**, a continuation of existing planning policies, which provide for limited growth outside London. It reflected the lowest growth scenario. Outside London this scenario reflected the agreed housing allocations in RPG 9, which were rolled forward to 2026. This determined labour availability and therefore employment growth outside London. This scenario assumed some additional growth at Stansted, 20mppa by 2016 and 30mppa by 2026.

3.3.7 The levels of household growth for each of the growth scenarios to 2026 for the study area outside London are given in Table 3.4.

Table 3.4: LSC Study area outside London – additional			
Growth scenario	Households 2001-2016		Households 2001-2026
Maximising opportunities	171,183		302,659
Regional scale growth	116,501		194,789
Indigenous growth	58,785		100,213

Source: London-Stansted-Cambridge Sub-Regional Study. ECOTEC et al, Scenarios Working Paper Final, November 2001

Comparison of the Spatial Patterns

3.3.8 Each Spatial Pattern was assessed for each growth scenario against a series of six criteria including transport, economy, social, environment, settlement pattern and delivery. The performance of the Spatial Patterns was then compared and from this evaluation process a series of conclusions were drawn. The conclusions of the LSC study which have relevance to the preparation of the RPG 14, are as follows:

STRATEGIC

- There is great uncertainty about the future and level of growth that is acceptable in the sub-region; and
- The scenarios and spatial patterns developed in the LSC Study assume the success of the London Plan, and no increase in the relative level of commuting. The London figures are ambitious and they rely on the development of brownfield land, which will be expensive to develop and service. If London fails to deliver the levels of housing aspired to, then commuting and pressures to house commuters will increase.

ECONOMIC

- Cambridge and Stansted Airport, along with London, Thames Gateway, Stratford/CTRL, and Lee Valley are identified as specific drivers of economic change. Stansted Airport and Stratford are identified as two significant nodes within the LSC Study area capable of acting as a catalyst to the development of Thames Gateway.

PLANNING AND ENVIRONMENT

- There is a need to ensure that growth continues without damaging the environment and quality of life;
- Outside London the amount of land required for development to meet even the highest growth scenarios is a relatively small proportion of non-urbanised land. However this growth will have a significant impact on transport and the patterns, nature and character of existing settlements; and
- to the north, outside London, there are considerable landscape and natural resource constraints. This area is also under development pressure which is likely to continue.

PERFORMANCE OF SPATIAL PATTERNS

- Spatial Pattern 1 (continuity) would work well with limited growth;
- Spatial Patterns 2, 3 and 4 would be more adaptable to change including high growth rates and greater levels of economic activity;
- in the event of economic failure Spatial Patterns 1 and 3 would be robust. Spatial Pattern 2 would falter due to the high costs of regenerating the PAERS and Spatial Pattern 4 would fail because the economies of scale of investing in a new town would be lost; and
- all the spatial patterns, except SP1 under scenarios 1 and 2, retain the general pattern and characteristics of the more rural parts of the central rural belt.

TRANSPORT

- all the spatial patterns include good rail links from Stansted to Stratford and London;
- North-South links in the sub-region are better catered for than East-West or peripheral movements, even though the north-south links are congested and under-capacity. Strengthening east-west links will have three benefits:
 - enable the Cambridge cluster to have links to other growing parts of the UK;
 - allow Stansted to provide services to a wider market; and
 - enable the eastern part of London access to growth and prosperity.
- M11/A14 corridor should be able to provide a long distance relief route between M25 and A1 at Huntingdon. This suggests capacity enhancement between Cambridge and Stansted on M11. Given the supra-regional roles of M11, the focus of sub-regional development must assist in strengthening east-west links; and
- none of the spatial patterns has major development located on M11 in the more rural area north of Stansted.

WATER SUPPLY

- water supply in the sub-region is limited. Suppliers believe that a combination of demand management, leakage control, application of new technologies and some new reservoir provision can meet the needs of the growth scenarios

HARLOW

- all the spatial patterns, except possibly SP1, develop to a greater or lesser extent, an arc of development up the Lee valley, north through Harlow and then east through Stansted to Braintree; and
- of the most deprived areas within the LSC study area, only Harlow is outside London.

Implications for the emerging Regional Planning Guidance

- 3.3.9 The LSC Final Report lists the implications drawn by the study for the emerging Regional Planning Guidance for the East of England. These have been grouped by the consultants into four categories of significance related to the Stansted/M11 Study: very significant, significant, some significance and little or no significance:

VERY SIGNIFICANT

- there is a need to lay the basis for the long term and plan proactively for it. Spatial pattern 1 suggests that a continuation of the current pattern risks damaging many settlements if growth accelerates to any degree;
- the role of Harlow needs full consideration as it plays an important role in most spatial patterns;

- consideration needs to be given to the role of the A120 corridor;
- major development in the rural central belt is not a feature of any spatial pattern;

SIGNIFICANT

- the growth of the sub-region outside London will be important for the regeneration of Thames Gateway and the Lee Valley. Stansted can play an important role as an international gateway for north-east London and for the sub-region;
- there is the potential within the sub-region to develop a polycentric structure;
- Cambridge needs better east-west links. The growth of Cambridge needs to be seen in an east-west context;
- emphasising the east-west links, allowing growth around the Cambridge area and encouraging the emergence of a major centre on Harlow – Braintree arc will enable the sub-region to play a part in a wider polycentric structure at national and “centre capitals” levels;
- pressures for growth around the centres could in part be accommodated by developing a localised polycentric structure of smaller centres around the main centre;
- the scale of growth of the higher scenarios makes a new town(s) possible;
- an appropriately located new town in the southern part of the area outside London could help to strengthen east-west links and serve the Airport;

SOME SIGNIFICANCE

- the sub-region is not a functional sub-region;
- there is a need to consider the scale of growth to plan for;
- new settlements must be seen in a broader context than the sub-region;
- some of the spatial options explored have implications for parts of the Green Belt;
- concentrating growth on the PAERS will mean that the Green Belt around Harlow and south into London needs to be re-visited.

LITTLE OR NO SIGNIFICANCE.

- to ensure success of Spatial Patterns 2, 3 and 4, they need to be supported by providing higher education/research and development institutions as a core for the enhanced centres; and

- a new town westwards on the Cambridge – Oxford arc needs to be seen as part of a solution to the opportunities of the biotech/life sciences and ILT/software clusters.

3.4 Draft RPG 14 (2004)

Proposed development strategy

- 3.4.1 The draft RPG proposes that there should be a ‘staged transition’ to the emerging spatial strategy. Therefore, the first 5-10 years of the RPG14 period will continue with the existing RPG6 and 9 strategies as a result of Local Plans having being completed. In the remaining years, the strategy will focus on stronger southern economies and also place a greater focus on key regional centres and areas that have weaker economies.
- 3.4.2 Development will be focused in or adjacent to major urban areas where there is good public transport accessibility and strategic interchanges. The strategy also aims to support development and regeneration of rural areas by focusing growth in market towns that have good public transport to key urban areas.
- 3.4.3 The draft RPG also states that a small new settlement may be appropriate at the sub regional level, however, no location has been identified.
- 3.4.4 The overall approach to the spatial strategy is to concentrate development and redevelopment in existing urban areas in the region, in order to balance houses, jobs and community facilities. The key urban centres are as follows:

LSCP growth area

Harlow
Stevenage
Stansted/M11 Corridor towns
Cambridge
Peterborough

Other areas

Basildon
Bedford
Hemel Hempstead
Southend-on-Sea
Bury St Edmunds
Ipswich
Kings Lynn
Lowestoft
Chelmsford
Colchester
Thurrock
Luton/Dunstable
Watford
Norwich
Gt Yarmouth

- 3.4.5 The sequential approach to the location of new development will be the adopted approach. Certain locations will be identified for major development or regeneration. Priority areas for regeneration include areas of weak economic performance and/or high deprivation, which are as follows:

Table 3.5: Priority areas and other important areas for regeneration within Draft RPG14

Priority areas for regeneration	
LSCP growth area	Other areas
Harlow and the Lee Valley	Thames Gateway South Essex sub-region Great Yarmouth and Lowestoft Luton/Dunstable Houghton Regis sub-region Bedford/Kempston
Other important areas for regeneration	
LSCP growth area	Other areas
Peterborough Stevenage The Fens (Transitional EU Objective 5b areas)	Haven Gateway, Harwich and Clacton Kings Lynn Ipswich Colchester Norwich Remote rural areas of Norfolk and Suffolk

3.4.6 Table 3.6 below presents housing distribution across the region by County:

Table 3.6: Draft RPG14 allocations to Counties (2001-2021)

	Housing allocation	Percentage of total
Bedfordshire and Luton	54,500	11.4
Cambridgeshire/Peterborough	89,300	18.7
Essex, Southend/Thurrock	131,000	27.4
Hertfordshire	72,000	15.1
Norfolk	72,600	15.2
Suffolk	58,600	12.3
Total	478,000	100

Source: Draft RPG 14 2004

3.4.7 The implications of the Strategy will mean increased development rates, renewal and regeneration of key towns and urban areas, building on recent successes i.e. Cambridge phenomenon and key growth sectors. Essex, Southend/Thurrock and Cambridgeshire/Peterborough have the largest percentage allocation. In the north of the region, the percentage allocation is lower than other counties.

3.4.8 The draft RPG does not provide allocations for employment land to the local authorities, but it does state the locations where strategic employment sites should be located, which are as follows:

LSCP growth area

- Harlow – linked to Stansted expansion – to achieve regeneration needs, link develop with Stansted Airport, and promote key growth clusters;
- Cambridge Sub Region – promote Cambridge's role as a centre for research and development;

- Peterborough – to achieve regeneration, attract key sectors and clusters including environmental services; and
- Sites within Hertfordshire – support strong growth clusters and sectors.

Other areas

- Bedford/Kempston/Marston Vale – attract business interest within the Cambridge Oxford Arc and ensure balance between homes and jobs;
- Luton/Dunstable/Houghton Regis – achieved regeneration needs, attract key sectors to support Airport related needs and ensure balance between homes and jobs;
- Thames Gateway – support role of Thurrock as a European logistics hub, meet regeneration needs;
- Norwich – support regeneration and bio-technology;
- Ipswich – support regeneration and role in ICT; and
- Great Yarmouth and Harwich – development associated with port expansion.

Sub-regional strategies within Draft RPG14

3.4.9 The draft RPG 14 has identified the following sub-regions where specific sub-area policies are required. The LSCP area contains three such sub-regions, which are:

- Stansted/M11;
- Cambridge; and
- Greater Peterborough.

3.4.10 The sub-regional strategies are summarised below.

STANSTED/M11 SUB-REGION

3.4.11 The sub-regional strategy aims to promote housing and employment balance within the sub-region, focusing on Harlow and upper Lee Valley as a major centre for growth to aid its regeneration and capitalise on the growth of Stansted Airport (based on the maximum use of one runway). Stansted Airport expansion will also provide the stimulus to develop key economic clusters to the south of the Airport.

3.4.12 The strategy also promotes growth in the A120 corridor, Bishop's Stortford, Great Dunmow and Braintree in order to promote development closer to Stansted Airport.

3.4.13 The strategy also seeks to restrain and protect small historic towns/villages and rural areas against development that would be greater than local needs in order to protect the character and setting of such areas. This includes:

- North of Uttlesford;
- East of the M11 except North Weald;

- North of the Stort Valley;
- West of the M11; and
- a green wedge should be defined west of Harlow.

3.4.14 Strategic growth locations that have been identified by Draft RPG14 will provide a net increase of 27,000 dwellings excluding existing commitments and identified urban capacity, which include the following:

Table 3.7: Draft RPG14 strategic growth locations for the Stansted/M11 sub-region		
Settlement	District	2001-2021 No. of Dwellings
Harlow	Harlow/Epping Forest	13,350
North Weald	Epping Forest	6,000
Broxbourne, A10 Corridor	Broxbourne	2,500
Braintree	Braintree	1,200
Bishops Stortford, North	East Herts	2,000
Great Dunmow area	Uttlesford	2,650
Sub Region Total		27,700

Source: Draft RPG 14 2004

- **Harlow** – Major urban extensions to the east, south and west of Harlow to provide for an additional 13,350 dwellings. The M11 will define the limit to the east of Harlow.
- **North Weald** – Major strategic opportunity for a mix use development – the strategy allocates up to 6,000 new dwellings. In terms of employment growth, the strategy also notes that at least one new strategic employment site of 25 ha at North Weald Airfield to be phased with housing.
- **Bishop's Stortford** – ASRs at Bishops Stortford would be released to provide approx. 2,000 new dwellings and other uses.
- **Uttlesford** – Provide 2,650 new dwellings, principally in Great Dunmow or as a new village.
- **Broxbourne/A10 Corridor** – Housing and jobs growth is proposed along the A10 corridor, including Broxbourne, Hoddesdon and Cheshunt via urban extensions.
- **Braintree** – Need to deliver employment growth to prevent out-commuting and housing/jobs imbalance, however, additional housing development is needed to enable mixed use developments.

3.4.15 Housing growth should be coupled with significant public transport improvements.

CAMBRIDGE SUB-REGION

3.4.16 The Cambridge sub-region includes the following towns:

Table 3.8: Towns within the Cambridge sub-region	
LSCP growth area	Other areas
Cambridge	Haverhill
Ely	Newmarket
Chatteris	
Huntingdon	
Godmanchester	
St Neots	
St Ives	
Royston	
Saffron Walden	

3.4.17 The strategy aims to build on existing strengths of the sub-region, in terms of high technology clusters, which will be encouraged within the market towns in order to reduce out-commuting. Areas of development for housing and other uses will be located in the following order of priority, to ensure the most sustainable locations are prioritised, as follows:

- Within the built up area of Cambridge;
- On the periphery of Cambridge on land to be removed from the Green Belt by 2006;
- A new settlement at Northstowe;
- Built up areas of market towns and rural centres to benefit the social and economic needs of the community, with good or potentially good public transport provision to Cambridge; and
- Extensions to Market Towns and rural centres with good or potentially good public transport provision to Cambridge.

3.4.18 With regards to the potential employment development at Alconbury Airfield in Huntingdonshire, housing development may need to be located close to the airbase in order to reduce travel to work, therefore, meaning a possible departure from the sequential approach adopted within the main spatial strategy.

Table 3.9: Draft RPG14 strategic growth locations for the Cambridge sub-region

	No. of Dwellings 2001-2016	No. of Dwellings 2016-2021
Cambridge Built up area	8,900	1,200
Edge of Cambridge	8,000	5,500
New Town (Northstowe)	6,000	2,500
Market towns and rural centres	28,200	5,800
Sub Region Total	51,100	15,000

Source: Draft RPG 14 2004

GREATER PETERBOROUGH SUB-REGION

- 3.4.19 The Greater Peterborough sub-region encompasses Peterborough, parts of Fenland and Huntingdonshire, but also areas within the East Midlands, which includes Rutland, East Northamptonshire, South Kesteven and South Holland.
- 3.4.20 The key aim of the strategy is to promote Peterborough as a regional capital within the north-western part of the East of England, and in this connection, an additional 1,080 net additional dwellings per annum has been suggested for Peterborough, pending further studies.
- 3.4.21 The strategy also encourages the development of environmental clusters and hi-tech, knowledge based clusters, which are related to the growth of Cambridge's knowledge based sector, but will also support current traditional sectors such as food production.
- 3.4.22 The market towns of Wisbech and March are also identified as key centres in the north, which will be further supported in their economic and service roles.

CHAPTER 4

Housing land supply and growth potential

4.1 Introduction

- 4.1.1 This section identifies the scale of growth that is already planned to occur based on allocated land current local plans (or the emerging Local Development Frameworks) or strategic allocations in structure plans. It is important that this is accurate to ensure that the existing supply by settlement and by district to identify the residual demand for housing that will require further land release.
- 4.1.2 This chapter also provides estimates of dwellings and employment land supply and compares it with levels of growth sought in the current draft RPG14 and then with the Government's higher growth aspirations which equates to 18,000 more dwellings than is proposed within the current draft RPG14 (see Chapter 1) for the whole of the LSCP growth area. The current Draft RPG14 provides guidance on the amount of housing and jobs that should be achieved by district and, in some instances settlement specific advice (for example North Weald and Harlow).
- 4.1.3 This chapter identifies our estimates of the ability of settlements to absorb development through urban extensions, taking into account environmental designations and also other planning policy designations. This assessment undertaken is not intended to preclude the Local Development Framework preparation process, but does provide a degree of confidence that levels of growth levels examined could be accommodated within identified constraints. It also enables strategic comparisons between settlements to be made.

4.2 Housing land supply

- 4.2.1 Annual Monitoring Returns (AMR) information collected by EERA were used as the basis for establishing housing completions and committed supply (local plan allocations, strategic allocations in structure plans and strategic reserve sites) within the Study Area. This information was supplemented with Urban Capacity Study data (UCS) which provides an assessment of housing likely to be developed as a consequence of small brownfield site development, conversions and change of use development.

4.2.2 The consultants understanding of UCS and AMR data was verified and in some instances updated by districts. Total existing supply was based on the following:

- **Completions** – 2001-2003 (two monitoring years);
- **Committed supply** – extant planning permissions, other sites where the principle of development was accepted, allocations in local plans, contingent sites (for example ASRs in Harlow and Bishop's Stortford) and strategic allocations in Structure Plans; and
- **Identified urban capacity** – provided using the current urban capacity study figures, sourced from the districts/counties. This includes sites that are considered suitable for development but have not been allocated in local plans.

4.2.3 In calculating total existing supply, the following assumptions are important to note:

- The figures for committed supply for North Hertfordshire and Stevenage do not include Stevenage West (whereas Stevenage West is included in AMR data as a committed supply site). The Alterations to the Herts Structure Plan proposed abandoning Stevenage West as a strategic allocation. Following that decision by the County Council, the Inspector who held the inquiry into the Stevenage Local Plan recommended that the site should not be released “until and if the strategic justification for it has been reconsidered and accepted”. The strategic justification (or otherwise) will be determined through the RPG process. Given this Stevenage West has been excluded from committed supply. It should also be noted that the proposal is subject to a call-in inquiry.
- The urban capacity figures used for all Districts were based on discounted/constrained figures provided within the studies, which have taken into account difficult to develop sites.
- The urban capacity figures for Hertfordshire have been provided by the districts/county. The figures that have been derived vary only very slightly overall from those provided within the emerging Hertfordshire Housing Development and Spatial Strategy Audit by a previous study. This study identifies 144 more dwellings compared to the Roger Tym findings, which will not impact on the validity of this study.
- The supply figures for Peterborough have been corrected and updated on the basis of the Peterborough Growth Areas Study. They include the revised urban capacity figures, which increased estimates from 1,131 to 4,974 dwellings.
- In some districts, the figures for total supply are higher than the district level housing targets set within Draft RPG 14. The oversupply relative to draft RPG allocations equate to 2,938 dwellings (South Cambridgeshire: 464, Cambridge City: 1,224, East Hertfordshire 1,250 dwellings).

Housing supply compared to RPG and RPG plus 18,000 dwellings

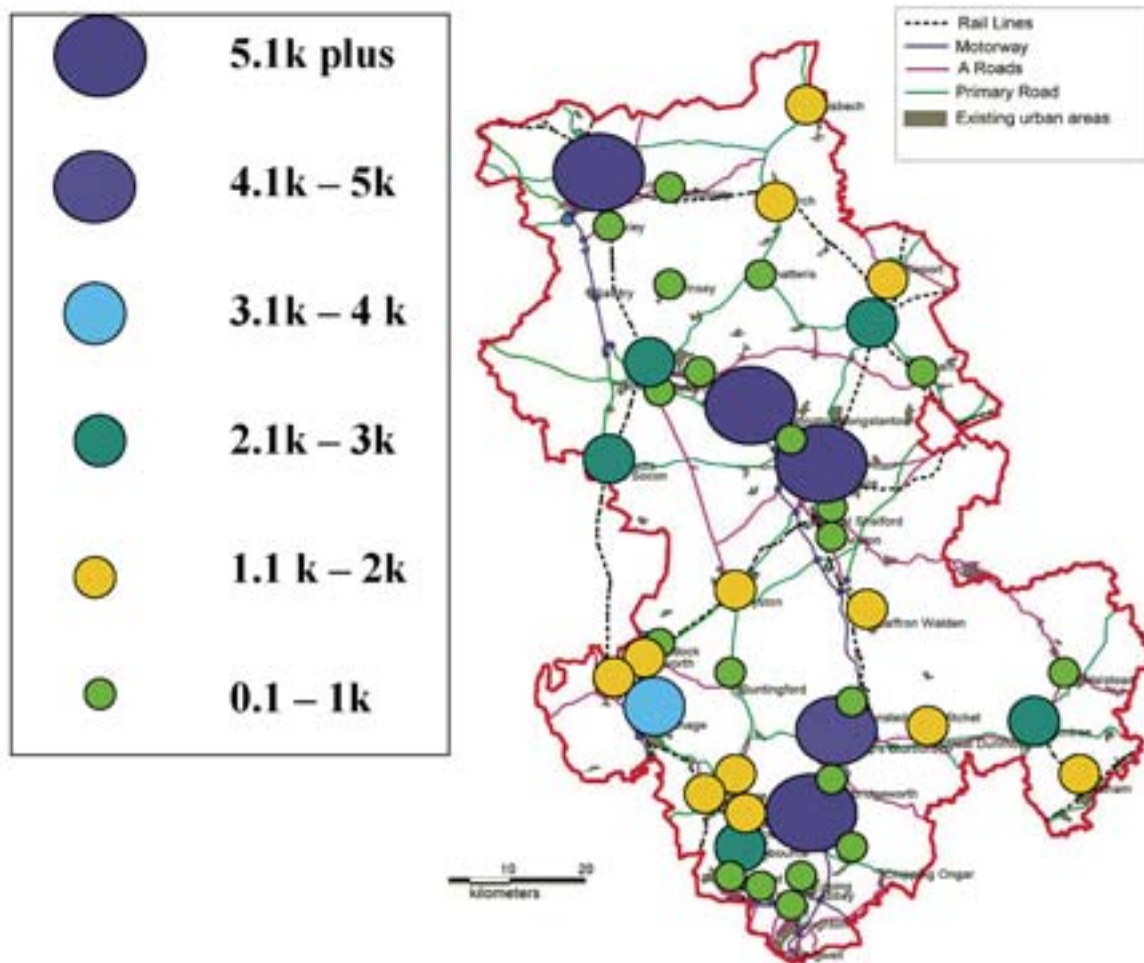
- 4.2.4 The housing growth targets and current supply for the study area are set out in Table 4.1 below.

Table 4.1: RPG dwellings growth and supply (LSCP growth area)	
Dwellings Requirement (2001-2021)	
Draft RPG 14	166,500
Draft RPG 14 + 18,000 *	184,500
Total Supply	
Completions, supply and urban capacity	124,200
Residual (2001 – 2021)	
Draft RPG target	42,300
Draft RPG target plus 18,000*	60,300

Note: * Government's growth aspiration for the growth area equates to 18,000 above current draft RPG14 growth levels (see Chapter 1)

- 4.2.5 The table shows that some 75% of the Draft RPG allocation and 67% of the Draft RPG allocation plus the additional 18,000 is achieved through existing supply. This means that additional housing sites need to be identified to accommodate the levels of growth in draft RPG14 and any subsequent increases.
- 4.2.6 The above table also means that the spatial strategy for the LSCP growth area is largely pre-determined through policy within existing Local Plans and identified urban capacity. If development occurs at an even annual rate across the LSCP growth area, then existing supply will equate to 15 years supply using the RPG target, and 13.5 years supply using the RPG 14 +18,000 target. In developing the spatial options therefore, just 25% and 33% respectively of the total target growth figures (Draft RPG 14 and Draft RPG 14 + 18,000) can be used to generate different spatial patterns of growth.
- 4.2.7 The spatial distribution of housing supply is set out in Figure 4.1, opposite.

Figure 4.1: Spatial distribution of housing supply



4.3 Settlement growth potential assessment

- 4.3.1 The assessment considered the potential of settlements to accommodate additional growth above that already committed and identified within urban capacity studies. This assessment was necessary as the level of growth that has been identified within the current Draft RPG14 requires further greenfield land releases. The assessment aims to identify the ability for settlements to grow through urban extensions. As explained above this assessment is not intended to preclude the local development framework preparation process, but identifies broad opportunities for settlements to grow and enables comparison between different settlements in land terms only.
- 4.3.2 The assessment is one input into the strategic decision making process in terms of choosing between strategic locations and developing spatial distribution of growth. Other inputs, are an assessment of transport and traffic impacts, commercial property considerations and regeneration and planning aspirations.

Methodology

- 4.3.3 A detailed explanation of the methodology and results of the assessment by settlement are provided in Appendix B, but can be broadly expressed as:

1. Delineate search areas

- Identify location of absolute constraints (details of absolute constraints are contained in Appendix B).
- Delineate search areas:
 - Avoiding absolute constraints as far as is possible,
 - But where absolute constraints only comprise a small area and do not obviously prevent development from occurring then adjust areas of search to wrap around constraints or accept that development can be designed without detriment to the constraint.

2. Assess search areas

2.1: Partial constraints assessment

- Identify location and extent of all partial constraints (details of partial constraints are contained in Appendix B).
- Categorise search areas according to how partial constraints affect search areas, as follows:

A – areas where no partial constraints are present

B – areas affected by only one partial constraint

C – areas affected by overlapping (two or more) constraints.

In categorising search areas, to identify potential of settlements to grow, only areas that are adjacent to settlements, form a logical and not incongruous extension and where road access potential exists (comprising an A or B road) are considered. Thus, parts of search areas with no constraints, but that are not adjacent to settlements, do not form a logical boundary or where no road access exists are considered as constrained and will therefore be designated 'B'. The potential of the search area may be hindered by one, two or more partial constraints.

2.2: Landscape sensitivity

- Identify the level of landscape sensitivity for the search areas (derived from Stansted/M11 Development Options Study (see paragraph 1.2.3), as follows:
- High;
- Moderate/High;
- Moderate; and
- Low/Moderate.

2.3: Combine landscape and partial constraints assessment results

- Combine scores to classify potential of search areas as follows: Minimal probable environmental impacts – highest potential capacity
- Some environmental impacts – moderate potential capacity
- Significant environmental impacts – lowest potential capacity

3. Calculate settlement and district potential

- Add up total capacity by type of potential (highest, moderate, lowest) by settlement and then by district.

4.3.3 The methodology used comprises the first steps used in the Cambridge sub-region Study Data and is a more refined assessment than that used in the Stansted/M11 Development Options Study. The results from the Stansted/M11 Development Options Study have been revised to reflect the methodology above. This more detailed assessment identifies substantially less capacity at existing settlements.

4.3.4 In order to make the best use of information that currently exists, the environmental capacity results from the Cambridge sub-region study have been used to inform the study, on the basis that detailed site assessment work was undertaken – including desk based analysis and on-site field surveys. Undoing the work is unlikely to affect strategic decision making as the method used provides an indication of the relative ability of settlements to expand. In addition, it could have implications with respect to the Cambridge and Peterborough Structure Plan, which has been based on its findings. This is explained in full below, at paragraph 4.3.6. In addition, and consistent with the rest of the study area, this work was supplemented by further information and comments provided by the Districts on particular spatial areas during the consultation stages of the study.

4.3.5 Rather than assessing Stevenage West as a proposal (which is subject to a call-in inquiry), this Study considers whether Stevenage as a settlement is an appropriate location for strategic expansion.

Green Belt

4.3.6 Green Belt has been identified as a partial constraint. However, in recognition that Green Belt releases are likely to be required, an assessment of settlement potential has been also been undertaken which does not make any allowance for Green Belt. This Study has used results from the Cambridge Sub Region Study where a very detailed assessment of Green Belt purposes has already taken place. That assessment identified all sites that could be released in a manner that would sensibly maintain the role and function of the Cambridge Green Belt. The results of that work were used to inform the Cambridgeshire and Peterborough Structure Plan which was supported at the EiP of that Plan and has subsequently led to the release of all land opportunities identified, either to meet need in the period up to 2016 or longer term need. In order to make this work methodologically consistent with the other parts of the study area, the judgements about the purposes of the Green Belt for the Cambridge sub-region would need to be removed. In practice, however, this exercise would be inappropriate because it would not result in a significant increase in the amount of land suitable for development within the Cambridge sub region due to other identified capacity constraints. The main purposes of the review were:

- To preserve the special character of Cambridge and to maintain the quality of its setting. Special character, in addition to the City's historic core and associated university colleges comprises the green corridors and wedges connecting the city with the countryside and the separation between settlements to ensure clear identity. Setting comprises views of the city and the placement and character of villages surrounding the city and the interface between the city and the countryside; and
- To prevent coalescence of settlements.

Settlement Potential Assessments Results by District

- 4.3.7 Results from the assessment are provided at a settlement level within Appendix B. District level figures, without and with the Green Belt, are summarised as follows:

Table 4.2: Settlement Growth Potential Assessments

District/Settlement	Area Assessed (dwellings)	Settlement Impact (dwellings)					
		Without Green Belt			With Green Belt		
		Minimal environmental impact	Some environmental impact	Significant environmental impact	Minimal environmental impact	Some environmental impact	Significant environmental impact
Braintree	140,908	0	56,753	84,155	0	56,753	84,155
Epping Forest	113,233	0	13,112	100,121	0	12,980	100,253
Harlow	57,017	0	17,513	39,505	0	11,122	45,896
Uttlesford	64,117	1,151	7,388	55,578	1,151	7,388	55,578
Fenland	21,690	0	11,260	10,430	0	11,260	10,430
Peterborough	31,836	21,476	10,360	0	21,476	10,360	0
Huntingdonshire	10,245	10,245	0	0	10,245	0	0
East Cambridgeshire	9,767	1,584	8,183	0	1,584	8,183	0
South Cambridgeshire*	71,591	4,391	12,968	54,232	4,391	12,968	54,232
Cambridge City*	25,518	120	0	25,398	120	0	25,398
Broxbourne	12,997	2,059	9,558	1,380	0	6,700	6,297
East Hertfordshire	62,395	0	14,871	47,524	0	6,989	55,406
North Hertfordshire	25,333	4,911	2,508	17,914	1,193	3,718	20,422
Stevenage	23,401	2,435	6,873	14,092	0	7,957	15,443
TOTALS	670,047	48,372	171,345	450,329	40,160	156,378	473,509
% increase		120%	110%	95%			
Difference between With and Without		8,213	14,967	-23,180			

Notes: * Capacity results for Cambridge and South Cambridgeshire are based on the CSRS and hence it has not been possible to exclude Green Belt from the results. The expansion of Stevenage beyond district boundary, excluding Stevenage West as at call inquiry, has been included within the Stevenage Borough total.

Harlow total includes expansion within Epping Forest and East Hertfordshire

Letchworth and some sites within Peterborough and Stevenage do not have landscape sensitivity data

- 4.3.8 The assessment shows that by using land adjacent to settlements within the minimal environmental impacts category and excluding Green Belt as a constraint, then some 48,400 dwellings could be accommodated in the Study Area. However, 65% of this is located mainly in Peterborough and Huntingdonshire and that there is limited capacity within this category within Essex. It is noted that results on the ability of Peterborough and Hertfordshire to grow needs to be reconciled with results from the concurrent studies on Peterborough and Hertfordshire. There is substantially more capacity within the 'some impacts' category particularly within Essex.

- 4.3.9 Table 4.3 compares environmental capacity with the current draft RPG growth targets and the Government's higher growth target.

Table 4.3: Residual dwellings growth target and settlement growth potential assessments	
Residual dwellings requirement (2001 – 2021)	
Draft RPG target	42,130
Draft RPG target plus 18,000	60,130
Settlement potential assessment	
With Green Belt as a partial constraint	
Minimal environmental impact	40,160
Some environmental impact	156,378
Significant environmental impact	473,509
Without Green Belt as a partial constraint	
Minimal environmental impact	48,372
Some environmental impact	171,345
Significant environmental impact	450,329

Note: Government's growth aspiration for the growth area equates to 18,000 above current draft RPG14 growth levels (see Chapter 1)

- 4.3.10 The above table shows that in order to meet RPG growth targets that land on the edge of settlements that falls within the 'minimal impact' category would need to be used. However, if Green Belt is not considered to be a constraint then all could be accommodated on land within this 'minimal impact' category. However, as indicated above, most of the 'minimal impact' land is located in the north and very little is located in the south of the study area.
- 4.3.11 A substantial amount of land falls within the 'some impact' category, much more than is required to meet either the current RPG growth target or the Government's higher target.

CHAPTER 5

Employment projections

5.1 The wider London and South East Economy

- 5.1.1 Over the last 5 years the South East Economy has been driven by growth in London where employment has been rising by around 1% a year. London is forecast to continue to experience steady employment growth in the future and in addition to London, the ODPM Communities Plan identifies four key growth areas: Milton Keynes-South Midlands, Ashford, London-Stansted-Cambridge-Peterborough and the Thames Gateway.
- 5.1.2 Between 2001 and 2016 projected employment growth in the whole of the South East is in the order of 1.1 to 1.2m jobs depending upon forecaster. However, planning aspirations are considerably higher at 1.5m. Table 5.1 breaks down this figure by growth area, extracted from the Thames Gateway Study of the relationship between Transport and Development (Llewelyn Davies, 2004).

Table 5.1: Employment – Planning Aspirations 2001-2016 growth	
Area	Jobs
Milton Keynes (Excl Northants)	76,000
Ashford	10,000
Stansted Corridor (Excl Cambridge)	105,000
Thames Gateway	343,000
London (Excl Thames Valley)	517,000
Rest of South East	465,000
Total	1,516,000

- 5.1.3 These higher employment forecasts give rise to questions about their achievability. For all regions to grow at the projected levels will require one or a combination of: increased activity rates, higher population levels, and or changes in commuting patterns. If these do not occur then the projected employment levels will not be achieved. Higher levels of population would require migration into the area.

5.2 Employment projections and RPG in the east of England

- 5.2.1 The Regional Economic Strategy (RES) *East of England 2010 – Prosperity and Opportunity for All* sets out how the RDA believes sustainable growth can be achieved throughout the East of England. Regional planning guidance should assist the implementation of the RES and the RES must sit within the spatial planning framework provided by RPG14. The RES contained a headline target that the region becomes one of the top 20 European regional economies as measured by GVA per capita by 2010, a target known as enhanced growth 2010 or EG10 for short. That aspiration has been changed and it is now accepted that it would be more appropriate that the aim should be for this target to be achieved by 2021 and this is referred to EG21.
- 5.2.2 The original RES and the Government's Sustainable Communities Plan have consistent objectives but there are some mismatches between the longer timescale growth aspiration, to 2021, where the Communities Plan is seeking higher levels of growth in particular areas. This has resulted in the EG21 projections being further enhanced with higher employment targets, which are referred to as EG21+. These EG21+ figures form the basis of the banked draft RPG14.
- 5.2.3 This chapter examines projected employment growth in the study area and where this growth is anticipated to happen. It is based on *Economic Development Task Group – Working Paper RES and RPG14 – Employment, Labour, Population and Housing to 2021* and further employment forecasts produced by Experian Business Strategies, specifically for this study, who also produced the original data projections for RES.

Employment growth in the East of England

- 5.2.4 As highlighted above the present working assumption is that the East of England should be in the top 20 EU regions by 2021 measured by GVA per capita. For the region as a whole the following four employment projections have been compared with the banked draft RPG14:
- business as usual (BAU);
 - enhanced growth by 2010 (EG10);
 - enhanced growth by 2021 (EG21); and
 - enhanced growth by 2021, plus growth area requirements (EG21+), the figures used in the draft RPG 14.
- 5.2.5 All these scenarios were analysed by Experian Business Strategies and the results are taken from *Economic Development Task Group – Working Paper RES and RPG14 – Employment, Labour, Population and Housing to 2021*. Comparisons are drawn to identify potential deliverability of growth issues.

- 5.2.6 This paper does not provide as much detail for EG21+ and additional analysis has been undertaken to fill in some of the gaps. The change in employment between 2001 and 2021 for these four options ranges from 220,000 to 441,000 as shown in table 5.2

Table 5.2: Total employment by scenario to 2021 ('000s)			
	2001	2021	Change
BAU	2585	2805	220
EG10	2585	3026	441
EG21	2585	2916	331
EG21+	2585	3006	421

- 5.2.7 This growth is neither evenly distributed throughout the Eastern region nor over time. Table 5.3 illustrates the projected increase in employment by county. For scenario EG21+ this shows the difference between the forecasts and local growth aspirations. For example, under EG21+ job growth in Essex is projected to be 50,000 higher than under EG21 while Bedfordshire is seeking employment growth three times higher than projected. The increased levels of growth reflect policy aspirations, particularly in Thames Gateway, which have increased jobs growth in Essex. EEDA believe that whilst it will be challenging to secure the growth, particularly in regeneration areas, they can be delivered.
- 5.2.8 The EG21+ figures assume that the East of England region will account for around 20% of all employment growth within the wider South East of England over the next 20 years. This compares with over 25% over the last 20 years.
- 5.2.9 For the other three scenarios the majority of growth is projected for Cambridgeshire with limited growth in Bedfordshire.

Table 5.3: Employment growth by county 2001-2021 by scenario				
	BAU	EG10	EG21	EG21+
East of England	220	441	331	422
Bedfordshire	8	28	18	53
Cambridgeshire	75	111	93	93
Essex	34	89	62	113
Hertfordshire	32	89	60	65
Norfolk	29	56	43	43
Suffolk	42	69	55	55

- 5.2.10 There is then the issue of timing. In all scenarios the majority of employment growth is anticipated to occur in the first 10 years as shown in Table 5.4.

Table 5.4: Growth in total employment by decade (000s)		
	2001-2011	2011-2021
BAU	144	67
EG10	365	75
EG21	204	127

- 5.2.11 This high level of growth in the first ten years may place considerable pressure on the ability of the region to cope with the associated population growth. However, according to the Labour Force Survey there has been no material growth in employment in the region between 2001 and 2003.
- 5.2.12 How do the projected growth rates compare with previous rates? Between 1982 and 2001 employment growth in the region totalled 507,000 jobs, the equivalent of an annual growth rate of 1.2%. However, a high proportion of this was in the period 1982 to 1986, since then growth rates have been lower, especially in the decade 1991 to 2001 when average annual growth rates were 0.9% and for Bedfordshire were actually negative. Projected growth rates for the region as a whole vary from 0.4 to 0.8% a year. Table 5.5 compares growth rates by county for each scenario.

Table 5.5: Historic and projected annual growth rates (%)							
	1982- 2001	1986- 2001	1991- 2001	BAU	2001-2021		
					EG10	EG21	EG21+
East of England	1.2	1.0	0.9	0.4	0.8	0.6	0.8
Bedfordshire	0.4	-0.1	-0.1	0.2	0.5	0.4	1.0
Cambridgeshire	2.0	1.7	1.7	0.9	1.3	1.1	1.1
Essex	1.2	1.1	1.0	0.2	0.6	0.4	0.8
Hertfordshire	1.3	1.3	1.7	0.3	0.7	0.5	0.6
Norfolk	1.0	0.8	0.1	0.4	0.8	0.6	0.6
Suffolk	1.0	0.8	0.2	0.6	1.0	0.8	0.8

- 5.2.13 Table 5.6 sets out the difference in annual growth rates achieved between the periods 1982-2001 and 1991-2001 and that required in each of the four scenarios. A negative figure indicates future growth rates are lower than those achieved in the past. With the exception of Bedford projected growth rates are conservative with those that have been achieved in the previous twenty year period. They still appear conservative even compared with the less rigorous growth rates achieved in the 1990s with the exception of Norfolk and Suffolk.

Table 5.6: Difference between future projected and historic annual growth rates

	Difference between future projected growth and that achieved between 1982-2001				Difference between future projected growth and that achieved between 1991-2001			
	BAU	EG10	EG21	EG21+	BAU	EG10	EG21	EG21+
East of England	-0.8	-0.4	-0.6	-0.4	-0.5	-0.1	-0.3	-0.1
Bedfordshire	-0.2	0.2	0.0	0.6	0.2	0.6	0.4	1.0
Cambridgeshire	-1.1	-0.7	-0.9	-0.9	-0.8	-0.4	-0.6	-0.6
Essex	-0.9	-0.6	-0.7	-0.4	-0.8	-0.4	-0.6	-0.3
Hertfordshire	-1.0	-0.5	-0.8	-0.7	-1.4	-1.0	-1.2	-1.2
Norfolk	-0.6	-0.2	-0.4	-0.4	0.3	0.7	0.5	0.5
Suffolk	-0.4	0.0	-0.2	-0.2	0.4	0.8	0.6	0.6

5.2.14 The methodology used to determine job growth is paradoxically highly complex and simplistic. Complex in that it uses population projections, assessments of migration and economic activity rates as well as regional input output analysis thereby capturing the interrelationship between sectors as they wax and wane nationally and within the region.

5.2.15 Simplistic in that it is based on long term growth trends and the Eastern region's existing employment structure. Like any such forecast it can not accommodate occurrences such as the creation of new economic activities in the region or the impact of new towns or developments like London Docklands. Appendix C provides brief details of the methodology used by Experian Business Strategies to produce the employment projections used.

Relationship between jobs and population

5.2.16 There is a complex relationship between an area's population and the number of jobs contained within it and hence the number of additional people who need to live in an area as employment grows. These include:

- Economic activity rates
- Demographics
- Unemployment rates
- Commuting flows

5.2.17 The Experian Business Strategies analysis outlined in *Economic Development Task Group – Working Paper RES and RPG14 – Employment, Labour, Population and Housing to 2021* examined each of these issues. In terms of local housing demand one of the key issues is the rate of in and out commuting. The previous analysis undertaken assessed the level of in and out commuting and hence the size of the local labour force working locally, see table 5.7. (It is assumed the figures for EG21+ are broadly similar for those for EG10).

Table 5.7: Calculation of local labour working in the Region thousands

	Residence based employment (LFS historical data)			Gross Out commuting from the East of England			Local labour Working locally		
	2001	2011	2021	2001	2011	2021	2001	2011	2021
BAU	2,682	2,822	2,877	340	–	390	2,342	–	2,487
EG10	2,682	2,905	3,001	340	–	346	2,342	–	2,655
EG21	2,682	2,851	2,971	340	–	350	2,342	–	2,621

- 5.2.18 Based on the number of workers required to meet the employment forecasts this then provides an assessment of the level of in commuting needed in the region, as per table 5.8

Table 5.8: Gap between local labour supply and projected employment size and hence level of in commuting and or new migration

	Workplace-based workers (000s)		Local labour working locally (000s)		Difference Gap between work place workers and local labour working locally (000s)	
	2001	2021	2001	2021	2001	2021
BAU	2,478	2,690	2,342	2,487	136	203
EG10	2,478	2,906	2,342	2,655	136	251
EG21	2,478	2,797	2,342	2,621	136	176

- 5.2.19 Table 5.8 suggests that under BAU, for example, the present level of in commuting of some 136,000 will increase to over 200,000 by 2021. The alternative is to provide additional housing in the region to meet this increased demand for employment or to reduce out commuting but this is dependent on changes in earning differentials between place of residence and place of work.

Population and housing implications

- 5.2.20 The analysis undertaken for *Economic Development Task Group – Working Paper RES and RPG14 – Employment, Labour, Population and Housing to 2021* was based on a fixed population figure regardless of growth scenario. Under the higher growth scenarios economic activity rates increase, unemployment falls and out commuting declines and in commuting increases.
- 5.2.21 The link between employment, population and housing is further complicated by changing social structures and demographics, which are not related to labour markets. So housing demand will increase regardless of changes to employment. Table 5.9 provides population projections used by Experian Business Strategies and Chelmer with the consequential housing numbers.

Table 5.9: Population, Households & Dwellings 2001-2021

East of England	BSL (2002)	BSL (2003)	Chelmer 2003 (5 yr mign)	BSL2003 minus BSL2002	Chelmer minus BSL03
2001 Population	5,501,312	5,398,751	5,393,900	-102,561	-4,851
2021 Population	6,124,275	5,982,936	6,063,005	-141,339	80,069
Population Change 2001-2021	622,963	584,185	669,105	-38,778	84,920
Households 2001	2,316,940	2,233,982	2,231,975	82,958	-2,007
Households 2021	2,825,710	2,629,162	2,664,340	-196,548	35,178
Household Change 2001-2021	508,770	395,180	432,365	-113,590	37,185
Dwellings 2001*	2,374,400	2,310,856	2,307,800	-63,544	-3,056
Dwellings 2021*	2,895,788	2,719,027	2,754,300	-176,761	35,273
Net new dwellings (net stock change) 2001-2021 *	521,388	408,171	446,500	-113,217	38,465
Annual Average stock change*	26,100	20,593	22,325	-5,507	1,738
Popn/dw 2001 **	2.32	2.34	2.34	0.02	0
Popn/dw 2021**	2.11	2.20	2.20	0.09	0

Note: * inferred for BSL projections

** population per dwelling is use here for simple comparison – it is not equivalent to average household size
(Unlike Chelmer, BSL did not forecast the private households population)

- 5.2.22 While at the aggregate level there is a link between housing and employment, at a local level the link is between housing and access to employment. The desire to achieve local housing/jobs balance has to be applied at the right level and take into account isolated employment centres such as Stansted Airport and major concentrations of jobs, such as Central London. Research in Oxfordshire highlights that impact of new housing developments on travel patterns. The long term objective of Oxfordshire County Council was to grow Bicester in a balanced way. This planned expansion has been going on for three decades. It is estimated that a fifth of residents on new estates in the town were from Bicester itself, a third from elsewhere in Oxfordshire and a half from outside the county. These later incomers were found to have very different travel patterns from those who previously lived locally.
- 5.2.23 Only 12% of the incomers worked in Bicester itself compared with 34% of residents generally. By contrast, 45% worked elsewhere in the County (as against 37% of all residents) and 34% worked outside the County altogether (as against 17%). Car ownership on the new estate was 0.96 per adult and 92% of all work trips were by car. The average weekday distance on work and home-based business journeys was some 29 miles. Movers on to the new estate also switched modes when commuting with. 15% of workers switching from non-car to car at the time of their house move, compared with only 3% switching in the opposite direction. Of those who commuted by car both before and after their move 33% had longer journeys whereas only 14% had shorter ones. In all therefore almost a third of workers were making less sustainable journeys after their move.

- 5.2.24 The other issue in the equation is the degree of job and housing mobility. Around 20% of employees change jobs each year but only 10% change homes. Of those who do move less than 10% move for job related reasons. So while 1 in 5 will change jobs each year less than 1 in a 100 will move home each year for employment reasons.

Growth

- 5.2.25 This study examines how to accommodate levels of growth provided in the banked draft RPG14, which are provided in terms of jobs and also dwellings. In addition this study examines how an additional 18,000 dwellings might be accommodated. The above analysis shows that the levels of jobs growth projected to occur in draft RPG14 is likely to be challenging, particularly in regeneration areas. Notably a workforce/population unconstrained job projection was just short of the levels of projection contained in the draft RPG14. Hence, all modelling and testing work that has been undertaken in respect of accommodating the additional 18,000 dwellings growth, has not been on the basis of any increase in the RPG jobs growth projection.

Study area analysis

- 5.2.26 The analysis outlined above is for the whole of the Eastern Region. This next section examines the situation in the study area. The employment figures reported in RPG are Scenario EG21+. However, they are presented at the sub regional level so various calculations and assumptions have had to be made to convert them into District level figures. In addition revised EG21 figures have been provided from BSL using latest census outputs and growth data and these updated figures (which have been provided to stakeholders) have been used in the study. It is worth briefly spelling out, where applicable, how the District level figures have been derived.
- 5.2.27 The technical report to the Cambridgeshire and Peterborough Structure Review sets out employment figures for each district up to 2016. The RPG then factored up these figures to 2021. However, a single figure for Cambridge City and South Cambridgeshire was given and this has been split between the two districts in the same ratio as the EG21 forecast increase. The RPG figure also has a further 7900 jobs that are unallocated across the county. These jobs have been assumed to be allocated between districts in the same proportion as the underlying increase in employment.
- 5.2.28 The RPG figure for Harlow is taken from the Harlow Options report. For the other Essex districts in the study area the EG21 figures have been used. In Hertfordshire the RPG figures assume that 25% of the Harlow Options report employment figures are located in the county of which we have assumed half to be based in East Hertfordshire and half in Broxbourne. RPG assumed half of this growth is in addition to EG21 Scenario.
- 5.2.29 Having derived district figures the growth in employment has been allocated to each ward within the area using a formula based on the existing level of employment in the ward, the absolute level of growth over the last 10 years and the percentage growth in employment over the last 10 years. The wards have then been grouped together for their respective settlements. Some adjustments have then been made to take account of employment at Stansted Airport, based on the Stansted/M11 Development Options Study (2003) and maximum use of 1 runway scenario by 2021.

- 5.2.30 In terms of the basic projections table 5.10 highlights the differences between them. Besides the four projections outlined above 2 further projections have been added, one from Temprow which is rather outdated and another from Experian Business Strategies which is referred to as an unconstrained forecast. This drops the population constraint that was used in the other employment projections.

Table 5.10: Employment actual and projections by District 1982-2021

District	Employment 1982	2001 Employment ABI/BSL	BAU 2021 BAU 2021	EG 2021 EG 2021	Unconstrained 2021 2021	RPG 2021 EG21+)	Temprow 2021
Braintree	38.6	54.0	57.9	59.6	61.1	59.6	61.6
Broxbourne	36.5	35.9	38.6	39.8	41.4	42.1	41.6
Cambridge	73.1	91.8	111.4	114.3	118.3	122.6	154.2
East Cambs	15.5	24.7	29.2	30.1	32.5	28.4	32.0
East Herts	50.3	65.5	74.3	76.5	74.8	78.7	109.9
Epping Forest	39.1	46.9	51.3	52.6	52.7	52.6	47.9
Fenland	26.8	32.3	35.2	36.1	36.6	35.8	36.4
Harlow	41.9	43.5	40.7	42.0	47.6	70.4	44.4
Huntingdonshire	42.8	73.2	86.5	89.0	95.0	87.6	102.0
North Herts	48.0	57.6	68.4	70.8	72.4	70.8	61.7
Peterborough	76.6	93.0	101.2	104.5	104.4	111.9	100.4
South Cambridgeshire	32.9	66.0	79.0	81.8	93.0	87.6	79.7
Stevenage	40.0	44.7	44.8	46.0	47.0	46.0	49.6
Uttlesford	20.9	38.3	43.0	44.5	46.4	44.5	35.1
Total	582.8	767.5	861.3	887.7	923.1	938.7	956.6

- 5.2.31 Employment in the study area is estimated to be just over three quarters of a million at present with projections for 2021 ranging from 860,000 to 960,000. For individual districts the variations between forecasts are immaterial for locations such as Fenland to Braintree where differences are less than 10% between highest and lowest. However, for Harlow and East Hertfordshire the differences range from 50% to 75%.
- 5.2.32 In assessing future projections it is worth reviewing past performance in terms of employment growth. Table 5.11 provides data on absolute and percentage increases in employment by District for the last 20 years and for the study area as a whole.

Table 5.11: Past employment growth

District	Employment 1982	2001 Employment ABI/BSL	Absolute increase 1982-2001	Percentage increase 1982-2001
Braintree	38.6	54	15.4	39.9%
Broxbourne	36.5	35.9	-0.6	-1.6%
Cambridge	73.1	91.8	18.7	25.6%
East Cambs	15.5	24.7	9.2	59.4%
East Herts	50.3	65.5	15.2	30.2%
Epping Forest	39.1	46.9	7.8	19.9%
Fenland	26.8	32.3	5.5	20.5%
Harlow	41.9	43.5	1.6	3.8%
Huntingdonshire	42.8	73.2	30.4	71.0%
North Herts	48	57.6	9.6	20.0%
Peterborough	76.6	93	16.4	21.4%
South Cambridgeshire	32.9	66	33.1	100.6%
Stevenage	40	44.7	4.7	11.8%
Uttlesford	20.9	38.3	17.4	83.3%
Total	582.8	767.5	184.7	31.7%

- 5.2.33 Whilst employment in the study area as a whole has increased by nearly 200,000 or a third this masks considerable divergence at a district level. At one extreme Broxbourne has had no growth while South Cambridgeshire has achieved more than 100%. Comparing past employment growth with projected future growth highlights a number of areas where there must be a doubt as to whether the targets will be met without substantial intervention.
- 5.2.34 For the corridor as a whole future employment projections are markedly lower than the rates achieved in the last 20 years. This suggests they should be achievable. However, at a District level projected employment levels can be very different from those achieved in the past. This is illustrated in table 4.12, which shows the difference in annual employment growth required to meet RPG14 and that which occurred between 1982 and 2001. A positive figure implies a faster and a negative figure a lower annual growth rate. Harlow needs to achieve a 2.2% increase in annual growth and Broxbourne nearly 1% higher than its past achievements. For the area as a whole growth is nearl 0.5% lower than in the past while Cambridge and Uttlesford need to grow at 2% less a year.

Table 5.12: Annual Employment growth 1982-2001 compared to draft RPG 14

District	Annual employment growth compared to draft RPG 14 (%)
Harlow	2.2%
Broxbourne	0.9%
Cambridge	0.3%
North Herts	0.1%
Peterborough	0.0%
Epping Forest	-0.3%
East Herts	-0.4%
Fenland	-0.4%
Stevenage	-0.4%
Total	-0.4%
Braintree	-1.2%
East Cambridgeshire	-1.7%
Huntingdonshire	-1.8%
South Cambridgeshire	-2.1%
Uttlesford	-2.3%

CHAPTER 6

Market Analysis

6.1 Introduction

- 6.1.1 This section sets out the results of the market analysis that was undertaken to identify potential market constraints to delivering the strategy for growth, and hence what market interventions may be required in particular locations. The analysis covered both the housing and employment markets.

6.2 Housing

Methodology

- 6.2.1 The methodology for the housing market analysis included compiling a database of land values and determining the views of house builders, utility providers and other private sector organisations involved in the house building process in relation to the levels of growth that could be delivered and the constraints that might affect capacity. A database for each major settlement, providing information on historic housebuilding rates and current land values (with planning permission for residential use) was created. This was followed by interviews with a representative sample of volume housebuilders active in the LSCP growth area. In total, ten housebuilders/major landowners as well as representatives of the House Builders Federation (HBF) were interviewed, in order to ascertain their views of the capacity that could be delivered in the sub-region and any constraints that may impact on that volume. The housebuilders/landowners interviewed were Barratts, Bellway Homes, Countryside Properties, Crest Nicholson, Croudace, Gallagher Estates, George Wimpey, Kier/Twigden, O&H and Persimmon.
- 6.2.2 Interviews with banks (RBS and HSBC), utilities regarding water and electricity (Cambridge Water, Veolia Water Partnership and EDF) and project managers were also undertaken to identify any other constraints.

Housebuilding Rates

- 6.2.3 Housebuilding statistics were provided by OPDM so that housebuilding rates over the last 20 years could be analysed by Local Authority. Both the average annual construction rates, and the maximum and minimum rates achieved (using a five-year moving average) were calculated.
- 6.2.4 Draft RPG14 provides a figure for the average number of dwellings per annum to be built from 2001 to 2021, and this was compared with historic average housebuilding rates. It should be noted that as draft RPG14 is based on an increased rate of housebuilding from 2001, but has not yet been implemented, the actual rate required to 2021 will be increased. In addition, Lord Rooker has requested EERA to consider how an additional 18,000 residential units could be provided.

- 6.2.5 The impact of social housing also needs to be taken into account. Over the last decade, the number of social housing completions was lower than over the last 20 years, which is one reason why the 20 year average is in many cases higher than the 5 or 10 year average. However, there is likely to be a revival in the provision of this type of accommodation in the future, due to increased affordable housing S.106 agreements, assuming funding is forthcoming.
- 6.2.6 A summary of the comparison of housebuilding rates is shown in table 6.1. It should be noted that these figures are provided by ODPM, and that Local Authorities may produce their own data, which may in some cases differ from ODPM compiled figures. For example, Peterborough UA considers that ODPM figures under-record the actual level of completions for Peterborough.

Table 6.1: Historic and Proposed Housing Completions by Local Authority*				
	Net additional dwellings required, 2001-2021 (pa)	Average historic completions pa (to 2002/03)		
Local Authority		Last 5 years	Last 10 years	Last 20 years
Braintree	385	697	701	674
Broxbourne	255	348	320	352
Epping Forest	930#	304	338	328
Harlow	400	336	412	290
Uttlesford	400	251	260	259
Fenland	485	439	440	557
Peterborough UA	1,080	460 (653)**	445 (582)**	605 (859)**
Huntingdonshire	560	532	681	880
South Cambs	1,175##	640	664	691
East Cambs	430	344	393	439
City of Cambridge	735	139	241	309
East Herts	485	403	573	600
North Herts	665 (465)***	233	306	447
Stevenage	340 (540)***	217	328	320

Source: Draft RPG 14, ODPM, GVA Grimley

Note: * ODPM data may differ from Local Authority compiled data.

** Peterborough UA figures

*** Figures in brackets assume Stevenage expansion comprises Stevenage allocation and 4,000 allocation from North Hertfordshire

Assumes that Harlow expansion occurs in Epping Forest

Includes new settlement at Northstowe

- 6.2.7 In the UK as a whole, the level of housebuilding has been relatively low in recent years compared with the historic average over long time periods. This helps to explain, therefore, why most Local Authority Districts show a higher annual average rate of completions over the last 20 years than over the last 5 years. However, in two of the 14 Local Authority Districts (LADs), Braintree and Harlow, the level of completions has been higher over the last five years.

- 6.2.8 Taking the Local Authorities in the LSCP growth area as a whole, a total of 8,325 dwellings pa are proposed under the draft RPG14 from 2001 to 2021. This compares with an average of 6,750 dwellings pa over the last 20 years, and only 5,344 pa over the last five years. RPG14 therefore implies an increase in construction activity of 23.3% over the average rate during the last 20 years, and an increase of 55.8% over the average rate during the last five years. In reality, the rate going forward would be higher than 8,325 pa, as two of the 20 years have already passed, and also due to the additional 18,000 units sought under the Sustainable Communities Plan.
- 6.2.9 If it is assumed that no increase in the rate of housebuilding occurs in the first six years of the 20 year period (i.e. housebuilding rates are maintained at the same rate as the average over the last five years), the annual rates of housebuilding over the remainder of the 20 years period (i.e. the last 14 years) would have to be about 15% higher than the 8,325 mentioned above to achieve the RPG14 target. They would have to be about 30% higher to achieve the RPG 14 target plus the additional 18,000 units sought under the Sustainable Communities Plan.
- 6.2.10 The only Local Authority areas with a lower planned rate of construction than the average over the last five years are Braintree (where 385 dwellings pa are proposed, compared with an average historic rate of 697 pa), and Broxbourne (where 255 dwellings pa are proposed, compared with an average historic rate of 348 pa).
- 6.2.11 Taking the average over the last 20 years, Braintree, Broxbourne, East Cambridgeshire, East Hertfordshire, Fenland and Huntingdonshire have lower planned rates of construction than in the past (although in East Cambridgeshire, the difference is marginal). These comments, together with other factors considered in subsequent chapters, feed into the preferred strategy discussed in Chapter 10.
- 6.2.12 The other LADs would see an increase in the level of house building, although the degree of difference varies considerably. The following table ranks all 14 LADs, based on the proposed increase in output relative to the last 20 years.

Table 6.2: Proposed % increase in house building

Rank	County	Local Authority	% increase pa to 2021 compared with last 20 years	% increase pa to 2021 compared with last 5 years
1	Essex	Epping Forest#	184%	206%
2	Cambs	City of Cambridge	138%	429%
3	Cambs	Peterborough UA	79%	135%
4	Cambs	South Cambs##	70%	84%
5	Essex	Uttlesford	54%	59%
6	Herts	North Herts	49% (4%)*	186% (100%)*
7	Essex	Harlow	38%	19%
8	Herts	Stevenage	6.3% (69%)*	57% (149%)*
9	Cambs	East Cambs	-2%	25%
10	Cambs	Fenland	-13%	10%
11	Herts	East Herts	-19%	20%
12	Herts	Broxbourne	-28%	-27%
13	Cambs	Huntingdonshire	-36%	5%
14	Essex	Braintree	-43%	-45%

Source: Draft RPG 14, ODPM, GVA Grimley

Note: * Figures in brackets assume Stevenage expansion comprises Stevenage allocation and 4,000 allocation from North Hertfordshire

Assumes that Harlow expansion occurs in Epping Forest

Includes new settlement at Northstowe

- 6.2.13 Epping Forest will face the largest increase in construction, at 184%, with 930 units pa proposed, compared with an average of only 328 pa over the last 20 years. In part, this reflects the expansion of Harlow. The City of Cambridge would see an increase of over 138%, with 735 units pa proposed compared with 309 units pa over the last 20 years. Peterborough, meanwhile, would see a 79% increase, and South Cambridgeshire would see a rise of 70%. Uttlesford, North Hertfordshire and Harlow would all see somewhat more modest, but nonetheless significant, rises of between 54% and 38%. However, with the adjustments to the North Hertfordshire/Stevenage figures, the proposed increase in North Hertfordshire reduces to a more modest 4%, but Stevenage would see a much larger increase of 68.8%.
- 6.2.14 The maximum level of completions achieved over the last 20 years has also been examined, using a 5-year moving average. This is shown in the following table. On this measure, only four of the 14 Local Authority areas have a higher proposed rate of housebuilding (Epping Forest, Uttlesford, South Cambridgeshire and the City of Cambridge) than their peak historic 5-year moving average. However, this methodology compares a rate of construction to be maintained over a period of 20 years (to 2021) with a past one-off rate over a much shorter period of time (5 years), which may not have been sustainable over a longer period. Also, in most areas, the maximum rate of construction activity was achieved in the housing boom years of the late 1980s and early 1990s, and has been lower over the last decade (the major exceptions to this are Harlow and Stevenage, where the peak occurred in the mid-to-late 1990s). On the other hand, levels of affordable housing are likely to be higher in the future than over the last 10-15 years due to higher S.106 contributions, assuming funding is forthcoming.

Table 6.3: Proposed housebuilding compared with the last 20 years

Local Authority	Net additional dwellings required banked RPG (pa)	Completions achieved in the last 20 years (5-year moving average)		
		Maximum	Minimum	Period Maximum Achieved
Braintree	385	856	355	84/85 – 88/89
Broxbourne	255	425	271	83/84 – 87/88
Epping Forest	930#	382	257	91/92 – 95/96
Harlow	400	564	142	95/96 – 99/00
Uttlesford	400	298	228	86/87 – 90/91
Fenland	485	821	396	88/89 – 92/93
Peterborough UA (86/87 – 90/91)*	1,080	1105	427	87/88 – 91/92
Huntingdonshire	560	(1,699)*	(400)*	85/86 – 89/90
South Cambs	1,175##	1298	532	85/86 – 89/90
East Cambs	430	967	406	87/88 – 91/92
City of Cambridge	735	611	344	89/90 – 93/94
East Herts	485	858	397	83/84 – 87/88
North Herts	665 (465)**	707	233	85/86 – 89/90
Stevenage	340 (540)**	439	217	93/94 – 97/98

Source: Draft RPG 14, ODPM, GVA Grimley

Note: *Peterborough UA figures

** Figures in brackets assume Stevenage expansion comprises Stevenage allocation and 4,000 allocation from North Hertfordshire

Assumes that Harlow expansion occurs in Epping Forest

Includes new settlement at Northstowe

- 6.2.15 The size of population in each Local Authority area (as at the 2001 Census) has been compared with the number of completions (using ODPM figures) to gauge the past rate of house building relative to the size of the local authority. This is expressed as the number of people for each dwelling constructed per annum (on average over the last 20 years).

