Greater Essex

Demographic Forecasts

Phase 3: Further Scenario Development

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Note

This Report was prepared before publication of the First Release of 2011 Census results on 16th July 2012. Therefore, the report does not include analysis of that data or its impact on the scenario forecasts produced for Phase 3.

Phase 4 of the project is due to advise on the implications for the Phase 3 scenario forecasts of: the first release of 2011 Census results; the 2011 mid-year estimates of population; availability of further 2011 Census data; any other relevant demographic data or studies.

The production of further forecast scenarios within Phase 4 will be decided following consideration of the above analysis and advice. The report of Phase 4 of this Project is expected to be published in autumn 2012.

Foreword

The planning system is changing. The era of regional planning, through Regional Spatial Strategies, is being replaced by a more local approach to decision making regarding local growth and future development. This change is placing new and challenging responsibilities on local planning authorities to consider future growth levels for their own areas.

Local planning authorities will retain responsibility for establishing spatial planning strategies for their area through preparation of Local Development Frameworks or Local Plans. This responsibility will now be discharged in the absence of any prescriptive guidance from a regional tier of government on matters such as policy directions and specific quantitative targets, for example concerning future housing provision. Responsibility for establishing the level of future housing provision in their area will in future rest solely with the individual local planning authorities. A key part of estimating this future provision will be an assessment of the likely future population of each authority's area and the implications for provision of housing, jobs, infrastructure, services and facilities.

Against this background of change the Essex Planning Officers Association (EPOA) has identified the need for early collaboration between authorities on the preparation and use of demographic information. EPOA views the availability of robust and consistent demographic information and forecasts across a wide area as a vital component in any local planning authority evidence base; this then facilitates more informed discussion regarding future development with local communities, neighbouring authorities, infrastructure and service providers, developers and others. In particular, demographic data will be a key component to inform and mobilise the 'duty to cooperate' which the Localism Act places on authorities, their neighbours and other organisations when engaged in policy development and Local Plan preparation.

Over recent years authorities have generally made use of demographic forecasts commissioned by the former East of England Regional Assembly (EERA) for preparing and monitoring the Regional Spatial Strategy. In the absence of EERA, EPOA considers that it is important for authorities to gain the best possible understanding of trends in population and household growth for the period 2011 to 2031. A key issue for consideration will be the effect that current and successive rounds of ONS/CLG population and household projections and other trends may have on current spatial planning policies, particularly those concerning the scale and distribution of future housing provision.

The project, as commissioned by EPOA, envisages an agreed programme of work to be conducted in four phases over a fixed term to summer 2012. A range of demographic forecasts representing a variety of scenarios is to be produced, together with other relevant demographic material. The scenarios will be defined by different parameters, to include migration-led, dwelling-led and economic-led approaches to demographic forecasts.

It is not the intention of this project to produce a recommended or preferred demographic forecast for any area. Rather, the approach is to encourage examination of the demography of each area from different perspectives. Hopefully this will allow appreciation of how the demography of an authority may be influenced by local circumstances and local policy choices. It will be for each local planning authority to determine its use of the forecasts and other outputs from this project to inform its future spatial policy development.

EPOA represents the twelve Local Planning Authorities in Essex, as well as the two unitary authorities of Southend-on-Sea and Thurrock and the County Council of Essex. The Association has also extended a welcome to East Hertfordshire District Council and Welwyn-Hatfield Borough Council as full contributing members of the project. The project also includes preparation of demographic forecast scenarios for additional local planning authorities which are not contributing to the project. This broader approach has been taken in order to provide EPOA members with equivalent demographic data for all their neighbouring authorities or sub-regional partners. This feature of the project is intended to facilitate the 'duty to cooperate' for all EPOA member authorities.

I trust that you find this initiative by the Association to be informative and of assistance at this time of change and uncertainty.

Steve Rogers
Chairman, Essex Planning Officers Association
March 2012

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1. Introduction

Context

1.1 Local authorities in Essex and adjoining areas have historically made use of demographic forecasts commissioned by the former East of England Regional Assembly (EERA). These forecasts informed the preparation and monitoring of the Regional Spatial Strategy (RSS). With the revocation of the RSS and the abolition of the planning functions of the East of England Local Government Association (the successor body to EERA), demographic forecasts and analysis will no longer be available from this source. Local authorities are now charged with the production of a new evidence base to support the preparation of Local Plans and to contribute to other planning activities within the Greater Essex area.

1.2 The Essex Planning Officers Association (EPOA) represents the 12 Local Planning Authorities in Essex, as well as the two unitary authorities of Southend-on-Sea and Thurrock and the County Council of Essex. Heads of planning departments from the authorities meet several times a year to discuss planning issues affecting the whole of Essex and to produce planning guidance documents to support local developments. To replace the demographic services provided by the former EERA, the EPOA has commissioned Edge Analytics to prepare a range of population, household and labour force forecasts to ensure consistency and robustness of evidence across the range of technical studies to be undertaken by EPOA and its member authorities.

1.3 In addition, the two authorities of East Hertfordshire DC and Welwyn-Hatfield BC are contributing to, and participating in, the project on an equal basis to the EPOA member authorities. The inclusion of forecasts for other, non-contributing authorities is for the purpose of enabling the contributing authorities to have an appreciation of neighbouring authorities for the purposes of facilitating the 'duty to cooperate' as now included in the Localism Act 2011.

1.4 Edge Analytics will deliver the required analysis using the POPGROUP suite of demographic forecasting models. These models are used extensively by local authorities across the UK, providing a desktop utility for the evaluation of alternative growth scenarios to support local planning. Under licence to the Local Government Association (LGA), Edge Analytics provides product development and technical support to the product suite and its user base.

EPOA geography

1.5 EPOA has specified its geographical area of interest, which encompasses a total of 24 local authority districts and unitary authorities plus a number of 'macro' areas, created as aggregates of these (Figure 1). Analysis, forecasting and reporting is to be undertaken for each of these defined geographical areas.

Districts & Unitary Authorities

ID	ONS old Area Code	ONS new Area Code	Area	Short label
1	22UB	E07000066	Basildon	BAS
2	22UC	E07000067	Braintree	BTE
3	22UD	E07000068	Brentwood	BRW
4	22UE	E07000069	Castle Point	CPT
5	22UF	E07000070	Chelmsford	CHL
6	22UG	E07000071	Colchester	COL
7	22UH	E07000072	Epping Forest	EPF
8	22UJ	E07000073	Harlow	HLW
9	22UK	E07000074	Maldon	MAL
10	22UL	E07000075	Rochford	ROC
11	22UN	E07000076	Tendring	TEN
12	22UQ	E07000077	Uttlesford	UTT
13	00KF	E06000033	Southend-on-Sea	SOS
14	00KG	E06000034	Thurrock	THU
15	12UB	E07000008	Cambridge	CamCity
16	12UG	E07000012	South Cambridgeshire	SCambs
17	26UB	E07000095	Broxbourne	Brox
18	26UD	E07000097	East Hertfordshire	EHerts
19	26UL	E07000104	Welwyn Hatfield	WelHat
20	42UB	E07000200	Babergh	Babergh
21	42UD	E07000202	Ipswich	Ipswich
22	42UE	E07000203	Mid Suffolk	MidSuff
23	42UG	E07000205	Suffolk Coastal	SufCoast
24	42UF	E07000204	St. Edmundsbury	StEdmun

Macro Areas

ID	Definition	Area	Short label
25	1-12	Essex CC	EssexCC
26	1-14	Greater Essex	GtrEssex
27	1, 4, 10, 13, 14	Essex Thames Gateway	EsxTham
28	3, 5, 9	Heart of Essex	HrtEssex
29	2, 6, 9, 11	Essex Haven Gateway	EssexHG
30	20-23	Suffolk Haven Gateway	SufflkHG
31	2, 6, 9, 11, 20-23	Haven Gateway	HG
32	7, 8, 12	West Essex	Wessex
33	17, 18	Hertfordshire (East)	EastHert
34	7, 8, 12, 17, 18	Stansted/M11 Corridor	StansM11
35	7, 8, 18	Harlow Joint Working Area	Harlow

Figure 1: EPOA study area definition

EPOA project development phases

1.6 EPOA's demographic requirements are to be delivered through an agreed programme of work over a fixed term to summer 2012. Four Phases of work have been identified and this report constitutes a summary of Phase 3 development. The content of each of the four Phases is as follows:

1.7 (1) Demographic model configuration & validation (September/October 2011)

The first phase of work used POPGROUP technology to replicate the 2008-based sub-national population projections (SNPP) from the Office for National Statistics (ONS) plus the accompanying household projections from Communities and Local Government (CLG). This initial validation of the POPGROUP technology demonstrated consistency and equivalence of output to the SNPP and to ONS mid-year estimates and Council Tax data on dwelling stock change since 2001. This phase was a key aspect of the project, providing the EPOA authorities with confidence that public discussion of the forecast scenarios can focus on the policy implications of the scenarios rather than technical demographic issues.

1.8 (2) Scenario analysis & report (October 2011 – January 2012)

Following the configuration and validation work in phase 1, a suite of scenarios was produced to enable an evaluation of alternative growth trajectories. These scenarios included the following:

1. SNPP 2008-base (benchmark)
2. A migration-led scenario (using historical data for 2006-2010)
3. Zero-net migration
4. Dwelling-led – from Annual Monitoring Reports
5. Dwelling-led – draft review RSS
6. Dwelling-led – approved RSS
7. Jobs-led – using the baseline forecast of the East of England Forecasting Model (Autumn 2010)

Scenarios were developed for each of the 24 local authority areas, using a 2033 horizon for each forecast. Results for individual areas were aggregated to produce output for the 11 macro areas. These scenarios have provided an updated evidence base to both support the preparation of Local Plans and to contribute to other planning activities within each local area.

1.9 (3) Demographic model update, scenario analysis & report (May-June 2012)

Phase 3, reported in this document, is to deliver an updated suite of forecast scenarios following review of the availability and continuing relevance of demographic and other data sources used to produce the material presented in previous phases. As a result of this review the forecast scenarios produced in Phase 3 incorporate two important new releases of demographic intelligence:

A. indicative 2010 ONS mid-year population estimates – published on 17 November 2011 these estimates set out new estimates of local authority populations for mid-2006 to mid-2010 based on ONS' revised methodology for estimating the distribution of international migrants within the UK;

B. 2010-based ONS sub-national population projections – published on 21 March 2012, and starting from the indicative 2010 ONS mid-year population estimates, these projections applied revised long-term assumptions on the future trends of fertility, mortality and international migration evident in the five years prior to mid- 2010.

1.10 (4) Demographic model update, scenario analysis & report (July 2012)

A final phase to the project will deliver a report that reviews the 2011 mid-year estimates, availability of 2011 Census data and evaluates the likely impact upon forecasts produced in previous phases. The outcome of this review may result in the production of further scenario forecasts.

Interpreting the Phase 3 evidence

1.11 The development of long-term plans for local areas remains a challenging proposition, with economic conditions and the speed and scale of recovery highly uncertain. The task is made more complex by the additional uncertainty associated with underlying demographic statistics, which have been subject to substantial review and refinement during the ten-years since the last Census was published. The forthcoming 2011 Census results (Phase 4 of this project) will add further evidence to the mix of information that local authority planners are expected to consider as part of the policy development process.

1.12 As stated in the Foreword to this document, it is not the intention of this report to produce a recommended or preferred demographic forecast for any area. Rather, the approach is to encourage examination of the demography of each area from different perspectives. It is

hoped that this will allow appreciation of how the demography of an authority may be influenced by local circumstances and local policy choices. It will be for each local planning authority to determine its use of the forecasts and other outputs from this project to inform its future spatial policy development.

1.13 Throughout each phase of this project, POPGROUP demographic forecasting models have been applied, ensuring a robustness of approach that is consistent with the methods used by ONS for population and household projections and which are now in common use by local authorities across the UK. Whilst the chosen methodologies are sound and the historical data used the latest available, the range of scenarios presented in this, and previous, reports have been derived from a specific set of assumptions; either based on a continuation of existing 'trends' or based on future assumptions on the number of new dwellings built or the number of new jobs created in a local area. When interpreting the output of these scenarios it is important to recognise the basis on which these assumptions have been made.

1.14 The 2010-based ONS sub-national population projections presented in this Phase 3 report were published by ONS in March 2012. They use past trends to project forward the population to give an indication of the future population of each local authority for 25 years from the base year. The projections start from a base year population taken from the indicative mid-2010 population estimates (November 2011) and are also consistent with the principal 2010-based national population projections for England (October 2011). ONS notes that the projections provide an indication of the future size and age structure of the population if recent demographic trends continued. ONS further cautions that population projections become increasingly uncertain the further they are carried forward, and particularly so for smaller geographic areas. Furthermore, they do not take account of any information from the 2011 Census.

In presenting the projections ONS notes that its sub-national population projections are used as a common framework for local area resource allocation, planning and policy making in a number of fields as they are produced in a consistent way. However, ONS goes on to observe that the projections 'are not forecasts and do not take any account of future government or local policies, changing economic circumstances or the capacity of an area to accommodate the change in population'.

The above factors should be borne in mind when interpreting the 2010-based ONS sub-national population projections for each local authority area. The same factors apply equally to the interpretation of the other forecast scenarios produced by this project.

1.15 Phase 3 of this project has produced 5 other scenarios to complement the scenario of the 2010-based ONS population projection. These scenarios are designed to show in statistical terms the demographic outcomes of:

- Rescaling the 2010-based ONS population projection to be consistent with Council Tax dwelling statistics;
- Nil Net Migration – balancing total in-migration to an authority with total out-migration from the authority;
- Approved Regional Spatial Strategy – accommodating the dwelling provisions of Policy H1 of the Strategy, which remains part of the statutory development plan at the time of writing;
- Dwelling Trajectory of the Annual Monitoring Report – accommodating expected dwelling completion rates;
- Economic – achieving the latest baseline jobs growth forecast of the East of England Forecasting Model. It should be noted that linking the economic and demographic models in this way presents particular methodological challenges. Later sections of this report provide guidance on the way in which outputs from the EEFM were used as inputs to the POPGROUP suite of demographic models. It will be important to bear these in mind when interpreting the output of this scenario.

1.16 Each scenario should be subject to assessment against local and sub-regional circumstances. Sustainability and deliverability assessment of the scenarios will be key factors to informing strategic policy formulation to ensure the policies and proposals in Local Plans meet these tests of soundness. Furthermore, given the prevailing economic conditions and the uncertainty with regard to current and future demographic intelligence, it is important for all users of this report to recognise that all forecasts are subject to change. It is imperative that all evidence is subject to monitoring and review as new information is made available and as local communities adapt to changing economic conditions.

Structure of the Phase 3 report

1.17 Section 2 of this report provides a summary of the new demographic intelligence and other relevant information that has become available since completion of the Phase 2 analysis. This includes an illustration of the changes that have been made to 2006-2010 mid-year estimates in each EPOA local authority and an indication of the key assumptions that have driven the latest ONS 2010-based national and sub-national projections.

Section 3 continues this analysis with an illustration of the latest 2010-based sub-national projections for each of the 24 local authority areas; comparing this latest evidence with previous ONS projections, based in 2004, 2006 and 2008.

Section 4 details the data and assumptions used in the demographic analysis and in the development of the Phase 3 scenarios.

Section 5 provides a definition of the scenarios developed in Phase 3 and the assumptions underlying these scenarios. Section 6 presents the results from the scenarios for each of the 24 local authority areas, plus the macro areas.

Section 7 provides a number of concluding comments to the analysis, in anticipation of Phase 4. The Appendices provide additional information on POPGROUP and EEFM methodology and a Glossary of terms to aid interpretation.

2. Updating the demographic intelligence

ONS mid-year population estimates

2.1 In the absence of a population register, England and Wales rely on successive, annual updates of 2001 Census data to produce mid-year population estimates (MYE). ONS estimates the mid-year population for each local authority area using data on births and deaths, internal migration and international migration. These estimates provide the statistical baseline for the creation of both national and sub-national population projections.

2.2 Birth and death statistics are derived from vital statistics registers and provide an accurate measure of 'natural change' by local area. Internal migration data are derived from GP registers, providing the best available representation of inter-district flows. International migration is the most difficult component to estimate with confidence at the local level.

2.3 ONS has had an ongoing programme of 'improvement' to its estimation methodologies to ensure the most accurate data on immigration and emigration is used in its MYE. In November 2011, ONS released revisions to MYE for years ending mid 2006-2010, using a revised methodology for international migration estimation based upon an approach developed by Dr Peter Boden and Professor Phil Rees working at the University of Leeds [1,2].

[1]Boden P and Rees P (2010) Using administrative data to improve the estimation of immigration to local areas in England, Statistics in Society – Series A, Volume 173 Issue 4m, p707-731, October 2010
http://onlinelibrary.wiley.com/doi/10.1111/j.1467-985X.2009.00637.x/abstract

[2]ONS (2011) Improved Immigration Estimates to Local Authorities in England and Wales: Overview of Methodology
http://www.ons.gov.uk/ons/guide-method/method-quality/imps/improvements-to-local-authority-immigration-estimates/index.html

2.4 Importantly, the revised methodology has not changed the 'scale' of international migration at a national level but has changed the way the national immigration total has been distributed to local authority areas. The revised methodology uses a combination of local administrative sources (GP registrations, National Insurance Number registrations and Higher Education statistics) to estimate immigration flows to local authorities for 2006-2010. The methodology for estimating the distribution of emigration from local authorities remains unchanged. For these reasons, some local authorities have seen international migration estimates increase; some have decreased. As a result, population change has been similarly affected for those authorities.

2.5 These population revisions are referred to as 'indicative' MYE. Although they have not been

given 'official statistics' status, they have been used as the basis for the development of the 2010-based sub-national projections for local authorities in England and Wales. This is particularly important for those authorities where the application of the new international migration estimation methodology has resulted in a significant change to the mid-year estimates. ONS has used the revised 2006-2010 history of international migration as direct input to its long-term assumptions on immigration and emigration for each local area.

2.6 The 'impact' of the new international migration estimation methodology upon mid-year population estimates at 2010 varies between local authorities in the EPOA study area (Figure 2).

Population Estimates

Area	2010	2010 (revised)	Difference	% Difference
Basildon	175,212	171,031	-4,181	-2.4%
Braintree	144,032	144,592	560	0.4%
Brentwood	74,785	72,628	-2,157	-2.9%
Castle Point	89,402	89,216	-186	-0.2%
Chelmsford	169,542	165,823	-3,719	-2.2%
Colchester	181,016	174,388	-6,628	-3.7%
Epping Forest	124,738	125,146	408	0.3%
Harlow	81,658	80,635	-1,023	-1.3%
Maldon	63,242	62,635	-607	-1.0%
Rochford	83,354	83,056	-298	-0.4%
Tendring	148,543	148,117	-426	-0.3%
Uttlesford	77,501	77,776	275	0.4%
Southend-on-Sea	165,311	162,320	-2,991	-1.8%
Thurrock	159,658	156,513	-3,145	-2.0%
Cambridge	125,717	105,545	-20,172	-16.0%
South Cambridgeshire	146,406	147,349	943	0.6%
Broxbourne	90,609	90,849	240	0.3%
East Hertfordshire	138,476	137,712	-764	-0.6%
Welwyn Hatfield	114,368	116,356	1,988	1.7%
Babergh	85,561	86,100	539	0.6%
Ipswich	128,269	125,530	-2,739	-2.1%
Mid Suffolk	94,987	95,189	202	0.2%
Suffolk Coastal	124,281	124,603	322	0.3%
St. Edmundsbury	104,533	104,329	-204	-0.2%
Essex CC	1,413,025	1,395,043	-17,982	-1.3%
Greater Essex	1,737,994	1,713,876	-24,118	-1.4%
Essex Thames Gateway	672,937	662,136	-10,801	-1.6%
Heart of Essex	307,569	301,086	-6,483	-2.1%
Essex Haven Gateway	536,833	529,732	-7,101	-1.3%
Suffolk Haven Gateway	433,098	431,422	-1,676	-0.4%
Haven Gateway	969,931	961,154	-8,777	-0.9%
West Essex	283,897	283,557	-340	-0.1%
Hertfordshire (East)	229,085	228,561	-524	-0.2%
Stansted/M11 Corridor	512,982	512,118	-864	-0.2%
Harlow Joint Working Area	344,872	343,493	-1,379	-0.4%
All Areas	**2,891,201**	**2,847,438**	**-43,763**	**-1.5%**

Figure 2: Revisions to Mid-Year Population Estimates, November 2011 (Source: ONS)

2.7 The overall impact within the study area has been a 1.5% reduction in the 2010 population estimate. Although minor adjustments have been made to internal migration assumptions, the 1.5% reduction is due predominantly to changes to international migration estimates for local authority areas. By far the largest impact is evident in Cambridge, with a 16% reduction in its 2010 population total. Basildon, Brentwood, Chelmsford, Colchester, Thurrock and Ipswich all experienced reductions in excess of 2%.

2.8 The importance of these changes to the estimates is not just in the relative increase or decrease in the total population. More importantly, changes to the historical impact of international migration upon population change will have an impact upon assumptions derived for the 2010-based population projections. For example, the trend projection for Colchester for the year 2010 to 2011 shows a reduction of 1,100 in the net inflow of international migrants from 2,200 in the 2008-base projection to 1,100 in the 2010-base projection.

The importance of the 'components' of demographic change in driving historical and projected population change in EPOA local authorities is explored further in section 3.

ONS 2010-based national and sub-national projections

2.9 Whilst the MYE revisions have changed the base population and relative importance of international migration in the sub-national population projections, ONS has also introduced new assumptions on the likely trends in fertility, mortality and international migration[3]. These long-term assumptions are used by ONS to first create a 'national' population projection and then to develop its sub-national projections (constrained to the national total). A panel of experts is used to help set the assumptions, based upon an analysis of recent demographic trends and an assessment of their future impact.

[3]ONS (2012) National Population Projections, 2010-based reference volume: Series PP2 Release
www.ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Projections

2.10 The trend in **fertility** is illustrated using the Total Fertility Rate (TFR) which measures the average number of children that would be born to a woman if she were to experience age-specific fertility rates (ASFRs) throughout her lifetime. The assumption in the 2010-base projection is for a peak in fertility levels to be achieved in 2012/13 with a TFR of approximately 2.05, declining to achieve a level of 1.85 from 2026 (Figure 3). The short-term trend is different to that evident in the 2008-based projections, reflecting a TFR of 2.0 at

2010 compared with an assumption of 1.9 in the 2008-base projection. The long-term assumption remains unchanged at 1.85, although it is now assumed to be attained at a later date than in the 2008-base projection.

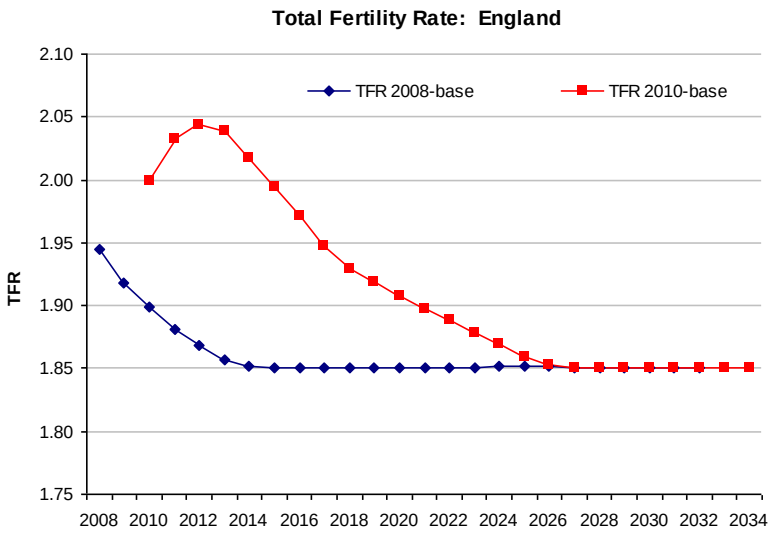


Figure 3: 2010-based national fertility assumptions (Source: ONS)

2.11 What impact do the **fertility** assumptions have on local authority projections?

Each local authority has its own age-specific fertility profile, reflecting locally higher or lower birth rates. The ONS national assumption on fertility determines how this local profile changes over time, applying a 'trend' to the age-specific fertility rates. The actual number of births that result from the fertility assumption will be driven by changes over time in the local age-specific rates and in the age profile of the female population.

2.12 The trend in **mortality** is illustrated using expected improvements in life expectancy, both at birth and at age 65 (Figure 4). Expectation of life at birth is expected to continue to rise from 78.9 years in 2010/11 to 83.6 years in 2034/35 for men and from 82.8 years in 2010/11 to 87.2 years in 2034/35 for women. In the 2010-based projection assumptions, these life expectancies are translated into age-specific mortality rates (ASMR). The 2010-based trend is very similar to the 2008-based assumption, although starting from a slightly higher base figure than the 2008-based data suggested.

2.13 What impact do the **mortality** assumptions have on local authority projections?

Each local authority has its own age-specific mortality profile, reflecting locally higher or lower death rates. The ONS national assumption on mortality determines how this local

profile changes over time, applying a 'trend' to the age-specific fertility rates. The actual number of deaths that result from the mortality assumption will be driven by changes over time in the local age-specific rates and in the age profile of the resident population.

	Males			Females		
	2010-11	2024-25	2034-35	2010-11	2024-25	2034-35
	years			*years*		
Period expectation of life at birth	78.9	82.1	83.6	82.8	85.6	87.2
Period expectation of life at age 65	18.4	21.1	22.3	21.0	23.4	24.7

Figure 4: 2010-based national mortality assumptions (Source: ONS)

2.14 The most significant long-term assumptions influencing population projections for local authorities relate to migration flows. The ONS *national* population projections identify and make assumptions about international migration; people moving into or out of the UK

In addition, the ONS *sub-national* population projections also make assumptions about internal migration; people moving between local authority areas in England.

Both types of flow define a migrant as a person who moves his or her usual residence for a period of at least a year (12 months), so that the destination effectively becomes his or her new usual residence. Therefore anyone staying/going for less than 12 months is excluded from the migration flows.

2.15 The 2010-based national population projection has assumed that long-term net inward migration to the UK will be 200,000 persons per year from 2016–17 onwards. This compares with the assumed long-term net inflow of 180,000 a year in the 2008-based projections (Figure 5). In addition the 2010-based projections assume that the +200,000 level is reached after a peak of +240,000 is achieved in 2012.

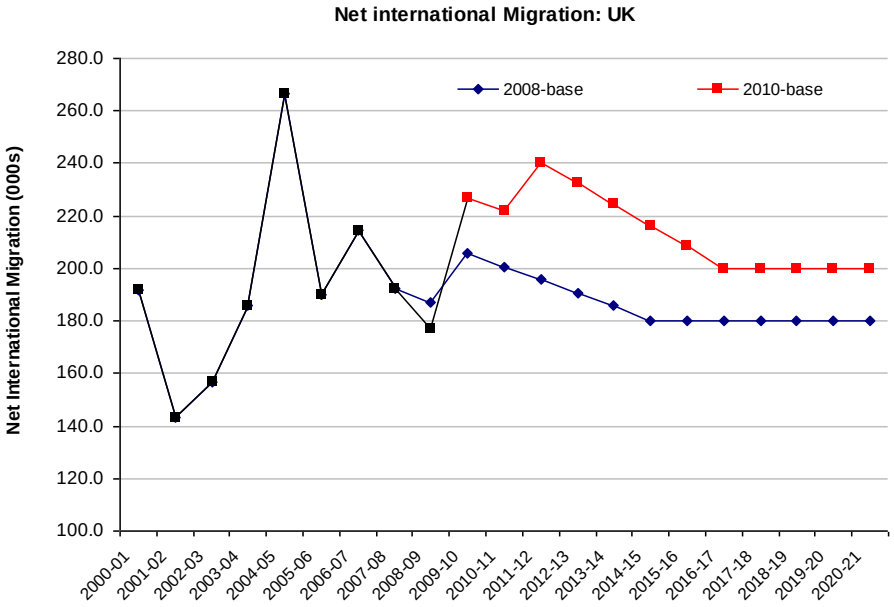


Figure 5: National international migration assumptions (Source: ONS)

2.16 What impact do the **international migration** assumptions have on local authority projections? These 'national' totals are significant as they combine with 2006-2010 historical evidence for each local authority, to produce the sub-national assumptions on immigration and emigration for each area. If international migration has made a significant contribution to population growth historically, then these long-term assumptions ensure that this impact continues, albeit at a slightly reduced level, over the 25-year projection period.

2.17 What impact do the internal migration assumptions have on local authority projections? By definition the internal migration assumptions for England as a whole sum to zero. The impact on individual authorities will vary depending not only on their own local trends but also on the trends influencing out-migration from those authorities from which they have historically received migrants. This is because the ONS methodology calculates the number of migrants expected to leave a local authority and distributes that outflow to all other authorities. This distribution is based on the proportion of migrants moving to each authority from the originating authority over the previous five years. As a consequence, an authority can experience an increase in net internal migration because of increased outflows from other authorities. It is particularly this feature of the sub-national projections that contributes to ONS cautioning that the projections do not reflect future local policy or reflect the ability of areas to accommodate the projected change in population.

2.18 Combined with the impact of migration between English local authorities is the impact of cross-border migration. Overall, the ONS long-term assumption for the 2010-base projection is for a net outflow of 15,500 a year from England to the other home countries. This is an increase from the assumed net outflow of 14,000 in the 2008-base projection. Cross-border migration has a minimal effect on the population projection for local authorities in the study area.

3. ONS Sub-National Projections – comparison of the series

Summary

3.1 Using the most recent (5-year) historical evidence on local demographic change, together with long-term assumptions on the components of change, ONS periodically publishes its 'official' sub-national population projections. In March 2012, ONS released its 2010-based sub-national projections, incorporating its revised 2006-2010 mid-year population estimates and the new (national) assumptions on fertility, mortality and international migration.

3.2 These 2010-based projections provide the 'official' trend projections for each local authority area, with a 25 year time-horizon, terminating in 2035. Given the important revisions to mid-year population estimates and the new estimates of immigration for local authority areas, there are significant differences between the previous 2008-based projections and the latest, 2010-based projections (Figure 6).

3.3 In Figure 6, projected population growth over a 25-year horizon is compared for each local authority and macro area. Population change has been calculated for 2008-2033 for the 2008-based projections and for 2010-2035 for the 2010-based projections. In total, for the 24 authorities covered by this study, the 2010-based projection results in a population growth projection that is 10.5% (-77,000) lower than the corresponding 2008-based estimate. There are significant variations between authorities around this average.

3.4 Ipswich and Cambridge experience the largest absolute fall in projected growth (-17,000) with decreases in excess of 10,000 also evident in Basildon, Chelmsford, Colchester and Suffolk Coastal. Although the general pattern is for lower growth forecasts in the 2010-based projections, a number of local authority areas exhibit higher growth trajectories. Most significantly, projected population growth in Epping Forest increases by 13,000 over the 25-year horizon. East Hertfordshire, Broxbourne and Uttlesford also experience higher growth in the 2010-based projections, in excess of 7,000 in each case.

3.5 What is driving these changes in projected population?

A number of factors will be working, in combination, to produce the population growth projections that are evident in the 2010-based statistics:

- The scale and pattern of fertility, mortality and migration experienced by each local authority in the five years period 2006-2010 has been used as the basis for the trend projection.

- The national assumptions on fertility, mortality and international migration defined by ONS will influence how long-term demographic change affects a local area.

- Changes to international migration estimation for 2006-2010 will modify the significance of this component of change compared to the 2008-based projection. If immigration totals have been reduced from previous estimates, this will generally mean lower population growth in the future resulting from international migration; vice versa if estimates have been increased.