Population per new dwelling compared with required house building rates			
Local Authority	Resident population, 2001 Census	2001 population per annual rate of new dwelling completions over the last 20 years	% increase in house building pa to 2021 compared with last 20 years
Epping Forest	120,896	369	184%
City of Cambridge	108,863	352	138%
Peterborough UA	156,061	258	79%
South Cambs	130,108	188	70%
Uttlesford	68,946	266	54%
North Herts	116,908	261	49%
Harlow	78,768	272	38%
Stevenage	79,715	249	6%
East Cambs	73,214	167	-2%
Fenland	83,519	150	-13%
East Herts	128,919	215	-19%
Broxbourne	87,054	248	-28%
Huntingdonshire	156,954	178	-36%
Braintree	132,179	196	-43%

Source: 2001 Census, ODPM, GVA Grimley

- 6.2.16 The average population per new dwelling per annum of all 14 Local Authority areas is 241. As the table shows, the locations with the highest population per dwellings completed (i.e. those that have shown the lowest levels of construction relative to their size) tend to be those which have the highest construction rates allocated in draft RPG14 over the next 20 years relative to past rates. This is particularly true of Epping Forest, City of Cambridge and Peterborough UA. Conversely, many of the local authority areas with lower population per dwellings completed (i.e. those that have shown the highest levels of construction relative to their size), are those which have the lowest planned construction rates over the next 20 years relative to past rates (notably Braintree, Huntingdonshire and Fenland).
- 6.2.17 This suggests that, in those locations which have seen the lowest levels of construction relative to their size, either the average dwelling size and household size is larger or there has been a restriction in the level of development. The most likely reasons for this restriction are local planning policy, low market demand or land availability constraints. Housebuilders' views, as discussed in subsequent chapters, suggest it is due to the former reason. Although conversely they also had least confidence in those areas that had a low of construction in relation to population.
- 6.2.18 South Cambridgeshire appears to be an exception, having shown a high level of construction relative to its population, but still planning a fairly significant rise in construction compared with past rates (in part resulting from the new settlement at Northstowe). East Hertfordshire and Broxbourne, on the other hand, have seen a relatively low level of construction relative to their size, and a lower rate of development activity than in the past is planned.

Land Values

- 6.2.19 Land values (given as a range) for locations in the LSCP growth area have been compiled and these are shown in the following table.

Land Values Table, £ '000/hectare		
Location	Minimum Value	Maximum Value
Epping	£4,950	£7,400
Broxbourne/Cheshunt/Hoddesdon/Chipping Ongar/ Loughton/Waltham Abbey	£4,950	£6,200
City of Cambridge	£4,950	£6,200
Bishop's Stortford/Hertford/Ware	£4,950	£6,200
Baldock	£4,300	£5,550
Hitchin	£4,300	£4,950
Royston	£3,700	£4,950
Great Dunmow/Saffron Walden/Stansted Mountfitchet	£3,700	£4,950
Histon/Oakington/Longstanton	£3,700	£4,300
Letchworth	£3,700	£4,300
Harlow/Braintree/Halstead/Witham	£3,100	£4,300
Stevenage	£3,100	£4,300
Huntingdon/Eaton Socon/Godmanchester/St Ives/St Neots	£3,100	£3,700
Ely	£1,850	£3,100
Peterborough/Yaxley	£1,850	£3,100
Chatteris/Whittlesey/Wisbech/March	£1,250	£2,500

Source: GVA Grimley

- 6.2.20 Land values show considerable variation across the study area. The lowest values are to be found in Fenland locations such as March and Wisbech (£1,250,000 to £2,500,000 per hectare). The highest values are recorded at Epping (minimum £4,950,000, maximum £7,400,000 per hectare). The City of Cambridge has high land values, at £4,950,000 to £6,200,000 per hectare. In contrast, Peterborough has one of the lowest value ranges at £1,850,000 to £3,100,000 per hectare. As would be expected, the highest land values are generally towards the southern end of the LSCP growth area
- 6.2.21 If residential land prices are higher, there will be a greater difference between the residential and agricultural values (assuming greenfield development), and therefore the scope for realising S.106 agreements is potentially greater (should this be required to fund enhanced infrastructure as a result of development).

Market demand in the LSCP growth area

LOCATION

- 6.2.22 Housebuilders were asked which centres they thought currently have the greatest demand in relation to supply. The consensus view was that strong demand and a constrained supply exists throughout most of the LSCP growth area (see the following sub-section on constraints). In particular, Cambridge, Bishops Stortford, Stevenage, Harlow, Epping Forest and Braintree were all mentioned as having strong demand. However, Peterborough appears to be an exception, and was viewed by several housebuilders (but not all) with an element of caution.

- 6.2.23 Housebuilders were asked to name those areas within the LSCP growth area that they see as being particularly viable for an increase in the level of housebuilding. These reflect locations where demand for houses is currently high, and most M11 locations were seen by housebuilders as being viable for a major increase in the level of housebuilding. Cambridge, Bishops Stortford and Harlow, in particular, were seen by housebuilders as key locations.
- 6.2.24 Cambridge was viewed by several housebuilders as the best location for increased levels of development compared to past rates of development as it was the area where demand was strongest. Housebuilders thought that development should be in settlements surrounding the city rather than urban extensions to the city itself. They thought this would then have the dual advantages of not detracting from the city itself (which could decrease its desirability), and of making development more efficient. The availability of land is not seen by housebuilders as a major problem in the area – market forces should bring this forward. The topography of the surrounding area is also very suitable for development according to housebuilders. Demand was said by many housebuilders to be ‘insatiable’, and values are higher than elsewhere in the LSCP growth area. However, a minority of housebuilders interviewed thought that the market, currently, was overheated, with high prices deterring purchasers, but this is likely to be a short term problem. Housebuilders said that the city benefits from good road and rail links with London, a strong long term local economy (notably the success seen in the city’s science parks), and also has stimulus from Stansted.
- 6.2.25 Whilst demand at Harlow is not seen as being quite as strong as that in Cambridge, it is nonetheless seen as good, and the town is viewed by housebuilders as a key location for expansion due to its own reasonable economic base, as well as being within easy commuting distance of other M25 locations and central London. Most housebuilders were reasonably positive about Harlow as a location, citing recent improvements to the town centre, and further improvements in prospect. Further regeneration was, however, viewed by housebuilders as desirable in order to ensure growth in the town. However, lack of capacity at junction 7 of the M11, which serves the town, was highlighted by housebuilders as a constraint to growth. Housebuilders said therefore that expansion should occur in ‘greater Harlow’, for example north of Church Langley (which is in the Harlow Local Authority area), and Epping Forest, which is considered by housebuilders to be a very desirable area.
- 6.2.26 Housebuilders considered that Bishops Stortford was also a good location for increased housebuilding. Almost all major towns in the LSCP growth area were seen by housebuilders as viable, including St Neots, Huntingdon, Stevenage, Royston and Baldock.
- 6.2.27 In contrast, housebuilders said that Peterborough was not seen as such a suitable location for an increased allocation, due to weaker demand (both historically and currently), and a weaker economic base than many other LSCP growth area locations. However, their view was that although the housing market has grown, this has mainly been due to the lower prices than in most other LSCP growth area locations. In their view, first-time buyers in particular find it easier to get onto the housing ladder in Peterborough.

- 6.2.28 Much of Fenland (which includes locations such as March and Wisbech) is not viewed as a particularly strong market area by the housebuilders interviewed. Price levels are low and most of the housebuilders interviewed considered that much of it was a separate market area looking more to Norwich than the LSCP growth area.
- 6.2.29 In terms of locations currently outside the LSCP growth area, Haverhill was seen by some housebuilders as an area with potential, and therefore housebuilders noted that these settlements should be considered for expansion. However, some noted its current poor image and accessibility. Opinion on Newmarket was also divided. Whilst the town was unanimously viewed by housebuilders as being constrained in terms of development land through the historic nature of the town, there were mixed views on the level of demand for mid and lower market housing.

TYPE OF UNIT

- 6.2.30 Housebuilders were asked whether the type of unit they are able to deliver will match demand, or whether it is too planning-led.
- 6.2.31 The requirement for increased densities and local authorities' desire to meet a wider range of housing needs has resulted in developers building a greater number of 1 and 2-bed flats than would otherwise have been the case. Whilst opinions differed somewhat on the extent to which this had affected the market, most developers felt that they are currently able to deliver the type of accommodation that the market wants. The premium on new build properties over second-hand may disappear, as new homes are smaller and built at a higher density.

RATE OF HOUSEBUILDING

- 6.2.32 Market demand is strong in the LSCP growth area and, market demand is not perceived to be a constraint. However, it must be borne in mind that the number of sites and the number of housebuilders does affect the level of housebuilding. The HBF made it clear that each developer could build no more than 50-100 units p.a. per location (although this does depend on the size of units and the market segment aimed at).

Constraints

INFRASTRUCTURE

- 6.2.33 Transport infrastructure was considered by housebuilders to be a low-to-medium constraint. A number of proposed rail upgrades were mentioned by housebuilders – as well as the Cambridge to Huntingdon guided busway, and were viewed as important in order to promote sustainable development. The road network was generally viewed as being adequate, although specific problems were highlighted, such as the need to widen the M11 to three lanes throughout, as well as the constraints at junction 7 of the M11 (exit for Harlow).
- 6.2.34 Social infrastructure (such as schools) is viewed as a low constraint, as developers expect to provide these facilities. One housebuilder commented that a 'New Town' approach is better than adding to an existing settlement, as they can reach a critical mass, making it easier for them to justify the provision. There is also a general lack of certainty over Local Authority requirements for S.106 agreements.

- 6.2.35 All of the Utility companies interviewed are aware of the scale of development being proposed up to 2021 and have taken it into account in their future strategies and planning. Given the right conditions the utilities do not believe supply will be a major issue, assuming continued efficiencies in terms of electricity and water usage. However, they would prefer it if development delivery was the responsibility of a single development corporation type organisation. This would enable more strategic planning of developments and assist with planning issues. EDF, for example, has said that they have been trying to strengthen electricity supply in a number of centres but has suffered from long planning delays.
- 6.2.36 Given that conditions can be very localised, the utilities are interested in more detailed discussions as to where developments may take place. There may also be more strategic issues with electricity generation and gas supply.

AVAILABILITY OF LABOUR AND MATERIALS

- 6.2.37 Whilst most housebuilders viewed the availability of labour as a current constraint, it is not expected to be a major constraint over the long term. The housebuilding industry appears confident that it can address the issue, and that constraints will ease over time. The improving image of the industry should also mean an increased supply of labour in the longer term, as will the increased use of prefabricated timber frame housing. The unpredictable supply of planning consents was also mentioned as a problem, as this makes planning labour requirements more difficult.
- 6.2.38 The availability of materials was considered to be a low constraint by housebuilders.
- 6.2.39 The issue of whether an increase in the level of housebuilding would adversely affect the amount of commercial development that could occur has also been addressed. There appears to be very little overlap between the skills and materials used for residential building and those used in the commercial property sector. Residential development tends to be constructed from small-scale locally-produced materials – bricks, tiles, timber etc. In contrast, commercial developments consist of largely manufactured items (i.e. steel frames, wall sheeting, asphalt, glass panels etc). These are produced off-site, often in other parts of the country, or even abroad, and assembled on-site. Also, for example, heating systems are totally different. There is also little overlap between the skills required for housebuilding (i.e. bricklaying) and those for commercial construction, which requires specialist site assembly skills.
- 6.2.40 Overall, residential construction has more similarity with industrial/distribution units than with offices. Potentially the supply of some materials such as cement and concrete could become constrained if there was a major housing development boom. A major increase in housebuilding would not appear to have a significant impact on the amount of commercial development that could be provided.

LOCAL PLANNING CONSTRAINTS

- 6.2.41 The planning system was considered to be the most important constraint by all housebuilders/major landowners interviewed. It was considered by housebuilders that this major constraint would seriously affect the ability to significantly increase housebuilding in the LSCP growth area. Housebuilders also said that the constraints created by the Green Belt are also likely to be a factor in delaying bringing forward land early.

- 6.2.42 Numerous problems were mentioned by housebuilders relating to staffing and member attitudes and the resultant delays in processing planning applications, often compounded by appeals and Call In Public Inquiries. Housebuilders consider that there are insufficient planning staff and said that many of them have insufficient expertise to deal with large schemes. Housebuilders said that in some local authorities arranging pre-application meetings is difficult. Committee members are considered by housebuilders to have a lack of knowledge of higher density design solutions and housebuilders thought that in certain local authorities significant local opposition (what they termed as 'NIMBYism') to higher density development is a problem. There is concern from housebuilders that increased public consultation will slow the planning process down even more.

AFFORDABLE HOUSING

- 6.2.43 There is a general acceptance by housebuilders/major landowners that a requirement to provide 30% of housing as affordable was deliverable, assuming funding was forthcoming, except on small sites. Housebuilders thought that a higher ratio than 30% would cause major problems and would slow the housebuilding process down even more. However, in theory, a 50% ratio should achieve a higher overall output of housing, as only half of total output would need to be justified by owner occupier market demand alone and the other half would effectively be forward sold to a Registered Social Landlord (RSL). This of course assumes that funding would be available to RSL's to enable them to acquire this higher level of affordable housing. In reality, the delays that would occur would slow down the housebuilding process, so that total output could actually be lower than with a 30% ratio. Even a 30% ratio can and does cause delays.
- 6.2.44 The normally accepted practice in the LSCP growth area is to transfer the land for affordable housing at zero cost to the Registered Social Landlord (RSL). The housebuilder then recovers the cost of construction plus a small profit to cover administration overheads. The reduced income to the housebuilder (compared to being able to sell all the units at open market value) is factored into the land price. The ability to develop affordable housing is, therefore, directly related to the availability of funding.
- 6.2.45 The housebuilders commented that the main problems with the present system are the delays in negotiating with RSLs, as there are usually a number active in any one area, and it takes time to ensure whether they have funding and then to get funding in place. Further problems identified by housebuilders can relate to the type of affordable housing (i.e. social rented, shared ownership or key workers), how the affordable housing is going to be distributed within the development to create a mixed community and the effect on marketing and sale prices of the remaining 70% of development. If higher ratios than 30% for affordable housing are to be considered, this will compound the problems of delay, funding and viability, particularly if it applies to existing land banks. In this context, housebuilders expressed a fear that that affordable housing will become a major constraint to achieving a significant increase in housebuilding in the LSCP growth area.

AVAILABILITY OF LAND

- 6.2.46 This was not considered to be a problem affecting the ability of housebuilders to increase the level of housebuilding. They were confident that landowners will be willing to sell (either outright freehold sale speculatively, a sale subject to option agreements, or freehold sale subject to overage agreements). Owing to the type of agreements relating to land purchase, land with planning permission was developed as quickly as possible to avoid penalties being incurred by housebuilders (higher interest charges or higher final payments to landowners). Land prices as such were not a particular concern (providing delays in development did not occur) as they were a reflection of expected house prices and for greenfield sites were the residual outcome of taking account of house prices, densities and building costs.
- 6.2.47 If some form of Development Corporation was to be involved for the creation of major new settlements, concern was expressed by housebuilders about the delay in setting up this new procedure as it would mean a much greater level of housebuilding would be needed in later years to offset the lower levels in earlier years.
- 6.2.48 Where brownfield land is being redeveloped for residential use, this will provide an additional constraint, due to the higher costs of bringing sites forward, and other factors such as constraints on the layout and difficulty of disposing of hazardous waste.

HOUSING DEMAND AND HOUSE PRICES

- 6.2.49 Strong purchaser demand throughout most of the LSCP growth area was mentioned by all interviewees. Most housebuilders expressed confidence that the current strong housing market would continue, even though the level of house price increases would inevitably slow down. There were no fears of a housing crash similar to that experienced in the early 1990's. Consequently there were no concerns that a slowdown in the market would affect their ability to sell new housing or their ability to build at higher volumes over the 20 year period being considered. However, from our own experience and the comments from banks (see below), we believe that in recent years housebuilders may not have been building as fast as they could theoretically, due to concerns over how long strong market conditions would persist and wanting to avoid the oversupply problems experienced in the early 1990s.
- 6.2.50 Housebuilders interviewed considered that finance was not an issue. Most housebuilders had low gearing (50% or less) and some had no borrowing at all. In part the current low level of gearing stems from memories of over ambitious expansion in the late 1980's boom, with high gearing, and the problems that resulted in the aftermath of the early 1990's crash. A more cautious approach is now adopted and this appears to have affected the level of housebuilding being undertaken.
- 6.2.51 The banks interviewed considered that raising finance was not a problem at present, as the market was strong and profits were healthy. Higher levels of gearing to finance expansion of output would however be a potential problem for the banks, particularly if a downturn in the housing market occurred. Credit controllers take a cautious view as they have long memories.

- 6.2.52 They consider that the stock market tends to price housebuilders at a low price earnings multiple, due to the perceived risks in the market, and this would inhibit housebuilders' ability to expand, through raising more equity and consequently more bank finance. If the strong housing market continues, and healthy profits also continue, the stock market would probably, in the medium-long term, rate housebuilders more highly, which would facilitate their ability to expand.
- 6.2.53 An issue mentioned by one banker was whether housebuilders management was good enough to enable a major expansion to occur in the LSCP growth area. In the past this issue has limited the size of housebuilders' output. However the recent influx of a new breed of highly qualified senior managers in some of the major housebuilders might help output to increase.

Residential Market Conclusions

- 6.2.54 Housebuilders believe that the Government's higher housing target is achievable, subject to certain constraints.
- 6.2.55 Our analysis of historic housebuilding rates over the last 20 years compared with that required under RPG14 suggests that a number of locations will need to see a considerable increase in the rate of construction to 2021. In particular, Epping Forest and the City of Cambridge would need to see much higher rates (more than double). This is not true of all locations, and six out of the 14 Local Authority areas would require a lower rate of housebuilding than in the past. The comments from housebuilders about whether they consider that this is achievable and which constraints they consider will effect the implementation of increased building is, therefore, important.
- 6.2.56 In terms of market demand, housebuilders interviewed consider that almost anywhere in the central and southern LSCP growth area is viable for a significant increase in output. Cambridge is a particular "hot spot". Peterborough and the surrounding rural northern LSCP growth area location is considered by the housebuilders interviewed to be a less viable location than more southerly locations.
- 6.2.57 The main constraints to higher output being realised are considered by the housebuilders interviewed to be delays caused by the planning system (at officer and member level) and delays caused by the amount of affordable housing required (delays caused by negotiating with RSL's and the lack of funding to support the amount of affordable housing required).
- 6.2.58 More minor constraints to a higher level of output relate to factors such as labour availability, management ability in housebuilders, S.106 agreements, the continuation of a strong housing market (avoiding a market crash) and housebuilders' desire not to over-extend themselves, to ensure that they avoid the problems experienced in the early 1990s, i.e. in the event of a weaker housing market.

- 6.2.59 These conclusions have been used to inform the analysis of the options considered, particularly in terms of deliverability. Accordingly, there is seen to be little constraints in terms of market demand in the southern and central parts of the LSPC area and therefore no limits or thresholds have been applied in these areas in the subsequent development of options. For Peterborough there are some market constraints but it is our view that these can be overcome by intervention, i.e. using a delivery vehicle such as the proposed URC to deliver significant higher rates of development.

6.3 Commercial

- 6.3.1 The housing and population forecasts for the LSCP growth area have formed the basis for local authority level employment forecasts for each sector and sub sector (Experian Business Strategies for RPG 14). This study uses these forecasts, and compares them with past employment and floorspace stock changes, to provide an indication of the scale of future development and how it compares with past levels of development.
- 6.3.2 This forms the basis for the study and the results are then tested against market reality. Interviews with developers and agents active in the LSCP growth area, together with a series of development appraisals for different uses in different locations, provide an indication of the market prospects for development in the LSCP growth area. Any constraints affecting development are also considered, together with what needs to happen to ensure the proposed levels of development could occur.
- 6.3.3 Various sources, in addition to GVA Grimley databases, have been used for floorspace data and rent, yield, building costs and land value data. Market views on individual locations have been obtained from interviews with a variety of developers and agents – Mantle, Bidwells, Edwin Hill, Kemsley Whiteley & Ferris as well as GVA Grimley agency partners. PMA Promis reports and regional features in the property press have also been used.

Floorspace Stock

- 6.3.4 Commercial and Industrial Floorspace Statistics provided by the ODPM (from the VOA database) have been used to analyse the relative sizes of the property markets in the LSCP growth area. The floorspace data reported in the 2003 survey was compared with that in the 1974 survey, to provide an average rate of floorspace growth over the period. These figures are broken down into retail, office, industrial (factories and mills) and distribution (warehouses).

Relative Size of Markets

- 6.3.5 The amount of stock in each local authority varies considerably, as some Authorities contain major commercial centres, whilst in others this is not the case. Table 6.6 shows the total floorspace as at 2003 for each local authority district within the LSCP growth area, and the percentage of the total floorspace contained within each location.

Table 6.6: Total Property Stock 2003, '000 sq m (% of total)

Local Authority	Retail	Office*	Industrial	Distribution
Braintree	219 (7.9%)	115 (3.9%)	666 (11.5%)	328 (7.0%)
Epping Forest	162 (5.9%)	95 (3.2%)	239 (4.1%)	185 (3.9%)
Harlow	189 (6.9%)	179 (6.1%)	477 (8.2%)	335 (7.1%)
Uttlesford	87 (3.1%)	90 (3.0%)	220 (3.8%)	236 (5.0%)
Fenland	139 (5.0%)	60 (2.0%)	473 (8.1%)	397 (8.4%)
Peterborough	420 (15.2%)	417 (14.1%)	874 (15.1%)	890 (18.9%)
Huntingdonshire	234 (8.5%)	245 (8.3%)	714 (12.3%)	517 (11.0%)
East Cambridgeshire	71 (2.6%)	58 (2.0%)	270 (4.6%)	198 (4.2%)
South Cambridgeshire	128 (4.6%)	444 (15.1%)	372 (6.4%)	357 (7.6%)
City of Cambridge	313 (11.3%)	457 (15.5%)	171 (3.0%)	180 (3.8%)
East Hertfordshire	206 (7.5%)	213 (7.2%)	415 (7.2%)	276 (5.8%)
North Hertfordshire	228 (8.2%)	173 (5.9%)	451 (7.8%)	271 (5.8%)
Broxbourne	149 (5.4%)	90 (3.1%)	203 (3.5%)	281 (6.0%)
Stevenage	216 (7.8%)	313 (10.6%)	256 (4.4%)	266 (5.6%)
Total	2,762 (100%)	2,950 (100%)	5,802 (100%)	4,717 (100%)

Source: ODPM

Note: * includes purpose-built offices, offices over shops, computer centres, light storage and light industrial activities, and is broadly similar to 'B1' in the Town and Country Planning use classification

- 6.3.6 The largest retail centre in the LSCP growth area is Peterborough, accounting for over 15% of the total retail stock. Cambridge is the second-largest centre with 11.3% of the Corridor's retail space. Most of the local authority areas have relatively similar amounts of retail floorspace, at around 150,000 to 250,000 sq m (around 5-10% of the stock in each). Uttlesford and East Cambridgeshire have a noticeably smaller retail stock than the other local authorities, at 87,000 sq m and 71,000 sq m respectively.
- 6.3.7 The most important office market in the LSCP growth area is Cambridge, which accounts for over 30% of the office stock (this is in both the City of Cambridge and in South Cambridgeshire, where much of the out-of-town market is situated). Peterborough is the second largest centre, accounting for 14% of the total stock, followed by Stevenage (10.6%) and Huntingdon (8.3%) local authorities. These four local authorities combined account for nearly 64% of the total office stock in the LSCP growth area.
- 6.3.8 In contrast with the retail and office markets, the industrial and distribution markets are not as concentrated around Cambridge, and there is a greater focus around Peterborough, which accounts for around 15% of the total industrial space and 19% of the warehouse/distribution space, the largest share in both categories. The second most important location is the Huntingdonshire local authority area, which has 12.3% of the industrial stock, and 11% of the distribution stock. The Braintree local authority area also has a significant proportion of the industrial stock in the LSCP growth area, at 11.5% of the total. It should be noted that both Harlow and Stevenage local authorities are small geographically, which undoubtedly affects the amount of stock (more so than for the office and retail sectors which trend to be focussed in or around the main centre or centres).

Change in stock

- 6.3.9 There is significant locational variation in terms of the percentage change in office stock since 1974. Table 6.7 shows the growth in floorspace in the LSCP growth area for the four property sectors, and also divides the M11 area into the relevant parts of the three counties contained within it.
- 6.3.10 Comparison with average growth for England is also provided, showing that floorspace growth in the LSCP growth area has been higher than in England as a whole in all four sectors, reflecting both greater population growth and greater economic growth.
- 6.3.11 It should be noted that percentage changes at individual market level can be misleading, as some markets were relatively small at the start of the period, and thus a relatively small increase in actual office space could lead to a large percentage increase being reported. There is also some concern about the quality of the floorspace stock data.

Table 6.7: Growth in Property Floorspace (% growth pa) 1974-2003

Location	Retail	Office	Industrial	Warehousing & Distribution
Essex	2.3%	3.4%	0.4%	2.1%
Cambridgeshire	1.7%	6.9%	1.2%	2.7%
Hertfordshire	2.0%	5.2%	-0.2%	2.5%
Total LSCP growth area	2.0%	5.6%	0.6%	2.5%
England	1.7%	3.5%	0%	1.8%

Source: OPDM, GVA Grimley

- 6.3.12 At 2% pa, growth in retail floorspace has been marginally higher in the LSCP growth area than in England as a whole (1.7% pa). Essex has seen the largest increase at 2.3% pa, whilst Hertfordshire has seen growth of 2% pa, and Cambridgeshire has seen 1.7% pa growth. Retail space in the City of Cambridge has not expanded very rapidly, at just 0.6% pa, one of the lowest of all the LSCP growth area local authority districts, which is not unexpected given the constrained nature of the city centre. However, South Cambridgeshire has seen an above average increase at 3.3% pa (although this is from a low base). The highest rate of growth has been in Harlow, at 3.7% pa. Braintree, Peterborough and Stevenage local authorities have all seen healthy increases at between 3% and 3.5% pa.
- 6.3.13 It should be noted that changes in stock are not the only measure of how a particular centre has changed over time. Other relevant factors include the nature of retailers present and their turnover, although these areas are outside the scope of this report.

- 6.3.14 Office stock has seen the largest increase of all four sectors since 1974 in both England as a whole and the LSCP growth area. Stock has risen by 3.5% pa in England, and by a much higher 5.6% pa in the LSCP growth area over the period. One of the major areas of growth has been in South Cambridgeshire, with the development of the Cambridge out-of-town market, notably the science and business parks. The City of Cambridge itself has seen growth roughly in line with the LSCP growth area average, at 5.9% pa, although planning policy has constrained development to protect the historic nature of the city centre. The Cambridge market as a whole has seen a highly cyclical development pattern, and has seen a very high level of development over the last five years in particular.
- 6.3.15 Stevenage has seen a large increase in office space at 11.4% pa, although this rate of growth reduces considerably when looked at over more recent periods of time, indicating that much of this development occurred in the 1970s and early 1980s. The Huntingdon area has also seen an above average rate of growth at 7.5% pa. Peterborough has seen its stock grow by an average of 6.7% pa over the period, although this growth was mainly in the 1970s, early 1980s and from 1989 to 1992, with a very low level of development over the last ten year period to 2002.
- 6.3.16 As would be expected with the decline in the UK's industrial base over the last 30 years, the industrial sector has seen the smallest increase in floorspace. Indeed in England as a whole, there has been no net increase in total floorspace, whilst in the LSCP growth area, floorspace has risen by just 0.6% pa. That part of the corridor in Hertfordshire has seen a small net reduction (-0.2% pa), whilst Cambridgeshire has seen a relatively healthy increase in stock at 1.2% pa. This may reflect the classification of some uses associated with science parks into the industrial category.
- 6.3.17 Warehousing and distribution space in the LSCP growth area has increased by 2.5% pa since 1974, a faster rate of growth than in England as a whole (1.8% pa). The increase has been relatively evenly spread across the three counties (ranging from 2.1% pa in Essex to 2.7% pa in Cambridgeshire). Four local authority areas have seen floorspace growth of over 3% pa over the period – Braintree, Peterborough, Huntingdon and Stevenage.

Employment Growth

PROPERTY SECTORS AND STANDARD INDUSTRIAL CLASSIFICATIONS (SIC) SECTORS

- 6.3.18 Past growth in the four commercial floorspace categories has been compared with employment growth in the appropriate sectors. This has been undertaken using employment growth forecasts provided by Experian Business Strategies, based on their view of likely changes to 2021, incorporating the effects of RPG 14. These employment growth forecasts have been used as a proxy for future increases in the four property sectors.
- 6.3.19 Retailing is based purely on those employed directly in the retail sector, and for distribution uses we have used the wholesaling sector as a proxy. Office employment is based on the banking & insurance, business services, finance, public administration and defence sectors (although some office employment will be contained in other sectors). The industrial sector takes a broad range of manufacturing sectors, but excludes utilities. A summary of this comparison is shown in the following table.

Table 6.8: Historic Growth in Property Stock compared with employment growth (%pa)

Location	Retail	Office	Industrial	Warehousing & Distribution
M11 Stock Growth**	2%	5.6%	0.6%	2.5%
M11 Employment Growth*	1.7%	2.6%	-1.2%	1.3%
England Stock Growth**	1.7%	3.5%	0%	1.8%
England Employment Growth*	1.7%	2.1%	-2.1%	0.4%

Source: OPDM, EBS, GVA Grimley

Note: * 1982 – 2003, % pa

** 1974 – 2003, % pa

- 6.3.20 This analysis reveals that in both the LSCP growth area and in England as a whole, and in all four sectors, property stock has increased at a faster rate than employment growth, although slightly different time periods are being compared. The analysis suggests that less people are employed per square metre of space or that productivity has improved. However, the floorspace figures do not take into account vacant property, which may account for some of the difference, or the changing locational dimension of development, with different employee/floorspace ratios (particularly for out-of-town retail development for example).
- 6.3.21 However, great care needs to be taken with the floorspace stock figures, due to concerns about their accuracy in 1974 in particular. It should also be pointed out that different periods of time are being used for employment growth and floorspace stock growth, so that care needs to be taken in drawing definitive conclusions from this analysis.

Past growth and future growth

- 6.3.22 The following tables compare historic employment growth (from 1982 to 2003) with the Experian Business Strategies forecasts (for RPG 14) from 2003 to 2021, broken down by county within the LSCP growth area and by sector.
- 6.3.23 For the distribution/warehouse sector, a small reduction in employment is expected in the LSCP growth area (of 0.2% pa), compared with an increase of 1.3% pa in the past. For the industrial sector, employment has fallen over the last 20 years, and is expected to continue falling in the future, although at a marginally less rapid rate. The rate of decline is broadly in line with the expected change in England.

Table 6.9: Industrial and Distribution Employment Growth (% pa)

	Industrial Historic 1982-2003	Forecast 2003-2021	Distribution/Warehouse Historic 1982-2003	Forecast 2003-2021
Essex	-1.1%	-0.8%	0.9%	-0.5%
Cambridgeshire	-0.5%	-0.3%	1.2%	0%
Hertfordshire	-2.7%	-2.3%	1.8%	-0.4%
Total LSCP growth area	-1.2%	-0.9%	1.3%	-0.2%
England*	-2.1%	-1.1%	0.5%	-0.2%

Source: EBS

Note: * 2003-2014 forecast period

- 6.3.24 In the retail sector in the LSCP growth area, a modest fall in employment is expected (-0.3% pa), in comparison with relatively strong growth in the past (1.7% pa) and compared with a slight increase in England. This fall is likely to occur in most locations throughout the Corridor, although the Essex part of the Corridor is expected to see a stable level of employment (with Harlow seeing a small rise of 0.3% pa), but still considerably lower than the 3.1% pa seen in the past.
- 6.3.25 Office employment in the LSCP growth area is also forecast to grow more modestly than in the past, at 1.8% pa to 2021, compared with 2.6% pa over the last 20 years. This growth is nonetheless stronger than in England as a whole (0.7% pa). Essex and Cambridgeshire should see more modest rates of growth than in the past, although in Hertfordshire, a higher rate of growth is forecast (1.9% pa), compared with the past (0.7% pa).

Table 6.10: Retail and Office Employment Growth (% pa)				
	Retail		Office	
	Historic 1982-2003	Forecast 2003-2021	Historic 1982-2003	Forecast 2003-2021
Essex	2.4%	0%	3.4%	1.1%
Cambridgeshire	1.6%	-0.3%	3.5%	2.0%
Hertfordshire	1.4%	-0.4%	0.7%	1.9%
Total LSCP growth area	1.7%	-0.3%	2.6%	1.8%
England*	1.7%	0.5%	2.1%	0.7%

Source: EBS

Note: * 2003-2014 forecast period

- 6.3.26 Employment growth in the LSCP growth area is expected to be similar to the national average in the industrial and warehouse sectors, weaker in the retail sector, but noticeably stronger on the office sector. However, employment growth in the LSCP growth area is expected to be considerably weaker over the next twenty years than over the past twenty years in all sectors except industrial, despite the effect of the increasing rate of population growth. In the industrial sector, employment is expected to continue to decline, although marginally less steeply. Whilst the amount of floorspace constructed may be proportionately larger (if past trends continue), the rate of development should still be lower than in the past.
- 6.3.27 There are a number of reasons that Experian Business Strategies give for this apparent anomaly, the main ones being:
- An increasing average population age and so a greater proportion of the population of retirement age
 - Greater productivity growth
 - A greater proportion of the increased population commuting into central London to work

- 6.3.28 This analysis indicates that there will not be pressure to increase the rate of development activity in the LSCP growth area as a whole, and so the type of constraints that are likely to be evident in the housebuilding sector are not likely to occur in the commercial/industrial sector.

Market Demand

INDUSTRIAL MARKET

- 6.3.29 The LSCP growth area is not a major industrial area and the prospects for substantial industrial/distribution development will reflect local, rather than regional or national needs. The M11 is not considered to be a major trunk route for distribution, in contrast to the M1 and M25, which are. As a national north-south route the M1 Corridor is superior to the M11/A1 Corridor. The A14 east-west route from Felixstowe/Harwich to the Midlands is an important route from the docks to the Midlands and where it crosses the LSCP growth area is, potentially, an important junction, but demand is affected by the relatively short distance from the ports.
- 6.3.30 The industrial market is, therefore, relatively localised and small scale in most locations. A brief analysis of individual LSCP growth area locations is summarised below.
- 6.3.31 Peterborough is a city and historically a major industrial centre. The market perception is that demand at present is not strong, rental growth is weak, there is not a large amount of development activity and there is a plentiful supply of land for development. However, recent figures indicate a strengthening in employment development. Peterborough has the capacity to accommodate large requirements and there is a pool of available relatively inexpensive labour. Long term prospects for growth are considered to be no more than average as the A1 is not the preferred national north-south trunk route as it is considered to be congested and slow relative to the M1.
- 6.3.32 The Cambridge, Huntingdon, St Neots, Ely, Royston area is not a major industrial area. Huntingdon, St Neots, Royston and Ely are small towns mainly catering for local industrial companies, many of whom own their industrial premises. Some development has occurred in recent years (overspill from Cambridge), but demand is not particularly strong, although recent transport improvements may help a little. Alconbury, near Huntingdon, has more potential, as this is the first location where operators are likely to 'break bulk' from the East Anglian ports, although the relatively short distance from the ports will limit this. Alconbury's major advantage is that operators require ever-larger distribution units, with 50,000 sq m and over increasingly in demand and this can be provided at Alconbury, whereas it is difficult to find many locations that can deal with units of this size.
- 6.3.33 Cambridge is not a large traditional industrial market. Hi-tech, laboratory and office-based uses are preferred by the local authority and planning strategy requires that large scale traditional industrial uses would need to demonstrate a need for a location in Cambridge in order to obtain planning permission.

- 6.3.34 The Bishops Stortford, Stansted, Braintree area is also not a major industrial area. The towns are small and cater primarily for the local market. The A120 road linking to the M11 has improved infrastructure and, with major expansion of Stansted Airport, this could eventually improve the industrial market. At present Stansted Airport does not appear to have a large effect on the industrial market, although it is the third largest UK airport for freight. There is a plentiful supply of land within the Airport perimeter owned by BAA, although this would be for the use of airport-related occupiers. There is some potential at Great Dunmow, due to its proximity to the Airport, but the plentiful supply of land within the Airport perimeter will limit this potential in the short term.
- 6.3.35 Harlow and Stevenage are larger towns, with an established manufacturing base. However, they tend to serve a relatively localised market, although there are some national/international companies and a skilled local workforce. Harlow is not a strong distribution location (although it is on the M11 and close to the M25) for reasons explained above and because Harlow's industrial area is on the opposite side of the town to the M11, and road linkages are poor. Epping, and North Weald aerodrome, have strong potential for industrial development, but the local authority favours residential and mixed use development, although the RSS identifies 25 hectares for employment. Waltham Abbey on the M25 is a much better location for distribution uses than Harlow and has attracted major new development (e.g. Sainsbury's).

OFFICE MARKET

- 6.3.36 Cambridge is a major office location, and Peterborough, Stevenage and Harlow have significant amounts of office floorspace. Other towns are small and many are not strong office locations, with limited potential for this to change.
- 6.3.37 Peterborough expanded as an office location in the 1980's and saw a number of major financial sector relocations, benefiting from excellent rail links to London. However, since then the growth of Call Centres and improved technology have increased the relative attractions of more distant locations, and employment growth in Peterborough has been more muted. Supply has been plentiful, rental growth has been weak and the office market has been quiet. Peterborough is regarded as a relatively small office centre nationally. Over the last two years letting activity in Peterborough has been less than a quarter of take-up in Cambridge, for example.
- 6.3.38 Cambridge and its hinterland is a major office location, but with an emphasis on research and development rather than finance and business services, although it has a reasonably strong concentration of finance and business services employment. The public sector is also well represented, due to local authority administrative offices and Cambridge University. Over the last decade Cambridge has seen strong employment and office development growth. Although take-up has been strong, the level of development has ensured that availability levels have increased significantly to over 20% of stock currently. It is estimated that about a third of total stock was completed over the last four years (i.e. 150,000 sq m in the City of Cambridge). The surrounding towns of Huntingdon, Ely, St Neots and Royston are relatively small office centres catering mainly for local occupiers, with limited potential for major expansion.

- 6.3.39 Braintree and Bishops Stortford are similarly small office centres catering primarily for the local market. Bishops Stortford is slightly bigger and better than Braintree. Small scale office development does occur but it is mainly small buildings sold to owner occupiers. Stansted Airport has had little effect on the office market so far, as many flights are for short-haul discount holidays in Europe. There is no regular long-haul international business travel (i.e. to North America or the Far East). The lack of flights to the USA is a problem for companies in the Cambridge area as many companies have a US connection. When the second runway opens, this may change, but at present the Airport has limited beneficial impact on nearby office locations.
- 6.3.40 Harlow and Stevenage are smaller office centres than Peterborough, but larger than Bishops Stortford. Accessibility is generally good, although some of the stock is dated and the image of the towns, particularly Harlow, is poor. The composition of the workforce is also not considered by the market to be very conducive for a major office centre.

RETAIL MARKET

- 6.3.41 Unlike the industrial and office markets, the retail market is more directly related to the size of towns and their affluence and less related to road, rail and air infrastructure or the proximity to London. Retail sector development activity and prospects are therefore affected by town size, with the large towns receiving more development attention pro-rata than smaller towns.
- 6.3.42 For the larger towns in particular, population growth and increasing affluence will lead to new development directly related to catchment area expenditure growth. In historic towns such as Cambridge, accommodating new development is, and will continue to be, difficult. However, the Local Planning Authority has undertaken a retail assessment, and the Structure Plan makes provision for redevelopment in the city centre which it believes to be sufficient to meet the required capacity. In most towns the private sector will respond to increased expenditure trends. In this respect, pro-active local authorities are helpful, but accommodating retail development usually causes fewer problems for local authorities (although depending on location) than accommodating residential, office or industrial development. Peterborough is largest retail centre in the study area and a retail study examining the capacity of the City is currently underway.

Land Values and Development Viability

METHODOLOGY

- 6.3.43 To ascertain a broad indication of development viability and land values of new retail, office and industrial developments, in each of the main LSCP growth area centres, a series of development appraisals was undertaken. The retail sector was divided into in-town unit shops and out-of-town retail warehouses (solus units), the office sector was divided into in-town offices and out-of-town business parks and the industrial sector into factories/warehousing. For each sector, the following main study locations were chosen to illustrate development viability and land values, reflecting the market comments above.

Retail	Office	Industrial
Bishops Stortford	Cambridge	Cambridge
Braintree	Peterborough	Harlow
Cambridge	Stevenage	Peterborough
Epping	Stevenage	
Harlow		
Hitchin		
Huntingdon		
Letchworth		
Peterborough		
Stevenage		

- 6.3.44 Appropriate gross to net floorspace ratios, finance costs, development periods (pre-build, construction, letting and sale periods), letting, marketing and sale costs and developers return for risk and profit were made for each property sector. For all three sectors a building size of 4,000 sq m gross was assumed. However, within each sector, each study centre was allocated relevant prime rent, prime yield and building cost assumptions. The prime rent and yield was a combination of GVA Grimley data from January 2004 and Valuation Office Agency data. Building cost data was determined for each sector using BCIS figures. As building costs vary throughout the country, the average UK building cost figures were regionally adjusted using the BCIS TPS Regional and County Location factors. Consequently, the building costs for centres in Hertfordshire (such as Stevenage) were 12% greater than the UK average, whilst building costs for centres in Essex and Cambridgeshire were 8% and 5% greater than the UK average respectively. A summary of the regional building costs used for each sector and sub-sector is shown below.

Table 6.11: Regional building costs by sector					
£ psm	Offices (3 – 5 storeys)	Business Parks (2 – 3 storeys)	Shops Shops	Retail Warehouses Retail	Factories/ Warehouses
UK average	£1,100	£1,000	£650	£400	£500
Cambridgeshire	£1,155	£1,050	£683	£420	£525
Essex	£1,188	£1,080	£702	£432	£540
Hertfordshire	£1,232	£1,120	£728	£448	£560

Source: GVA Grimley

- 6.3.45 For each development appraisal a residual land value, or site value, was calculated thus giving an indication as to the viability of each sector in a given location. Clearly this approach can only provide a guide to residual land values for different types of development in different locations, as development variables will alter for each scheme dependent on specific location within a town, height of scheme, quality of scheme etc. and planning gain requirements will also vary. Our appraisals make no allowance for S106 contributions. Nevertheless, we believe this approach provides a useful guide to the comparative level of residual land values.

- 6.3.46 For some of the sectors, the residual site value was converted into approximate land values (£ per hectare) so that, where possible, they could be cross-checked with land value transactional evidence from the VOA. For in-town offices and unit shops only the residual site value was calculated and not the approximate land value per hectare due to the complexities and variations of in-town developments.
- 6.3.47 Although we have included figures for retail warehousing, it is unlikely that there will be a significant amount of development in this category, or that it will provide a significant amount of employment, due to restrictive national planning policies.

Results

OFFICES – IN-TOWN (3 TO 5 STOREYS)

- 6.3.48 The results of the in-town office development appraisal analysis, based upon a 3-5 storey building, indicated that office developments are currently viable in Cambridge, marginal in Stevenage and unviable in Peterborough. All other LSCP growth area centres were deemed unviable for speculative development due to the low level of office demand (reflected by lower rental levels and higher yields). Freehold owner occupier buildings could be an exception to this general conclusion. A summary of the office results, including the rent and yield assumptions, is shown below.

Table 6.12: Office – in-town rents/yield assumptions and land values				
Location	Office Type	Rent (£ psm)	Yield (%)	Residual Site Value approx
Cambridge	In-town 3 to 5 storeys	£215	6.25	£2m
Peterborough	In-town 3 to 5 storeys	£129	6.50	Negative
Stevenage	In-town 3 to 5 storeys	£170	6.25	under £0.5m

Source: GVA Grimley

OFFICES – BUSINESS PARKS (2 TO 3 STOREYS)

- 6.3.49 For business parks, compared with in-town offices, the marginally lower building costs and the slightly higher rents meant that out-of-town business park developments appeared to be viable in both Cambridge and Stevenage and marginal in Peterborough. The results of the analysis for the LSCP growth area centres, including the rent/yield assumptions and an approximation for land values, are shown below.

Table 6.13 Offices – business parks (2-3 storeys) rent/yield assumptions and land values

Location	Office Type	Rent (£ psm)	Yield (%)	Residual Site Value approx
Cambridge	Business Park 2 to 3 storeys	£215	6.25	over £2m
Peterborough	Business Park 2 to 3 storeys	£151	6.50	under £0.5m
Stevenage	Business Park 2 to 3 storeys	£188	6.25	£1-1.5m

Source: GVA Grimley

RETAIL – UNIT SHOPS

- 6.3.50 The retail analysis indicated that unit shops are potentially viable for all of the M11 study centres, but in practice this is dependant on site acquisition costs. However, as is to be expected, there is a considerable range in the residual land values for a 4,000 sq m development. A summary of the results, and the rent and yield assumptions, are shown below.

Table 6.14: Retail – unit shops rent/yield assumptions and land values

Location	Retail Type	Zone A Rent (£ psm)	Yield (%)	Residual Site Value approx
Bishops Stortford	Retail (Shops), In-town		£700	6.25 £7-10m
Braintree	Retail (Shops), In-town		£484	6.50 £3-5m
Cambridge	Retail (Shops), In-town		£2,583	5.25 £20m+
Epping	Retail (Shops), In-town		£484	6.75 £3-5m
Harlow	Retail (Shops), In-town		£1,076	6.00 £10-20m
Hitchin	Retail (Shops), In-town		£592	6.50 £5-7m
Huntington	Retail (Shops), In-town		£646	6.50 £5-7m
Letchworth	Retail (Shops), In-town		£377	6.50 £m
Peterborough	Retail (Shops), In-town		£2,207	5.75 £20m+
Stevenage	Retail (Shops), In-town		£1,130	6.25 £10-20m

Source: GVA Grimley

RETAIL – RETAIL WAREHOUSES (SOLUS UNITS)

- 6.3.51 For retail warehouses (solus units), the development appraisal model indicated that new developments are viable in all four of the study centres examined. A summary of the results are shown below.

Table 6.15: Retail – Retail Warehouses (Solus Units) rent/yield assumptions and land values

Location	Retail Type	Rent (£ psm)	Yield (%)	Residual Site Value approx
Cambridge	Retail Warehouses	£323	6.25	£10m+
Harlow	Retail Warehouses	£210	6.25	£5-7m
Peterborough	Retail Warehouses	£237	6.25	£7-10m
Stevenage	Retail Warehouses	£226	6.25	£7-10m

Source: GVA Grimley

INDUSTRIAL – FACTORIES/WAREHOUSING

- 6.3.52 The factories/warehousing development appraisal analysis indicated that new industrial developments are viable in three out of the four the study centres. The least viable centre is Peterborough (the land value and site value are both negative) A summary of the results and assumptions are shown below.

Table 6.16: Industrial – Factories/Warehousing rent/yield assumptions and land values

Location	Industrial Type	Rent (£ psm)	Yield (%)	Residual Site Value approx
Cambridge	Factories/Warehouses	£75	6.50	Under £1m
Harlow	Factories/Warehouses	£73	6.50	Under £1m
Peterborough	Factories/Warehouses	£54	6.75	Negative
Stevenage	Factories/Warehouses	£90	6.5	£1m+

Source: GVA Grimley

COMMERCIAL CONCLUSION

- 6.3.53 These results reinforce and supplement the market comments in the previous section. For retail development most locations are viable. For industrial development, smaller locations have not been analysed due to the lack of available data, but development is unlikely to be viable due to the low level of rents unless being sold to owner-occupiers. Whilst commercial operators considered that industrial development does not appear to be viable in Peterborough due to the low level of rents (rather than the level of investment yield) reflecting weak occupier demand, recent employment development trends indicate a strengthening market. Rents would probably have to increase by 20% to make development viable and reflect a reasonable land value.
- 6.3.54 For offices, development is currently clearly viable in only two locations – Cambridge and Stevenage. In other locations, lower occupier demand and low rents means development is unviable except possibly for smaller owner-occupier units where the investment yield used to calculate capital value would be different (partly for taxation reasons).

Overall conclusions

- 6.3.55 The analysis shows that, despite strong housing growth, office and retail employment growth over the next 20 years is likely to be less strong than over the last 20 years in most LSCP growth area locations. Industrial employment will continue to decline (although not quite as steeply), and distribution employment is expected to fall, compared with growth in the past. This means that development activity is also likely to be less strong than in the past.

- 6.3.56 The one possible exception to this is the retail sector, as population and overall expenditure growth are likely to be greater than in the past, as a direct result of increased housebuilding. However, even in the retail sector, the growth of internet shopping and increased productivity mean that employment growth is expected to be weaker than in the past, but this will probably be offset by increasing floorspace per employee ratios and hence floorspace increases that will be similar to past rates of growth.

- 6.3.57 Unlike in the housebuilding sector, the level of development activity in the future is not expected to show significant, if any, increases over past levels, and so the main constraints faced by housebuilders are unlikely to be relevant in the commercial/industrial sector. Development constraints are, therefore, unlikely to be planning related.

- 6.3.58 We have found no evidence that labour supply, skills shortages, labour costs or materials costs are currently, or likely to be, a constraint. Finance is not normally a problem providing there is strong occupier demand or a pre-let can be arranged.

- 6.3.59 Infrastructure generally in the LSCP growth area is reasonably good and is not a particular problem, but it is in some locations for certain uses. For industrial/distribution uses, there is a problem in Harlow due to poor connections to the M11 and there is a general problem for the LSCP growth area as the M11 stops at Cambridge, and beyond Cambridge road links north of Peterborough are inferior to the M1. Travel times from the eastern ports ensure that the LSCP growth area is not far enough away to justify it as a major distribution location, but this disadvantage is offset at Alconbury as large distribution units can be accommodated.

- 6.3.60 Office development in the LSCP growth area is hindered by the size of many towns (Ely, Huntingdon, St Neots, Royston, Baldock, Saffron Walden, Bishops Stortford and Braintree) or their image (Harlow and Stevenage). Image constraints could be lessened in time, by town centre redevelopment and new housing development, but increases in the size of smaller towns, as a result of major new housebuilding, are not likely to make a dramatic difference to office market prospects.

- 6.3.61 One factor which could alter the office and industrial demand in parts of the LSCP growth area is expansion of Stansted Airport, but a second runway would only affect the latter part of the study period (the second runway is due to open in 2012). If the second runway not only expanded throughput, but also expanded the type of throughput, i.e. freight and longer haul international business flights, this could create additional office demand in Cambridge and potentially in Bishops Stortford and Harlow. Freight related development would no doubt also occur but initially much of that could be located within the Airport perimeter, with little immediate benefit to nearby towns, but Braintree, Great Dunmow, Bishops Stortford and Harlow could benefit in the longer term.

CHAPTER 7

Strategic principles and the role of new settlements

7.1 Introduction

- 7.1.1 Taking into account the strategic and market context for development established in Chapters 4-6, this section seeks to identify the strategic principles which should underpin any future strategy for growth. It identifies the key principles of sustainable development in terms of urban form and provides an overview of new settlements in terms of their strategic role and function, size thresholds and issues regarding lead-in times and deliverability.
- 7.1.2 The analysis is applied to the LSCP growth area to identify potential corridors for growth and examine the rationale and potential locations for new settlements. The conclusions from this analysis were used to develop spatial themes in Chapter 8.

7.2 Sustainable urban forms

- 7.2.1 In exploring the spatial strategy options within the LSCP growth area, it was first necessary to consider urban form. At the regional and sub-regional levels, that consideration should focus on land use patterns and transport systems which determine how urban areas and communities interact, and with particular emphasis placed on achieving sustainable development. *'Locational patterns are evolving rapidly as a result of growing affluence and motorisation, road construction, the increased unit size of many facilities and changes in the preferences of residents and businesses. The resulting dispersed pattern, with overlapping urban hinterlands, long journeys and high car dependence, is not sustainable either in terms of continued infrastructure investment or in terms of the local and global environment'* ('Sustainable Settlements – a guide for planners, designers and developers' University of the West of England and The Local Government Management Board, 1995.)
- 7.2.2 Sustainability is a term frequently used in relation to large scale planned growth to convey the notion of population/employment balance, the creation of integral communities (neighbourhoods or townships) which support basic community facilities, measures to reduce car dependency through access to public transport, cycle-ways and footpaths, and the creation of a high quality of environment, often associated with generous provision of and easy access to open space/countryside. In order to realise the potential of the LSCP growth area in a sustainable way, it is therefore necessary to develop urban forms that can reduce the need for travel, enable journeys to be made on foot, by cycle or by public transport, and minimise the impact on the environment.

- 7.2.3 However, whilst applying the notion of sustainability to individual settlements is necessary, it is more complex at the sub regional level. For example, providing a numerical balance between jobs and population within a particular location does not necessarily reduce the numbers or lengths of journeys to work in comparison to a settlement with an apparent imbalance. The experience of Harlow indicates that a high proportion of the resident workforce commutes to jobs outside Harlow, and conversely, a high proportion of the jobs in Harlow are occupied by workers who commute in. Similarly there are conflicting views about whether housing the London workforce along principal public transport routes within the LSCP area is a sustainable solution to housing and labour supply shortages within the Capital. What can be influenced is the form and layout of new development, seeking ways in which sustainability objectives can be met.
- 7.2.4 Sustainable urban forms can be achieved through the concentration of existing settlements, where communities or neighbourhoods are built around a central area or a major urban area. The sequential approach to development implies that concentrating growth around an existing centre can increase the viability of local services, enable shorter journeys within the urban area and utilise existing/improved public transport or other sustainable means of movement.
- 7.2.5 However, this form of urban concentration has its limitations. The larger the settlement becomes, the greater the distances people have to travel from the expanding periphery to the centre. It can impose greater pressure on existing services and may lead to unacceptable pressures for change within the community that are inappropriate or unwelcome by established residents. Limitations will be also imposed by policy constraints such as quality of the landscape, other environmental and physical constraints or the quality of agricultural land, for example. It is in these instances where alternatives to further concentration should be considered.
- 7.2.6 An alternative approach is to develop along transport routes or corridors which provide the basis for long term growth. The corridor approach may be appropriate along routes within an urban area, where stops on the public transport service are characterised by higher density development and by the locations of public services and facilities. This approach may also be appropriate at the larger sub- regional scale in linking a number of settlements along a public transport route.
- 7.2.7 Different patterns of development will be appropriate for different types of public transport. If the aim is to cater for relatively short, local trips then a light rail or bus based system will be more suitable than heavy rail. It will offer more frequent stops and higher frequencies. Heavy rail will be more suitable for longer trips between large urban centres. Rail stations may themselves be the focus for light rail or bus services leading from a series of developments along one or more corridors.
- 7.2.8 The nature of the public transport system could also help to determine how much a settlement should grow. A bus route or bus-way that depends upon access by foot will have a catchment around it's stops of up to 400m. Mainline rail stations which require a larger catchment to justify their provision, may have a limited catchment population within walking distance and will require support from complementary transport services to bring people from beyond walking distance. There are also limitations on the frequency of stops allowed on heavy rail lines.

- 7.2.9 This approach has been used in continental Europe. The “Triangle Region” in southern Denmark comprises eight municipalities and describes itself as an ‘open green town’. Local authorities and private companies co-operate to provide common services and utilities. It is also evident in the regional strategies that have been developed in the Randstad in the Netherlands to cater for growth in a highly urbanised country where there is also great emphasis on the quality of the open countryside and a need to protect valuable agricultural land.
- 7.2.10 The potential advantages of this approach in the context of the LSCP growth area have already been identified in previous studies (LSC, Cambridge sub region and Stansted/M11) in relation to the arc of development incorporating Braintree, the A120, Bishop’s Stortford, Harlow and Epping and use of corridors within the Cambridge sub region to accommodate the growth needs of Cambridge. This concept is also implicit in the banked RPG14 which includes significant development dependent on the committed Cambridge-Huntingdon bus-way and proposed bus priority on the old A120. The advantages that such an approach gives is that it acknowledges that travel patterns cannot be confined within a single settlement. It provides flexibility for individual settlements to respond to local constraints, yet in aggregate they can meet overall targets and be planned to encourage the maximum use of public transport.

7.3 Potential development corridors in the LSCP growth area

- 7.3.1 The LSCP growth area is defined by its transport systems, both road and rail. The rail system radiates from London to the principal settlements within the LSCP growth area. The main roads are also radial, and neither system provides strong east-west links. All the principal settlements are located along these routes, but not all the principal settlements are served by a rail station. If the level of development within the study area is to be maximised, then a radically different approach to development than currently exists is needed, whereby settlements, existing, expanded and new, are provided with access to a modern high quality public transport system that can be used effectively in place of the car. Given the limitations on heavy rail for local and sub-regional trips, a more local transport system needs to be introduced.
- 7.3.2 To facilitate this approach and in order to form the basis for the strategic options, a number of potential growth corridors were identified within the LSCP area. The methodology that has been applied in determining potential corridors for development was, as follows:

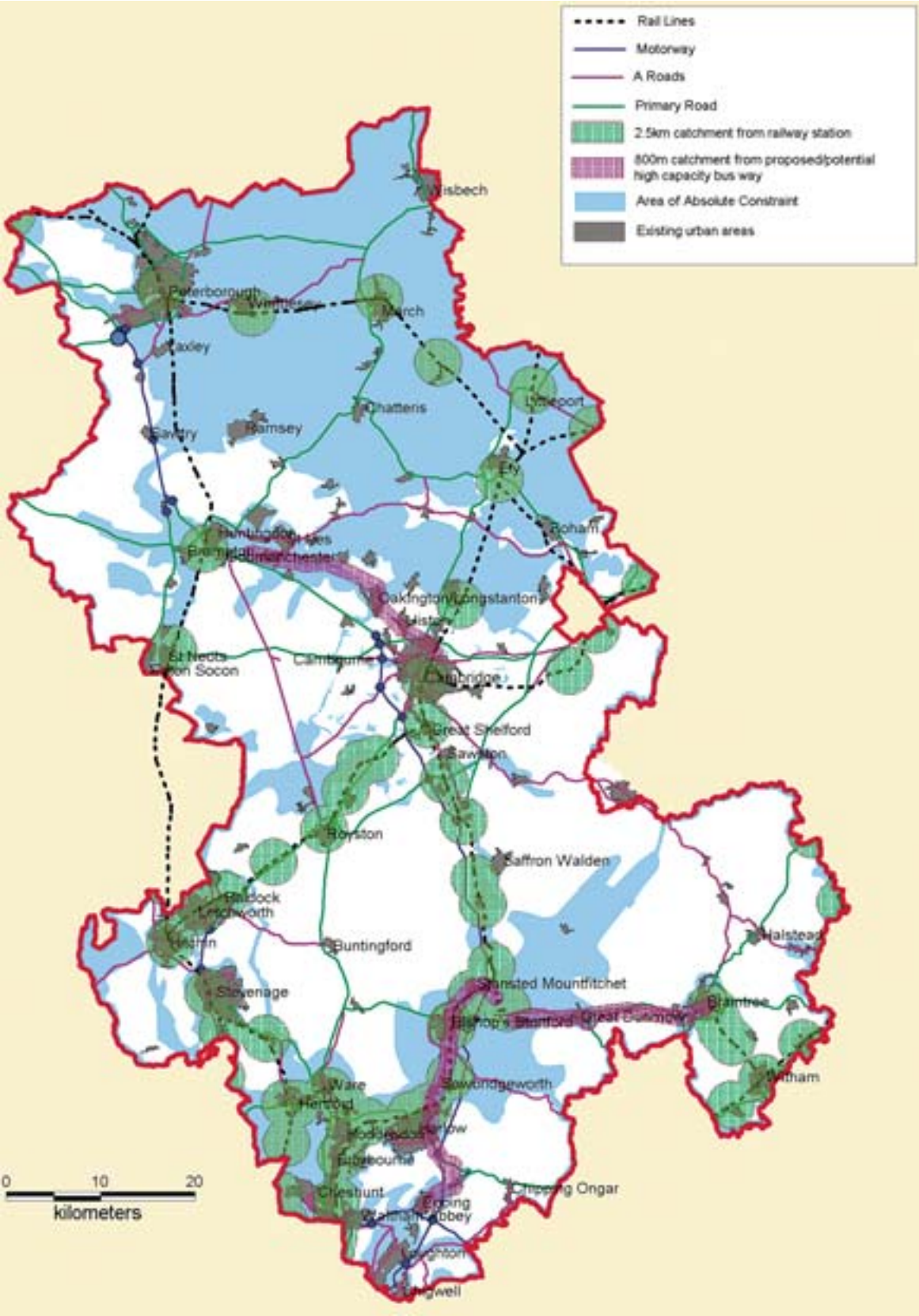
- Identification of absolute constraints to development to highlight the areas which are relatively free of environmental and physical constraints across the study area;

overlaid with

- Areas with a high degree of accessibility to the principal public transport routes – areas within a 2.5 km. radius of railway stations, and within 800m. of proposed/potential high capacity bus routes;

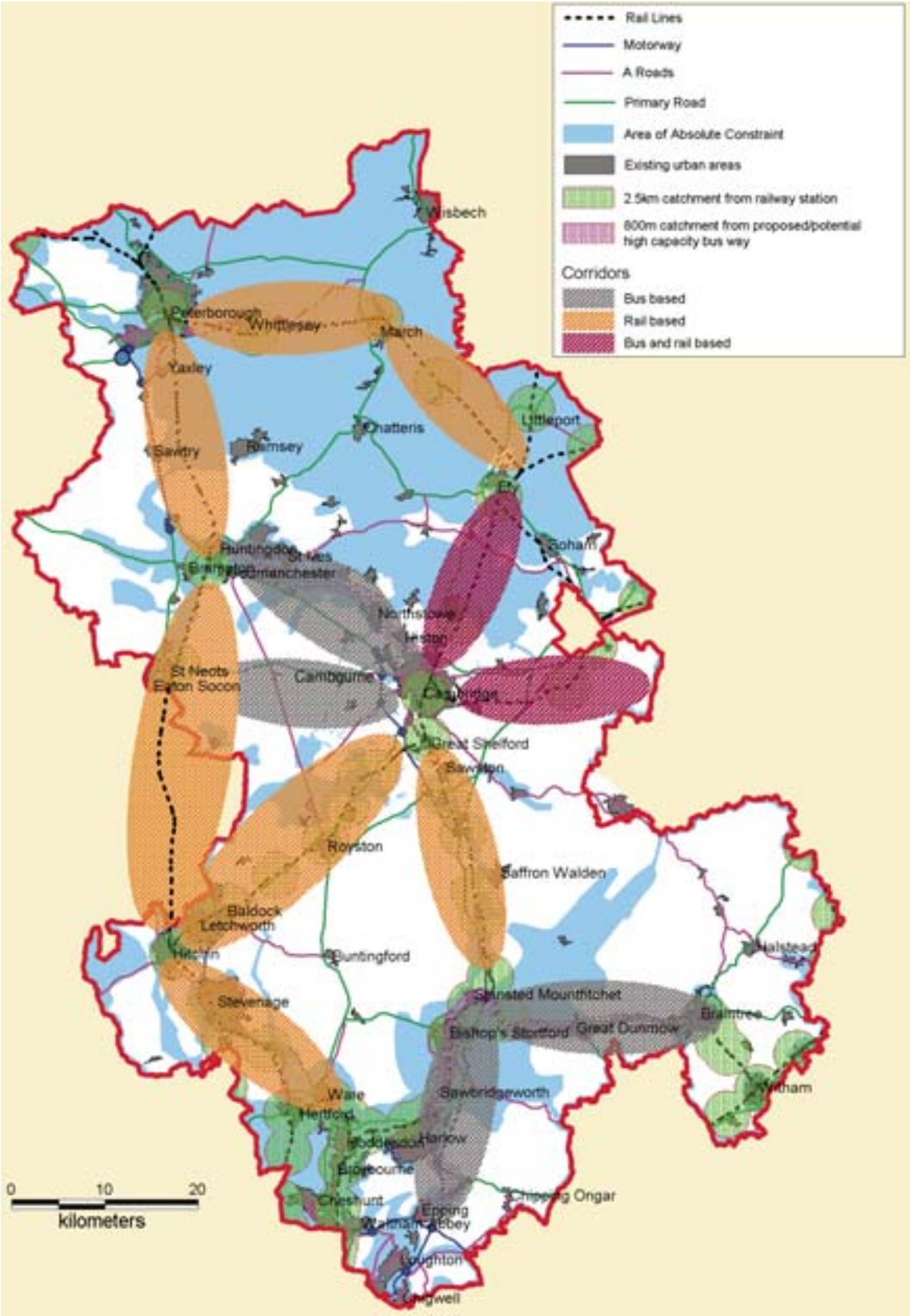
7.3.3 The primary areas of search are therefore, those areas which are accessible to public transport and where there is an absence of significant constraint. This analysis is set out in Figure 7.1.

Figure 7.1 Environmental constraints and public transport catchment areas



- 7.3.4 From this analysis, thirteen potential corridors were identified, based on the presence of rail and/or the potential for high quality local public transport, groupings of existing settlements to provide public transport patronage and where there was a low presence of partial constraints. This analysis is illustrated in Figure 7.2.
- 7.3.5 The identified corridors, were then subject to a further broad appraisal to identify those with the most potential for enhanced growth using the using the following criteria:
- Impact on areas of absolute constraint;
 - Impact on areas affected by partial constraints;
 - Proximity to a rail station;
 - Potential for high capacity local public transport;
 - Access to the strategic road network;
 - Access to the sub-regional and local road networks;
 - Potential grouping or clustering along transport corridors; and
 - Relationship to any of the three principal economic drivers (Cambridge, Stansted and London).
- 7.3.6 The only weighting that was applied in the appraisal was the potential for local transport provision above rail on the basis that rail is of limited benefit for shorter intra/sub regional journeys.
- 7.3.7 From this appraisal, the corridors with the most potential were as follows:
- Cambridge – Huntingdon
 - Cambridge – Ely
 - Cambridge – Baldock
 - Bishop’s Stortford – Epping
- 7.3.8 Three other corridors scored slightly less highly:
- Cambridge – St. Neots
 - Braintree – Bishop’s Stortford
 - Hitchin – Hertford/Ware

Figure 7.2 Potential growth corridors



7.4 The role of new settlements

- 7.4.1 New settlements can also contribute to achieving sustainable forms of urban development. This is in the context of creating a new focus for major economic and housing growth or in the context of corridors where new settlements contribute to meeting more localised demands for growth where capacity within existing settlements is limited.
- 7.4.2 The United Kingdom has a strong tradition of new town building stretching back, in modern times, to the early years of the 20th Century. The new towns (and the expanded towns programme post 1952), did not exist in isolation, but were part of regional planning policy. The post-war new towns around London were part of a policy of decentralisation of population and employment. The aim was to reorganise congested urban areas, decentralise industry, and secure a better balance between regions in terms of the size and variety of industrial activity.
- 7.4.3 In many ways the current regional initiatives for the Growth Areas around London have a similar purpose. They are to relieve pressure within the south east, and London in particular, by providing increased levels of both housing and jobs. However, similar concerns arose in the 1940's to those now being expressed i.e. should new growth areas be closely related to road and rail infrastructure to enable easy access to London, or should the reverse be the objective, where the relative inaccessibility of growth areas could be used to encourage greater self containment?
- 7.4.4 In the face of unparalleled levels of demand for new housing, especially within the South East, if new towns/new settlements can help deliver accelerated housing programmes, then they should be considered as part of the solution within the context of the sequential approach to development required by PPG and reinforced in regional and local planning policy. The problem arises when, with the exception of current initiatives which are limited in number and capacity, new proposals are not going to be able to contribute to the overall housing programme until the middle to end of the period to 2021.

New settlement size

- 7.4.5 The size of a new settlement is to large degree determined by its role and purpose and by threshold populations required to support local community services such as schools, shops and health facilities. The appropriate size for any one settlement will also be determined, in part, by the population already established in the area which will add to the catchment for the new settlement. Small new settlements which cannot support basic services are viewed to be unsustainable because of the reliance of largely car bourne commuting to larger centres.

- 7.4.6 In the Cambridge sub-regional study, an examination was made of a number of proposals for new settlements. The purpose of the new settlement was to relieve pressure for development within Cambridge city, but at the same time be of a sufficient size to provide local services to meet the daily needs of the population. The minimum threshold capacity to encourage local self containment was identified as 5,000 to 6,000 dwellings (15,000 population, 300 ha.), with the potential to grow to around 10,000 dwellings (25,000 population, 500-600 ha.). This range of population would be the minimum thresholds for the provision of a range of local services and in particular a secondary school to enable a sufficient degree of self sufficiency. This would create a new local centre.
- 7.4.7 The next size of settlement is that which has a wider, sub regional influence. The threshold to support sub regional level services is in the vicinity of 20,000 dwellings (60,000 population, 1200-1500 ha.). This is sufficient to support a local hospital, further education and a higher order or retail/service centre. In the longer term, settlements with a minimum size of 20,000 dwellings population could expect to grow to between 25,000 and 35,000 dwellings (80,000 – 100,000 population and 2000–2500 ha).
- 7.4.8 Beyond that, it would be necessary to consider the creation of a regional level centre (on the scale comparable to Milton Keynes) with a population in excess of 200,000 (circa 5000ha). Given the scale of target being proposed by ODPM for the LSCP growth area and the potential capacity available from planned allocations, assessed urban capacity and potential urban expansion, we do not anticipate the need for a new settlement on this scale.

Timescale for the establishment of new settlements

- 7.4.9 There is invariably a tendency to underestimate the time required to establish a major new development project, and this applies particularly to new settlements. The idea has to be proposed and then incorporated into strategic and local planning policy. If it is a formal new town there has to be Government backing including financial support. The legal framework has to be set up and the administrative processes established. In parallel with these processes is consultation, because there is likely to be local opposition.
- 7.4.10 Once the Order is made, a Special Delivery Vehicle must be created, staff engaged and the process of master plan design undertaken. Although the master planning may have begun in advance, invariably a new organisation will wish to check, revise and change the original concept. The master plan will provide the case for the acquisition of land. More detailed plans, interpreting the master plan at the district level, enable infrastructure to be planned and built, development sites to be identified and marketed, and development to begin. The more detailed plans have to go through an approval process, either through the procedures set out in the New Towns Act, or the normal process of planning consent.
- 7.4.11 An important issue in determining the rate at which a new settlement can be established is land assembly. A publicly sponsored initiative may well have the powers of compulsory purchase, but the process can be lengthy and drawn out where the owners of land are unwilling to sell. Typically, at the present time, a compulsory purchase order can take a year to make, be several months at inquiry, and then take upwards of a year to confirm.

- 7.4.12 New town development corporations and similarly sponsored public bodies may, in the long term, be able to assemble the resources and skills to meet significant levels of building, but they are likely, in the short term to be slower to respond to the need for increases in housing output. Milton Keynes, the latest of the English new towns, was a response to development pressures in London which were identified in the 1950's. Buckinghamshire County Council identified a 900 ha. site in 1962, designation was confirmed in 1967 and construction began in 1971. So even from Buckinghamshire's identification of the site, the process took some 9 years before development took place.
- 7.4.13 Private sector led new settlements/villages could offer advantages in responding to demand. A number of developers have options on land which, with the benefit of planning consent, could circumvent the need for compulsory acquisition. Even where this may be needed, public bodies, in partnership with private developers, may use their CPO powers to enable development. However, the location of such initiatives would have to be consistent with the overall growth strategy for the area. Even with few obstacles, this route to new settlement development can take 8 or 9 years. Northstowe is a good example. First confirmation that a new settlement was required was in 1999. It was incorporated into the Structure Plan which was adopted in 2003. Work is anticipated to start in 2006 with the first dwellings ready for occupation late in 2007. This timeframe can be regarded as reasonable, with a willing developer, Government support and an uninterrupted process from inception to construction.
- 7.4.14 Whatever route is adopted for the procurement of new settlements, it is likely that there will be a period of up to 10 years before dwellings can be built. This does not invalidate the incorporation of new settlements into regional strategy. It does affect their contribution to the programme for meeting the strategic housing objectives in the short and medium term.

The rationale for new settlements within the LSCP growth area

- 7.4.15 The banked RPG14 makes reference to new settlements in Chapter 4, Core Spatial Strategy. It states that whilst there was some support for the concept of a major new settlement approach, the problems – particularly of implementation and timing, and of resources diversion from other areas – appeared to outweigh the potential benefits. However it stated that in some instances at sub-regional level the development of smaller new settlements would be appropriate, such as demonstrated by the Cambridge sub-regional strategy.
- 7.4.16 The Core Strategy emphasises the need for a sequential approach to new development, favouring existing urban areas first. Within this context, the locations of potential new settlements are identified within Chapter 5, Sub -regional policies. Those which relate to the LSCP growth area are: :
- Northstowe – new settlement of 8,500 dwellings by 2021 to the north of Cambridge in South Cambridgeshire. This has been allocated in the Cambridgeshire and Peterborough Structure Plan, 2003.
 - North Weald airfield, Epping Forest – proposed mixed use development including 6,000 dwellings by 2021.

- Great Dunmow, Uttlesford – 2,650 dwellings either as an extension of Great Dunmow or, possibly, a new village.

- 7.4.17 Thus regional strategy as currently formulated identifies a limited role for small new settlements in reaching the growth targets currently set for 2021. Further potential may exist for new settlements, both in the context of RPG as banked and in considering the potential for accommodating the additional 18,000.
- 7.4.18 However, this must first be considered in the context of existing urban areas to accommodate growth and the impact of this on a range of factors, such as transport, environmental constraints, development rates, and impact on communities.
- 7.4.19 Within the LSCP growth area major growth within draft RPG14 is focused on Peterborough, Harlow and within the Cambridge sub region and specific reference is made to the issue of major economic growth focused on Stansted and the M11 corridor. There is less clarity about the potential within Hertfordshire. Stevenage is a candidate for expansion and proposals for substantial development to the west are being considered at a call-in inquiry.
- 7.4.20 It is no coincidence that three of these potential locations for growth are settlements built or expanded as new towns. Further growth of Peterborough, Stevenage and Harlow is seen as a means of stimulating their regeneration. Therefore, the impact of new settlements on potential investment within these priority areas needs careful consideration.
- 7.4.21 Given the requirement to adopt a sequential approach to housing development it is relevant to consider the circumstances in which the development of a new settlement or settlements might be appropriate, above growth in new settlements.
- 7.4.22 We have identified three instances where a new settlement might be justified within the sequential approach to development. These include:
- Impact of high growth rates on existing settlements
 - Environmental capacity and long term growth requirements
 - Deliverability
- 7.4.23 In seeking to achieve a high rate of growth throughout the study area, significant stress will be placed on existing settlements due to high rates of development over an extended period of time. This could change the character of settlements due to the scale of new development, put pressure on traditional town centres to expand, and put pressure on existing services such as health and education. New settlements are a way of relieving that stress by concentrating the highest rates of growth in locations which have less direct impact on established communities.

- 7.4.24 The methodological approach within this study identifies capacity with reference to environmental constraints. Settlements will have growth requirements beyond the time horizon set by the current RPG. It would be short-sighted to assume that the identified capacity of individual settlements should be taken up over the next 20 years. What happens beyond 2021? Does it then have to be assumed that constraints that were considered appropriate in 2004 can be breached post 2021, or alternatively, that settlements reach a point where no further growth is allowed? Such a stance would not, in our view, constitute a sustainable approach to development. Thus the development of new settlements would be one way of achieving the growth targets, and at the same time, leaving existing settlements with the capacity to grow beyond 2021 within the established constraints.
- 7.4.25 The Sustainable Communities Plan targets are set for the period 2001 to 2016 (and beyond to 2021). A key issue in achieving the Community Plan Targets is that of backloading of the housing programme. RPG allocations of dwelling completions to 2021 indicate five parts of the growth area where housing rates are set to more than double – from 2001. Each year that passes means that to meet the overall targets, both for 2016 and 2021, an even higher rate of house building will be required in the latter years.
- 7.4.26 We are already three years into the plan period, and where enhanced growth is envisaged, even with the aid of special delivery vehicles, it could be another five years at least before they are established and fully operational. Thus it could be half way into the period to 2016 before the growth area is geared to deliver housing at the required rates to meet the targets, by which time the necessary annual outputs will have further increased. This will make the task of achieving the targets significantly harder. One way of focusing resources to achieve high building rates would be to identify one or more new settlements, to be developed under the remit of a special delivery vehicle such as a new town development corporation, a URC or a specially arranged partnership, or through a private sector developer or consortium of developers. The problem with the new settlement approach is the likely lead-in time. Experience of new towns and UDC's demonstrates that there can be a 5 to 10 year period before it can be assumed that such an approach can deliver development at maximum rates. However, it might be appropriate to consider a strategy that provides capacity beyond the period of immediate concern i.e. post 2021.
- 7.4.27 If the principle of a new settlement or settlements is accepted, location will be determined in part by the role and function that the settlement will fulfil within the regional and sub regional context. At the strategic level, any new settlement should support the objectives of the regional strategy, which is underpinned by economic aspirations, and in particular, the aim for the region to become one of the 20 most prosperous in Europe by 2021. Within the study area the key economic drivers are identified as the Cambridge based knowledge economy and the growth of Stansted Airport. It follows, therefore that if these primary foci of economic expansion are not to be constrained by lack of housing and employment land, any new settlement or settlements should be geographically related to them.

- 7.4.28 A similar argument could be advanced for London based development and especially the regeneration of the Thames Gateway. In the event that the Thames gateway is unable to meet the housing targets to support employment growth, then greater pressure on housing supply is likely to be experienced in the LSCP growth area, and in the southern part in particular. A major new settlement could be one way of meeting this additional demand, although the sustainability of such an approach might be questioned, if the sole purpose is to accommodate the London labour force.
- 7.4.29 At a more local level, if it is the purpose of new settlements to take the pressure from other settlements in the area then a location in the vicinity of the existing settlements may be appropriate, irrespective of the wider strategic context. An example is given in RPG14 in relation to Great Dunmow where the option is provided for expansion of Great Dunmow or a new village within the vicinity, depending on the level of growth to be accommodated
- 7.4.30 Does this approach therefore indicate the type of new settlement that should be built? There are some advantages of smaller settlements. They are potentially more flexible in terms of output, investment in infrastructure and response to demand in different parts of the area. Where there is a private sector promoter with existing options on land there will be opportunities for an earlier start on construction. However smaller settlements will be less attractive as locations for major employment investment.
- 7.4.31 The advantages of large settlements are that they are better able to attract and establish an employment base, make more efficient use of investment in utilities and services, and could provide significant capacity which will take the area beyond 2021. A larger new town might enable the rates of growth of other settlements to be lowered in the latter part of the period, and could provide capacity for continued growth beyond 2021. A major disadvantage is that a large new town is a major generator and attractor of trips, therefore it is going to have a significant impact on the transport networks – is there anywhere that could take that level of demand? Developing a major new settlement also requires higher initial levels of investment in the basic infrastructure of the town. Roads and utilities have to be sized with the ultimate capacity of the town in mind, and this capacity might not be reached for some considerable time.

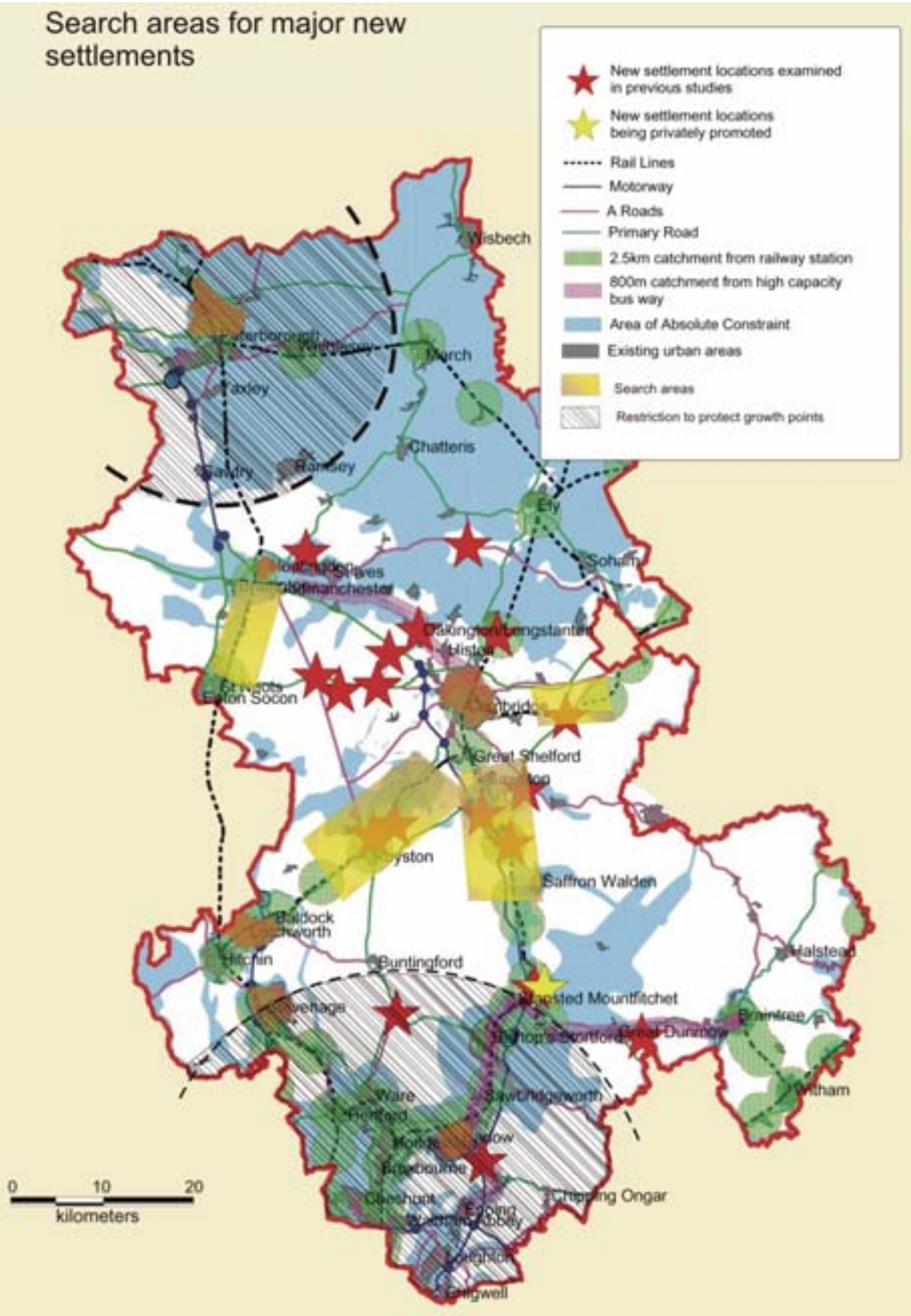
Location of a new settlement within the LSCP growth area

- 7.4.32 The methodology for identifying potential locations for new settlements should reflect their scale and likely impact. A major new settlement raises strategic regional issues that may not be raised by smaller new settlements which are more likely to be developed in response to local or sub-regional issues. Therefore, in order to identify potential locations for new settlements we have drawn a distinction between major settlements (circa. 20,000 dwellings/60,000 population) and small new settlements (circa. 5,000 dwellings/15,000 population).

MAJOR NEW SETTLEMENTS (20,000 DWELLINGS)

- 7.4.33 The following criteria have been applied in determining the potential location for major new settlements:
- Located on a rail line
 - Located with good access to the strategic road network
 - Located in areas where there is an absence of physical and environmental constraints
 - Located outside the influence of proposed major growth points including Harlow, Peterborough and Stevenage
 - Supporting the principal economic drivers: the Cambridge economy, Stansted, London.
- 7.4.34 A principal justification for a settlement of this size is the ability to attract and maintain a substantial economic base. Good communications by road and rail is an essential component in meeting this objective. However it is equally important that the focus of major development at other locations within the area is not prejudiced by the development of a major new settlement. Thus in seeking potential locations we have excluded areas within given distances of Harlow, Peterborough and Stevenage where a significant increase in development rates are proposed and where the presence of a large new settlement could adversely affect their development. These distances were determined from the market analysis and reflect the market's view of the commercial prospects of each growth area.
- 7.4.35 By applying the general selection criteria of absolute constraints, rail corridor and restriction around the growth areas four potential locations within the study area where a major new settlement might be considered have been identified as follows and are shown on Figure 7.3 below:

Figure 7.3 Potential locations for major new settlements



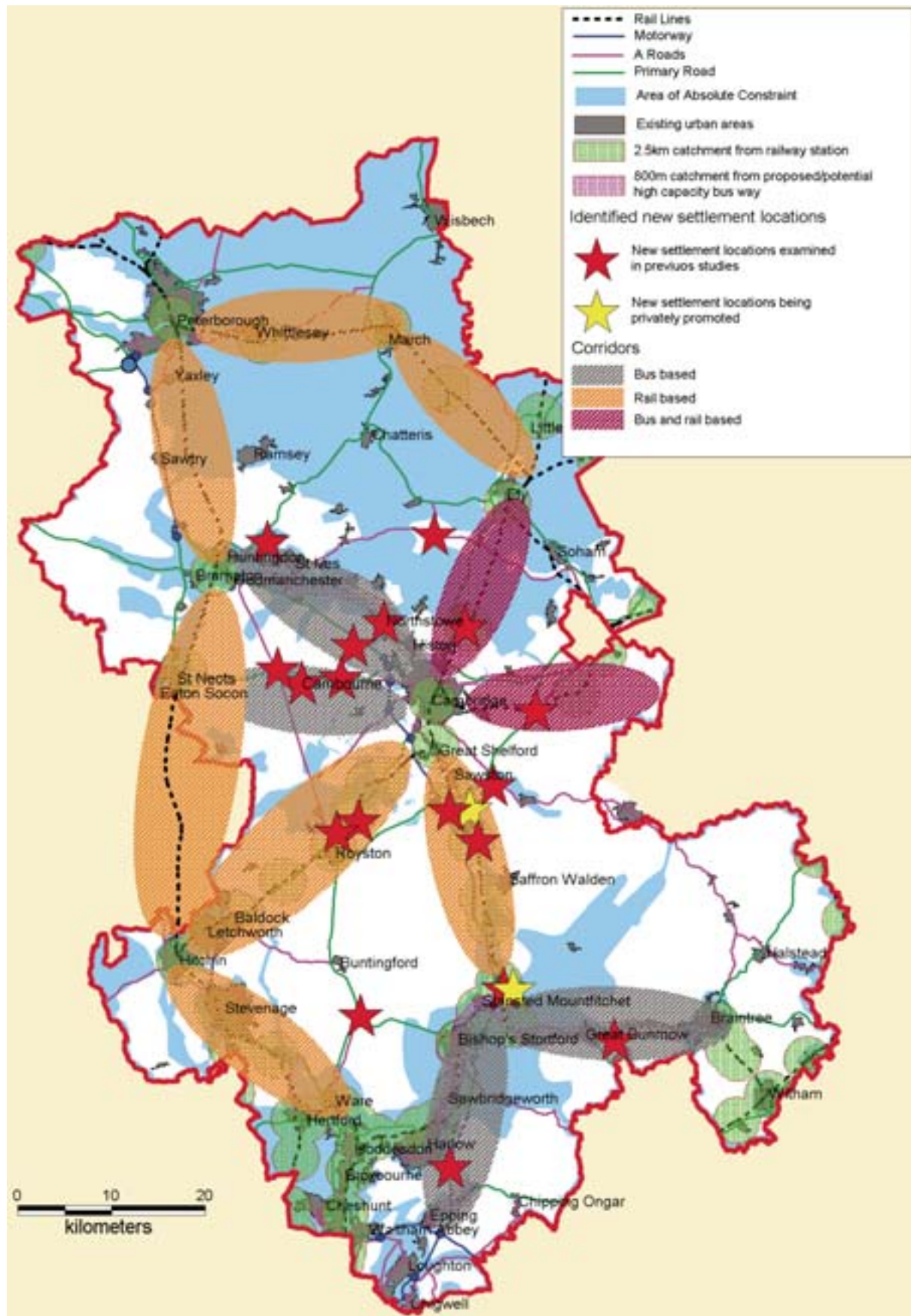
- On the M11 corridor between Cambridge and Stansted
- On the corridor between Cambridge and Letchworth, including Royston
- On the corridor between Huntingdon and Stevenage
- On the corridor between Cambridge and Newmarket

- 7.4.36 The general location on the M11 corridor encompasses Audley End, Saffron Waldon and Duxford. The advantage of this location is that the new settlement would support both the principal economic drivers, Stansted Airport and the Cambridge economy, and could also contribute to any requirement to support employment in London.
- 7.4.37 A location along the corridor from Cambridge to Letchworth would have the benefit of the proposed introduction of the Thameslink 2000 service. It would be able to support the Cambridge economy and London based employment. It would not be well connected to Stansted, access could be gained indirectly via the A505/M11 and public transport would be difficult to provide.
- 7.4.38 A location on the Stevenage to Peterborough corridor would also benefit from the Thameslink 2000 investment but would be less well related to the two principal economic drivers within the study area. It is also on the A1 corridor and would provide support for London based employment with access by rail and road. A substantial part of this corridor is outside the study area, within Bedfordshire.
- 7.4.39 Although identified by the initial analysis, the corridor on the Cambridge to Newmarket axis is unlikely to be feasible due to the constraints around Newmarket and the significant focus the new town would have on Cambridge to which it would be close, geographically.
- 7.4.40 An initial appraisal of these four locations was carried out using five criteria:
- Impact on areas of absolute constraint
 - On a rail line
 - Proximity to the strategic road network
 - Influence on major growth points (i.e. where growth is to be encouraged and could be prejudiced by the proximity of another major focus for investment.)
- 7.4.41 In this analysis, the two general locations which scored best were Cambridge to Baldock corridor and the Cambridge to Stansted corridor. It is significant that these two locations are the only ones of those identified that support more than one of the economic drivers within the region.

SMALL NEW SETTLEMENTS (5,000 DWELLINGS)

- 7.4.42 The criteria for locating small new settlements are more localised, although there are similarities to those which are appropriate for larger settlements. There is the need to protect environmental and physical constraints and to be well located in relation to transport. However, the relationship of small new settlements to public transport is not necessarily the same as for a larger new town. The role of the smaller settlements is to respond to local demands for housing and to relate closely to other settlements in their vicinity. Being smaller, they will support a lower range of services and employment, and residents will have to rely on proximity to other settlements to satisfy many of these requirements. Journeys will therefore be shorter and more localised, which means that public transport will be more easily provided by and appropriate for light rail or bus-based systems, rather than heavy rail.
- 7.4.43 Within this more local context smaller new settlements are envisaged very much in the context of growth corridors, incorporating the grouping of settlements (both new and existing) in such a way that they enable the improved provision of public transport services along existing routes. This offers the advantage of being able to create clusters of settlements that achieve a critical mass of population required to make a high quality public transport route viable. Potential corridors for the development of new settlements and clusters have been identified Figure 7.2 above.
- 7.4.44 Specific locations for new settlements were identified in the Cambridge sub-regional study and the Stansted/M11 study and through private sector representations. These are shown in Figure 7.4. In the Cambridge sub-region study a long list of fifteen potential new settlement sites were identified and evaluated. From this list, a short list of four sites were subject to further evaluation. One of these, the site at Longstanton/Oakington was incorporated into the review of the Cambridge – Peterborough Structure Plan, referred to as Northstowe. Accordingly a new high capacity bus way is proposed for the corridor linking Huntingdon to Cambridge in the first instance, but holding the longer term potential to link with Alconbury.
- 7.4.45 In the Stansted/M11 study, three potential new settlement locations were identified with potential Elsenham, Felsted and at a location west of Bishop's Stortford. Reference is made in draft RPG14 to a possible new village in the vicinity of Great Dunmow and, as mentioned above, North Weald airfield, although it is not referred to as a new settlement. This was closely related to growth at Stansted and the study recommended developing a high capacity bus way from Braintree to Bishop's Stortford and from Stansted Mountfitchet to Epping.
- 7.4.46 Private sector initiatives are also coming forward. Currently proposals are being developed by private sector consortia at Elsenham and Hinxton Grange. The proposals have not been assessed within this or other strategic studies, but they have been identified because of their location within the corridors identified within this Study.

Figure 7.4 New settlement locations identified by previous studies and private interests



7.5 Conclusions

7.5.1 From this appraisal of strategic urban form and the role of new settlements the following conclusions have been made, which have been used in the development of the growth options in Section 8:

- The study area is characterised by the high quality of its environment including its countryside, market towns and villages. If these qualities are to be protected, then they constrain the ways in which growth within the area can be accommodated within particular locations and specific settlements.
- If growth is to be accommodated, it should follow a sequential approach, with development located in the first instance, within existing settlements, then as extensions to existing settlements, and finally, as new settlements.
- In order to maximise development opportunities within the study area and develop in a sustainable way, it is advocated that development should be concentrated along public transport corridors.
- Within these corridors, established settlements should be developed and expanded and the potential for new settlements considered.
- The potential development capacity within the identified corridors, including the residual capacity in any major new settlement, would cater for growth beyond the period to 2021.
- The strategy to develop along transport corridors requires a commitment to investment in public transport.
- Without that investment, development capacity will be less, and there will be the greater likelihood that either growth targets will not be met, or that they will be met in an unsustainable way.
- Given the levels of housing required to meet Government targets for the LSCP growth area, problems associated with the backloading of the programme, the potential impacts of high construction levels on existing settlements, and the need to consider the post – 2021 requirements, that new settlements are likely to be required. In the short to medium term this includes small new settlements and in the longer term, potentially a large new settlement, although this would need to be considered in the context of the East of England region as a whole.
- Any major new settlement, would commence development during the later period of the RPG due to a combination utilising capacity in existing settlements and the lead in times involved in finding an appropriate location and implementing major new settlement to cater for growth beyond the period to 2021.

- Small new settlements (minimum 5,000 dwellings), possibly private sector led, could contribute to the targets within the medium term. It is our view that a number of smaller settlements would have advantages over a larger settlement as they can address demands in different parts of the growth area, and can be more easily located within the transport corridors identified within the study area. On the basis that new settlements should be within public transport corridors and are likely to complement an existing settlement pattern, then a number of potential growth corridors can be identified within the study area.
- A major new settlement (minimum 20,000 new dwellings) located within the study area should be tested to determine the transport and strategic development implications. Two potential locations have been identified as the most appropriate general locations. One is between Cambridge and Stansted, broadly in the Duxford/Audley End/Saffron Waldon area. This location has good potential rail links, it is accessible both to the two key economic drivers of Cambridge and Stansted and it is sufficiently far from Harlow and Peterborough, which are identified for major expansion to promote regeneration. The alternative location is on the Cambridge to Baldock corridor. This corridor is on the line of Thameslink 2000, and would serve both the Cambridge economy and London, but would not be well located in relation to Stansted.

7.5.2 The principal issue in developing a strategic plan for the growth area is whether and by how much it should cater for development pressures from London. Part of the Sustainable Communities Plan aims to deliver housing solutions to areas of development pressure within the South East, much of which result from the housing shortage in London itself. It is assumed that current transport proposals, for example, the improvement of rail services to Peterborough and Cambridge by Thameslink 2000, will reinforce the trend for people to live in the study area and work in London.

7.5.3 Within the context of this study there are three responses to this dilemma.

- Firstly, that growth within the LSCP area can be located so as to minimise its attractiveness for London commuters. This would suggest growth areas in east-west corridors that are not part of the strategic road and rail infrastructure to London;
- Secondly, to advocate that where substantial new development is proposed it is carried out under the aegis of an agency that can attract new jobs in addition to promoting new housing to provide the opportunity for local employment; or
- Thirdly, the pressures from London could be accepted as one of the principal influences on the area and planned for positively in line with infrastructure investment in rail.

CHAPTER 8:

Spatial Themes

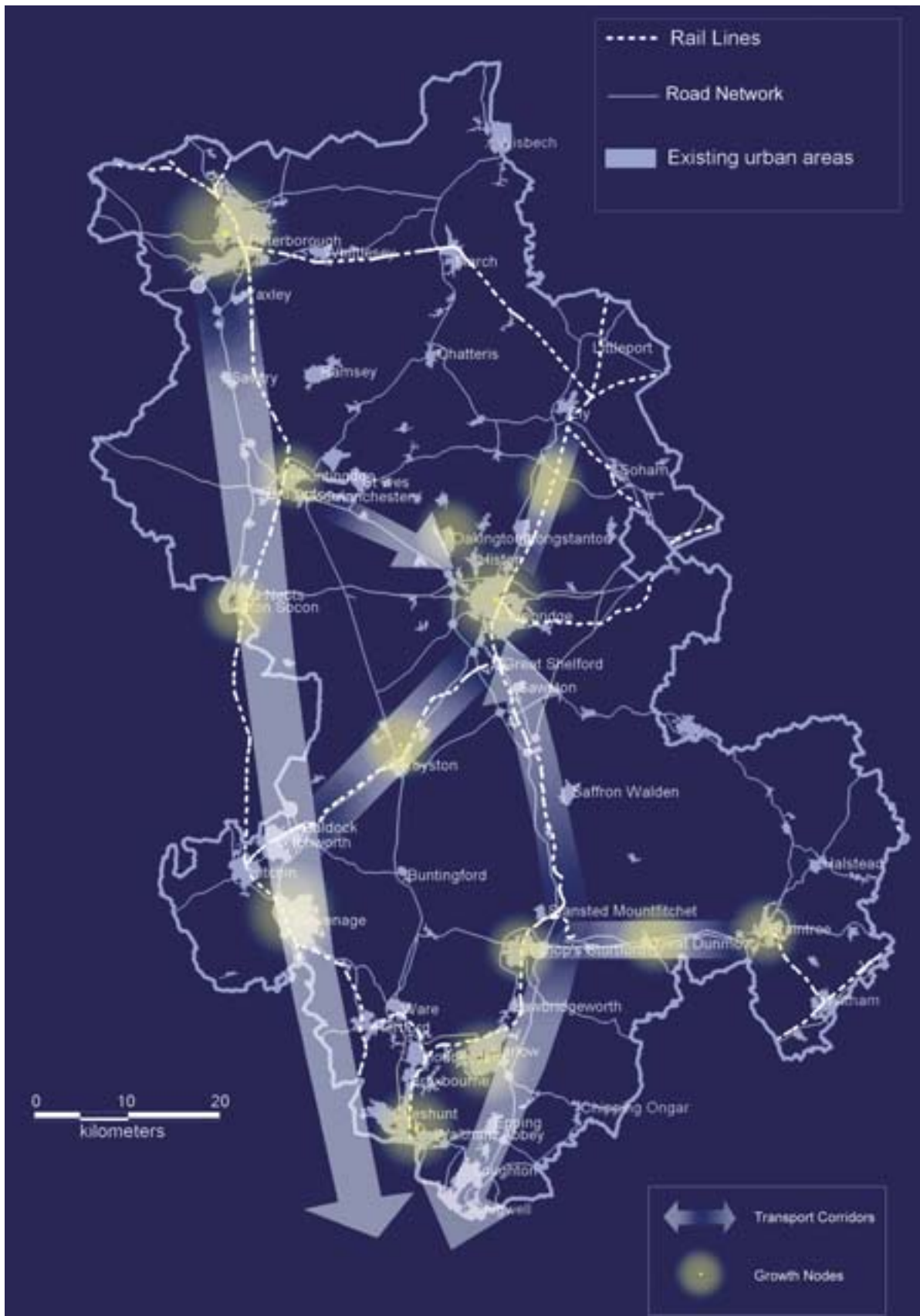
8.1 Introduction

- 8.1.1 This study aims to provide advice on how best to accommodate dwellings and jobs growth as identified within the draft RPG14 as banked but also the Governments growth aspiration for an additional 18,000 dwellings within the LSCP growth area.
- 8.1.2 The initial spatial distributions presented in this chapter have been developed on the basis of understanding the ability of settlements to accommodate growth in terms of their physical capacity (the settlement capacity assessments) and market constraints. The spatial themes for each distribution were developed from the strategic principles for growth identified in Chapter 7.
- 8.1.3 The distributions presented were subject to transport tests (Chapter 9) and on the basis of the results, reiterations of the distributions developed. In each instance redistribution has been consistent with each of the spatial themes.
- 8.1.4 The final chapters (10 and 11) provide an overall assessment of the results considering a range of spatial and strategic issues and provides our adjusted spatial distributions which are considered the best reiterations of the growth options for each spatial theme.

8.2 Spatial options

- 8.2.1 Within the context of the study to 2021, there are limitations on the degree of change that can be introduced by shifts in strategy. Current allocations for housing contained within development plans plus estimates of urban capacity account for approximately two thirds of the anticipated additional demand to 2021 as identified in RPG14 as banked. Thus, the influence of new strategic forms are going to be concerned principally with the allocation of this residual, plus the further 18,000 dwellings sought by ODPM for the growth area.
- 8.2.2 Figure 8.1 is developed from our review of existing policy and previous studies and of our understanding of housing land supply and shows our understanding of the current spatial pattern of growth within LSCP growth area. It shows the principal growth areas and corridors and movements between settlements along corridors. The spatial framework forms the basis for developing spatial options for allocating growth.

Figure 8.1: Spatial Framework



8.3 Spatial Themes

8.3.1 Three spatial options have been examined:

- **RPG led/urban concentration:** For this exercise, the allocations of dwellings and jobs contained within RPG were interpreted as a continuation of current policy in the banked RPG. Thus, this option is a representation of RPG14 as banked, at district and settlement levels. The distribution of dwellings and jobs uses the allocations in RPG14 to district or sub-regional levels, commentary from the RPG on specific allocations, and responses from individual district councils to the constraints to development within their districts, and to the initial allocations made by the consultants.
- **Clusters or transport corridors:** In this option the aim was to concentrate development in corridors where there is, or could be, good access to public transport. Residual demand to create new development areas came from assumptions on the limitations on development rates implied by RPG14 as banked, from the residual requirements of RPG totals over supply, and from the desire to meet the higher building aspirations. This option includes the continued development of existing settlements, but also considers the development of additional new small settlements in certain key corridors.
- **New Settlements:** This option is generated by the introduction of a major new settlement as a means of giving impetus to the development programme. Four general locations were examined (see Figure 7.3) and from this analysis two broad locations were short listed for further examination – Cambridge-Stansted and Cambridge to Baldock (refer to paragraphs 7.4.33 – 7.4.41). The timescale needed to introduce a major new settlement is such that its contribution to overall supply by 2021 is likely to be limited. Two implications come from this : provision has to be made for development in the period leading up to the formation of the new town, but it does provide capacity for the period beyond 2021. By 2021, the quantity of development in the new settlement would be limited, therefore, two further tests were carried out which took the 2021 allocations for the new settlement option, and added the completed new town (population and employment). Two locations for the new settlement were tested on this basis.

8.3.2 These themes were developed from the banked RPG14 and from previous studies including the LSC study and the Stansted/M11 work. In developing these options the intention has been to be guided by the principal aims of regional policy as set out in RPG14: specifically, to follow a sequential approach to locations of major development, to focus development in or adjacent to major urban areas, to protect areas of environmental importance, and to locate dwellings and jobs so as to reduce the need for long distance commuting.

- 8.3.3 In developing the options for testing purposes, there was an awareness of the need to consider approaches to urban form which would assist the support for trip making by public transport, and enable a lower dependence on the use of the car. It is acknowledged that in the immediate future the transfer of trips to public transport might be limited, but that looking into the future, where there may be greater levels of restraint on car use, there would be utility in having an urban form that was conducive to alternative modes of transport.
- 8.3.4 A distribution of dwellings was prepared for each option for the target for as set out in the banked RPG14, and with the additional 18,000 dwellings sought by ODPM as part of the Sustainable Communities Plan.

8.4 Influences on distribution

- 8.4.1 In making the allocations for each of the options (Clusters and New Settlements) the following factors were used in making judgements on the allocations: analysis of development rates, settlement capacity, market analysis and infrastructure capacity.

Development rates

- 8.4.2 Table 8.1 shows the development rates for each district over the past 20 years. These are compared to the development rates required to reach current RPG allocations and draft RPG 14 allocations.

Table 8.1: Dwelling completions – comparison of RPG rates with historic rates							
	Rates from 83/03	Draft RPG Rates	Current RPG Rates	AMR rates (last 2 years)	Comparison of Draft RPG with other rates		
					Comparison with RPG14	Comparison with last 2 years	Comparison with Historic Rates
Braintree	674	385	620	653	62%	59%	57%
Epping Forest	328	930	120	253	775%	368%	284%
Harlow	290	400	330	126	121%	317%	138%
Uttlesford	259	400	408	269	98%	149%	154%
Fenland	557	485	461	651	105%	75%	87%
Peterborough	605	1080	730	423	148%	256%	179%
Huntingdonshire	880	560	541	423	104%	133%	64%
South Cambs	691	1175	1140	639	103%	184%	170%
City of Cambridge	309	735	712	611	103%	120%	238%
East Cambs	439	430	416	206	103%	209%	98%
Broxbourne	352	255	280	155	91%	165%	72%
East Herts	600	485	450	491	108%	99%	81%
North Herts	447	665	430	664	155%	100%	149%
Stevenage	320	340	180	134	189%	254%	106%

Source: Colin Buchanan and Partners, ODPM, draft banked RPG

- 8.4.3 Table 8.2 shows that three options are available as a basis for making assumptions: that the building rates implied by the RPG allocations could be achieved, that the rates assumed should not exceed the rates achieved over the past 20 years, or that the rates likely to be achieved would be lower than those achieved over the past 20 years. The application of these assumptions to the two options (Cluster and New Settlements) are explained below.

8.4.4 The examination of development rates was used to compare the results from the analysis of market demand on the potential levels of growth for each particular district and where applicable, settlements, for both for the banked RPG and for subsequent options developed. For banked RPG, the districts which will need to achieve a marked increase in building rates compared to the last 20 years include Epping Forest (284%), Cambridge City (238%), Peterborough (179%), South Cambridgeshire (170%) and Uttlesford (154%). From a market perspective, the only district that housebuilders considered this would cause a problem in terms of delivery was for Peterborough. However, the consultants view is that this could be overcome and the higher building rates achieved through using a delivery vehicle, such as the proposed URC, rather than posing as an absolute constraint to development.

Table 8.2: Analysis of building rates required to achieve alternative outcomes

District	Draft RPG	No increase in rates (%)	Increase required to achieve RPG (%)	Increase rates to historic rates (%)	
	2001-2021	pa			
Braintree	7,700	385	0%	14%	6%
Epping Forest*	18,600	930	0%	661%	312%
Epping Forest w/o Harlow	13,250	663	0%	440%	312%
Epping Forest w/o North Weald NS and Harlow	7,250	363	0%	191%	63%
Harlow	8,000	400	0%	560%	278%
Uttlesford	8,000	400	0%	204%	-7%
Fenland	9,700	485	0%	46%	-31%
Peterborough	21,600	1,080	0%	269%	2%
Huntingdonshire	11,200	560	0%	169%	230%
South Cambs	23,500	1,175	0%	261%	17%
South Cambs wo Northstowe NS	17,500	875	0%	178%	17%
City of Cambridge	14,700	735	0%	143%	-98%
East Cambs	8,600	430	0%	328%	238%
Broxbourne	5,100	255	0%	235%	265%
East Herts	9,700	485	0%	98%	47%
North Herts	13,300	665	0%	120%	-26%
North Herts***	9,300	465	0%	144%	16%
Stevenage	6,800	340	0%	428%	343%
Stevenage expansion (Stevenage District plus others used)****	10,800	540	0%	238%	0%
Total (dwellings)	166,500	8,325	116,320	165,625	135,415
RPG Total	166,500				
Residual	0		-50,180	-875	-31,085
RPG +18000 total	184,500				
Residual	18,000		-68,180	-18,875	-49,085

* Assumes that Harlow expansion occurs in Epping Forest. Current studies are being undertaken which will advise on preferred growth strategy for Harlow

** Epping Forest without Harlow expansion element

*** Assumes that West Stevenage is included as part of the North Herts RPG14 (banked) allocation. West Stevenage is excluded from allocation and also completions in North Herts that are part of Stevenage settlement are excluded

**** Stevenage expansion. Have assumed that Stevenage expansion comprises Stevenage allocation and 4,000 allocation from North Hertfordshire. Completions rate includes that developed in North Herts, but as urban extension to Stevenage South Cambs without Northstowe New Settlement (assumed 6,000). Cambridge and Peterborough Structure Plan indicates that the new settlement will comprise 6,000 by 2016 with capacity for 8,000 – 10,000

Source: Colin Buchanan and Partners, ODPM, draft banked RPG

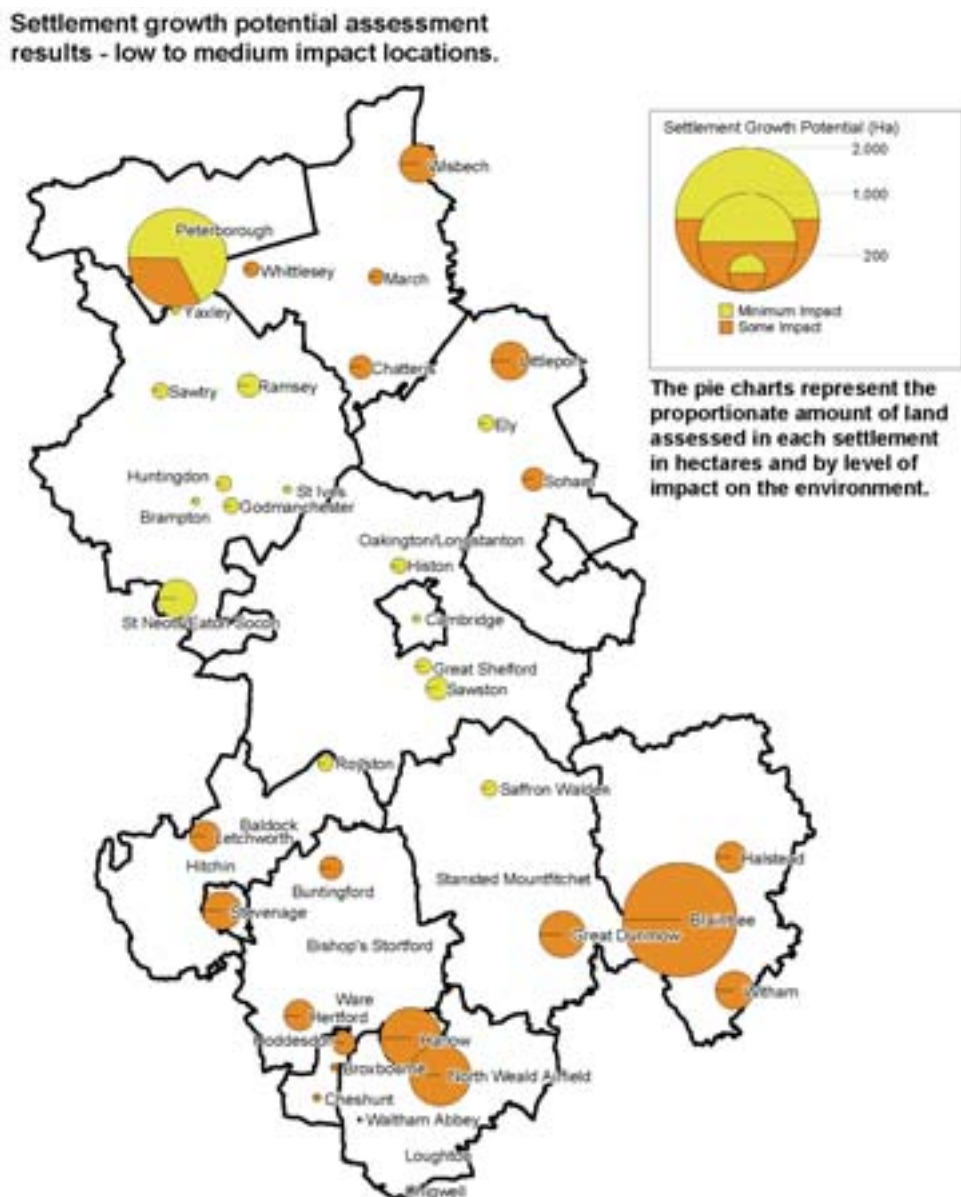
Jobs

- 8.4.5 It has been assumed that the jobs forecast in draft RPG 14, disaggregated to the study area, will remain constant for all options to 2021. That is, it has been assumed that the increase in dwellings target by 18,000, will not lead to the creation of additional jobs. This is because, our comparison of available employment projections with the targets contained in draft RPG14 shows that those targets appear to be high and are not matched by any economic projection. Fundamentally, a population/labour force unconstrained model projection were just under the draft RPG14 levels. This projection, unlike the other projections, removed labour force as a controlling constraint on jobs growth.
- 8.4.6 Harlow is a particular location area where jobs growth within draft RPG projections appears to be high. That is not to say that it cannot be achieved but does recognise that significant intervention may be required. Types of intervention could include enhancing transport links to key economic drivers such as Stansted Airport, radically improving the town centre, changing the socio-economic profile of the town by attracting higher skilled and renumerated population and radically improving internal transport links.

Settlement capacity

- 8.4.7 The allocations of dwellings to settlements was informed by the assessed capacity based on the analysis of impact. Potential areas of expansion adjacent to settlements was classified as having least impact, some impact, or significant impact. In allocating growth, areas of least impact were assumed to be used, followed by some impact, and only if necessary to achieve the target levels were areas of significant impact used. The approach to settlement capacity is outlined in Chapter 4 and the results of that assessment are shown diagrammatically in Figure 8.2.

Figure 8.2: Settlement growth potential assessment



Market Analysis

- 8.4.8 The initial conclusions from the analysis of the housing market were used in allocating development. The analysis identified the northern part of the study area as having possible constraint in its ability to sustain the levels of housing output required to meet the targets. Whilst this was used as an assumption in one of the options, it was also assumed in other options that the required levels of housing could be achieved, although that would require some form of intervention to ensure both the attraction of employment and the equivalent numbers of dwellings.

Transport analysis

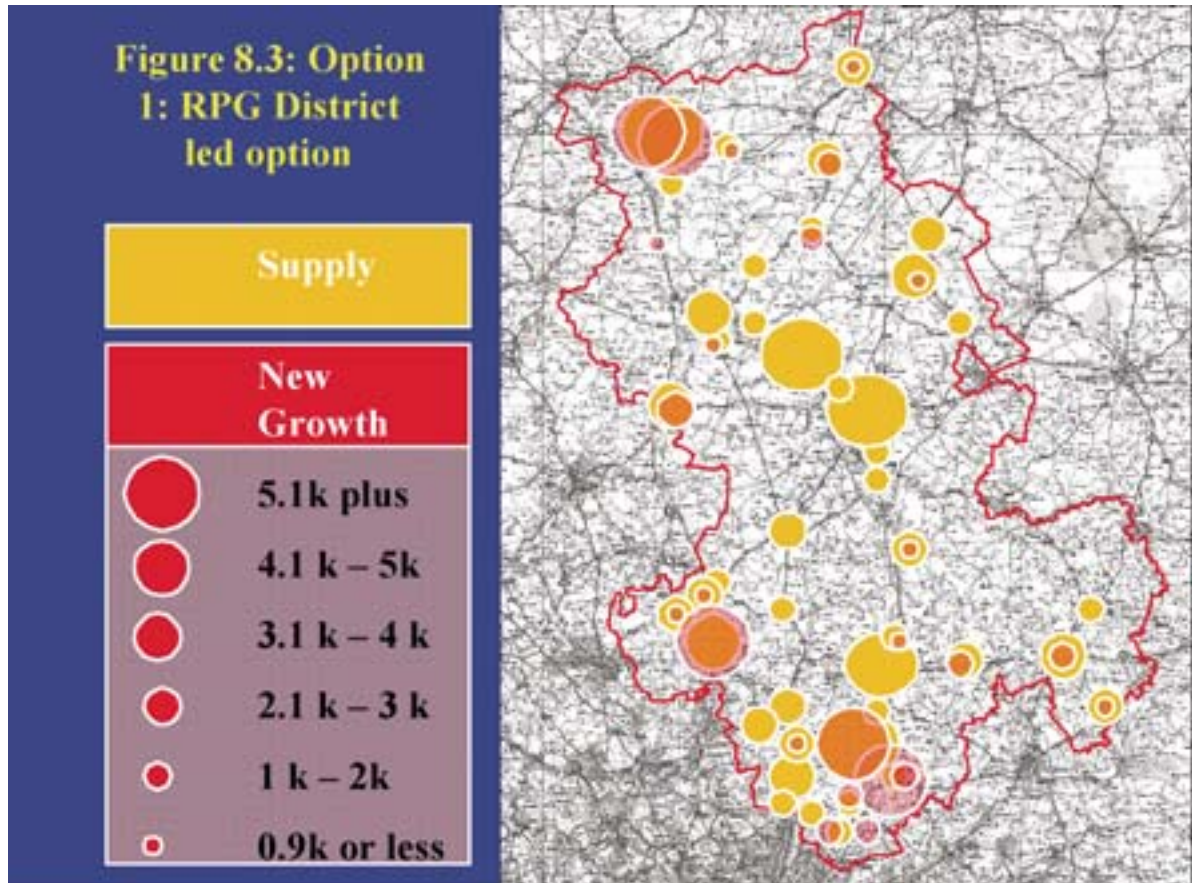
- 8.4.9 The initial analysis of the peak hour flows were used, in part, to influence the development of the options. The analysis of the RPG allocations indicated those parts of the network that were showing overloading, and those where there was potential capacity to accept growth without creating congestion.

8.5 First iteration of distributions

Option 1: RPG District led option (see Figure 8.3)

- 8.5.1 This option took the district housing totals from RPG14, and allocated each district total to settlements within the district. The first round of allocations was on the basis of known capacity from development plans plus assessed environmental capacity in areas adjacent to the principal settlements. Thus, there was a concentration of development in existing areas to balance houses, jobs and community facilities. There was a focus on development to support the strong economies in the south of the study area and in the regional centres of Cambridge and Peterborough, and there was development in areas which have weak economies and are in need of regeneration.
- 8.5.2 The initial allocations were revised on the basis of comments from the districts after the first stakeholder meeting. In most cases the comments made by the district councils were accepted, but in some cases there were conflicts or irresolvable issues. Thus, in this option the expansion of Stevenage was included, and the expansion of Harlow was allocated to Epping Forest District and not East Herts. It should be noted, however, that for the purposes of this study, it is the allocation to settlements that is significant rather than the distribution to districts.
- 8.5.3 This spatial option entails no new settlements (apart from North Weald airfield and Northstowe which are proposed in draft RPG 14) and directs growth to existing settlements. Thus it forms an extrapolation of banked policy, so far as it directs most growth to largest settlements and that no new spatial structures are applied. The distribution of jobs follows the advice in RPG 14, which is based on BSL district level projections (see Chapter 5).

Figure 8.3: Option 1: RPG District led option



Option 2: Draft RPG14 growth basis plus 18,000 (District led) (see Figure 8.4)

- 8.5.4 The basis for this distribution was based on the early study conclusions with respect to the environment and market demand plus comments from District officers relating to preferred growth poles. The distribution of jobs remained the same as in option 1.
- 8.5.5 Draft RPG 14 distribution (Option 1) remained broadly the same and the additional 18,000 dwellings were distributed around the LSCP area based on the following opportunities and constraints:

Constraints

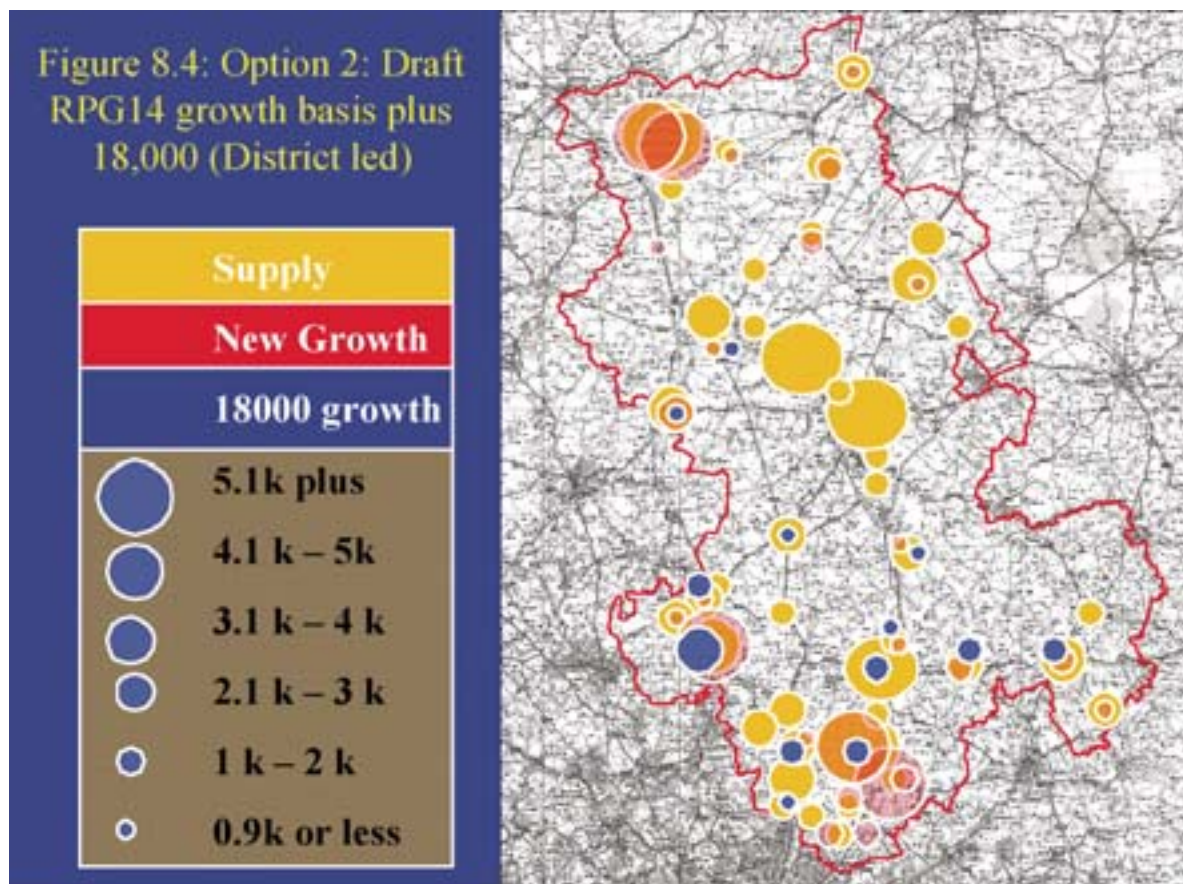
- Market constraints in the north of the Study Area. This has precluded further development in the area broadly north of Huntingdon.
- Settlement capacity constraints in Cambridge, South Cambridgeshire, Epping Forest (excluding Harlow extension) and North Herts (excluding Stevenage expansion)
- Limited/no land available within Harlow District and Stevenage Borough boundaries

Opportunities

- Environmental capacity within the A10 in the Lower Lea Valley (Broxbourne, Hoddesdon and Cheshunt)

- Growth along settlements within the A120 corridor (Braintree, Great Dunmow, Bishops Stortford, Stansted Mountfitchet) because they have capacity and are also able to make use of the potential of the transport corridor and potential synergy with Stansted Airport
- Use of identified capacity in other settlements (St Neots, Godmanchester, Hertford, Ware, Royston)
- Further major growth of existing settlements of Stevenage (promoted by the district and a priority area for regeneration in RPG14) and Harlow (identified PAER)

Figure 8.4: Option 2: Draft RPG14 growth basis plus 18,000 (District led)



Option 3: Draft RPG 14 growth basis: Clusters/corridors (see Figure 8.5)

8.5.6 In this option there was a concentration of development in corridors where good access to public transport is or could be provided through the concentration or clustering of development. Development is located around existing settlements within chosen corridors and through the development of additional small new settlements. The corridors were selected on the basis of the analysis contained in Chapter 7.

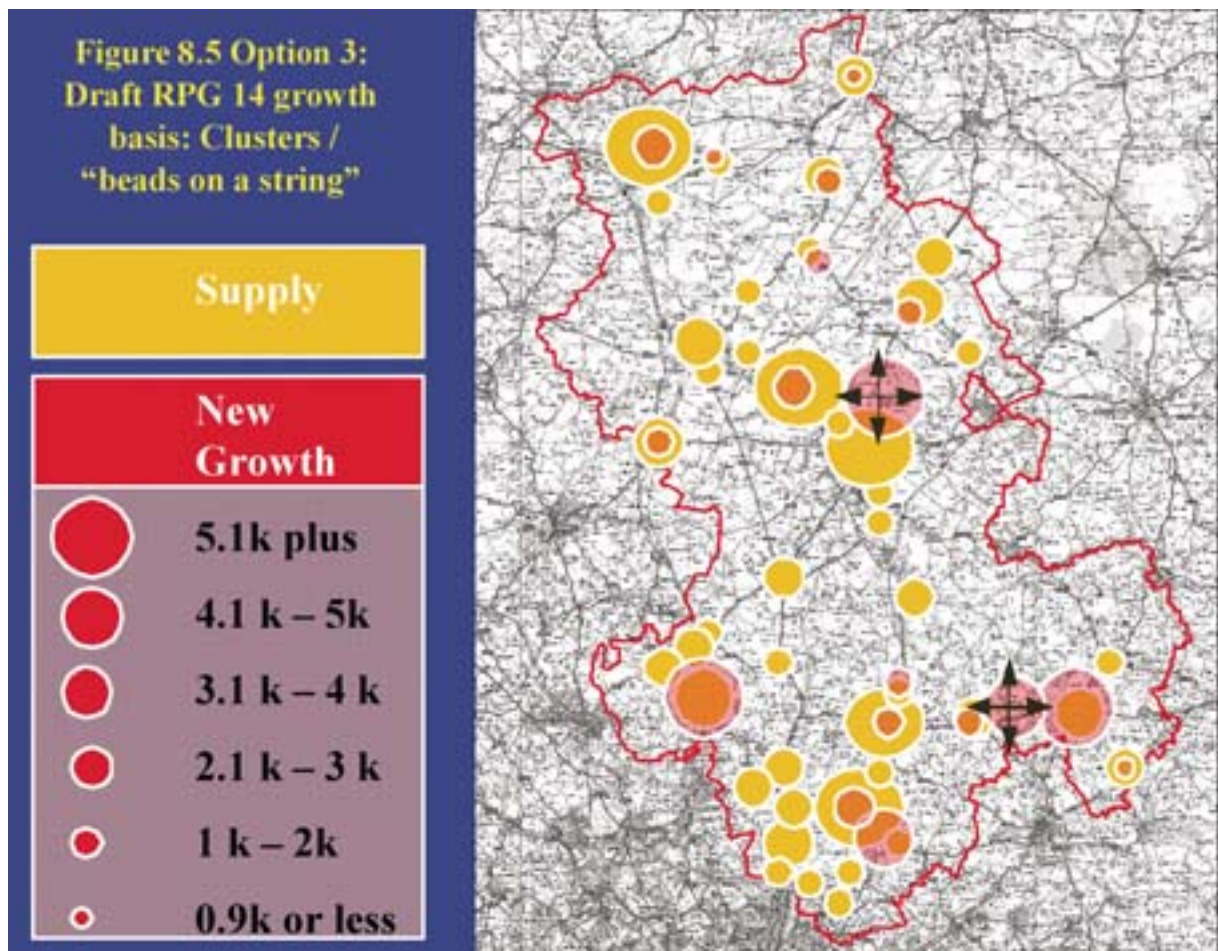
8.5.7 The following assumptions were used:

- The two corridors that were to be developed were assumed to be the A120 corridor from Braintree to Bishop's Stortford and the Cambridge to Huntingdon corridor,

- On the A120 corridor, further growth of existing settlements plus a small new settlement,
- In the Cambridge to Huntingdon corridor, Northstowe was assumed to grow to 10,000 dwellings,
- Growth elsewhere was based on a judgement of what could be achieved based on the analysis of historic building rates, rather than on the rates required to meet RPG targets,
- some allocations were made to settlements in Fenland to reflect the aspiration of those Districts,
- growth was assumed at Stevenage, but less than RPG levels, reflecting historic building rates,
- growth was assumed at Peterborough but less than RPG levels, also reflecting historic buildings rates.

8.5.8 In this option there was a redistribution of jobs to reflect changes in the distribution of housing. In the order of 6,000 jobs were redistributed from Harlow to the A120 corridor.