- Internal migration is determined from historical trends. But, future levels of projected migration inflow to an authority will also continue to be influenced by population growth in local authority areas in other parts of the UK. This is particularly significant for EPOA districts which have historically been recipients of migrants from London Boroughs. Continued population growth in these Boroughs will drive higher out-migration, resulting in higher in-migration to receiving local authorities.

Population Growth

Area	SNPP 2008-based Change 2008 - 2033	SNPP 2010-based Change 2010 - 2035	Difference	% Difference
Basildon	45,671	31,867	-13,804	-30.2%
Braintree	39,615	35,429	-4,186	-10.6%
Brentwood	20,543	17,612	-2,931	-14.3%
Castle Point	12,241	13,559	1,318	10.8%
Chelmsford	45,181	29,452	-15,729	-34.8%
Colchester	72,929	59,014	-13,915	-19.1%
Epping Forest	19,441	32,848	13,407	69.0%
Harlow	11,521	17,499	5,978	51.9%
Maldon	16,200	11,269	-4,931	-30.4%
Rochford	17,798	16,313	-1,485	-8.3%
Tendring	46,403	39,025	-7,378	-15.9%
Uttlesford	18,117	25,585	7,468	41.2%
Southend-on-Sea	31,369	37,193	5,824	18.6%
Thurrock	52,017	49,419	-2,598	-5.0%
Cambridge	19,803	2,747	-17,056	-86.1%
South Cambridgeshire	40,113	40,344	231	0.6%
Broxbourne	13,603	21,560	7,957	58.5%
East Hertfordshire	24,050	32,750	8,700	36.2%
Welwyn Hatfield	39,269	42,759	3,490	8.9%
Babergh	15,456	10,326	-5,130	-33.2%
Ipswich	43,732	26,022	-17,710	-40.5%
Mid Suffolk	28,322	21,512	-6,810	-24.0%
Suffolk Coastal	42,574	27,575	-14,999	-35.2%
St. Edmundsbury	20,334	17,557	-2,777	-13.7%
Essex CC	365,660	329,472	-36,188	-9.9%
Greater Essex	449,046	416,084	-32,962	-7.3%
Essex Thames Gateway	159,096	148,351	-10,745	-6.8%
Heart of Essex	81,924	58,333	-23,591	-28.8%
Essex Haven Gateway	175,147	144,737	-30,410	-17.4%
Suffolk Haven Gateway	130,084	85,435	-44,649	-34.3%
Haven Gateway	305,231	230,172	-75,059	-24.6%
West Essex	49,079	75,932	26,853	54.7%
Hertfordshire (East)	37,653	54,310	16,657	44.2%
Stansted/M11 Corridor	86,732	130,242	43,510	50.2%
Harlow Joint Working Area	55,012	83,097	28,085	51.1%
All Areas	**736,302**	**659,236**	**-77,066**	**-10.5%**

Note: Population change has been calculated for 2008-2033 for the 2008-based projections and for 2010-2035 for the 2010-based projections, equivalent 25-year periods.

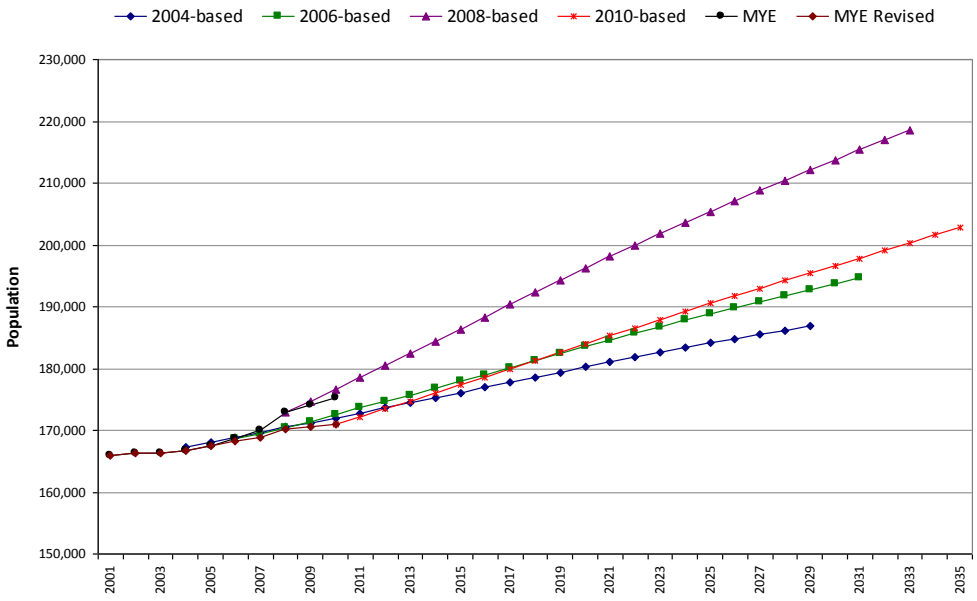
Figure 6: Population growth projections – 2008-based vs 2010-based (Source: ONS)

Estimates, projections and components of change

3.6 To illustrate the extent of change between successive 'official' projections and to indicate the relative importance of the 'components' of change in the latest 2010-based trend projections, a **summary sheet** for each local authority is presented in two parts, as follows:

3.7 Population estimates and projections

A summary chart illustrates the impact of the recent mid-year estimate revisions and indicates the trajectories of *population* growth that have been produced by successive ONS projections.



The following data are represented on the chart:

- **MYE**: Original mid-year population estimate
- **MYE Revised**: Revised mid-year population estimate

- **2004-based**: 2004-based population projection
- **2006-based**: 2006-based population projection
- **2008-based**: 2008-based population projection
- **2010-based**: 2010-based population projection

The example chart above shows that:

- The 2006-base projection was above the 2004-base projection and the 2008-base

projection was higher than both;

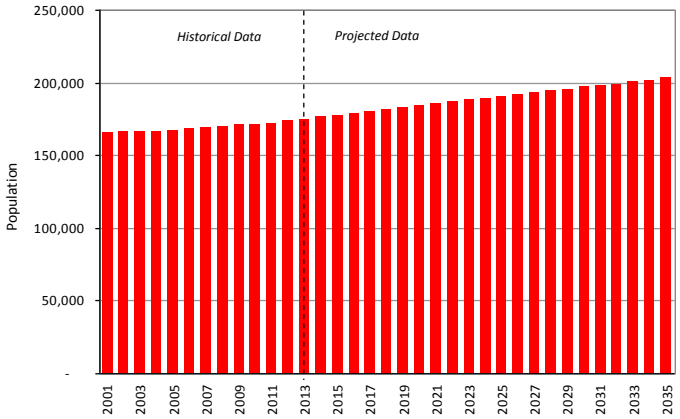
- The original MYE for 2010 was below the trajectory of the 2008-base projection;
- The indicative MYE for 2010 is below all three previous projection trajectories;
- The 2010-base projection starts from a lower population than any of the three previous projections but it has a faster growth rate than the 2004-base and 2006-base projections and so projects a higher population from 2013 and 2019 respectively.

3.8 2010-based SNPP and components of change

Two additional charts illustrate the population growth trend estimated by the 2010-based projection, plus the components of change that are estimated to be driving this growth.

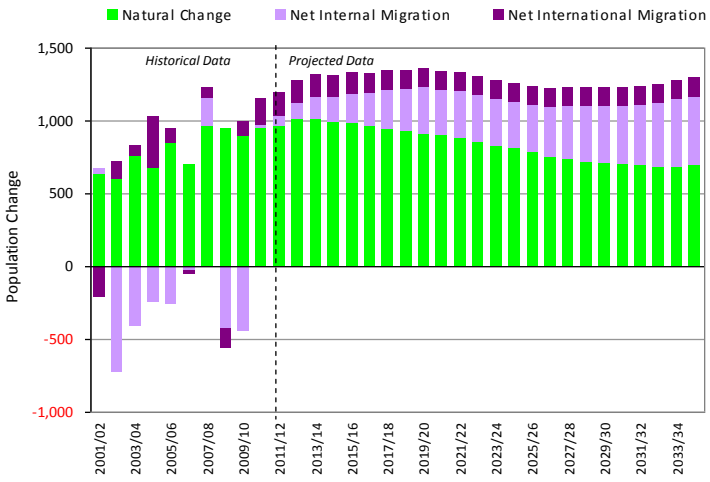
Example Area

The first chart is a simple illustration of the projected growth in population, 2010-2035 (equivalent to the red line on the main chart).



Example Area

The second chart provides an indication of the relative importance of each 'component of change' to population growth.



3.9 The 'components of change' are colour-coded and defined as follows:

Natural Change (the difference between births and deaths)

Net internal migration (the difference between in- and out-migration within the UK)

Net international migration (the difference between immigration and emigration)

The individual bars illustrate the year-on-year change in population (as shown in the red bar chart) accounted for by the three components of change. For any year, the components chart may show a decrease in the level of annual growth of individual components. But, if the sum of all the components is positive it would still be reflected as an increase in the red population growth chart. If the sum of the individual components of change is itself 'negative', then a corresponding reduction in population will be evident on the red bar chart.

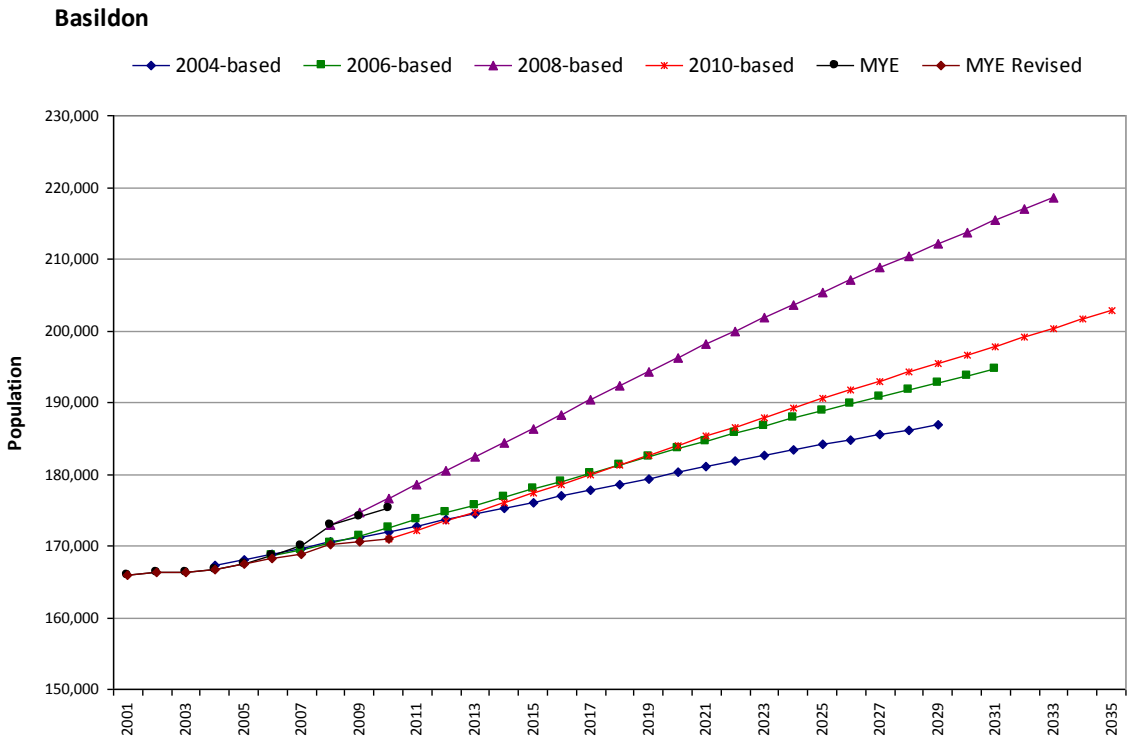
The example chart above containing the components of change shows that:

- Losses due to net out migration slowed historic population growth;
- All components are projected to increase in the future;
- Natural change contributes the largest share of population growth, but at declining levels into the future;
- Internal migration increases during the projection period;
- International migration makes the smallest contribution to total population change and is assumed to remain stable into the future.

3.10 Comparison of this chart for each of the 24 local authority areas reveals the extent to which individual components of change have driven historical population change and their relative importance as drivers of long-term population growth in the trend projection.

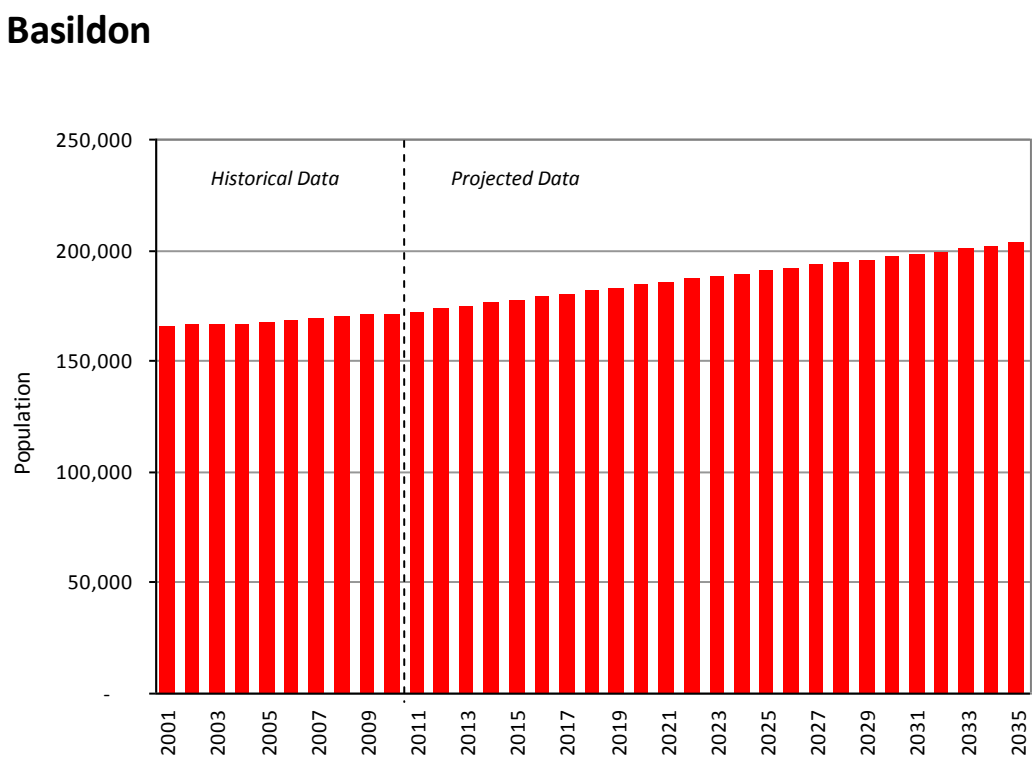
Basildon

1. Population estimates and projections (Source: ONS)

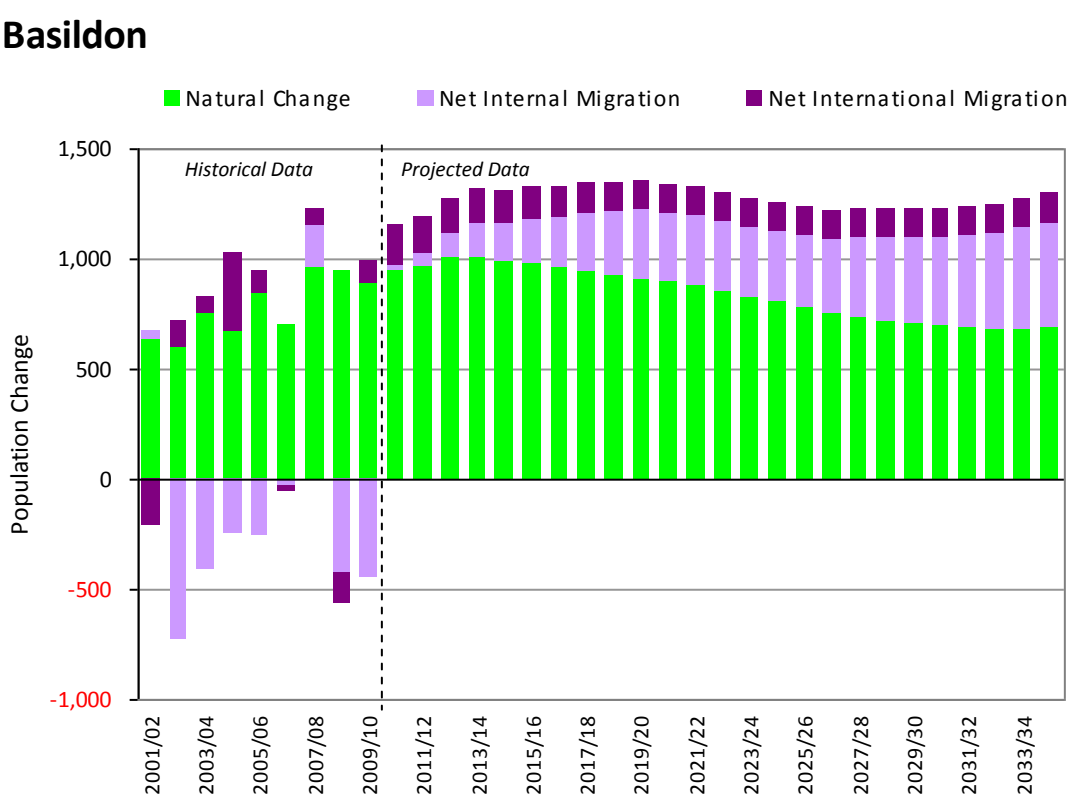


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

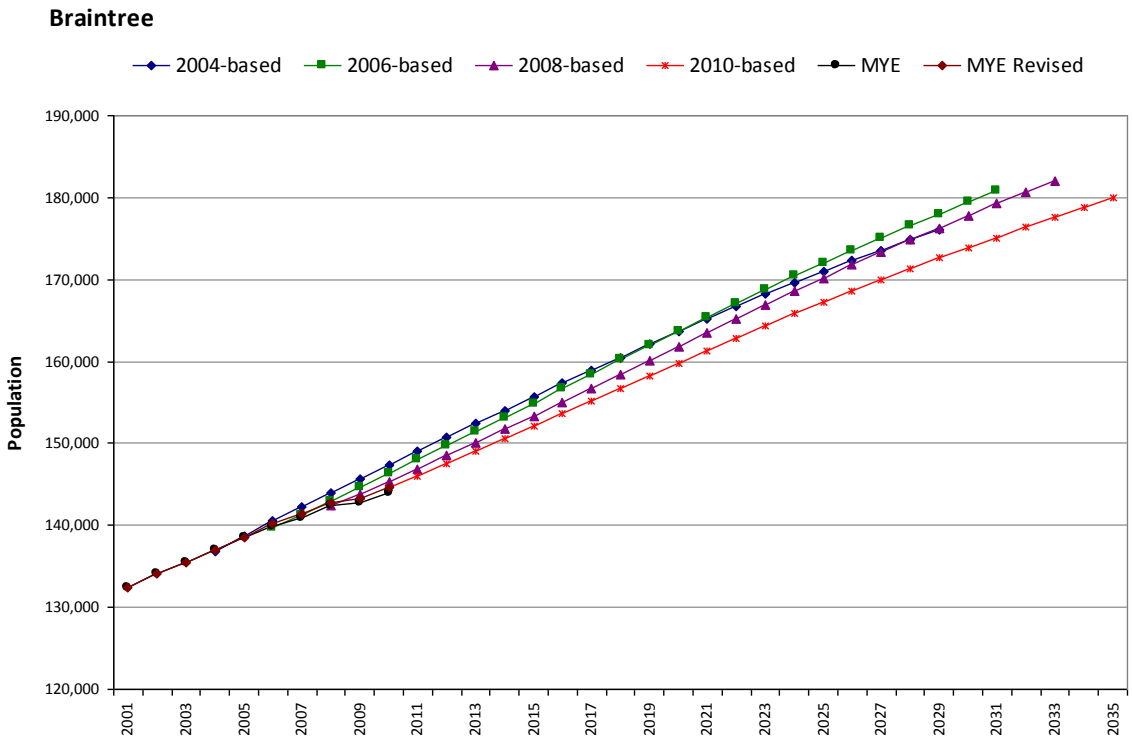


3. 2010-based sub-national population projections: components of change (Source: ONS)



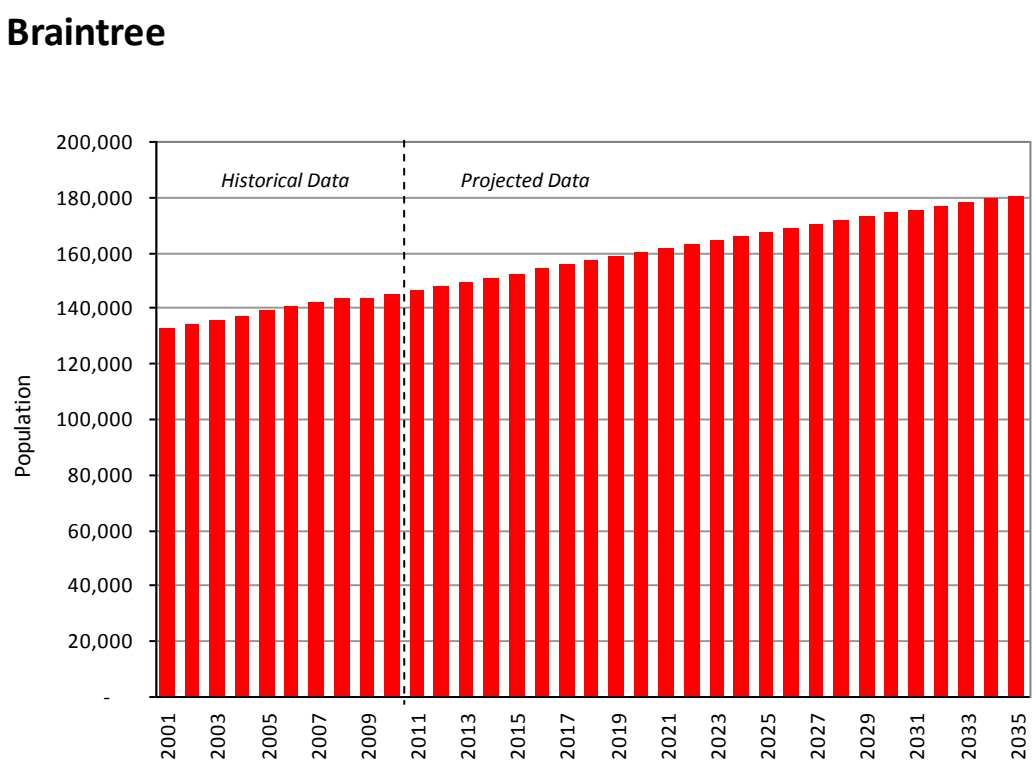
Braintree

1. Population estimates and projections (Source: ONS)

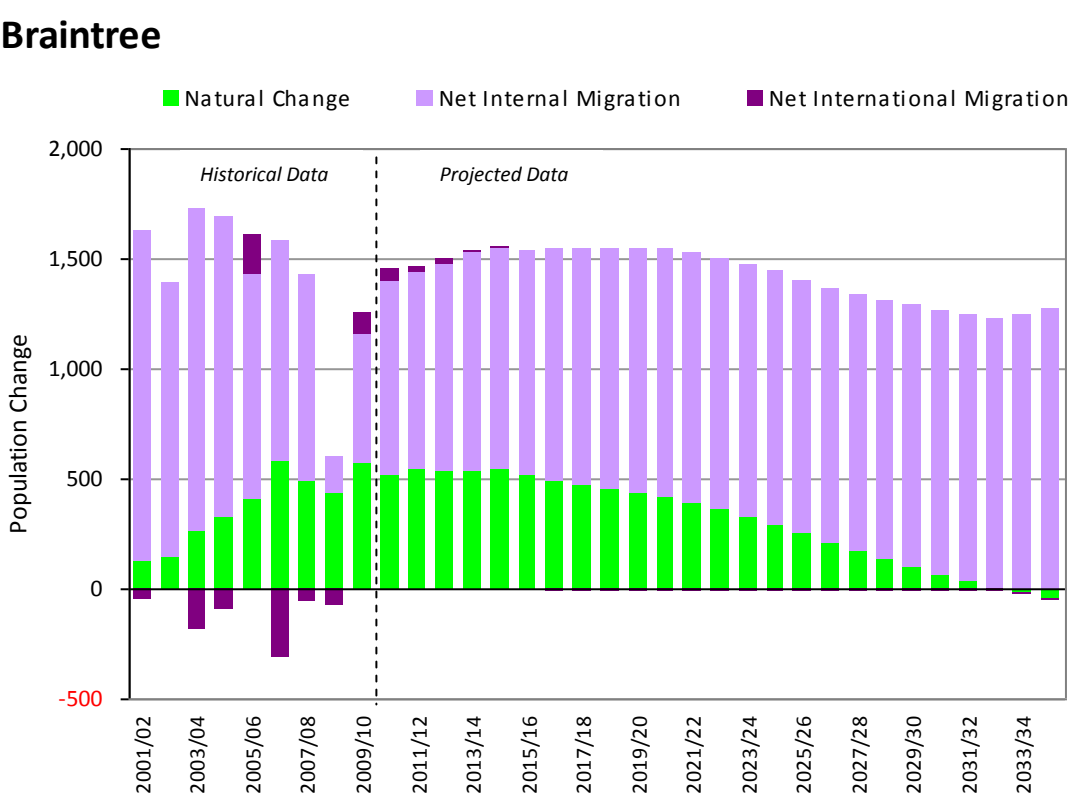


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

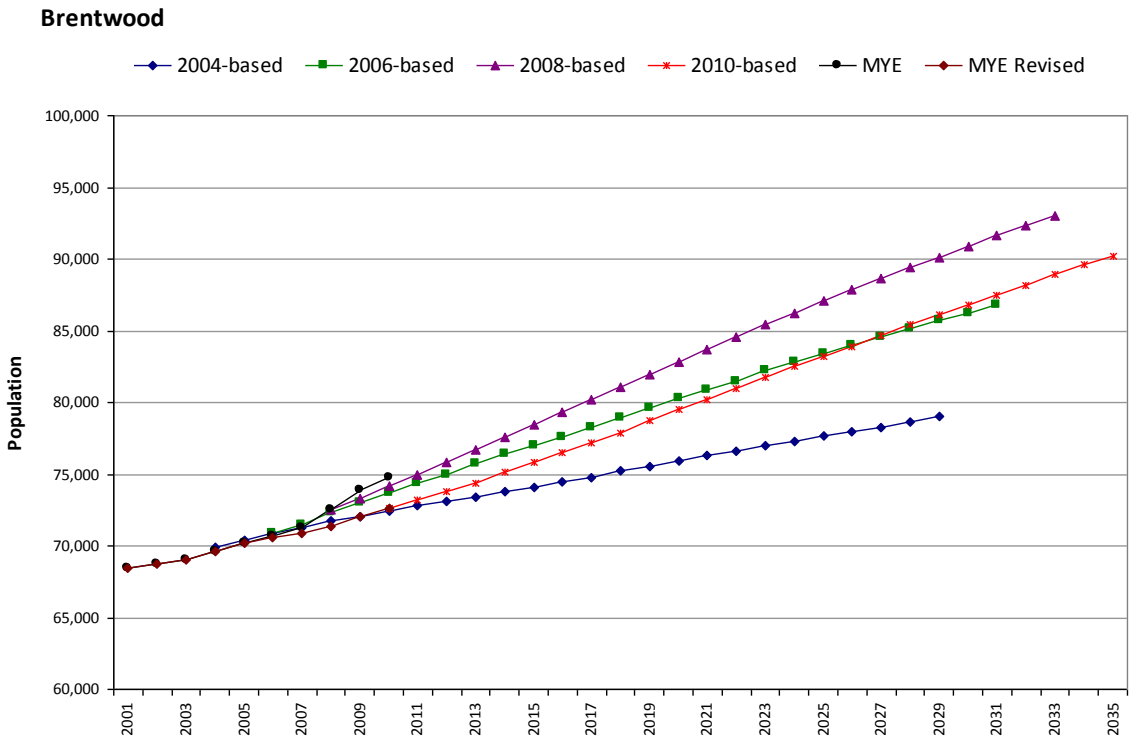


3. 2010-based sub-national population projections: components of change (Source: ONS)



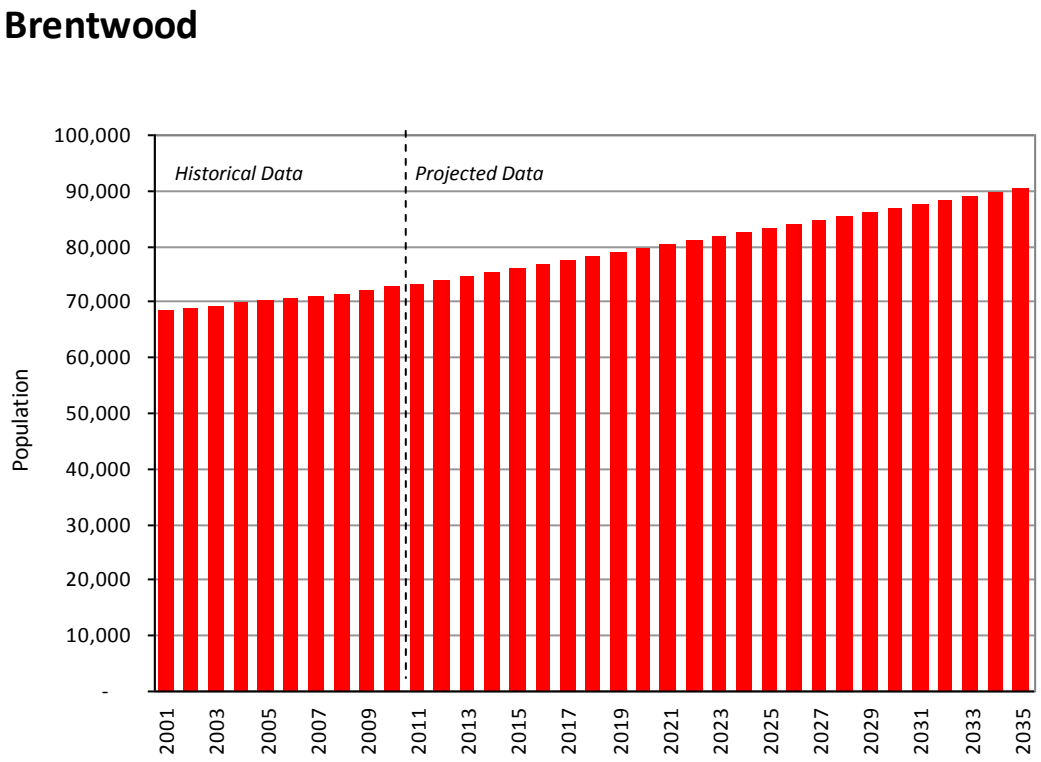
Brentwood

1. Population estimates and projections (Source: ONS)

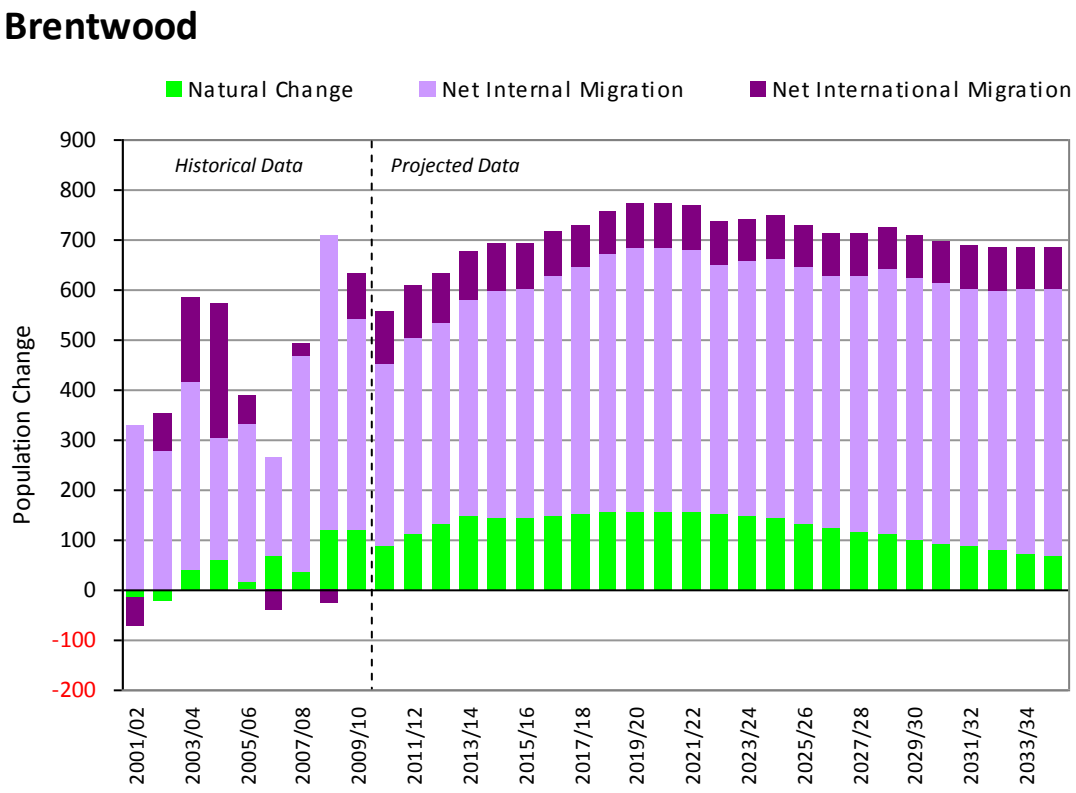


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

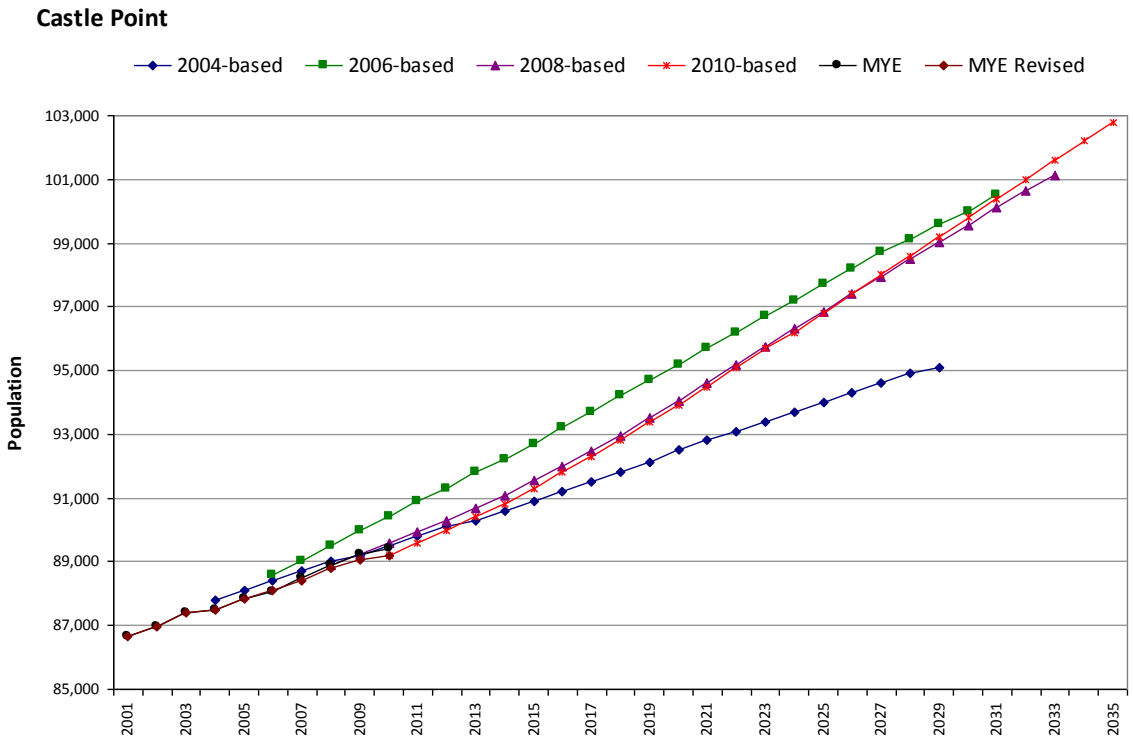


3. 2010-based sub-national population projections: components of change (Source: ONS)



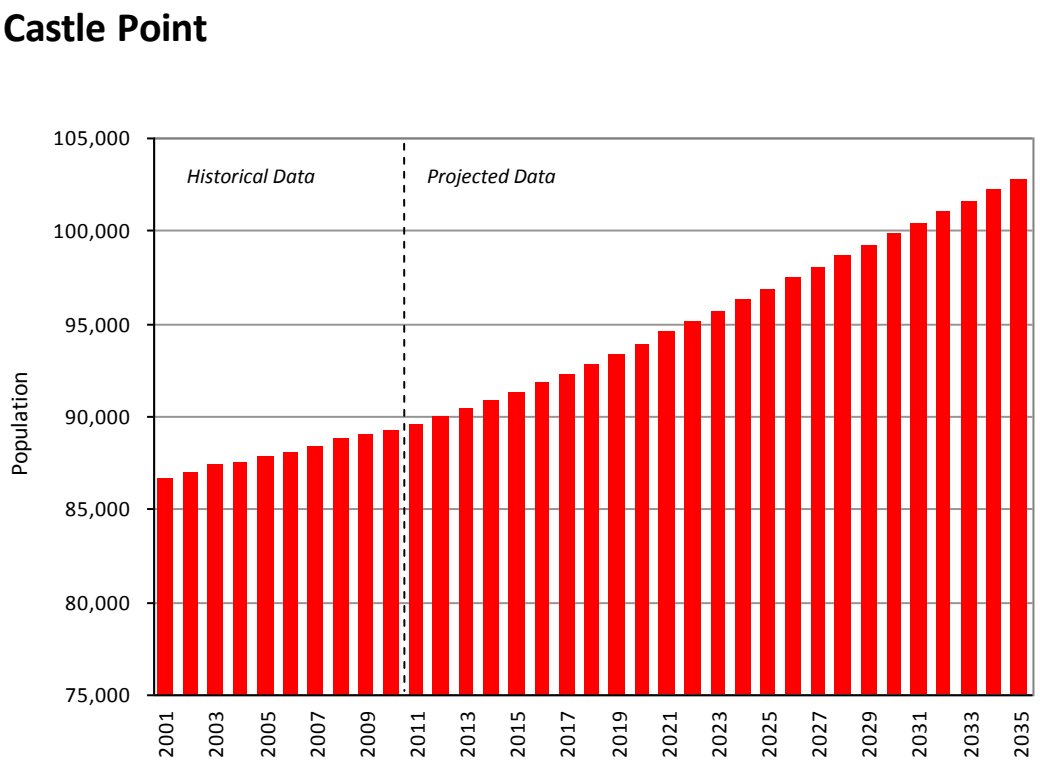
Castle Point

1. Population estimates and projections (Source: ONS)

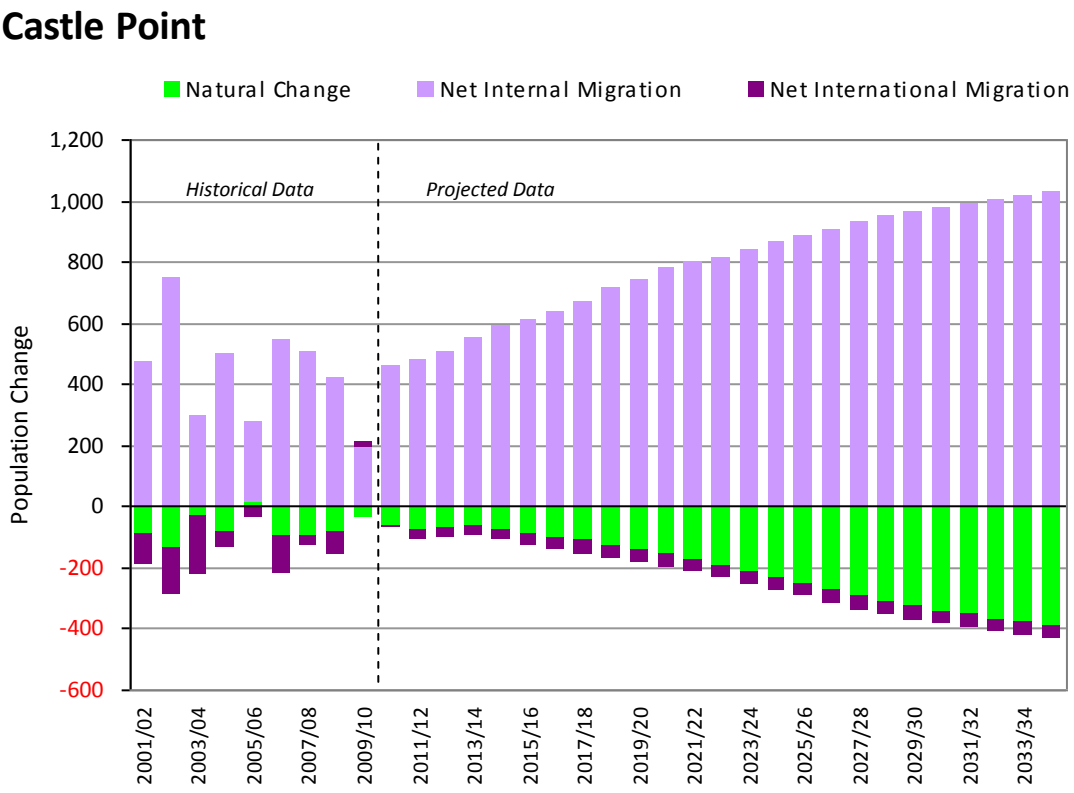


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

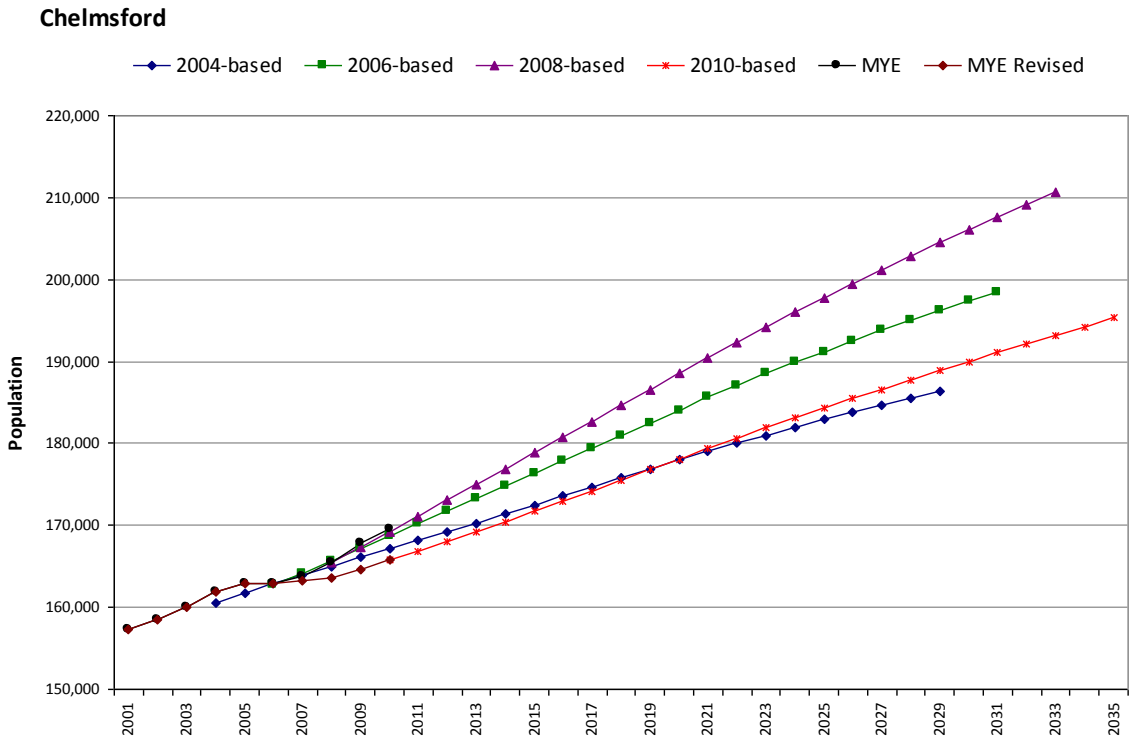


3. 2010-based sub-national population projections: components of change (Source: ONS)



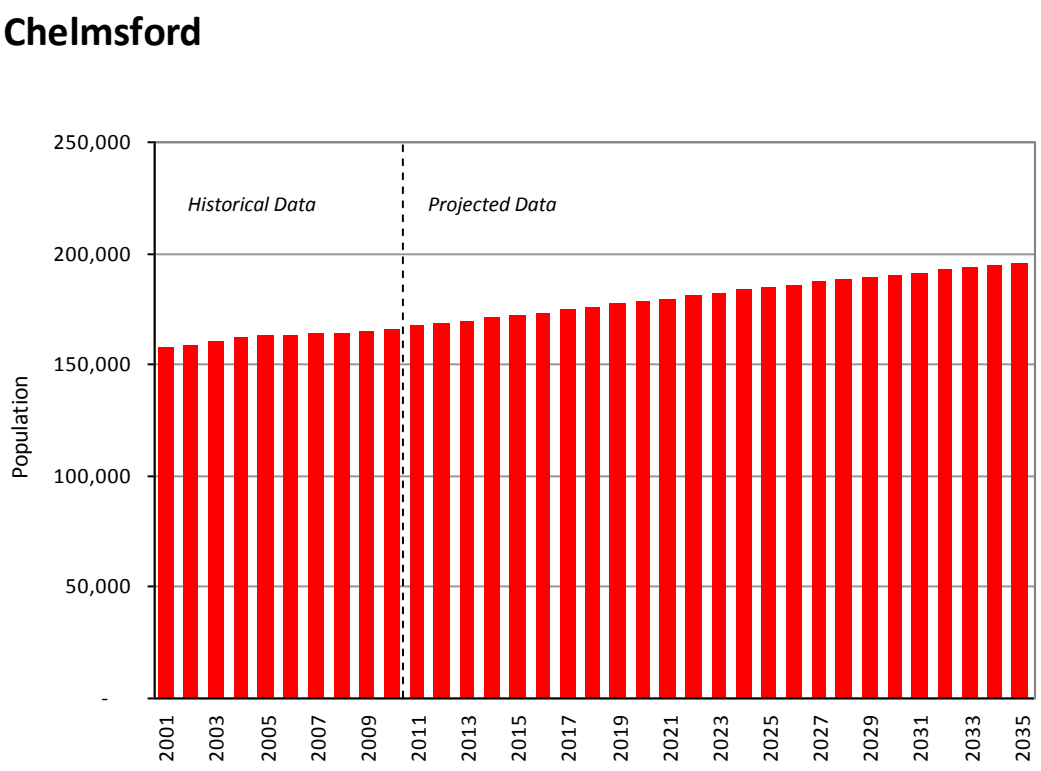
Chelmsford

1. Population estimates and projections (Source: ONS)

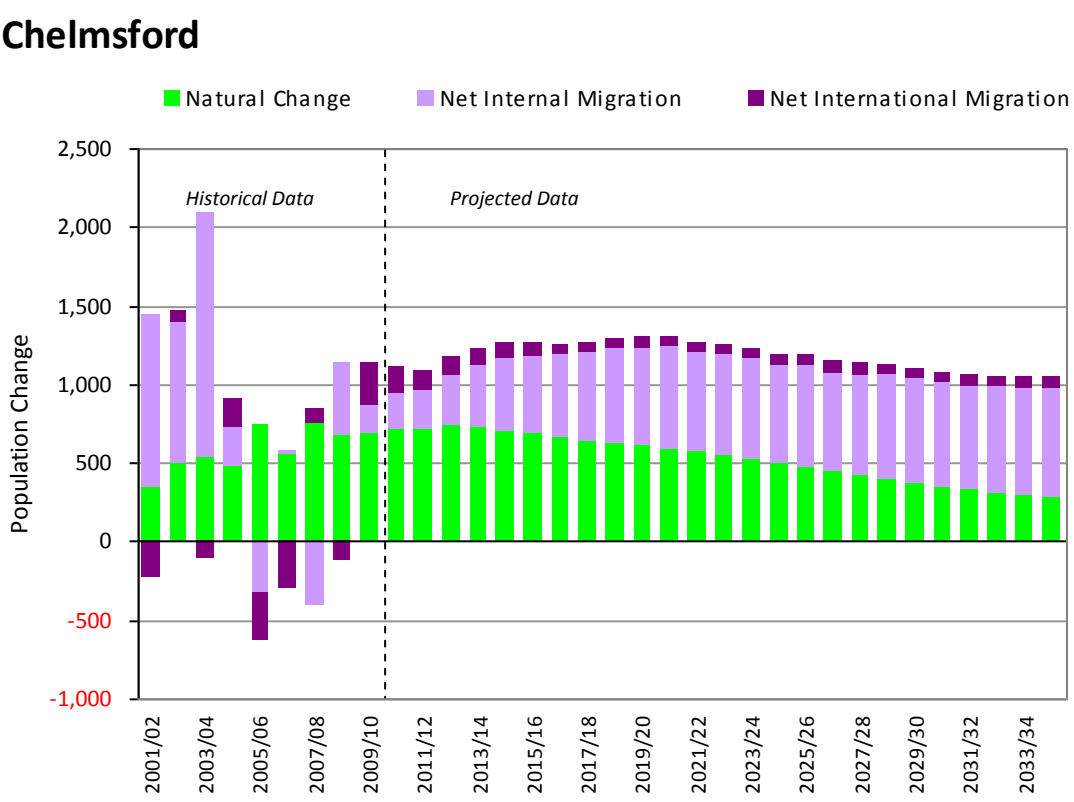


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

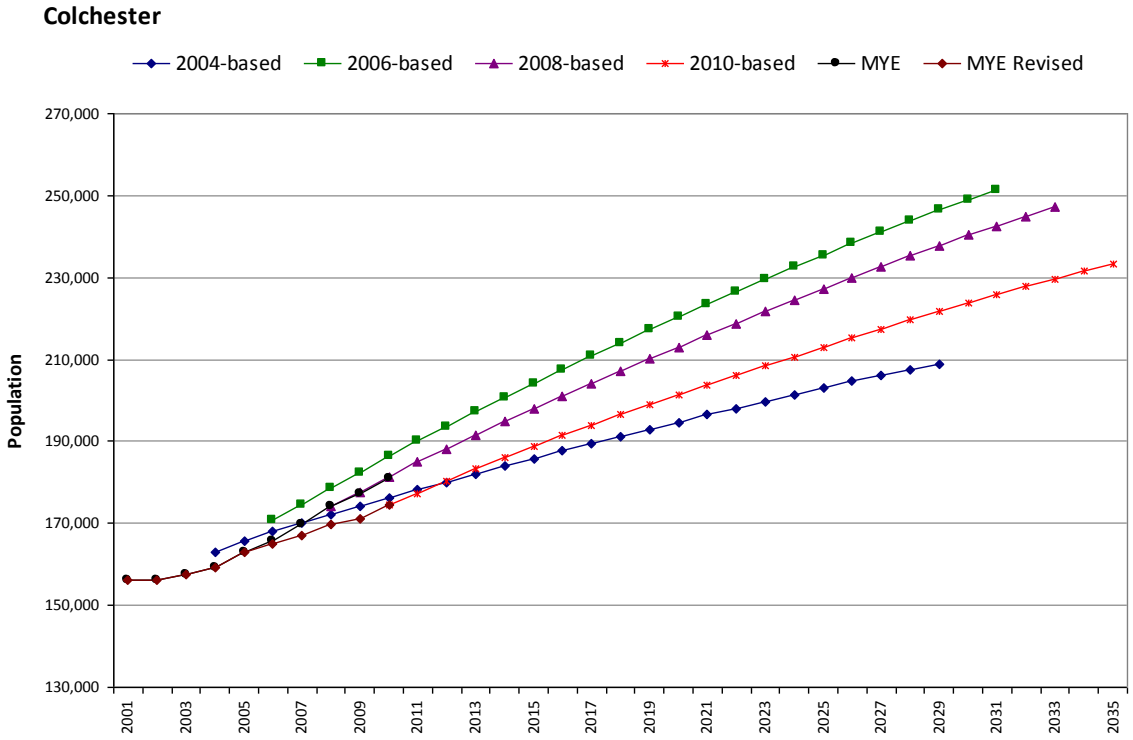


3. 2010-based sub-national population projections: components of change (Source: ONS)



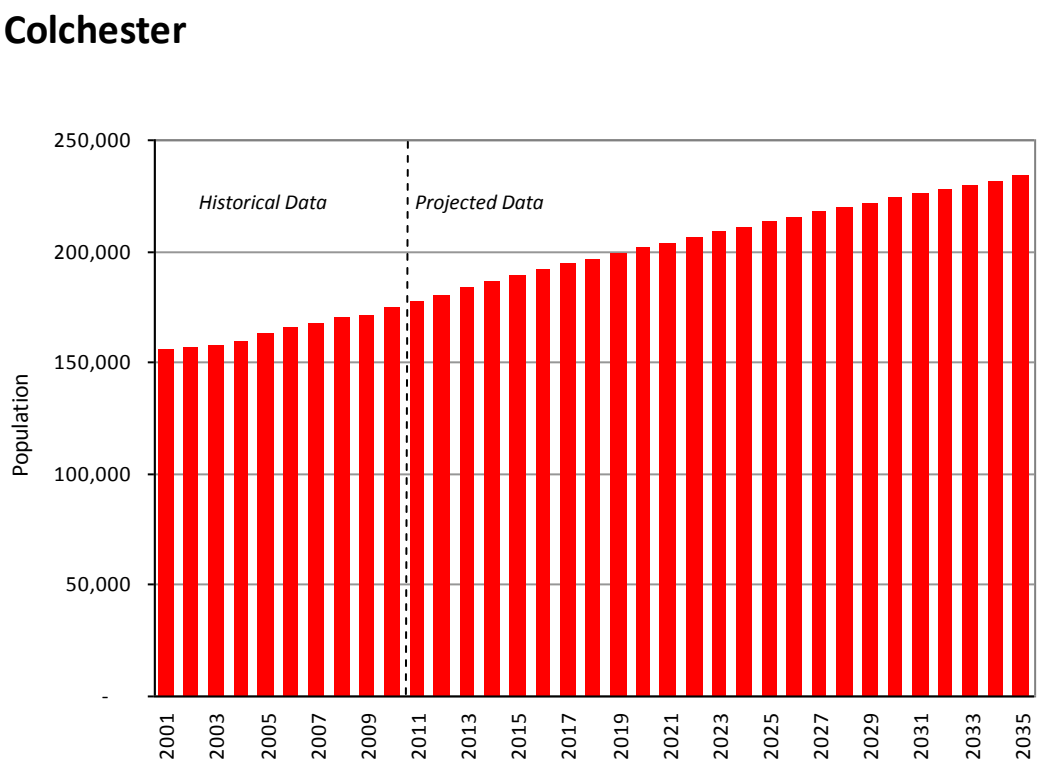
Colchester

1. Population estimates and projections (Source: ONS)

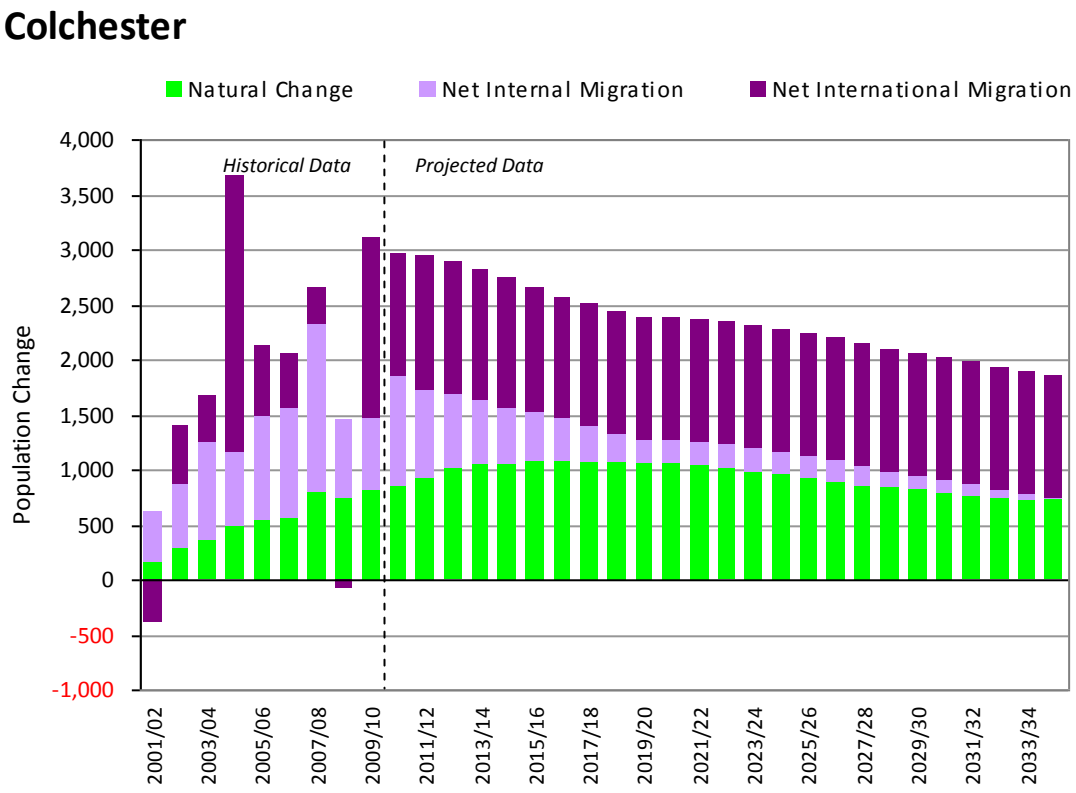


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

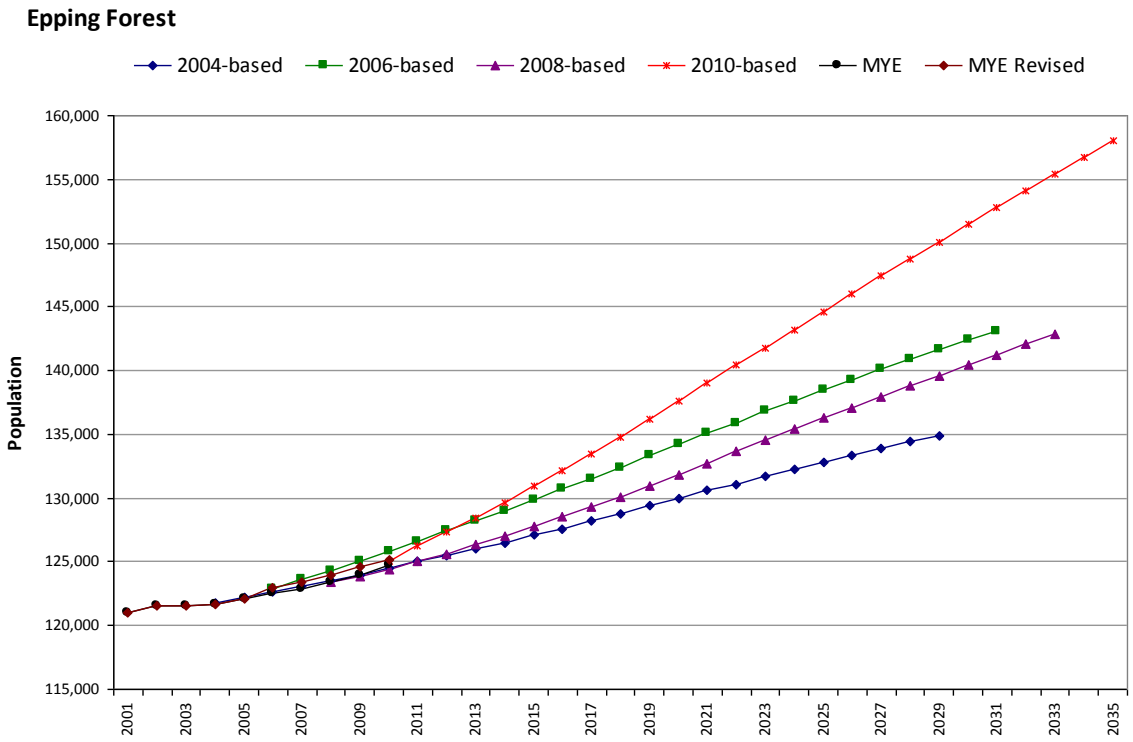


3. 2010-based sub-national population projections: components of change (Source: ONS)