Figure 8.5 Option 3: Draft RPG 14 growth basis: Clusters/corridors



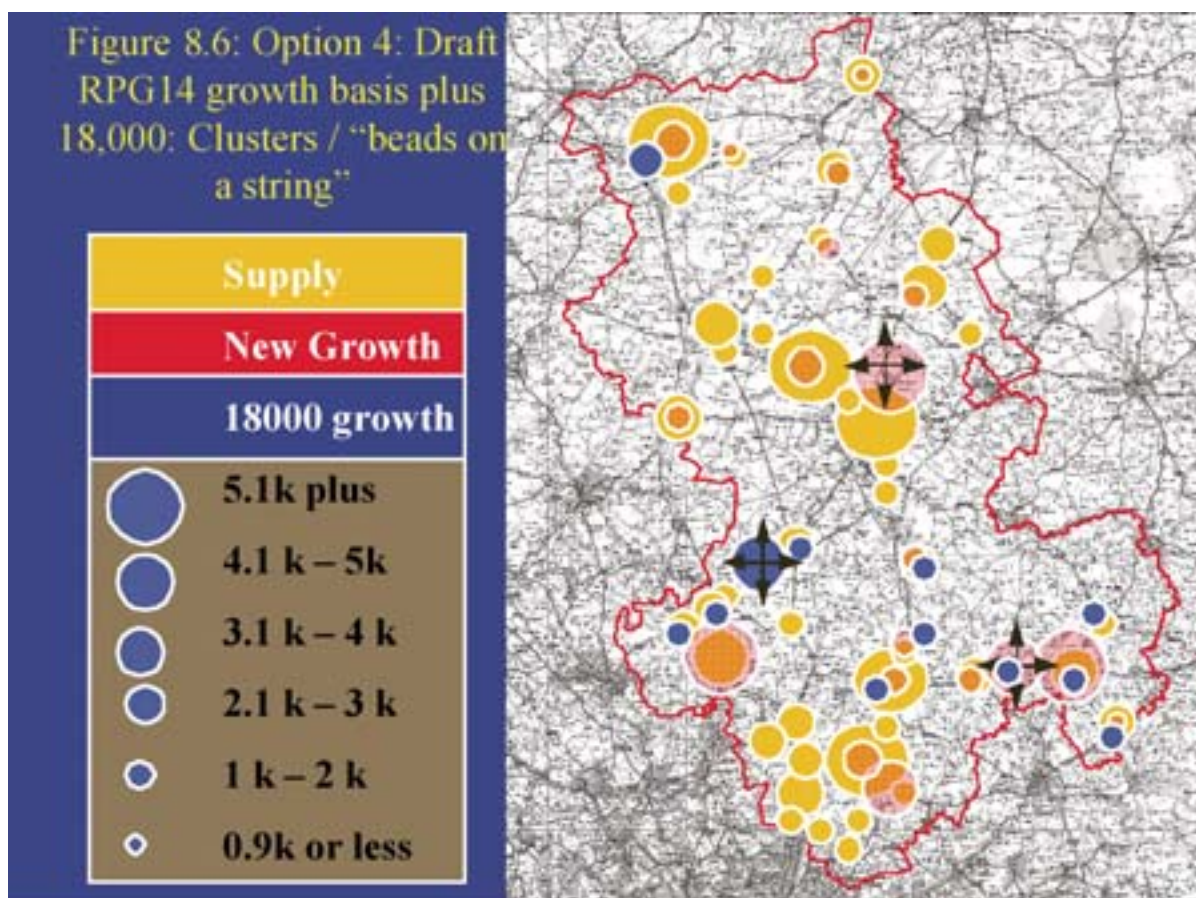
**Option 4: Draft RPG14 growth basis plus 18,000: Clusters/corridors
(see Figure 8.6)**

8.5.9 The basis of this option was the distribution for RPG Clusters as set out above. The assumptions on the location of additional growth were as follows:

- Further growth on the A120 corridor including increasing the size of the new settlement from 5,000 to 10,000 and development of Halstead and Witham as satellites to this corridor,
- A new cluster along the Cambridge to Baldock corridor including a new small settlement of 5,000,
- Some development in the Saffron Waldon area (corridor south from Cambridge)
- More growth at Peterborough.
- There was a lack of capacity elsewhere as judged by both the availability of land and the analysis of build rates.

8.5.10 The same distribution of jobs was used as for option 3.

Figure 8.6: Option 4: Draft RPG14 growth basis plus 18,000: Clusters/‘beads on a string’



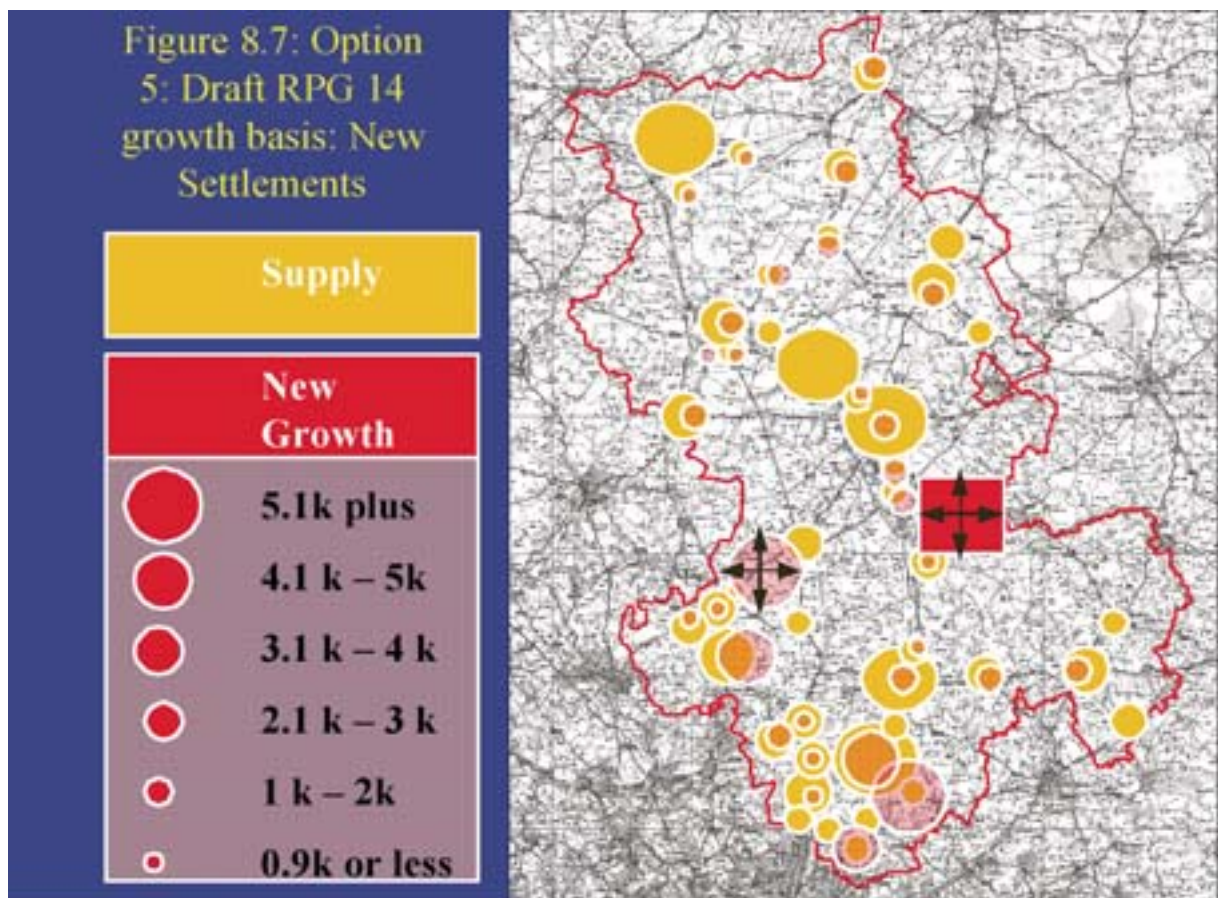
Option 5: Draft RPG 14 growth basis: New Settlements (see Figure 8.7)

8.5.11 The intention with this option was to introduce a major new settlement. Two preferred general locations were identified out of four originally identified (see Figure 7.3 and paragraphs 7.4.33-7.4.41), south of Cambridge in the Duxford/Saffron Waldon area, the other along the Cambridge/Baldock corridor. For the 2021 test, the location in the Duxford/Saffron Waldon area was tested. The reason it was chosen at this stage was that it is the one location that could respond to increasing demand from the two main economic drivers within the study area (Cambridge and Stansted) and also have a direct connection to London as the third major economic driver influencing the area. Because of the potential timescale needed to introduce a major new settlement, assumptions had to be made on the handling of growth in the period leading up to the start of the major settlement. The following assumptions were made in allocating growth for this option:

- The major new settlement would not deliver more than 5,500 dwellings by 2021,
- In the intervening period, growth to existing settlements on the basis of environmental capacity but with some additional development in the Cambridge/Baldock corridor.

8.5.12 The jobs redistributed from Harlow and from the Cambridge sub-region to the new settlement.

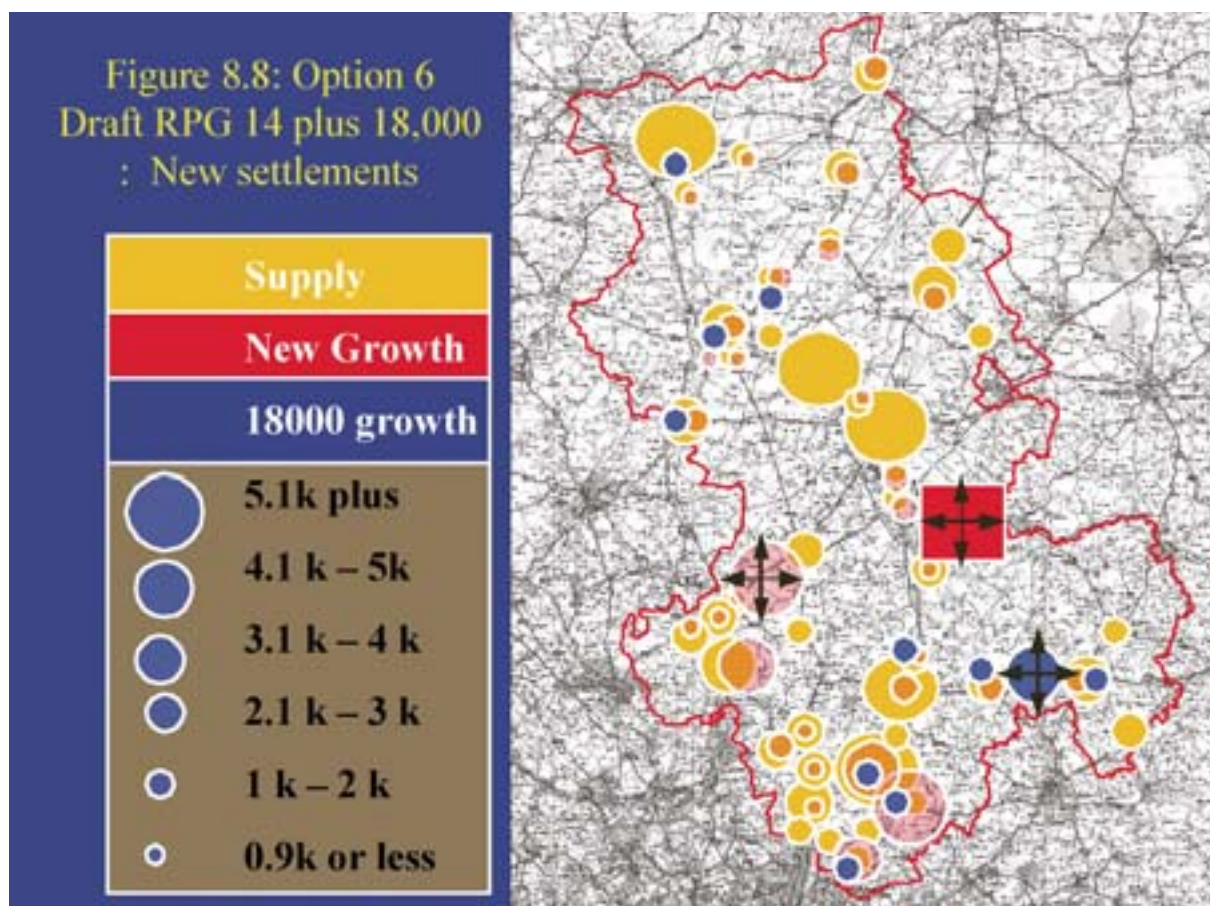
Figure 8.7: Option 5: Draft RPG 14 growth basis: New Settlements



Option 6- Draft RPG 14 plus 18,000: New settlements (see Figure 8.8)

- 8.5.13 This option tested the location of the major new settlement, but in the Cambridge/Baldock corridor rather than in the Duxford/Saffron Waldon area. The allocation of dwellings as used in option 5 formed the basis of non-new town growth. The additional 18,000 dwellings were allocated as follows:
- Further growth on the A120 corridor
 - Further growth on the M11 Corridor between Harlow and Stansted Mountfitchet, including North Wild
 - Growth on the Cambridge/Huntingdon and Cambridge/St. Neots corridors
 - Further growth at Peterborough
- 8.5.14 These allocations were made on the basis of environmental capacity. The jobs distribution was adjusted to reflect the alternative location, with jobs taken from the Cambridge sub-region and from Harlow.

Figure 8.8: Option 6 Draft RPG 14 plus 18,000 : New settlements



8.6 Further iterations of distributions

8.6.1 Further options were developed as a result of the first set of transport tests. This was aimed to achieve the following objectives:

- To limit traffic on the main north south radial roads, the M11 in particular,
- To test the impacts of a completed major new settlement,
- To examine the impacts of allocating growth along public transport corridors,
- To investigate the impact of using spare capacity in the transport system,
- To consider the implications of reduced employment growth,
- To identify impact of introducing transport enhancements,
- To identify impacts of introducing significant growth at locations with apparent transport capacity.

8.6.2 The extent and nature of these and the consequences of them is reported in Chapter 9.

8.7 Summary

8.7.1 In developing the land use options for testing there are two competing influences :

- the desire to establish a fresh approach to urban strategy within the study area that maximises capacity, but minimises travel demands and the environmental/physical impacts of development
- the inertia created by the existing distribution of settlements and, over the next 10 to 15 years, the influence of established policy as reflected in development plans and assessed urban capacity.

8.7.2 Thus it is only once the supply already identified starts to become exhausted, that radically different strategic directions can start to have a decisive influence. This does not mean that the beginning of a new approach cannot be initiated early in the development period, for example through the introduction of new settlements or the additional release of land as part of urban expansion. However the full benefits of a new approach are likely to be felt in the latter part of the period to 2021 and in the period following when further growth capacity will be required.

8.7.3 The options that have been developed reflect the strategic options that were postulated in the earlier LSC study, in particular Continuity, Economic Growth Poles and New Towns and settlements and also in the document 'Towards RPG14'. Urban regeneration is assumed to be an underlying theme of any strategic option that is pursued.

- 8.7.4 It is also apparent that from the analysis of environmental capacity (i.e. the capacity of settlements develop in areas where the environmental impact is minimal), that the targets set in RPG as banked take up the assessed capacity around existing settlements. Expansion beyond RPG levels requires developing in areas that are defined as having some environmental impact or having new settlements. This will also be true of new development beyond 2021.

CHAPTER 9

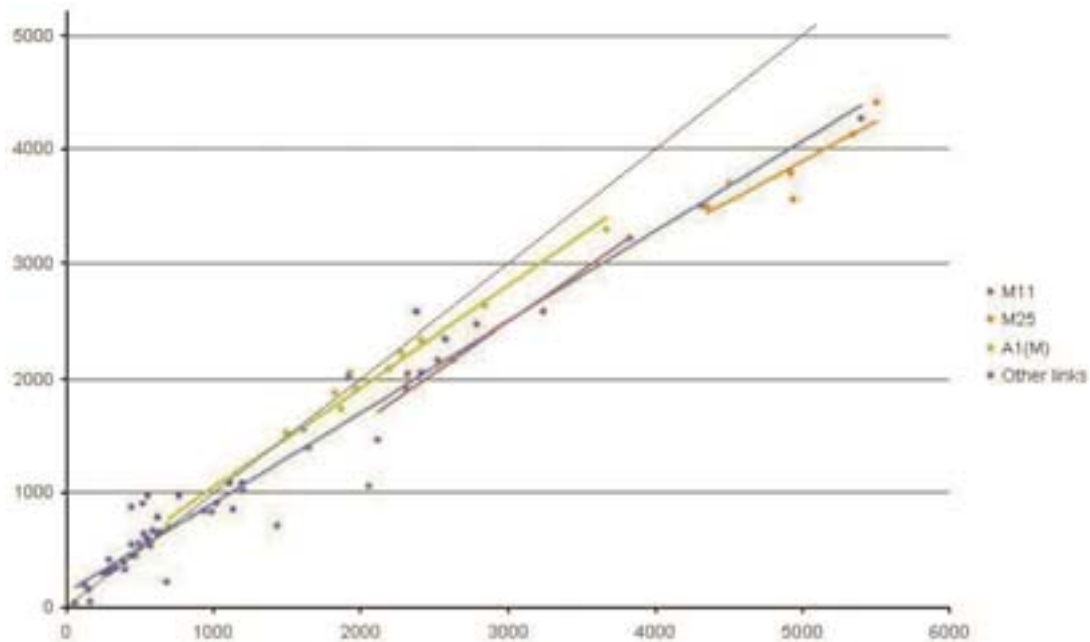
Transport Analysis

9.1 Introduction

- 9.1.1 The construction of 185,000 new homes and the creation of an equivalent number of jobs in the LSCP growth area plainly risks seriously overloading both the road and rail networks. This chapter considers both the constraints which these networks must impose on such developments and the opportunities which the scale of development will create for improvements to both road and rail.
- 9.1.2 Transport considerations have already been discussed in the formulation of the development options – notably locating homes and jobs in close proximity, providing more homes in areas of strong economic potential and concentrating development into existing or potential new transport corridors to permit the bulk of the journey to work, school, etc to be catered for by public transport. This chapter explores how such concepts might work in practice and compares them with previous concepts such as new towns where the experience has undoubtedly been that the use of cars has been unintentionally encouraged rather than held in check.
- 9.1.3 The chapter begins by summarising the transport model, constructed in a very short time, and used to compare alternatives in a systematic way. The highway and traffic implications of different land use plans/strategies are then examined and this is followed by a similar examination of the rail issues and opportunities. Finally the chapter draws some conclusions which are fed back into the main study work stream.

9.2 The transport model

- 9.2.1 The comparisons are made using a Saturn (buffer network) traffic model, which combines the Naomi model of the whole south-east (used in the Orbit Multi Modal Study) and the LSM model developed for the London South Midland Multi Modal Study. The LSM model was used to improve the accuracy of the trip matrix in the northern part of the study area. ***The use of a buffer network implies that the model takes account of junction capacity only insofar as this can be specified as part of the description of a length of road, i.e. the interaction of that road with other roads at its end junction is not modelled directly.*** The combined model was calibrated against independently collected traffic counts and the goodness of fit achieved is illustrated in Figure 9.1.

Figure 9.1 Model Calibration – Goodness of Fit

9.2.2 The modelling procedure employed is shown diagrammatically in Figure 9.2. In examining each land-use strategy the model was iterated through a sequence in which the number of car driver peak period journeys made (trip ends) was calculated using the DfT TEMPRO model for each alternative land use configuration and the highway travel times were used in a gravity model to estimate the patterns of travel which would result. Public transport trip ends are estimated separately by TEMPRO. The resulting traffic trip tables were then assigned to the highway network and the travel times were then re-calculated. This whole procedure was repeated until the travel times and traffic forecasts on each road had stabilised. Figure 9.3 illustrates the degree of convergence achieved between successive traffic forecasts on different types of road and demonstrates good convergence to stable forecasts of traffic.

9.2.3 Rail passenger forecasts were taken directly from the TEMPRO model and translated into additional passenger loads on the different radial lines. It should be borne in mind that TEMPRO is primarily a trip generation model and not a mode split model and as such has limitations when used for modelling rail and other public transport modes. This applies particularly when analysing the passenger flow outputs at a station by station level. Analysis of strategic movements on a line-by-line basis gives more robust results.

Figure 9.2 Modelling Procedure

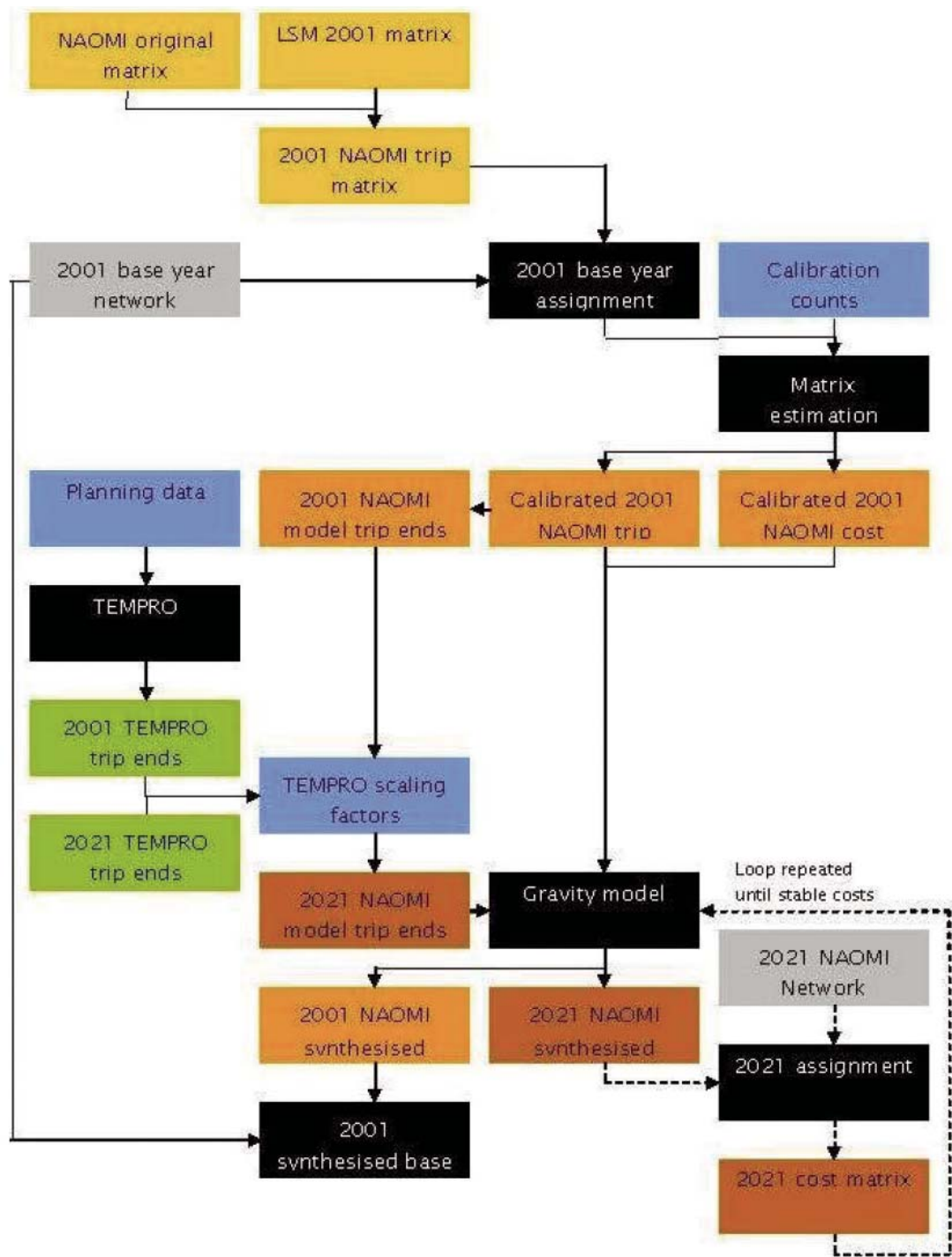
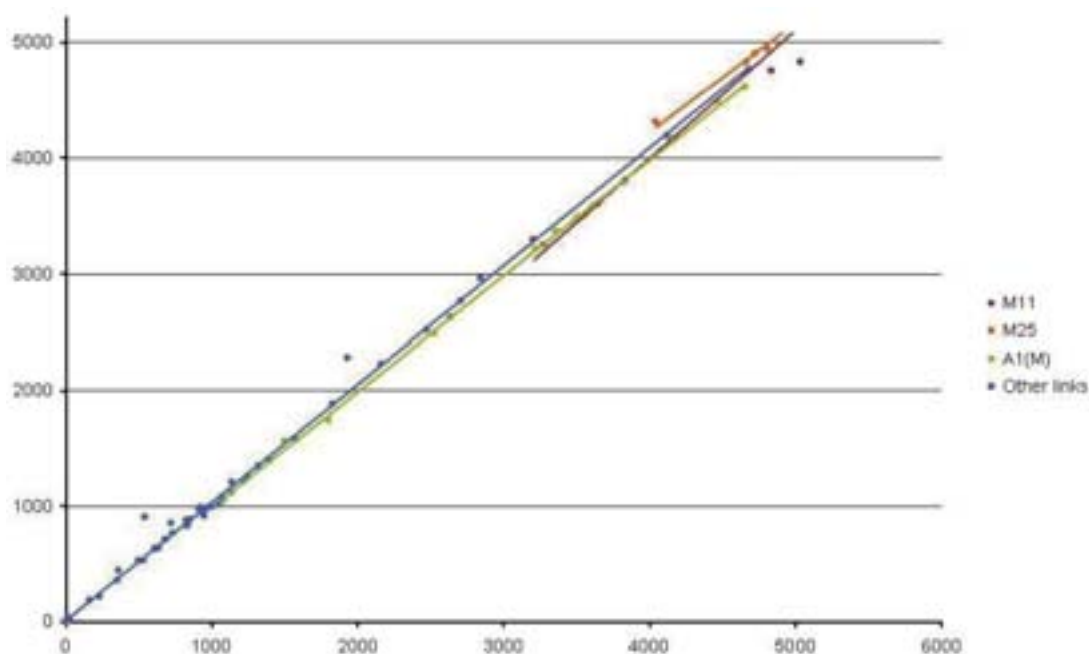


Figure 9.3 Model Convergence



9.3 The land use/transport options considered

9.3.1 Once the transport model was deemed to be working reasonably well it was used to explore a number of land use and transport options illustrating the different development themes of:

- RPG District led
- Transport corridors
- New Towns.

9.3.2 Some of these were quickly disposed of while others led to further options. The issues explored and the options considered in exploring them included:

Base analysis

- 2001 base (the model's representation of conditions in 2001 using the best data available)
- 2001 synthetic (i.e. modelled in the same way as future year options).

District led/RPG

- Option 1 – District led RPG (i.e. 'banked' RPG modified in the light of District Council comments)
- Option 2 – Option 1 +18,000 homes

Transport Corridors

- Option 3 – RPG with later (second 10 years) development diverted into transport corridors

- Option 4 – Option 3 with 18,000 extra homes added mostly to transport corridors
- Option 9 – Option 3 but with a 20% reduction in traffic from all new developments to reflect better layouts designed to encourage use of public transport
- Option 16 – Option 4 with 20% less traffic assumed to be generated from new settlements in transport corridors

New Towns

- Options 5 and 6 – Option 1 with the first 5,000 homes of New Towns at Saffron Walden/Duxford and Royston/Baldock respectively
- Option 7 – Option 1 with 20,000 homes in the Saffron Walden/Duxford New Town
- Option 8 – Option 1 + a new town (20,000 homes) on the Cambridge to Baldock corridor plus the 18,000 homes from option 2
- Option 18 – As Option 7 but with different connections to the road network.
- Option 19 – Option 1 but with a significant expansion (20,000 dwellings) north of and adjacent to Harlow
- Options 12 and 13 – discarded

Moving developments from congested areas

- Option 11 – As option 1 but with 24,000 homes and 10,000 jobs moved north
- Option 14 – As option 1 but with 20,000 homes and jobs moved to a combination of Peterborough and A120 corridor
- Option 17 – Option 1 but with “Business as usual” jobs

Targeted road improvements

- Option 10 – Option 3 with some targeted road improvements
- Option 15 – Option 14 with some targeted road improvements

9.3.3 Summary statistics are provided in Appendix G.

9.4 Committed highway schemes

9.4.1 All options, some with associated road improvements, were assessed for one future year – 2021. By this date it was assumed that all Highways Agency TPI committed highway schemes and other major schemes had been completed. These schemes included:

- M1 widening J6a to 13
- A421 M1 to Bedford dualling

- M11 J8 to 9 widening
- A12 M25 to Chelmsford widening
- A1120 Braintree to Marks Tey dualling
- M11 J9 to 14 widening
- A1 Alconbury to Brampton widening
- A12 Chelmsford to Colchester
- A428 dualling (only St Neots to Caxton was assumed)
- A47 A1 to Sutton upgrade
- A14 Ellington to Fen Ditton.

9.5 Model test outputs

9.5.1 For each test the model produced a large amount of detailed data. For simplicity the results in Appendix 6.1 are confined to:

- Summary statistics (cordoned to the study area only)
- AM average peak hour traffic volumes (produced only for some tests)
- Volume/capacity (v/c) plots of roads with the study area.

9.5.2 It is acknowledged that there may be a need to overcome specific constraints at key junctions throughout the study area; however it is not possible to examine these in detail using the strategic model developed for this study.

9.6 The scale of traffic growth and problems implicit in RPG 14

9.6.1 Compared to the (synthetic) base year (2001) situation the banked RPG14 development (Option 1) was estimated to increase traffic (pcu km) by about 59%.

9.6.2 As a result of the expected growth in the economy and hence in car ownership, over half of this increase in traffic would occur in the absence of any further development.

9.7 District led distribution (Option 1)

- 9.7.1 The traffic growth implicit in Option 1 inevitably imposes some strains on the road network as the traffic levels rise to fill or exceed the capacity available. These effects are most noticeable in the urban areas of Cambridge and Harlow. They also arise in Huntingdon, Stevenage, Hertford and the Hoddesdon area.
- 9.7.2 It was assumed in the study that such urban traffic problems can in principle be overcome by the conventional (if difficult) methods of removing through traffic by means of by-passes, accompanied by control of the price and supply of town centre parking and the provision of good alternatives to the private car, such as urban bus services, cycling, walking and park and ride (P&R). This may be a somewhat cavalier assumption, especially in towns such as Harlow, which were in part designed around the car. But a strategic study has to take a view of such matters and cannot get bogged down in what are essentially local problems unless these have strategic implications. The consultants' view is that urban traffic problems are generally soluble, for example in Oxford where a radical approach to transport planning and promotion of park and ride and other public transport initiatives over many years has been successful in handling urban traffic problems. These issues should not therefore unduly constrain strategic planning.
- 9.7.3 The more strategic traffic problems with option 1 appear to arise to the south east of Cambridge on the A11 and the A1307.
- 9.7.4 Average peak hour traffic speeds are estimated in option 1 to fall from 64.4 kph to 51.5 kph a drop of over 20%. However most of this drop is accounted for by the forecast congestion in Cambridge and Harlow. The average speed on the remainder of the network was estimated at 58.2 kph, 10% lower than the average speed on the entire network in 2001.

9.8 The addition of 18,000 homes (Option 2)

- 9.8.1 Option 2 examined the impact of adding 18,000 homes to the banked RPG14. The effect was to add about 167,500 pcu km to the network (about 9pcu km in the study area in the peak hour per home built) and to further reduce the average traffic speed to 50.65 kph i.e. a 21.5% decline relative to 2001. Every 10,000 homes built in the region thus reduce the peak hour traffic speed by about 0.5 kph. But ignoring the predicted effects within the urban areas of Cambridge and Harlow reduces this impact.

9.9 Development in transport corridors

- 9.9.1 In this option the quantity of development was reduced in Peterborough, Stevenage, Harlow and the "London Fringe" and increased in the A120, Cambridge-Ely, Cambridge-Huntingdon and Cambridge-Stansted corridors.

- 9.9.2 This option had little effect on the pattern of overloaded roads. It slightly reduced congestion to the west of Cambridge but worsened it to the south east and on some roads to the east of Stevenage. Overall the impact relative to option 1 was an increase of 3% in the traffic on the network (pcu km) and a fall in average peak hour speed of about 7% – a marked deterioration. This conclusion must be qualified by the fact that the test included no allowance for the potential of transport corridors, other than existing railways, to reduce car use. This is a weakness of the model rather than of the corridor concept.
- 9.9.3 Option 9, which re-examined option 3, but with the assumption that traffic levels from developments located in new transport corridors could be reduced by 20%, cut the overall traffic (pcu km) by nearly 10% and increased the average peak hour speed by nearly 3 kph, about 6% when compared with Option 3. There is, thus, clearly potential in the transport corridor development concept if it can be made to work.
- 9.9.4 A similar effect can be seen by comparing Option 4 with Option 16. The assumption that development in a public transport corridor will reduce car use by 20% slightly reduced network overloading on the corridors NW and SE of Cambridge.
- 9.9.5 The question which therefore arises is whether or not this is a plausible assumption. Intuitively it at least seems credible. The recent Transport Research Laboratory Report 568, which reviewed the factors influencing transport choice concluded that 'most people's choices can be explained quite simply in terms of differences in journey time and costs. The difficulty in achieving substantial switches in mode choice from the car to public transport is to devise situations in which the use of public transport becomes advantageous compared to the car. Travel to central London is one such situation and the result is 75% using rail and only 13% using car. Travel to some other city centres, for example, Oxford, has seen significant changes from car to bus as a result of policies favouring the latter and increasing the cost of the former. More generally, it has been argued (proceeding of the Institute of Civil Engineers February 2004, Paper 13317) that new public transport systems, capable of out performing existing buses and trains are feasible and will be needed if transport policies are to be sustainable.
- 9.9.6 Analysis of the census data early in the study demonstrated the significance of the link between urban form and car dependency. In most new towns, where layouts are designed for the car and public transport is hard to provide, car use generally exceeds the levels forecast by TEMPRO by 10-20% (see Figure 9.4). In the case of 'Traditionally' laid out settlements, the TEMPRO forecast is often an over estimate of car use by 10-20%. It therefore seems reasonable to expect that a major new settlement specifically designed around a public transport network to promote non-car modes should be able to match this 20% reduction on the TEMPRO forecast.

- 9.10.3 As would be expected, both tests indicated significant deteriorations in traffic conditions. The Duxford/Saffron Walden test (Option 7) would overload the M11 and worsen conditions on the local road network and to the south east of Cambridge. It was forecast to cause an increase in traffic (pcu km) of 18% relative to option 1 and a drop in average traffic speed of 7.6%. It thus performed significantly worse than option 2, which added 18,000 homes to option 1. This suggests that building a new town may in transport terms be an inefficient way of handling growth.
- 9.10.4 It should be noted that the trip generation and mode split from the new settlements was derived from Temprow and thus embodied an average value for that location ignoring any possible commitments to new settlement layout, design and public transport provision that would promote more efficient travel patterns.
- 9.10.5 Option 8, which added both the 18,000 homes and the new town in the Royston area, was forecast to have similar traffic levels but significantly lower average speeds. Relative to option 2, which also had the extra 18,000 homes, it had an average peak hour speed drop of about 30%.
- 9.10.6 Of the two new town options, the Duxford/Saffron Walden area seems to have the lesser impact on the road network, but neither seems such an efficient way of handling the growth as that exemplified in option 2, i.e. spreading it around existing settlements. If concentration of development within a new town is considered desirable, then further expansion of Harlow, where new roads are needed in any event, might be a better way of achieving it than creating an entirely new town of the scale of 20,000 homes.
- 9.10.7 Option 18 explored the extent to which the traffic problems associated with the new town options were due to loading their traffic directly onto the existing network rather than postulating a new highway network in the area of the new town. The test indicated that in the case of the Duxford/Saffron Walden (Option 7), if it was assumed that the new town came with its own local highway network then the traffic assumed to use the existing network would fall by 13% and the average speed would rise by 15%. This suggests that, provided they come with the necessary local infrastructure, new towns are as effective in traffic terms as other ways of accommodating the traffic growth. The size of the highway investment necessary to spread the load of additional traffic across the existing highway network should not, however, be underestimated. In order to avoid overloading the low capacity local roads in the vicinity of the new settlements, substantial road infrastructure was inserted into the model so that local congestion, which it is assumed would be designed out of a new settlement plan, does not distort the model results. In the case of the Duxford/Saffron Walden New Town, for example, connections to the existing highway network were assumed at:
- Little Abington (A1307/A11)
 - Linton (A1307/B1052)
 - Stump Cross (A11/A1301)
 - M11 Junction 10
 - Royston (A10/A505)
 - Six Mile Bottom (A11/A1304).

- 9.10.8 Though this might be excessive, the message is clear: new towns of any size will need their own highway networks and these could be substantial.

9.11 Moving development north (Options 11 and 14)

- 9.11.1 In these two tests 20,000 new homes and 20,000 new jobs were relocated from the congested parts of the study area to less congested areas, i.e. the north of the study area, consisting of Peterborough and the settlements within Fenland in Option 11 and for Option 14, a combination of Peterborough, settlements in Fenland and existing and new settlements along the A120 corridor. The potential for achieving improvements in this way is limited by the reasonable assumption within TEMPRO that residents of developments further from London will tend to commute less to London and hence to make more use of cars in the peak period.
- 9.11.2 Because of this, both options increased the traffic (pcu km) on the road network and both consequently slightly reduced the average traffic speed. This suggests that the potential for reducing the traffic impacts of the RPG by moving the development north should be limited to around half of the levels tested here. Congestion can soon be worsened in places such as Peterborough and this can quickly negate the advantages sought.

9.12 Targeted road improvements (Options 10 and 15)

- 9.12.1 Option 10, which included some road improvements to the east of Stevenage and along the A10/A1198 corridor where the model showed Volume/Capacity ratios of over 100%, suggested that these could significantly reduce congestion. It raised the average speed relative to option 3 by over 20%. A focused set of highway schemes (Option 15) similarly raised the speed of option 14.
- 9.12.2 A modest but well targeted programme of road improvements would therefore seem a sensible policy to accompany any future RPG and one difficult to avoid by redistributing the development around the area or concentrating it in New Towns. Attempting to significantly increase the quantum of development within the study area without any increases in highway capacity seems bound to increase traffic and worsen congestion. To the extent that this traffic is to town centres or other major trip attractors, such as airports, it should be possible to limit the need for road improvements. But to handle the other traffic, for which alternative forms of transport are hard to provide and for which road pricing is likely to be perceived as unfair, some limited road improvements are likely to be required and to be the most effective way of handling the problems which will otherwise arise.

9.13 Fewer jobs in the area (Option 17 – Business as usual)

- 9.13.1 This rather unrealistic option slashed the number of jobs, typically by nearly 50%. It therefore stretched the transport model which was forced to match employees and jobs across the entire south-east and ultimately to factor up the latter to the level of the former. The option was forecast to cut the traffic and hence increase its average speed. The reason was that with fewer jobs in the study area, more people are obliged to commute outside it and fewer come in. Though the study area's traffic problems may thus be reduced it is likely that those of the south east as a whole are not.

9.14 Implications of the spatial options for rail services

- 9.14.1 The approach adopted to analyse the impact of various different levels of growth on the rail services was to assess the number of additional future boardings on the rail corridors in the study area (Great Eastern Mainline [One Great Eastern and One Anglia], West Anglia Mainline [One West Anglia], East Coast Mainline [GNER, WAGN]) plus LUL Central Line to Epping. Passenger numbers derived from this analysis were then compared with current timetabled seated capacity to assess the impact of this growth. The same numbers were then also tested against the service timetable but with trains lengthened where possible.
- 9.14.2 The SRA provided advice on the work undertaken and detailed information regarding capacity enhancements that were feasible, including technical information pertaining to modifications required for rail infrastructure.

Overall impact on the rail network

- 9.14.3 The impact on the rail network is significant in all options but the differences between options are limited. In terms of additional passengers boarding London-bound services in 2021, the option that presents the least impact overall is Option 3 with around 26,400 passengers in the AM peak period (0700-1000) services. The option with the greatest impact is Option 8 with around 27,900 additional passengers boarding London-bound AM peak period services in 2021.
- 9.14.4 Considering each rail line on a case-by-case basis also shows that there is little difference between options in terms of the number of additional passengers boarding London-bound services. Table 8.1 shows the typical additional boarding passengers for each of the rail corridors in the study area.

Table 9.1 Average Boardings by Rail Line (AM Peak 0700-1000)

	Boarders destined for London	Boarders alighting before London	Total
Great Eastern Mainline (Braintree)	1,211	471	1,682
West Anglia Mainline	9,048	2,548	11,596
East Coast Mainline	8,191	1,792	9,984
Subtotal Rail	18,451	4,811	23,261
LUL Central Line	3,843	N/A	3,843
Grand Total	22,294	4,811	27,105

Localised Impacts

9.14.5 At the level of individual stations within the study area, the impact is generally consistent across options. However there are a few exceptions to this:

- Option 2 generates 5,884 additional boarders at Broxbourne, compared with an average across all options of 5,496.
- Options 6 and 8 both generate 4,109 additional boarders on the LUL Central Line, compared with an average of 3,843.
- Option 7 generates 446 additional boarders at Great Chesterford, compared with an average across all options of 150.
- Option 19 generates 1,524 additional boarders at Harlow Town, compared with an average of 1,040.
- Option 11 generates 2,344 additional boarders at Peterborough, compared with an average of 2,119.
- Option 8 generates 534 additional boarders at Royston, compared with an average across all options of 196.

9.14.6 The average of all options was used to examine in more detail the impact of increased rail trips on stations. It should be noted that it was assumed that no new stations were to be constructed. The table below shows the average for all options for additional boardings on London-bound services at each train station:

Table 9.2 Average Additional Boardings by Station (AM Peak 0700-1000)

	No. boarding on London-bound services	% of total (with London destination)	No. boardings in terms of train sets*
Bishops Stortford	823	3.0%	2.4
Braintree	1,682	6.2%	4.8
Broxbourne	5,496	20.3%	15.7
Cambridge	4,437	16.4%	12.7
Central Line	3,843	14.2%	3.8
Cheshunt	1,390	5.1%	4.0
Ely	537	2.0%	1.5
Great Chesterford	150	0.6%	0.4
Harlow Town	1,040	3.8%	3.0
Hertford East	186	0.7%	0.5
Hertford North	133	0.5%	0.4
Huntingdon	1,928	7.1%	5.5
Peterborough	2,119	7.8%	6.1
Royston	196	0.7%	0.6
Stansted Mountfitchet	859	3.2%	2.5
Stevenage	1,717	6.3%	4.9
Ware	569	2.1%	1.6
Total	27,105	100.0%	N/A

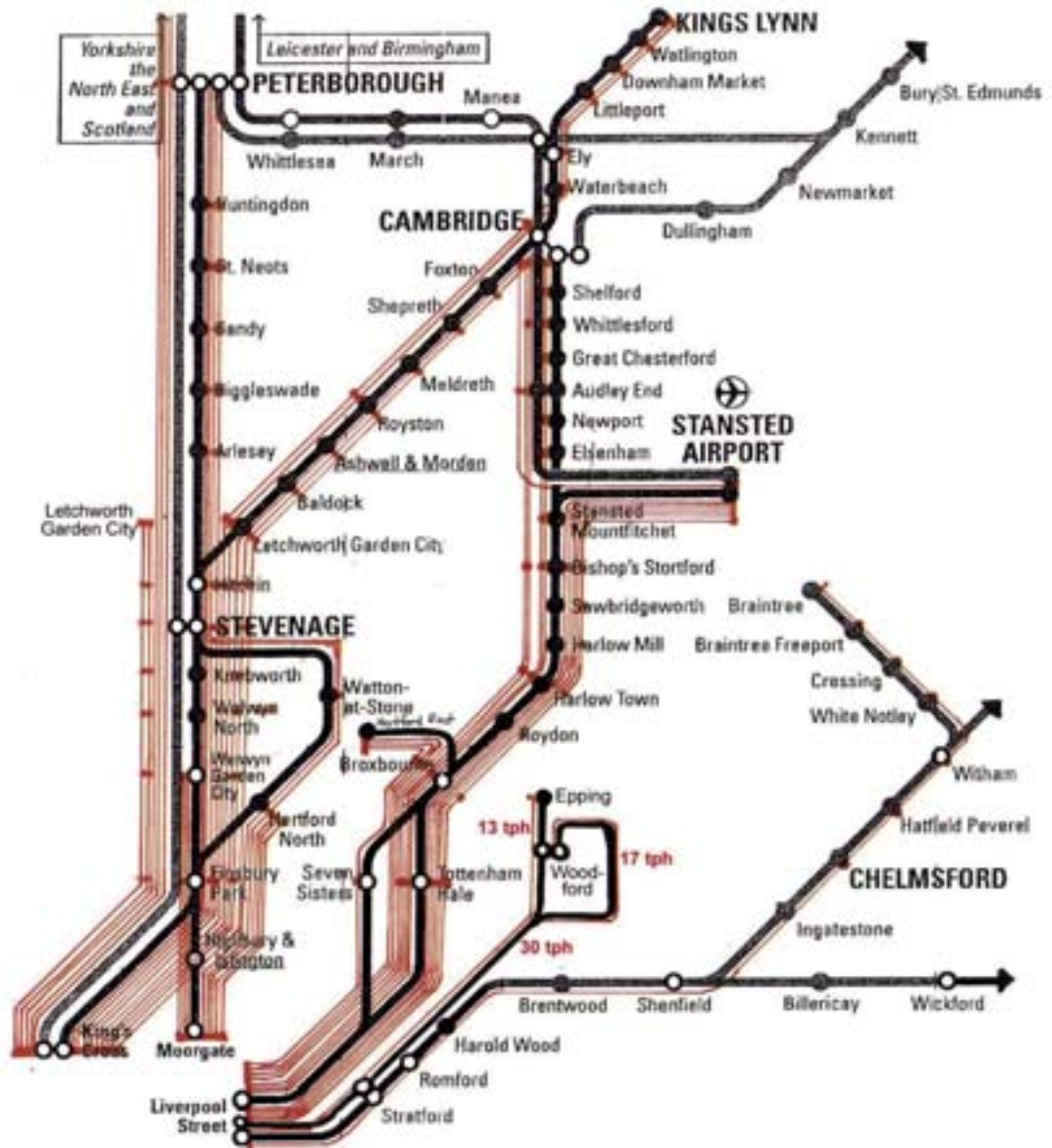
Note: *Assuming 350 passengers per train (4-car set) for mainline rail, and 1,000 passengers per train for LUL Central Line.

- 9.14.7 It should be noted that not every station in the study area is included here. This is because boarding data was not available for every station therefore not all stations could be assessed. Because of this, it is likely that some stations shown in the table above have attracted a higher number of additional boarders than would be the case. An example of this is Huntingdon, which is in the same TEMPRO zone as St Neots. The lack of available data on St Neots means that it could not be included and therefore all boarders in that zone are assumed to use Huntingdon. In reality passengers may choose to travel to alternative stations because of the mix of service frequency, station facilities and car parking charges offered. However the purpose of this analysis was primarily to examine the effect on the peak flows on the rail corridors themselves, and actual station use is considered of secondary importance. This needs to be borne in mind when considering the results of the above table.
- 9.14.8 Table 9.2 shows that the biggest impact of future growth in terms of numbers of boarding passengers is on Broxbourne (20.3%), followed by Cambridge (16.4%), then stations at the eastern end of the Central Line (14.2%). Significant impacts will also be felt at Peterborough (7.8%), Huntingdon (7.1%) and Stevenage (6.3%).
- 9.14.9 At Peterborough and Stevenage stations there will be a number of passengers boarding intercity GNER services. Information provided by the SRA (ORCATS data) indicates that at Peterborough around 63% of passengers destined for London use GNER services, and 27% use WAGN services. This means around 1,335 passengers board GNER services, and 572 board WAGN services.

Capacity Analysis

- 9.14.10 In order to assess the impact of these additional boardings on the capacity of the rail network, we compared the overall numbers of passengers on London-bound services with the current timetabled services into London (illustrated in Figure 9.5). This was done by taking the number of AM peak hour passengers, rather than the three-hour peak period, as this is the time in which critical loadings will occur. To test for a 'worst-case scenario' it was assumed that there is no spare capacity on current timetabled services in the peak hour.

Figure 9.5



- 9.14.11 It should be noted that in analysing capacity the total number of passengers boarding London-bound services was used despite the fact that some of these boarders will in fact alight at stations before the termini. Again this enables testing of a 'worst-case scenario'.

- 9.14.12 Table 9.3 summarises the capacity analysis, comparing the total number of future boarders with the available capacity if current services were increased where such an increase is possible. Information on what service enhancements are feasible was provided by the SRA (see footnotes below the table). LUL Central Line was analysed separately and is discussed in point 8.14.15.

Table 9.3 Peak Hour Capacity Analysis (passengers)					
	Number of additional peak hour boardings	Total number of boarders 2021	Current timetabled seated capacity	Capacity if services enhanced where possible	Spare capacity based on enhanced service
Great Eastern Mainline (Braintree)	791	1,373	582	1,050*	-323
West Anglia Mainline	5,218	11,389	6,171	8,818**	-2,571
East Coast Mainline	4,792	17,314	12,522	14,322***	-2,992
Total	10,801	30,076	19,275	24,191	-5,885

Note: * Incorporates an increase in peak hour services from Braintree to 12-cars in length. This enhancement is already planned and going ahead.

** Incorporates an increase in capacity of current services by 50% (including Stansted Express), plus a new service from Hertford East (based on advice from the SRA).

*** SRA 'ORCATS' data has been used to split out the number of boarders at Peterborough and Stevenage station using GNER services as opposed to WAGN services

**** Incorporates lengthening of two peak hour WAGN trains into Kings Cross to 12-car, plus the addition of a new service from Welwyn Garden City (based on advice from the SRA).

- 9.14.13 Table 8.3 shows that there would be a major shortfall in capacity, even with train lengthening and other service enhancements (note that this table does not include Crossrail and Thameslink 2000 enhancements, these are discussed in more detail in following sections).
- 9.14.14 This shortfall is further compounded by the possible future growth of Stansted Airport. If rail is to maintain its share of passenger trips to the Airport then under a two-runway Airport scenario, some 16.8 million passengers per annum would need to be accommodated by a rail link from Stansted (source: SRA/BAA). There are currently no predictions as to how Stansted Airport passengers are distributed throughout the day, however taking an even distribution over an 18.5 hour period of operation gives approximately 1,250 passengers per hour in both directions. Doubling this to allow for peak effects equates to around 2,500 passengers per hour. In other words, one 8-car train service every 15 minutes. At present, the Airport peak does not coincide with the commuter peak, however this may change in the future if Stansted Airport usage changes to more business-related trips.

- 9.14.15 On the LUL Central Line, it was assumed that the trains are already operating at capacity west of Stratford. To accommodate future growth in passenger boardings, additional trains would need to be run in the AM peak hour. The analysis shows that by 2021 the AM peak hour services would need to accommodate an additional 1,922 boardings at stations on the eastern end of the Central Line. This translates as around 2 extra trains at crush-load. Information from LUL indicates that by 2006 an additional 4 westbound trains are anticipated to be provided in the AM peak hour. This should accommodate growth around Epping. There may be capacity issues on the Central Line closer into central London, however it is anticipated that Crossrail services through Stratford will go some way to alleviating this problem.

Solutions to the capacity problems

- 9.14.16 Introducing Thameslink 2000 and Crossrail into the analysis goes some way to helping solve capacity issues on arrival at London termini. The table below shows how these schemes impact on the anticipated shortfall in capacity.

Table 9.4 Peak Hour Capacity Analysis (passengers) with Crossrail and Thameslink 2000					
	Number of additional peak hour boardings	Total number of boarders 2021	Current Capacity with timetabled seated capacity	enhanced services, Crossrail and Thameslink 2002	Spare capacity based on enhanced service
Great Eastern Mainline (Braintree)	791	1,373	582	1,050	-323
West Anglia Mainline	5,218	11,389	6,171	13,535*	2,145
East Coast Mainline	4,792	17,314	12,522	18,522**	1,208
East Coast Mainline – GNER	1,160	2,906	1,746	1,746	-1,160
East Coast Mainline – WAGN	3,632	14,408	10,776	16,776	2,368
Total	10,801	30,076	19,275	33,107	3,031

Note: * Crossrail enables the addition of six peak hour services into Liverpool Street. The assumption for this analysis is that these are 8-car services.

** Thameslink 2000 provides an additional four 12-car trains in the peak hour between Cambridge and Kings Cross.

- 9.14.17 The table above shows that Crossrail and Thameslink 2000 appear to introduce enough capacity to accommodate growth associated with the options that have been tested. Whilst there is a shortfall of seats on GNER services, it appears that enhanced WAGN services on this line would resolve this capacity issue. However incorporating the estimated 2,500 AM peak hour Stansted Airport passengers bound for London creates a shortfall of around 355 seats on the West Anglia Mainline, or the equivalent of one 4-car train set. Furthermore as Crossrail has no impact on 'one Great Eastern' services from Braintree there remains a shortfall of approximately one 4-car set on the Great Eastern mainline.

- 9.14.18 Taken at face value, the analysis above suggests that inserting an additional 4-car train set on the West Anglia and Great Eastern mainlines would appear to be the most straightforward solution to this shortfall. Such a solution is precluded by technical issues (see the following section). However the case may appear worse than it is, given that the analysis assumes all passengers boarding London-bound services travel to London termini. As Table 8.1 shows around 4,800 (or 22%) of boarding passengers in the AM peak period alight before London. It is therefore likely that the introduction of additional services over and above what has been included is unnecessary.
- 9.14.19 It should be borne in mind that this analysis does not show the variance in capacity at different points along the rail corridors. Whilst capacity issues at London termini may be able to be addressed through means such as train-lengthening and other enhancements, the impact at different stations and on different train services is less clear. Inevitably there will be substantial differences between stations and service patterns. At stations closer in to London capacity issues are likely to be heightened by increased boarding at outer stations such as Cambridge. The limitations of the data available for testing the capacity of services make a more detailed assessment difficult.

Constraints and Technical Issues

- 9.14.20 This level of service enhancement is dependent on Crossrail and Thameslink 2000 going ahead plus other enhancements to stations and track. There are a significant number of issues associated with this that need to be overcome. The SRA have provided advice on technical issues associated with these enhancements. This section outlines some of the major constraints and how these would need to be addressed, with the inclusion of Crossrail and Thameslink 2000.

WEST ANGLIA MAINLINE

- 9.14.21 Constraints on service enhancements on the West Anglia mainline include:
- The current working pattern at Liverpool Street which puts short and long trains together on long platforms;
 - Concourse capacity at Liverpool Street station making dispersal of passengers difficult;
 - Short platforms at many stations between Cambridge and London;
 - The mix of stopping patterns which makes the West Anglia line “full” at present;
 - Capacity of Lee Valley section of track.
- 9.14.22 The implementation of Crossrail would solve some of these problems. It would enhance rail services on the West Anglia corridor into Liverpool Street by providing an additional six trains per hour. The additional services consist of:
- 2 from Hertford East;
 - 2 from Cheshunt; and
 - 2 from Stansted Airport stopping at Tottenham Hale only.

- 9.14.23 Crossrail is also designed to reduce overcrowding on the Central Line between Stratford and Liverpool Street, thereby providing additional capacity on the Central Line. However even with Crossrail there would still be issues to be overcome with platform workings at Liverpool Street station.
- 9.14.24 To increase train-lengths on outer services on the West Anglia Mainline between Cambridge and London Liverpool Street all stations would require platform lengthening to accommodate 12-car sets, with the exception of Cambridge, Whittlesford, Audley End, Stansted Airport, Bishop's Stortford, Harlow Town, Tottenham Hale, and Liverpool Street.
- 9.14.25 The cost of platform extensions is very difficult to predict. If no track or signalling work is required then the approximate cost is £500,000. However, costs can escalate to £5-£10 million if track, signalling or especially bridge work is involved.
- 9.14.26 Further enhancements to the Stansted Express service would require four-tracking along some sections of line (between Coppermill Junction and Essex Road) to enable express services to overtake stopping services. This is being investigated by BAA in conjunction with the SRA.
- 9.14.27 Introduction of any new services over and above what is already included in the analysis presented in table 8.4 is likely to be problematic and expensive.

EAST COAST MAINLINE

- 9.14.28 Constraints on service enhancements on the East Coast Mainline include:
- Short platforms at many stations;
 - Platform capacity at Kings Cross and Moorgate stations;
 - Depot configurations;
 - Lack of power supply for increased services.
- 9.14.29 Thameslink 2000 addresses some of these issues and helps provide some additional capacity. The project is planned to provide four trains per hour in the peaks between Cambridge and London, all of 12-car length.
- 9.14.30 Under Thameslink 2000 platform extensions are planned to 12-car length at Cambridge and Finsbury Park, and to 8-car length at Foxton, Shepreth and Meldreth. This will result in all stations where Thameslink 2000 trains stop being a minimum of 8-cars in length. The 12-car services in the peak will stop at these stations using a form of selective door operation.
- 9.14.31 Extension of other train services to 12-car length would require platform lengthening at many other stations along the route. GNER services in particular would be problematic as stations north of Peterborough would also require platform lengthening.

9.14.32 Additionally, the lack of long platforms at Kings Cross means that the station is unable to accommodate any more 12-car sets. Due to physical constraints at the station itself, lengthening of existing platforms is not a viable option. Likewise, the platforms at Moorgate are constrained by their location within a tunnel.

9.14.33 The SRA have provided costs for works associated with upgrading the East Coast Mainline and Thameslink 2000. These costs are in 4th quarter 2003 prices:

- Construction of an additional platform at Kings Cross is approximately £13.5m
- Extra platform face at Finsbury Park (including conversion of part of the up goods line for passenger use) is approximately £28.3m
- Thameslink 2000 work is approximately £26.3m (includes platform lengthening at Finsbury Park, Arlesey, Biggleswade, Sandy, Meldreth, Shepreth, Foxton and Cambridge)

9.14.34 Further very preliminary costs have also been given for the following:

- Platform lengthening at other stations not included in Thameslink 2000 (Letchworth and Royston) is at £5.5m
- Modifications for use of selective door operations at stations without lengthened platforms is approximately £0.5m
- Changes to stabling sidings/depots to accommodate longer trains approximately £4.3m.

9.14.35 The draft strategy for the East Coast Mainline upgrade allows for the lengthening of six trains in the peak period to 12-car sets. This requires extensive work to depots and upgrades of the power supply.

9.14.36 Implementation of enhancements on the East Coast Mainline over and above what is already included in the analysis presented in table 8.4 is likely to be problematic and expensive.

GREAT EASTERN MAINLINE

9.14.37 The services from Braintree are currently limited to one 8-car set per hour. However there are already proposals to increase the length of platforms to accommodate 12-car sets along the Braintree branch. This would include works at the following stations:

- Braintree
- Braintree Freeport
- Cressing
- White Notley
- Witham

- 9.14.38 Further enhancement of services is constrained by a lack of available train paths on the Great Eastern mainline.

LUL CENTRAL LINE

- 9.14.39 The Central Line currently runs at around 30 trains per hour in the AM peak hour. Due to already high levels of crowding on the Central Line, any increase in use would need to be accommodated through the provision of additional trains. Information from LUL indicates that by 2006 an additional 4 westbound trains are anticipated to be provided in the AM peak hour. There may be capacity issues on the Central Line closer into central London, however it is anticipated that Crossrail services through Stratford will go some way to alleviating this problem.

9.15 Transport conclusions

Land use and roads

- 9.15.1 The various transport model tests of the options for strategic growth and transport policy suggest the following conclusions:
- Future strategy should be based on the banked RPG strategy: this seems hard to improve upon in transport terms,
 - More development in key transport corridors will be sensible if these can be designed to reduce dependence on the car,
 - Given the greater levels of congestion in the south of the study area, potential capacity available in the north of the area should be utilised by seeking a shift of growth from the south to the north. But there appear to be strict limits to the extent that this can be carried out without creating problems in the north, especially as development further from London will tend to be more car oriented,
 - Targeted road improvements will be an important concomitant of new developments if these are not to cause further congestion,
 - A new town would have to come with its own local road network if its traffic impacts are not to be penal,
 - A small new settlement, designed with the flexibility to become part of a larger new town would be feasible in either of the locations studied,
 - The most serious urban traffic problems already exist in Cambridge, Harlow and some other towns. These will worsen significantly unless policies are put in place to address them.
 - In Cambridge the elements of the necessary transport strategy are already in place but they will need further application and strengthening. The study did not examine the option of a south eastern by-pass for the city.

- In Harlow the limits to which it is sensible to plan around the car have already been reached. It now appears to be time to adopt the alternative policies of limiting parking and providing good alternatives to the car. The need to do this and the peculiar difficulties of doing it in a town designed for the car but not for the numbers we now have suggest that a new form of public transport capable of competing with the car is needed to supplement the cycle ways and buses which are proving inadequate for the task. A new personal rapid transit system (PRT) system could meet this requirement. It could also provide the modern image which Harlow needs and open up the possibility of further major expansion of the town.

Conclusions on rail

- 9.15.2 Wherever it is located, the anticipated growth in the LSCP growth area will inevitably increase the amount of rail commuting to central London. The scale of this increase is uncertain and will in practice depend on the buoyancy of the central London economy, the availability of local jobs and the cost of rail commuting. The forecasts are based on the plausible assumption (within TEMPRO) that the percentages of residents who commute will be broadly as they are today.
- 9.15.3 Analysis suggests that there will be about 27,000 additional, peak period rail commuters to Central London. Additional rail trips will be spread between the Great Eastern Mainline, West Anglia Mainline, East Coast Mainline, and LUL Central Line. In the case of the West Anglia Mainline there may be additional passengers generated by the expansion of Stansted Airport. Broad estimates place this at around 2,500 in the AM peak hour towards London. The different development strategies imply only minor differences to the changed commuting patterns.
- 9.15.4 The impact of the additional 18,000 dwellings tested resulted in less than 700 additional rail passengers spread over all rail lines (2% of the total increase).
- 9.15.5 Discussions with the SRA have addressed the most appropriate way of dealing with growth in rail commuting. It would appear that a combination of means is necessary to address capacity issues including:
- Crossrail
 - Thameslink 2000
 - Lengthening of services where feasible
 - Addition of extra services on the Central Line.

- 9.15.6 Analysis of the capacity generated by this combination of measures shows that nearly all additional rail trips are accommodated; however there remains a shortfall of around one 4-car train set on both the Great Eastern Mainline, and the West Anglia Mainline. The SRA have advised that they have not yet identified ways of delivering capacity enhancements over and above those included in this analysis; therefore it is difficult to say how these shortfalls could be accommodated by rail. It should be borne in mind however that all of the rail capacity analysis presented here is based on a worst-case scenario and no allowance has been made for passengers boarding London-bound services who alight prior to London. Given that these passengers account for some 22% of all boarding passengers in the AM peak period, it is likely that the combination of measures above will accommodate rail commuter growth.

CHAPTER 10

Sub-area and corridor analysis

10.1 Introduction

- 10.1.1 Chapter 4 explains that the LSCP growth area is comprised of a number of sub areas that include key growth nodes/economic drivers, and also corridors, which link them. These sub areas and corridors have provided the main focus for growth in the past and analysis of existing land supply and commitments shows that they will continue to be an important focus over the next ten years (refer to Chapters 3 and 4). It is not considered pertinent to recommend a radical departure from this strategic pattern of development, as it has attracted significant infrastructure investment in public services and transport and it is important to continue to utilise this, building on current strengths, and identify locations where new infrastructure investment is required.
- 10.1.2 This logic is inherent in current planning policy set out in current structure and local plans. But it does not mean there is no scope for new strategic development opportunities. On the contrary, there is significant scope within these sub-areas and corridors to consider new strategic growth directions, which will have an impact in both the short and long term. The current approach may result in some areas reaching their physical capacity of growth above which will lead to significant negative impacts. In these cases, a new spatial approach to the location of development is required and careful consideration needs to be given to what the alternatives should be.
- 10.1.3 In considering these opportunities for change, this chapter presents an analysis of the opportunities, constraints, key issues and impacts resulting from a range of potential growth levels, in relation to employment/economy, planning/environment and transport, by sub-region and by corridor. The range of growth levels identified in this analysis are those which were examined in the transport tests set out in Chapter 9. The analysis considers capacity issues, but also the appropriateness of growth based on a range of wider strategic issues, such as the benefits to the LSCP growth area and hence to the region as whole, should that growth be achieved in any one given location as opposed to another. The analysis provides the building blocks for the strategic framework for growth within the LSCP area, which is expressed within the strategy options presented in Chapter 8.
- 10.1.4 The sub-areas and corridors comprise single settlements, which serve a strategic function, groups of settlements within defined sub regions and groups of settlements within identified transport corridors. These are listed below and diagrammatically represented in Figure 10.1 overleaf.
- **Peterborough sub region**, Peterborough, the market towns within Fenland and Ramsey

- **Cambridge City and environs**, Cambridge city and its urban fringe
- **Cambridge/Huntingdon/Peterborough corridor**, Huntingdon, Godmanchester, St Ives, Yaxley, Sawtry, Brampton, Histon and Northstowe (new settlement)
- **Cambridge/Baldock corridor**, Letchworth, Hitchin, Baldock, Royston
- **Cambridge/Ely corridor**, Ely
- **Cambridge/Stansted corridor**, Stansted Mountfitchet, Saffron Walden, Sawston, Great Shelford
- **Cambridge/St Neots corridor**, St Neots/Easton Socon
- **A120 corridor**, Braintree, Halstead, Witham, Great Dunmow, Bishop's Stortford (nb. Halstead and Witham are not directly connected to the A120 corridor, but are sufficiently close to come within its influence.)
- **Harlow and environs**, Harlow, North Weald Airfield
- **Stevenage and environs**, Stevenage
- **Hertford and the Upper Lee Valley**, Hertford, Ware, Hoddesdon, Waltham Abbey, Broxbourne, Cheshunt, Hoddesdon
- **London Fringe** Chipping Ongar, Epping, Loughton, Chigwell

Figure 10.1 Sub areas and corridors



10.1.5 For each sub area/corridor, the following information is summarised:

- **Total supply** – this includes completions (2001-2003), extant planning permissions and other sites where the principle of development is accepted, allocations in Local Plans, strategic allocations in Structure Plans, contingent sites and identified urban capacity. The detailed explanation of this calculation is provided in Chapter 4, Section 4.2.
- **Potential capacity** – this is the total number of dwellings that could be accommodated on land adjacent to settlements (and in addition to existing supply) where impacts on land has been classed as either ‘minimal’ or ‘some’. This was determined by the environmental capacity assessment undertaken as part of this study (refer to Chapter 4 and Appendix B). The growth areas that were assessed were adjacent to urban areas, benefited from road access, formed a logical extension given the size of the existing settlement and did not cause obvious coalescence issues. The purpose of the assessment has been to identify the *broad potential* of settlements to expand within existing environmental and other physical constraints. It does not imply that there will be no impact, nor does it assume that these areas would be sustainable developments in overall terms (e.g. homes in balance with jobs). In addition, it should not presuppose the local development framework process, as any proposed expansions will need to be subject to local and more detailed assessments. The methodology and findings for the environmental capacity assessment is set out in Appendix B and shows the figures both with and without Green Belt as a partial constraint. Figures that **do not** consider green belt as a constraint are shown in brackets in each table.
- **Draft RPG distribution** – this is the consultants interpretation of the levels of growth that might be expected at a settlement level based on the growth targets currently set out in draft RPG 14. It has been used a hypothetical bench mark to compare with the levels of growth tested. The distribution was disaggregated from the draft RPG district level control totals to settlements, in consultation with officers of the districts and counties and given existing knowledge of constraints to development. It is acknowledged that some officers were reluctant to commit to agreed levels of growth on a settlement basis, given that it could be considered as an acceptance of the proposed district level RPG growth rates. The exercise was used solely to identify the impacts of varying growth rates within and between districts, from which enhancement of draft RPG 14 district level provisional allocations could be tested.
- **Growth range tested** – this sets out the lower and upper range growth levels that were tested within the spatial themes (refer to Chapter 7). This provides the basis for analysing the choices and impacts of different levels growth.