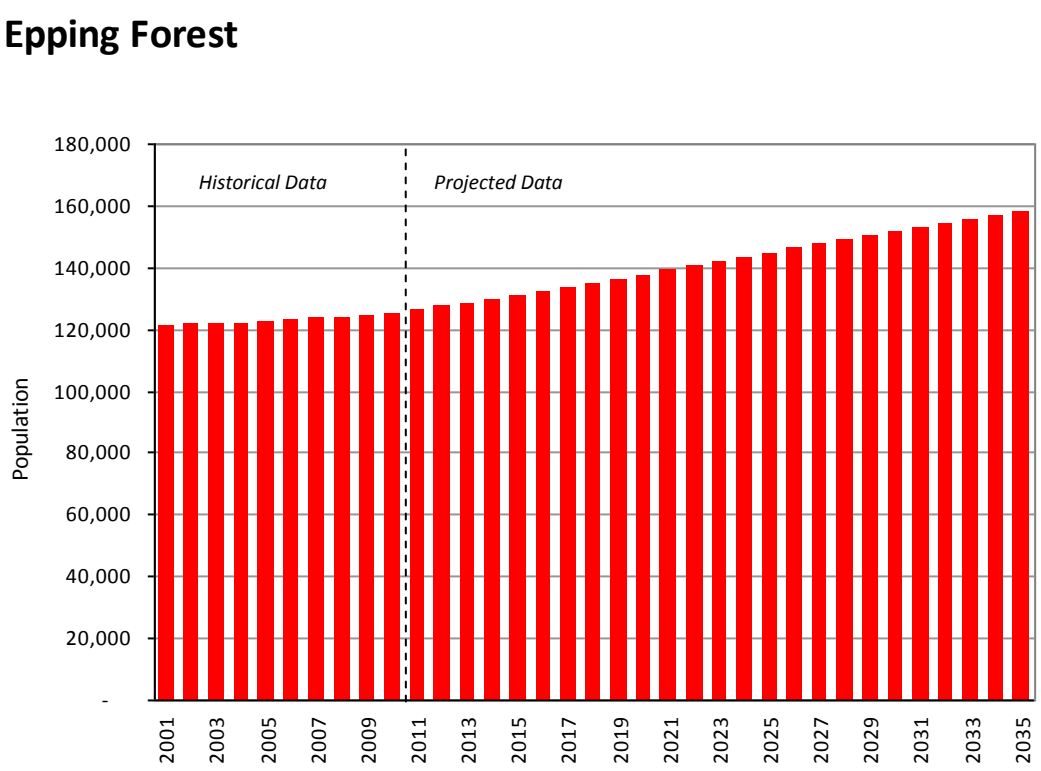
Epping Forest

1. Population estimates and projections (Source: ONS)

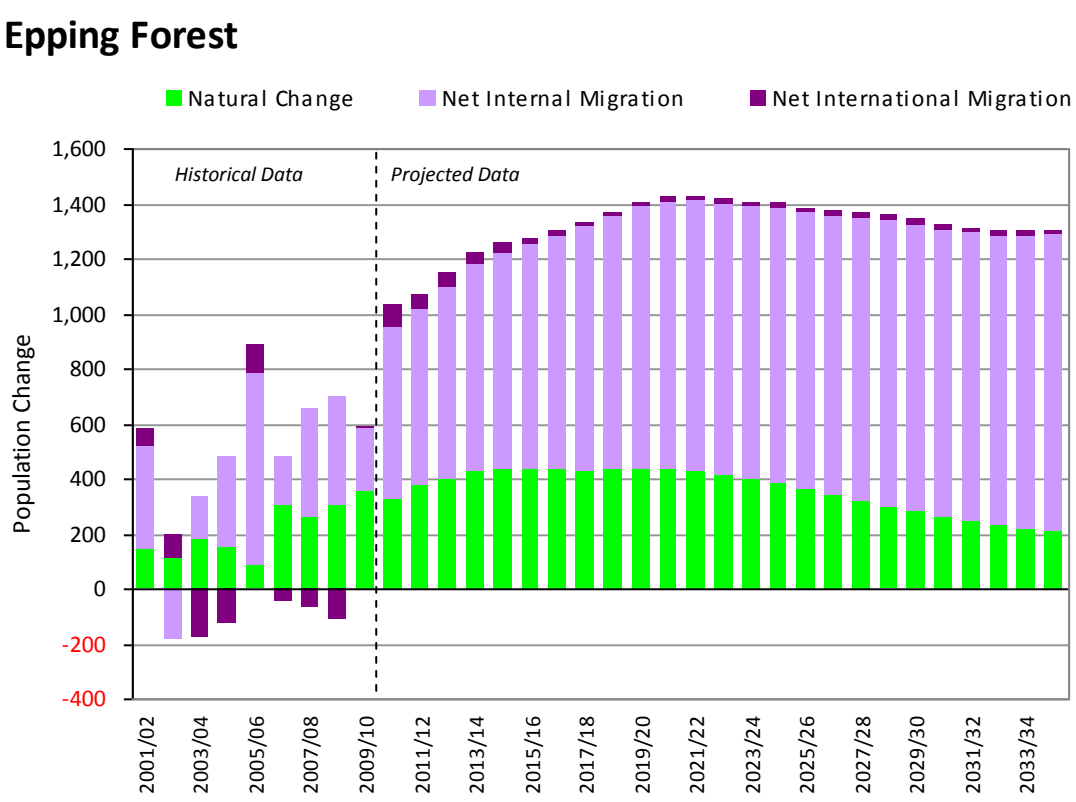


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

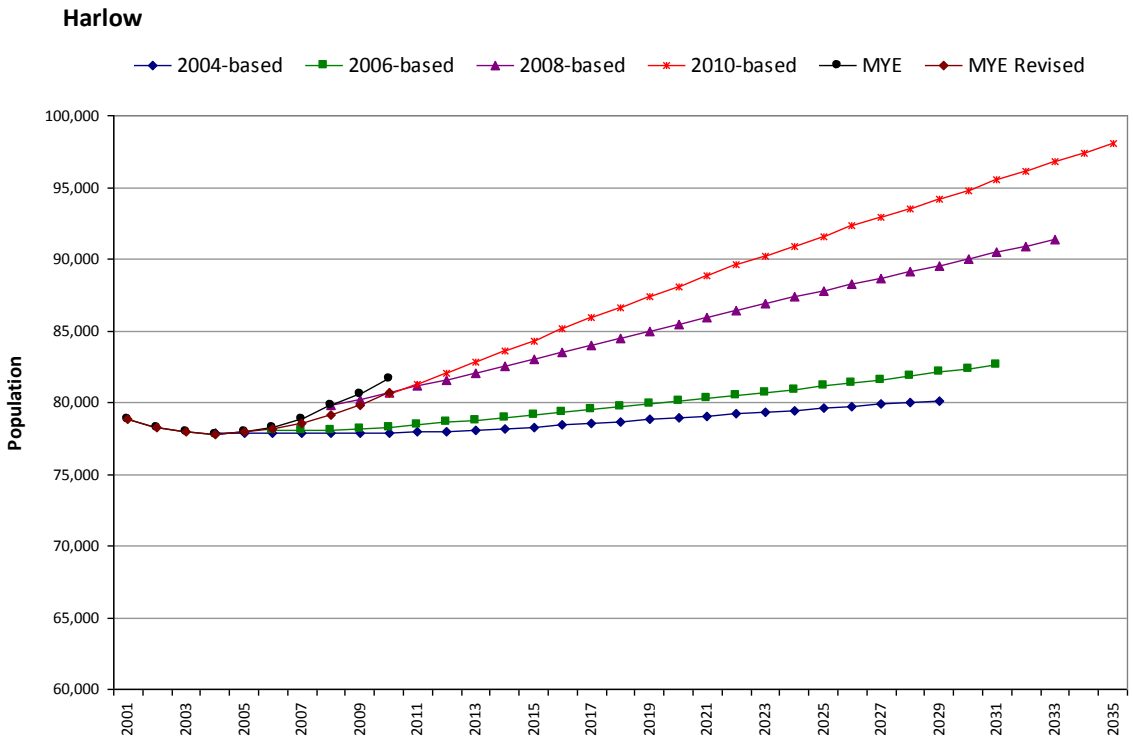


3. 2010-based sub-national population projections: components of change (Source: ONS)



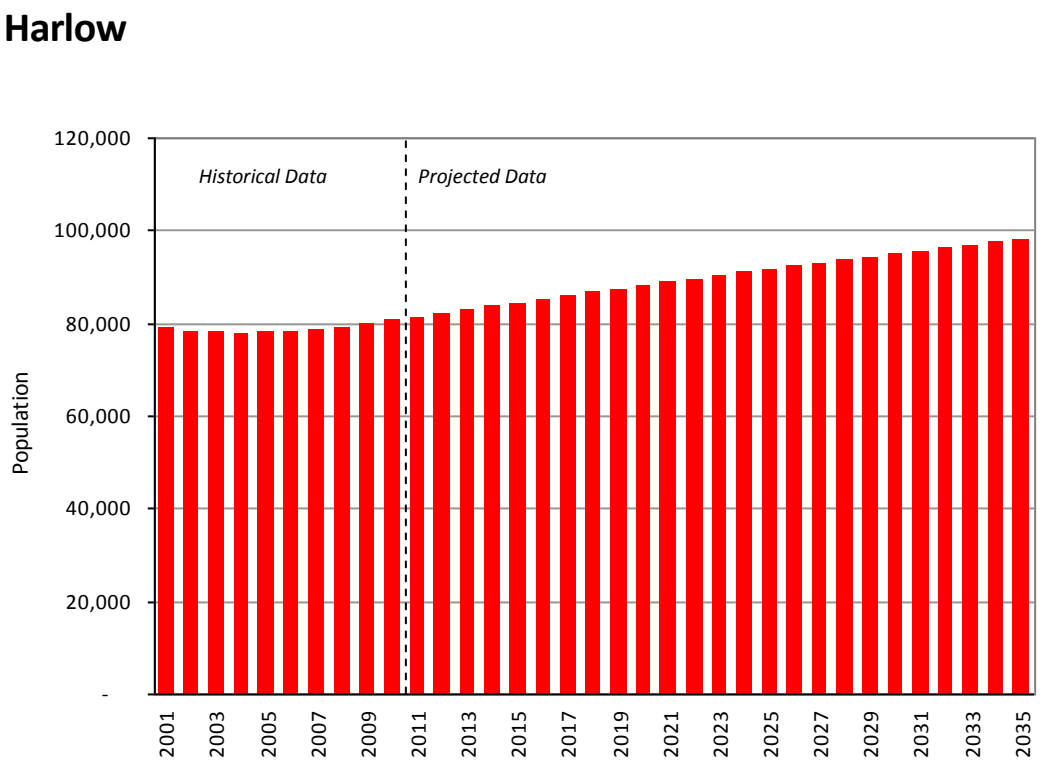
Harlow

1. Population estimates and projections (Source: ONS)



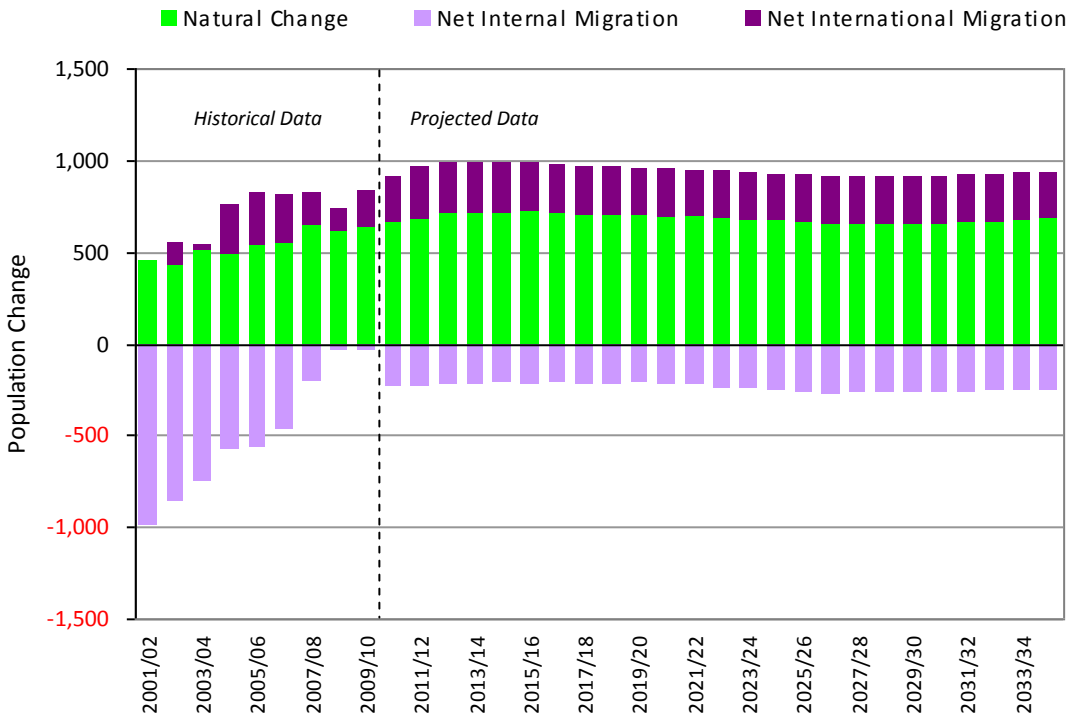
Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)



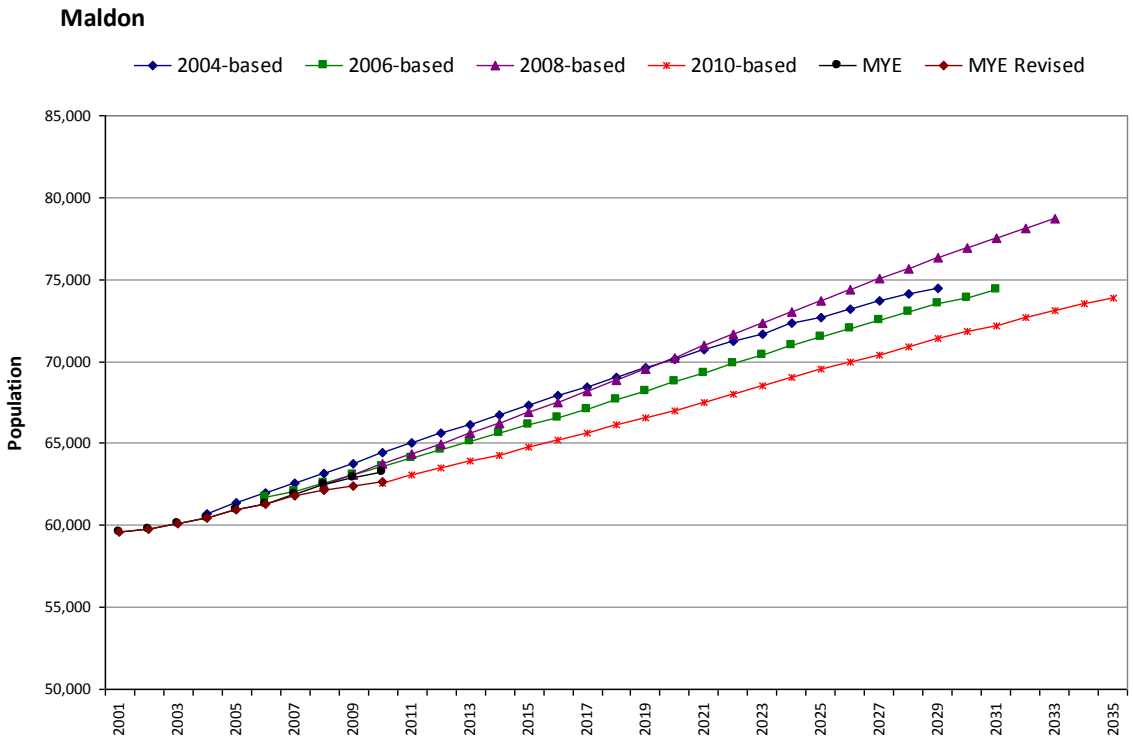
3. 2010-based sub-national population projections: components of change (Source: ONS)

Harlow



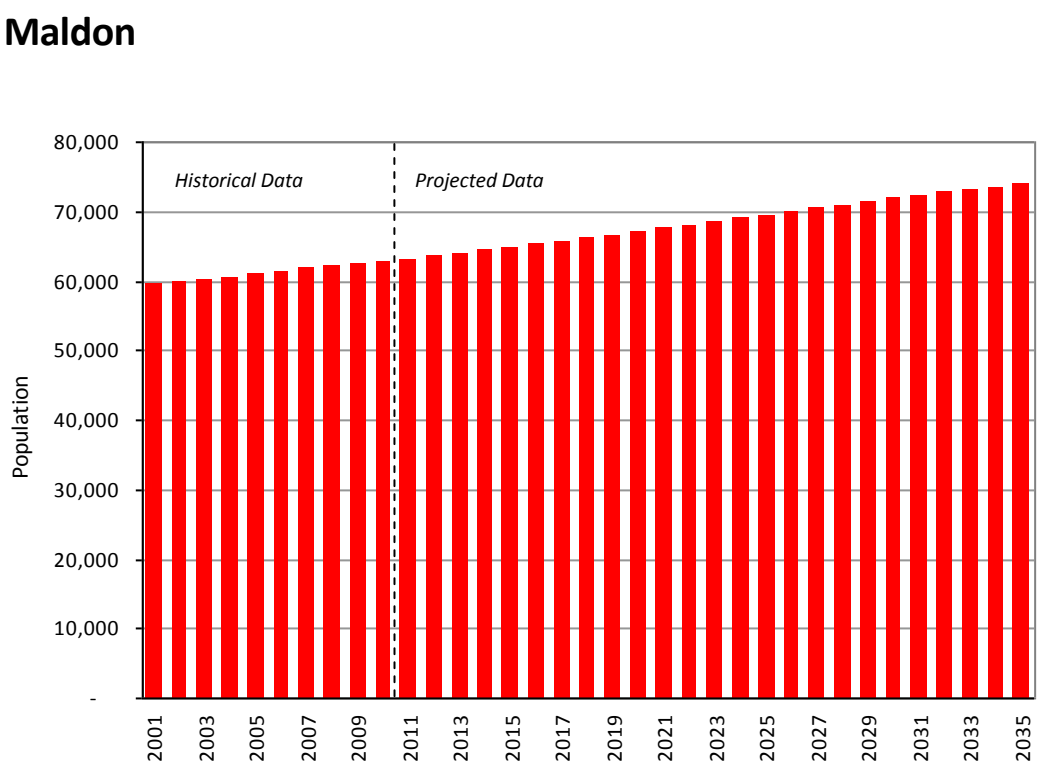
Maldon

1. Population estimates and projections (Source: ONS)

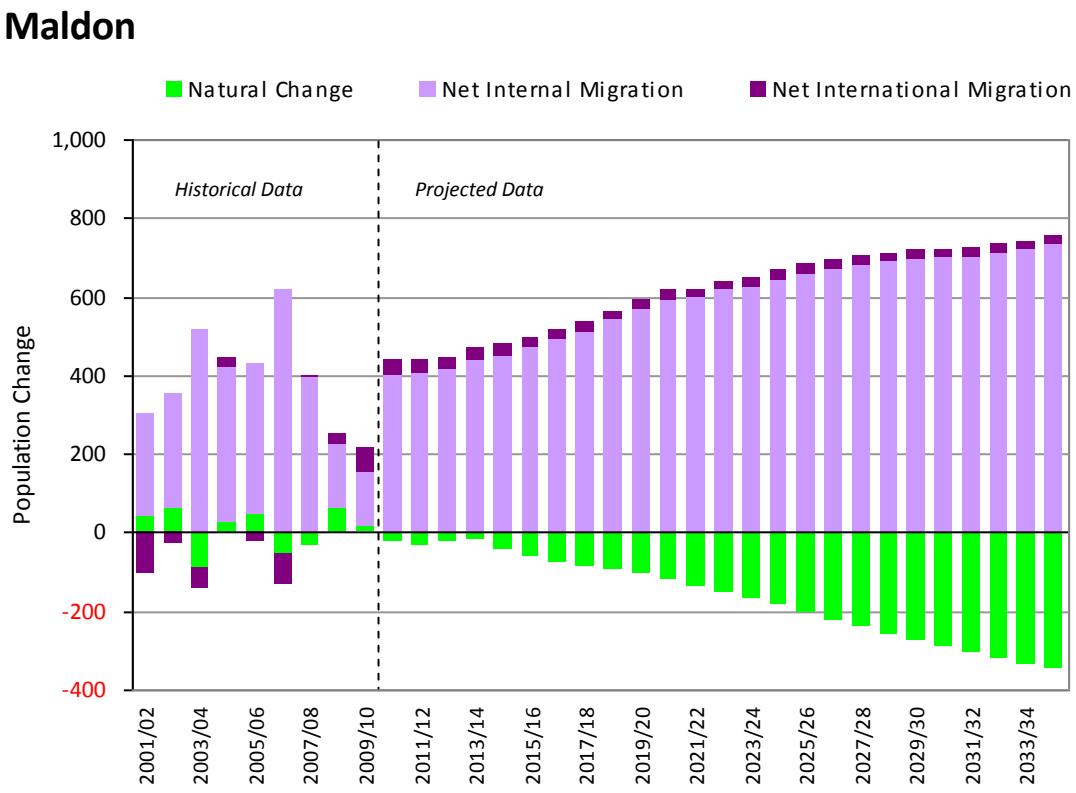


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

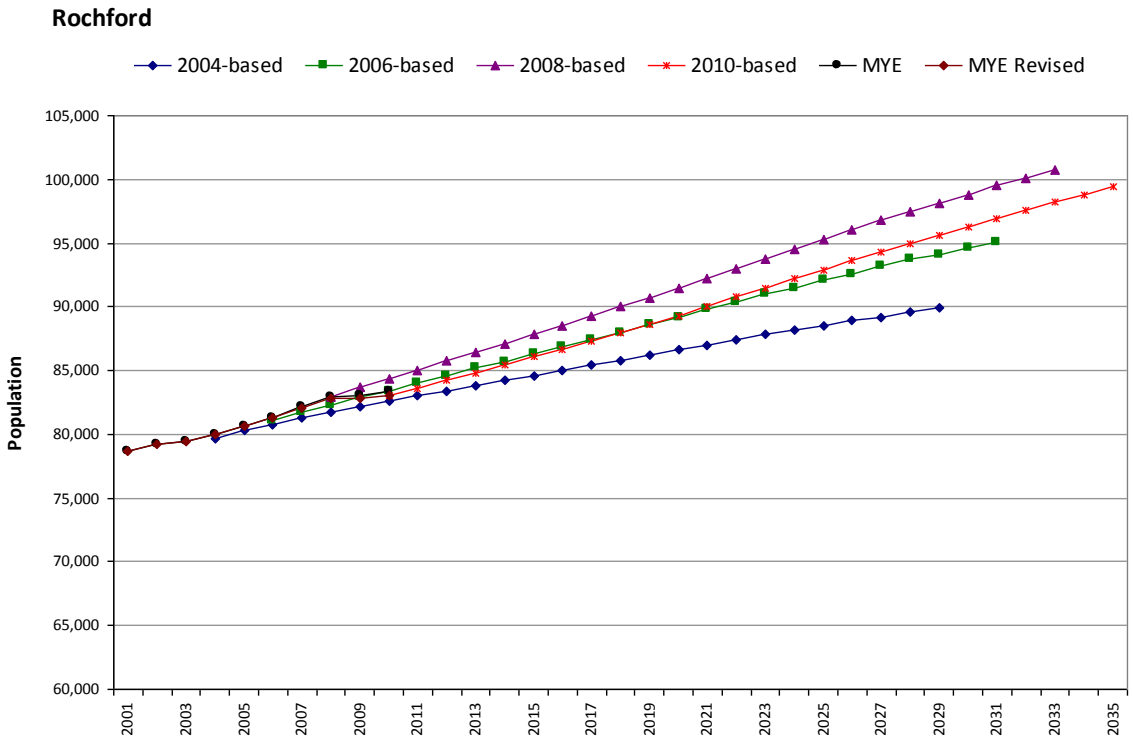


3. 2010-based sub-national population projections: components of change (Source: ONS)



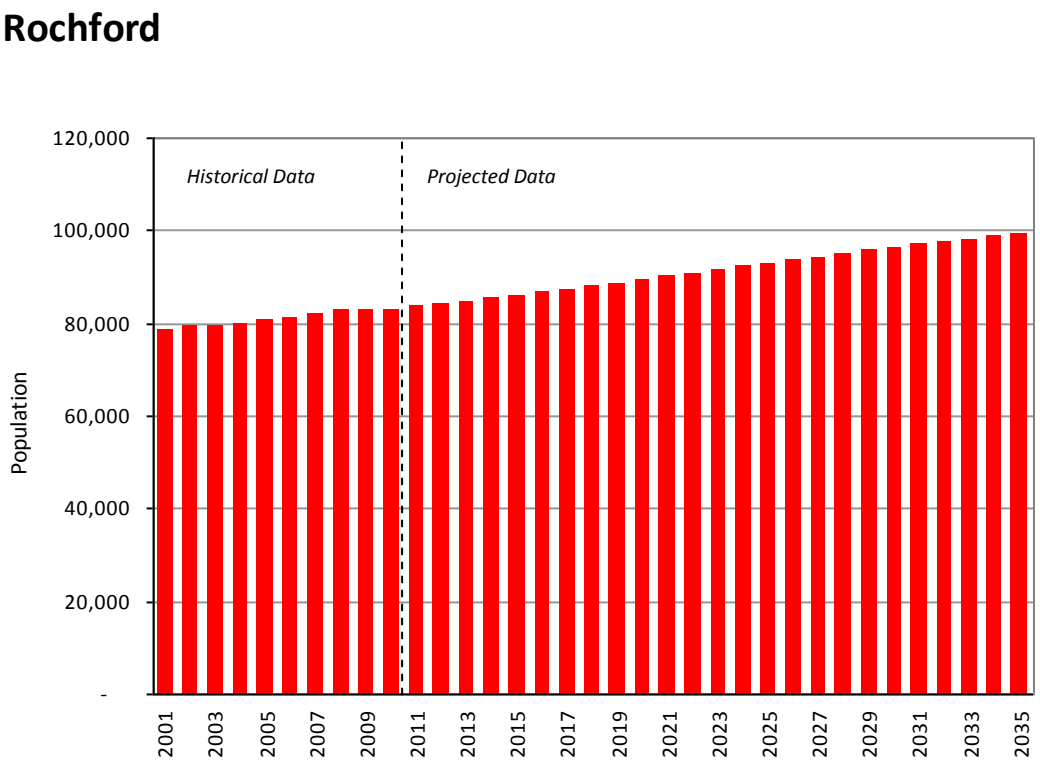
Rochford

1. Population estimates and projections (Source: ONS)

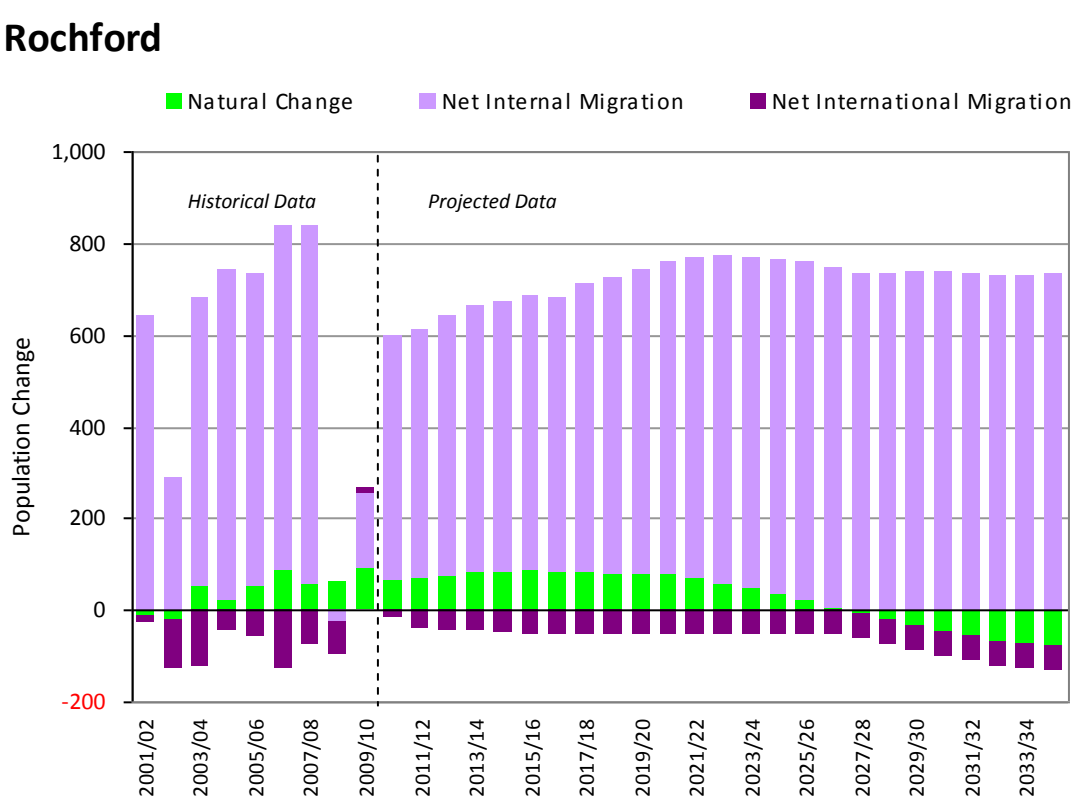


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

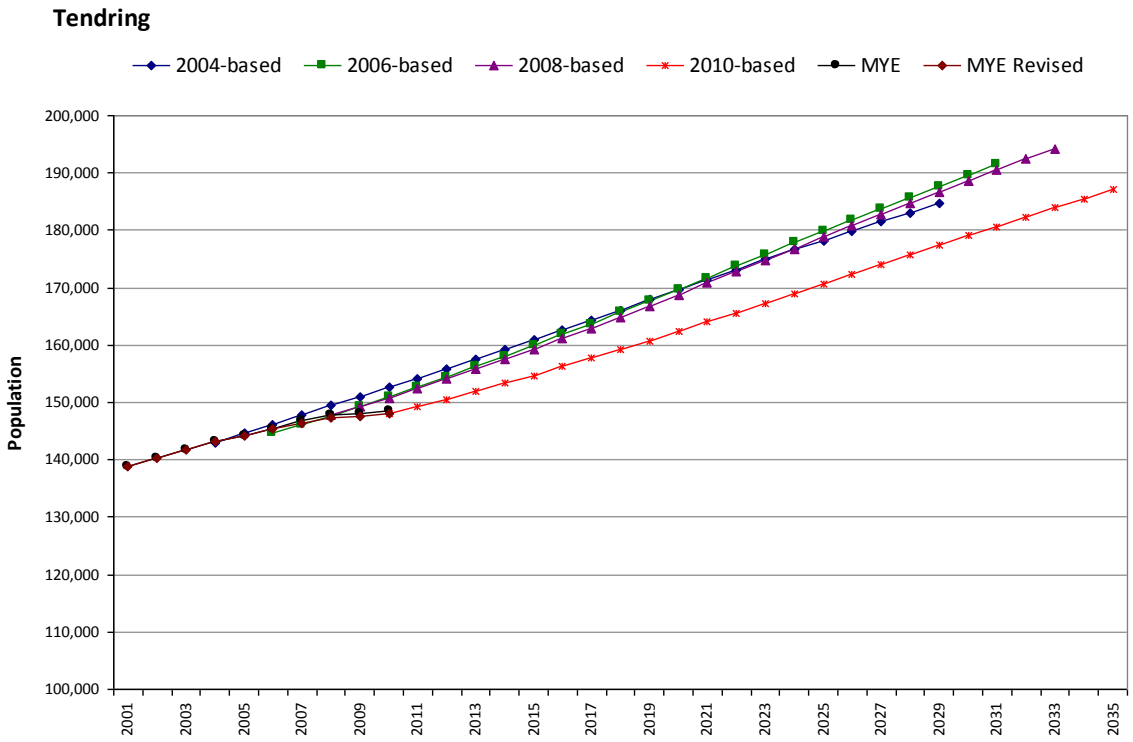


3. 2010-based sub-national population projections: components of change (Source: ONS)