10.2 Peterborough Sub Region

- 10.2.1 The Peterborough sub region includes Peterborough, the market towns in Fenland and Ramsey in Huntingdonshire. The growth range tested was between 21,850–39,800 dwellings and 12,000–26,800 jobs. It should be noted that the Peterborough Sub Region used in this study is not the same as Peterborough Sub Region as defined by Peterborough Unitary Authority or as used within concurrent studies – that extends beyond the LSCP growth Area. The term has been used in this report as a useful definition in the terms of this study.

Table 10.1 Growth range tested in the Peterborough sub Region					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	22,830	23,700 (23,700)	(21,600) 21,600	30,000	21,850 39,800 –
Jobs	–	–	–	21,900	12,000– 26,800

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.2.2 Draft RPG 14 implies similar employment growth to that achieved over the past 20 years (around 20,000). Higher employment projections (than 20,000) are likely to require interventions in the market if they are to be achieved. This is in part being achieved through the proposed URC for Peterborough, focused on delivering the city centre Masterplan. Past growth has in part been based on the city's success in attracting significant back office operations. However, this has led to a workforce that is skewed more towards administrative and secretarial occupations. To achieve higher levels of growth the city needs to attract more professional people and associated higher value jobs. The withdrawal of Loughborough University's courses in the city is not helpful in this respect. However, a new grant to the Regional College to develop a university on site has recently been awarded.

ENVIRONMENT

- 10.2.3 The majority of low impact land is located around Peterborough and Ramsey, and is sufficient to accommodate the highest levels of growth tested.
- 10.2.4 The sub region includes Fenland, and in these settlements there is no minimal impact land, therefore any development would need to use land with some environmental impact.
- 10.2.5 No significant impact land is required to meet the growth levels tested. Potential exists to develop housing above the levels identified in Draft RPG.

TRANSPORT

- 10.2.6 Between 21,000 and 26,000 additional dwellings in the Peterborough area begin to cause an adverse impact on the highway network. The road network becomes overloaded west of Peterborough when housing levels are increased from 26,000 to 29,000. A major overload was forecast when housing was further increased to 39,000.
- 10.2.7 Growth up to 30,000 dwellings can be accommodated without significant investment in the highway system. Beyond this, targeted improvements could alleviate the problems identified, however when road improvements are targeted on the A47 to the west of Peterborough as in Option 15, this has a knock-on effect of encouraging more traffic on to the A1 and A605 and so a further package of Highway measures might be required if this option were pursued.

Strategic conclusions

- 10.2.8 Peterborough has capacity for accelerated growth, both relieving pressure in the Cambridge market and to strengthen its role as sub regional economic growth driver in its own right. Current supply is in the region of 18,000 dwellings, which takes into account development at Hampton to the south of Peterborough and some 4,000 dwellings which could be delivered within the existing urban area. This ensures an immediate supply of land for development, which exceeds the current Structure Plan allocation of 12,800 dwellings to 2016.
- 10.2.9 Growth in line with Draft RPG levels of 21,600 new dwellings for Peterborough to 2021 is achievable albeit that planning intervention will be required. Peterborough has bid for a URC and in this scenario, given the identified environmental and transport capacity an additional 5,000 above this possible. Growth levels above this would require significant investment in the highways system, and market intervention to deliver growth in housing and employment.
- 10.2.10 Growth of the wider sub region (consisting of the market towns within Fenland and Ramsey) needs to be treated with more caution. Although there is capacity on the road network, and capacity for development on land with some environmental impact, these settlements should be viewed in the context of their role in meeting local needs and supporting the rural hinterlands. Significant housing led growth would lead to increased car based commuting to both Peterborough and Cambridge.
- 10.2.11 Ramsey has 2,000 dwellings on land within the low impact category. However, Ramsey is not considered an appropriate location for strategic growth. This view was upheld at the Huntingdonshire Local Plan Inquiry which recommended the deletion of its strategic housing allocation in Ramsey based on a poor housing/jobs balance, poor links to the strategic road network (A14/A1M) and difficult to serve with public transport.
- 10.2.12 Existing supply in the Fenland settlements is just short of the Structure Plan allocation of 6,600 dwellings to 2016. Additional growth within the region of 3,600 is needed to meet the draft RPG 14 recommendations to 2021. It is considered that these growth levels are appropriate and deliverable. This level of growth also ensures a continued supply of land with some environmental capacity post 2021 to provide for long term growth requirements.

10.3 Cambridge City and Environs

- 10.3.1 Cambridge and environs includes Cambridge City and its fringes. The growth ranges tested were between 23,850–31,250 dwellings and 26,200–42,700 jobs.

Table 10.2 Growth range tested in Cambridge and Environs					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	31,800	200 (200)	0 (no change)	30,050	23,850–31,250
Jobs	–	–	–	42,700	26,200–42,700

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.3.2 Cambridge has experienced a rapidly growing economy where land supply (both employment and housing) has effectively been constrained. The city already attracts a large number of commuters from surrounding areas and this will continue to increase, given that future housing provision is less than projected employment growth.
- 10.3.3 Future employment growth hinges on ensuring having an available work force, a suitable mix of employment opportunities that are not solely centred on the high end of the market and solving the city's congestion problems, which are currently acting as a disincentive to new investment.

ENVIRONMENT

- 10.3.4 The draft RPG housing targets for Cambridge and its environs can be met through existing supply and land reserves identified for growth to 2021. These strategic allocations represent the maximum that can be developed without significant environmental impacts.

TRANSPORT

- 10.3.5 Serious traffic problems are indicated in Cambridge in all options tested, but these are considered soluble by a combination of conventional urban transport policies and more radical and innovative public transport indicatives. Critical for investment is the significant network overloading to the south east of Cambridge on the approaches to the A11 and, to a lesser extent, on the A11 itself.
- 10.3.6 This is largely relieved in option 11 where additional housing is cut from around 30,000 to 24,000 there is no suggestion that planned housing provision should be less than currently provided in the Structure Plan and the draft RPG. The problem is also resolved under the higher dwelling scenario in option 15–30,000 dwellings and 43,000 jobs when highway improvements are targeted at the over capacity roads although this new highway capacity provision does cause a 6% increase in vehicle kilometres in the study area.

Strategic conclusions

- 10.3.7 Current supply at Cambridge accommodates around 31,000 dwellings. Land allocations included within the supply figure comprise all Green Belt releases around Cambridge, which considered development needs post 2016. Furthermore, the allocations relate directly to land identified as having environmental capacity within the Cambridge Sub Region Study (see Chapter 4, paragraph 4.3.6). Development beyond this will have a significant environmental impact.
- 10.3.8 The operation of the road network at present is largely dependent on traffic restraint measures and public transport improvements such as park and ride in order to reduce congestion within and around the city. Currently planned growth of 31,000 new dwellings will put significant additional pressure on the road network, which will require tougher restraint measures in order to manage traffic impacts. Cambridge and its immediate environs was therefore not considered appropriate for additional levels of growth beyond existing supply to 2021 and the draft RPG 14 allocations.
- 10.3.9 The Cambridge sub region will play a key part in the accommodating additional levels of growth to support the Cambridge economy and housing market. The opportunities and constraints of the radial corridors within the sub region are considered in turn below.

10.4 Cambridge–Huntingdon–Peterborough Corridor

- 10.4.1 The Cambridge-Huntingdon-Peterborough corridor includes Northstowe, Godmanchester, St Ives, Huntingdon, Brampton, Sawtry, Histon and Yaxley. It also includes Alconbury Airfield, which is subject to proposals for major employment development (up to 4,000 jobs).

Table 10.3 Growth range tested in the Cambridge/Huntingdon/Peterborough Corridor					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	10,100	3,500 (3,500)	0 (0)	11,200	11,200– 14,900
Jobs	–	–	–	6,900	3,700– 8,900

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.4.2 Given strong employment growth in this area previously, no difficulties are envisaged in reaching full range of employment levels tested.

ENVIRONMENT

- 10.4.3 Land with minimal environmental impacts is dispersed around the settlements in the corridor. In Huntingdon there is no land with minimal or some impact because of its landscape sensitivity. Therefore, further growth above existing supply would lead to significant environmental impacts in Huntingdon.

TRANSPORT

- 10.4.4 The highway network became overloaded at the upper end of the tests when the number of additional dwellings exceeded 14,000. There were some local problems at the lower levels of growth e.g. at Earith and on the A141 north east of Huntingdon but most other roads are operating within capacity in all options tested.

Strategic Conclusions

- 10.4.5 The total supply for the corridor is currently in the region of 10,000 dwellings. This is concentrated in Northstowe (current allocation of 6,000 dwellings) and Huntingdon (2,200 dwellings). A marginal increase in addition to the existing supply is required to meet the draft RGP allocation of 11,200 within this corridor.
- 10.4.6 The capacity is dispersed around the settlements within the corridor, namely Godmanchester, Sawtry, Yaxley, Brampton, Histon and St Ives. There was no capacity identified within Huntingdon.
- 10.4.7 The growth of this corridor is underpinned by the development of Northstowe. The potential size of Northstowe is currently considered within the range of 8,000–10,000 dwellings. The transport assessment tested up to 10,000 dwellings, which demonstrated this is around the maximum levels of growth that can be accommodated without capacity problems on the strategic road network.
- 10.4.8 An additional strategic issue for this corridor is the development of Alconbury Airfield, which is currently subject to a proposal for a major employment development of up to 4,000 new jobs. Given the environmental constraints to further expansion in the local towns, sustainable transport access to the site will need to be an important future infrastructure consideration, both from Peterborough and from Huntingdonshire/South Cambridgeshire.

10.5 Cambridge–Baldock Corridor

- 10.5.1 The Cambridge to Baldock corridor includes the settlements of Letchworth, Hitchin, Baldock and Royston. This corridor was also considered an appropriate location to test the impacts of a small new settlement or larger new town. The range of growth tested was between 4,400–25,350 dwellings and 4,600–33,300 jobs.

Table 10.4 Growth range tested in the Cambridge/Baldock Corridor

	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	4,350	1,200 (4,900)	3,700 (2,500)	6,800	4,400– 25,350
Jobs	–	–	–	9,300	4,600– 33,300

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.5.2 Past performance and the area's proximity to Cambridge suggests that there will be no problem in meeting RPG employment projections. However, the high growth options require substantial additional employment growth which is effectively spill over from Cambridge. To achieve this level of growth will require improved transport links to Cambridge and possibly Stansted Airport. It will also be important for the locality to be seen as part of Cambridge's economy with good links to its business support networks.

ENVIRONMENT

- 10.5.3 Minimal impact land is located primarily around Royston and Letchworth (when Green Belt is not considered a constraint) and is sufficient to accommodate the highest levels of growth tested for these settlements. The corridor also includes, Baldock and Hitchin and in these settlements there is no minimal impact or some impact land. Development of these settlements would therefore have a significant environmental impact on high landscape sensitivity in Baldock and Hitchin and also a number of overlapping/concentrated environmental to the north of Hitchin and to the south of Baldock. These include county/local wildlife sites, areas of archaeological importance and common land.

TRANSPORT

- 10.5.4 The most severe test of this corridor was the addition of the new town (20,000 additional dwellings). This significantly overloaded the corridor, and could only be accommodated with a substantially improved road network, including A505 to Baldock, B1039 to Saffron Walden and the A1198 to Huntingdon. Local roads south of Royston were also heavily affected. The main reasons for this are its relative remoteness from the M11, and the local road network which has limited capacity for major additional growth.
- 10.5.5 By contrast, the transport corridors test (option 4) added 12,400 houses and 10,300 jobs to this corridor without significant impact on the road network.

Strategic Conclusions

- 10.5.6 Growth within the Baldock to Royston corridor provides the opportunity to serve the needs of the Cambridge sub region, through good access via the strategic road and rail network. The lower growth range included the use of existing supply only. The higher growth range included the development of either a small new settlement or major new town.
- 10.5.7 Accepting a level of growth that can be met through using existing supply only clearly raises issues over the long term need for housing, since the local and Structure Plans for the North Hertfordshire cover only the period to 2011. Additional housing growth above existing supply to 2011 will be necessary to ensure longer term growth needs are planned for and delivered.
- 10.5.8 Baldock and Hitchin are environmentally constrained, with opportunities in Letchworth and Royston within the region of 5,000 dwellings using land within the minimal impact category (when Green Belt is not considered as a partial constraint). However, use of all this land would exhaust all the identified potential, raising questions about the sustainability in environmental terms post 2021.
- 10.5.9 A small new settlement, within the region of 5,000 dwellings would help to relieve pressure for development in existing settlements within the period to 2021 and ensure a continued supply of land for housing within these settlements post 2021. The purpose of a small new settlement would be to meet a combination of local and sub regional needs and therefore it would have a strong functional relationship with settlements such as Baldock, Letchworth Hitchin and Royston, but also Cambridge. With this in mind, it could be located either north or south of Royston. It should be in the region of 5,000 dwellings so that it could support a range of local services. A settlement of this size could be accommodated without major impacts on the road network.
- 10.5.10 The Cambridge-Baldock corridor was identified as a potential location for a major new settlement based on its strategic location in relation to the transport network and being located in an area relatively free from absolute environmental constraints (refer to Chapter 7). Its purpose would be to ensure continued growth of the Cambridge sub region, but it would also act as a new sub regional focus for growth. Its location would be best suited nearer to Cambridge to enable it to attract employment and therefore a location north of Royston would be most suited for this type of development. A major new settlement was found to significantly overload the road network. In addition, while its links to Cambridge are good, it is less well connected to Stansted and London, the growth area's other main economic drivers.

10.6 Cambridge–Ely

- 10.6.1 The Cambridge to Ely corridor contains the market town of Ely. This corridor was also considered suitable for testing a small new settlement. The growth range tested included between 2,850–8,400 dwellings and jobs.

Table 10.5 Growth range tested in the Cambridge/Ely Corridor

	Total supply	Potential capacity Minimal environmental impact	Some environmental impact	Draft RPG distribution	Growth range tested
Housing	2,400	1,550 (1,600)	0	2,850	2,850– 8,400
Jobs	–	–	–	1,400	1,400– 7,400

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.6.2 Given past levels of employment growth and proximity to Cambridge no problems are envisaged in meeting projected future growth.

ENVIRONMENT

- 10.6.3 There is some land with minimal impact around Ely. Growth above this would have a significant impact on the historic landscape setting of Ely and in addition, growth to the east would be precluded due to absolute constraints, which include a SSSI and floodplain.

10.6.4 TRANSPORT

- 10.6.5 No major capacity problems were identified by the tests, although when additional housing in Huntingdon, Peterborough and Ely is increased and additional housing in Cambridge was reduced as tested in Option 11 the A10 and B1049 are both approaching capacity.
- 10.6.6 This corridor could accommodate the mid range of growth levels tested – up to 3,900 additional dwellings. Development beyond this level would cause congestion problems.

Strategic conclusions

- 10.6.7 The Cambridge to Ely corridor should be considered in the context of supporting the role of the Cambridge sub region. Existing supply within the corridor is around 2,400 dwellings, all of which is located in Ely. The lower growth range tested included additional marginal growth at Ely and the higher range tested included the development of a new settlement at Waterbeach.

- 10.6.8 It is acknowledged within the Cambridge and Peterborough Structure Plan that housing led growth of market towns such as Ely would lead to increased car based commuting to Cambridge and would therefore be undesirable in transport terms. However, as the benefits of the Cambridge phenomenon begin to filter out to the wider sub region, it is recognised the market towns are becoming increasingly attractive employment locations, making it possible to achieve a more balanced approach to growth to include both jobs and housing. It is not anticipated that the market towns will become strategic growth areas and moderate increases in current levels of growth would be appropriate. Land that has capacity for development with minimal environmental impact could accommodate around 1,500 additional dwellings in Ely.
- 10.6.9 The location of a new settlement at Waterbeach was tested to ensure that the long term needs of the Cambridge sub region could be accommodated. This location was selected on the basis that it was identified as having potential within the Cambridge Sub Region Study and subsequently within the Structure Plan EiP. The transport tests demonstrated some growth could be accommodated within the current network without capacity problems but to realise the full growth of a new settlement to 5,000 dwellings, the following improvements would be required:
- dualling of the A10 between Waterbeach and Cambridge
 - upgrading of the key A10/A14 junction
 - access into Cambridge on the Milton Road radial route
 - provision of high quality public transport
- 10.6.10 Given the scale of the transport challenge in this location and the existing commitment to large scale growth on the eastern side of Cambridge, it is unlikely that this development could be brought forward until after 2016.

10.7 Cambridge–St. Neots

- 10.7.1 The Cambridge–St Neots corridor includes the settlement of St Neots. The growth range tested was between 3,000–6,200 dwellings and 700–2,300 jobs.

Table 10.6 Growth range tested in the Cambridge/St Neots Corridor					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	2,000	5,400 (5,400)	0 (0)	4,200	3,000– 6,200
Jobs	–	–	–	1,300	700– 2,300

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.7.2 Given strong employment growth in this area previously, no difficulties are envisaged in reaching full range of employment projections.

ENVIRONMENT

- 10.7.3 Land with minimal environmental impacts was identified around St Neots. Capacity exists around St. Neots to accommodate growth on minimal impact land to meet the maximum levels tested.

TRANSPORT

- 10.7.4 Under the assumptions used in the tests there was slight overloading on parts of the A428. With the addition of some road capacity here in option 10 this road operated well within capacity without causing problems on nearby roads.
- 10.7.5 The urban roads within St Neots begin to approach capacity but do not exceed it with the addition of 6,200 dwellings and 2,300 jobs as tested in Option 14.

Strategic Conclusions

- 10.7.6 The existing supply at St Neots is around 2,000 dwellings and an additional 2,000 dwellings could be allocated in order to meet draft RPG allocations. This could be accommodated on land with minimal environmental impact and without major congestion problems on the strategic road network.
- 10.7.7 It is acknowledged within the Cambridge and Peterborough Structure Plan that housing led growth of market towns would lead to increased car based commuting to Cambridge and would therefore be undesirable in transport terms. For St Neots this also applies to London, where anecdotal evidence suggest an increased trend for London based commuting.
- 10.7.8 However, as the benefits of the Cambridge phenomenon begin to filter out to the wider sub region, it is recognised the market towns are becoming increasingly attractive employment locations, making it possible to achieve a more balanced approach to growth to include both jobs and housing. It is not anticipated that the market towns will become strategic growth areas and moderate increases in current levels of growth would be appropriate. Land that has capacity for development with minimal environmental impact could accommodate around 1,500 additional dwellings in Ely. St Neots could also attract additional employment, which would ensure a better housing jobs balance.
- 10.7.9 The higher range of 6,200 dwellings (an additional 4,000 above existing supply) could also be accommodated on minimal impact land and with some improvements to the A428.

10.8 Cambridge–Stansted Corridor

- 10.8.1 The Cambridge–Stansted Corridor includes the settlements of Stansted Mountfitchet, Saffron Walden, Great Shelford and Sawston. It was also identified as a potential location for a new town. The growth levels tested were between 3,400–26,450 dwellings and 5,500–40,600 jobs.

Table 10.7 Growth range tested in the Cambridge/Stansted Corridor					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	4,000	4,600 (4,600)	0 (0)	4,550	3,400– 26,450
Jobs	–	–	–	17,300	5,500– 40,600

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.8.2 Employment growth in this corridor will be heavily linked to activity at both Stansted and Cambridge. With regard to Stansted the key issue will be the type of Airport that it develops into. An Airport with a wide range of inter-continental services will generate far more catalytic jobs than a larger version of the present domestic and European low cost operation. The degree of market intervention and the nature of improved transport links that will be needed to Stansted, Cambridge and London will be heavily dependent on the future nature of Stansted Airport.

ENVIRONMENT

- 10.8.3 Minimal impact land is located primarily around Saffron Walden, Great Shelford and Sawston and is sufficient to accommodate the highest levels of growth tested for these settlements. Development in Stansted Mountfitchet would have significant environmental impact mainly due to high landscape sensitivity around the settlement and a concentration of environmental partial constraints. Such constraints include source protection zone (inner zone), 54 dB(A) Laq noise contour from Stansted Airport and county wildlife sites.

TRANSPORT

- 10.8.4 The corridor generally appears to be capable of accommodating significant numbers of homes and jobs with the roads to the east of the M11 approaching capacity when up to 9,000 additional dwellings and 20,000 jobs are added, as in Option 14.
- 10.8.5 However a major new town of 20,000 dwellings contributing to a total of 26,000 dwellings and 40,000 jobs on this corridor would begin to overload the M11, and would require additional capacity on the motorway. a significant local road network for the town would also be needed.

Strategic Conclusions

- 10.8.6 The Cambridge to Stansted corridor is a strategic location that falls within the catchment of the two major regional growth centres. At present there are no significant centres of population along the corridor, which is characterised by a network of large villages and small towns. The low growth level tested included growth of these settlements. The higher level range included reducing growth in the existing settlements and inclusion of a major new town (in the region of 20,000 dwellings).
- 10.8.7 Growth in existing settlements could accommodate around 5,000 dwellings on low impact land, in addition to 4,000, which will be delivered through existing supply. This capacity is located in Saffron Walden and Great Shelford and Sawston.
- 10.8.8 The rationale for a major new settlement would be based on its strategic location in relation to Cambridge and Stansted and the strategic transport network, affording good access by road and by rail to both north and south of the LSCP area. The new town would be expected to attract employment, which would be Stansted related, and also linked to the Cambridge economy. However, the proposed relationship between the new settlement and the growth poles at Cambridge and Stansted would generate a high level of movement. The sustainability of such movements is questionable. The new settlement could not readily serve housing or other needs elsewhere in the corridor. It could take ten years or more to establish a new town of this scale, involving a high degree of investment for relatively little short term return in the period up to 2021.

10.9 A120 Corridor

- 10.9.1 The A120 corridor includes the settlements of Braintree, Halstead, Witham, Great Dunmow and Bishop's Stortford. Halstead and Witham are not directly connected to the A120 corridor, but are sufficiently close to come within its influence. However, they are only likely to be affected by the very high growth scenarios for the A120, where it would be plausible to assume that these centres could function as satellites to Braintree. This corridor was also identified as an appropriate location to test the impact of a small new settlement. The growth range tested was between 14,150–29,350 dwellings and 5,000–25,850 jobs.

Table 10.8 Growth range tested in the A120

	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	10,350	0 (0)	64,141 (72,000)	14,300	14,150– 29,350
Jobs	–	–	–	9,850	5,050– 28,850

The figures in brackets are the capacity without Green Belt as a partial constraint. Potential capacity figures have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.9.2 Past employment growth has been buoyant at around 20,000 over the past 20 years. The corridor is ideally located in terms of access to Stansted and could help meet its employment needs. The ability to attract catalytic employment depends on the nature of services operating out of the Stansted Airport. If the Airport remains a predominately low cost base then active intervention is likely to be required to achieve those options requiring very high levels of employment growth. This will include improved public transport links serving the rail hubs at each end of the corridor as well as the Airport.

ENVIRONMENT

- 10.9.3 The A120 corridor settlements have no minimal impact land. However, there is significant capacity on land with some environmental impact. The main environmental constraints for land that is classified as 'some environmental impact' include moderate landscape sensitivity and partial constraints identified in search areas surrounding Braintree, Halstead and Great Dunmow. However, these constraints are not concentrated/overlapping and include county wildlife sites (including ancient woodlands) public open spaces/playing fields, conservation areas and groundwater protection zones (inner zone).

TRANSPORT

- 10.9.4 The development of this corridor assumed that the old A120 could be used as a priority bus route, linking to Stansted, with through traffic obliged to use the new A120. The tests indicated no serious overloading, even for the maximum of 29,000 dwellings and 29,000 jobs in the corridor. Use of the corridor for more development did not depend on the priority bus route. However, this would be advantageous for minimising the impacts (traffic and parking) on the main trip generators at either end of the corridor – namely the Airport and Braintree.
- 10.9.5 It would appear that further capacity for growth is available in the corridor unless the A120 has a longer term strategic function (e.g. to connect to a Lower Thames Crossing).

Strategic Conclusions

- 10.9.6 The tests demonstrated significant capacity in terms of both the highway network and environmentally. Strategically there are opportunities for the corridor to serve Stansted Airport, and the east to west orientation would support more self contained development with reduced emphasis on London bound commuting.
- 10.9.7 The A120 corridor provides the opportunity to link to the south of the LSCP area, creating an 'arc' of development from Braintree to Bishop's Stortford, Harlow, North Weald and linking to the London Fringe.

- 10.9.8 This corridor lends itself well to the ‘beads on a string’ model of spatial growth, by providing the opportunity to build a critical mass of population required to attract and support a greater range of jobs, services, a high quality public transport route and strong functionally related settlements. The viability and deliverability of a high quality public transport system would need to be investigated, but it is noted that developers have indicated that they would be prepared to fund and or implement such a system as part of their development. Should it not be delivered then, according to the transport tests no significant transport issues will arise. However, in such a scenario growth would be less sustainable in transport terms.
- 10.9.9 There needs to be a strong emphasis on employment generation, linking to the opportunities resulting from Stansted Airport and both the on site and catalytic employment it will generate. This is particularly important in relation to Braintree, where significant housing led employment could lead to increased London based commuting. However, if Harlow is chosen as a growth priority then its economic growth prospects are likely to be adversely affected by competing development along the A120. In this context the A120 is likely to be the investors preferred location, particularly at locations close to Great Dunmow.

10.10 Harlow and environs

- 10.10.1 Harlow and environs includes Harlow and North Weald Airfield. The levels of growth tested were between 16,000–36,450 dwellings and 9,100–42,900 jobs.

Table 10.9 Growth range tested in Harlow and Environs					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	5,500	0 (0)	25,200 (30,600)	19,500	16,000– 36,450
Jobs	–	–	–	21,400	9,100– 42,900

The figures in brackets are the capacity without Green Belt as a partial constraint. Figures for potential capacity have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.10.2 Experian’s employment projections for Harlow are for zero employment growth over the next twenty years, compared to draft RPG targets of 21,400 (including employment growth at North Weald). Therefore to achieve any of the employment projections, active intervention will be required.
- 10.10.3 The town suffers from a poor image, low qualification levels amongst its workforce and its housing stock is not particularly attractive to higher earners. Considerable investment is likely to be needed to radically change the town’s image from the perspective of key decision makers.

ENVIRONMENT

- 10.10.4 There is no minimal impact land around Harlow, due to landscape sensitivity and significant partial and absolute constraints. Land to the north of Harlow was considered to be the most sensitive and development here would have significant environmental impacts. Absolute constraints that were identified included Scheduled Ancient Monuments (SAMs), floodplain and the eastern section of the search area is located within the 57 dB(A) L_{eq} Noise contour. These absolute constraints would preclude development completely. In addition, there are also a high concentration of partial constraints that consequently overlap to the north of Harlow. These include the 54 dB(A) L_{eq} noise contour, areas of archaeological significance and an abundance of county wildlife sites distributed across the whole of the search area. In terms of landscape sensitivity, 90% of the area is within moderate to high landscape sensitivity.
- 10.10.5 In comparison, the east of Harlow is less constrained, with no absolute constraints and only a limited number of partial constraints (consisting of 2 county wildlife sites). In terms of landscape sensitivity, the majority of the east of Harlow is characterised by moderate landscape sensitivity.
- 10.10.6 The south of Harlow is constrained by high landscape sensitivity, however, approximately 20% of the search area is located within moderate landscape sensitivity, adjacent to the urban area and no other constraints within this 20% were identified.
- 10.10.7 The search area to the west of Harlow is constrained by moderate landscape sensitivity to the south and west although high landscape sensitivity is located within the north of the search area, which has reduced the developable area. There are only a small number of partial constraints, which are generally located away from the existing urban edge. These included a conservation area encompassing common land.

TRANSPORT

- 10.10.8 The draft RPG distribution was tested with the existing road network, plus committed improvements. This demonstrated that there were significant problems on the road network within and adjacent to Harlow. All options were tested with single carriageway bypasses to the south-west and to the north, both connecting to M11. This demonstrated that many of the traffic problems in the town are caused by local and terminating traffic, confirming the view that Harlow has to seek a public transport solution for its internal traffic problems. To accommodate any new development at Harlow at least one and possibly two bypasses (depending on the scale and location of development) will be needed to accommodate through traffic and serve the new development.
- 10.10.9 Harlow could accommodate substantial growth (up to 21,500 dwellings), north and/or south and west of the town with bypasses. The location of a single bypass will be dependent on where development takes place. If development occurs both north and south, both bypasses could be needed.

- 10.10.10 If 36,500 dwellings are added as tested in Option 19 the single carriageway bypasses become overloaded and this would imply that dual carriageway bypasses might be needed. The A414 between Harlow and Hertford and beyond also suffers from further traffic congestion under this scenario.

Strategic Conclusions

- 10.10.11 Growth at Harlow offers the opportunity for a major new sub regional centre, which is considered appropriate in the context of the regeneration priorities for the town. Its strategic location on the M11 and Mainline WAGN rail corridor provides strong links to the north and south of the LSCP growth area. The growth of Stansted Airport offers potential employment prospects for Harlow but intervention would be required to deliver growth and regeneration. There is a need to significantly enhance public transport within Harlow to meet even current demands.
- 10.10.12 The low growth level tested included 10,000 dwellings at Harlow and 6,000 dwellings at North Weald (comparable to the low growth scenario tested within the Harlow Options Study). The high growth range included around 30,000 dwellings at Harlow and 6,000 dwellings at North Weald (comparable to the high-intermediate growth scenario tested in the Harlow Options Study).
- 10.10.13 Development to meet the scale set out in draft RPG requirements could be accommodated to the east, west and south (avoiding the Harlow ridge) and development of these areas would be comparatively less damaging than developing on land to the north (see environmental analysis set out above). Any development to the west and south would require a new southern by pass.
- 10.10.14 For levels of growth that exceed draft RPG 14, the next available location is to the north of Harlow. Development would need to be restricted in the land affected by the 57 dB(A) L_{eq} noise contour and the floodplain. Excluding these areas, development would result in the loss of designated wildlife habitats, impact upon scheduled ancient monuments and areas of archaeological significance as well as having an adverse impact on the surrounding high value landscape. Development to the north would be more difficult to integrate with the existing urban area, given the location of the River Lee and Stort Valley which separates the town and the potential development land to the north, this would be exacerbated further by the northern bypass needed to facilitate development. However, the development at the north would be closer to the town centre and existing and proposed employment areas.
- 10.10.15 Should development occur to the north and the south, as would be required to accommodate the upper growth level of 36,000 dwellings, this might require two dual carriageway bypasses.

10.11 Stevenage

- 10.11.1 The range of growth levels tested for Stevenage were between 6,800–15,000 additional dwellings and 1,300–9,350 jobs.

Table 10.10 Summary of growth ranges tested in Stevenage

	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	3,200	0 (2,400)	7,950 (6,900)	10,800	6,800– 15,050
Jobs	–	–	–	7,700	1,300– 9,350

The figures in brackets are the capacity without Green Belt as a partial constraint. Figures for potential capacity have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.11.2 Over the last 20 years employment growth in Stevenage has been around 12% or 5,000 jobs. Experian's EG21 employment forecast is for only a further 1% rise to 2021 or less than 1,000 additional jobs. Given that all the options entail higher levels of employment growth it is likely that market intervention will be required to achieve these levels of growth. As with Harlow and Peterborough the town's population tends to be less well qualified than average and working in lower occupational activities. To attract higher rates of growth the town needs to become more attractive to professionals and to achieve higher value added activities. Amongst other things this will require a change in the nature of the town's housing and image.

ENVIRONMENT

- 10.11.3 Overall, our assessment shows that for all growth levels, development would have some environmental implications. The highest range tested would require development to take place on land that would have significant environmental impacts (above 9,500 dwellings). The assessment did not include West Stevenage.
- 10.11.4 Land to the west of the proposed West Stevenage site was assessed and found to have limited potential for development. This area was constrained by a number of absolute and partial constraints. In particular, the search area lies partly within the 57 dB(A) L_{eq} noise contour for Luton Airport (south of search area). This has been assumed to preclude development in recognition that the Airport expansion proposals might go ahead. In addition, a further part of the search area lies within the 54 dB(A) L_{eq} noise contour (partial constraint) which was considered not to preclude development, but was recognised to have an impact on development. To the north of this search there are a number of county wildlife sites, areas of archaeological significance, and a groundwater protection zone. In terms of landscape sensitivity, the north of the search area has a moderate landscape sensitivity and in the south, the landscape sensitivity is moderate/high to high.

- 10.11.5 The east of Stevenage is also constrained by a number of partial constraints and development here was considered to have a significant impact on development. The north of the search area is constrained by overlapping constraints. This includes the designation and the 54 dB(A) L_{eq} noise contour, which did not preclude development but would impact upon it. In addition, a county wildlife site and other woodland are located to the west of Aston End. Approximately 30% of the search area is characterised by high landscape.
- 10.11.6 Search areas to the north of Stevenage have a small number of partial constraints, including woodland (approximately 5%). There is a range of different sensitivity types. The far northern area is constrained by high landscape sensitivity and development in this area would therefore be considered to have a significant impact. Some of this area is moderate/high landscape sensitivity and therefore has potential for development with some environmental impact, in addition to minimal impact land which is also located here.
- 10.11.7 Areas of search to the north east of Stevenage are constrained only by moderate landscape sensitivity and have limited number of partial constraints and therefore has potential for development with some environmental impact.
- 10.11.8 The search area situated to the south of Stevenage, is constrained by moderate/high landscape sensitivity and contains an area of woodland. Excluding the area of woodland, this area has potential for development with some environmental impact.

TRANSPORT

- 10.11.9 The traffic problems forecast in Stevenage were very similar, with all options up to the maximum of 15,000 new dwellings generally exacerbating the problems existing problems.
- 10.11.10 Overloaded roads were forecast within the town, to the north-east of the town on the B roads towards Buntingford and south towards Welwyn. This occurred regardless of the amount of development tested, indicating that the improvements are required, irrespective of level of growth achieved.
- 10.11.11 The worst problems identified by the tests are within the town and hence these are urban rather than strategic issues that could be addressed using parking policies, local traffic measures and better public transport provision.
- 10.11.12 When road improvements were tested targeted where there was congestion on the approach roads, the congestion was largely removed and the traffic speeds increased substantially. This demonstrates that high levels of growth are achievable with targeted highways improvements.

Strategic Conclusions

- 10.11.13 Stevenage is located on the A1 corridor and the mainline railway (GNER and WAGN). It has been identified as a strategic growth location within Hertfordshire in the previous Structure Plan. The Inspectors Report into the Structure Plan debated the strategic role of this Stevenage and concluded that its location on the A1(M) and on the mainline railway (GNER and WAGN (to Kings Cross/Moorgate)) is of strategic importance. It has good access to London, Cambridge and Peterborough. The proposed Thameslink 2000 enhancement will strengthen its position in the LSCP growth area and within Hertfordshire through improved links to both London and Cambridge.
- 10.11.14 Hence for Stevenage, the key issue is not in the consultants view whether it should grow, but rather by how much. This study, has for reasons identified in Chapter 4 not assessed the environmental capacity of the Stevenage West expansion land. The long term growth potential of the settlement is clearly related to proposals at Stevenage West, but is not limited by that proposal. Like Harlow and Peterborough, the growth of Stevenage also relates to regeneration aspirations and achievement of the levels of economic growth may require intervention.
- 10.11.15 Housing growth would serve the London job market and would also be important for providing the stimulus for greater levels of employment growth within the town itself, as a local economic driver. Crucially, however, the type of housing proposed and growth sought needs to achieve a better mix of social groups in order to attract more high value added jobs. The opening of the Thameslink 2000 scheme would facilitate economic growth prospects.
- 10.11.16 With regards to draft RPG14 district housing targets, should these levels be retained, then the best manner in which North Hertfordshire could meet the target would be to allow the expansion of Stevenage, because meeting that growth by expanding other towns and villages is likely to result in comparatively higher environmental impacts. It is noted that the emerging conclusions of the Hertfordshire Study indicate that land to the west of Stevenage could be developed in a sustainable manner.
- 10.11.17 Taking into account the transport, economic and environmental impacts, the levels of growth that could be acceptable within the town would be around 11,000 new dwellings, without proposals at West of Stevenage. If West of Stevenage was achieved then the growth potential would be much higher, at approximately 16,000 dwellings. This is also considered achievable in transport terms, but would create more of a challenge in respect of job creation. This level of growth would use all available capacity that has been identified by or assessment and will leave questions about possible directions for growth post 2021. Whilst the higher level of growth is considered achievable, in this respect, further detailed work of settlement potential should be undertaken.
- 10.11.18 In terms of phasing, should Stevenage West go ahead, development could take place early in the plan period. Two planning applications have been submitted which are subject to a call in inquiry. Once resolved, development could take place almost straight away. Other options, to the north are not constrained and could be achieved in the short to medium term.

10.12 Hertford and Upper Lee Valley

- 10.12.1 Hertford and the Upper Lee Valley includes the settlements of Hertford, Ware, Cheshunt, Broxbourne and Hoddesdon. The growth levels tested were between 5,550 -13,300 dwellings and 4,500–9,800 jobs.

Table 10.11 Summary of growth ranges tested in Hertford and the Upper Lee Valley					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	7,950	0 (2,100)	10,900 (13,500)	8,500	5,550– 13,300
Jobs	–	–	–	9,800	4,450– 9,800

The figures in brackets are the capacity without Green Belt as a partial constraint. Figures for potential capacity have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.12.2 Employment growth has been buoyant in the past and no difficulties are envisaged in achieving future projected growth. However, transport congestion which will increase in future without intervention may serve as a brake to growth.

ENVIRONMENT

- 10.12.3 The Herts and Upper Lee Valley settlements have some minimal environmental impact land (when Green Belt is not considered as a partial constraint). There is capacity for around 13,500 dwellings (in addition to current supply) on land that has minimal and some environmental impact. The main constraints include moderate landscape sensitivity and some partial constraints including public open spaces/playing fields, county wildlife sites and source protection zones. These partial constraints are small in size and are not concentrated/overlapping.

TRANSPORT

- 10.12.4 This area has persistent traffic congestion in all options tested. Option 11 which re-allocates development to other areas succeeds in reducing the forecast traffic problems. The problems are made worse in Option 19 where major new development is added to the north of Harlow.
- 10.12.5 Some of these problems are urban issues, amenable to solutions other than road building. Other more strategic overloading such as the A414 would have to be dealt with if Harlow were to be developed as in option 19.

Strategic Conclusions

- 10.12.6 Settlements within the Hertford and the Upper Lee Valley sub area have traditionally been strong economic centres and provided fairly significant levels of housing growth. Strong demand is likely to continue in the future due to its proximity to London. Capacity of around 15,600 has been identified on land with minimal and some environmental impact (when Green Belt is not considered as a partial constraint).
- 10.12.7 Transport is a major problem within this area, requiring investment to achieve the levels of growth implied by existing supply. There needs to be a strong focus on urban solutions to address problems associated with the urban areas themselves, as well as to the strategic network. Due to the very urbanised nature of this sub area, it is the consultants view that investment in the strategic network to increase capacity would be quickly absorbed and therefore significant increases in development above current supply would have continued traffic impacts.

10.13 London Fringe

- 10.13.1 The London Fringe incorporates the settlements in the south of Epping Forest, including Epping Forest, Waltham Abbey, Loughton and Chigwell. The growth levels tested were between 650- 6,700 dwellings and 0-2,700 jobs.

Table 10.12 Summary of growth ranges tested in London Fringe					
	Total supply	Potential capacity		Draft RPG distribution	Growth range tested
		Minimal environmental impact	Some environmental impact		
Housing	650	0 (0)	0 (0)	5,000	650– 6,700
Jobs	–	–	–	2,700	0– 2,700

The figures in brackets are the capacity without Green Belt as a partial constraint.
The figures for potential capacity have been rounded to the nearest 100.

Impacts

ECONOMIC

- 10.13.2 The level of employment growth projected is lower than previously achieved and none of the options require a higher rate of growth than that forecast by Experian.

ENVIRONMENT

- 10.13.3 The settlements within the London Fringe have no minimal or some-impact land. Therefore any development of these settlements would need to use land that has significant environmental impact for any growth above existing supply.
- 10.13.4 The major constraint affecting settlements within the London Fringe area is high landscape sensitivity and therefore all development would a significant environmental impact. With regards to partial constraints, there are a number of county wildlife sites surrounding Epping, Chigwell and Chipping Ongar. The majority of search areas also contained public open spaces/playing fields.

TRANSPORT

- 10.13.5 There is some traffic overloading within Epping under all options tested and north and north-west to Harlow if major additional development occurs in Harlow as in Option 19. There are also some capacity problems to the north and west of Cheshunt in most option tested.
- 10.13.6 The problems to the north and west of Cheshunt persist even in options where the development is reduced to existing supply. Increased development both at Harlow and within the London Fringe area also exacerbates traffic problems between Waltham Abbey and Loughton.
- 10.13.7 It appears that it is worth limiting further development on the London Fringe unless more road capacity is to be provided here.

Strategic Conclusions

- 10.13.8 The London Fringe comprises of the existing settlements within Epping Forest District and excluded the proposed North Weald Airfield, which is included in the analysis of the Harlow sub area. It is noted that many of the settlements within this part of the study area benefit from either direct rail access or tube access to London. Hence, it has a strong relationship with London and has traditionally provided a labour force that provides for the needs of London. Given this long established pattern and the fact that there is no foreseeable future where London does not dominate the South East it is difficult to envisage a scenario in this location where this pattern is reversed.
- 10.13.9 At present there are very low levels of existing housing supply, which means that significant new land needs to be found to accommodate the draft RPG growth levels. This needs to be considered in the context of the environmental constraints within this area. Also, transport is a key constraint. Lower levels of growth within this area may be appropriate.

CHAPTER 11

Towards a preferred strategy

11.1 Introduction

- 11.1.1 This chapter draws together the different strands of work and defines a preferred approach to the development and transport strategy. This strategy is constrained by existing commitments and it is within the second 10 years that there will be the flexibility to introduce a new approach. Three optional approaches have been considered and the preferred strategy is likely to contain elements drawn from more than one of these. This study has considered the distribution of the dwelling targets (2001–2021) set in draft RPG14 and the additional 18,000 dwellings that ODPM is seeking to accommodate within the growth area by 2021.

11.2 Strategic planning considerations

- 11.2.1 The study area is not an entirely coherent entity. It forms part of a larger Region and its boundary is somewhat arbitrary. However it has been identified by Government as a growth area. Its rationale comes from its transport links, both road and rail, and the existing and potential future growth implications of Cambridge, Stansted and London.
- 11.2.2 In planning terms the study area does not lend itself to a single and all embracing approach to strategy. The area contains a number of distinct and separate sub-areas which each have their own dynamic that are likely to require different approaches and varying degrees of flexibility in responding to development pressures and demands. This has been recognised in the analyses outlined in Chapter 7.
- 11.2.3 Three main economic drivers have been identified as having an actual or potential influence on the study area, the Cambridge knowledge based economy, the growth and development of Stansted, and the influence of London.
- 11.2.4 The growth of the Cambridge economy is proven and has led to significant pressures which were addressed in the Cambridge and Peterborough Structure Plan.
- 11.2.5 The influence of Stansted has still to be fully understood. It is Government policy to expand Stansted beyond its current limits through the provision of a second runway. The economic impact of this expansion is very much open to debate. The legal processes to obtain the necessary consents for expansion have still to be initiated. How and when Stansted develops have still to be determined. This will be critical in determining the nature and extent of direct, indirect and catalytic employment that might be generated. The implications for the growth strategy are that it must embody a degree of flexibility to adapt to alternative future outcomes.

- 11.2.6 The third influence is London and the pressure from people working there to live within the study area. This may be strongest in the southern parts of the area but is apparent throughout and is likely to get stronger as transport services are improved, especially the rail services (e.g. Thameslink 2000 and Crossrail). The RPG14 strategy will have to accept that it has, in part, to respond to these pressures.

11.3 Managing growth

- 11.3.1 Committed development is already allocated both to principal urban centres, smaller settlements and new settlements located along transport corridors within current local and structure plans and through identified urban capacity. There are a number of focal points and corridors capable of handling additional growth which in aggregate, could accommodate the targets set out in draft RPG14 and also the additional 18,000 houses currently being sought by the Government.
- 11.3.2 However achieving a sustainable pattern of growth will involve, where possible, the concentration of development in order to make best use of existing transport infrastructure (particularly where it could be easily enhanced) and also creating new spatial patterns of growth that through their scale, location, role and function can be served by sustainable modes of transport. Public transport routes may be radial to existing settlements or along corridors linking settlements, and options exist to handle growth, even at the local level.
- 11.3.3 Improving transport infrastructure can not only alleviate negative impacts of high growth, but it can also stimulate growth by improving accessibility, opening up areas for development and reducing congestion problems in low growth areas.
- 11.3.4 Balanced against this are the environmental implications of growth. Many parts of the study area have environmental and physical constraints, which can be overcome by varying degrees. The impact of development on the environment therefore needs to be carefully considered against transport and economic needs. Conclusions from the market analysis have also been introduced at this stage.
- 11.3.5 Having examined the study area by settlement, and by local area or corridor, it is concluded that strategy can be considered within three broad areas which in total make up the growth area: these are: Peterborough and the north, the Cambridge sub-region, and the southern part of the study area. The following paragraphs set out the strategic options in these three broad spatial areas.

11.4 Peterborough and the north

- 11.4.1 This area comprises Peterborough and Fenland.

Transport considerations

- 11.4.2 In the northern part of the study area it is possible to accommodate the draft RPG scale of development without significantly overloading the existing main road network. This is provided that new developments come with their own internal road networks and are sensibly connected to the rest of the highway system.

- 11.4.3 Growth in line with draft RPG 14 levels of 21,600 new dwellings for Peterborough to 2021 is achievable, with potential for an additional 5,000 above this possible without significant impacts on roads. Growth levels above this would trigger the need for investment in the highway system. A test of growth to 39,000 new homes for the sub area as a whole (Peterborough and Fenland) significantly overloaded the A47 west of Peterborough implying a threshold somewhere between 26,000 and 39,000 for the Peterborough area (including Fenland).

Market considerations

- 11.4.4 Demand for housing in Peterborough has been less strong than other parts of the study area and coupled with lower job creation, is a limitation for further major expansion at this location. It has experienced a weakness in housing demand (both historically and currently) in comparison with other parts of the study area and this is also underpinned by a weaker economic base. The draft RPG allocation (approximately 1,100 dwellings per annum 2001–2021) is just over double the average annual output for the past 10 years – (445 per annum) using published OPDM statistics and just short of double using Peterborough UA statistics (582 per annum).
- 11.4.5 The market view is that this increase can be achieved, but any significant further increase would require some form of intervention. This would need to address the relative attractiveness of Peterborough for increased investment in both the employment and housing markets. Currently, increased industrial development does not appear viable due to low rental levels. New office development both in the town centre and business parks, is marginal. This suggests that even to match draft RPG housing growth targets, intervention might be required to attract jobs. Intervention should help to ensure that RPG housing target levels are met too. This view appears to be consistent with that of Peterborough City Council, which has put forward proposals for a URC to help bring about major expansion.
- 11.4.6 For the wider sub region (settlements within Fenland), the draft RPG allocations reflect average annual rates of the past 5 to 10 years, which it is considered could be delivered by the market. In terms of increasing these rates, like Peterborough, the housing market in Fenland is not viewed as strong relative the rest of the study area. House price levels are low in comparison to say Cambridge and the south of the study area and purely in market terms, evidence from housebuilders suggests that this area is influenced not only by Cambridge and Peterborough, but also by Norwich.

Strategic Planning Conclusions

- 11.4.7 Subject to market limitations, Peterborough is a good strategic location for growth, with potential to both relieve pressure in the Cambridge market and to strengthen its role as sub regional economic growth driver. However, it is considered that to realise this potential in economic terms, intervention would be required to improve the image and attractiveness of Peterborough relative to other locations (both within and outside the study area). Current housing supply is in the region of 18,000 dwellings, which takes into account development at Hampton to the south of Peterborough and some 5,000 dwellings which could be delivered within the existing urban area. This ensures an immediate supply of land for development, which exceeds the current Structure Plan allocation of 12,800 dwellings to 2016. Draft RPG14 seeks a further increase (of some 3,600 dwellings) to a total of 21,600 dwellings to 2021, which, as with employment, would benefit from market intervention if the resulting increase in building rates is to be achieved. An increase in the region of 5,000 dwellings above RPG 14 levels could be accommodated

within the existing highways network, but would definitely require market intervention to achieve it.

- 11.4.8 Growth of the wider sub region (mainly consisting of the market towns within Fenland) needs to be treated with more caution. While capacity was identified for around 11,000 dwellings on land with some environmental impact and capacity on the road network, significant housing led growth could lead to unsustainable commuting patterns (i.e. journeys to work which cannot be accommodated on public transport) to both Peterborough and Cambridge. Growth beyond 11,000 dwellings is constrained by floodplain.
- 11.4.9 Existing supply in the Fenland settlements is just short of the Structure Plan allocation of 6,600 dwellings to 2016. Additional growth within the region of 3,600 is needed to meet the draft RPG 14 recommendations to 2021. On balance, this level of growth is deliverable, ensures a continued supply of land to meet local development needs and provides a long term supply of housing land for needs post 2021.

11.5 The Cambridge Sub-region

- 11.5.1 This area comprises Cambridge and the transport corridors to its ring of 'market towns' (excluding Suffolk).

Transport considerations

- 11.5.2 The transport issues in this sub-region are focused on Cambridge where all the transport analyses indicated persistent traffic problems both within the city and to the south east on the corridors to the A11 and on the A11 itself.
- 11.5.3 The approaches to the city from the south east and the adjacent parts of the A11 became overloaded when 30,000 dwellings and 43,000 jobs (i.e. about the current draft RPG level) were located throughout the environs of the city. But when the housing was cut to 24,000 (i.e. well below current draft RPG levels), the overloading was significantly reduced. Improving the A1307 outside the park-and-ride site appears to be the best and most practical way of meeting the additional traffic. There are still practical limits to the amount of development which can be handled, but there is no suggestion that currently planned housing provision should be reduced.
- 11.5.4 The study adopted the view that urban transport problems within the Cambridge built-up area are essentially solvable by the twin policies of restricting access by car and providing good access by public transport. There is clearly little possibility of addressing the city's traffic problems by further road investment (the south eastern by-pass was not examined in this study) and the basics of tougher parking controls and the alternatives such as park-and-ride are already in place. Policies will, therefore, have to be strengthened as development takes place in the environs of the city. This applies to almost all aspects of Cambridge's public transport system. It will require:
- a better urban public transport system,
 - more capacity on the park-and-ride system,
 - improved frequencies on radial bus services to the surrounding towns,

- a better bus station, and,
- other improvements, such as the proposed busway.

11.5.5 In searching for a better urban public transport system, Cambridge may need to look at more radical and more innovative public transport solutions if it is to provide a satisfactory alternative to the car, particularly outside the historic centre, serving some of the off-centre trip attractors such as the Science Park and the rail station.

11.5.6 The other radial corridors into Cambridge generally appear capable of handling the traffic generated by the draft RPG levels of development as far into the city as the park-and-ride sites. The levels of development for which this applies are:

- Cambridge–Baldock – 6,800 dwellings and 9,300 jobs
- Cambridge–Ely – 3,900 dwellings and 1,400 jobs
- Cambridge–Huntingdon–Peterborough – 11,200 dwellings and 6,900 jobs
- Cambridge–St Neots – 4,200 dwellings and 1,300 jobs
- Cambridge–Stansted – 9,000 dwellings and 20,000 jobs.

11.5.7 Adding a new town of 20,000 dwellings and associated jobs to the tested locations of either Duxford/Saffron Walden (on the Cambridge to Stansted corridor) or Royston (on the Cambridge to Baldock/Hitchin corridor) can be expected to have significant cost implications for the main road network, including **further** widening of the M11, even assuming that such a new town would come with its own highway network and approach roads.

Market considerations

11.5.8 Cambridge is viewed by most of the housebuilders who were interviewed as the most attractive location for housing in the study area. This is underpinned by the strong commercial market particularly for offices, based on science and business parks (30% of the stock in the study area is in the City and in South Cambs). It is considered, therefore, that there would be continued strong demand for employment land within Cambridge throughout the period to 2021. This is despite the current slow down in office building at present which has occurred to a current oversupply of speculative office space, which should ‘correct’ quickly.

11.5.9 The market for housing within the market towns, as a whole remains strong. However, they are, in comparison to Cambridge generally weaker economic centres (but similar to other areas within the study area), supporting local needs. Whilst the demand for employment land within the market towns is expected to increase, this is relative to other market towns within the study area.

Strategic Planning Conclusions

- 11.5.10 Current supply at Cambridge accommodates around 31,000 dwellings. Land allocations included within the supply figure comprise development needs post 2016 considered as part of the Cambridge and Peterborough Structure Plan and subsequent EiP. The supply figures relate directly to land identified as having environmental capacity within the Cambridge Sub Region Study. It was accepted in the Cambridgeshire Structure Plan that development beyond this will have a significant environmental impact.

- 11.5.11 The key issue for Cambridge is providing housing to meet strong employment growth. Given the limited capacity of Cambridge and its immediate environs to accommodate additional development beyond existing supply, further growth will need to be accommodated in the broader Cambridge sub region. Irrespective of the merits or otherwise of further reviewing the Cambridge Green Belt (refer to paragraphs 4.3.4–4.3.6 above), no additional releases of land could be made around Cambridge without incurring development on land which is highly environmentally sensitive.

- 11.5.12 The sub region is characterised by a series of corridors that link Cambridge to its ring of market towns. At present public transport from most market towns to Cambridge is not sufficient to provide alternatives to the car. In recognition of this, the current Structure Plan strategy is for major development to be located as close to the city as possible. This means within Cambridge City and its environs and through planned new settlements along the radial corridors. The development of the corridors will provide the critical mass of population to support high quality public transport to the city, which in the longer term, will have potential to extend to the market towns. Further tests of the capacity of the radial corridors were undertaken during this study.

- 11.5.13 The Cambridge–Huntingdon–Peterborough corridor is of strategic significance due to the development of the high capacity bus way, the A14 and A1(M) and the strategic employment site at Alconbury. However, there is limited potential for additional development within existing settlements beyond draft RPG 14 levels within existing settlements due to environmental constraints, related to the high sensitivity landscape. The transport tests demonstrated that this corridor could accommodate draft RPG targets without significant impacts on the strategic highway network.

- 11.5.14 In considering other options, limited environmental capacity was identified within and around existing settlements in the Cambridge–Baldock corridor. However, this corridor is considered to have the potential as a possible location for a smaller new settlement, although a major new settlement was found to have widespread and significant transport impacts on the road network.

- 11.5.15 The Cambridge to Ely corridor offers the potential for a small new settlement at Waterbeach, which could be accommodated without significant impact on the strategic highway network. However, other transport impacts (at key junctions which have not been assessed as part of this study) will require further investigation as previous studies have identified these as a constraint in this location.

- 11.5.16 Both environmental and transport capacity was identified within the Cambridge to St. Neots corridors, primarily focusing on the potential of St. Neots itself, which provides scope for increased development above RPG levels. However, this needs to be developed in the context of a sustainable transport solution to commuting into Cambridge city. Whilst anecdotal evidence was provided to suggest that St. Neots is becoming a commuter location for London, this is true of any settlement within the study area that has access to rail. There is capacity at Camborne beyond its currently planned limit, although this has not been tested in transport terms and needs further investigation.
- 11.5.17 Within the Cambridge to Stansted corridor there is limited potential in existing settlements but a major new town would be possible, although this would be very expensive in transport terms. The transport impacts and costs are similar in scale to those that would be required to support a new settlement within the Cambridge–Baldock corridor.
- 11.5.18 The analyses demonstrate that to increase development along the radial routes from Cambridge is likely to require a combination of limited expansion within existing settlements, plus a small new settlement in either the Ely or Baldock corridors. It is clear that development on any radial route from Cambridge would have to be accompanied by parallel development of measures to limit the use of cars, especially for journeys into the city. It follows also that initially, at least, development and the associated transport measures should be on a limited number of routes. Given the commitment to Northstowe and the busway a sensible approach would be to focus investment within the corridor towards Huntingdon and then to consider subsequent corridors where there is potential capacity.
- 11.5.19 It is argued in paragraph 11.8.2 below that detailed proposals for a major new town option should not be included in this RPG. However, this option is not completely ruled out, but rather needs to be subject to further, more detailed study. Therefore, it is our view that the Cambridge–Stansted corridor, which was location identified as having the most potential for development of a major new settlement, should not be subject to major new development or infrastructure investment until such further investigations have been undertaken. This approach would imply limited capacity in the south of the Cambridge sub-region beyond that already committed.

11.6 The southern end of the study area

- 11.6.1 The southern end of the study area consists of:
- Harlow and the A120 corridor including Stansted Airport;
 - Stevenage;
 - Herts and the Upper Lee Valley; and,
 - The London fringe.

- 11.6.2 This part of the study area is less easy to spatially conceptualise or define. Currently, it comprises a network of medium and large towns, which play an important part in their local context, but also have a strong functional relationship to London. There are complex local travel patterns within the area probably due to the absence of any one dominant employment location, a significant amount of which is by car. Commuting outside the area, mainly to London, is widespread and is facilitated by the rail infrastructure and the London Underground, which serves Chigwell, Loughton, Debden and Theydon Bois, terminating in Epping. The Central Line did extend to Chipping Ongar passing south of North Weald airfield. Although closed for some time, the route of the line remains..

Transport considerations in the southern end of the study area

- 11.6.3 It is in the southern end of the study area that, with one notable exception (the A120 corridor), the addition of new development up to and beyond draft RPG levels seems most likely to require capital investment in the highway network. This is despite the fact that it is in this area that new residents are most likely to use rail to commute back to central London. The attraction of London's commuter rail network in the southern end of the study area is strongest in the WAGN corridor through Cheshunt and Hoddesdon and in the catchment area of the central line in Loughton and Epping.
- 11.6.4 Although there is a natural reluctance on the part of planning authorities and others to see new developments becoming dormitories for central London, given that development is to take place, at least to draft RPG levels, its impact could be reduced by improving and extending the rail network. The study's rail demand analysis indicates that such improvement will anyway be required and on a significant scale. Crossrail and Thameslink 2000 seem to be the most obvious ways of dealing in the longer term with the additional London orientated rail demand that will arise throughout the study area as a result of the increases in demand that will be caused by RPG and additions to it. Within the southern end of the study area the extension of the Central Line to Harlow, Harlow Town and possibly even as far as Stansted would seem to be a transport investment well worth examining. Given the demand from a major international Airport, such an investment might substantially fund itself
- 11.6.5 The development strategy of deliberately locating new homes within the catchment of rail commuting stations in order to encourage the use of rail and reduce local road traffic has not been explored. It might, however, form part of a more rail-orientated development strategy for the London region.
- 11.6.6 The alternative transport-led development strategy of providing more circumferential road capacity in order to attract development into the southern end of the study area and away from the M25 has also not been systematically explored. However, the A120 replacement gives an indication of how such a strategy might be started. Were this road, which at present has plenty of spare capacity, to be extended across the study area north of Stevenage and towards the M1 north of Luton/Dunstable, the effect might be both to attract development and to solve some of the otherwise intractable local traffic problems. However, this option has not been explored. If this strategic highway use of the new A120 is not to be taken up then it provides significant spare highway capacity in the corridor to the east of Bishops Stortford and implying that, in transport terms, this corridor has significant development capacity.

- 11.6.7 The persistent traffic problems forecast to the east of Stevenage on the B road towards Buntingford and parts of the A602 towards Hertford are examples of the sorts of problems which might be solved by a more strategic road. However, the tests also indicated that they could alternatively be solved by simpler on-line improvements.
- 11.6.8 More persistent traffic problems were forecast to the north and west of Cheshunt and in the Epping area. These suggest that development should be limited to the levels set in RPG.
- 11.6.9 In the Harlow area the persistent and existing traffic problems appear to present an interesting opportunity for more development. The model tests suggest that Harlow's traffic problem is due partly to through traffic but substantially to local and terminating traffic. It seems clear that Harlow requires both some form of by-pass to remove the through traffic and a comprehensive set of conventional urban transport policies to address the internal traffic problems. Two new Harlow by-passes, one to the south west and the other to the north, connecting to a new junction (7A) on the M11, were therefore examined in the study. The south west by-pass was found to be necessary to open up some of the development sites on the south western side of the town, but the northern by-pass appeared to be better used and to have the potential to open up for development a significant area of land to the north of the River Stort.
- 11.6.10 Both by-passes would still leave Harlow with a significant internal traffic problem which will need to be solved by the conventional urban policies of controlling town centre parking and providing a good alternative public transport system. In the case of Harlow, laid out for the car but not for the numbers that now exist, such a system could for example be a new personal rapid transport system. Such a system could offer journey speeds twice as fast as a bus or tram and early evaluations have shown PRT to be particularly promising in new towns (covering a substantial proportion of their capital costs). A PRT system could also help to create a new image for Harlow and it could be extended across the River Stort to serve a northwards extension of the town and to connect it back to the existing town centre. Harlow thus has the potential to absorb much of the growth which might otherwise be deemed to require a new town but this does depend upon the provision of a radically improved public transport system.
- 11.6.11 Thus there is a need to address current congestion problems at Harlow. An east-west bypass might remove some of the traffic within the urban area, but significant problems are likely to remain. Further expansion, it is concluded, must be accompanied by radical improvements to public transport. The levels of growth being promoted within the draft RPG 14 cannot be accommodated without these changes.
- 11.6.12 More development at Harlow might also mean less pressure for development on the other area capable of serving Stansted – the A120 corridor to Braintree. It is envisaged that this corridor should be developed by expanding various villages along the old A120, possibly adding some small new settlements and using the old road as a through bus route, with other traffic obliged to use the new A120.

- 11.6.13 Even though the A120 corridor, in the absence of a more strategic role for the new road, appears to have plenty of transport capacity, tough parking policies will be required at Stansted in order to ensure that public transport alternatives to the car are used for travel to the Airport by both employees and passengers. It should be noted, however, that there has been a recent announcement that A120 will be “trunked”.