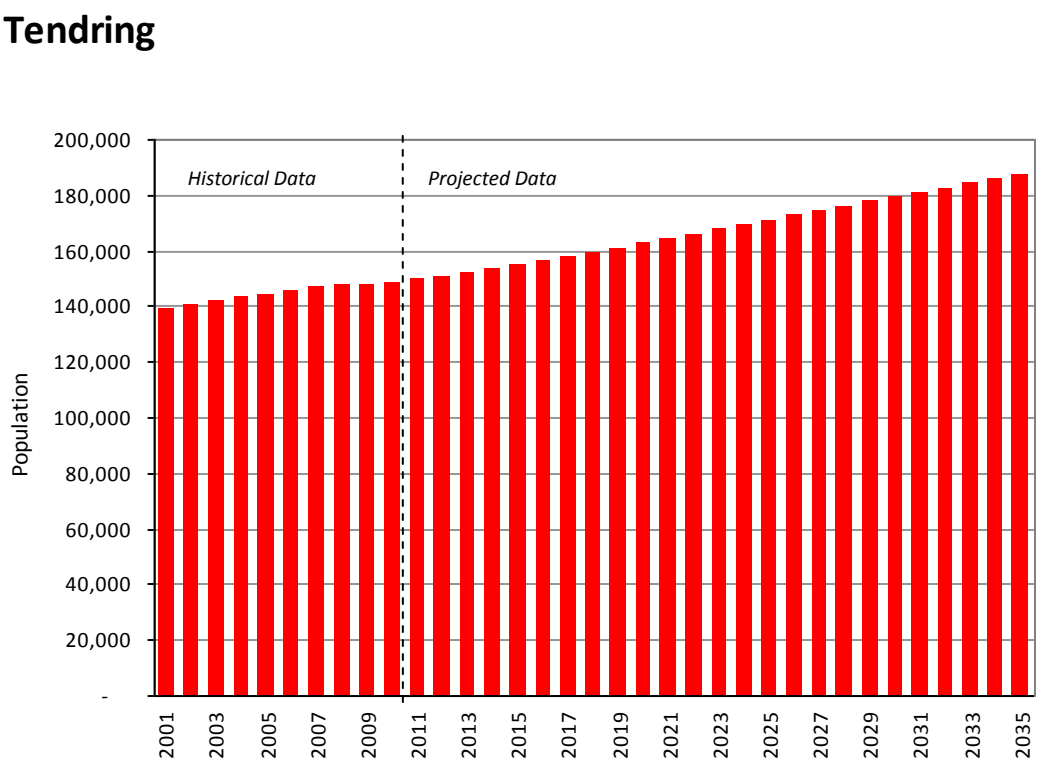
Tendring

1. Population estimates and projections (Source: ONS)

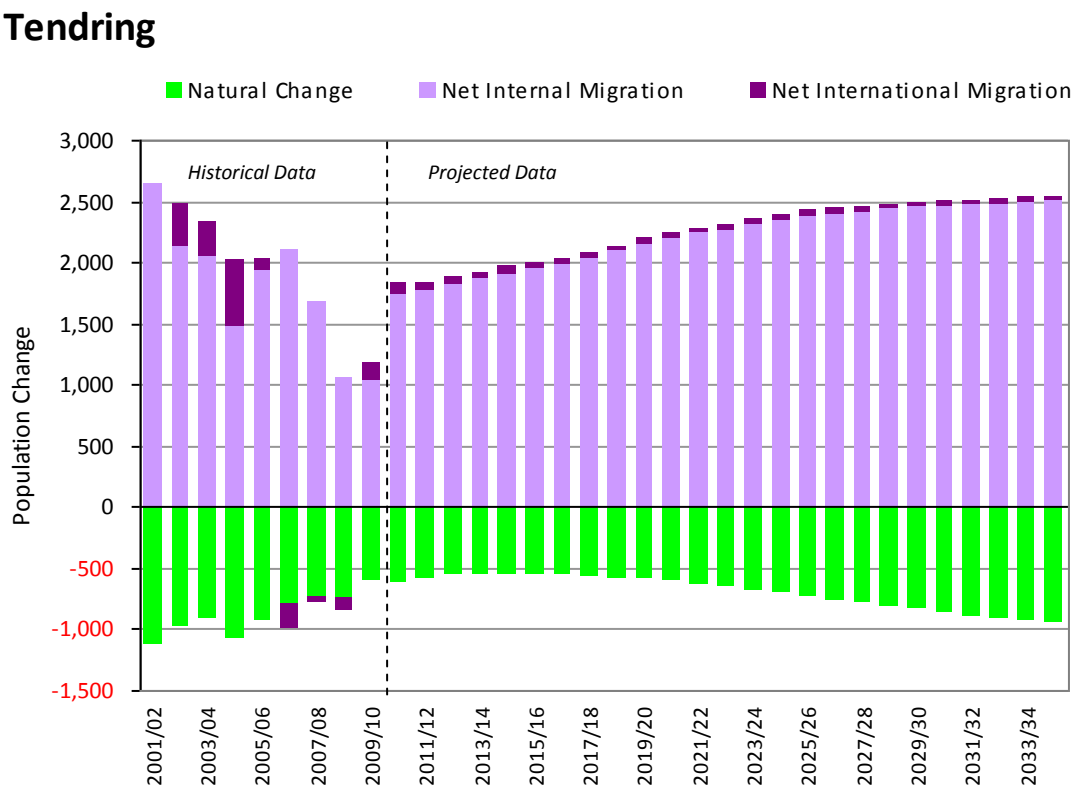


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

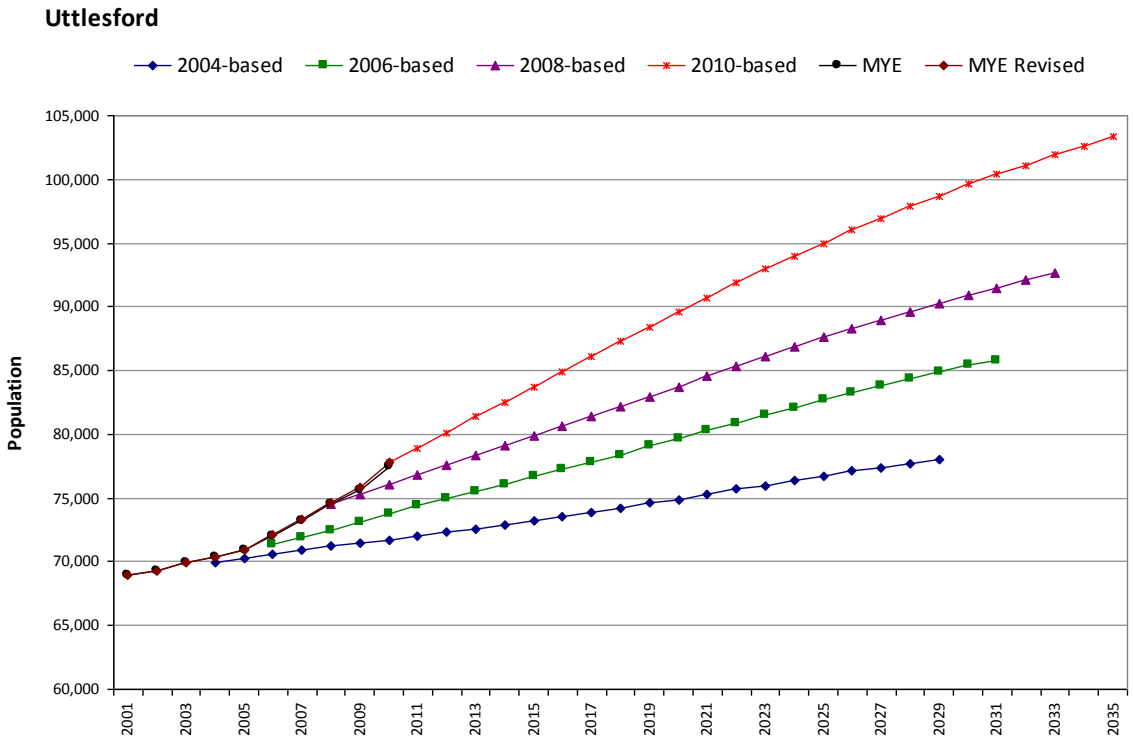


3. 2010-based sub-national population projections: components of change (Source: ONS)



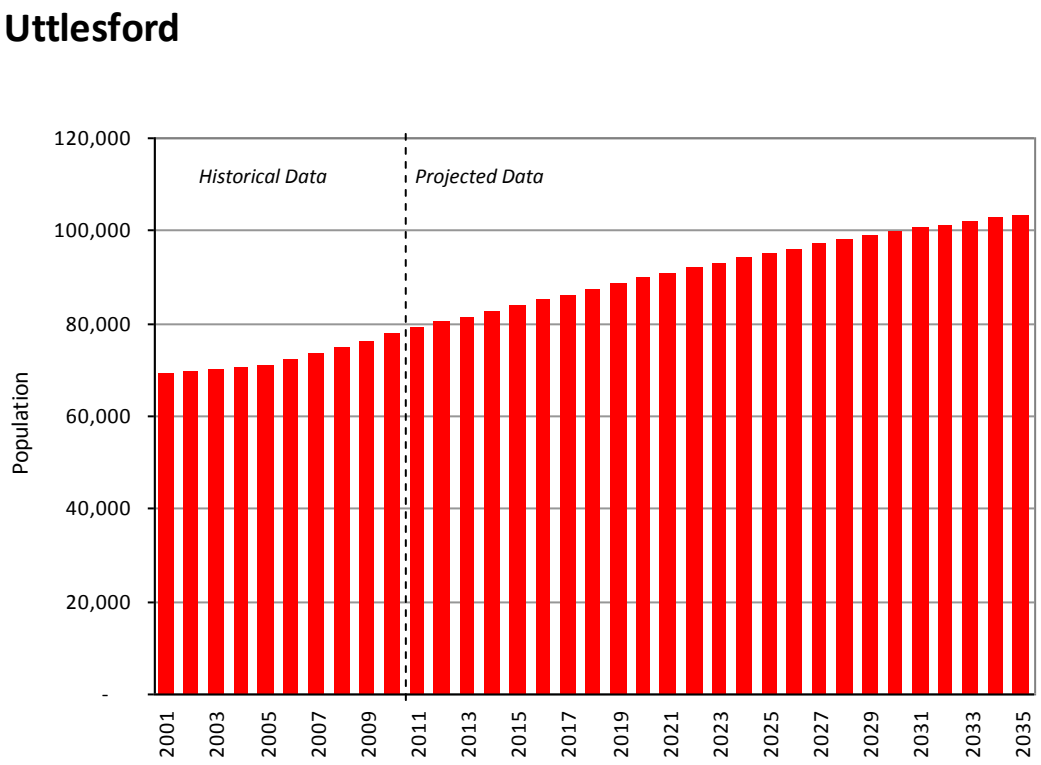
Uttlesford

1. Population estimates and projections (Source: ONS)

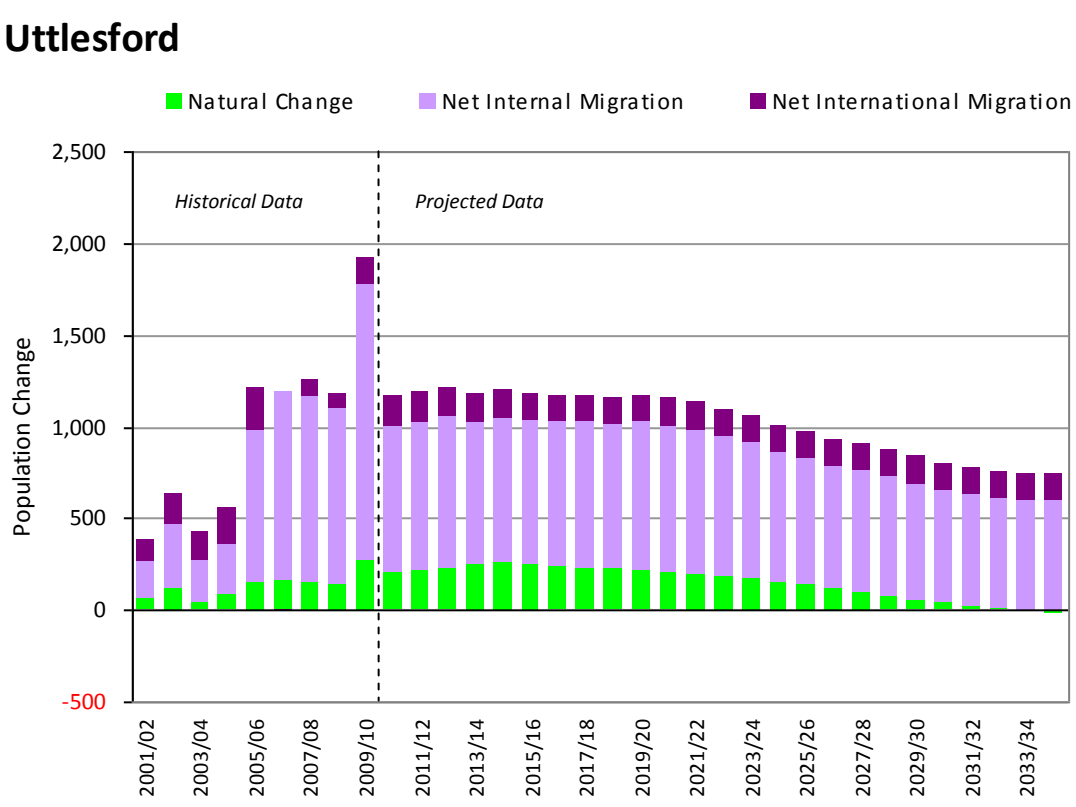


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)



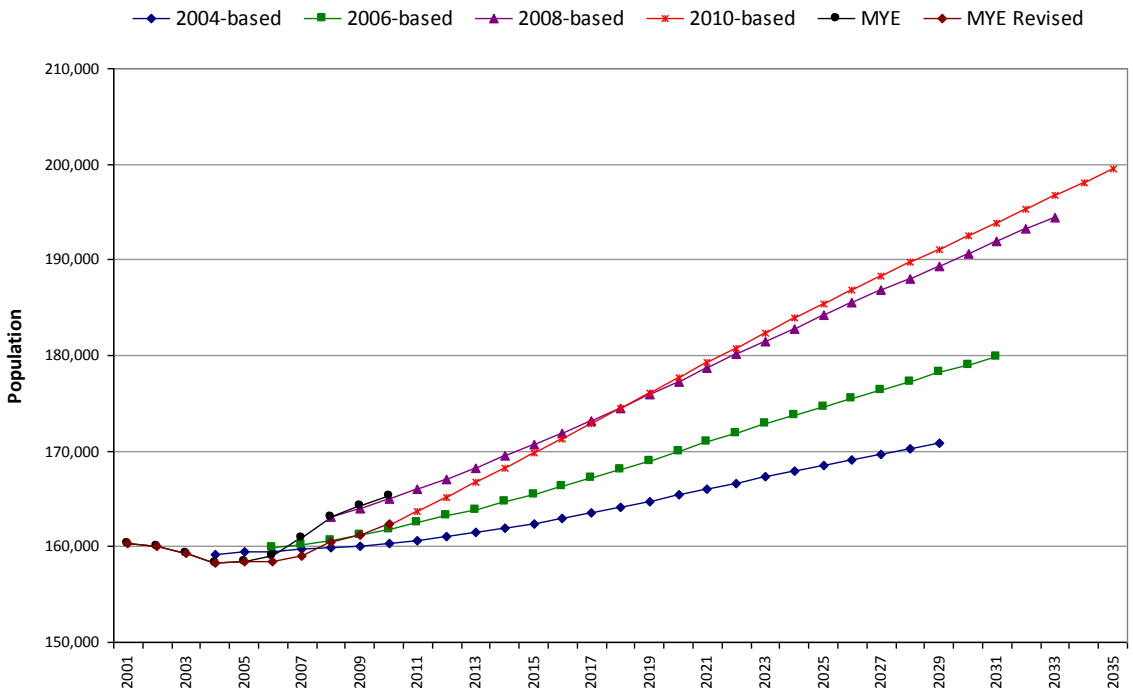
3. 2010-based sub-national population projections: components of change (Source: ONS)



Southend-on-Sea

1. Population estimates and projections (Source: ONS)

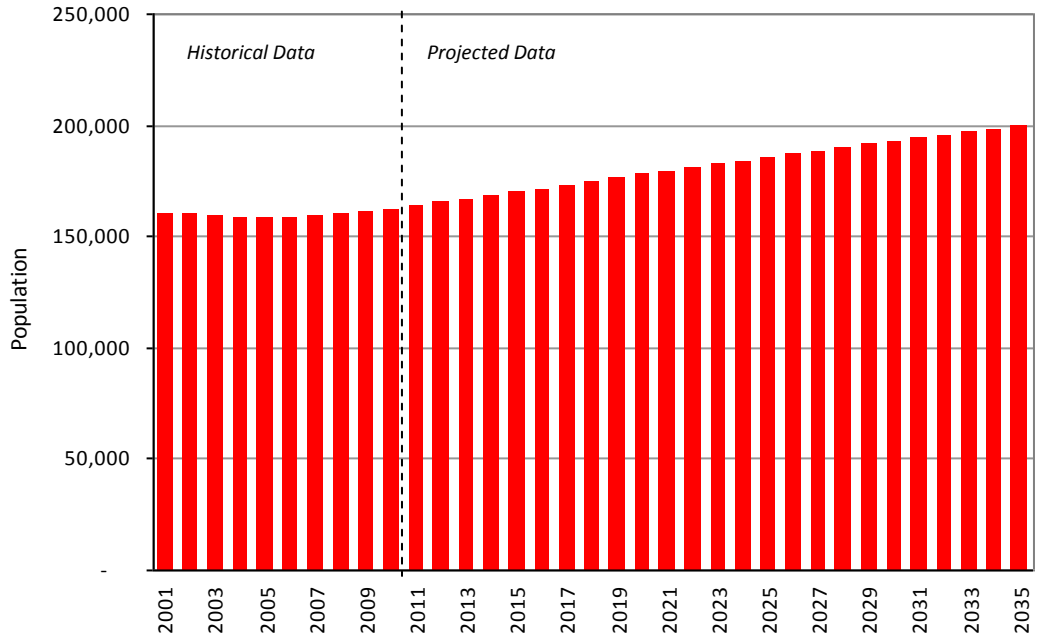
Southend-on-Sea UA



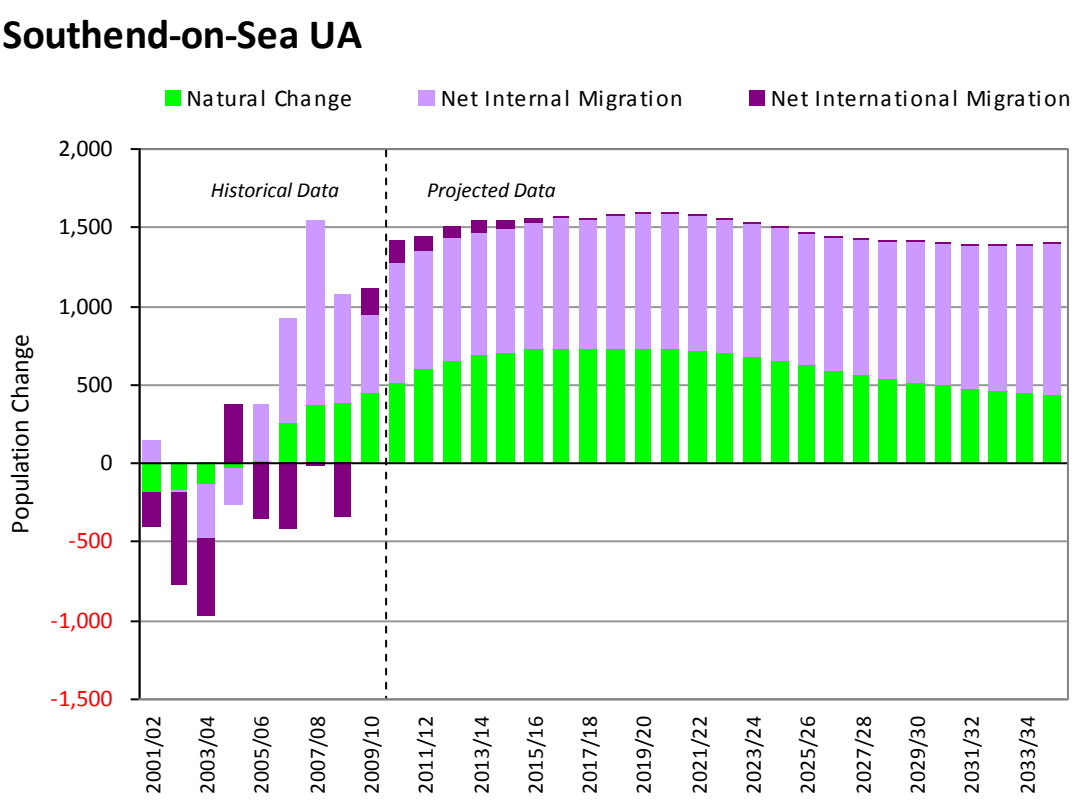
Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

Southend-on-Sea UA

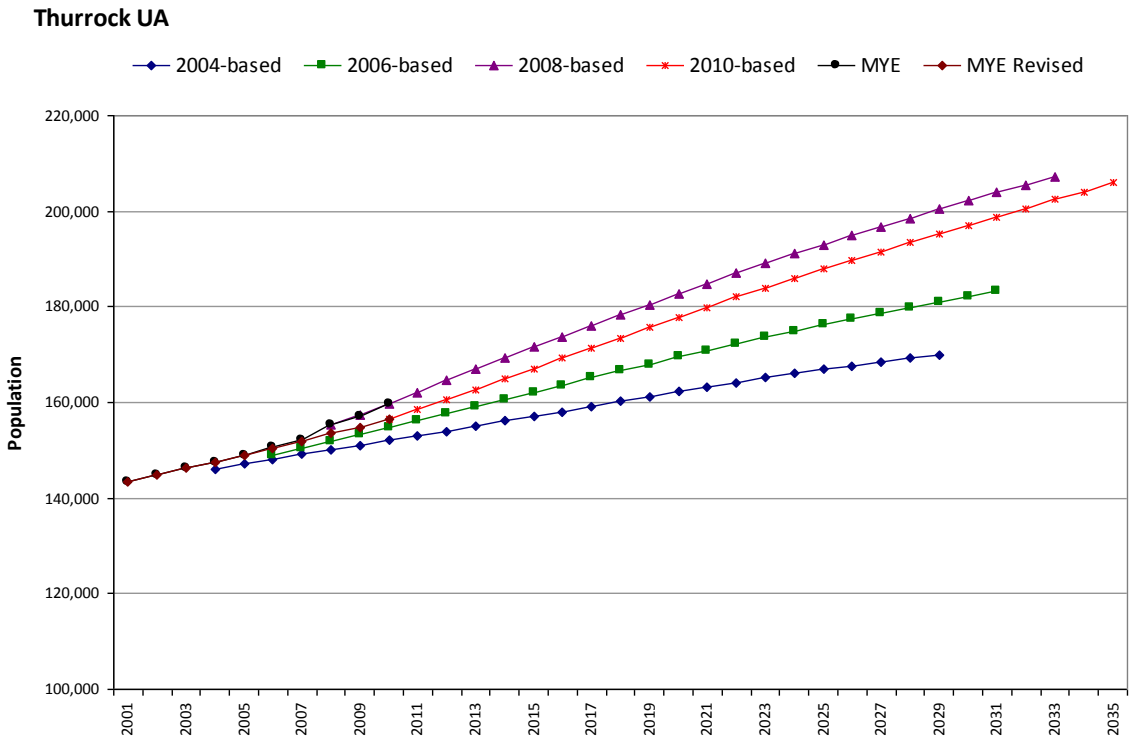


3. 2010-based sub-national population projections: components of change (Source: ONS)



Thurrock

1. Population estimates and projections (Source: ONS)



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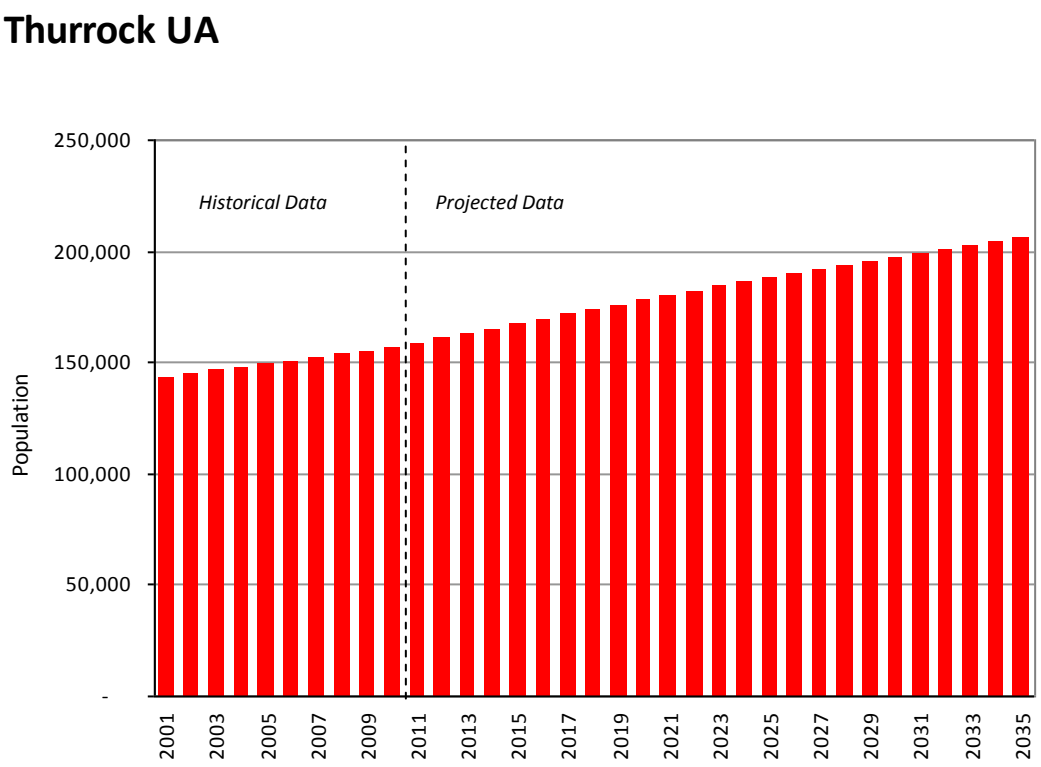
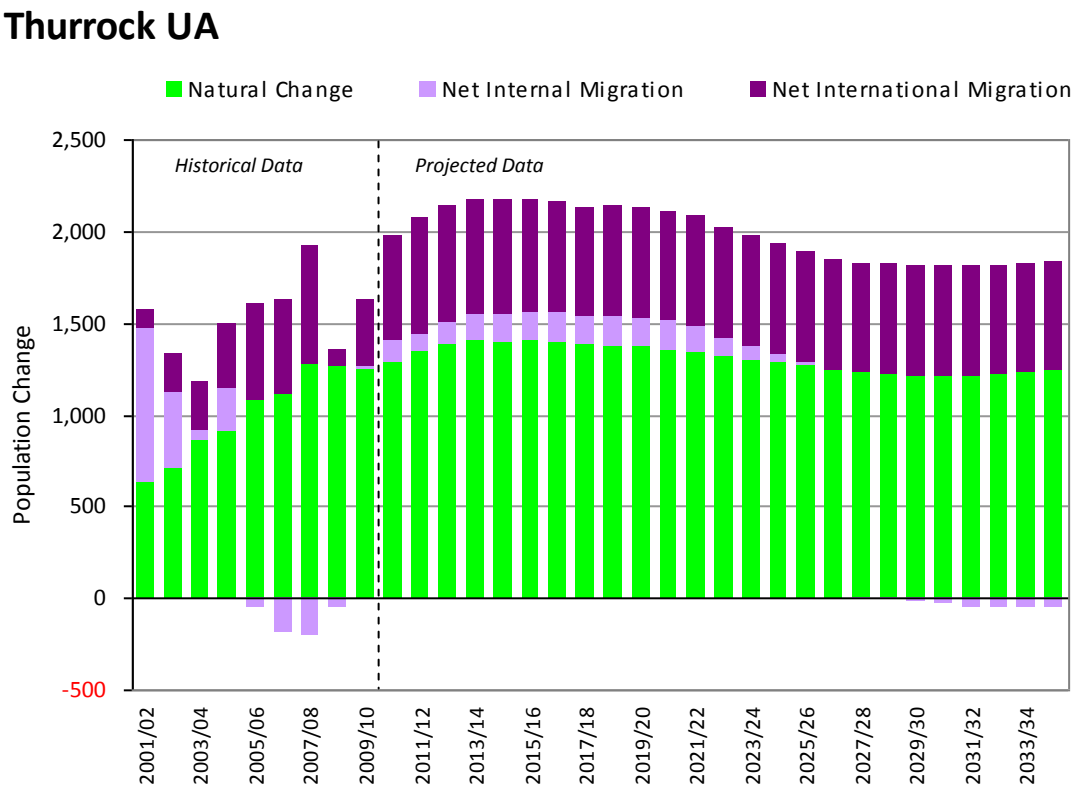
2. 2010-based sub-national population projections (Source: ONS)

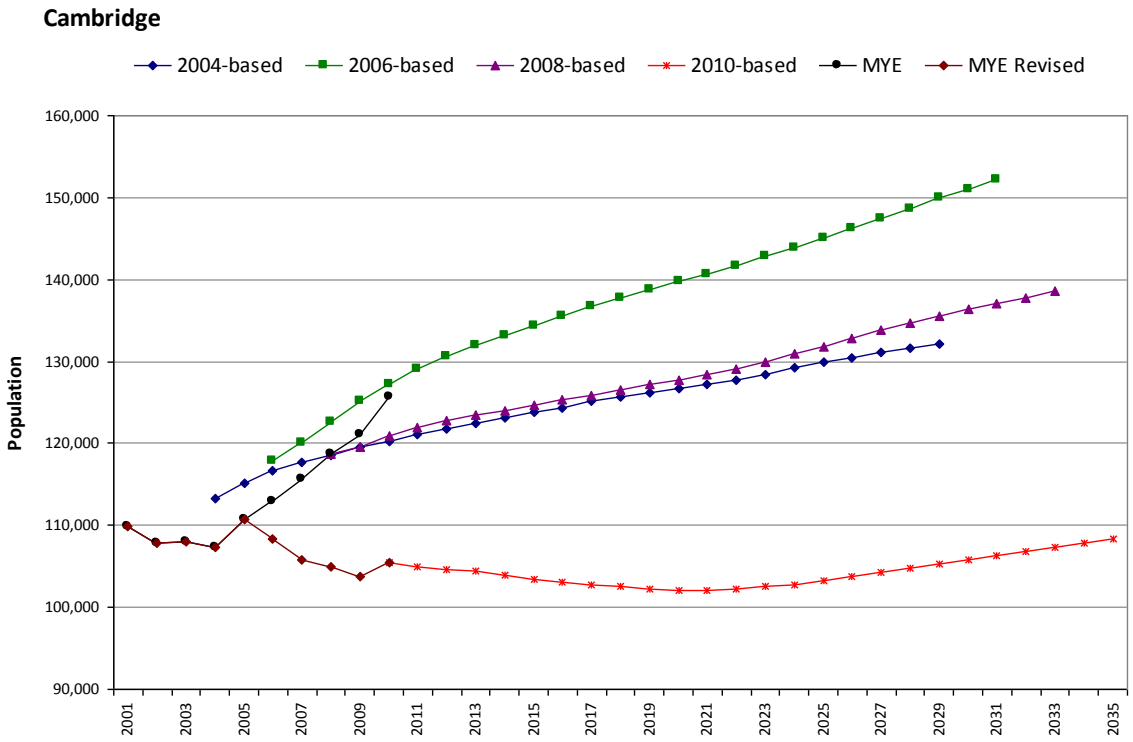


3. 2010-based sub-national population projections: components of change (Source: ONS)