Market considerations

- 11.6.14 There is a strong housing market throughout the southern part of the study area. Housebuilders mentioned, in particular, Bishops Stortford, Braintree, Stevenage, Harlow and Epping Forest although the industrial and office markets do not generally reflect the strong housing demand.
- 11.6.15 Harlow and Stevenage have established manufacturing bases, however they tend to serve a relatively localised market. Harlow is not a strong location for distribution due in part to the poor connection of the industrial areas to M11. Epping and North Weald are viewed by the market as having strong potential for industrial development and locations close to the M25 are better locations for distribution than for example, Harlow.
- 11.6.16 Harlow and Stevenage are significant office locations. However, some of their stock is dated and the image of the towns, particularly Harlow, is poor. The composition of the workforce is also not considered by the market to be conducive for a major office centre.
- 11.6.17 All of this suggests that especially for Harlow the RPG job growth targets are ambitious and would probably require strong intervention to bring about the levels of inward investment needed to meet them. However, it is worth noting that historic rates of growth in Harlow have achieved the levels of growth currently envisaged within the draft RPG.
- 11.6.18 A key potential influence in the southern end of the study area is job growth related to the expansion of Stansted Airport. To date Stansted has had little effect on the office market. This may change with further growth and the opening of the second runway. However, according to the findings of the Stansted/M11 Corridor Options Study (CBP, 2003) this impact is unlikely to be felt until the latter part of the period to 2021. In addition, there is still uncertainty when the second runway will be built and no clear view of its impact on employment in the area. Current local planning policies limit employment development close to the Airport. Regional partners need to consider whether and to what extent Stansted can assist in delivering the high job growth to which the regional strategy aspires.

Strategic Planning Conclusions

- 11.6.19 The key spatial challenges within this part of the study area are, therefore, managing the levels of commuting within and outside the study area and providing new economic opportunities to achieve more balanced development. In the first instance, these new opportunities should be directed to areas which have specific regeneration needs. These include Harlow, Stevenage and the Upper Lee Valley.

- 11.6.20 Growth at Harlow could transform it into a major sub regional centre. This is considered appropriate in the context of the regeneration priorities for the town. Its strategic location on the M11 and Liverpool Street–Cambridge rail corridor provide strong links to the north and south of the LSCP area. However, the solutions are not straightforward and a number of strategic choices need to be made about the scale and direction for that growth.
- 11.6.21 Based on the assessment of the ability of Harlow to expand (environmental, planning and landscape sensitivity) the north is constrained by overlapping/concentrated constraints (including airport noise constraints, flooding along the Stort Valley and high landscape sensitivity areas) and areas with some potential for development are physically remote from the existing urban edge. Development to meet the scale set out in draft RPG requirements could be accommodated to the east, west and south (avoiding the Harlow ridge) and development of these areas would be comparatively less damaging than developing on land to the north. However, for levels of growth that exceed draft RPG 14, the next available location is to the north, where the environmental constraints above would need to be breached. Transport analysis shows that RPG levels of growth to the south and west can be accommodated (requiring a southern bypass/distributor road, but that in terms of major growth the best location would be to the north, developed in conjunction with a northern by pass, linking to the A414 and new junction to the M11.
- 11.6.22 There is little doubt that the housing market within Harlow is strong and could foster large scale growth, wherever development takes place. The concern must be in achieving corresponding growth in jobs. This will require significant intervention and investment in infrastructure, particularly roads (possibly both north and south by-passes) and public transport infrastructure. Part of the rationale for large scale growth at Harlow is that significant investment in infrastructure is required now irrespective of further growth. This offers the opportunity to provide sufficient capacity for long term growth, to bring in jobs, and also to help to improve the image and competitiveness of the town for economic development purposes. In the longer term, extension of the Central Line, at least to Harlow Town, could assist this process.
- 11.6.23 Growth along the A120 corridor provides the opportunity for the creation of new east-west links within the southern part of the LSCP area, creating an ‘arc’ of development from Braintree to Bishop’s Stortford, Harlow, North Weald and linking to the London Fringe. Research undertaken and documented in Chapter 6 and 8 shows there is significant capacity in the highway network and environmentally within this corridor. Strategically, there are opportunities for the corridor to serve Stansted Airport, and the east to west orientation would support more self-contained development, diverting the focus on London bound commuting.
- 11.6.24 Braintree is potentially a suitable location for growth being relatively free of constraints and with rail access. However it does have a jobs imbalance (less jobs than people) and more homes without jobs would exacerbate this problem. There is a significant amount of employment land available, the use of which could be stimulated by the growth of Stansted.

- 11.6.25 This corridor as a whole lends itself well to the ‘beads on a string’ model of spatial growth, by providing the opportunity to build a critical mass of population to support employment growth, services, high quality public transport and strong functionally related settlements. The A120 corridor east of M11 could be developed by expanding existing settlements along the old A120 and by adding small new settlements, based on a high capacity public transport service. However, growth of Stansted Airport is central to achieving this. It needs to provide a high level of employment to generate sufficient travel demand (both around the Airport and within the settlements along the corridor), around which a critical mass of population could then be focused. It should be noted that developers have indicated a commitment to fund and or implement such a system as part of any large scale development.
- 11.6.26 The success of the A120 corridor and, to a lesser extent, Harlow are both strongly related to the growth of Stansted Airport. However, given that there is uncertainty surrounding the impact that Stansted might have, a high growth strategy within both locations could be damaging to the regeneration at Harlow. To manage this risk, it would be sensible to concentrate resources and development in Harlow in the first instance to meet regeneration objectives and to reserve the potential of the A120 corridor for the longer term, to be brought forward once there is greater certainty about the growth and impacts of Stansted.
- 11.6.27 There is also a choice to be made on the development of North Weald. It forms part of the arc of development from Epping to Braintree, and lies on the potential route of any high capacity public transport link from Epping to Harlow. However it is not sufficiently close to Harlow to be regarded as part of the town, and its development early in the period to 2021 could undermine the regeneration of Harlow (the same argument as for other parts of the “arc”.) Where this conclusion might be reconsidered is if the development of North Weald could be demonstrated to be instrumental (through funding, for example) in securing the high capacity public transport system from Epping to Harlow. The regeneration benefits to Harlow of this link could outweigh any loss of momentum in the regeneration of Harlow due to development at North Weald.
- 11.6.28 Stevenage is considered to be of strategic importance. This view was also reflected in the Hertfordshire Structure Plan and Inspectors Report, given the location of this settlement on the A1(M) and on mainline railway (GNER and WAGN (to Kings Cross/Moorgate)). It has good access to London and also to Cambridge and Peterborough. The proposed Thameslink 2000 enhancement will strengthen its position further.
- 11.6.29 The key issue for Stevenage is not whether it should grow, but rather by how much. This study, has for reasons identified in Chapter 4, not assessed the environmental capacity of the Stevenage West expansion land. The settlement capacity work shows that the long term growth potential of the settlement is clearly related to proposals at West of Stevenage (or Stevenage West), but that its growth is not limited to that proposal. RPG growth levels and some further growth can be achieved irrespective of that proposal.

- 11.6.30 Housing growth would serve the London job market and would also be important for providing the stimulus for greater levels of employment growth within the town itself, as a local economic driver. Crucially, however, the type of housing proposed and growth sought needs to achieve a better mix of social groups in order to attract more high value added jobs. The introduction of the Thameslink 2000 scheme would facilitate economic growth prospects.

- 11.6.31 With regards draft RPG14 district housing targets, should these levels be retained then the best manner in which North Hertfordshire could meet the target would be to allow the expansion of Stevenage, because meeting that growth by expanding other towns and villages is likely to result in comparatively higher environmental impacts and importantly, would miss an opportunity for Stevenage to meet its regeneration needs. It is noted that the emerging conclusions of the Roger Tyms Study indicates that land to the west of Stevenage is a sustainable and good option.

- 11.6.32 Taking into account the transport, economic and environmental impacts, the levels of growth that could be acceptable within the town would be around 11,000 new dwellings, without proposals at West of Stevenage. If West of Stevenage were achieved then the growth potential would be much higher, at approximately 16,000 dwellings. This is also considered achievable in transport terms, but would create more of a challenge in respect of job creation. This level of growth would use all identified available capacity and will leave questions about possible directions for growth post 2021.

- 11.6.33 In terms of phasing, should Stevenage West go ahead, development could take place early on in the plan period. Two planning applications have been submitted, which are subject to a call in inquiry. Once resolved, development could take place almost straight away. Other options, to the north are not constrained and could be achieved in the short to medium term.

- 11.6.34 Settlements within the Hertford and the Upper Lee Valley sub area have traditionally been strong economic centres and provided fairly significant levels of housing growth. Strong demand is likely to continue in the future due to its proximity and links to London. Capacity of around 10,900 has been identified on land with some environmental impact.

- 11.6.35 Transport is a major problem within this area, requiring investment to deliver the levels of growth implied by existing supply. There needs to be a strong focus on urban solutions to address problems associated with the urban areas themselves, as well as to the strategic network.

- 11.6.36 At present there are very low levels of existing housing supply in settlements to the south of Epping Forest District, which means that significant new land needs to be found to accommodate the draft RPG growth levels. This needs to be considered in the context of the environmental and transport constraints. Lower levels of growth than draft RPG may be appropriate where this applies.

11.7 Quantification of strategic options

- 11.7.1 The above section sets out our analysis of the LSCP growth area. This section quantifies the levels of growth by district and by corridor and sub area where there are clear options. Of the spatial options tested, those based on the current draft RPG, performed best. There is, however, scope for choice as the options reflect alternative policy choices, each having different consequences. We believe that all options identified have merit.
- 11.7.2 To achieve the Government's target of an additional 18,000 dwellings over the banked RPG14 this could be accommodated either by concentrating growth within transport corridors through a combination of expansion of existing settlements and/or small new settlements, or by achieving further expansion of existing strategic centres including Peterborough, Cambridge and Harlow. Distributions are shown in respect of each spatial theme but, as before there are alternatives and the emerging strategy in RPG14 may use a combination. No spatial option has been developed based on a major new settlement/town as we recommend that a further investigation be undertaken to consider the potential of such a development but in the context of the whole region.
- 11.7.3 Set out below are the preferred iterations of the spatial themes presented in Section 8. They are based on the spatial analysis of growth levels set out in Section 10 and the conclusions presented in the sections above. For each a distribution a Table of growth levels indicate housing growth by district and by corridor/sub area, these are also shown diagrammatically in Figures 11.1-11.3.

DRAFT RPG – ADJUSTED

- 11.7.4 Based on the strategic conclusions that arose from the testing process and the assessment of environmental capacity, we have undertaken a readjustment of the banked RPG distribution. This recognises where there is excess supply in relation to banked RPG figures and capacity constraints and opportunities. These constraints and opportunities are identified in Chapter 10 and in the sections above.

CHANGES

- 11.7.5 As compared to existing current draft of RPG proposed changes are as follows:
- Increasing East Hertfordshire, Cambridge City and South Cambridgeshire in line with existing supply,
 - Delay development of new settlement at North Weald on basis that this would compete with regeneration and growth aspirations of Harlow,
 - Reducing Epping Forest's district total but do allow some moderate growth to so that local housing needs can be met,
 - Reducing North Hertfordshire district allocation but do allow some moderate growth so that local housing needs can be met. Achieving growth of Stevenage may entail growth within North Hertfordshire,
 - Slight increase in Stevenage above banked RPG figures to take account of identified capacity, but this increase is in respect of Stevenage as a settlement

and not as a District. The Local Development Framework preparation process should consider how best to expand Stevenage and in this connection should not be constrained by district boundaries,

- Moderate increase in growth at Harlow above banked RPG, and as with Stevenage the manner in which expansion is achieved should be determined by the Local Development Framework preparation process and in this process should not be constrained by district boundaries,
- Increase residential development in South Cambridgeshire to recognise capacity at Northstowe (8,500 by 2021) and to take account of existing supply, and
- Slight increase in residential development at Broxbourne to take account of the Lee Valley PAER and its regeneration objectives.

11.7.6 Table 11.1 illustrates a potential change to the current draft of RPG 14 and is illustrated in Figure 11.1.

Table 11.1 Draft RPG adjusted – District totals				
	Total existing supply	RPG adjustment (additional)	RPG adjustment (total)	Draft RPG14 Allocations 2001–2021
Essex				
Braintree	5,300	2,400	7,700	7,700
Epping Forest*	2,300	2,500	4,800	13,100
Harlow*	5,500	10,000	15,500	13,500
Uttlesford	5,700	2,300	8,000	8,000
Total Essex	18,800	17,200	36,000	42,300
Cambridgeshire				
Fenland	6,100	3,600	9,700	9,700
Peterborough	17,900	3,700	21,600	21,600
Huntingdonshire	7,900	3,300	11,200	11,200
East Cambridgeshire	8,200	400	8,600	8,600
South Cambridgeshire	24,000	2,000	26,000	23,500
Cambridge City	15,900	0	15,900	14,700
Total Cambridgeshire	80,000	13,000	93,000	89,300
Hertfordshire				
Broxbourne	4,500	2,000	6,500	5,100
East Hertfordshire*	11,000	0	11,000	9,700
North Hertfordshire**	6,900	2,000	8,900	9,300
Stevenage**	3,200	8,000	11,200	10,800
Total Hertfordshire	25,600	12,000	37,600	34,900
Total Study Area	124,400	42,200	166,600	166,500

Figures have been rounded to the nearest 100 and therefore totals may vary slightly within the table and between other tables.

* The figures for Harlow include the total growth for the settlement and does not allocate figures to neighbouring districts

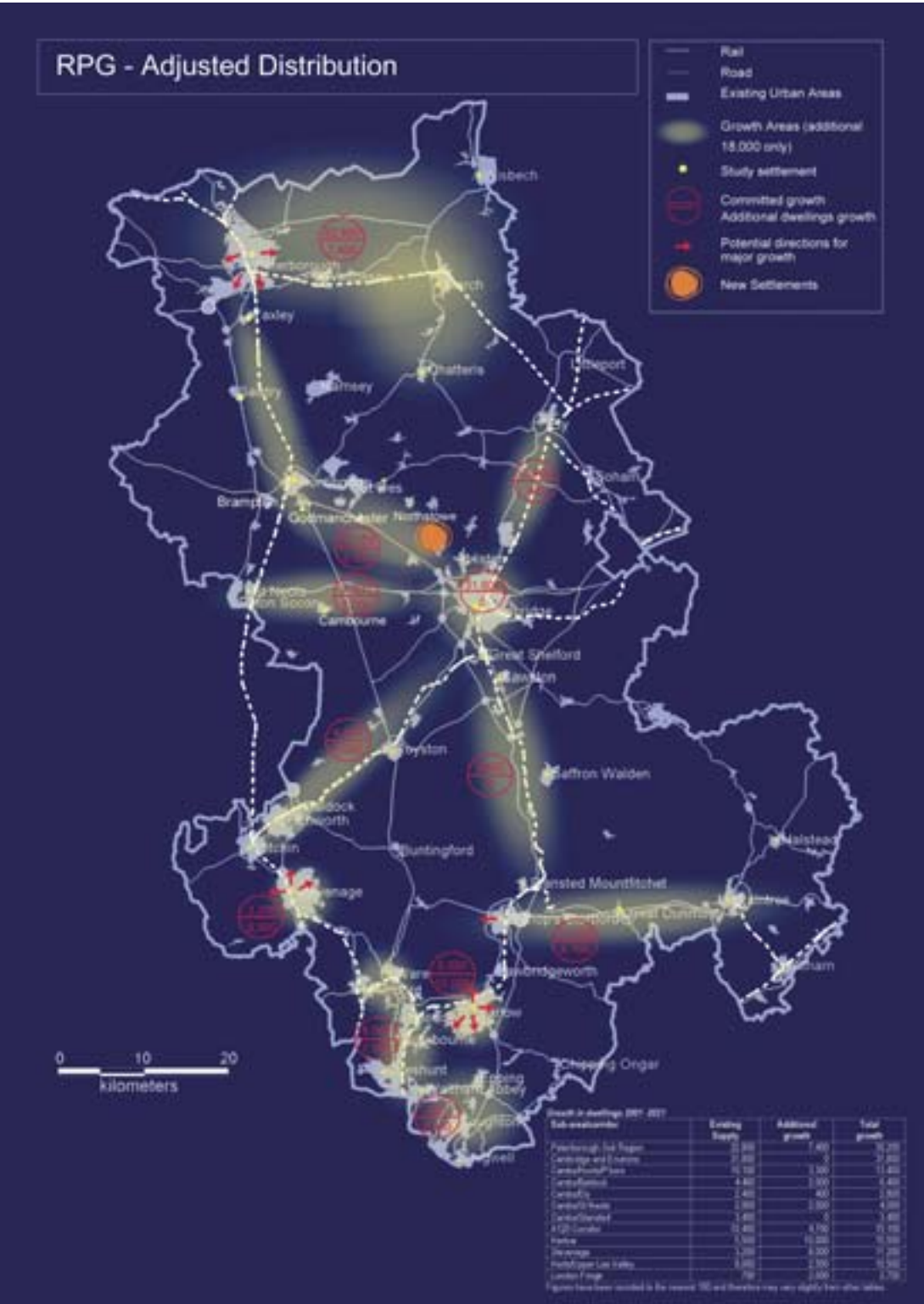
** The figures for Stevenage are the total growth of the settlement and does not allocate figures to neighbouring districts.

11.7.7 The table below provides growth levels by sub area and by corridor.

Table 11.2 Draft RPG 14 adjusted – Sub areas and corridor totals			
	Total existing Supply	Additional	Total
Peterborough Sub Region	22,800	7,400	30,200
Cambridge and Environs	31,800	0	31,800
Cambs/Hunts/P'boro	10,100	3,300	13,400
Cambs/Baldock	4,400	2,000	6,400
Cambs/Ely	2,400	400	2,800
Cambs/St Neots	2,000	2,000	4,000
Cambs/Stansted	4,000	0	3,400
A120 Corridor	10,400	4,700	15,100
Harlow	5,500	10,000	15,500
Stevenage	3,200	8,000	11,200
Herts/Upper Lee Valley	8,000	2,500	10,500
London Fringe	700	2,000	2,700

Figures have been rounded to the nearest 100 and therefore may vary slightly from other tables.

Figure 11.1



OPTIONS

- 11.7.8 The above distribution represents one way of amending the banked RPG levels of growth, which has been tested to ensure that best use is made of the transport system and minimises environmental impact. In other words, it is the most sustainable in strategic terms. Below are identified options to deliver the additional levels of growth sought by Government. These represent an alternative basis for achieving the banked RPG growth levels should, i.e. where we have shown increases in particular sub areas and corridors these could form the basis for an alternative revision of banked RPG levels. Any variation would need to consider potential implications (as outlined in Chapter 10 and the sections above).

Additional 18,000 dwellings

- 11.7.9 The following tables identify potential ways the additional 18,000 dwellings sought by Government could be accommodated with the study area, based either on concentrating development within urban centres or within transport corridors – the basis and impacts of which are set out in Chapter 10 and the sections above.
- 11.7.10 The first option is based on further concentration within existing urban areas. The options for this spatial theme were to either spread development around the centres within the LSCP area or to take a more targeted approach. A targeted approach was ultimately better to recognise the capacity constraints to additional growth in certain locations and to maximise potential of strategic growth locations, particularly those, which have regeneration priorities (Harlow, Stevenage and Peterborough).
- 11.7.11 The second option places more emphasis on the development of transport corridors. This provides less intensive growth rates in the strategic urban centres and uses the capacity identified in transport corridors. This provides an alternative to concentrating development and ensures a reserve of capacity for long term growth.

URBAN CONCENTRATION

11.7.12 Table 11.3 below illustrates a potential change to the current draft of RPG 14 and is illustrated on Figure 11.2.

Table 11.3 Draft RPG + 18,000 dwellings, Urban Concentration – District totals			
	Total existing supply	+18,000 Urban Concentration (additional)	+18,000 Urban Concentration (total)
Essex			
Braintree	5,300	2,400	7,700
Epping Forest*	2,300	2,500	4,800
Harlow*	5,500	(+10,000) 20,000	25,500
Uttlesford	5,700	2,300	8,000
Total Essex	18,800	27,200	46,000
Cambridgeshire			
Fenland	6,100	3,600	9,700
Peterborough	17,900	(+5,000) 8,700	26,600
Huntingdonshire	7,900	3,300	11,200
East Cambridgeshire	8,200	400	8,600
South Cambridgeshire	24,000	2,000	26,000
Cambridge City	15,900	0	15,900
Total Cambridgeshire	80,000	18,000	98,000
Hertfordshire			
Broxbourne	4,500	2,000	6,500
East Hertfordshire*	11,000	0	11,000
North Hertfordshire**	6,900	2,000	8,900
Stevenage**	3,200	(+3,000) 11,000	14,200
Total Hertfordshire	25,600	15,000	40,600
Total Study Area	124,400	60,200	184,600

Figures have been rounded to the nearest 100 and therefore may vary slightly from other tables.

* The figures for Harlow include the total growth for the settlement and does not allocate figures to neighbouring districts

** The figures for Stevenage include the total growth for the settlement and does not allocate figures to neighbouring districts

11.7.13 Table 11.4 provides growth levels by sub area and by corridor.

Table 11.4 Draft RPG + 18,000 dwellings, Urban Concentration, sub areas and corridor totals			
	Total existing supply	Additional	Total
Peterborough Sub Region	22,800	(+5,000) 12,400	35,200
Cambridge and Environs	31,800	0	31,800
Cambs/Hunts/P'boro	10,100	3,300	13,400
Cambs/Baldock	4,400	2,000	6,400
Cambs/Ely	2,400	400	2,800
Cambs/St Neots	2,000	2,000	4,000
Cambs/Stansted	4,000	0	3,400
A120 Corridor	10,400	4,700	15,100
Harlow	5,500	(+10,000) 20,000	25,500
Stevenage	3,200	(+3,000) 11,000	14,200
Herts/Upper Lee Valley	8,000	2,500	10,500
London Fringe	700	2,000	2,700

CORRIDORS

- 11.7.14 Table 11.5 below illustrates a potential change to the current draft of RPG 14 and is illustrated on Figure 11.3.

Table 11.5 Draft RPG + 18,000 dwellings, Corridors – District totals			
	Total existing supply	+18,000 Corridors (additional)	+18,000 Corridors (total)
Essex			
Braintree	5,300	(+2,000) 4,400	9,700
Epping Forest*	2,300	(+6,000) 8,500	10,800
Harlow*	5,500	(-4,000) 6,000	11,500
Uttlesford	5,700	(+5,000) 7,300	13,000
Total Essex	18,800	26,200	45,000
Cambridgeshire			
Fenland	6,100	3,600	9,700
Peterborough	17,900	3,700	21,600
Huntingdonshire	7,900	(+2,000) 5,300	13,200
East Cambridgeshire	8,200	(+5,000) 5,400	13,600
South Cambridgeshire	24,000	(+2,000) 4,000	28,000
Cambridge City	15,900	0	15,900
Total Cambridgeshire	80,000	22,000	102,000
Hertfordshire			
Broxbourne	4,500	2,000	6,500
East Hertfordshire*	11,000	0	11,000
North Hertfordshire**	6,900	2,000	8,900
Stevenage**	3,200	8,000	11,200
Total Hertfordshire	25,600	12,000	37,600
Total Study Area	124,400	60,200	184,600

Figures have been rounded to the nearest 100 and therefore may vary slightly from other tables.

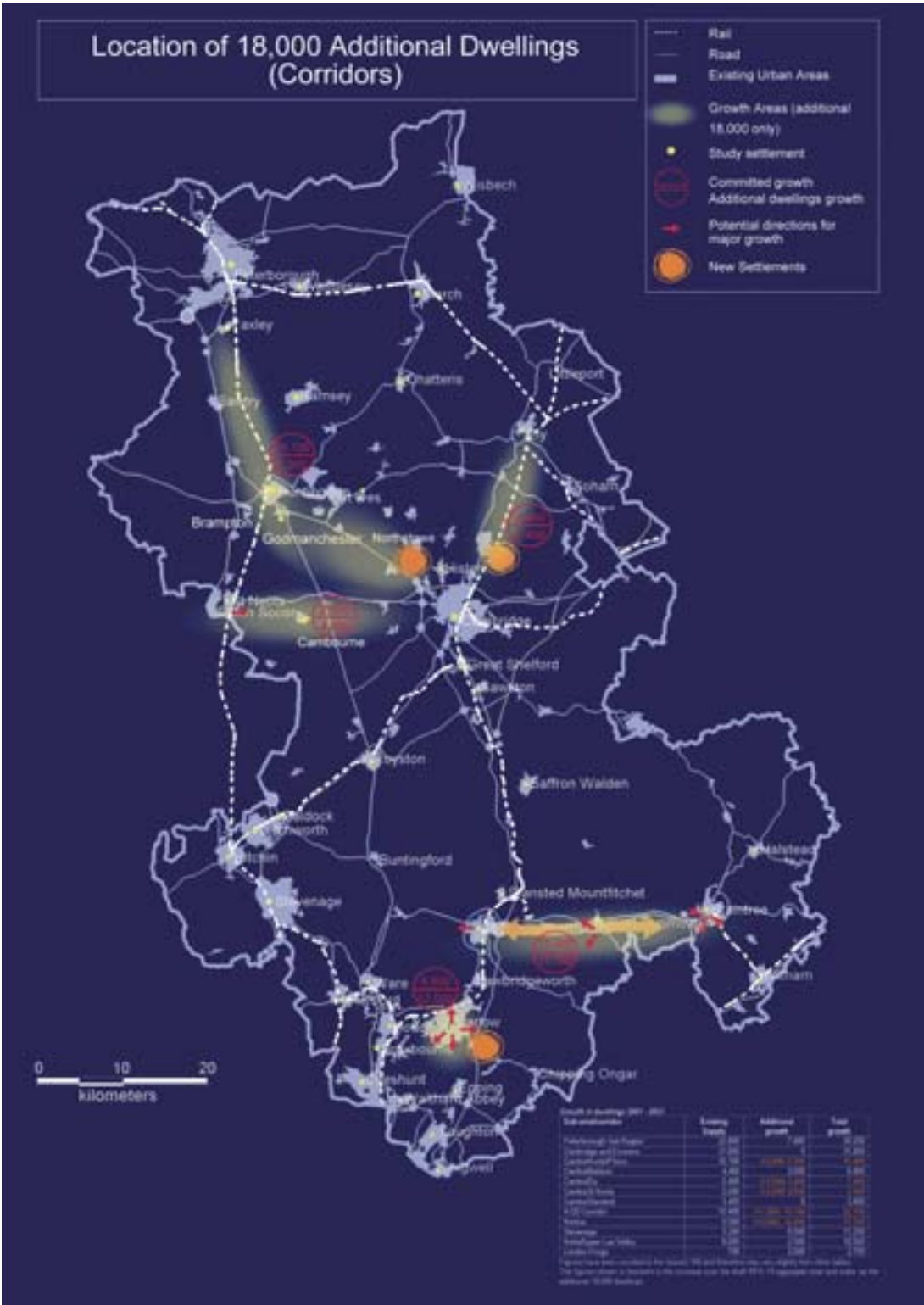
* The figures for Harlow include the total growth for the settlement and does not allocate figures to neighbouring districts

** The figures for Stevenage include the total growth for the settlement and does not allocate figures to neighbouring districts.

11.7.15 Table 11.6 below provides growth levels by sub area and by corridor.

Table 11.5 Draft RPG + 18,000 dwellings, Corridors, Sub areas and corridor totals			
	Total existing supply	Additional	Total
Peterborough Sub Region	22,800	7,400	30,200
Cambridge and Environs	31,800	0	31,800
Cambs/Hunts/P'boro	10,100	(+2,000) 5,300	15,400
Cambs/Baldock	4,400	2,000	6,400
Cambs/Ely	2,400	(+5,000) 5,400	7,400
Cambs/St Neots	2,000	(+2,000) 4,000	6,000
Cambs/Stansted	4,000	0	3,400
A120 Corridor	10,400	(+7,000) 11,700	22,100
Harlow	5,500	(+2,000) 12,000	17,500
Stevenage	3,200	8,000	11,200
Herts/Upper Lee Valley	8,000	2,500	10,500
London Fringe	700	2,000	2,700

Figure 11.3



OPTIONS

- 11.7.16 The above tables show alternatives as to how the additional 18,000 dwellings could be achieved. Within the corridors option, the A120 corridor and North Weald airfield (new settlement) are shown but it is recognised that should these be selected that then growth and regeneration aspirations in Harlow may be jeopardised. These locations are shown on the basis that they demonstrate good potential but achieving growth in a satisfactory manner (particularly in the A120) would be dependent upon significant jobs growth and this is most likely to be achieved as a consequence of the growth of Stansted Airport.
- 11.7.17 If substantial jobs growth that is related to Stansted Airport is considered to be too speculative at this stage then it may be best to direct growth to the sub areas, as shown in the urban concentration option, in particular Stevenage and/or Peterborough. The consequence of not using these locations would be to put pressure on other locations where there is identified capacity including within Broxbourne and the Cambridge–Stansted corridor.

11.8 Conclusions on strategy

- 11.8.1 Three planning strategies were originally considered: District-led RPG, Transport Corridors and New Settlement. In practice the distinction between these options is somewhat theoretical as any strategy may have components of all three. In seeking to accommodate growth. Guidance can be drawn from the conclusions above, in particular:
- Constraint in Cambridge and Environs beyond RPG levels
 - Constraint in Peterborough at or just above RPG levels unless accompanied by a special means of delivery and improved roads.
 - Constraint in the Hertford and Upper Lee Valley and London Fringe areas for both environmental and transport reasons.
 - Possible additional expansion at Stevenage
 - Possible additional expansion at Harlow, exploiting the required transport investment, but with environmental implications and possibly requiring intervention,
 - Growth beyond the capacity of settlements would have to be catered for in corridors (through expansion of existing smaller settlements or by the development of new small settlements), rather than by the development of a major new settlement.
- 11.8.2 The arguments for the inclusion in the strategy of a major new town (of the order of 20,000 dwellings) are set out in Chapter 7. The new town makes relatively little contribution to the achievement of the target to 2021 and should therefore be viewed in the context of meeting longer term development needs. On balance it would seem premature to include a major new settlement in RPG at this stage. The reasons are:

- Whilst this study has examined the impacts of a settlement of this size at two general locations there has been no detailed feasibility study of either location.
- A new town in either of the two locations considered appears likely to have very high transport costs.
- A mature new town could become an economic driver in its own right and would have an influence well beyond the study area. It should therefore be considered within the broader regional context.

11.8.3 It is recommended that further work on the feasibility of a new settlement should be carried out before the next review of the RPG (RSS) by which time several issues will be clearer including the actual rate of growth achieved under RPG (RSS)¹⁴, the future scale and role of Stansted Airport and the success of the measures to bring about the regeneration of Harlow and other locations.

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1. APPENDIX A:

Review of sub-region studies

1.1 Introduction

Purpose

- 1.1.1 This chapter seeks to determine what information can be used from existing sub-region studies to determine the capacity of settlements to accommodate additional growth.
- 1.1.2 The studies of relevance include:
- **The Cambridge Sub Region Study (2000)** – undertaken in response to the requirements outlined by regional planning guidance for a vision and planning framework for the Sub Region. The purpose of the study was to formulate and assess development options to accommodate projected growth to 2016.
 - **London-Stansted-Cambridge Study (2001)** – to provide advice and guidance on a sustainable framework for future strategic land use planning and transportation for the Study area up to 2026 and beyond. The consultants explored the options for long term spatial development and transport arrangements and considered how trends, key issues, development needs and pressures, and structural relationships are likely to change and develop over time.
 - **The Harlow Options Study (2003)** – to identify the development potential of the area around Harlow over the period to 2021. Its purpose was to set out the broad implications of further urban growth and provide guidance on how the area could be developed in the most sustainable way.
 - **Peterborough Sub-region Study Stage 1 (November 2003)** – to identify whether there is a coherent Peterborough sub region, how this is spatially defined, the land use planning issues it faces and the whether there should be specific policies included within RPG to address them.
 - **Stansted/M11 Corridor Options Study (2003)** – to assess whether and how the expansion of Stansted up to four runways could be accommodated within the region. The study forecast the increases in employment likely to arise in the region as a result of different expansions of the airport by different dates, over and above the underlying trends. It then estimated the consequent additional demand for housing, taking account of both the natural growth in the labour force and the likely displacement of some jobs from the area.
- 1.1.3 The following section sets out a comparative review of the methodology used in studies, specifically focussing on the planning scenarios developed and the spatial options tested to accommodate growth under these scenarios.

1.2 Comparative methodology review

Introduction

- 1.2.1 The purpose of the studies undertaken in the LSCP growth area have varied from providing broad baseline assessments and identifying spatial relationships, to exploring in more detail potential future growth scenarios and spatial options for accommodating this growth. It is necessary to essentially ‘stitch together’ the research and conclusions of these studies so that a view on the growth potential for LSCP growth area as a whole can be taken.
- 1.2.2 In order to determine the extent to which this can be achieved, a comparative review of the methodologies used in the studies has been undertaken which looks in detail at whether and how the growth scenarios have been conducted, what those levels of growth imply and what analysis has been undertaken to assess whether they can be achieved. The review of the study methodologies is set out below and summarised in Table A4 at the end of appendix A.
- 1.2.3 The Peterborough study was carried out on a different basis to the other studies undertaken. It is essentially a baseline assessment and summary of the strengths and weaknesses of the sub-region rather than an examination of the direct implications of growth over a planned period and how that growth might be accommodated. However, the Peterborough Growth Area Study (Stage 2) which was finalised at the same time as the final report for the LSCP growth area has examined the capacity and demand of the Peterborough Growth Area to provide for the additional growth required by the sustainable Communities Plan to 2016 and growth required in the draft RPG14.
- 1.2.4 The analysis set out below therefore focuses on the Cambridge sub region, LSC sub region, Stansted/M11 corridor and Harlow options studies only.

Growth scenarios

- 1.2.5 The LSC Sub Region Study, Harlow Options Study and Stansted/M11 Corridor Options Study all developed potential growth scenarios to explore what would happen through the continuation of current rates of growth, compared to enhanced rates. The different timescales and study areas covered by the studies (see Table A4 and Figure A1 at the end of appendix A) and the varying assumptions used in each prevents a direct comparison. However, each study provides an estimate of the possible growth that could occur when applying different sub regional priorities.
- 1.2.6 The Cambridge sub region study focused primarily on housing. The terms of reference for the study were to accommodate RPG 6 growth, which was 63,500 new dwellings for the plan period 1996-2016.
- 1.2.7 In terms of looking at settlement capacity, the value of the scenarios are most apparent in the development of options as it enables an assessment to be made of the impacts of different levels of growth in different locations. This is discussed below.

LSC STUDY

1.2.8 The growth scenarios used in the LSC Study represented different perspectives on the level of growth that might have to be accommodated in the sub-region, but they were not put forward as forecasts, merely as a tool to demonstrate the implications of various growth levels within the sub region. The growth scenarios were defined as follows;

- **Option 1 – Maximising strategic opportunities for economic development** by fully exploiting the long term potential of the key economic drivers. Labour supply was then used to determine housing need.
- **Option 2 – Regional scale growth** – based on the concept that the study area outside London will act as a regional growth area in the rest of the South East (ROSE) in terms of long term housing provision. RPG rates are extrapolated forward to 2026 and an additional 4,000 houses per annum added to the area outside London. The housing numbers were used to calculate labour availability and hence employment outside of London.
- **Option 3 – Indigenous growth**, a continuation of existing planning policies which involved an extrapolation of current RPG rates to 2026. Again, this determined labour availability and hence employment outside of London. This scenario also recognised some additional growth in direct jobs from Stansted Airport and limited allowance for extra growth stemming from the life sciences, reflecting continuous growth in these sectors.

1.2.9 A summary of the growth scenarios for the LSC area are set out in table A1 and identify levels varying between 100,000 and 300,000 dwellings for the LSC area outside London. Both the enhanced growth scenarios show a significant increase above current RPG rates, with scenario 1 showing a particularly radical departure from existing trends. The study states that for the area outside London, Scenario 1 would require an average rate of annual housing additions to 2026 some two and a half times the experience of the past six years, Scenario 2, a rate of around one and a half times the rate of the past six years and scenario 3 slightly less than the last six years. The study made no comment on the ability to deliver these rates of development. The scenarios were used to form the basis for spatial options, which tested the impacts of different distributions for different growth rates.

Table A1 LSC growth scenarios						
Scenario 1 – Maximizing economic growth						
	Housing		Employment		Additional housing to 2016 and 2026 above indigenous for outside London	
	2016	2026	2016	2026		
LSC Area	284,647	498,458	329,110	563,540		
Outside London	171,183	302,659	172,448	335,071	+112,398	+202,446
London	113,492	195,799	156,662	228,470		
Scenario 2 – Regional scale growth						
	Housing		Employment		Additional housing to 2016 and 2026 above indigenous for outside London	
	2016	2026	2016	2026		
LSC Area	180,917	311,521	221,791	406,887		
Outside London	116,501	194,789	139,094	258,910	+57,716	+94,576
London	64,416	116,731	82,697	147,977		
Scenario 3 Indigenous growth or ‘current policy on’						
	Housing		Employment			
	2016	2026	2016	2026		
LSC Area	123,201	216,944	158,315	279,415		
Outside London	58,785	100,213	75,618	131,438		
London	64,416	116,731	82,697	279,415		

STANSTED/M11 STUDY

- 1.2.10 The growth forecasts produced for the Stansted M11 Study were more complex and aimed to highlight the growth that would occur as a result of different expansion options of the airport by 2021 and 2036, over and above the underlying trends.
- 1.2.11 The baseline scenario was developed based on current RPG rates and growth at Stansted involving one runway achieving 25mppa by 2026. Further scenarios were developed based on current RPG growth rates plus development associated with the maximum use of 1 runway (40mppa), and up to 2, 3 and 4 runways. A summary of the growth scenarios for the Stansted/M11 study area are set below in table A2 and identify levels of growth that vary from between 133,000 and 141,000 new dwellings by 2021 and between 196,900 and 233,500 by 2036.
- 1.2.12 The conclusion of the work was that the development pressures associated with Stansted were relatively small when compared to growth in the region as a whole. This would nevertheless require substantial housing growth in the Stansted area. The implications of accommodating the growth rates were considered in detail in relation to the spatial options.

Table A2 Stansted/M11 Growth Scenarios			
Additional Housing		Additional Employment	
2021	2036	2021	2036
133, 200	196, 900	82,000	120,100
135, 232	206, 786	123,885	167,015
142, 696	216, 786	152,267	192,464
141, 038	233, 505	149,243	235,985

HARLOW OPTIONS STUDY

1.2.13 Four growth scenarios were initially identified in the Harlow options study:

- **Low** – based on accommodating locally generated growth and limited net in-migration to the Study Area
- **Low Intermediate** – based on economic performance that is slightly higher than achieved in recent years and above RES rates. Net in-migration accounts for around 60% of new housing requirements.
- **High Intermediate** – assumes a regional growth centre in the LSC sub region, growth at Stansted to 42mppa, economic growth levels that equal the RES and an enhanced growth forecast developed in the Structure Plan. Net in-migration was slightly higher than for the low-intermediate scenario.
- **High** – assumes several major economic growth and infrastructure projects of national importance would be implemented in the study area during the period to 2021, including an additional runway at Stansted Airport by 2011. Net in-migration would account for 72% of the new housing requirements.

1.2.14 A summary of the growth scenarios for the Harlow Options study area are set below in table A3 and imply growth of between 20,000 and 48,000 new dwellings by 2021.

Table A3 Harlow Options Study 2001 – 2021		
	Housing	Employment
Low	20,462	30,700
Low – Intermediate	28,562	42,449
High – Intermediate	37,130	55,345
High	48,270	71,841

1.2.15 Following a broad and subjective assessment of the impact of the scenarios, the low growth option was discarded because of its failure to address the regeneration needs of the study area and its limited impact on accommodating the growth needs of the sub-region. The high growth option was discarded because it implied a scale and rate of development that, the consultants argued, would be difficult to deliver over the period to 2021 and would result in the loss of environmental quality, although there is no empirical evidence presented to support these conclusions. The Low Intermediate and High Intermediate scenarios were then used as the basis to develop spatial options for accommodating growth.

1.3 Spatial options explored

- 1.3.1 The Cambridge sub region, LSC sub region, Stansted/M11 corridor and Harlow Options Studies all explored different spatial patterns for growth based on the growth scenarios and targets developed. While none of these options can (or should) provide the definitive solution to growth they nevertheless provide a useful tool for strategic decision making by identifying the positive and negative attributes of different levels of growth in varying locations. The Peterborough Sub Region Study (stage 1) did not develop or assess spatial options.

CAMBRIDGE SUB REGION STUDY

- 1.3.2 The Cambridge Sub Region Study developed three spatial patterns for development, which sought to accommodate 22,000 dwellings (the residual need once completions and planned growth had been taken into account). The options distributed growth to Cambridge City and also considered the role of market towns, larger villages and new settlements within the sub region.
- 1.3.3 The options were constructed by allocating growth to identified sites within or on the edge of existing settlements. All options included the development of a new settlement as required by RPG, albeit that a different new settlement location was used for each option to accord with its particular spatial focus and priorities. The new settlement sites were identified through a full evaluation of new settlement locations identified by the consultants and through representations made to the Public Examination into Draft Regional Planning Guidance in 1999. The four sites that performed the best were then used in the options. In this way all the spatial options directly related to areas with identified capacity, as opposed to notional growth allocations.
- 1.3.4 Before sites were allocated to settlements, an initial sieving process was undertaken to remove all those located in areas that were affected by absolute constraints – such as national environmental designations, fluvial flood plains etc. A baseline assessment of the settlements was also undertaken to provide a broad indication of spare capacity. This included:
- An assessment of the employment, school and utility infrastructure capacity of each Market Town, Larger Villages, new settlements and Cambridge;
 - An assessment of the employment balance in Cambridge and each corridor;
 - An assessment of likely transport investment needs and broad costs; and,
 - A broad assessment of town centre retail capacity and the general character/ability to absorb expansion of each Market Town.
- 1.3.5 Sites identified were assessed against the following:
- Environmental Capacity Assessment;
 - Accessibility to Existing Jobs, Schools, Shops and Public Transport;
 - Contribution to High Quality Public Transport (HQPT);

- Broad Investment Requirements of each Broad Location (two scenarios); and
 - Broad Implementability and Timing (two scenarios).
- 1.3.6 Sites were then allocated to each settlement sequentially, according to the settlement's priority for growth (see paragraph 2.3.4) and using the best scoring sites in order to reach the housing target.
- 1.3.7 The options were as follows:
- Option 1, **Cambridge City** – this option aimed to contain as much growth as possible within and around the edges of Cambridge City. To achieve this densities in this option were maximised in Cambridge and a large amount of development was concentrated on the urban fringe leading to significant development within the Cambridge Green Belt. A new settlement was located to the north east of the city and a small amount of development was also necessary in the market towns to meet the housing target.
 - Option 2, **Mixed Strategy** – this option provided an even spread of development throughout the sub region, allocating growth to Cambridge and around the market towns and larger villages, relieving pressure for development on the fringes of Cambridge city and within the Green Belt. A new settlement is located to the north west of Cambridge.
 - Option 3 – **Urban/Corridor/HQPT infrastructure investment** – this options aims to further relieve pressure for development in Green Belt through placing greater on emphasis on market towns and larger villages. In doing so, the approach was to focus growth along specific transport corridors that maximised the potential for the development of high quality public transport. Two sub options were developed – one allocating development to the Newmarket, Royston and Huntingdon Corridors and the other to the Newmarket, Royston and Haverhill corridors. Accordingly new settlements were located in the Huntingdon and Haverhill corridors where there were significant growth allocations.
- 1.3.8 Each option was tested using 9 sustainability criteria and 17 indicators, which included the use of a MENTOR/SATURN model to quantify transport impacts. Tests revealed different positives and negatives for each option, with no one option scoring consistently better or worse than the others. This is probably as a result of rigorous testing and constraints assessment process, which was undertaken as the basis for constructing the spatial options. The strategy adopted within the current Peterborough and Cambridgeshire Structure Plan was a reflection of how these positives and negatives were balanced. What is important in the context of this Study is not necessarily the results of the option evaluation process but that the identification and assessment of sites demonstrated that the sub region has significant capacity for growth both up to and post 2016.

LSC STUDY

1.3.9 The LSC Study identified four spatial options (termed as spatial patterns) which were tested using the three growth scenarios. The primary purpose of the spatial patterns was to demonstrate the broad direction of change required under each growth scenario and to highlight the potential impacts across the study area. The patterns were constructed by allocating growth to different parts of the sub region. These allocations were wholly notional and not based on identified sites or linked in any way to the capacity of specific locations to accommodate further development. A constraints assessment was undertaken in the study, but the results were used as a tool for testing the options and identifying potential impacts as opposed to directing/restraining growth in specific locations within the spatial options. The distribution of growth within the spatial patterns developed was not undertaken on a settlement basis, but reflected either districts or wider spatial locations, where appropriate. These included:

- Cambridge area;
- Stansted area;
- City/Docklands;
- Harlow;
- Braintree;
- Upper Lee Valley;
- Lower Lee Valley;
- Central rural belt; and
- London suburbs.

1.3.10 The four options were developed from a synthesis of spatial aspirations for the sub-region derived from a Stakeholder seminar (May 2001) and were defined, as follows:

- Spatial Pattern 1: **Continuity** – development largely following the existing settlement pattern and allocated to each settlement largely in proportion to their current size
- Spatial Pattern 2: **Regeneration** – development focused primarily on the Priority Areas for Economic Regeneration and other areas in need of regeneration.
- Spatial Pattern 3: **Economic Growth Poles** – development focused in areas close to or very accessible to the main centres of economic growth in the sub-region, including the Cambridge sub-region, Stansted and the eastwards extension of the City of London.

- Spatial Pattern 4: **New Towns and Settlements** – development of major new settlements or towns accommodating the growth in the sub-region linked to strengthening east-west links. The potential corridors identified with this option were A10/Cambridge/Letchworth – Hitchin rail line, A11/A505 and A120.

- 1.3.11 Each option was assessed for each growth scenario against a series of six criteria including transport, economy, social, environment, settlement pattern and delivery. The performance of the spatial patterns was then compared and from this evaluation process a series of conclusions were drawn.
- 1.3.12 In the enhanced growth scenarios, the spatial patterns which sought to concentrate growth around economic drivers, regeneration priorities or within new towns all performed well (albeit in different ways). Under the low growth scenario only the continuation of current spatial patterns and the concentration of growth around economic drivers were robust. It was concluded that the low scenario would be unable to provide enough growth to support development in regeneration areas, and growth would therefore continue to locate around the economic drivers. However because the analysis did not seek to allocate growth to specific locations or consider settlement capacity the ability to deliver these growth rates remains unclear.
- 1.3.13 Analysis of the new settlement option concluded that this option offers less flexibility in the face of variable and uncertain rates of growth. Once committed to a new town, there is the potential for abortive investment and social imbalance unless the level of planned growth can be achieved. In addition, it was concluded that new settlements in certain locations could effectively undermine regeneration and priorities through diverting investment to the development of wholly new urban areas.

STANSTED/M11 SUB REGION STUDY

- 1.3.14 In the Stansted/M11 Study, a judgement was made to base the spatial options on a 30-minute drivetime from the airport as this is where most of the indirect employment requiring regular access to the airport is likely to locate. It would therefore experience the greatest relative impact (in terms of population and employment) of the airport growth. This area was termed as the 'Core Area'.
- 1.3.15 The methodology for constructing the spatial options was similar to that used in the Cambridge sub region in that it sought to distribute housing and employment to specific sites, taking into account a settlement's capacity to accommodate further growth. However due to the timescales and remit of the study, this was undertaken on a more strategic basis. It was not possible to undertake a detailed site search and assessment. Instead larger 'search areas' were identified and broadly assessed for their capacity to accommodate development.
- 1.3.16 The spatial options were concentrated around the key transport corridors of the M11- from the Lower Lee Valley in the south to Sawston in the north, together with the A120 – from Braintree east to the A10 at Standon in the west. Large areas of search within the region of 900 – 2,000 ha were identified around existing settlements and along the M11 the A120 corridors as potential locations for new settlements.

- 1.3.17 The search areas were broken down into smaller sub areas, which were subjected to a desktop constraints assessment and detailed field survey to determine their environmental, heritage and landscape sensitivity. Areas were either considered suitable for development or recommended to be safeguarded due to the significant environmental impacts that would result from development. The assessment also quantified the scale and type of development that would be suitable in each area. In most cases only part of an area was able to accommodate development.
- 1.3.18 Overall out of a total of 50,000 hectares of land identified and assessed, only 4,600 hectares of land was considered capable of accommodating development without significant adverse environmental impact, 3,000 ha of which were located around existing urban areas and the remaining in the new settlement search areas.
- 1.3.19 The potential growth areas were then subject to wider sustainability testing to determine their priority for development and subsequent inclusion in the spatial strategies alongside an assessment of settlement capacity. The assessment of settlement capacity concluded that within the Core Area no one settlement has a clear priority for growth as all settlements have some constraints. Braintree, Chelmsford, Harlow, Great Dunmow and Loughton were assessed as having the most potential land with capacity, in comparison to Bishop's Stortford and Stansted Mountfitchet having some capacity and Sawbridgeworth, and Waltham Abbey having no capacity in environmental terms. This was reflected in the development of the spatial options.
- 1.3.20 Taking account of constraints identified three spatial options were identified, as follows:
- **Minimising environmental impact** – locating development in the potential growth areas that were least environmentally damaging;
 - **Transport corridors** – locating development along main transport corridors to Stansted to maximise the use of high quality public transport; and
 - **Regeneration/economic growth** – focusing development in areas most in need of investment and regeneration and to redress the imbalance between the labour force and number of jobs in certain locations.
- 1.3.21 The cumulative impact of each option was tested at each level of growth against 10 criteria relating to transport, the environment, and regeneration/economic development. Overall, the options involving minimal environmental impacts and transport corridors performed best in the lower growth scenarios. While the regeneration option helped to support economic development, it caused the most environmental damage. At the higher levels of growth environmental capacity on sites around settlements became exhausted. At these high levels of growth, the minimal environmental impact option resulted in the greatest increase in car trips, while scoring comparatively well overall. The transport corridor option scored comparatively well compared with the regeneration option because the development of new settlements sites along the corridors were a significant component of this option, and the locations of these proposed settlements were not as environmentally damaging as urban extension sites. The regeneration option continued to utilise sites that would cause adverse environmental impacts.

HARLOW OPTIONS STUDY

1.3.22 Four spatial options were identified in the Harlow Option Study:

- **Incremental dispersal** – development is spread proportionately around the main urban centres throughout the study area;
- **Satellite development** – spatial pattern of growth concentrated on new settlements outside Harlow;
- **Sub-regional urban focus** – recognising the role of Harlow as the major urban centre within the study region and building on its potential to create a higher order centre serving Essex and east Herts. All development concentrated within or on the edge of the town; and
- **Transport and regeneration led corridors** – concentrating development around improvements to the transport networks.

1.3.23 These four spatial options were evaluated against seven groups of criteria, which reflected the objectives of sustainable development. From this evaluation process two of the spatial options were selected and evaluated in terms of a selected range of impacts and costs. The testing of the options was highly subjective and there is no apparent evidence within the study that the physical expansion potential of Harlow has been defined or fully explored.

1.3.24 There is no mention in the report of analysis of movement. It is not clear how the transport demands of the two preferred options were assessed, and thus how the new infrastructure required for each option was determined and costed. The study assumed that Harlow would expand with its present bus system and identified the possibility of extending the central line to Harlow from Epping although there is no empirical evidence presented to support these proposals.

1.4 Conclusions

1.4.1 The review of methodologies used in the sub region studies highlights the following key issues in relation to this Study:

Scope of studies

1.4.2 Different growth scenarios have been developed within the LSC sub region area (including the Stansted/M11 study area) which serve to highlight what could be possible using different assumptions relating to housing and economic growth. The previous Peterborough Sub-region Study Stage 1 made no analysis of different growth scenarios in the north study area in Huntingdonshire and the Peterborough sub region. The Peterborough Growth Area Study (Stage 2) which was finalised at the same time as the final report for the LSCP growth area study has examined the capacity and demand of the Peterborough Growth Area to provide for the additional growth required by the sustainable Communities Plan to 2016 and growth required in the draft RPG14, however, these results have not been presented here.

- The strategic implications of various growth scenarios (where undertaken) have been demonstrated through the development and testing of spatial options which allocate different levels of growth to different locations.
- The spatial scenarios have served to quantify the scale of growth necessary in different locations to achieve particular economic and social objectives but only the Cambridge sub region study and Stansted/M11 study relate this back to the capacity of these locations to accommodate the growth in each scenario developed.
- The impacts of different combinations of growth in different areas have been assessed to determine their relative impact on sustainability using criteria relating to transport, economic development and the environment.
- All studies undertook constraints assessments but in the LSC study the results were used to determine impacts rather than influence growth scenarios. In the Cambridge sub region the Stansted/M11 study studies, constraints assessments were used to influence the amount of development allocated to different locations.
- The Cambridge sub region study and the Stansted/M11 study sought to quantify settlement capacity by identifying potential growth areas and their environmental capacity to absorb development and weighting this against other settlements constraints. These included retail constraints/town centre capacity, heritage issues, schools, health care, utilities (water supply), jobs/labour force balance, transport (public transport availability/capacity and urban congestion) and economic development/regeneration issues.
- None of the studies examined the local social impacts of development.
- All the studies (except for the Peterborough sub region study (stage 1) examined implementation issues but none of the studies considered the commercial viability or the ability of the construction industry to deliver the required rates of development.

Spatial scenarios growth potential conclusions

- Testing of the spatial scenarios within the various studies demonstrated a range of positives and negatives with no one spatial pattern having clearer advantages over others. Therefore, decisions will ultimately need to carefully balance priorities and there will be costs associated with any final strategy.
- The LSC study concluded that in growth scenarios, the sub regional growth poles would continue to experience growth within both high and low growth scenarios.
- Achieving regeneration within the LSC study area requires high growth rates to generate enough economic activity in the sub region to divert to areas where regeneration is a priority.

- Both the LSC Study and the Stansted/M11 studies identified an area of significant development potential extending in an arc from the Lower Lee Valley to Braintree incorporating Harlow, Bishop's Stortford, Great Dunmow and Braintree.
- The scenarios and spatial patterns developed in the LSC Study assume the success of the London Plan, and no increase in the relative level of commuting. The London Plan figures are ambitious and they rely on the development of brownfield land, which will be expensive to develop and service. If London fails to deliver the levels of housing aspired to then commuting and pressures to house commuters will increase.
- The LSC Study identified potential under the enhanced growth scenarios to develop a new centre that would be of a scale and significance that it would have links in its own right with other main centres in the UK economy and the wider EU region. It concluded that Harlow could be this centre.
- Then LSC study also highlighted the role and potential of the Upper and Lower Lee Valley in accommodating significant sub regional growth.
- The Upper Lee Valley and Harlow were identified in the Stansted/M11 study as having limited environmental capacity to absorb further development and therefore environmental capacity would have to be exceeded in these areas if regeneration priorities are to be realised.
- All studies (except for the Peterborough Sub Region Study) explored the potential for new settlements.
- In the Cambridge study a new settlement was required by RPG and the study provided an extensive evaluation of new settlements sites within the sub region. It identified 4 potential locations, including the site at Longstanton/Oakington, which has now been included within the Structure Plan.
- The Stansted/M11 study concluded that capacity around urban areas was sufficient to accommodate dwellings to 2021, even in the higher growth scenarios. The need for new settlements was evident however in the period to 2036 when the capacity around urban areas was exhausted. The study evaluated possible new settlement locations along the M11 and A120 corridors within 30-minutes drivetime of the airport.
- The LSC study considered the new settlements within one of its spatial options. It concluded that this spatial option works the best with the higher growth scenarios as in the lower growth scenarios new settlements could potentially undermine the regeneration of areas such as Harlow, the Lee Valley and the Thames Gateway and would take emphasis off the need to redevelop brownfield sites.

Capacity information

- Information on capacity is limited to the Cambridge sub region study area and the Core Area identified in the Stansted/M11 corridor study.

- The Cambridge sub region study identified land which was considered to have development potential to accommodate 36,000 dwellings. This was 14,000 more than the 22,000 dwellings required to 2016.
- There was significant capacity identified in the Cambridge Green Belt that could be developed without compromising main purposes of the Green Belt policy.
- There was also significant land identified within the Cambridge sub region market towns and their corridors.
- There is limited potential for growth within Cambridge City on land on the urban fringe outside the Green Belt boundary.
- The Stansted/M11 study identified a total of 4,600 ha of land, which had development potential, 3,000 of which were located around existing urban areas, and 1,600 within locations identified for new settlements.
- There was significant development potential identified in the A120 transport corridor close to Stansted, but in Harlow and the Upper Lee Valley environmental constraints were significant, which would require a 'trade-off' between environmental issues and regeneration priorities within these PAERS.

1.5 Key issues

- 1.5.1 The above review shows that the only the Cambridge sub region study and the Stansted/M11 study sought to link growth potential with capacity. Within these studies the methodology for determining settlement capacity has largely been environmentally driven. To a degree, this is because it can be quantified with a relatively high degree of certainty. Environmental resources are considered finite and therefore there is a clear limit after which its capacity has been exceeded. In the Cambridge sub region and Stansted/M11 studies a range of other factors, which it was considered influenced settlement capacity (although individually do not determine it) were also analysed. These included retail constraints/town centre capacity, heritage issues, schools, health care, utilities (water supply), jobs/labour force balance, transport (public transport availability/capacity and urban congestion) and economic development/regeneration issues. The extent to which environmental capacity actually determines settlement capacity requires judgement against these factors. Harlow is a case in point. All the studies undertaken in the LSCP growth area expressed both the social and economic benefits of allocating significant growth to Harlow in the future. The LSC study and the Harlow options study both point to the potential of Harlow to become a new sub regional growth centre and economic driver. However, the Stansted/M11 study clearly highlighted significant constraints around Harlow and development on the scale required to realise its potential would exceed the identified environmental capacity. The same can be said for the Lee Valley, which is also affected by significant environmental constraints, but is identified as a major opportunity for growth in the LSC Study. The methodology for this study needs to build in the opportunity to make such 'trade-offs' where it is necessary for the wider development objectives for the corridor to also influence development limits.

- 1.5.2 Infrastructure provision is also a key issue. The principles of sustainable development point to the efficient use of resources. Where possible, therefore, development should seek to locate where there is capacity over the need to invest in new infrastructure and services. Both the Cambridge sub region and the Stansted/M11 studies looked at this issue and aimed to identify where spare capacity existed within the study areas. However, the scale of development the strategies were seeking to accommodate meant that investment in new services and infrastructure was a pre requisite to development taking place at any location and it was assumed in both studies that identified needs would be met unless significant constraints to new investment had been identified. Even where infrastructure and service capacity is identified this must be weighted against other factors which determine a settlements suitability for development. For example, a settlement with schools places and spare water supply might not necessarily be the best location for development in terms of other factors such as transport and accessibility to employment areas. Growth can also make infrastructure provision more economically viable. A settlement may have a shortage of school places, which requires pupils to travel to other locations. Growth of a certain size to justify new provision would meet the existing shortfall as well as provide for the new population.
- 1.5.3 Heritage issues also act as a constraint to settlement capacity. Inappropriate overdevelopment will impact on historic settlements. This will influence the scale and location and design of development in these locations.

Table A4: Sub-region studies methodology comparison

Study Elements/ Methodology	Cambridge Sub Region	LSC Sub Region	Harlow Options	Stansted/M11 Corridor Options	Peterborough Sub Region
Terms of Reference	Vision and planning framework for the Sub Region to formulate and assess development options to accommodate projected growth in the sub region to 2016.	To provide advice and guidance on a sustainable framework for future strategic land use planning and transportation for the study area up to 2026 and beyond.	To identify the development potential of the area around Harlow over the period to 2021 and to set out a sustainable development framework to accommodate this growth.	To identify the urbanisation impacts arising from growth at Stansted Airport through projecting future employment and housing demand for various airport growth scenarios and highlighting the implications of accommodating this growth within the study area.	To identify whether there is a coherent Peterborough sub region, how is it spatially defined, the land use planning issues it faces and the required RPG policies to address them.
Study timescales	2001 - 2016	2001-2026	2003-2021	2001-2021 and 2036	2001-2021
Study Area Districts	Cambridge, South Cams, East Cams; parts of Huntingdonshire, Fenland, North Herts, Forest Heath and St Edmundsbury.	London boroughs of Enfield, Hackney, Newham, Redbridge, Tower Hamlets, Waltham Forest. Districts of Cambridge, South Cams, East Cams, Stevenage, Broxbourne, East Herts, North Herts, Braintree, Uttlesford, Chelmsford, Epping Forest and Harlow.	6 mile radius of Harlow town centre. Includes all of Harlow and parts of Epping Forest, East Herts and Broxbourne.	Cambridge, South Cams, East Cams, Broxbourne, East Herts, North Herts, Braintree, Uttlesford, Colchester, Chelmsford, Epping Forest and Harlow (same as LSC but excluding the London Boroughs and Stevenage and including Colchester).	Peterborough, Huntingdonshire, Fenland, Rutland, South Holland, South Kensteven and East Northamptonshire,
Settlements	Cambridge, Chatteris, St Ives, St Neots, Ely, larger villages and previously established new settlements (Bar Hill and Camborne).	Spatial analysis undertaken on a broader than settlement level. Included the Cambridge area, Stansted area, City/Docklands, Harlow, Braintree, Upper Lee Valley, Lower Lee Valley, central rural belt and London suburbs	Harlow, Waltham Abbey, Cheshunt, Hoddesdon, Ware, Chipping Ongar, North Weald Bassett and Epping.	Cambridge, Braintree, Halstead, Chelmsford, Colchester, Harlow, Great Dunmow, Saffron Waldon, Stansted Mountfitchet, Broxbourne, Cheshunt, Hoddesdon, Bishop's Stortford, Buntingford, Hertford, Sawbridgeworth, Ware, Baldock, Hitchin, Letchworth and Royston.	Peterborough, Spalding, Stamford, March, Wisbech, Bourne, Crowland, Holbeach, Oundle,

Table A4: Sub-region studies methodology comparison

Study Elements/ Methodology	Cambridge Sub Region	LSC Sub Region	Harlow Options	Stansted/M11 Corridor Options	Peterborough Sub Region
Growth scenarios explored	Only RPG growth rates to 2016 explored. Considered housing growth only. Sought to accommodate 22,000 dwellings (the residual need when committed development and windfall development was deducted from total housing need of 63,500 dwellings between 1996 and 2016).	3 growth scenarios developed - maximising economic development, enhanced RPG housing growth and continuation of current RPG growth rates. Considered both housing and employment.	4 growth rates from High to Low and the intermediate levels of growth in between. Considered housing and employment. High Intermediate and Low Intermediate were considered to be the most appropriate and these were used to develop different spatial patterns.	4 growth scenarios - maximum use of existing runway at Stansted Airport, together with options for 2,3 and 4 runways. Estimates presented for 2021 and 2036. Considered airport related growth plus underlying growth that is expected to occur in the Study Area. Considered housing and employment.	No growth scenarios considered - not a quantitative study. Looked at trend data for past and future but does not set sub regional growth targets.
Spatial options examined	3 spatial options centring on Cambridge, market towns and public transport corridors. While conclusions regarding each options were identified, no one spatial option was recommended, but the implications of each highlighted.	4 spatial options for each growth scenario. While each option were identified, no one spatial option was recommended, but the implications of each highlighted.	4 spatial patterns developed and assessed for the two preferred growth scenarios. 2 spatial options were recommended for the sustainable development of the study area and further developed to include an assessment of costs and delivery mechanisms.	3 spatial options for each airport growth option, concentrating airport related growth within a core area within 30 minutes drive of the airport, along the principal transport corridors. One option was then developed to identify specific impacts and implementation issues for each airport growth scenario.	No spatial options examined.

Table A4: Sub-region studies methodology comparison

Study Elements/ Methodology	Cambridge Sub Region	LSC Sub Region	Harlow Options	Stansted/M11 Corridor Options	Peterborough Sub Region
Constraints assessment	Considered environmental, transportation and infrastructure constraints in broad terms across the Study Area as well as for each spatial option/settlement. Landscape assessment and environmental assessment combined desk based research with field surveys.	Broad assessment of environmental and infrastructure constraints. SWOT undertaken. Not settlement specific and primarily a desk based exercise. Assessment of sustainability of spatial patterns based on subjective assessment, unrelated to specific locations.	Subjective assessment of the growth rates against broad strategic and regeneration criteria. No quantitative analysis evident.	Considered environmental, transportation and infrastructure constraints in broad terms across the study area as well as for each spatial option/settlement. Landscape assessment and environmental assessment combined desk based research with field surveys.	Very broad sub regional constraints identified. Very much based on current trends and a baseline analysis of strengths and weaknesses.
Location specific analysis	Sites were identified and their capacity to accommodate development was assessed on an individual basis. Different combinations of sites were then used in the spatial options, which were subject to further testing in terms of the impacts on individual settlements.	Spatial options involved the allocation of growth to districts/settlements. However, this was notional and not based on an assessment of the ability of those areas to accommodate growth. Impacts on broad non site-specific criteria was assessed.	Broad assessment of potential development sites on a location specific basis is provided using landscape, environment and 'buildability' criteria. Provided a high, medium or low graded impact. Impact on infrastructure only considered in the preferred option. Difficult to determine the basis on which the gradings for sites were provided. No background technical information provided.	Growth areas around settlements within the core study areas were identified and their capacity to accommodate development was assessed on an individual basis. Different combinations of growth areas were then used in the spatial options, which were subject to further testing in terms of the impacts on individual settlements.	Study did not consider growth potential or impacts on any settlements within the sub region.

Table A4: Sub-region studies methodology comparison

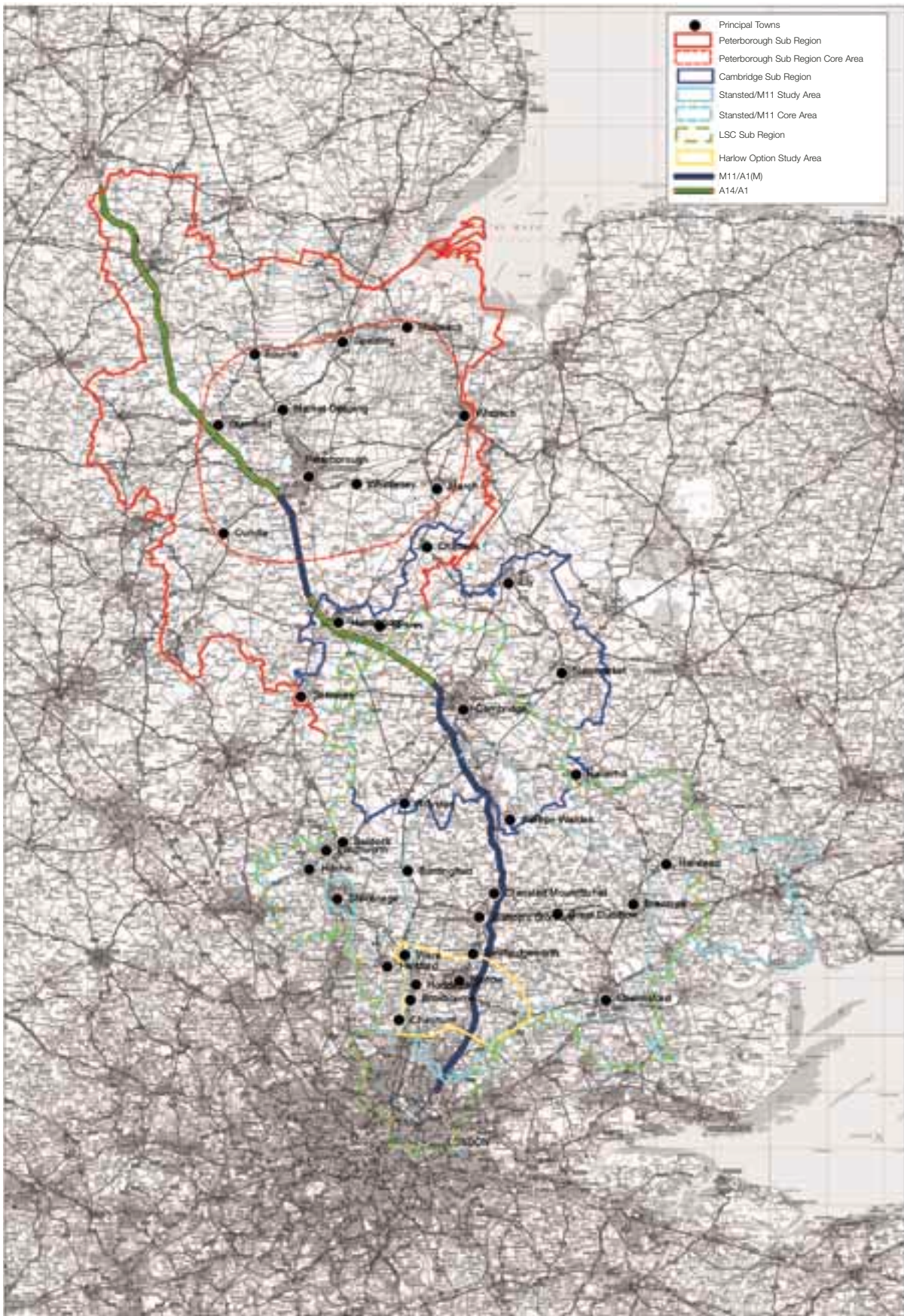
Study Elements/ Methodology	Cambridge Sub Region	LSC Sub Region	Harlow Options	Stansted/M11 Corridor Options	Peterborough Sub Region
Settlement capacity assessment	Settlements assessed in terms of capacity to absorb further development on the basis impact on environmental capacity, infrastructure (transport and utilities) and other services. Identification of new infrastructure requirements to provide for required growth levels.	Urban capacity studies were examined, but only 3 out of the 10 constituent local authorities had information available at the time. Settlement level assessment of broader capacity for development was not undertaken on a settlement level.	Subjective assessment of the ability of Harlow to accommodate the growth rates against broad strategic and regeneration criteria. No quantitative assessment evident.	Settlements assessed in terms of capacity to absorb further development in terms of environmental capacity, infrastructure (transport and utilities) and other services. Only settlements in the Core Area were allocated growth and included in the detailed evaluation process.	Settlement level assessment of capacity for future growth not undertaken. Settlements only considered in the context of a broad baseline assessment.
Consideration of new settlements	A new settlement was a requirement of RPG within the sub region and therefore featured in all options. Different locations for the new settlement was used for each spatial option examined.	One spatial option focused on new settlements but was not location specific. Highlighted locations that offered broader opportunities for a new settlement location.	One spatial option was focused on the development of new settlements.	New settlements considered in options when the potential for urban extensions without compromising environmental capacity had been exceeded. Search areas included the M11 and A120 corridors.	The issue of new settlements not considered.
Density assumptions	Based on sustainable residential quality. Range from 110 - 30 dph.	40-50dph according to growth scenario	33 dph	40 dph	N/A
Brownfield land assumptions	Study used identified urban capacity and also sought to identify (broadly) additional capacity within urban areas in the site identification and assessment process.	60-30% on brownfield land according to growth scenario.	Used existing UCS studies with build rates projected forward to 2021.	Based on identified UCS potential. Not projected.	N/A

Table A4: Sub-region studies methodology comparison

Study Elements/ Methodology	Cambridge Sub Region	LSC Sub Region	Harlow Options	Stansted/M11 Corridor Options	Peterborough Sub Region
Broad conclusions	The study demonstrated that there is significant capacity within the Cambridge sub region study area. The evaluation of the various spatial patterns showed that each pattern explored had a range of positive and negative elements across the range of criteria used and the relative priority of these positives and negatives was a matter of judgement on behalf of the local authority in deciding the strategy for the sub region.	That to achieve higher growth rates than a continuation of current trends would require a new direction in terms of the spatial locations for growth within the sub Region. Higher growth scenarios can be achieved under number of spatial patterns, which have different positives and negatives. There was major scope for east west links to realise potential and strengthen the Sub Region, decreasing its reliance on London, Harlow and the Lee Valley can play a significant part in accommodating and benefiting from future growth. Significant infrastructure investment required to make all levels of growth sustainable.	The study area should look to accommodate between 28,500 and 37,100 new dwellings and between 42,500 and 55,300 additional jobs to 2021 in order to become a sub regional growth centre and to assist regeneration. Concluded that the most sustainable way to accommodate this growth would be through focusing development around Harlow either in a concentric fashion, or through transport corridors.	The study concluded that to minimise the impacts of Stansted growth, development should be contained within a 30 minute drive time of the airport. Growth could be accommodated but environmental capacity would be exceeded to meet regeneration objectives in Harlow for all growth scenarios and in other locations for the high growth scenarios. Major investment in infrastructure was necessary in all scenarios to mitigate against negative transport impacts, to provide vital utilities and social services and facilities and in order to facilitate development and regeneration in areas of low demand.	Definable sub region centred on Peterborough and its surrounding market towns and villages. Key issues were to raise the profile of Peterborough particularly in comparison with other regional centres such as Milton Keynes, Cambridge and Leicester, which implies the need for greater levels of growth in the future. Confirmed the key role that other settlements need to play in this, one being for them to become more self contained, the other for better inter urban transport, which was considered a key deficit in the sub region.

Table A4: Sub-region studies methodology comparison

Study Elements/ Methodology	Cambridge Sub Region	LSC Sub Region	Harlow Options	Stansted/M11 Corridor Options	Peterborough Sub Region
Key data issues for ODPM Study	No alternative growth scenarios and limited to impacts to 2016. Good quantitative data, can obtain assessed capacity per settlement for each of the settlements considered in the study.	Broad impacts of different growth scenarios can be examined. No settlement level analysis/data.	Lack of quantitative data and empirical evidence to substantiate study conclusions and therefore limitations to how the data should be used as a definitive estimate of capacity. Furthermore, many contradictions with the findings of the Stansted/M11 Study, which assessed capacity in more detail, particularly for North Harlow and North Weald.	Can use broad study area assessment information. Detailed settlement information limited to the core area settlements, which exclude most of the settlements in Hertfordshire.	Large data gaps for this sub region. No growth scenarios or spatial options considered. No quantitative assessments undertaken. Any assessment of future growth can therefore only be made by adapting the policy principles recommended by the Study.



2. APPENDIX B:

Settlement growth potential methodology and results

2.1 Introduction

- 2.1.1 In devising spatial strategies it is not necessary to make site specific decisions, but is necessary to have developed a suitable level of understanding that enables strategic decisions on growth locations to be made. Locations in this respect mean either existing urban areas or new settlements.
- 2.1.2 This appendix provides the methodology used to assess the potential of settlements to accommodate additional growth, by means of urban extensions, in respect of their environmental and landscape sensitivity and also other planning designations. Urban extensions will be needed because the levels of growth likely to be required within the growth area cannot be met solely by means of urban capacity or brownfield land development. Table B1 provides detailed figures and explanation on urban capacity and supply figures. In addition, when considering large scale growth, urban extensions provide the opportunity to concentrate development in such a way so as to maximise the potential for public transport and provide the opportunity for an integrated approach to the provision of employment, community facilities and open space, which may not be viable if development was dispersed in a piecemeal manner.
- 2.1.3 This growth capacity assessment therefore identifies broad opportunities for settlements to grow as an input into the impact assessment and the development of spatial options on distribution of growth. Other inputs, the wider investigation, are an assessment of transport and traffic impacts, commercial property considerations and regeneration and planning aspirations.
- 2.1.4 The purpose of this settlement growth potential assessment is to provide the confidence necessary at the strategic level that chosen levels of growth at settlements can be achieved. It should be noted that this process is not intended to replace the local development framework preparation process and is not intended to form the basis of detailed site selection.

2.2 Use of previous studies: information base

2.2.1 This methodology, where possible, has used information and results from previous studies. This does not mean that results will be precluded by those studies but that information that is available will be used and that new information may need to be collected so that all options are considered from the same base. Previous studies undertaken in the LSCP growth area have examined, in varying detail, the ability of settlements to expand. Broadly, these can be summarised as follows:

- **The original LSC Study (2001)** did not consider growth areas (or sites), and only make recommendations on possible spatial patterns.
- **The Cambridge Sub Region Study (2000)** identified and appraised sites generally 5 hectares or larger.
- **The Stansted/M11 Development Options Study (2003)** was more strategic than the Cambridge Sub Region Study and only considered broadly the ability of settlements to expand and possible directions for that growth. Results, as far as possible from the Harlow Options Study were used to advise on potential options;
- **The Harlow Options Study (2003)** considered growth areas (and sites) but did not involve on site field analysis. The analysis of these areas was considered as part of a desk based study, which only considered a limited range of environmental and physical constraints. Results from the Harlow Options Study were used to advise on potential options, where possible;
- **The Peterborough Sub Region Study (2003)** did not consider sites or potential growth areas and only made broad recommendations on the ability of Peterborough to expand. More detailed site specific work is subject to a separate study that is currently being undertaken

2.2.2 There are differences both in the level of detail and study areas, which makes comparisons between studies difficult. It was therefore necessary for the methodology to address growth capacity consistently and to fill data gaps remaining from existing studies.

2.2.3 Evidence/results from previous studies considered appropriate and available for use settlement growth potential assessments, as follows:

Cambridge Sub Region Study

- The results of the detailed sites search and assessment work are considered robust and comprehensive so that results could be used to determine the growth potential of settlements. Hence, no further assessment work has been undertaken within the Cambridge Sub Region study area;

Stansted/M11 Development Options Study

- The landscape sensitivity assessments, which combined heritage and archaeological assets information with landscape character assessments to give an indication of the ability of the landscape to accommodate development. This technique was developed by Essex County Council and applied by Wardell Armstrong within the Stansted/M11 Development Options Study area and results are available for all of the LSCP growth area bar parts of Peterborough, Stevenage and Letchworth.
- The growth area appraisal work was therefore used to provide the basis for settlement growth potential assessment;

Harlow Options Study

- The study did not undertake on site appraisal work, and therefore no results, so far as settlement capacity assessment could therefore be used from this study.

Peterborough Sub Regional Study

- The study did not consider settlements ability to expand, and was based more on strategic opportunities.

Table B1: Completions and supply 2001-2003

Net Total Dwellings Supply at end of 2003 monitoring year												
a	b	c	d	e	f	g	h	i	j			
District/ Borough	Settlement	Completions 2001-2003	Extant Planning Permission at 1/4/03	Other Identified Sites			Strategic Allocations in Plans	Contingent Sites	Total supply plus Completions (sum cols a+g)	Identified Urban Capacity	Total Estimated Supply (sum cols h+i)	Notes
				Allocations in Local and Unitary Plans at 1/4/03	where principle of development accepted	Plans						
ESSEX	Braintree	1,306	928	0	144	0	0	1,072	2,378	751	3,129	The completions and supply data was provided by Essex County Council and represents an update from the AMR data provided to EERA. The urban capacity figures for Braintree are taken from the Eneic UCS (2004). This uses the constrained capacity (unconstrained for the district is 2,084 dwellings) for Uttlesford Urban Capacity Figures are being reviewed, Uttlesford Urban Capacity Figures are being reviewed, a satisfactory interim based on their 2002 UCS. Epping Forest figures for UCS taken from the EDWA study (constrained assessment). Harlow figure taken from the 2002 UCS for the district. The lower range figures have been used.
	Halstead	437	1,164	169	60	0	0	1,393	1,830	343	2,173	
	Witham	104	951	0	0	0	0	951	1,055	243	1,298	
	Chipping Ongar	506	697	946	477	2,309	0	4,429	4,935	684	5,619	
	Epping	11	48	0	1	0	0	49	60	90	150	
	Loughton	44	177	0	11	0	0	188	232	15	247	
	Waltham Abbey	60	107	0	101	0	0	208	268	0	268	
	Harlow	133	141	0	15	0	0	156	289	0	289	
	Uttlesford	252	1,809	1,927	104	0	0	3,840	4,092	768	4,860	
	Great Dunmow	538	19,665	7,051	2,408	7,287	0	36,411	36,949	1,316	38,265	
CAMBRIDGESHIRE	Stilton	63	783	505	43	0	0	1,331	1,394	472	1,866	
	Saffron Walden	104	115	67	10	0	0	192	296	709	1,005	
	Stansted Mountfitchet	60	72	600	7	0	0	679	739	135	874	
	Chatteris								3,584	2,516	6,100	Breakdown of total completions and supply provided by Fenland District Council as a total figure. Main difference accounted compared to the original figures provided from AMR data is due to the removal of an allocated sites in Whittesey for flooding reasons. UCS figures provided by Fenland DC based on an updated figures, which have not yet been published. These are discounted figures. The UCS figure excludes Eye Green and Eye which were a part of the Peterborough Growth Area Study Completions and supply data were taken from the EERA AMR for Huntingdonshire. Breakdown of totals provided by Hunts District Council. UCS figures provided by Hunts DC based on their 2003 Urban Capacity Study.
	Great Shelford	412	2,560	1,368	1,857	0	5,966	11,751	12,163	6,500	18,663	East Cambs Figure taken from Dec 2002 District UCS. Have used the constrained figure which takes account of development potential in 2016. The unconstrained figure was estimated at 4,965. The figure for South Cambs was provided by the county for capacity post 2016. UCS figure taken from 2002 urban capacity Study for Cambridge City, using the discounted potential dwelling capacity figure, which discounted total capacity on a site by site basis. The figure of 6,531 quoted as overall capacity within the UCS takes account completions, PPs, and S106 sites, which have already been counted within this assessment.
	Littleport								0	0	0	
	Stilton								0	0	0	
	Northstowe								0	0	0	
	Swanton								0	0	0	
	Cambridge City	Swanton	6,272	19,709	13,343	3,060	36	16,366	52,534	58,806	3,761	62,567
HERTFORDSHIRE	Broxbourne	310	1,139	696	70	0	0	1,905	2,215	2,319	4,534	
	Cheshunt	160	23	0	0	0	0	23	91	0	91	
	Hoddeston	41	151	336	70	0	0	557	598	0	1,268	
	Bishop's Stortford	1,392	1,626	1,423	0	2,220	4,000	9,269	10,661	5,040	15,701	
	Ware	128	206	802	0	2,000	0	3,008	3,136	0	3,136	
	Herford	256	237	105	0	50	0	412	668	0	1,080	
	Buntingford	381	213	161	0	170	0	544	925	0	925	
	Swadlowworth	20	28	85	0	113	0	113	133	0	133	
	North Hertfordshire	1,328	2,063	1,151	133	0	100	3,447	4,175	2,104	6,879	
	Stenage	15,927	n/a	n/a	n/a	n/a	n/a	n/a	177,327	37,385	214,712	3,186

Notes
Settlement totals do not add up to District figures as other settlements under 5,000 population are accounted for in the District total
Strategic Allocations and Contingent Sites
West Stevenage expansion is not included within North Hertfordshire or Stevenage Borough Council's supply figures.
Bishops Stortford. The Local Plan identifies ASP's which are to be made available for development should more than 15mppa be allowed at Stansted, and hence are shown here as part of supply. These are not included in the emerging Local Plan. This capacity is included in supply.
Harlow. These Special Restraint Areas are identified the Structure Plan and identified within the emerging Local Plan to meet development needs that arise as a result of the RPG 14 (RPG14), which will be in turn influenced by the LSCP study. This capacity is included in supply. Details of capacity are contained in AMR data and needs to verified.

2.3 Districts and stakeholder workshop information

Stakeholder workshops

- 2.3.1 Two stakeholder workshops were held as part of the study process, one for Cambridgeshire/Peterborough Districts and one for Essex and Hertfordshire Districts. The purpose of the stakeholder meetings was to obtain information and advice from participants on the data used, the issues raised from Districts and on the manner in which information was used. It was proposed that the following areas and matters were to be discussed:

PLANNING AND ENVIRONMENT

- To identify and agree the extent of absolute and partial constraints that affect the ability of each settlement to expand;
- To discuss our conclusions on the ability of settlements to expand taking into account building rates, environmental capacity and other planning and service constraints; and
- To discuss possible ranking/prioritisation of areas and settlements for growth.

TRANSPORT

- To discuss and identify current and anticipated constraints on the transport network; and
- To identify and then discuss potential/proposed infrastructure schemes that will affect settlement capacity and/or travel patterns, both strategically and locally.

ECONOMIC/COMMERCIAL

- To identify and discuss the ability of settlements to attract economic growth.

Process

- 2.3.2 Following a short opening and presentation by Colin Buchanan and Partners which included a description of the objectives and format of the workshop, participants were asked to form small groups to consider the above. Questions were also set to facilitate and lead the discussion.
- 2.3.3 It was made clear that whilst data is being sought on a site by site basis, the outputs to the study will be derivation of certainty that settlements are capable of expanding. The output of the analysis is not intended to indicate potential growth areas, or directions of growth, but only the scale of growth that is proposed to be achieved at particular settlements. The exact manner in which it is achieved would be the subject of subsequent work by local authorities in their development plans.
- 2.3.4 Each group was issued with maps of settlements and information showing how settlement capacity has been derived. Data on traffic issues and economic and commercial issues were also provided. Validation of information was sought from attendees. Comparisons of the merits of different strategic locations for development was also discussed.

- 2.3.5 Basic conclusions from the analysis were then drawn and then reported back to the whole workshop group. The purpose of reporting back was to demonstrate to attendees that their input to the study is an essential step in the process of testing RPG14 and testing the potential for future expansion beyond RPG14 figures.
- 2.3.6 A member of the consultant team was posted at each table to facilitate discussion, to ensure that all matters were considered and that there was a balanced debate across all issues. Facilitators were not drawn into discussions, but allowed the attendees to make informed judgements pertinent to the study in response to the questions asked. Facilitators ensured that the technical issues and merits of discussion were correct and appropriate. Facilitators were to note all issues raised in discussions.
- 2.3.7 After feedback from individual groups, Colin Buchanan and Partners closed the session, explaining the next steps of the study and programme. It was also made clear that additional comments and information on maps supplied and analysis was welcomed.

Responses from stakeholders

- 2.3.8 Following the second district level workshop a number of stakeholders asked that the extent of search areas be varied and identified a number of constraints or factors that will influence the ability of settlements to grow. A full record of those was originally distributed in draft with the Technical Paper: Distribution of draft RPG housing growth and additional 18,000 dwellings in April 2004. That same paper also explains how stakeholder comments have been used to determine the location of new growth within the current draft RPG14 growth assumption. With regards settlement potential the following comments are notable:
- East Cambridgeshire provided a detailed landscape capacity assessment study of Ely, which, identifies 52 ha of land that could be developed without harming the settlement's historic character or setting. Therefore, capacity figures provided by the Cambridge Sub Region Study were updated using the new capacity figure.
 - Huntingdonshire District Council have also undertaken a more detailed assessment on environmental and landscape constraints. It is proposed that these results are also used to update the Cambridge Sub Region. In addition, settlements not considered in that study have been assessed, which have also been used. The results from this analysis have been used to obtain capacity figures for all settlements within Huntingdonshire.
 - Harlow, Epping Forest and East Hertfordshire provided information on the extent of growth areas in respect of Harlow Epping Forest and Loughton.
 - Stevenage provided an assessment of urban extension area.

Gap Areas

- 2.3.9 Settlements that were not subject to detailed growth assessments within the Stansted/M11 Development Options Study or within the Cambridge Sub Region Study are as follows:

Table B2: Gap area settlements

Wisbech	Soham	Chigwell
March	Chatteris	Buntingford
Whittlesey	Cambourne	Letchworth
Yaxley	Peterborough	Hitchin
Ramsey	Halstead	Baldock
Sawtry	Witham	Stevenage
Brampton	Chipping Ongar	Broxbourne (west of A10)
Littleport	Epping	Cheshunt

Note: Results from the environmental and landscape constraints assessment undertaken for Huntingdonshire District Council was used for Yaxley, Ramsey, Brampton and Sawtry.

- 2.3.10 Within the above settlements, information on the ability of the settlements to grow needed to be collected. These settlements are referred to below as gap area settlements.

2.4 Methodology

Overall Approach

- 2.4.1 The overall approach to the environmental constraints assessment is provided below in summary form:

1. Delineate search areas

- Identify location of absolute constraints
- Delineate search areas:
 - Avoiding absolute constraints as far as is possible,
 - But where absolute constraints only comprise a small area and do not obviously prevent development from occurring then adjust areas of search to wrap around constraints.

2. Assess search areas

- **2.1: Partial constraints assessment**
 - Identify location and extent of all partial constraints
 - Categorise search areas according to how partial constraints affect search areas, as follows:
 - A** – areas where no partial constraints are present
 - B** – areas affected by only one partial constraint
 - C** – areas affected by overlapping (two or more) constraints.

In categorising search areas, to identify potential of settlements to grow, only areas that are adjacent to settlements, form a logical and not incongruous extension and where clearly road access potential exists (comprising an A or B road) are considered. Thus, parts of search areas with no constraints, but that are not adjacent to settlements, do not form a logical boundary or where no road access exists are not considered developable. The potential of the search area may be hindered by one, two or more partial constraints.

- **2.2: Landscape sensitivity**

- Identify the level of landscape sensitivity for the search areas (derived from Stansted/M11 Development Options Study (see paragraph 1.2.3), as follows:
 - High
 - Moderate/High
 - Moderate
 - Low/Moderate

- **2.3: Combine landscape and partial constraints assessment results**

- Combine scores (see matrix below) to classify potential of search areas as follows:
 - Minimal probable environmental impacts – Highest potential capacity
 - Some environmental impacts – Moderate potential capacity
 - Significant environmental impacts – Lowest potential capacity

- **3. Calculate settlement and district potential**

- Add up total capacity by type of potential (highest, moderate, lowest) by settlement and then by district

2.4.2 Individual elements of the above process is explained in detail below.

Task 1: Delineate search areas

2.4.3 Areas of search were identified using 1:50,000 Ordnance Survey maps around gap area settlements, i.e. those that were not investigated as part of the Stansted/M11 Development Options Study or the Cambridge Sub Region Study, as identified in table B2 above.

2.4.4 The criteria for identifying areas of search are, as follows:

- Avoid absolute constraints (see below)
- Avoid/restrict potential for coalescence of settlements;
- Be accessible by one or more roads (A or B roads);
- Boundaries of search areas are delineated by the edge of settlements and a natural/physical boundary such as a road, railway, or river/water body;
- Extent of search areas not to represent an incongruous extension of a settlement;
- Avoid natural site specific development constraints e.g. topographical constraints.
- Search areas should not be too large as compared with settlement

Absolute constraints

2.4.5 Absolute constraints are considered to be areas or assets that would preclude development in the following manner:

- Assets and areas that are recognisable as national or international important features identified within national planning policy guidance and that could not be development upon without significant adverse impact to the historical or environmental landscape;
- Physical constraints that would be detrimental to residents quality of life and health i.e. flood risk areas, noise and landfills; or
- Landuse constraints such as cemeteries, mineral workings and committed sites within local plans.

2.4.6 Such areas should not be delineated within search areas, however, where absolute constraints are small in size then it was assumed that development could be achieved in a satisfactory manner using parts of the area which avoid those constraints, with an appropriate buffer area. Therefore, where search areas contain small areas of absolute constraints, the size of the search area is reduced to encompass such areas.

2.4.7 A list of absolute constraints were contained in the Technical Paper: Settlement Capacity Assessment – Evidence Base which was distributed to the technical steering group and district stakeholders in March 2004. Comments received from stakeholders have been considered to define the ultimate list. Absolute constraints are as follows:

Table B3: Absolute constraints	
Constraints	Comments
Airport Noise Zones	Land areas located within the 57 dB(A) Leq and above noise contour. PPG24 (Annex 1) states that within the 72 dB(A) Leq (day exposure) or higher noise contour no noise sensitive development should be allowed. The PPG advises that 57 dB(A) Leq noise contour represents the onset of annoyance and should not be considered as desirable. The Stansted/M11 study identified this constraint as an absolute constraint. Hence, overall, it is proposed to be retained as an absolute constraint. In order to identify the extent of noise contours, it is assumed that plans outlined within the Airport White Paper will come forward for both Stansted and Luton Airports. This is not to say that those proposals will be implemented, but recognises that they might. A GIS layer was provided for the noise contours at Stansted Airport at its proposed passenger level in the White Paper, however, hard copy maps from the SERAS Report were used for Luton Airport for its proposed passenger level.

Table B3: Absolute constraints – continued

Constraints	Comments
Fluvial and Tidal Flood Plain	PPG25 advises that Environment Agency flood plain maps indicate areas, which could be affected by flood events. General information has been used on the 100 year fluvial and tidal floodplains. Detailed assessments on zoning have been supplied by Fenland and have been used within the assessment. PPG25 identifies category 3b and 3c as not suitable for residential development and has therefore been considered to be an absolute constraint. Peterborough Council also provided their Strategic Flood Risk Assessment on proposed local plan allocations. Even though flood risk zones were not identified within this study, it identified areas, which may be protected to indicative standard, subject to carrying out of further works. Therefore, we have assumed that land within this definition can be excluded from being an absolute constraint.
Historic Parks and Gardens	In accordance with PPG15 comprehensive redevelopment proposals of Historic Parks and Gardens are not considered appropriate.
Nature Conservation Areas	Areas designated as SSSI, NNR, RAMSAR, cSAC, SPA, AONB – in accordance with a range of EU and national legislation, including PPG9.
Scheduled Ancient Monuments/Ancient Landscape	In accordance with PPG16
Minerals sites	In accordance with PPG1 and MPG1 (this excludes worked and restored sites within Essex and Hertfordshire). Following Stakeholder workshops, it was noted that some sites within Essex and Hertfordshire have been worked and are now restored. Therefore a revised minerals GIS layer was supplied for Essex and updated maps were obtained from the adopted and second deposit draft minerals local plan for Hertfordshire.
Cemeteries	In accordance with PPG1, which are located on the 1:50,000 OS maps and varied by Local Plans.
Existing commitments	Local Plan sites with planning permission and other committed development sites are omitted from areas of search. Where appropriate, details of those proposals have been provided, for example details of the Baldock Bypass was provided by North Hertfordshire. In addition, commitments were updated and verified against adopted and emerging local plans and the GIS layers were updated accordingly to reflect these changes.
Landfill sites	Active/unremediated landfill sites were assumed to be precluded from development.
Lee Valley Park	Lee Valley Park was excluded from development.

- 2.4.8 Epping Forest District Council has indicated that Epping Forest should also be an absolute constraint. Whilst it had not been considered as an absolute constraint for the purposes of delineation of search areas, because the Forest is designated as a SSSI and or a cSAC, which are absolute constraints, most of the Forest has not been included in any of the areas of search, apart from a small area at Waltham Abbey. On the basis of the concentration of partial constraints and high landscape sensitivity, this area would not be recommended for development.

2.5 Task 2: Assess search areas

- 2.5.1 This task firstly considers how areas of search are affected by partial constraints and secondly by landscape sensitivity. The assessments are then combined to determine the potential to accommodate development.

Task 2.1 Partial constraints assessment

- 2.5.2 Identification of partial constraints was undertaken using map overlays on GIS and relevant Local Plan proposals maps for each of the search areas. Details including size were then entered into a matrix for further consideration. Partial constraints do not necessarily preclude development from taking place, but can increase the impacts caused by development, reduce capacity of sites and can cause implementation difficulties. The degree of constraint varied, therefore, each growth area was assessed individually.
- 2.5.3 The partial constraints were identified in the Technical Paper: Settlement Capacity Assessment – Evidence Base that was distributed to the technical steering group and district stakeholders in March 2004. The final list of partial constraints, following comments from Stakeholders is, as follows:

Table B4: Partial constraints	
Constraints	Comments
Airport Safeguarding Zone	Safeguarding Zones place height restrictions on development around airports, restrict development that will attract birds, e.g., landfill sites and restrict road development within 3km of a runway.
Areas affected by airport noise	Areas located within the 54 dB(A) Leq, may be affected by airport noise in accordance with paragraph 5 of PPG25. As with the 57 dB(A) Leq, (absolute constraint) the extent of noise contours have assumed that the proposals within the White Paper are implemented. This is not to say that those proposals will be implemented, but recognises that they might. Hard copy maps from the SERAS Report were used for both Luton and Stansted airports.
Public Open Space and Playing Fields	Including Country Parks, Regional Parks and Common Land, and playing fields. However, no digitised GIS layers were available for playing fields therefore Local Plans have been used to identify and locate such areas for the assessment.
Local Nature Reserves (LNRs)	In accordance with PPG9.
Local Archaeological Areas	Including conservation areas, areas of archaeological significance and archaeological areas. However, no digitised GIS layers were available for areas of archaeological significance and archaeological areas therefore Local Plans have been used to identify and locate such areas for the assessment.
County Wildlife sites	Including areas of Ancient Woodland.
Other Woodland	Including County woodland.
Green Belt	In accordance with PPG2.

Table B4: Partial constraints – continued

Constraints	Comments
Source Protection Zones – (Inner)	The Environment Agency has defined Source Protection Zones (SPZ) as sources used for public drinking water supply. The SPZ provides an indication of the potential risk of pollution. Development that would be liable to cause contamination of groundwater will not be permitted unless effective safeguards are implemented. Source protection zones were downloaded from the Environment Agency Web site and subsequently verified maps on their web site.
Flood Risk Zone – 2 and 3A	Development on these areas can only be permitted once a Flood Risk Assessment has been carried out.

- 2.5.4 Best and Most Versatile land (BMV) data supplied by DEFRA (March 2003) only provides details of BMV as a best available estimate of agricultural land quality. The data categorised land into bands where the highest quality of land banding showed that 60% of land is located within the BMV grading (Grade 1, 2 and 3a). This designation affected most of the areas of search and was not suitably detailed to enable an accurate assessment of the search areas. DEFRA indicate in their advice that the information should not be used for site specific assessments. As a consequence, this constraint was deleted from the partial constraints assessment.

CATEGORISATION OF PARTIAL CONSTRAINTS

- 2.5.5 Each search area was categorised according to how partial constraints affect search areas. The categories were:

A – areas where no partial constraints are present

B – areas affected by only one partial constraint

C – areas affected by overlapping (two or more) constraints.

- 2.5.6 In categorising search areas, only areas that are adjacent to settlements, form a logical and not incongruous extension and where road access potential exists (comprising an A or B road) is considered. Thus, parts of search areas with no constraints, but that are not adjacent to settlements, do not form a logical boundary or where no road access exists are not considered developable. The potential of the search area may be hindered by one, two or more partial constraints.

Task 2.2: Landscape sensitivity

- 2.5.7 Each of the search areas were then assessed for their landscape sensitivity. Landscape sensitivity categorisation from the Stansted/M11 Development Options Study were used to classify the search areas as follows:

- High
- Moderate/High
- Moderate
- Low/Moderate sensitivity

2.5.8 The methodology for determining sensitivity of landscapes to absorbing major urban development was developed by Essex County Council, which is essentially based on landscape character areas degree of openness/intervisibility and their physical characteristics. Wardell Armstrong extrapolated this method to Cambridgeshire and Hertfordshire in the Stansted/M11 Development Options Study. A full methodology is provided in the Key Issues Report (Stage 2 Report) of that Study.

2.5.9 However, information gaps exist for parts of Stevenage, Peterborough and Letchworth as they were not a part of either study areas.

Task 2.3: Combine landscape sensitivity and partial constraints assessment results

2.5.10 To combine the results from the two different tests to achieve an overall score for each search area, a matrix was developed to levels of probable impacts, either high, medium or minimum impacts should development be achieved, as follows:

Table B5: Scale of impacts given partial constraints and landscape sensitivity				
Landscape sensitivity		Environmental and planning designations constraints		
		No constraints	Some constraints	Many constraints
	Low/moderate landscape sensitivity	Minimal probable impact	Some impacts	Significant impacts
	Moderate sensitivity	Some impacts	Some impacts	Significant impacts
	Moderate/high sensitivity	Some impacts	Significant impacts	Significant impacts
	High sensitivity	Significant impacts	Significant impacts	Significant impacts

2.5.11 According to the scale of impacts that development would cause, the ability of search areas to accommodate growth is, as follows:

Minimal probable environmental impacts Highest potential capacity

Some environmental impacts Moderate potential capacity

Significant environmental impacts Lowest potential capacity

Results from Cambridgeshire Sub Region Study

2.5.12 The results from settlements and sites within the Cambridgeshire Sub Region Study were categorised as follows:

- Capacity for development identified – highest potential capacity to accommodate growth
- No capacity development – lowest potential capacity

OTHER ASSESSMENTS

2.5.13 For settlements within Huntingdonshire and for Ely, the capacity figures provided by the Districts environmental/landscape assessments were treated as highest potential capacity.

2.6 Calculate settlement and district potential

2.6.1 The results from the above assessments are added up to provide totals for settlements and then again for districts. Results of the assessment by District and settlement are provided below (with and without Green Belt) as number of dwellings:

Table B6: District and settlement potential capacity for development

		Settlement Impact (dwellings)					
District/ Settlement	Area Assessed (dwllgs)	Without Green Belt			With Green Belt		
		Minimal environmental impact	Some environmental impact	Significant environmental impact	Minimal environmental impact	Some environmental impact	Significant environmental impact
Braintree	140,908	0	56,753	84,155	0	56,753	84,155
Braintree	118,566	0	47,346	71,220	0	47,346	71,220
Halstead	15,211	0	3,687	11,524	0	3,687	11,524
Witham	7,131	0	5,721	1,411	0	5,721	1,411
Other Areas							
Epping Forest	113,233	0	13,112	100,121	0	12,980	100,253
North Weald Airfield	13,112	0	13,112	0	0	12,980	131
Chipping Ongar	4,372	0	0	4,372	0	0	4,372
Epping	16,772	0	0	16,772	0	0	16,772
Loughton	1,326	0	0	1,326	0	0	1,326
Chigwell	4,362	0	0	4,362	0	0	4,362
Waltham Abbey	73,290	0	0	73,290	0	0	73,290
Other Areas							
Harlow	57,017	0	17,513	39,505	0	11,122	45,896
Harlow	35,282	0	6,057	29,226	0	4,434	30,848
Harlow Expansion	21,735	0	11,456	10,279	0	6,687	15,048
Uttlesford	64,117	1,151	7,388	55,578	1,151	7,388	55,578
Great Dunmow	33,113	0	7,388	25,725	0	7,388	25,725
Saffron Walden	2,299	1,151	0	1,148	1,151	0	1,148
Stansted Mountfitchet	28,705	0	0	28,705	0	0	28,705
Other Areas							
Fenland	21,690	0	11,260	10,430	0	11,260	10,430
Chatteris	3,681	0	2,782	899	0	2,782	899
Whittlesey	600	0	360	240	0	360	240
Wisbech	11,598	0	6,493	5,105	0	6,493	5,105
March	5,811	0	1,624	4,187	0	1,624	4,187
Other Areas							
Peterborough	31,836	21,476	10,360	0	21,476	10,360	0
Huntingdonshire	10,245	10,245	0	0	10,245	0	0
Huntingdon	0	0	0	0	0	0	0
Godmanchester	750	750	0	0	750	0	0
Ramsey	2,190	2,190	0	0	2,190	0	0
St Ives	180	180	0	0	180	0	0
St Neots/Eaton Socon	5,400	5,400	0	0	5,400	0	0
Yaxley	660	660	0	0	660	0	0
Sawtry	735	735	0	0	735	0	0
Brampton	330	330	0	0	330	0	0
Other Areas							
East Cambridgeshire	9,767	1,584	8,183	0	1,584	8,183	0
Ely	1,584	1,584	0	0	1,584	0	0
Soham	2,443	0	2,443	0	0	2,443	0
Littleport	5,740	0	5,740	0	0	5,740	0
Other Areas							
South Cambridgeshire*	71,591	4,391	12,968	54,232	4,391	12,968	54,232
Cambridge fringe	31,967	105	0	31,862	105	0	31,862
Great Shelford	2,126	1,166	0	960	1,166	0	960
Histon	1,647	855	0	792	855	0	792
Northstowe New Town (Oakington/Longstanton)	20,181	0	0	20,181	0	0	20,181
Sawston	2,265	2,265	0	0	2,265	0	0
Cambourne	13,405	0	12,968	437	0	12,968	437
Other Areas							
Cambridge City*	25,518	120	0	25,398	120	0	25,398
Broxbourne	12,997	2,059	9,558	1,380	0	6,700	6,297
Broxbourne	2,103	0	1,415	688	0	425	1,678
Cheshunt	7,212	2,059	4,650	503	0	3,327	3,885
Hoddesdon	3,682	0	3,493	189	0	2,948	734
Other Areas							
East Hertfordshire	62,395	0	14,871	47,524	0	6,989	55,406
Bishop's Stortford	31,839	0	7,881	23,958	0	0	31,840
Buntingford	6,491	0	3,022	3,469	0	3,022	3,469
Hertford	15,870	0	3,968	11,903	0	3,968	11,903
Ware	8,195	0	0	8,195	0	0	8,195
Sawbridgeworth	0	0	0	0	0	0	0
Other Areas							
North Hertfordshire	25,333	4,911	2,508	17,914	1,193	3,718	20,422
Letchworth	5,312	3,718	1,594	0	0	3,718	1,594
Hitchin	6,935	0	0	6,935	0	0	6,935
Baldock	11,382	0	914	10,468	0	0	11,382
Royston	1,704	1,193	0	511	1,193	0	511
Other Areas							
Stevenage	23,401	2,435	6,873	14,092	0	7,957	15,443
Stevenage	12,661	2,435	5,262	4,963	0	6,346	6,314
Stevenage W. Expansion	10,740	0	1,611	9,129	0	1,611	9,129
TOTALS	670,047	48,372	171,345	450,329	40,160	156,378	473,509
% increase		120%	110%	95%			
Difference between With and Without		8,213	14,967	-23,180			

* Capacity results for Cambridge and South Cambridgeshire are based on the CSRS and hence it has not been possible to exclude Green Belt from results
Note:

The expansion of Stevenage beyond district boundary, excluding Stevenage West as at call inquiry, has been included within the Stevenage Borough total.

Harlow total includes expansion within Epping Forest and East Hertfordshire.

Letchworth and some sites within Peterborough and Stevenage do not have landscape sensitivity data.

Some sites within Broxbourne have no information on landscape sensitivity as within defined urban areas (not a character area).

3. APPENDIX C:

Employment forecast methodology

3.1 Methodology

- 3.1.1 The methodology employed in forecasting employment involves two distinct procedures. On the face of it, these appear reasonably similar, although changes in assumptions regarding the long-run supply-side position of the East of England economy yield significantly different results.
- 3.1.2 Experian Business Strategies baseline forecasts are built around ‘shift-share’ models, which rely on past relationships between an industries’ performance at local and regional level. The necessary equations are fitted over historical data, and as such the specifications of all equations used in the forecasting process are consistent through each scenario. Forecasts for the geographically larger area are then used in the equations specified to drive forward local-level output forecasts. The principal behind this technique is applied in turn to smaller geographic units, in this case the local/unitary authorities of East of England.
- 3.1.3 In all of Experian Business Strategies forecasts, at present, data up to and including 2001 quarter 4 is defined as history and is used in our model specifications. More recent data may be provisional and/or of undetermined quality and so is omitted from equations.

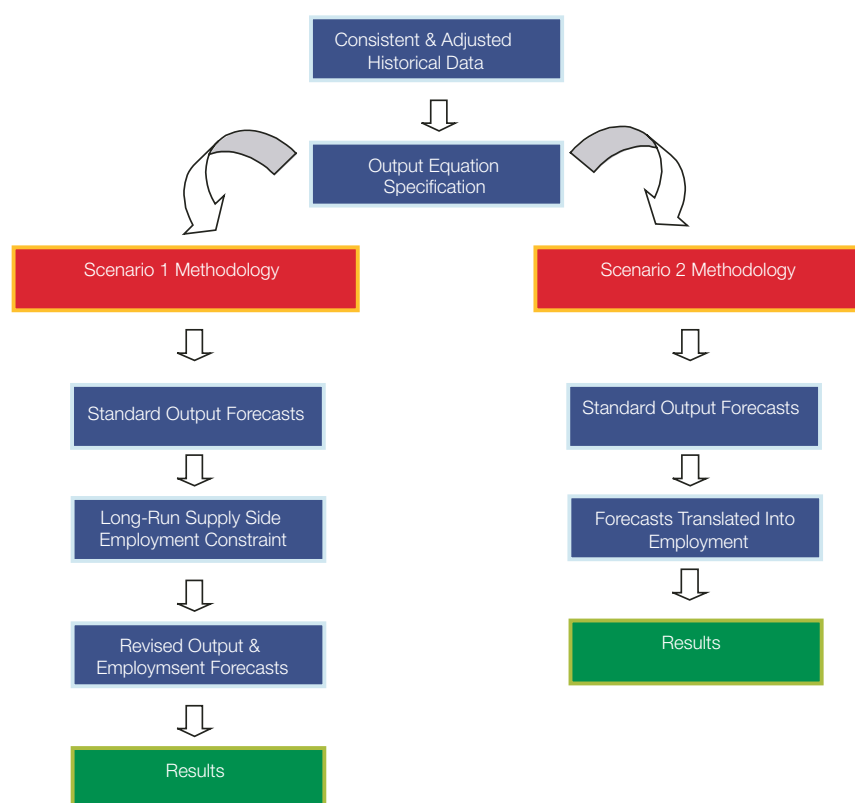
3.2 Baseline/‘business as usual’ forecasts

- 3.2.1 The first methodology employed here is based around the imposition of long-term¹ supply-side constraints on employment for East of England. Experian Business Strategies shift-share models are then utilised, to obtain forecasts of output for East of England as a whole (as a function of forecasted output by industry for the South East).

1 Long-term here denotes the period up to 2021.

3.3 Scenario 1 – relaxing long-term supply-side constraints

- 3.3.1 The second methodology used is based around the relaxation of the aforementioned long-term supply-side constraints on employment for the East of England. Essentially the outputs of our shift-share models are treated as final forecasts. Under the baseline methodology, each county within the East of England would be constrained at this point (specifically to the long-term employment view) to afford internal consistency with published data.
- 3.3.2 As a result of this approach, the industries responsible for driving the East of England economy are able to grow at the rate indicated by trends in historical data and regional forecasts. This is synonymous with allowing the East of England economy to grow free from usual long-term supply-side constraints, such as those created by limits on infrastructure, available skills and working age population.
- 3.3.3 In addition, this scenario also uses estimates of population in shift-share modelling. Although the theoretical basis of unconstrained growth requires no constraint on population and this is achieved through the relaxation of the long-term constraint, it is necessary to include a finite population variable in many of our shift-share specifications. For this purpose Experian Business Strategies standard population forecasts based on ONS data have been used.
- 3.3.4 The upshot of the overall methodology is that we are able to offer a ‘what if?’ scenario based around the relaxation of these constraints. A priori expectations are that the relaxation of the constraints will lead to faster employment growth in this scenario than in the baseline.
- 3.3.5 A simplified diagrammatic representation of the methodology is shown below.



3.4 Scenario 2 – East of England entering the top 20 European regions in terms of GDP per head by 2021

- 3.4.1 The third methodology (“enhanced growth”) used, employs the baseline forecasts as the starting point. The likely increases in productivity and exports that would be required for the region to achieve the stated goal of becoming one of the top 20 European regions in terms of GDP per head by 2021 is then modelled. In the baseline forecasts the Eastern region is ranked 28th.
- 3.4.2 A number of key sectors for the Region were identified (Life Sciences, Hi-Tech Manufacturing, Automotives, Financial and Business Services, Agriculture and Food Processing, Transport Gateways, ICT, Media and Cultural Activities and Tourism, Leisure and Heritage). These sectors were, therefore, targeted with the model as the source for the productivity uplift, while other sectors were left unchanged in the model. The model operates at the standard two digit SIC code classification (that is a 58 industrial breakdown), which do not exactly correspond to the above definitions. Increases in the industrial productivity performance in the model were imposed mindful of the following considerations:
- The contribution of the key sectors to the model’s broader two-digit SIC codes
 - Historic growth rates in productivity in the key sectors in the region.
 - Historic growth rates in productivity in the key sectors in other regions, for example, Financial and Business Services in London.
 - Experian’s baseline view of the likely productivity growth in the key sectors.

4. APPENDIX D:

Historic and proposed housing completions by local authority

County	Local Authority	Net additional dwellings required, banked RPG (pa)	Average historic completions (to 2002/03)			Completions achieved in the last 20 years (5-year moving average)		
			Last 5 years	Last 10 years	Last 20 years	Maximum	Minimum	Period Maximum Achieved
Essex	Braintree	385	697.2	701.3	674.2	855.6	355.4	84/85–88/89
Essex	Broxbourne	255	347.8	320.4	351.7	425.2	270.6	83/84–87/88
Essex	Epping Forest	930	304.2	337.5	328.1	382.0	257.4	91/92–95/96
Essex	Harlow	400	335.6	412.4	290.1	564.0	141.8	95/96–99/00
Essex	Uttlesford	400	251.2	259.9	259.3	297.8	228.2	86/87–90/91
Cambs	Fenland	485	439.4	440.2	556.7	821.2	395.8	88/89–92/93
Cambs	Peterborough UA	1,080	459.8	444.8	604.7	1,105.2	427.0	87/88–91/92
Cambs	Huntingdonshire	560	532.2	681.1	879.6	1,298.2	532.2	85/86–89/90
Cambs	South Cambs	1,175	640.4	664.0	690.7	967.0	406.2	85/86–89/90
Cambs	East Cambs	430	344.0	392.6	439.1	610.6	344.0	87/88–91/92
Cambs	City of Cambridge	735	139.0	241.2	308.9	398.0	139.0	89/90–93/94
Herts	East Herts	485	403.4	572.6	600.0	857.6	397.2	83/84–87/88
Herts	North Herts	665	232.8	306.1	447.2	706.8	232.8	85/86–89/90
Herts	Stevenage	340	216.6	327.8	320.0	439.0	216.6	93/94–97/98

Source: Draft RPG 14, ODPM, GVA Grimley

5. APPENDIX E:

Average property price, Oct-Dec 2003

Town	Detached	Semi-detached	Terraced	Flat/ Maisonette	Overall
Harlow	£171,300	£149,600	£122,750	£102,700	£118,800
Braintree	£238,000	£156,200	£140,200	£113,000	£165,800
Broxbourne	£375,550	£274,350	£196,250	£134,900	£208,000
Cheshunt	£365,000	£231,300	£178,150	£133,800	£191,100
Epping	£393,900	£257,350	£224,800	£175,000	£274,000
Saffron Walden	£367,400	£203,300	£164,600	£118,600	£231,400
Wisbech	£151,150	£105,200	£76,850	£50,200	£122,200
March	£165,400	£113,900	£91,500	£59,300	£134,600
Peterborough	£201,800	£108,500	£76,650	£125,500	£106,850
Huntingdon	£260,000	£142,200	£126,300	n/a	£203,000
St Neots/Eaton Socon	£229,300	£145,300	£108,550	£86,900	£139,000
Ely	£234,450	£127,950	£120,150	£93,850	£159,550
Histon/Oakington/ Longstanton	£272,400	£168,200	£116,850	£98,700	£191,700
City of Cambridge	£309,250	£209,750	£208,250	£149,500	£214,050
Bishop's Stortford	£336,200	£206,300	£162,950	£121,750	£223,400
Hertford	£428,850	£276,600	£198,550	£181,650	£232,150
Letchworth	£300,363	£195,947	£164,753	£109,718	£175,368
Hitchin	£413,250	£250,650	£173,350	£126,600	£253,350
Baldock	£314,200	£175,800	£162,650	£120,300	£193,150
Royston	£326,500	£171,150	£157,700	£119,900	£210,350
Stevenage	£291,200	£168,700	£147,600	£86,940	£162,100

Source: Land Registry, GVA Grimley

6. APPENDIX F:

Transport modelling methodology

6.1 Choice of Models

6.1.1 The basic types of model available are:

- Those based on surveys of the use actually being made of the road and rail networks (e.g. the region-wide SATURN highway model and the nation-wide SRA rail model); and
- Synthetic models based on the land use and the transport networks which are capable of forecasting the numbers of households occupying the housing and the amount of travel taking place on the different networks.

6.1.2 The model best suited for this analysis is the Laser model. However, the long timescales involved in using Laser and the high costs of running the model make it impractical. The study needs a simple model of the highway network and a simple means of estimating the impacts on it of successive additions of housing and jobs in different locations to enable the land use development strategy to be modified and shaped by the capacity of the highway network. A parallel but manually estimated procedure needs to be followed for the rail network.

6.1.3 The NAOMI highway traffic model was therefore used in buffer network form for the study. Because the NAOMI network and trip tables do not cover the northern part of the study area the LSMMMS trip tables and network were merged with NAOMI.

6.1.4 In parallel with this work the TEMPRO trip end model was used to determine the numbers of trips associated with new development in different parts of the study area.

6.1.5 The ways in which levels of trip making will be affected by location and layout were also investigated at the outset of the study.

6.2 The Naomi Model

- 6.2.1 NAOMI v5.0 was the last version available at the start of the study and it represents a base year of 2001. It formed the basis of traffic forecasts for a recent Public Inquiry into various motorway service areas on the western side of the M25, the M40 and M4. It was also used for the appraisal of various ORBIT M25 widening schemes currently under consideration for which multi-user class assignments were undertaken to assess the effects of road user charging.
- 6.2.2 NAOMI version v5.5 is currently under development but was not available in time to be used in this study. It incorporates network details from other models including LOIS which provides more detailed modelling of the A120 as far as Colchester. Additionally, slip road flows were used in the calibration/validation process.
- 6.2.3 The NAOMI model represents an average hour for the following time periods AM (0700 – 1000), Inter peak (1000 – 1600), and PM period (1600 – 1900).
- 6.2.4 Trip information is based upon the original 1991 RSI surveys undertaken as part of LATS 1991. Trip purposes are available as:
- Home based work;
 - Other home based;
 - Non home based;
 - Fixed vehicles; and
 - HGVs.
- 6.2.5 The zone system is based upon two main sources, LATS within the M25 and ERTM/SERTM outside to various levels of aggregation/disaggregation.
- 6.2.6 The simulation area includes the entire area within the M25 and a collar outside extending to about 20 miles roughly bounded by Luton, Reading, Guildford, Crawley, Maidstone, Chelmsford and Stansted. Within the vicinity of the London – Stansted – Cambridge – Peterborough Growth Area the simulation area extends to just north of Stevenage and Bishop's Stortford and then east along the A120, stopping short of Braintree and then south to include Chelmsford. The area outside of the simulation area includes all major roads and is coded as a buffer network.

6.3 Modelling Future Traffic

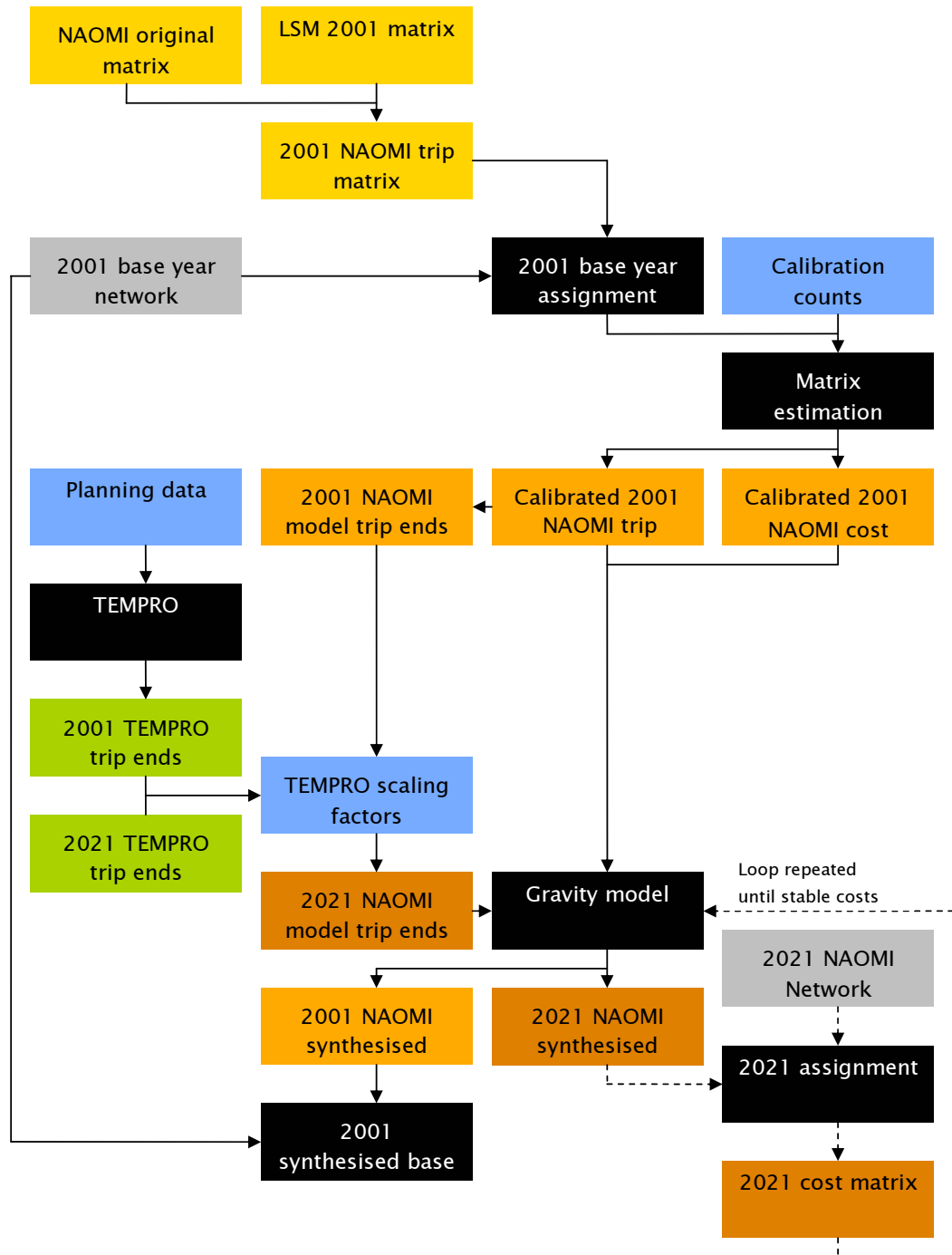
- 6.3.1 The expanded NAOMI buffer model was calibrated on known 2001 traffic flows on the major roads within the growth area. This was done using matrix estimation to fit the model to the known flows. Once done, a calibration run was used to check that the calibration did not corrupt the model in other areas.

- 6.3.2 The Tempro Trip End model was used to calculate future year Trip Ends for the zones in the expanded NAOMI model and additional Trip Ends for the proposed new development areas which were also determined in this way, thus creating total future year Trip Ends. Tempro was also used to determine the numbers of additional rail trips.
- 6.3.3 The next stage was to distribute these trip ends between the zones in the model. This was done using a generalised trip cost based Gravity model.

6.4 Gravity Model

- 6.4.1 The original method proposed the use of the gravity model to produce both a base year and a future year TEMPRO matrix. These matrices could then be applied to the calibrated base year matrix on a cell-by-cell basis to create a future year matrix. Although, this method has some merit in that the product of the gravity model is never used in a raw state, there are a number of issues regarding the use of the gravity model in this way.
- 6.4.2 The finalised method uses the ratio of 2001 to 2021 TEMPRO trip ends to factor the 2001 Naomi trip ends to 2021. These were then be fed directly into the gravity model to produce a 2021 model matrix. The one disadvantage to this is that the gravity model may not accurately reproduce the base matrix and, hence, some changes in trips at points in the model may be due to the method rather than any modelled change. To resolve this, the calibrated base was compared to a synthetic base from the gravity model. Large discrepancies were then negated with correctional factors. In this aspect, the new method avoided introducing the errors that can arise from using TEMPRO trip ends with a Naomi gravity model.

Model process (final)



- 6.4.3 This method was used to test multiple development scenarios early on in the study to get an initial view as to the implications of a range of new development scenarios. The outputs from these tests, informed the choice of residential development locations chosen at a later stage.

6.5 Impacts on Rail Commuting

- 6.5.1 To determine the impact on rail crowding from new development, we assessed the anticipated flows of rail passengers generated by the Temprow model and assessed the impact these would have using SRA information on capacity and crowding. This focused not only on West Anglia services into Liverpool Street, but also took account of impacts on the Great Northern services into Kings Cross and First Great Eastern services into Liverpool Street.
- 6.5.2 In order to do this, we utilised data from the SRA to analyse AM peak periods. This data consisted of three sets of information:
- SRA boarding passenger surveys for relevant stations in the study area;
 - Rolling stock plans for AM peak services on each route to determine capacity; and,
 - Passengers in Excess of Capacity (PIXC) for each route.
- 6.5.3 The SRA survey data provides boarding counts for relevant stations in the growth area along with the destinations of the passengers using those stations. This was used to determine the proportions of passengers travelling in each direction from each station. The proportional directions of flow derived were then applied to the rail trip outputs from the Temprow Trip End model, thereby providing a total number of trips heading towards London from each station in the AM peak.