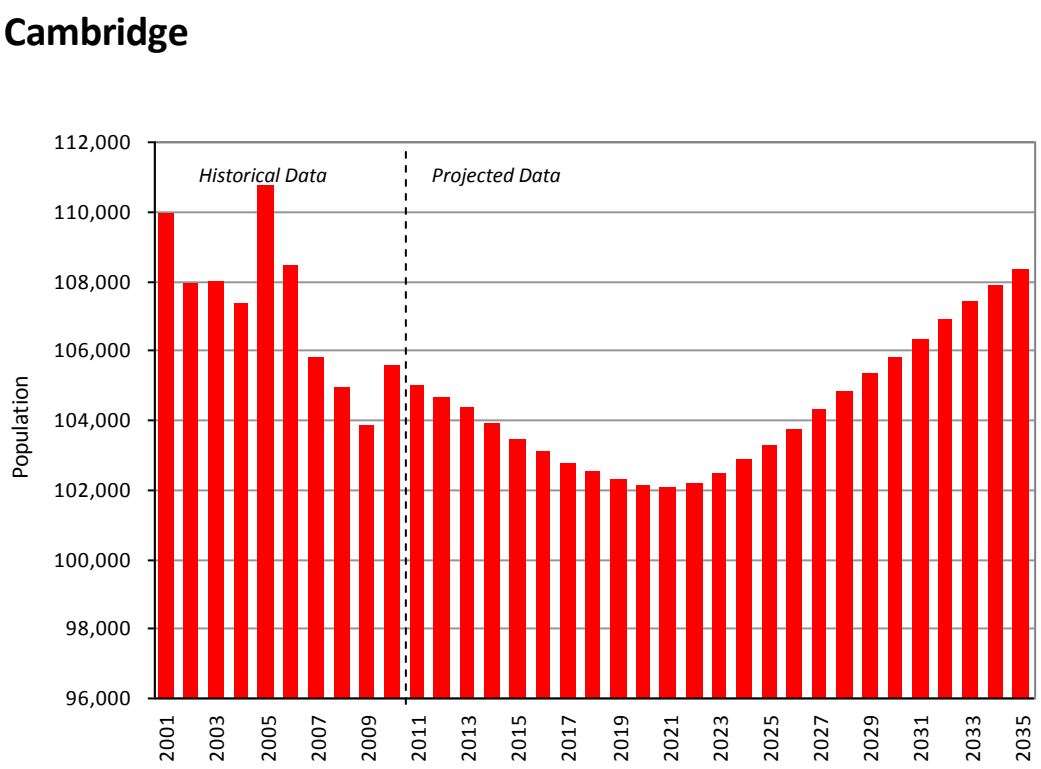
Cambridge

1. Population estimates and projections (Source: ONS)



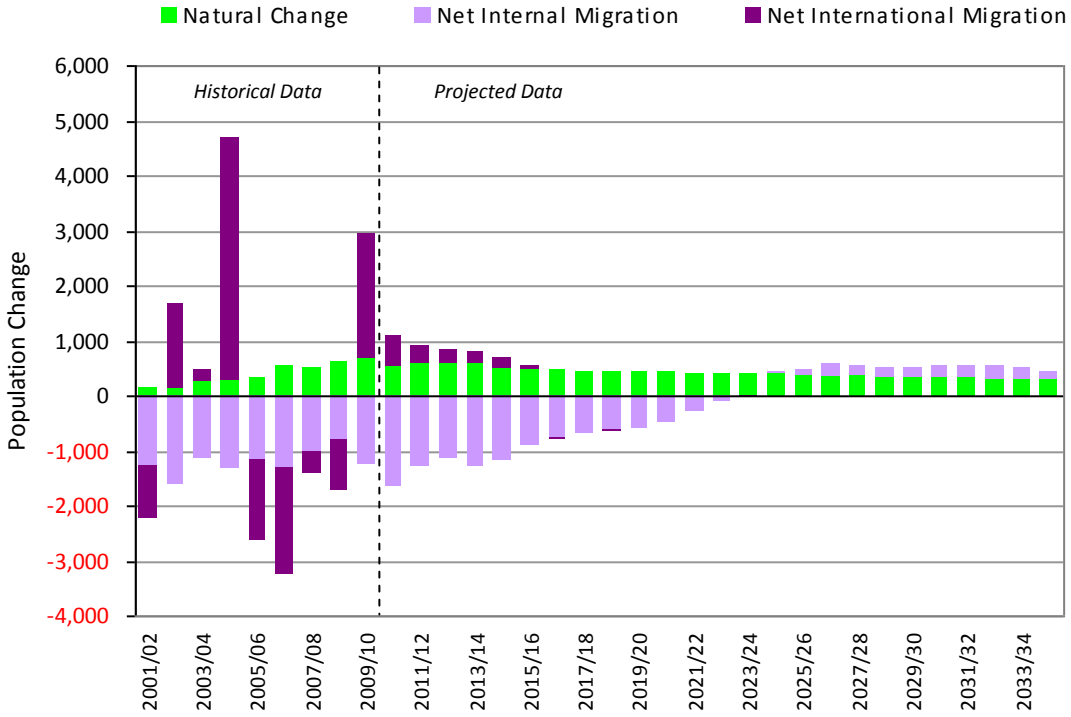
Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)



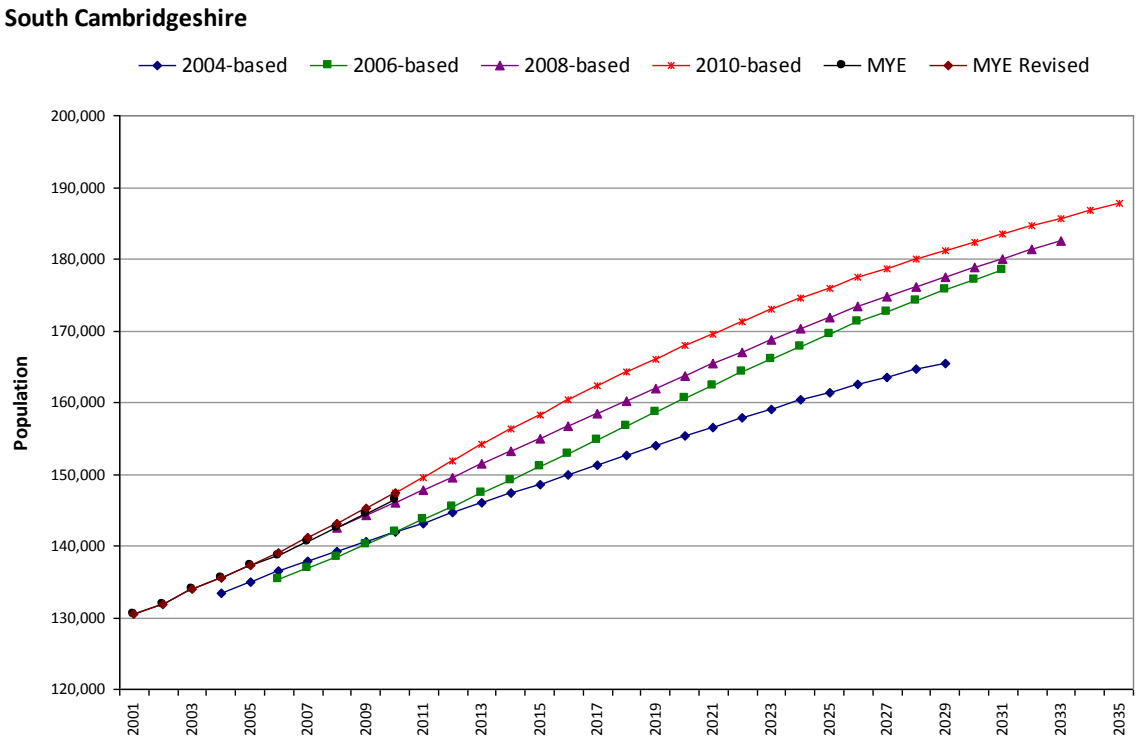
3. 2010-based sub-national population projections: components of change (Source: ONS)

Cambridge



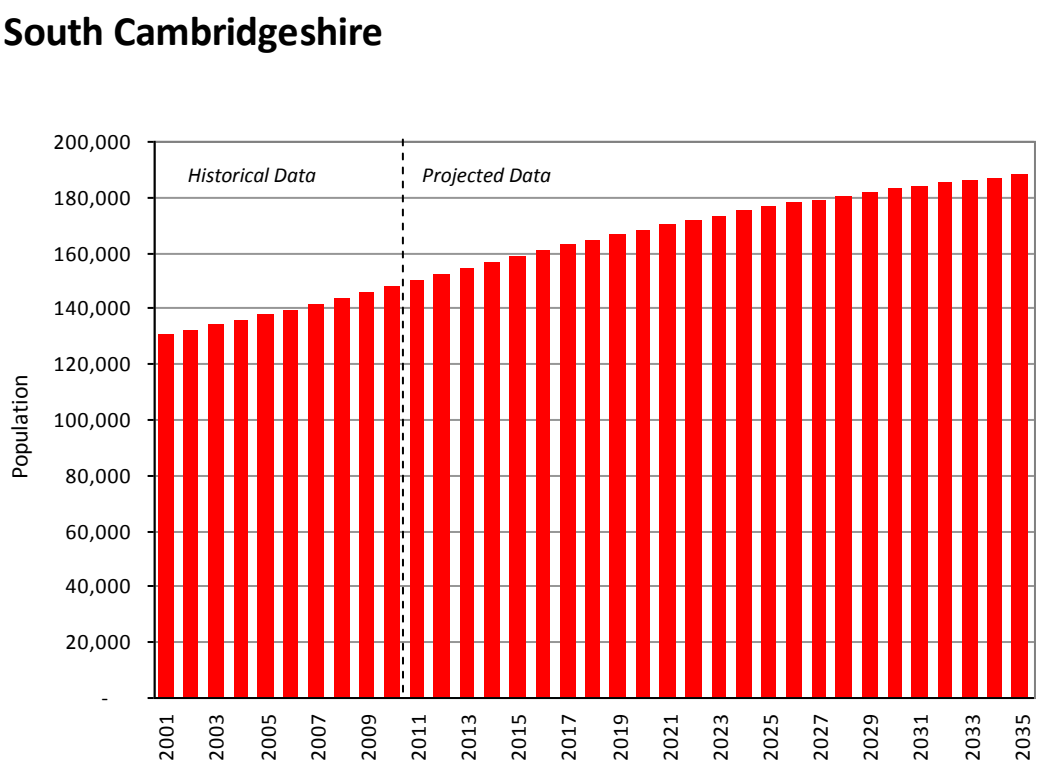
South Cambridgeshire

1. Population estimates and projections (Source: ONS)

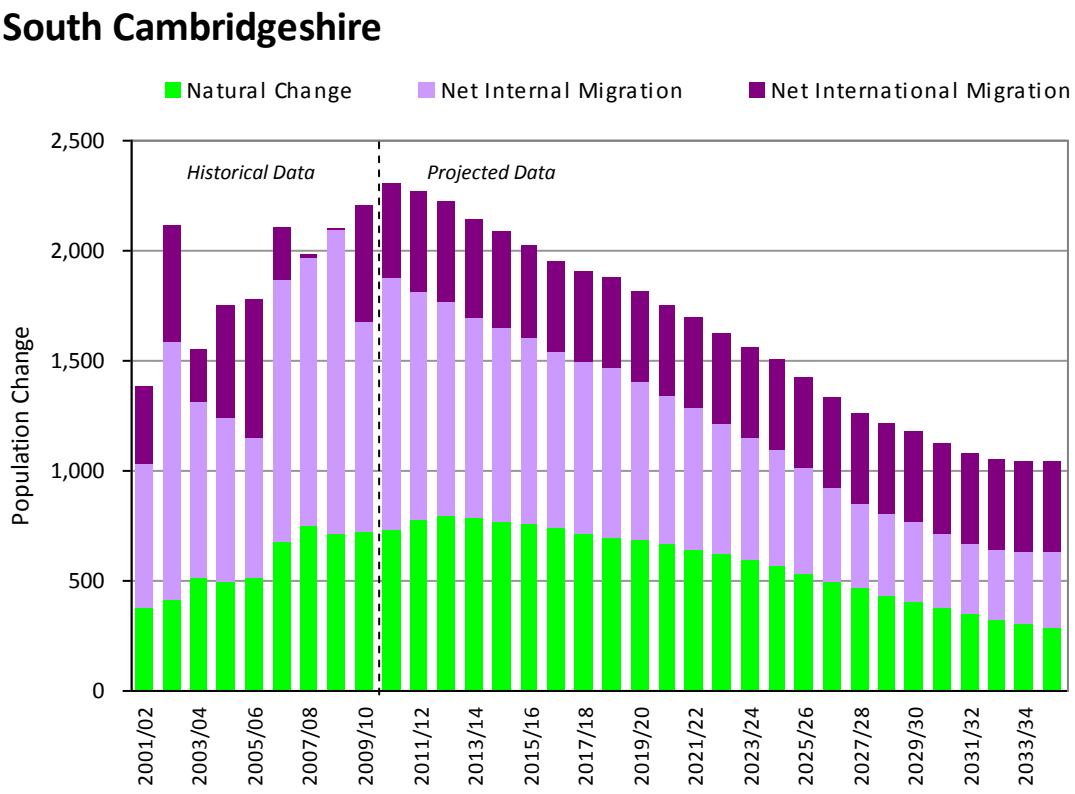


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

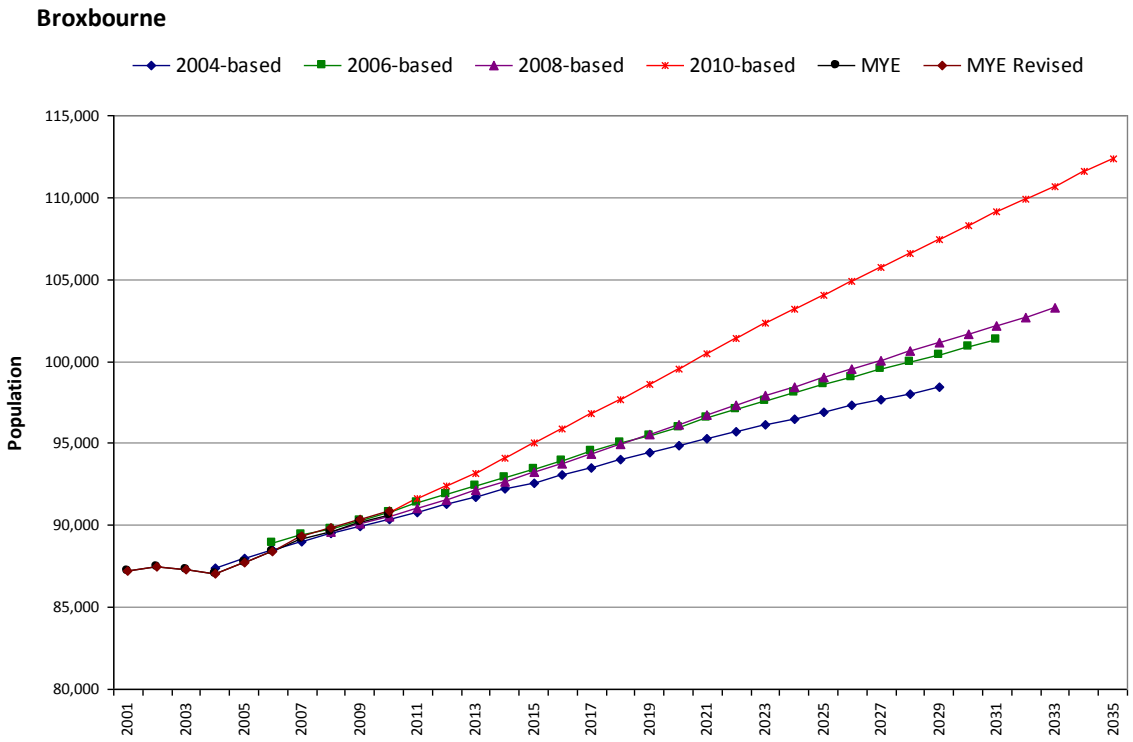


3. 2010-based sub-national population projections: components of change (Source: ONS)



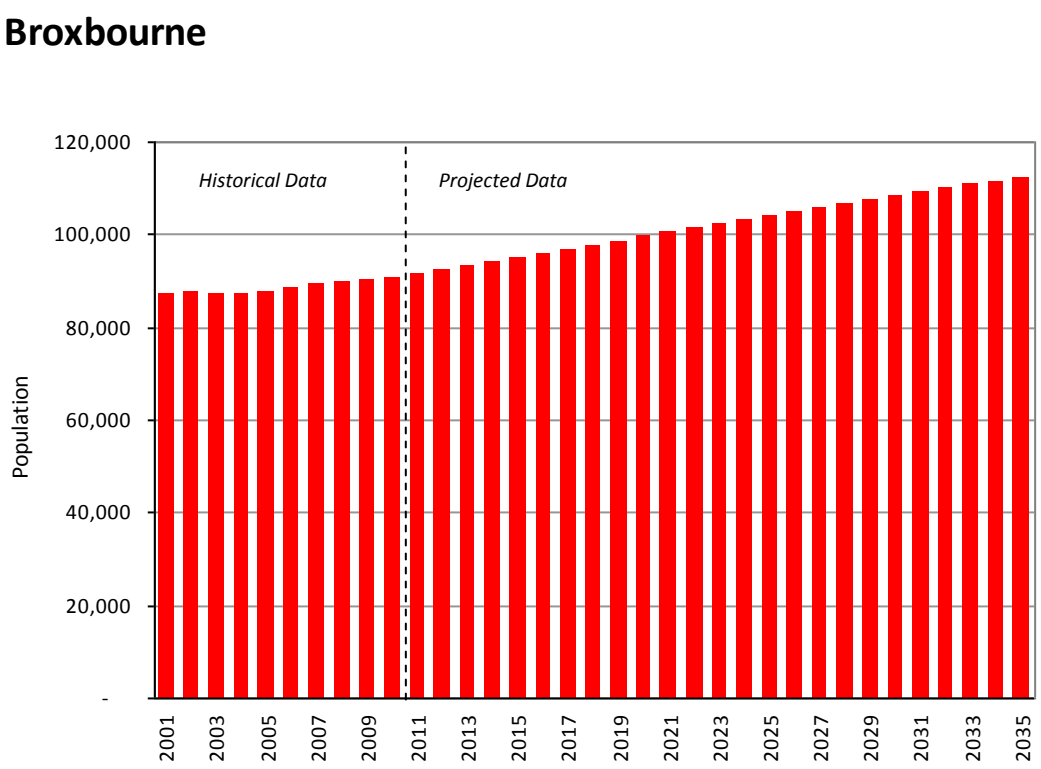
Broxbourne

1. Population estimates and projections (Source: ONS)



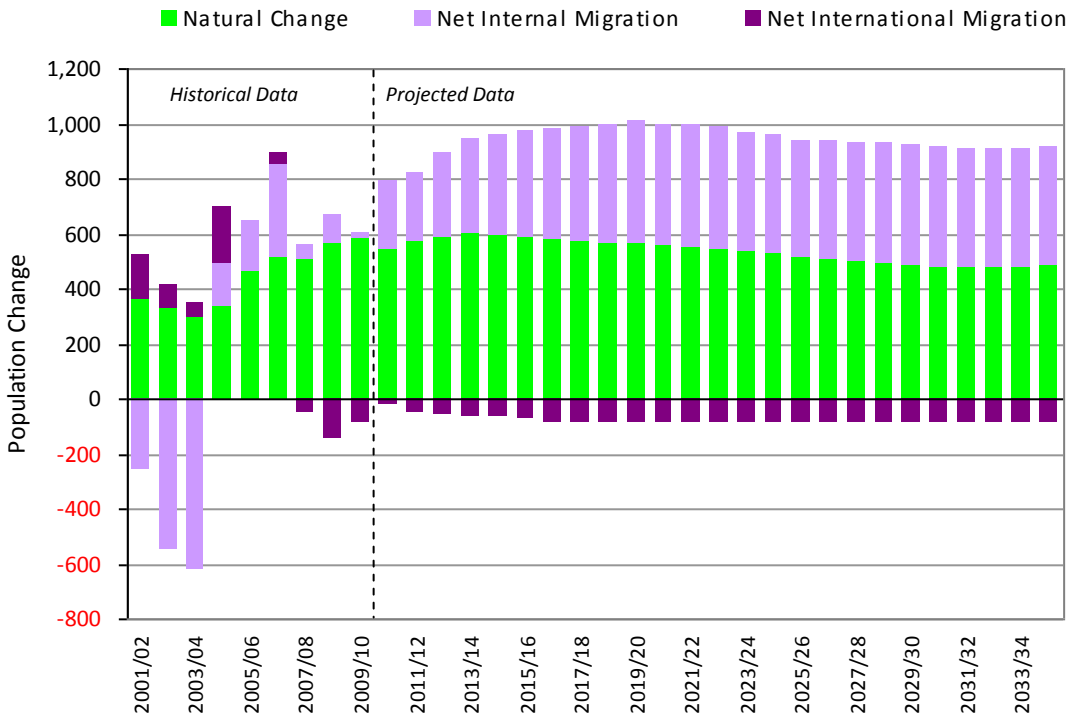
Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)



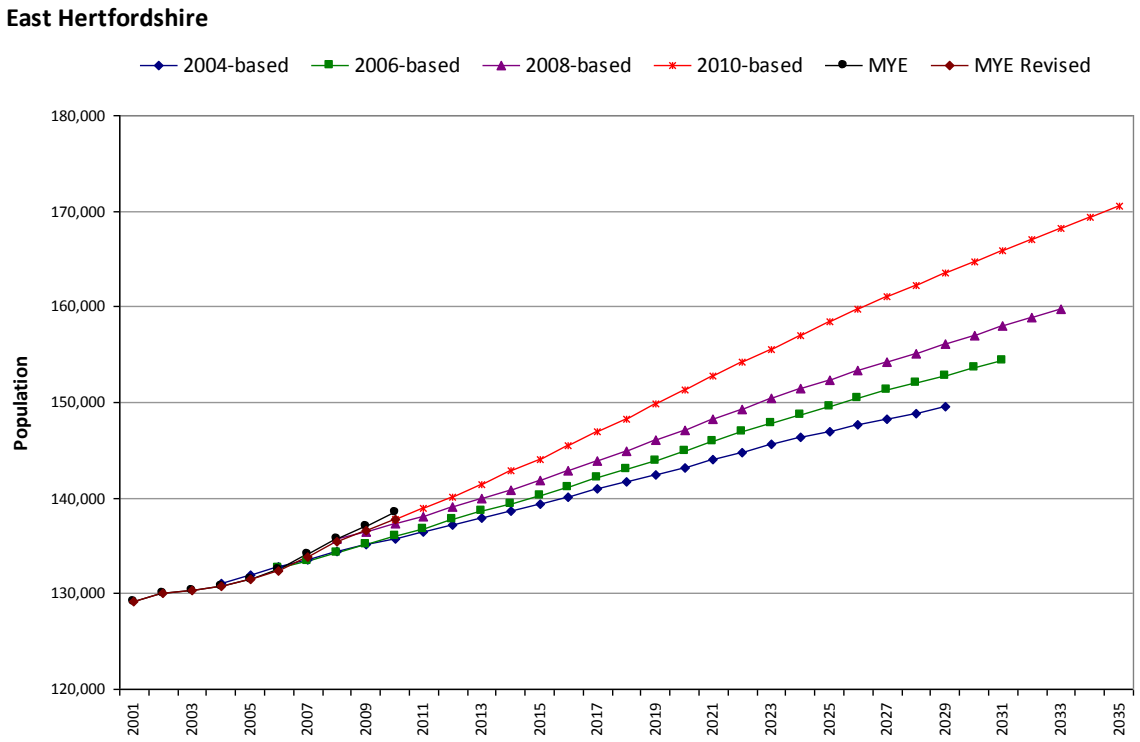
3. 2010-based sub-national population projections: components of change (Source: ONS)

Broxbourne



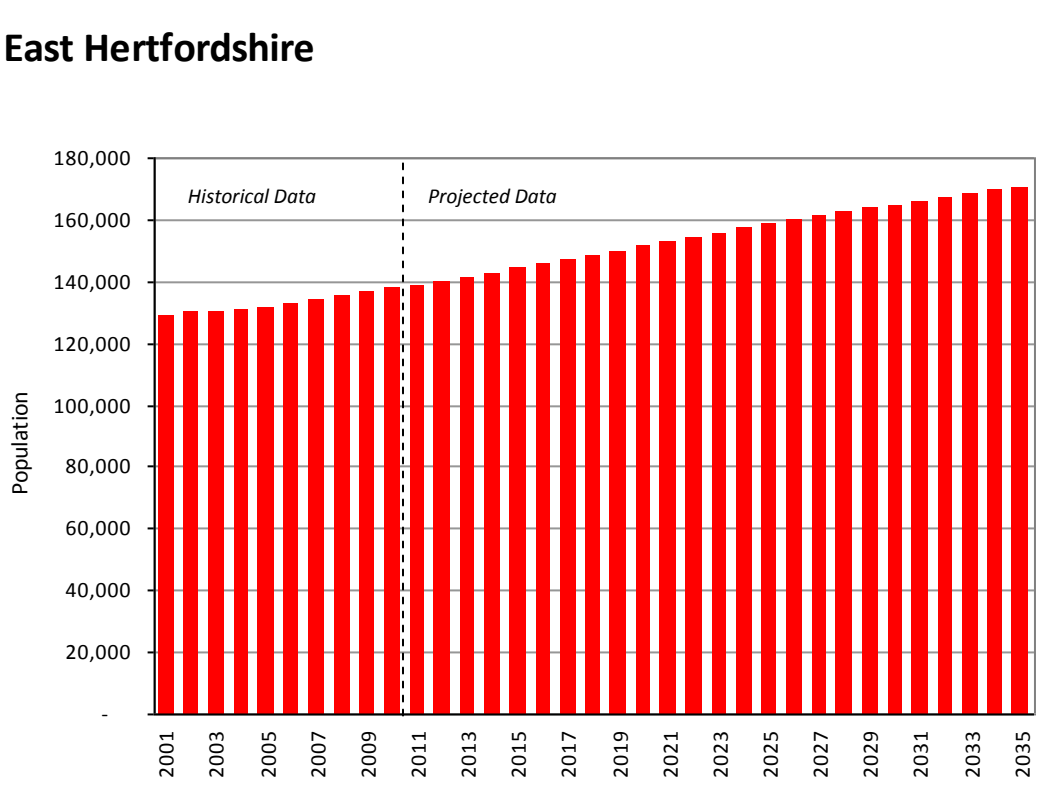
East Hertfordshire

1. Population estimates and projections (Source: ONS)

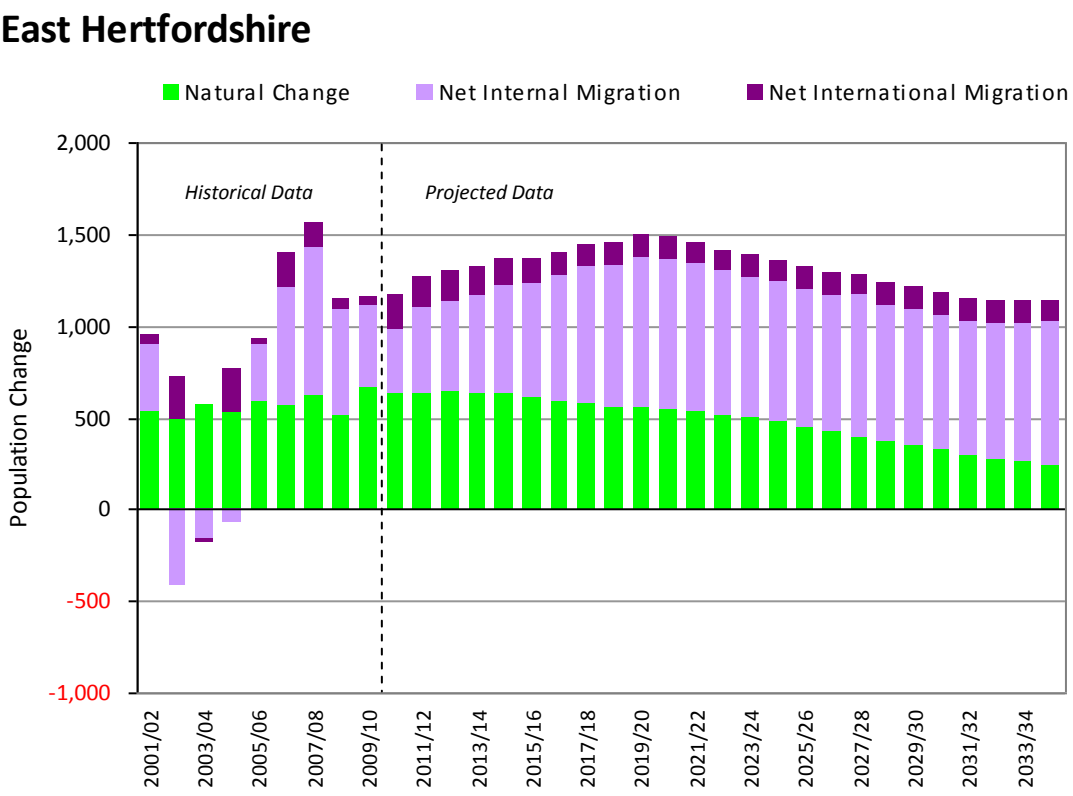


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

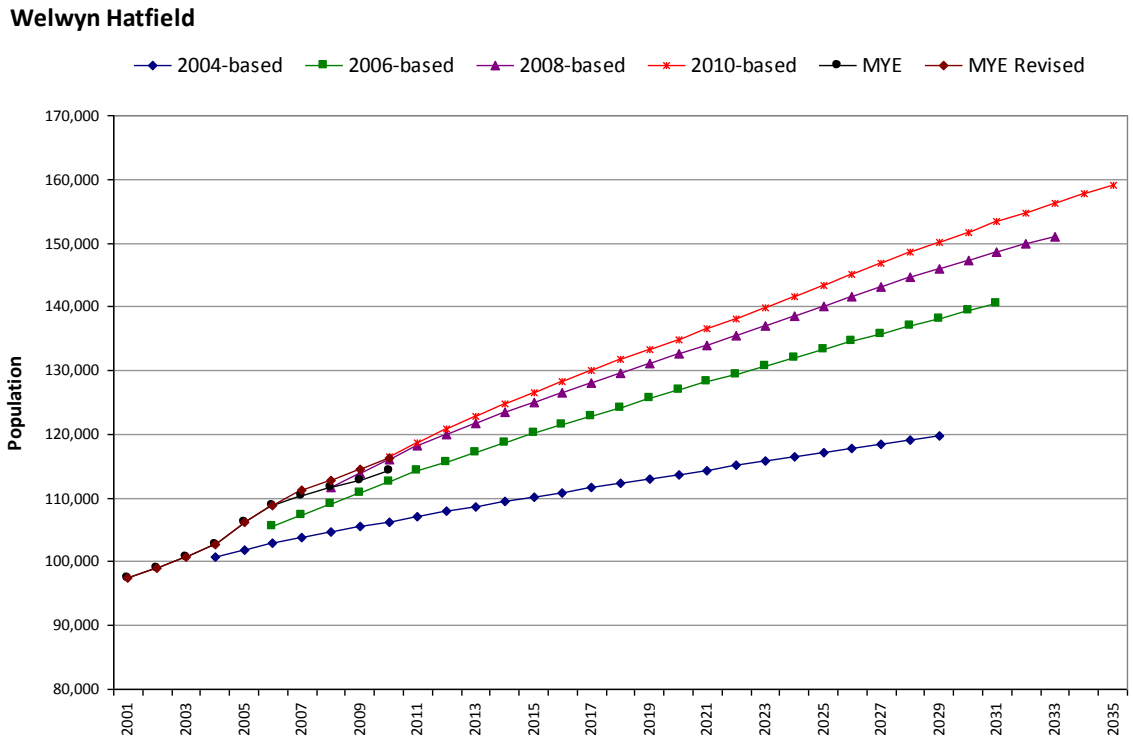


3. 2010-based sub-national population projections: components of change (Source: ONS)