7. APPENDIX G:

Summary of transport statistics

Summary statistics

Cordoned results

base 2001 calibrated				base 2001 from gravity model			
	this time period	next time period	total		this time period	next time period	total
transient link delays =	4495.38	62.17	4557.54 pcu-hrs	transient link delays =	5863.08	123.29	5986.37 pcu-hrs
over-capacity lk delays =	2937.45	1314.92	4252.38	over-capacity lk delays =	4979.68	2401.47	7381.15
cruise time – link =	29914.43			cruise time – link =	34299.75		
- c.c. =	9101.58			- c.c. =	10643.57		
total travel time – link =	37347.26	1377.09	38724.35 pcu-hrs	total travel time – link =	45142.52	2524.76	47667.28 pcu-hrs
- c.c. =	9101.58			- c.c. =	10643.57		
- Total=	46448.84	1377.09	47825.93	- Total=	55786.08	2524.76	58310.84
travel distance – link =			2671522.75 pcu-kms	travel distance – link =			3069999 pcu-
kms							
- c.c. =			260367.59	- c.c. =			304994.03
- total =			2931890.25	- total =			3374993
average speed (link) =			68.99 kph	average speed (link) =			64.4 kph
(c.c.) =			28.61	(c.c.) =			28.66
(all) =			61.3	(all) =			57.88

Summary statistics

Cordoned results

	option 1 district led dist draft RPG 14			option 2 district led dist RPG 14 +18,000			option 3 new settlement clusters		
	this time period	next time period	total	this time period	next time period	total	this time period	next time period	total
transient link delays =	21246.65	422.26	21668.91 pcu-hrs	23480.17	443.99	23924.16 pcu-hrs	24424.71	649.17	25073.88 pcu-hrs
over-capacity lk delays =	11793.01	6993.1	18786.12	12449.69	6968.77	19418.46	14315.1	9238.35	23553.45
cruise time - link =	54280.54			56353.58			56194.78		
- c.c. =	14854.15			16409.28			15158.15		
total travel time - link =	87320.2	7415.37	94735.56 pcu-hrs	92283.44	7412.76	99696.2 pcu-hrs	94934.59	9887.52	104822.11 pcu-hrs
- c.c. =	14854.15			16409.28			15158.15		
- Total=	102174.35	7415.37	109589.71	108692.72	7412.76	116105.48	110092.73	9887.52	119980.26
travel distance - link =			4882458 pcu-kms			5049880.5 pcu-kms			5027859.5 pcu-kms
- c.c. =			427256.41			473196.47			442408.38
- total =			5309714.5			5523077			5470268
average speed (link) =			51.54 kph			50.65 kph			47.97 kph
(c.c.) =			28.76			28.84			29.19
(all) =			48.45			47.57			45.59

Summary statistics

Cordoned results

	option 7 new settlements to 60,000 pop			option 8 new settlements to 60,000 pop + 18,000			option 9 as option 3 with 20% red in n s c		
	this time period	next time period	total	this time period	next time period	total	this time period	next time period	total
transient link delays =	44638.51	1551.04	46189.55 pcu-hrs	44327.84	3963.1	48290.95 pcu-hrs	20166.81	504.23	20671.03 pcu-hrs
over-capacity lk delays =	22959.86	12885.35	35845.21	31463.87	17520.45	48984.31	12195.33	7751.83	19947.16
cruise time - link =	64864.23			65226.23			52887.29		
- c.c. =	18227.85			17193.21			14054.81		
total travel time - link =	132462.59	14436.4	146898.98 pcu-hrs	141017.94	21483.55	162501.5 pcu-hrs	85249.42	8256.05	93505.48 pcu-hrs
- c.c. =	18227.85			17193.21			14054.81		
- Total=	150690.44	14436.4	165126.84	158211.16	21483.55	179694.7	99304.23	8256.05	107560.28
travel distance - link =			5743183.5 pcu-kms			5781635.5 pcu-kms			4754056.5 pcu-kms
- c.c. =			532256.63			497160.78			409340.69
- total =			6275440			6278796.5			5163397
average speed (link) =			39.1 kph			35.58 kph			50.84 kph
(c.c.) =			29.2			28.92			29.12
(all) =			38			34.94			48

Summary statistics

Cordoned results

	option 10 as option 3 with additional capacity			option 11 as option 1 with revised TEMPRO			option 13 new option		
	this time period	next time period	total	this time period	next time period	total	this time period	next time period	total
transient link delays =	18122.63	529.65	18652.28 pcu-hrs	26841.27	568.24	27409.52 pcu-hrs	3508.28	6.03	3514.31 pcu-hrs
over-capacity lk delays =	12399.92	8677.82	21077.74	13352.88	8174.71	21527.59	470.63	71.36	541.99
cruise time - link =	54937.54			58987.46			26385.86		
- c.c. =	15147.24			17096.36			3896.77		
total travel time - link =	85460.09	9207.47	94667.56 pcu-hrs	99181.62	8742.96	107924.57 pcu-hrs	30364.76	77.4	30442.16 pcu-hrs
- c.c. =	15147.24			17096.36			3896.77		
- Total=	100607.34	9207.47	109814.8	116277.98	8742.96	125020.93	34261.53	77.4	34338.93
travel distance - link =			5039777.5 pcu-kms			5314223 pcu-kms			2561607 pcu-kms
- c.c. =			442138.09			495058.56			106469.75
- total =			5481915.5			5809281.5			2668076.75
average speed (link) =			53.24 kph			49.24 kph			84.15 kph
(c.c.) =			29.19			28.96			27.32
(all) =			49.92			46.47			77.7

Summary statistics

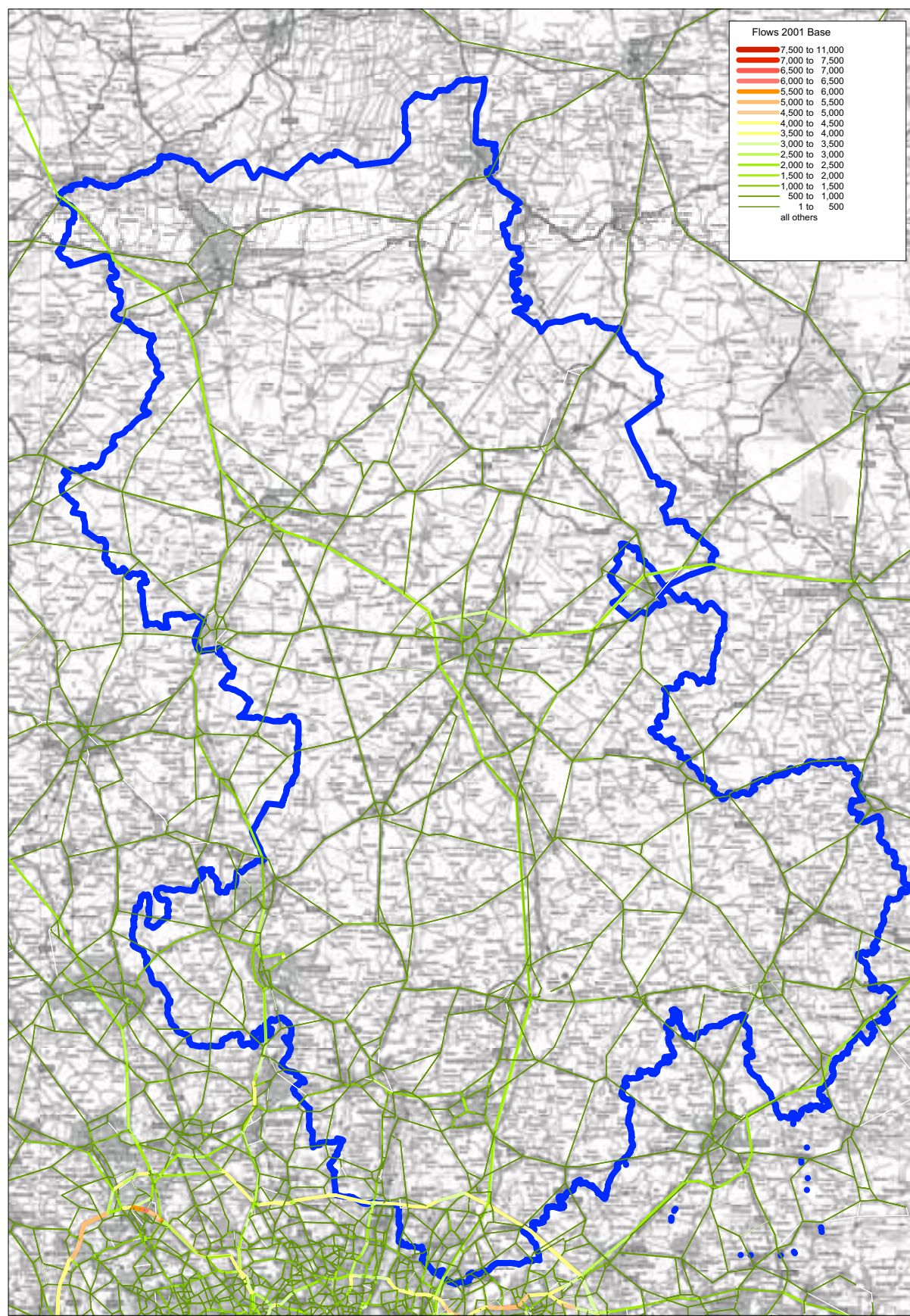
Cordoned results

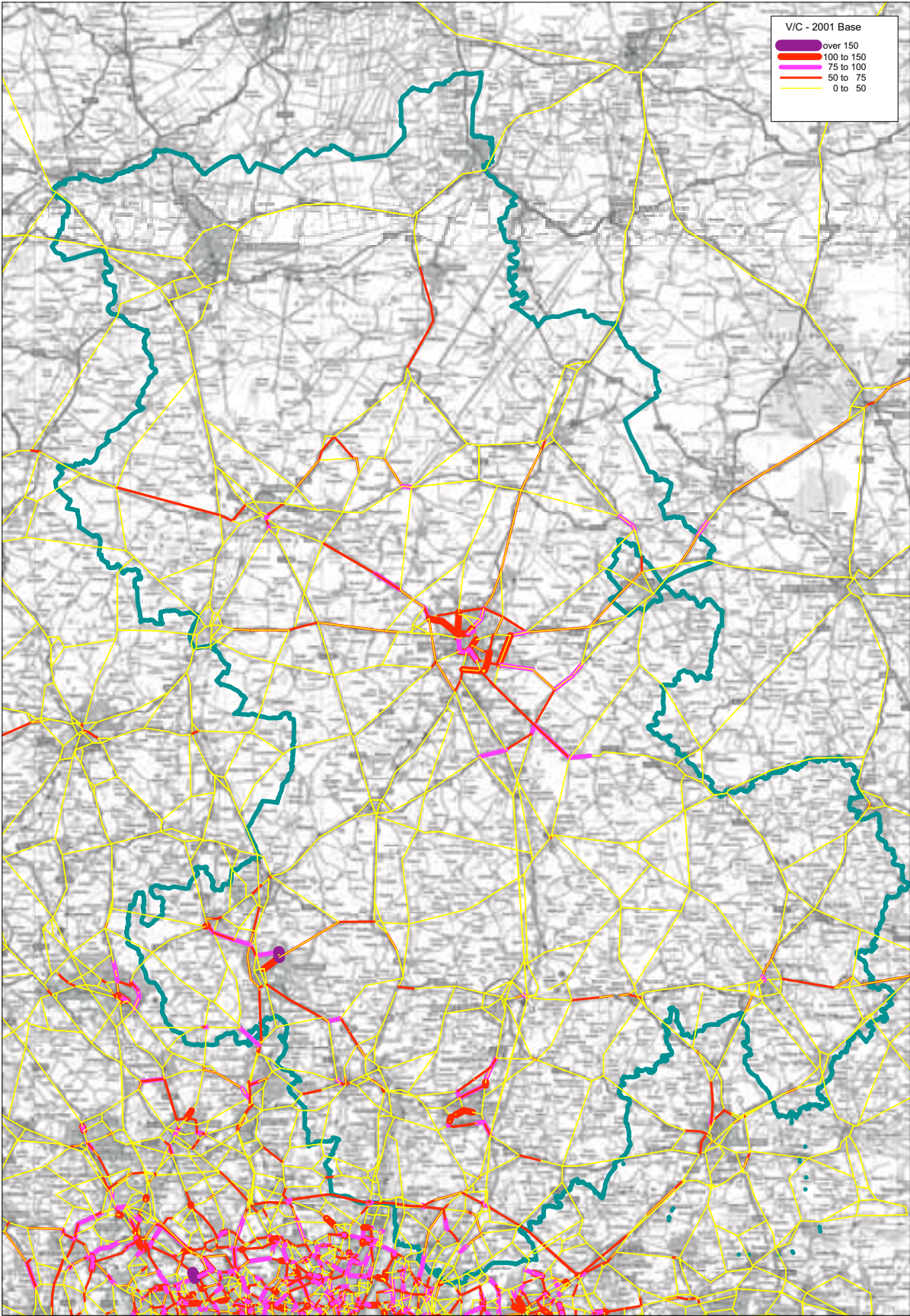
	option 14 new option 2			option 15 as option 14 with highway improvements			option 16 as option 4 with 20% reduction		
	this time period	next time period	total	this time period	next time period	total	this time period	next time period	total
transient link delays =	26245.99	547.27	26793.26 pcu-hrs	18535.62	213.53	18749.15 pcu-hrs	22705.29	524.03	23229.32 pcu-hrs
over-capacity lk delays =	12691.84	6895.71	19587.55	5909.29	2766.33	8675.62	13601.5	8926.85	22528.34
cruise time - link =	59795.22			56833.07			55194.27		
- c.c. =	18330.44			18117.85			15194.02		
total travel time - link =	98733.06	7442.97	106176.03 pcu-hrs	81277.98	2979.86	84257.84 pcu-hrs	91501.05	9450.87	100951.93 pcu-hrs
- c.c. =	18330.44			18117.85			15194.02		
- Total=	117063.5	7442.97	124506.48	99395.83	2979.86	102375.69	106695.07	9450.87	116145.95
travel distance - link =			5370793.5 pcu-kms			5152343.5 pcu-kms			4940611 pcu-kms
- c.c. =			535753.19			529294.38			443964.44
- total =			5906546.5			5681638			5384575.5
average speed (link) =			50.58 kph			61.15 kph			48.94 kph
(c.c.) =			29.23			29.21			29.22
(all) =			47.44			55.5			46.36

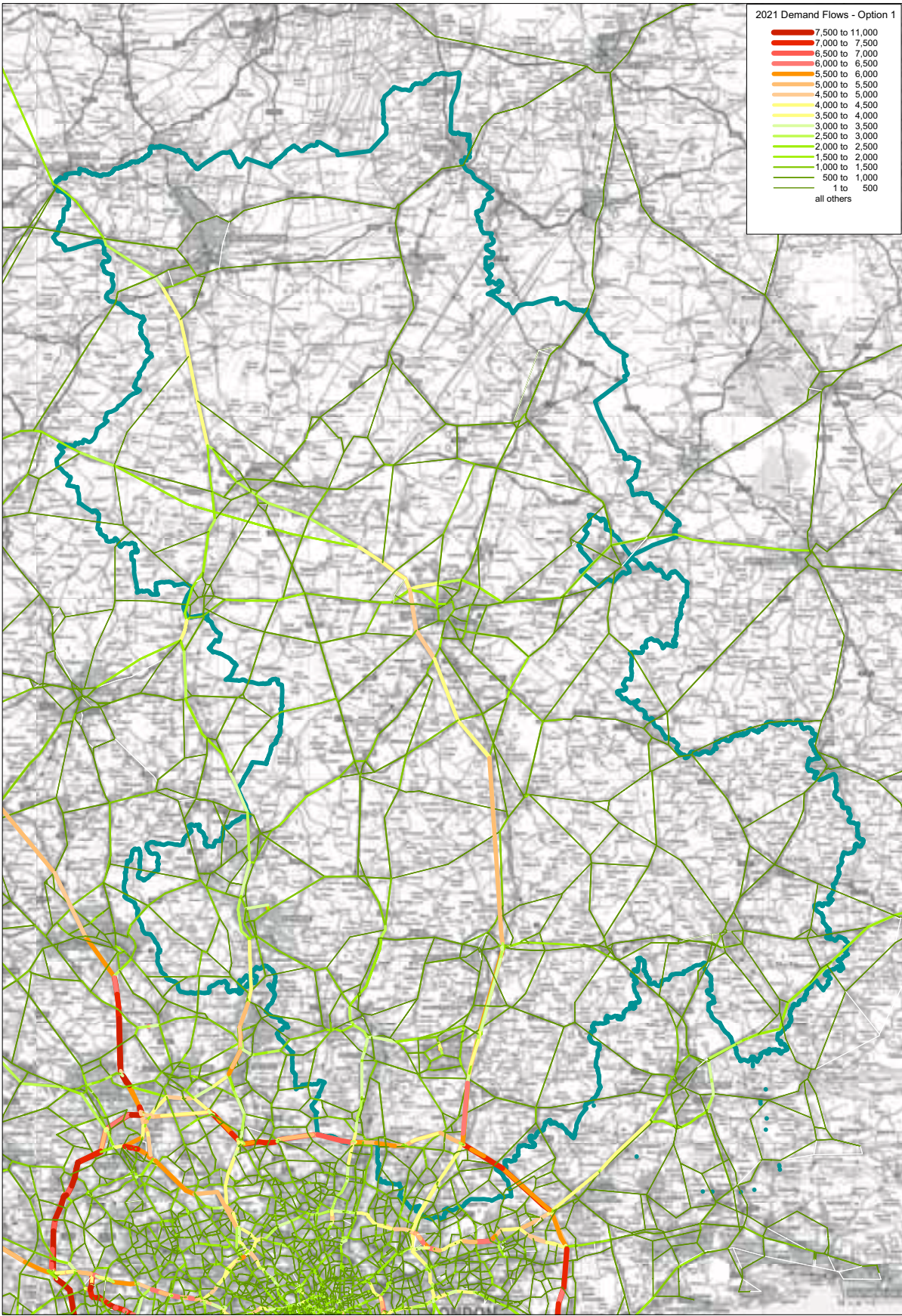
Summary statistics

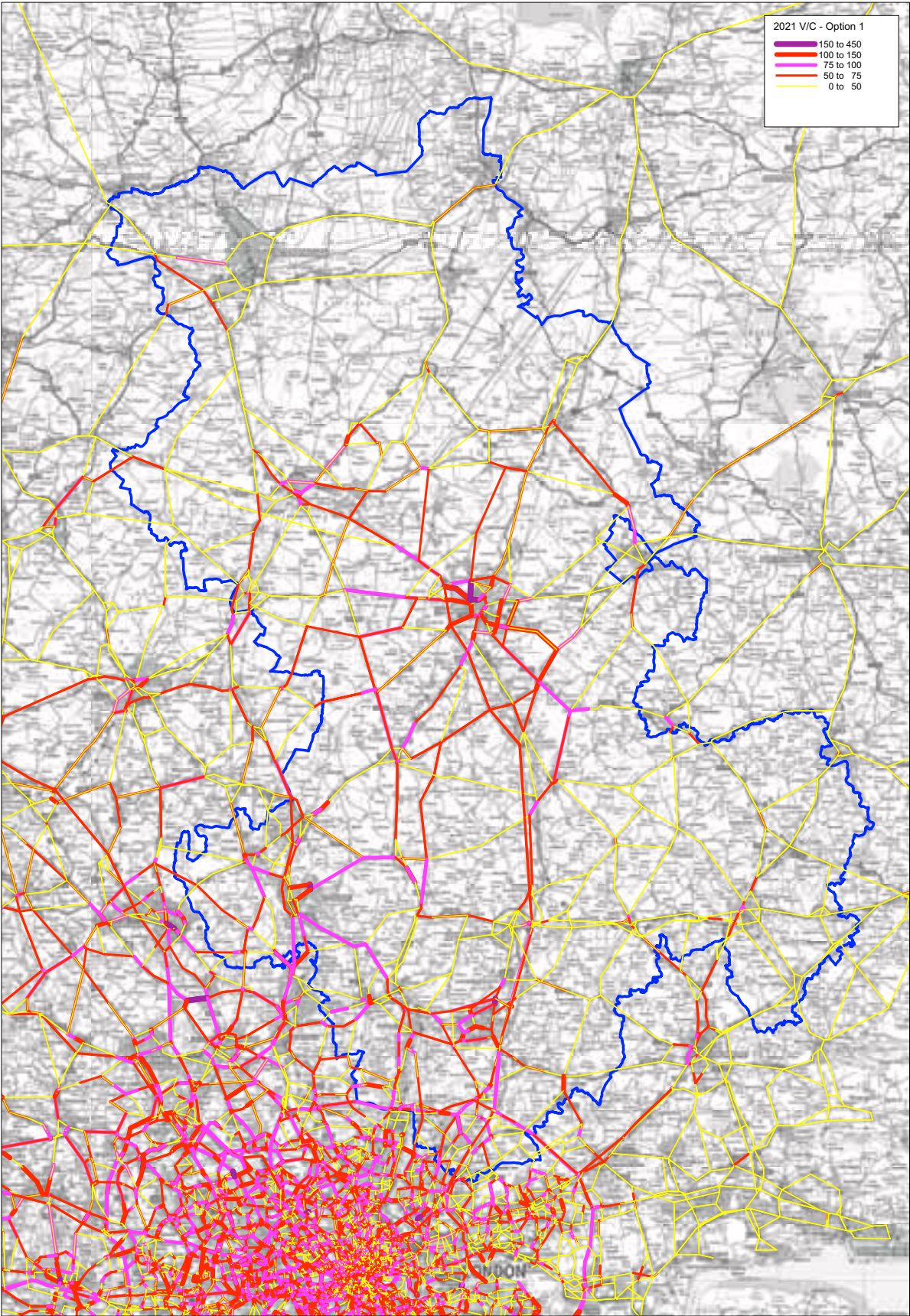
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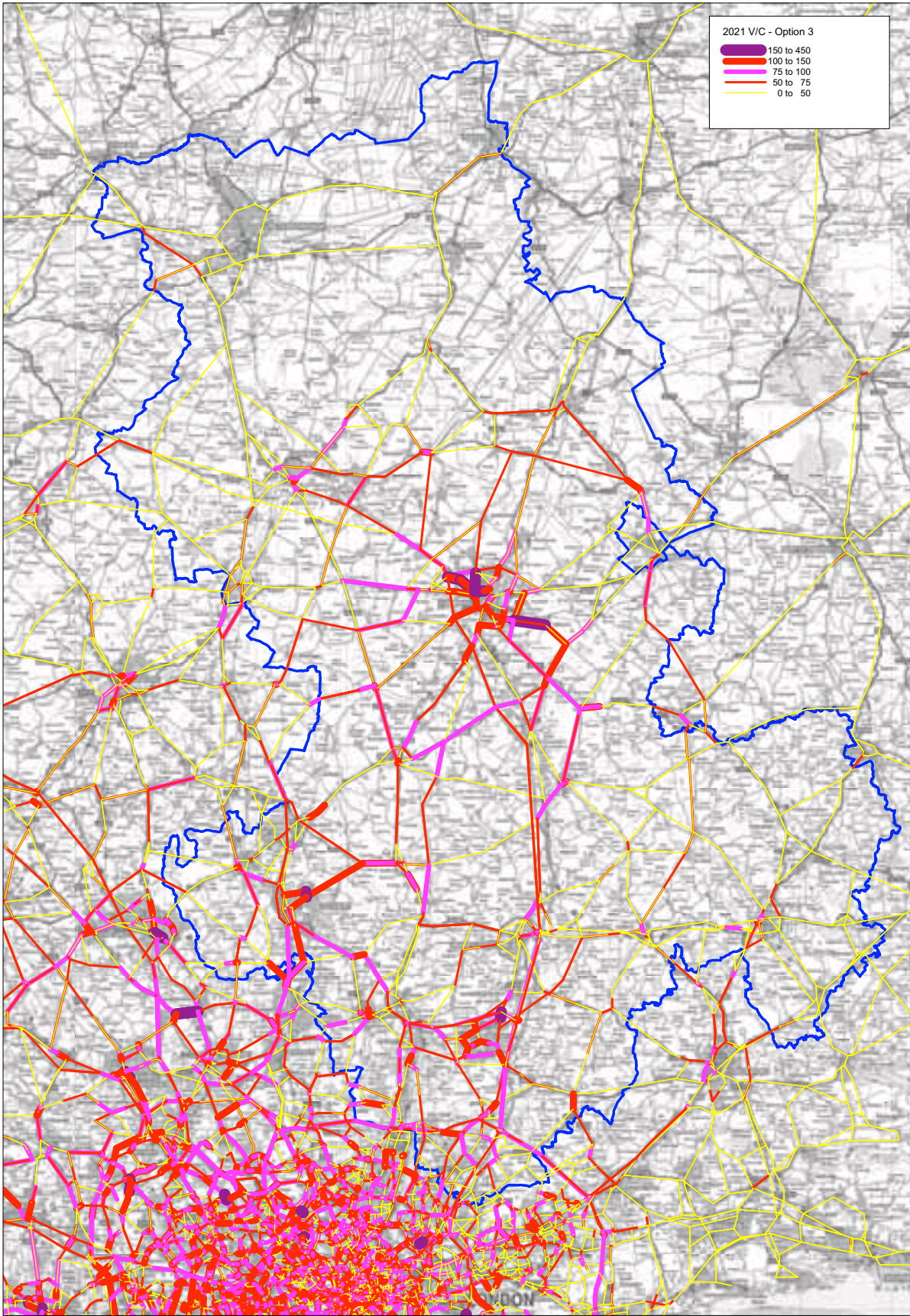
	option 17 as option 1 with increased jobs			option 18 as option 7 with rev Saf. Walden N T connectors			option 19 new town north of Harlow		
	this time period	next time period	total	this time period	next time period	total	this time period	next time period	total
transient link delays =	18753.16	301.6	19054.76 pcu-hrs	26907.68	740.98	27648.66 pcu-hrs	29544.69	795.77	30340.46 pcu-hrs
over-capacity lk delays =	9809.63	5715.64	15525.27	16258.7	10300.97	26559.67	18090.02	11163.1	29253.13
cruise time - link =	51978.63			55993.39			57692.68		
- c.c. =	13999.71			17223.08			16209.16		
total travel time - link =	80541.42	6017.24	86558.66 pcu-hrs	99159.77	11041.95	110201.72 pcu-hrs	105327.39	11958.88	117286.27 pcu-hrs
- c.c. =	13999.71			17223.08			16209.16		
- Total=	94541.13	6017.24	100558.37	116382.85	11041.95	127424.8	121536.55	11958.88	133495.44
travel distance - link =			4694116.5 pcu-kms			5015498.5 pcu-kms			5148513.5 pcu-kms
- c.c. =			402312.94			502225.63			471794
- total =			5096429.5			5517724			5620307.5
average speed (link) =			54.23 kph			45.51 kph			43.9 kph
(c.c.) =			28.74			29.16			29.11
(all) =			50.68			43.3			42.1

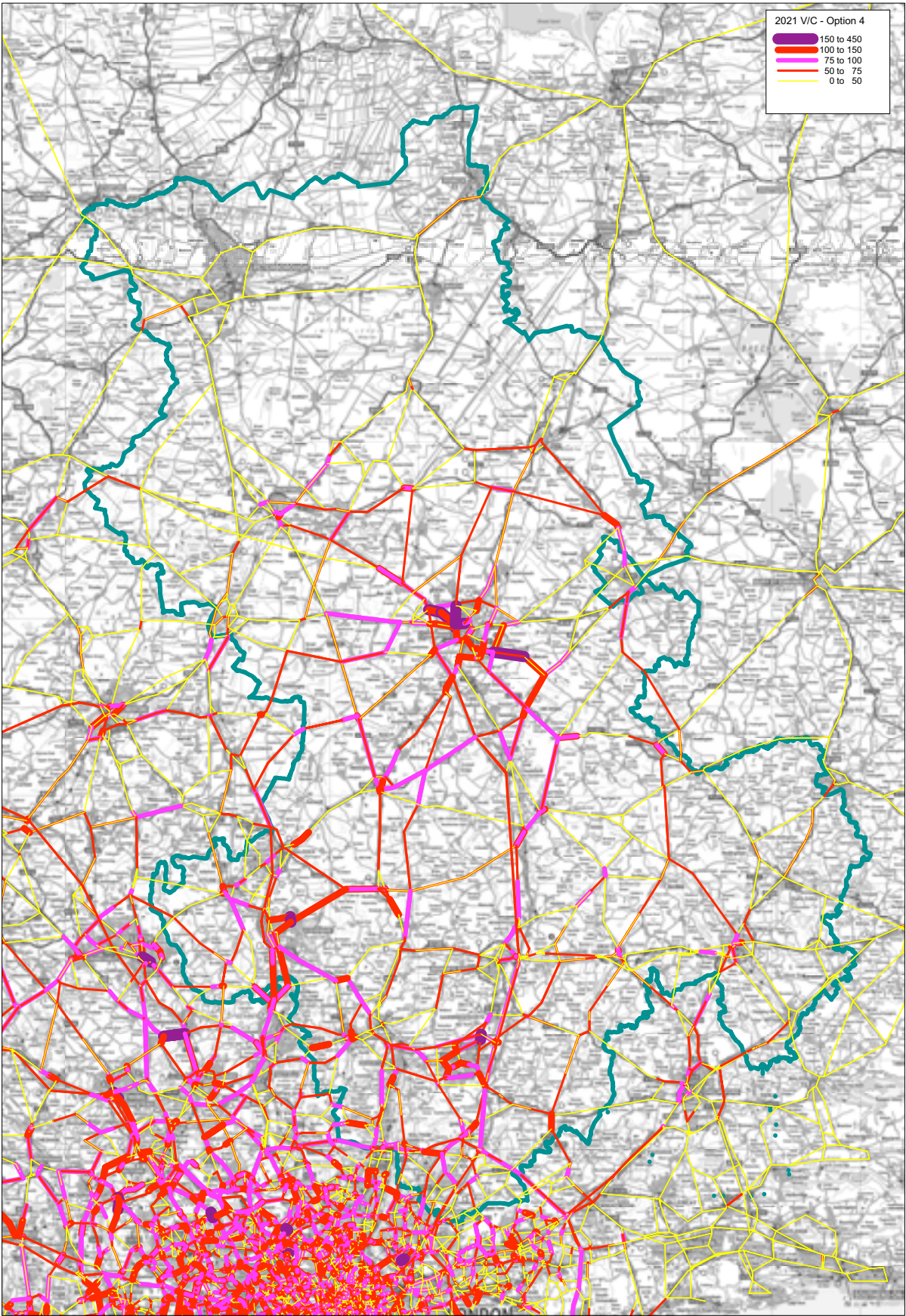


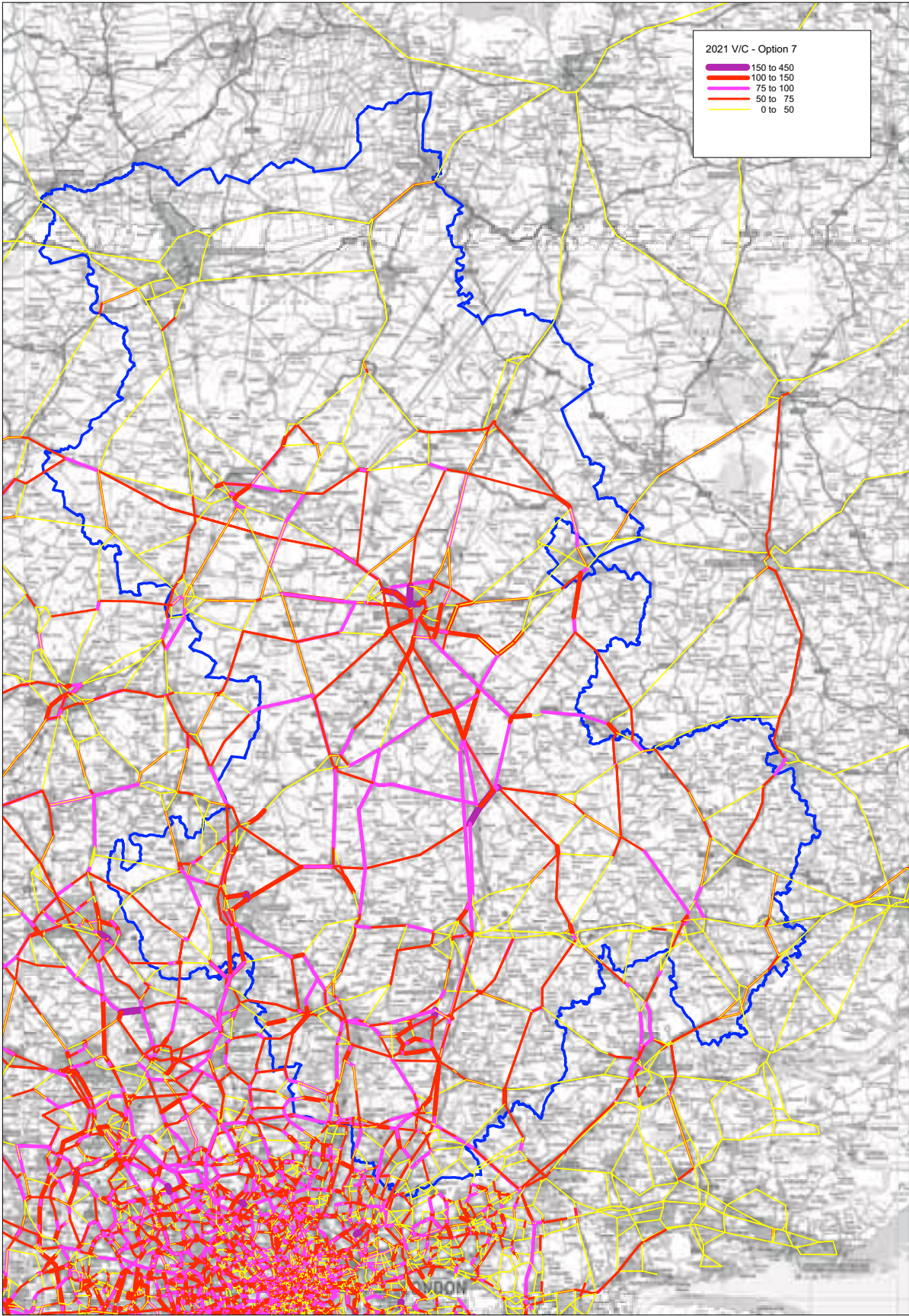


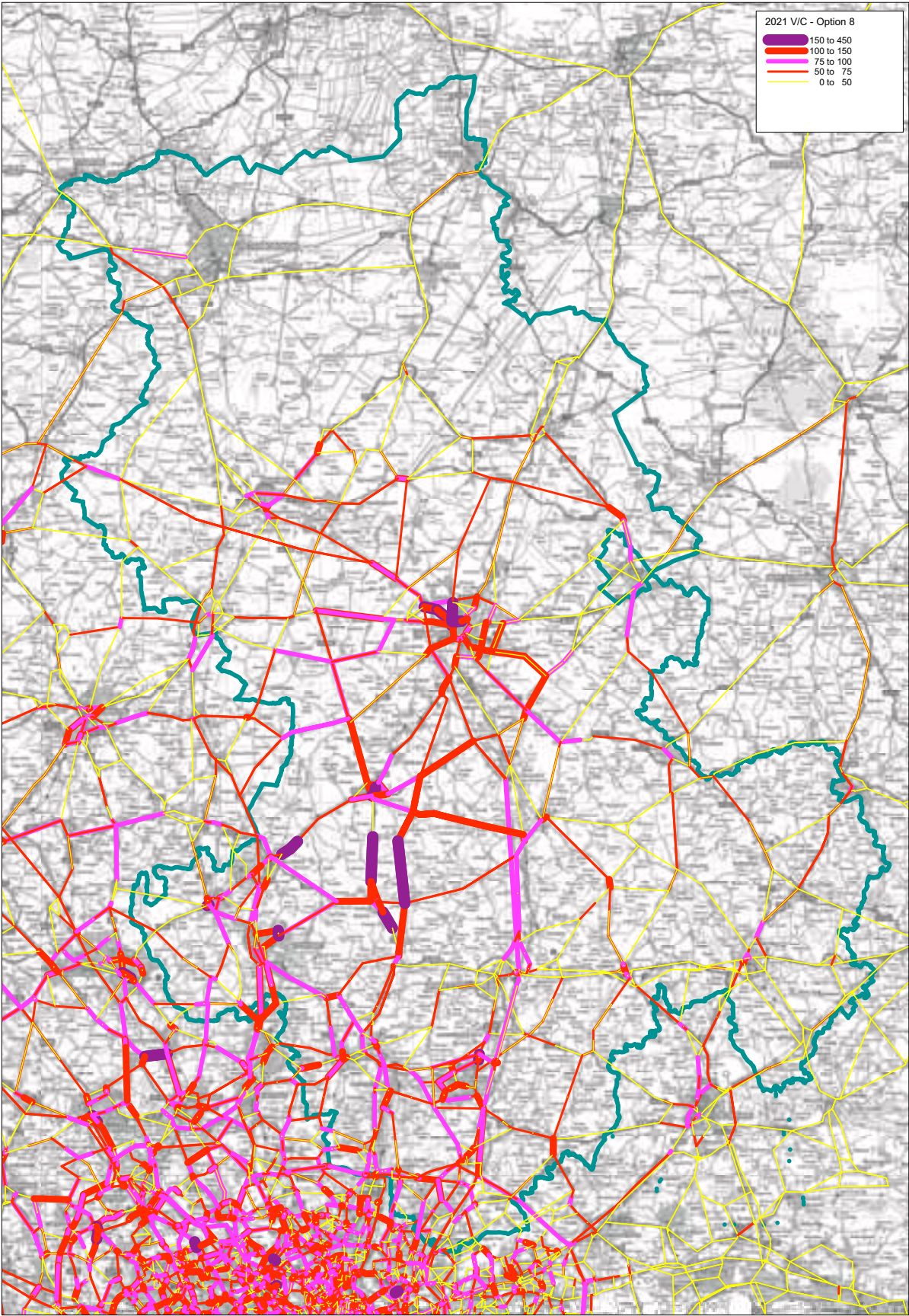


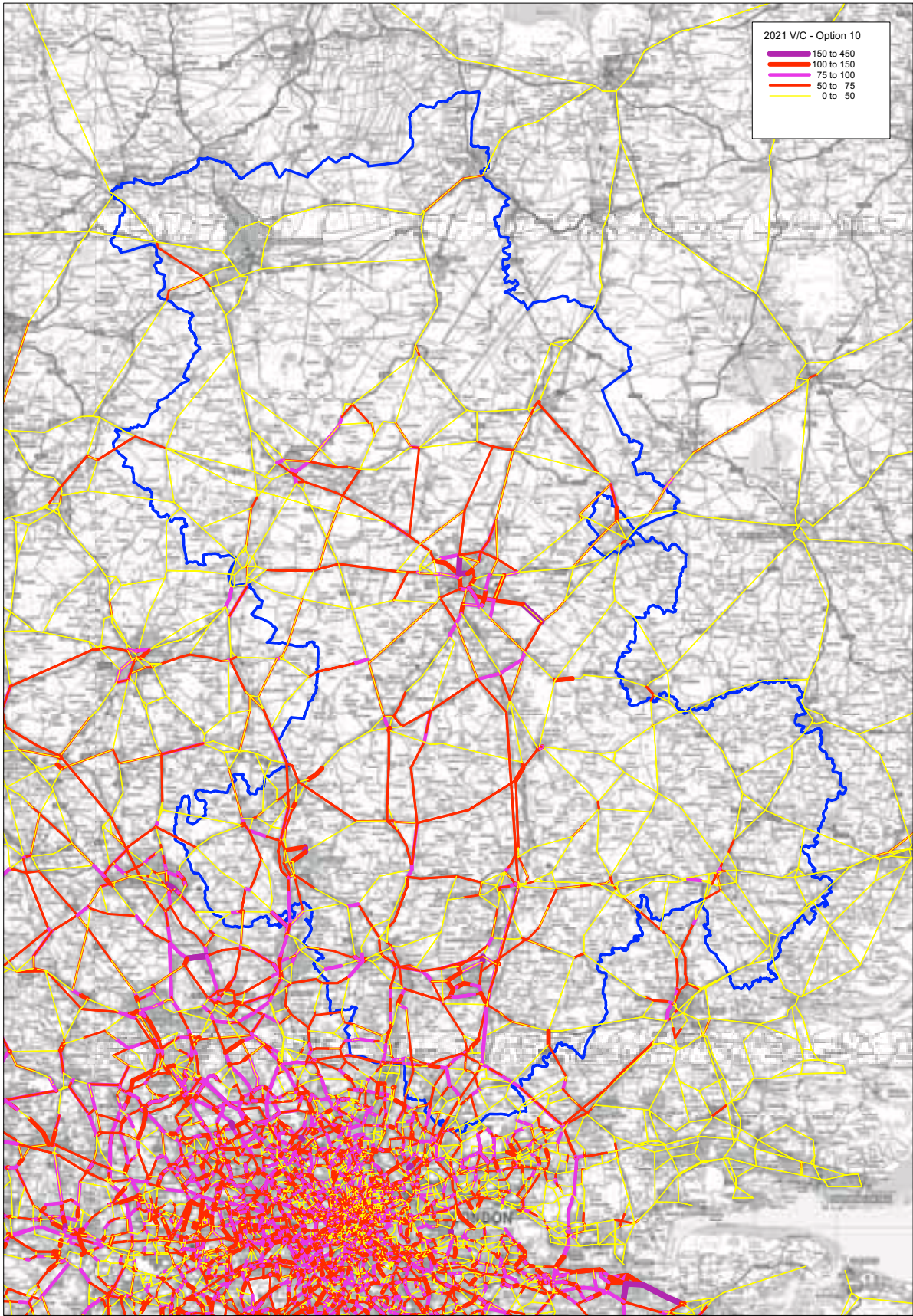


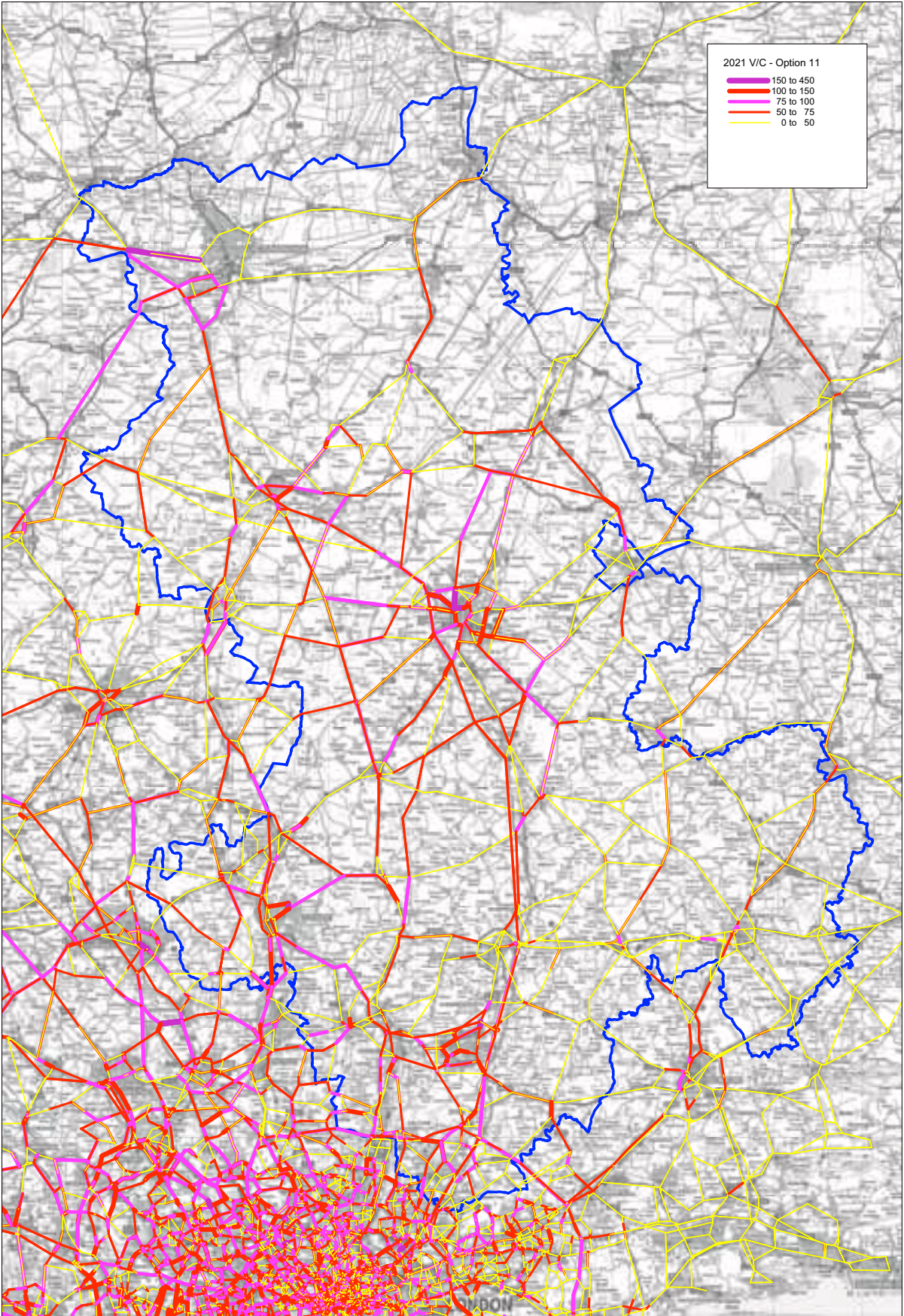


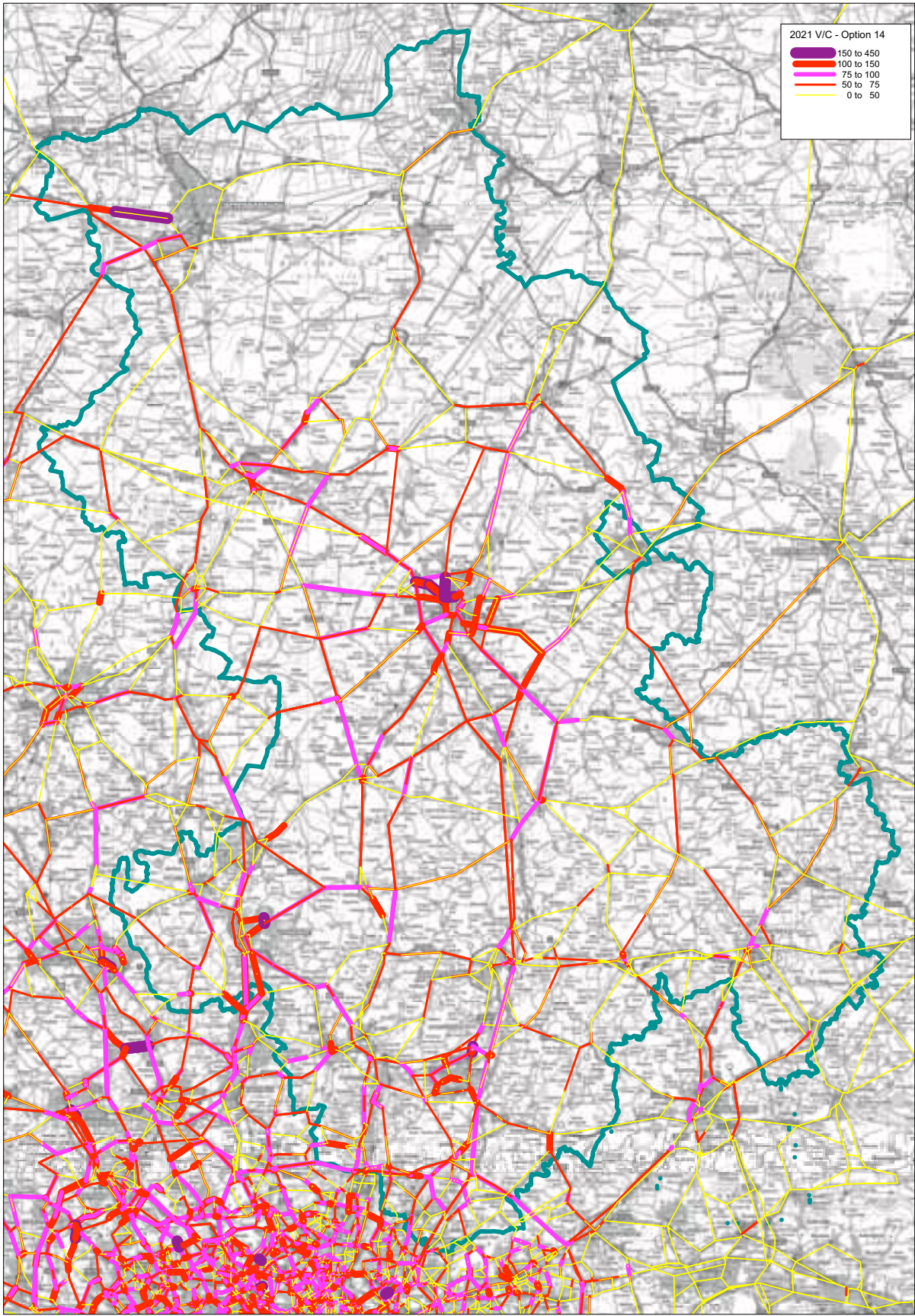


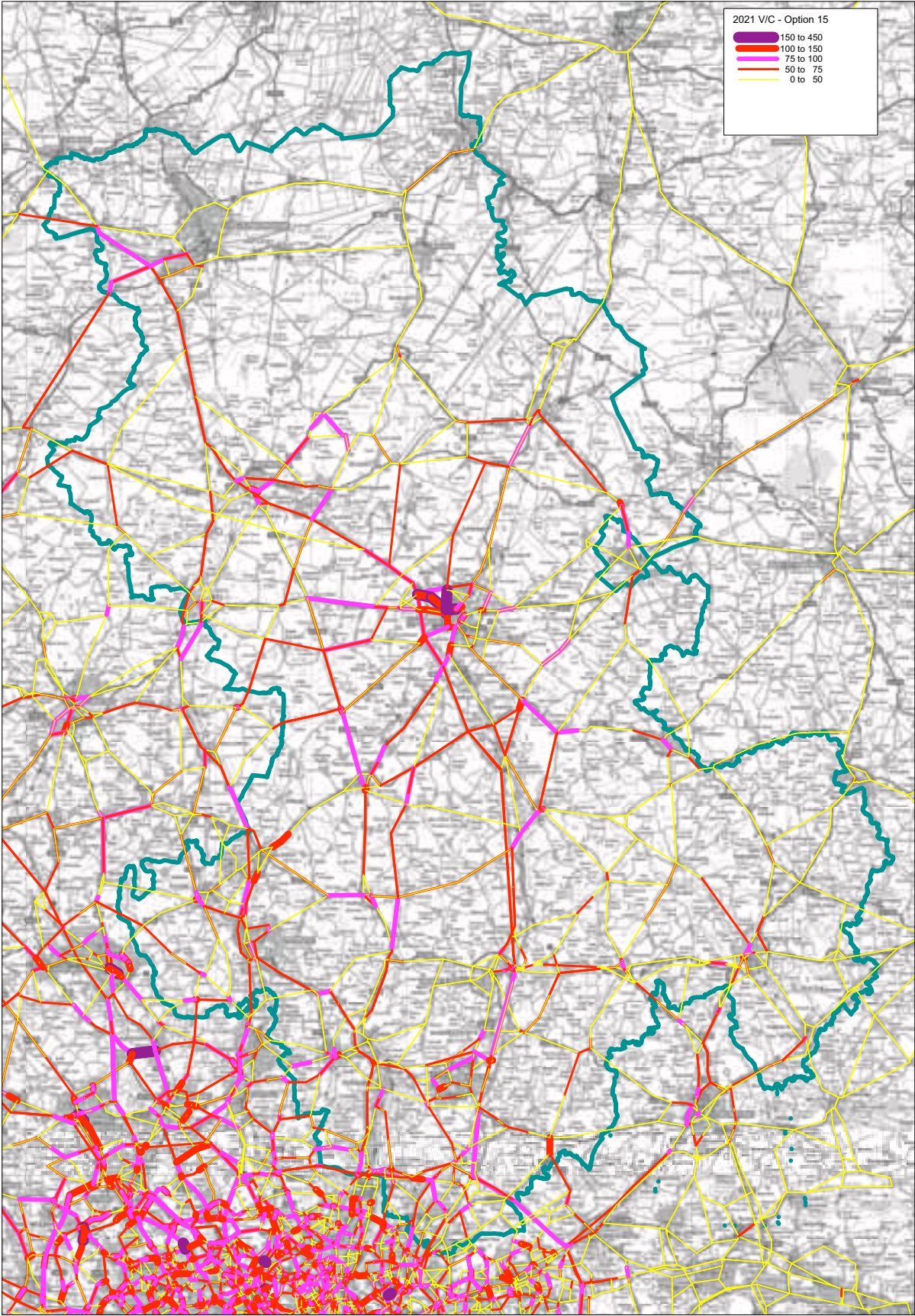


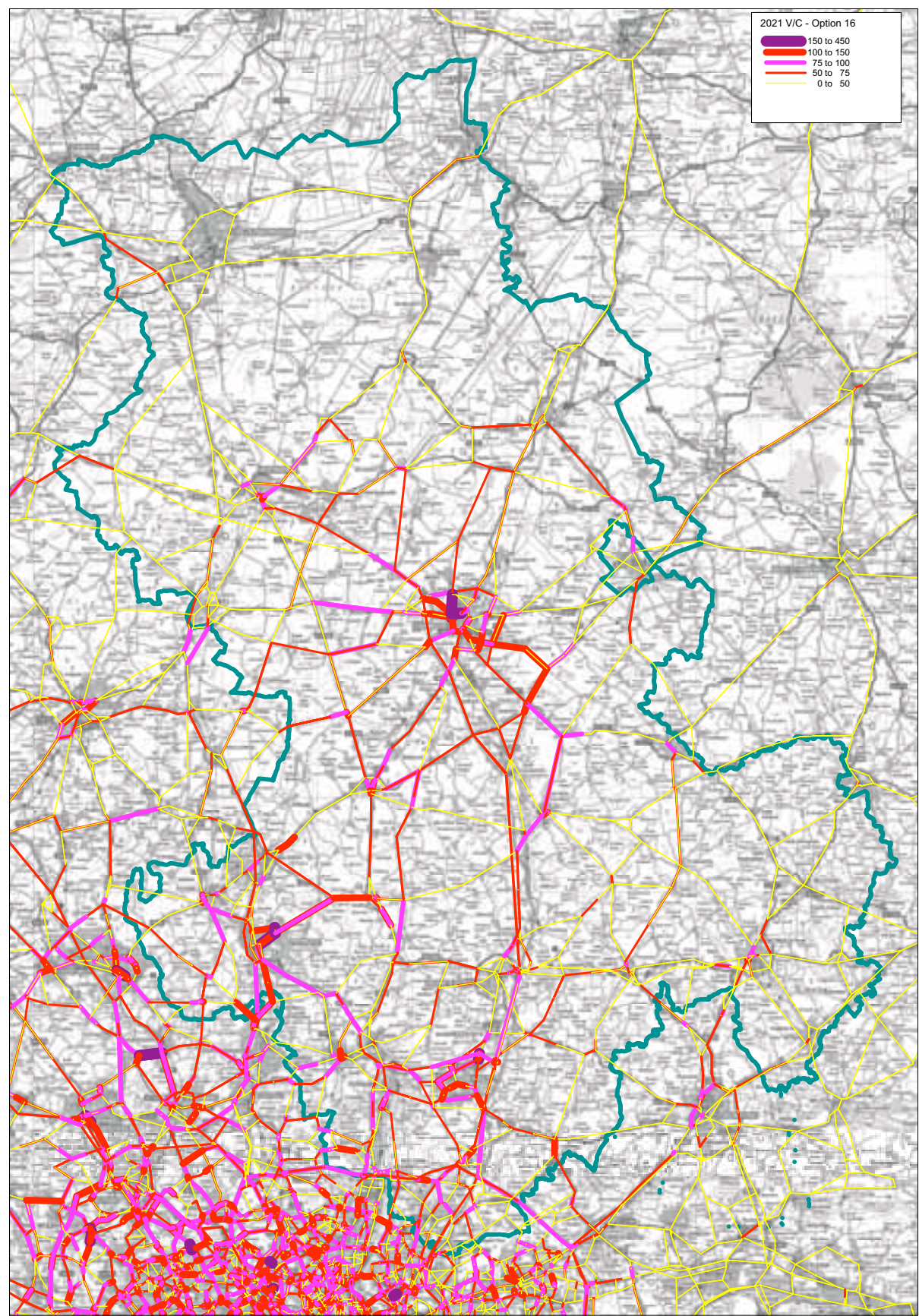


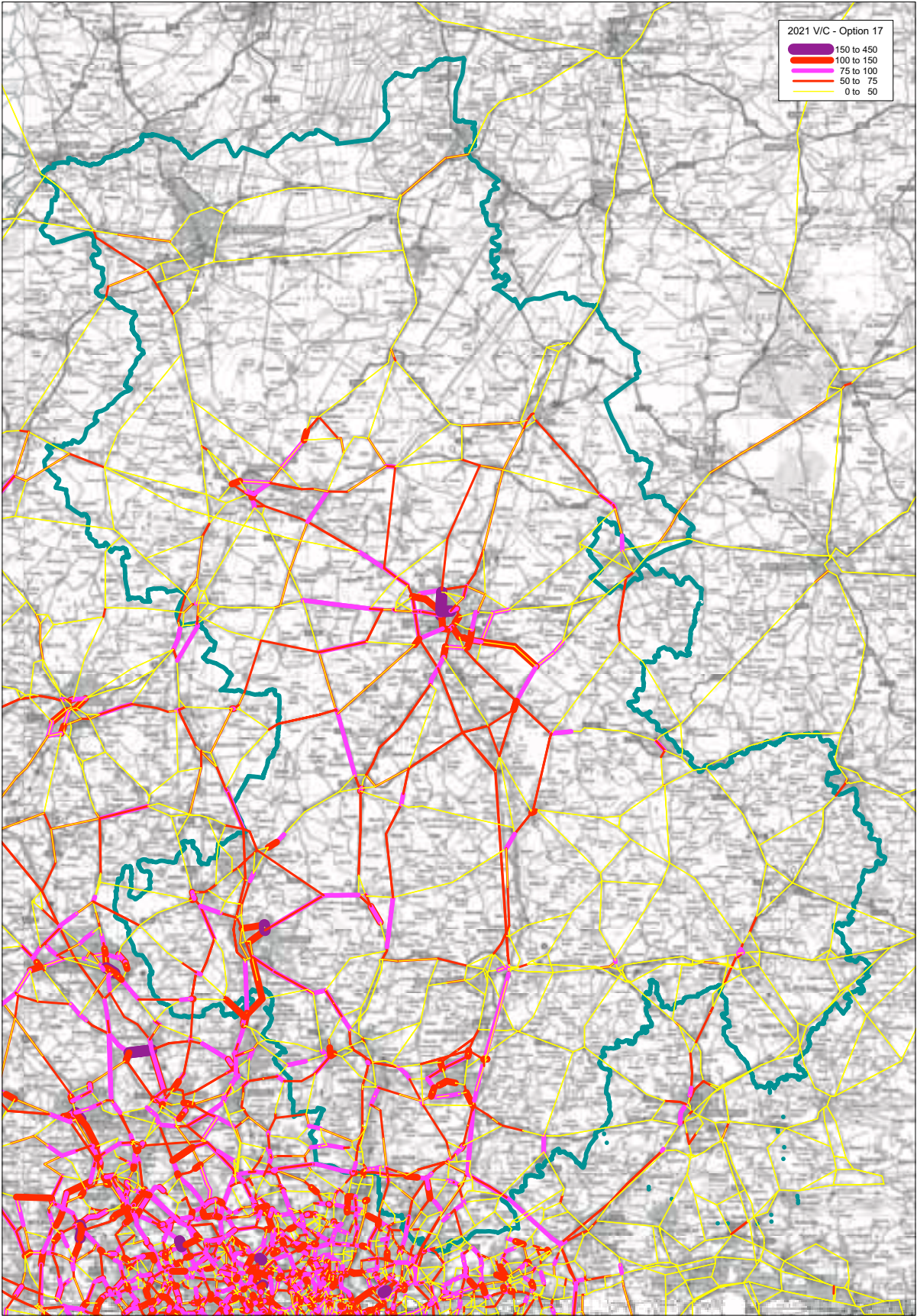


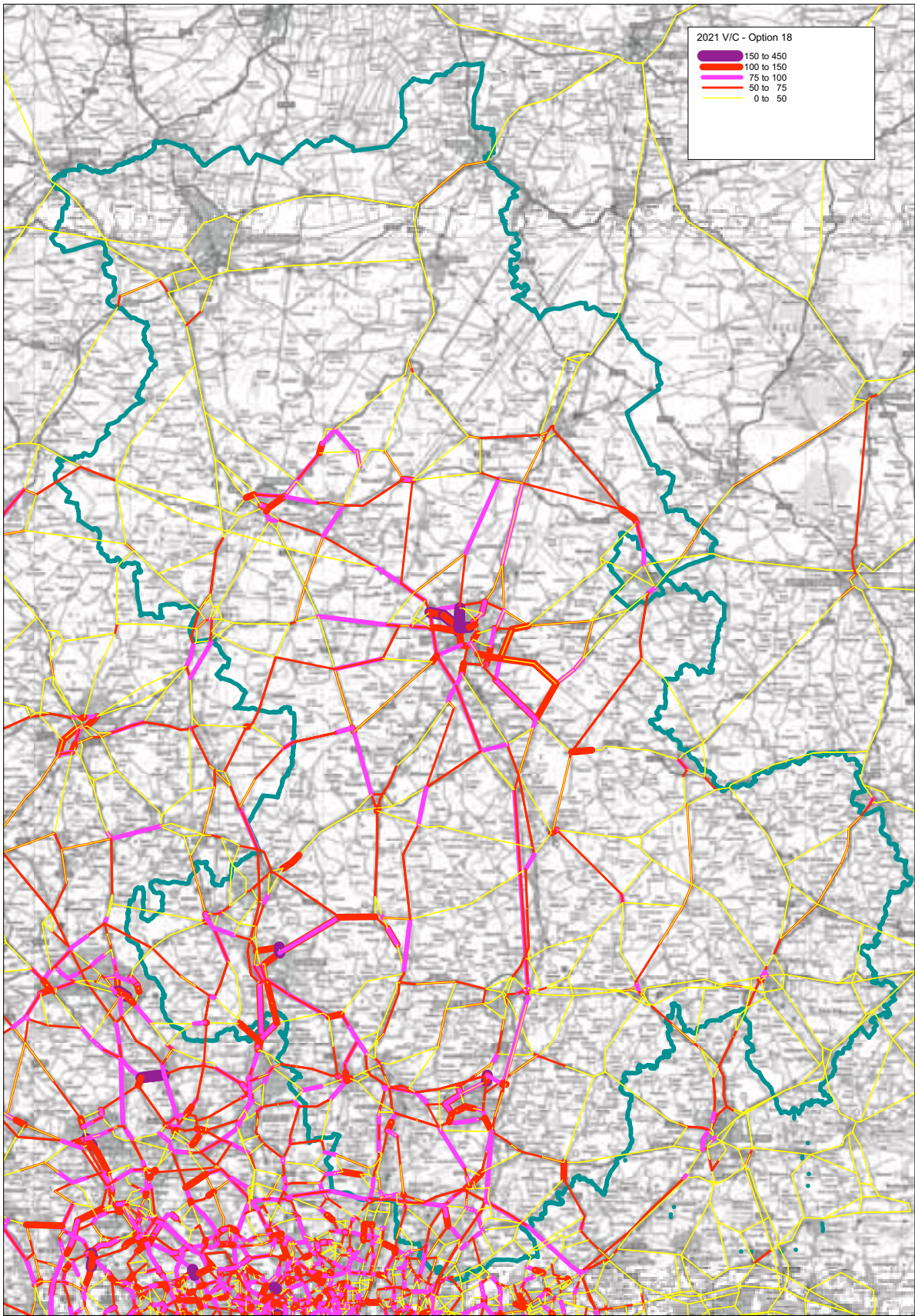


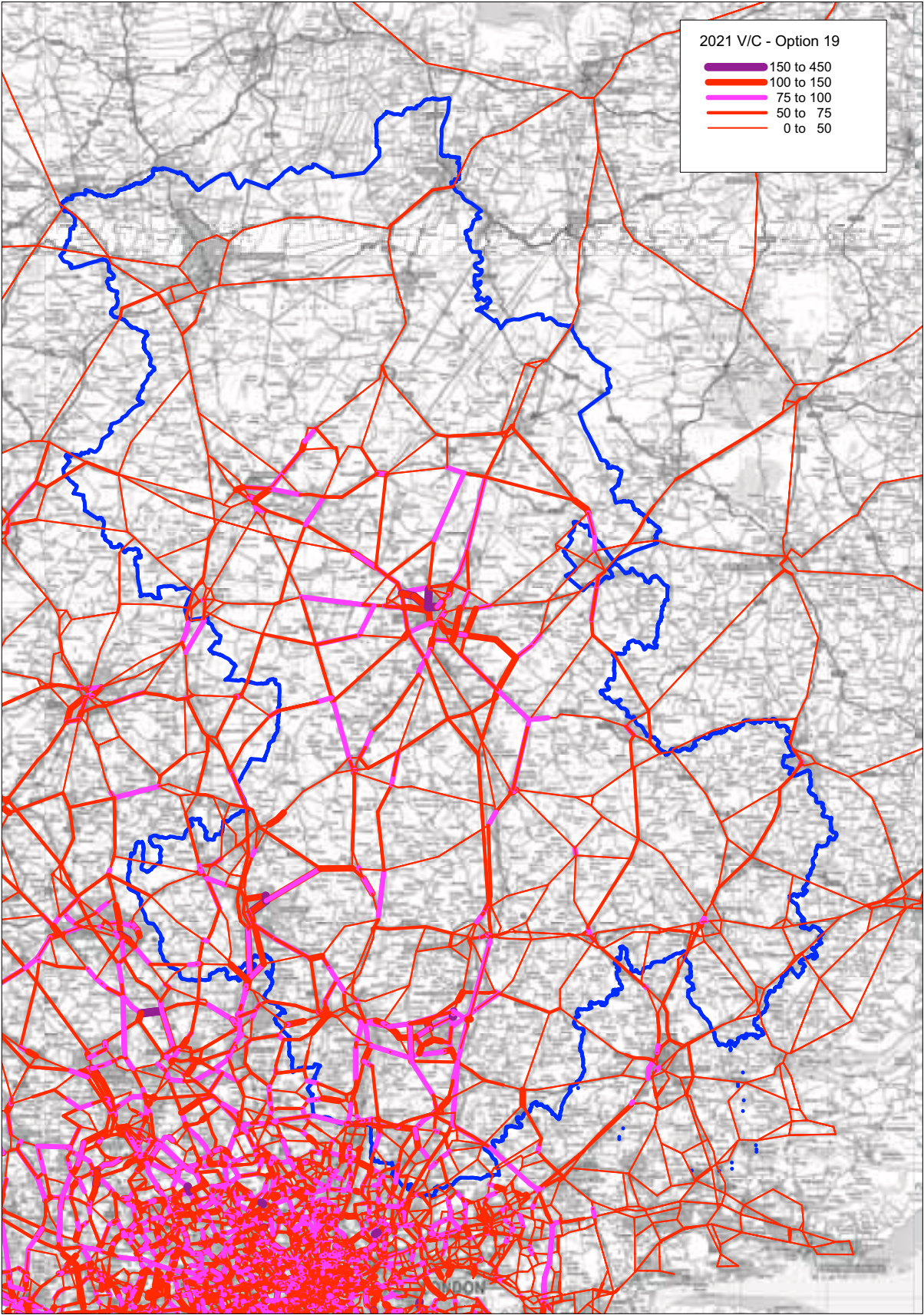












This study was commissioned jointly by ODPM and DfT to give Government and local partners an overview of the development options in the London Stansted Cambridge Peterborough growth area and in particular to consider the relationship between transport and development. It aims to provide a consistent analysis across the growth area of all the significant sustainable development options, and the transport improvements they would require. Although commissioned by ODPM and DfT the views expressed in the report are those of the consultants and not of ODPM, DfT or Go-East.

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