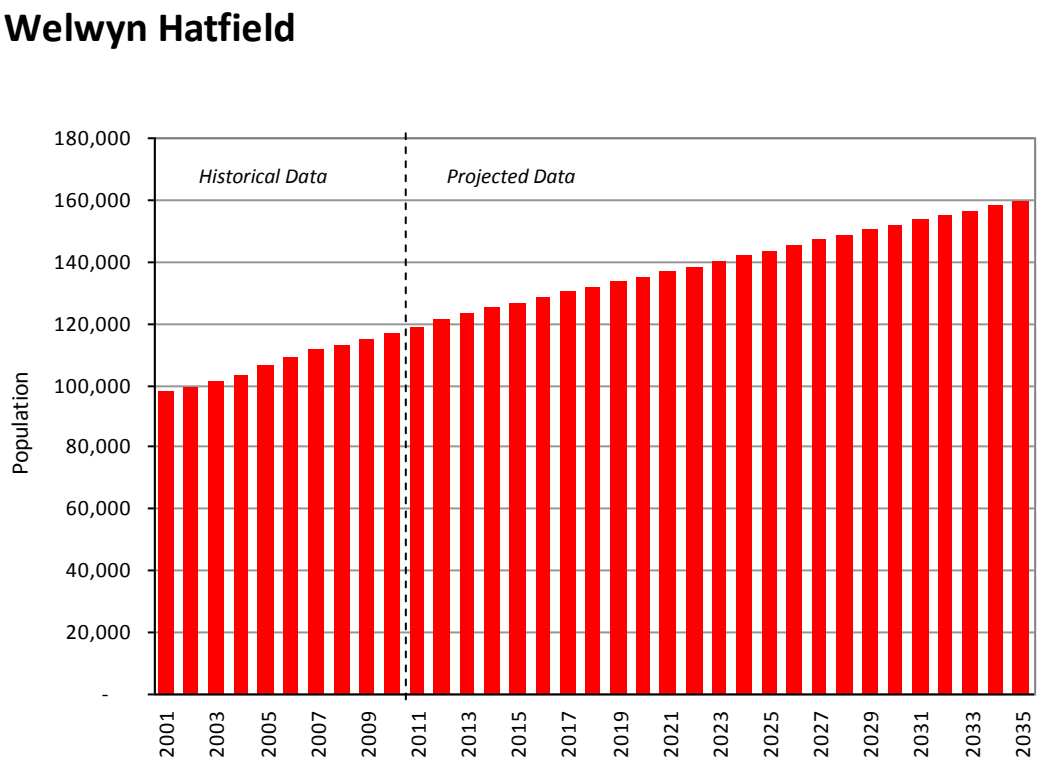
Welwyn Hatfield

1. Population estimates and projections (Source: ONS)

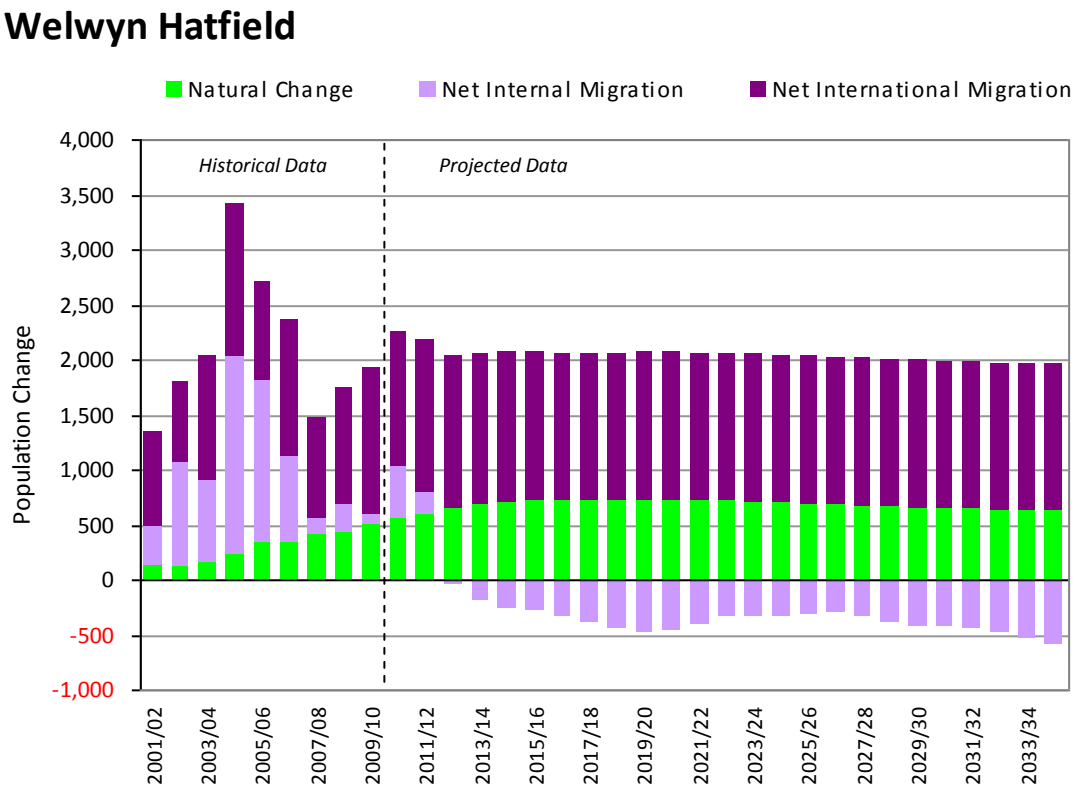


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

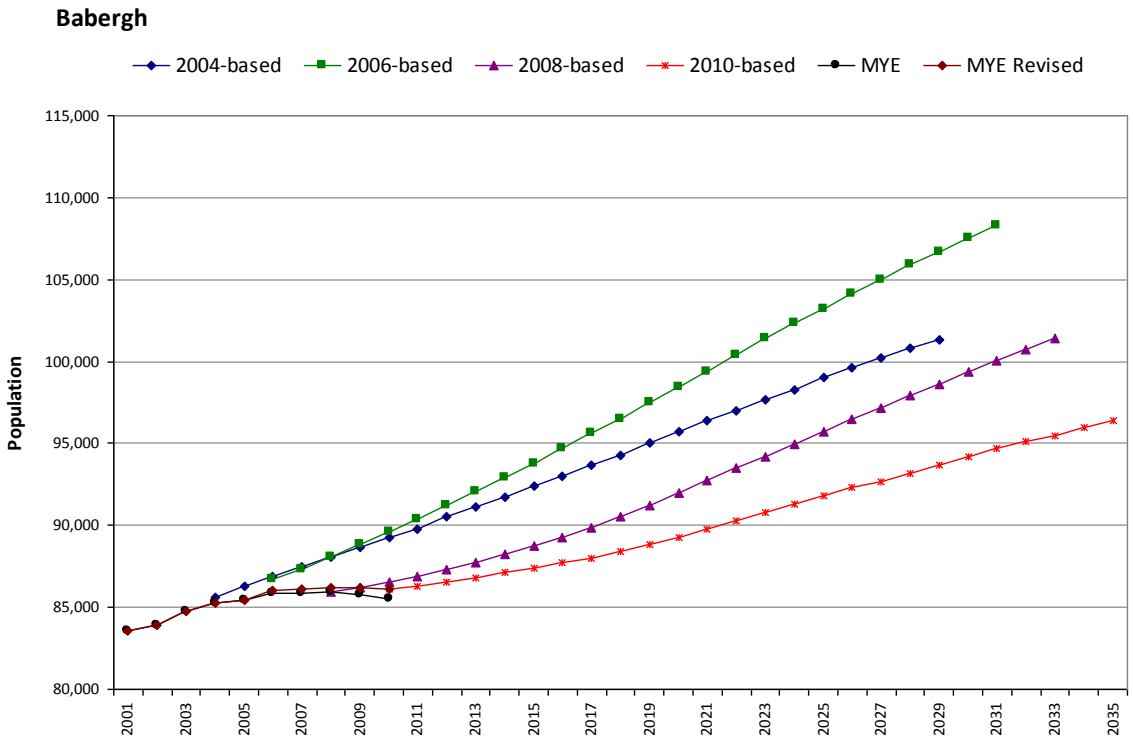


3. 2010-based sub-national population projections: components of change (Source: ONS)



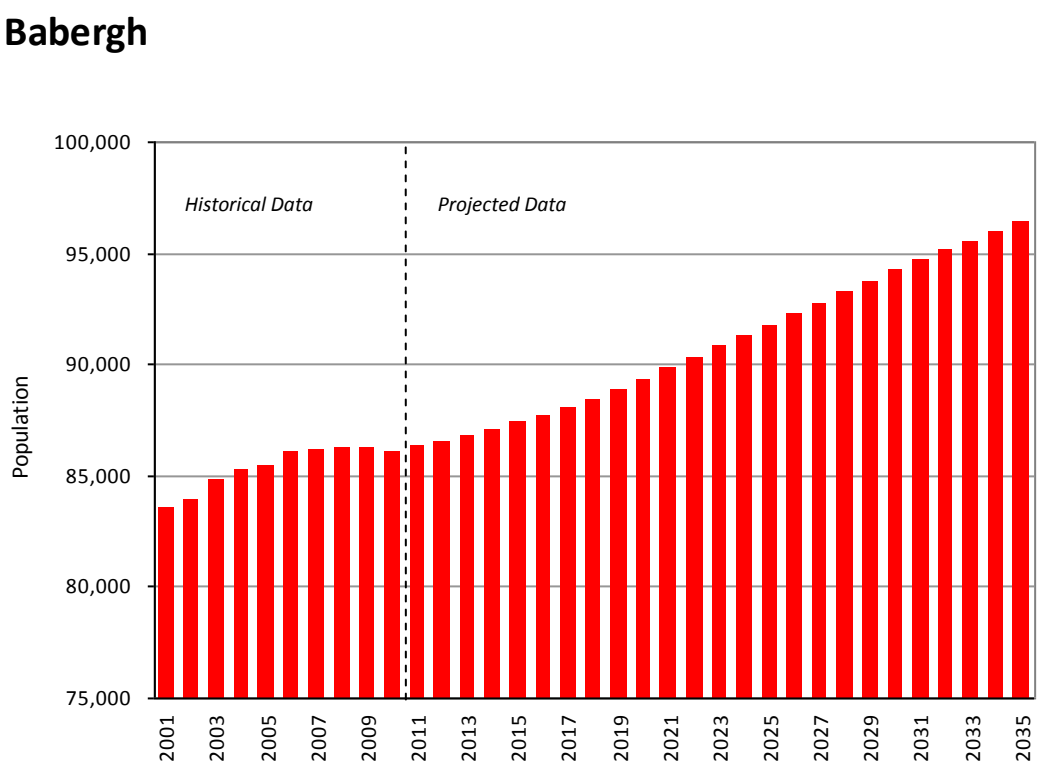
Babergh

1. Population estimates and projections (Source: ONS)



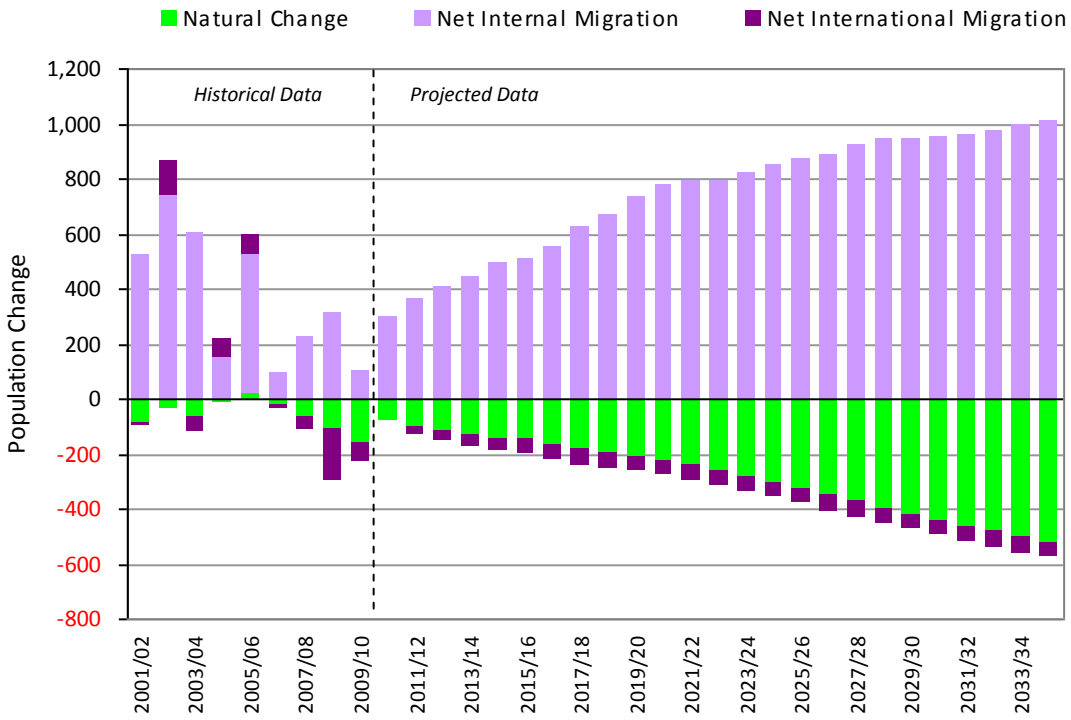
Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)



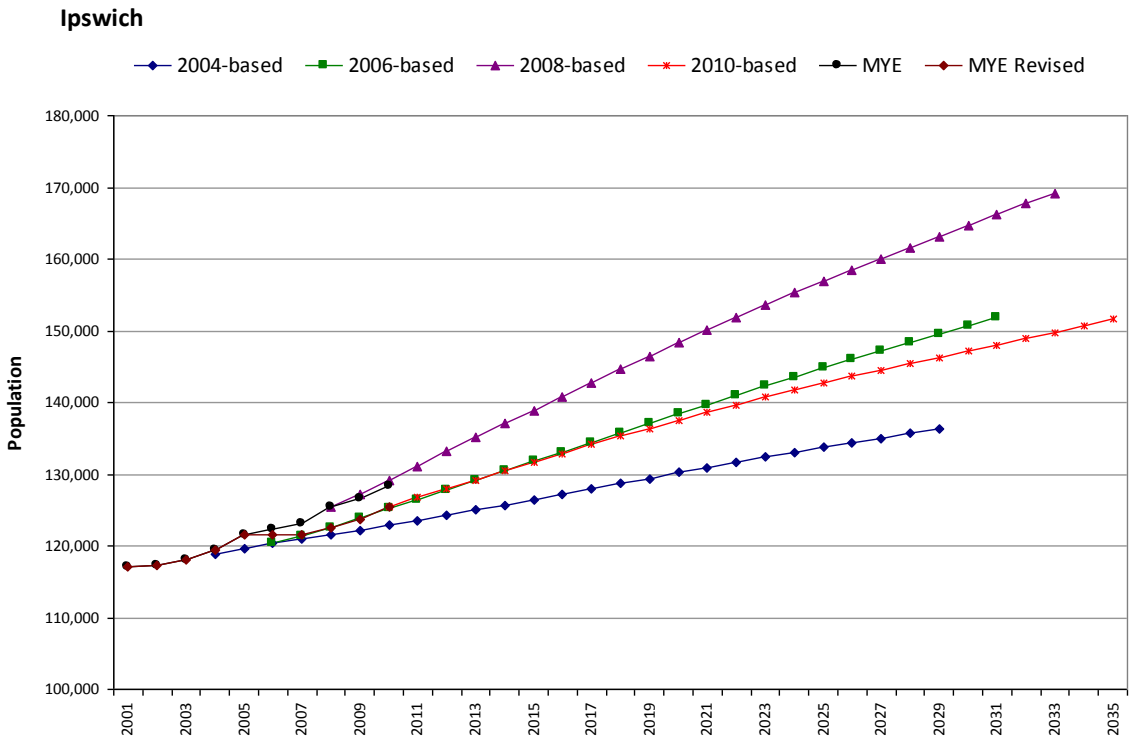
3. 2010-based sub-national population projections: components of change (Source: ONS)

Babergh



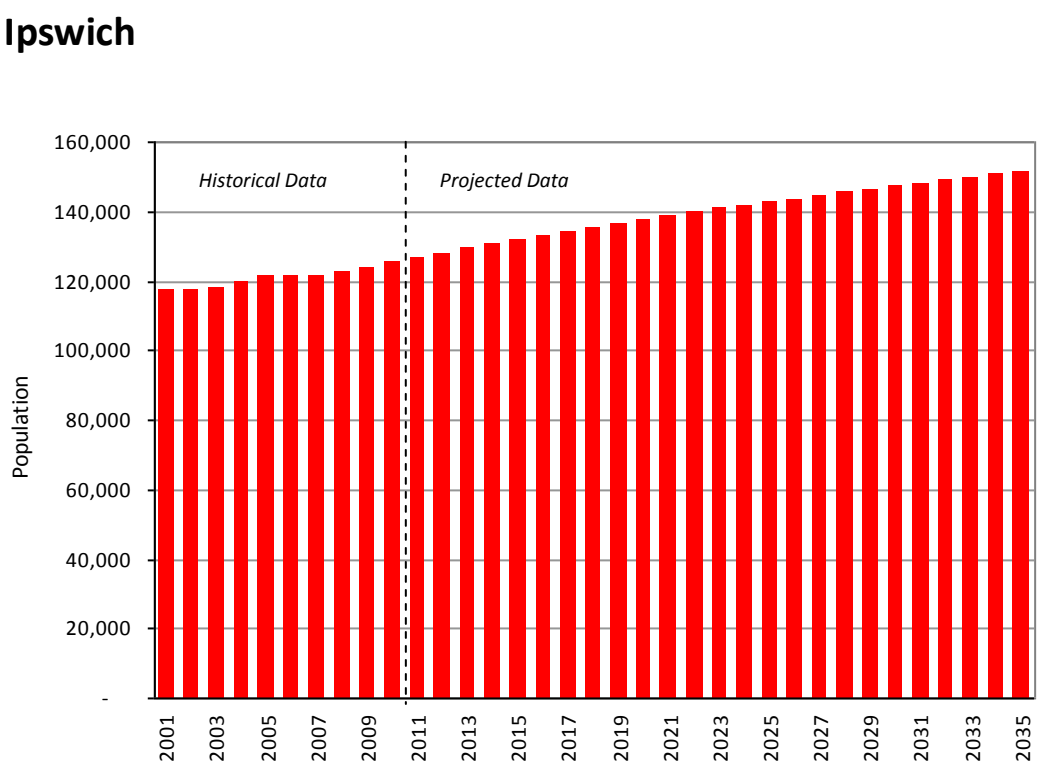
Ipswich

1. Population estimates and projections (Source: ONS)

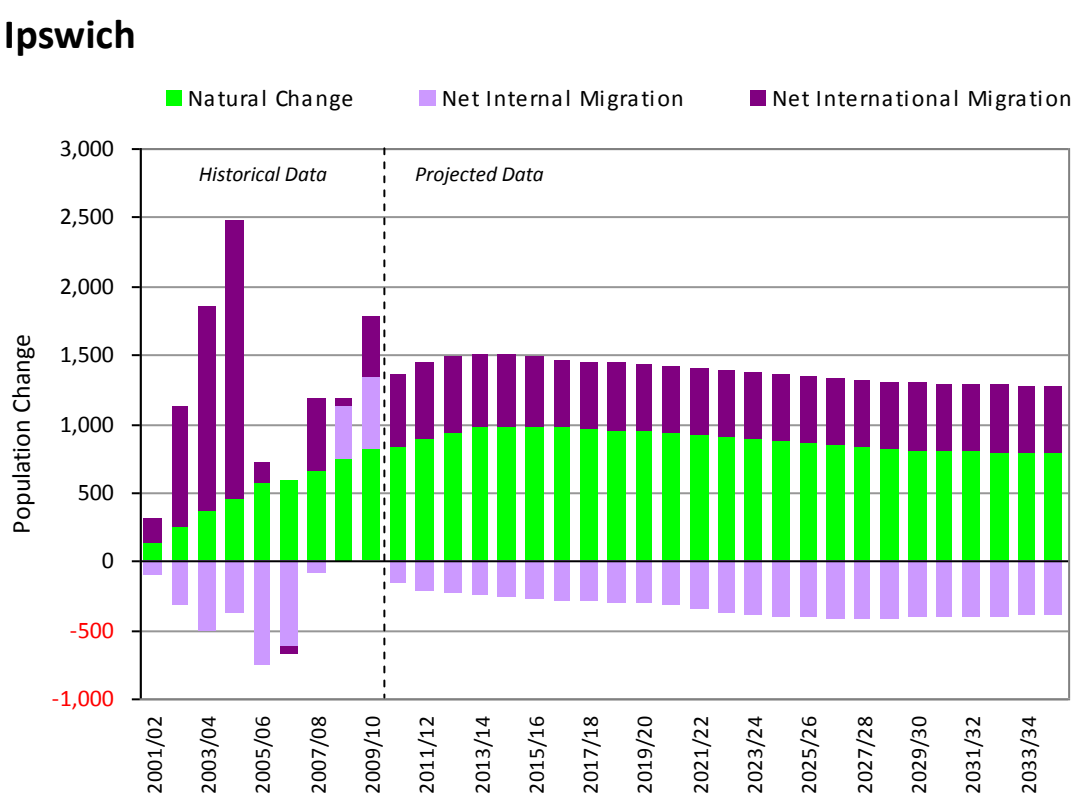


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

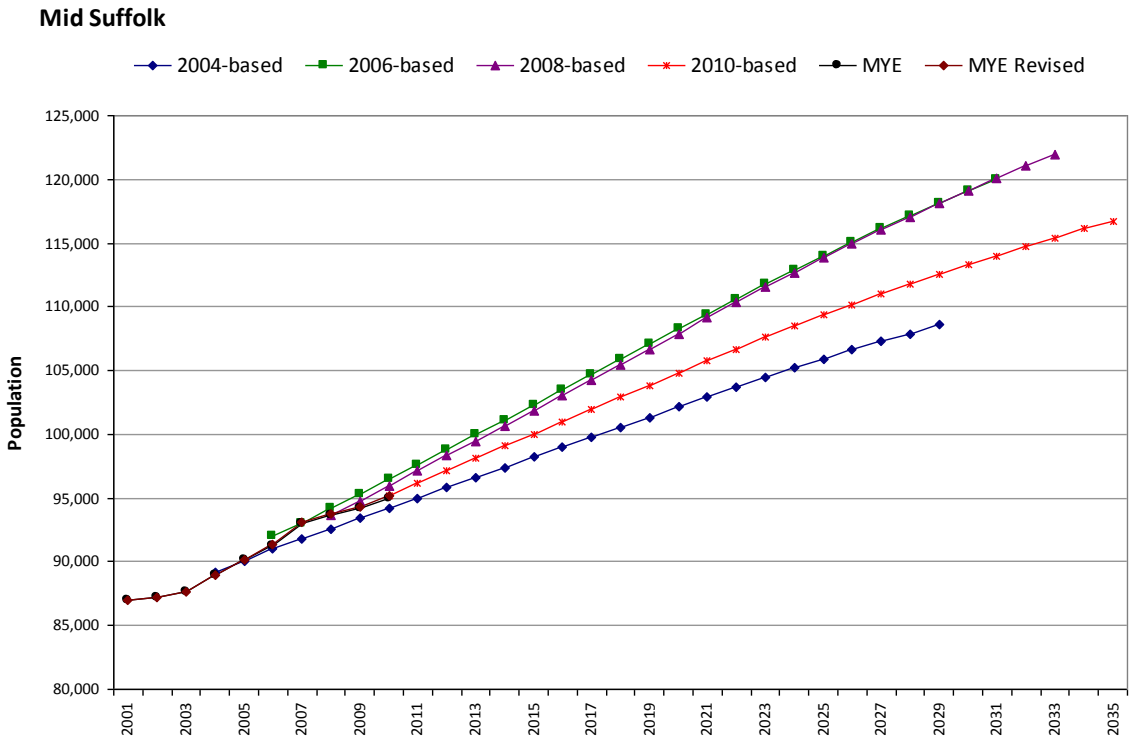


3. 2010-based sub-national population projections: components of change (Source: ONS)



Mid Suffolk

1. Population estimates and projections (Source: ONS)



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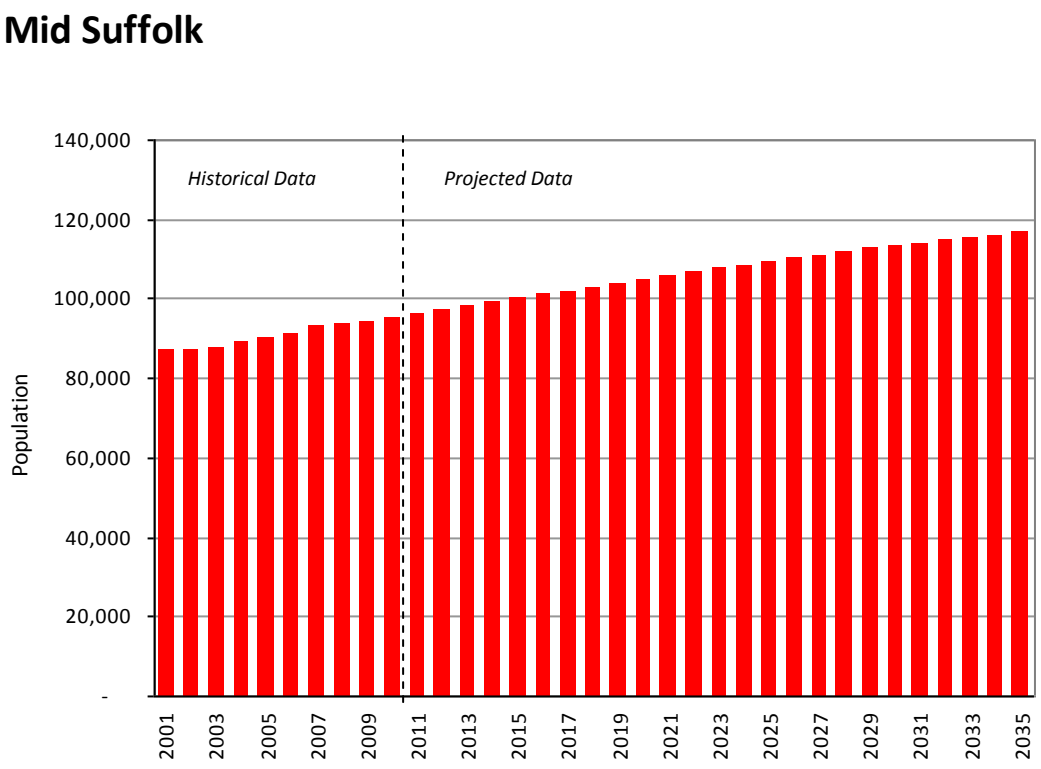
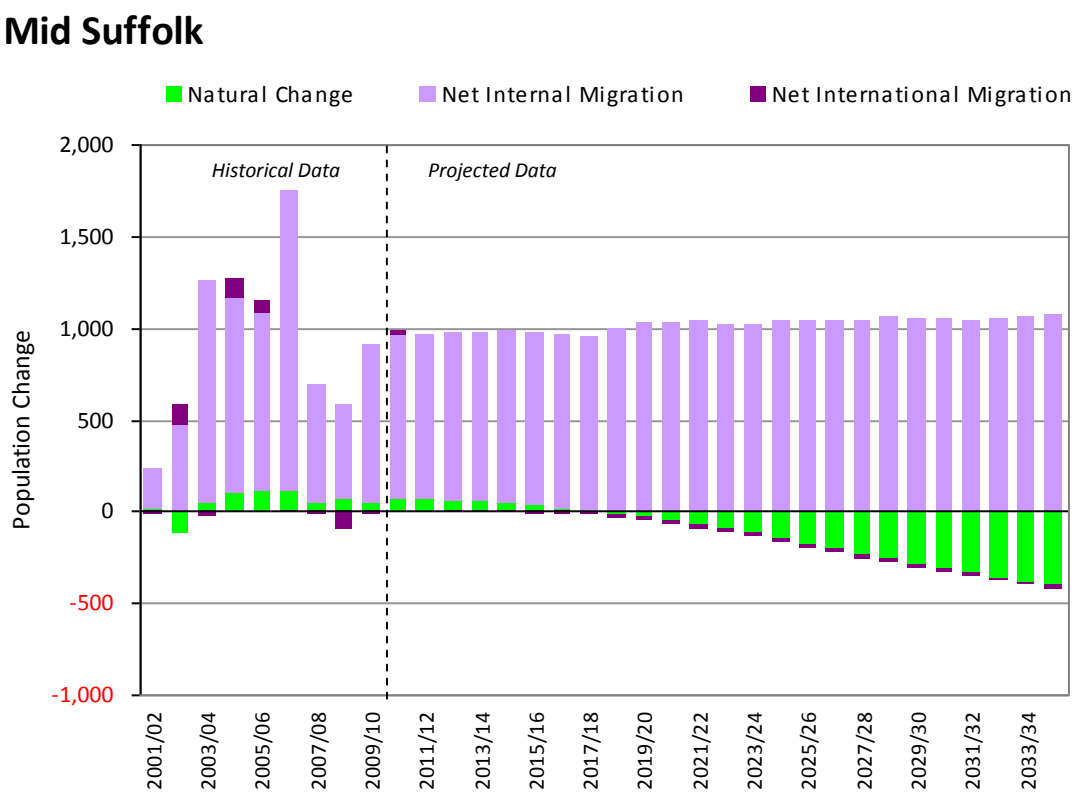
2. 2010-based sub-national population projections (Source: ONS)

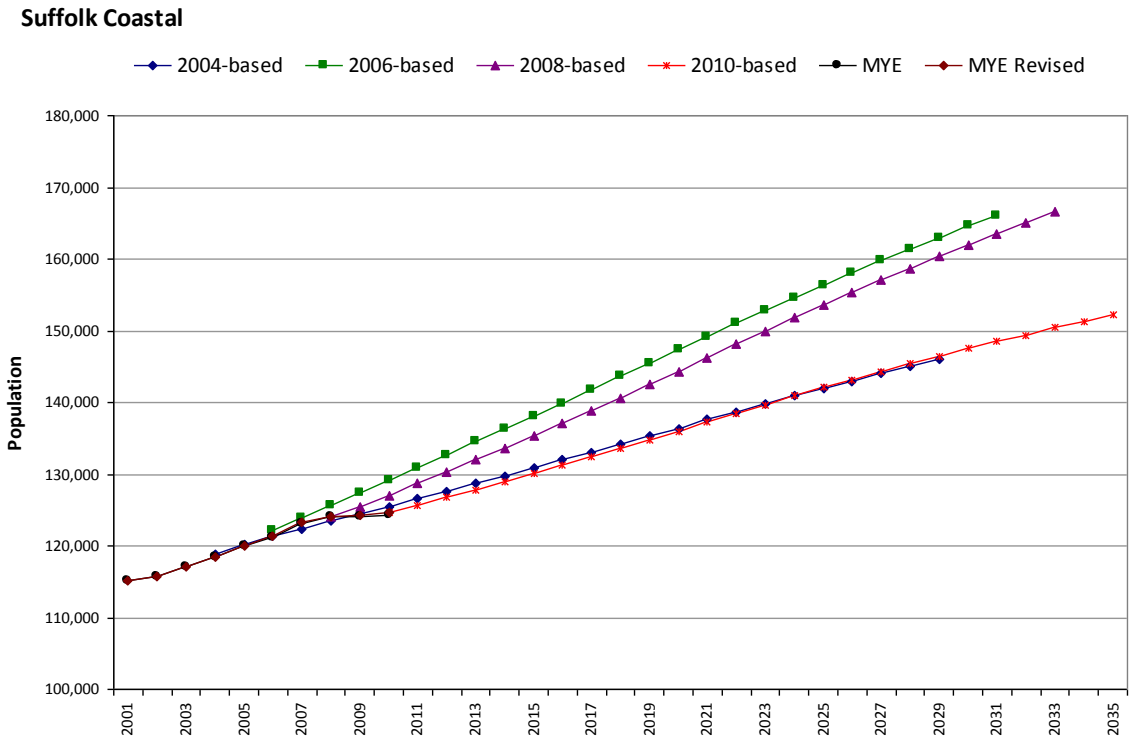


3. 2010-based sub-national population projections: components of change (Source: ONS)



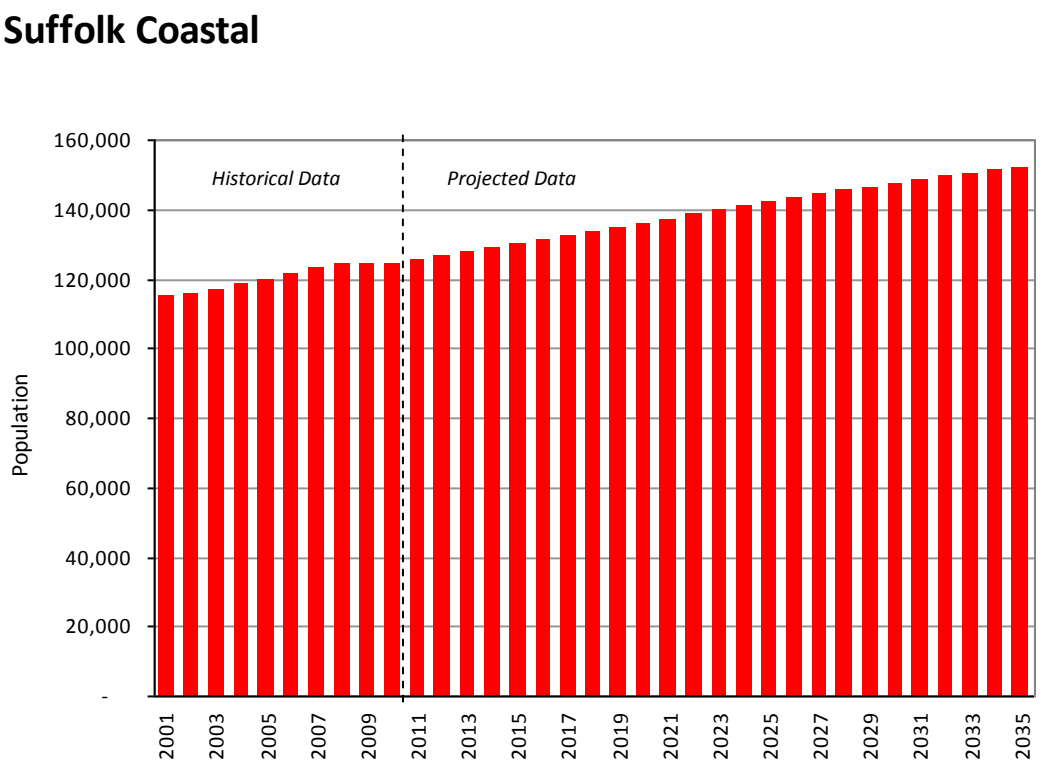
Suffolk Coastal

1. Population estimates and projections (Source: ONS)

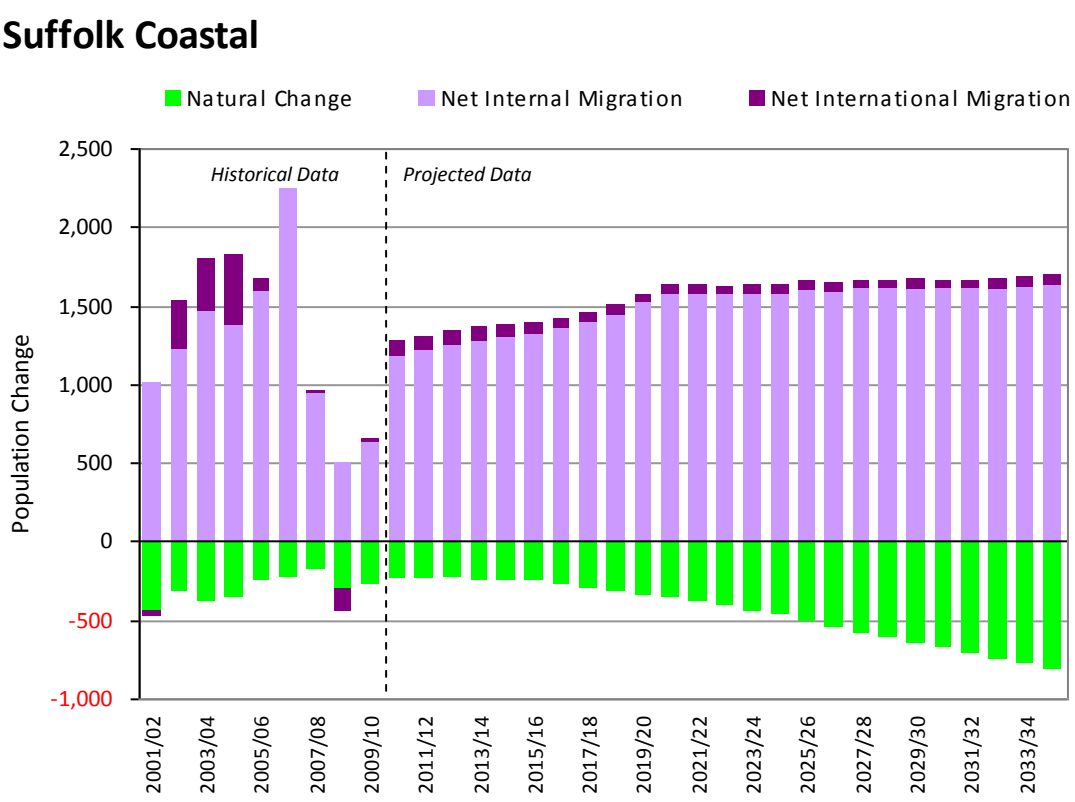


Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)

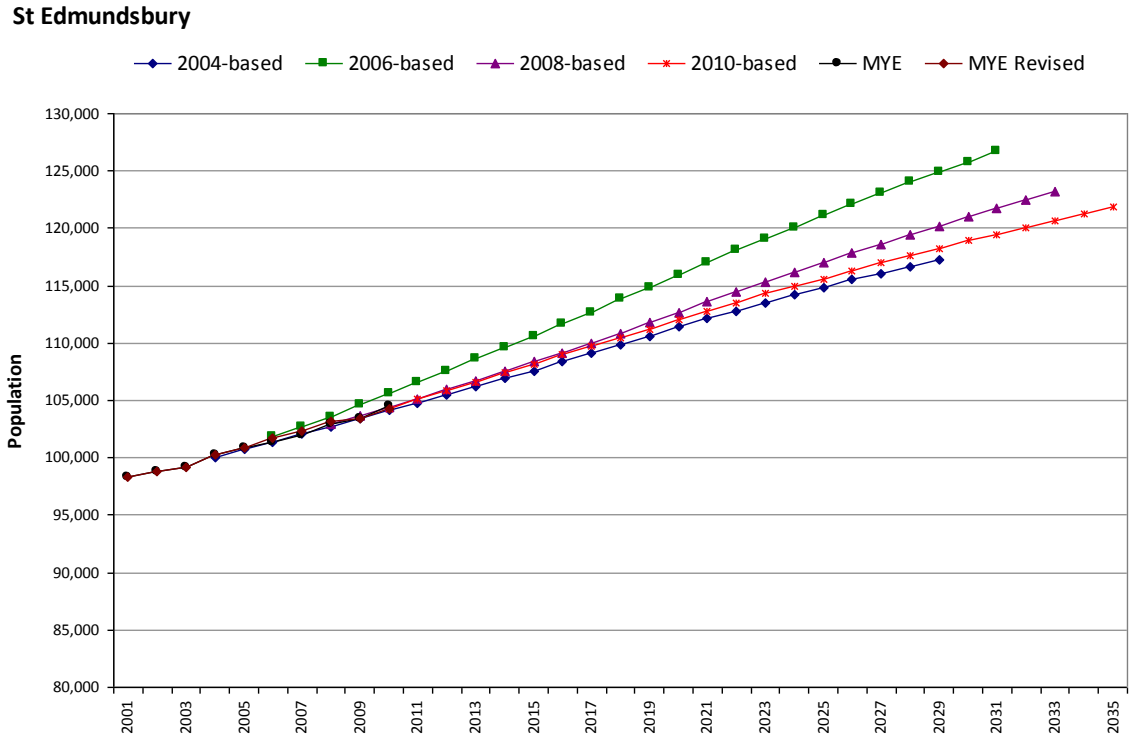


3. 2010-based sub-national population projections: components of change (Source: ONS)



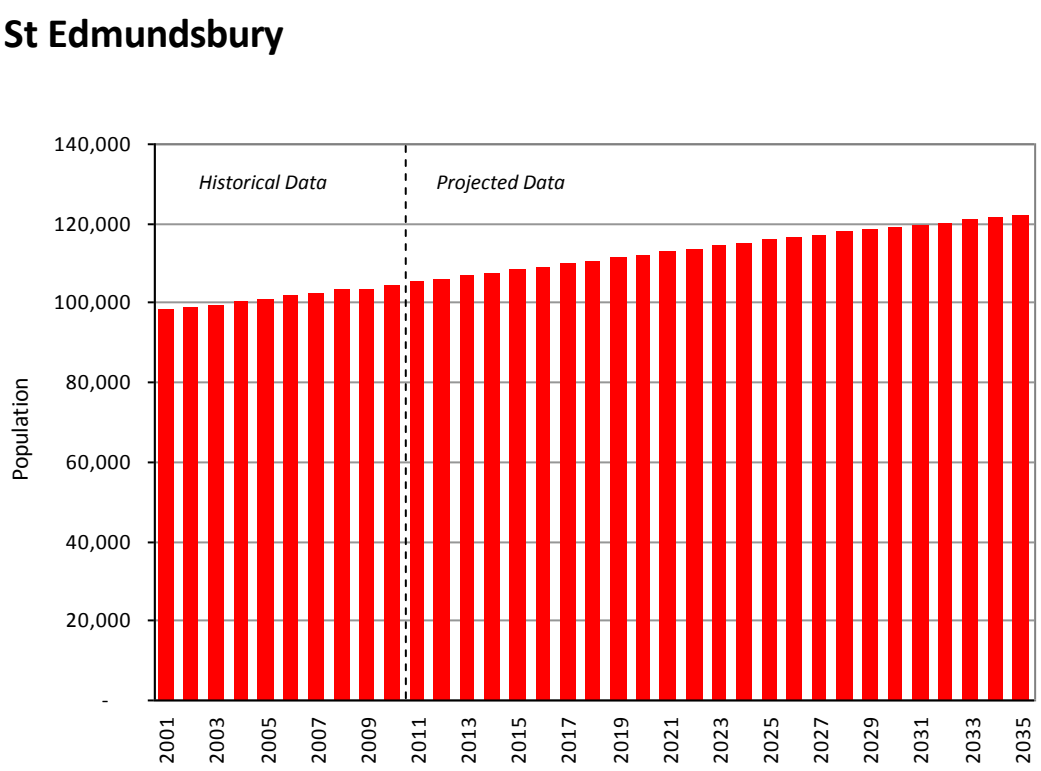
St Edmundsbury

1. Population estimates and projections (Source: ONS)



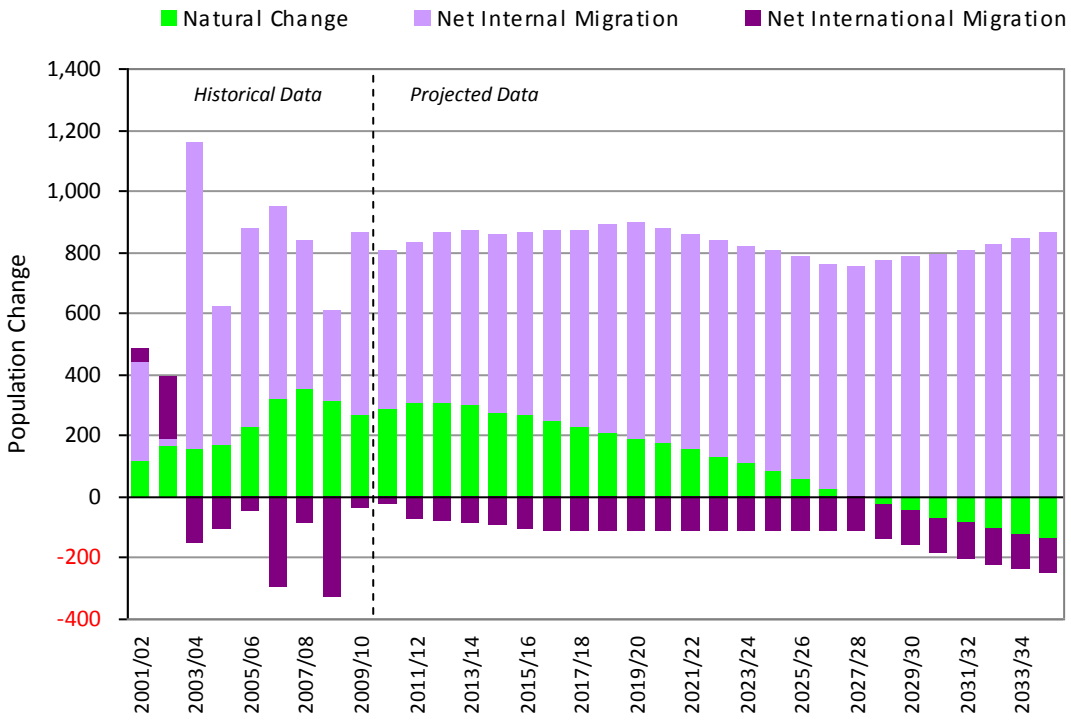
Note: Historical and projection period vary between scenarios. For example, the 2010-based scenario will include historical data up to 2010, with the projection period running from 2010-35

2. 2010-based sub-national population projections (Source: ONS)



3. 2010-based sub-national population projections: components of change (Source: ONS)

St Edmundsbury



4. Scenario Development: data & assumptions

Summary

4.1 Phase 1 & 2 of this project involved the development and configuration of a complete population, household and labour force forecasting capability for the EPOA study area using POPGROUP model technology (see Appendix 1). This capability is being managed and maintained by Edge Analytics as the project progresses through to Phase 4 and provides the basis for all analysis, scenario forecasting and report development.

4.2 The POPGROUP suite of models draw data from a number of sources, building an historical picture of population, households, fertility, mortality and migration on which to base its scenario forecasts. The use of data from 2001 is important; for presentation, for interpretation, and for considering options for assumptions about future trends. The key data inputs and assumptions used for the development of the Phase 3 scenarios presented in this report are detailed below, with more detail on the specific characteristics of each scenario presented in section 5.

Population, births, deaths and migration data inputs

4.3 The key inputs to historical and projected population data and assumptions for each local authority are as follows:

Population

- Mid-2001 to mid-2010 population by single year of age and sex

Births and fertility

- Mid-year counts of births by sex, 2001-2010
- Standard age-specific fertility schedule from national projections plus local fertility schedules from the 2010-based sub-national population projections
- Long-term assumptions on fertility change from ONS national projections (2010-based)

Deaths and mortality

- Mid-year counts of deaths 2001 – 2010 by age and sex from 2001
- Standard age-specific mortality schedule from national projections plus local mortality schedules from the 2010-based sub-national population projections
- Long-term assumptions on mortality change from ONS national projections (2010-based)

Internal Migration

- Patient registration statistics for internal migration by five-year age-group and sex, 2001-2010
- Local authority internal migration schedules from the 2010-based sub-national population projections, plus future migration growth differentials

International Migration

- Mid-year population estimate assumptions for international migration, 2001-2010
- Local authority international migration flows from the 2010-based sub-national population projections.

Household & dwelling data & assumptions

4.4 Data and assumptions on *households* have been derived directly from the Department for Community and Local Government's (CLG) 2008-based household projections[4] (2010-based household projections are due for release in 2013). For each local authority, the following key data items are used in the POPGROUP projection models:

- A count of the population living in 'communal establishments' originally taken from the 2001 Census but consistent with that used by CLG in its household projections.
- Headship rates by household type, age and sex (2001-2033)

[4]Updating the Department for Communities and Local Government's household projections to a 2008 base: Methodology http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/householdestimates/

4.5 Headship rates (by household type, age and sex) are the basis on which a population (by age and sex) is converted into a household total. Headship rates vary over time, with the general trend being for a reduction in average household size throughout the 2008-2033 projection period. CLG classifies households into 17 different types:

1. One person households: Male
2. One person households: Female
3. One family and no others: Couple: No dependent children
4. One family and no others: Couple: 1 dependent child
5. One family and no others: Couple: 2 dependent children
6. One family and no others: Couple: 3+ dependent children
7. One family and no others: Lone parent: 1 dependent child
8. One family and no others: Lone parent: 2 dependent children
9. One family and no others: Lone parent: 3+ dependent children
10. A couple and one or more other adults: No dependent children
11. A couple and one or more other adults: 1 dependent child
12. A couple and one or more other adults: 2 dependent children
13. A couple and one or more other adults: 3+ dependent children
14. A lone parent and one or more other adults: 1 dependent child
15. A lone parent and one or more other adults: 2 dependent children
16. A lone parent and one or more other adults: 3+ dependent children
17. Other households

4.6 Additional guidance on the definition of these household types:

A couple with no other adults: a household which contains one family and no others, comprising of a married or cohabiting couple, with or without dependent children.

A couple with other adults: a household which contains one or more married or cohabiting couple families with one or more other adults present, with or without dependent children.

Lone parent household: a household which contains one or more lone parent families, but no married couple or cohabiting couple families.

One person household: a person living alone who shares neither housekeeping nor a living room with anyone else.

Other household: a multi person household that is neither a couple household nor a lone parent household. Examples include, lone parents with only non-dependent children, brothers and sisters and unrelated (and non-cohabiting) adults sharing a house or flat. This category does not include households with dependent children.

A dependent child: a person in a household aged 0 to 15 (whether or not in a family) or a person aged 16 to 18 who is a full time student in a family with parents.

4.7 CLG's household model does not use *actual* data on dwellings to constrain or update its household projections. This means that household estimates produced by the CLG model for 2001-2010 are not necessarily consistent with estimates of dwellings from other sources. To provide a more realistic base for the forecast scenarios, this study has rescaled CLG headship rates to ensure that scenarios start with a household total that is consistent with data on 'occupied properties' for each local authority, taken from Council Tax statistics. The rescaling factor is then applied to the future CLG headship rates for each area as a constant, thereby maintaining the trajectory of the CLG rates but at a level that reflects the amount of rescaling. The Council Tax statistics used in the rescaling process are illustrated in Figure 7.

4.8 The relationship between households and dwellings is controlled using a Household-Dwelling conversion factor, derived from the 2001 Census. This measures the level of 'vacancy' associated with each area's dwelling stock. It converts the household projections to a dwelling equivalent and vice versa. The Household-Dwelling factor remains constant throughout the projection period (Figure 8).

Council Tax Data

Area Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Basildon	69,743	70,144	70,287	70,729	70,833	71,180	71,458	71,633	72,169	72,456
Braintree	54,420	55,146	55,890	56,546	57,190	57,944	58,665	59,152	59,540	59,969
Brentwood	29,088	29,201	29,442	29,681	29,710	29,902	29,996	30,332	30,669	30,826
Castle Point	35,222	35,311	35,280	35,497	35,620	35,893	36,070	36,198	36,389	36,489
Chelmsford	63,913	64,492	65,273	66,089	66,660	67,291	67,720	68,502	69,260	69,713
Colchester	63,770	64,341	65,238	66,326	67,222	68,019	69,317	70,733	71,869	72,705
Epping Forest	50,310	50,618	50,813	50,988	51,278	51,636	51,845	51,895	52,181	52,664
Harlow	33,305	33,583	33,730	33,827	33,951	34,187	34,351	34,466	34,676	34,891
Maldon	24,409	24,565	24,643	24,772	24,860	25,086	25,261	25,410	25,590	25,728
Rochford	32,249	32,422	32,562	32,722	32,752	32,909	33,277	33,461	33,644	33,701
Tendring	60,556	60,986	61,432	61,767	61,788	62,339	62,837	62,843	63,536	63,793
Uttlesford	27,696	27,930	28,131	28,472	28,674	29,209	29,568	29,984	30,478	30,980
Southend-on-Sea	72,318	72,498	72,736	72,935	73,261	73,881	74,110	74,496	74,842	75,217
Thurrock	57,742	58,507	59,340	60,066	60,565	61,635	62,278	62,257	62,748	62,845
Cambridge	43,405	43,582	43,857	44,343	44,879	45,337	46,147	46,652	47,473	48,000
South Cambridgeshire	52,327	53,159	53,870	54,461	55,201	56,059	56,971	57,875	58,587	59,382
Broxbourne	34,816	35,060	35,199	35,376	35,879	36,712	36,976	37,287	37,499	37,824
East Hertfordshire	52,158	52,673	53,075	53,414	53,698	54,204	54,959	55,715	56,210	56,621
Welwyn Hatfield	40,048	40,113	40,478	41,318	41,857	42,650	43,331	44,086	44,411	44,488
Babergh	34,759	34,990	35,468	35,678	35,791	36,057	36,399	36,727	37,061	37,276
Ipswich	49,993	50,374	50,778	51,294	51,919	52,642	53,558	54,776	55,787	56,416
Mid Suffolk	35,533	35,877	36,164	36,546	36,871	37,420	38,203	38,803	39,310	39,771
Suffolk Coastal	49,111	49,543	50,117	50,554	51,000	51,864	52,650	53,131	53,584	53,923
St. Edmundsbury	40,915	41,393	41,757	42,174	42,398	42,887	43,396	43,905	44,475	44,797

Figure 7: Council Tax statistics by area (Source: District Councils)

	Household-Dwelling Conversion Factor
Basildon	97.7%
Braintree	97.5%
Brentwood	96.8%
Castle Point	98.6%
Chelmsford	98.0%
Colchester	97.5%
Epping Forest	97.6%
Harlow	98.3%
Maldon	96.1%
Rochford	97.7%
Tendring	94.9%
Uttlesford	96.5%
Southend	96.1%
Thurrock	98.5%
Cambridge City	98.2%
South Cambridgeshire	97.4%
Broxbourne	97.3%
East Hertfordshire	97.7%
Welwyn-Hatfield	98.0%
Babergh	96.7%
Ipswich	96.5%
Mid Suffolk	96.3%
Suffolk Coastal	93.1%
St Edmundsbury	96.3%

Source: 2001 Census

Figure 8: Household-Dwelling Conversion Factors (Source: 2001 Census)

Economic data & assumptions

4.9 In addition to modelling population and household projections, the POPGROUP model is also able to evaluate the impact of demographic change upon; (i) size of the labour force and; (ii) the number of jobs required in each local authority area.

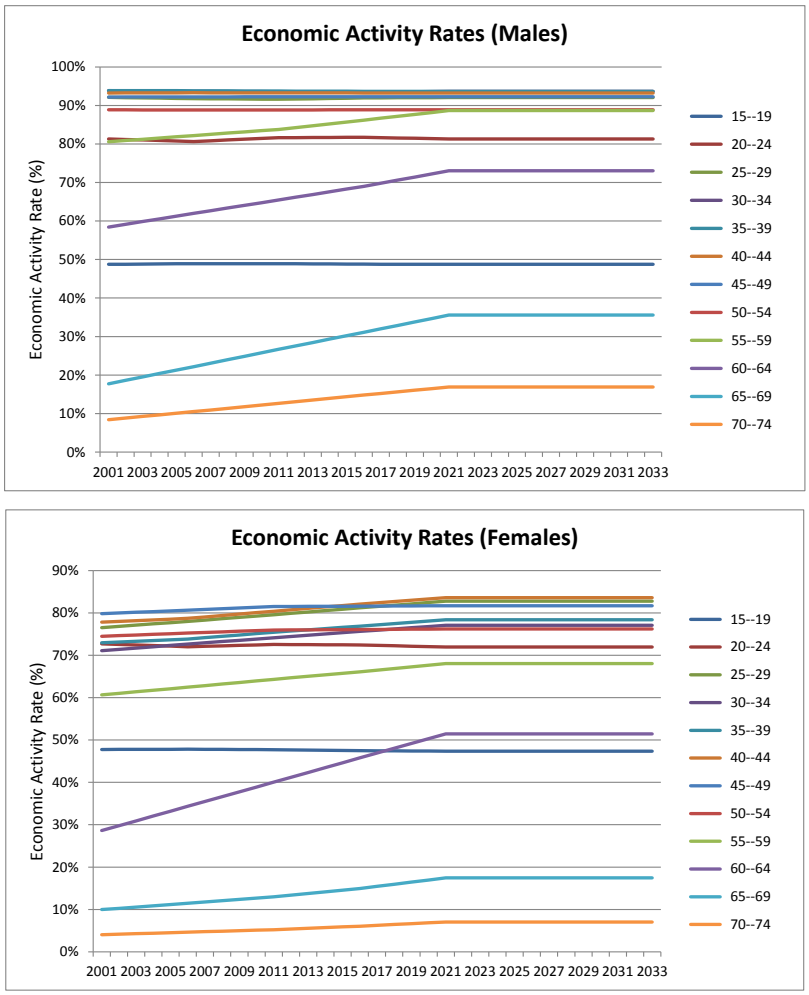
Conversely, if a pre-defined forecast of labour force or jobs growth is available, POPGROUP can evaluate the demographic impact of this forecast in terms of household and population change.

4.10 To run this type of 'economic' scenario evaluation in POPGROUP requires the following key data inputs for each local authority area:

- **Economic Activity rates**, measuring the level of participation in the labour force by age and sex and how this participation changes over time.
- **Unemployment rate**, measuring the overall level of unemployment in the labour force
- **Commuting ratio**, measuring the balance between the size of the labour force living in an area against the number of jobs in an area. As a general rule, urban local authorities will have a higher level of net in-commute than more rural areas, due to the concentration of commercial activity.

4.11 In this Phase 3 analysis, each of these 'economic' assumptions has been drawn directly from the Spring 2012 baseline forecast of the East of England Forecasting Model (EEFM). (report in preparation for publication at http://www.insighteast.org.uk/) Whilst considerable uncertainty remains with regard to the timing and scale of economic recovery, these forecasts provide the latest local evidence on possible economic futures. More detail on the structure and methodology employed by the EEFM is provided in Appendix 3. The EEFM forecasts of jobs growth by local authority are illustrated in section 5.

4.12 The economic activity rates (by age and sex) are illustrated in Figure 9. The most important feature of these data is that economic activity rates increase for the older age-groups as the projection period progresses. This is designed to account for an expected increase in the levels of economic participation in the 55+ age-group over the next 25 years, as the state pension age rises and as retirement from the labour force is postponed.



(Source: EERA)

Figure 9: Economic Activity Rates, All Areas, 2001-2033

4.13 In the Phase 2 scenario analysis, unemployment rates and commuting ratios were maintained at a fixed level throughout the projection period. In Phase 3, these factors have been drawn directly from the output of the EEFM to derive greater consistency between the EEFM and POPGROUP approaches. The variation in the unemployment rate and commuting ratios for each local authority area are illustrated in full in Figures 11 & 12.

4.14 The general trend in the unemployment rates used in the EEFM model suggest a peak in unemployment in 2012, declining thereafter and remaining fixed beyond 2020. The long-term assumption on unemployment ranges from 1.3% - 4.2% for EPOA local authorities.

4.15 The variation in commuting ratios are a little more significant and given the importance of this factor in determining the balance between the number of jobs created and the number that are taken up by the local labour force, additional guidance is provided on how

they might affect scenario output for each local authority area.

The commuting ratio measures the balance between the size of the labour force living in an area against the number of jobs in an area. A commuting ratio of <1.0 suggests a local authority with a higher number of jobs compared to the size of the labour force – an area with a net 'in-commute'. A commuting ratio of >1.0 suggests the opposite, a net out-commute, as the number of jobs does not match the size of the labour force.

Figure 10 illustrates the commuting ratios derived from the EEFM, ranking the local authorities on the average commuting ratio for the 2011-33 period. Cambridge is expected to have the highest net in-commute, Rochford the highest net out-commute. Only seven of the EPOA local authorities are expected to have a net in-commute; in other areas the size of the labour force is expected to exceed the number of jobs available, leading to a net outflow of commuters.

	EEFM Commuting Ratio		Commuting pattern and trend	
	2001	2011-33 (ranked)	Pattern 2011-33	Trend since 2001
Higher net IN-commute ↑				
Cambridge	0.63	0.68	Net in-commute	Reduced
Welwyn Hatfield	0.84	0.75	Net in-commute	Increased
Ipswich	0.82	0.85	Net in-commute	Reduced
Chelmsford	1.06	0.89	Net in-commute	Reversal
St Edmundsbury	1.00	0.91	Net in-commute	Increased
South Cambridgeshire	1.08	0.94	Net in-commute	Reversal
Colchester	1.03	0.97	Net in-commute	Reversal
Broxbourne	1.00	1.00	Balance	No change
Harlow	0.99	1.01	Net out-commute	Reversal
Uttlesford	1.01	1.02	Net out-commute	No change
Basildon	1.01	1.05	Net out-commute	Increased
Thurrock	1.21	1.07	Net out-commute	Reduced
Epping Forest	1.50	1.09	Net out-commute	Reduced
Brentwood	1.01	1.12	Net out-commute	Increased
Tendring	1.30	1.12	Net out-commute	Reduced
Suffolk Coastal	1.09	1.14	Net out-commute	Increased
East Hertfordshire	1.18	1.21	Net out-commute	Increased
Southend-on-Sea	1.11	1.23	Net out-commute	Increased
Babergh	1.25	1.28	Net out-commute	Increased
Mid Suffolk	1.23	1.30	Net out-commute	Increased
Braintree	1.31	1.34	Net out-commute	Increased
Maldon	1.41	1.39	Net out-commute	Reduced
Castle Point	1.90	1.63	Net out-commute	Reduced
Rochford	1.65	1.82	Net out-commute	Increased
↓ Higher net OUT-commute				

(Source: EEFM)

Figure 10: Commuting Ratios, EPOA local authorities

4.16 In terms of change since the last Census in 2001, the 2011-2033 EEFM statistics assume a mixed pattern of increases and decreases in both in-commuting and out-commuting and a complete reversal of the pattern in other cases. These can be summarised as follows:

- Cambridge and Ipswich experience a reduced level of in-commute
- Welwyn Hatfield and St Edmundsbury experience an increased level of in-commute
- Broxbourne and Uttlesford experience no change
- Thurrock, Epping Forest, Tendring, Maldon & Castle Point experience a reduced level of out-commute
- Basildon, Brentwood, Suffolk Coastal, East Hertfordshire, Southend-on-Sea, Babergh, Mid-Suffolk, Braintree, Rochford experience an increased level of out-commute
- Chelmsford, South Cambridgeshire & Colchester experience a reversal, from net out-commute in 2001 to a net in-commute in 2011-2033
- Harlow experiences a small shift in the opposite direction

4.17 The commuting ratio is an important component of the POPGROUP demographic model as it controls the balance between the size of the labour force population and the number of jobs available within a local authority.

So, for example, an economic forecast might suggest year-on-year jobs growth in a local authority. To evaluate the demographic impact of this jobs growth, POPGROUP will use the commuting ratio to measure the balance between the number of these jobs that are taken-up by the local labour force and those that are taken by 'in-commuters'. Once this balance has been achieved, any jobs that haven't been assigned will result in additional in-migration; adding new people to the labour force population.

Conversely, if low jobs growth or a decline in employment is forecast, it may be that the jobs total is too small to meet the required economic activity rates of the local labour force and the balance of in-commuters. Within the demographic model this will result in additional out-migration; removing people from the labour force population.

4.18 Within the POPGROUP model the commuting ratio is normally fixed over the forecast period. Within the EEFM, the commuting ratio is (for some local authority forecasts) changed to accommodate different levels of jobs growth (Figure 12). This has the effect of changing the balance between the size of the labour force and the number of jobs

available within a local authority. As a result, the level of in-migration (or out-migration) required to meet a jobs forecast will be altered.

In Chelmsford, for example, a high jobs growth forecast has been suggested by the EEFM model. In order to achieve some of this growth, the commuting ratio for the local authority has been changed by the EEFM; from a net out-commute in 2001, to a net in-commute during the forecast period. This has the effect of reducing the local population growth required to meet the jobs growth targets, as a larger proportion of the jobs are being taken by in-commuters.

To ensure greater consistency between the EEFM and the POPGROUP model, the commuting ratios implied by the EEFM forecasts have been used directly in the demographic scenarios; varying the commuting ratio year-on-year as appropriate (Figure 12). Theses changes to the commuting ratio should be borne in mind when interpreting the demographic outcomes of the economic scenario.

Unemployment Rate

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Av. 2011-33
Basildon	2.0	2.1	1.9	1.8	2.1	2.2	2.0	2.1	4.1	4.0	4.0	4.2	4.1	3.9	3.7	3.4	3.1	2.9	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.2
Braintree	1.3	1.4	1.4	1.4	1.4	1.6	1.5	1.6	3.4	3.1	3.0	3.3	3.3	3.1	2.8	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
Brentwood	0.8	1.0	1.0	0.9	0.9	0.9	0.9	1.0	2.2	2.3	2.2	3.0	3.1	2.9	2.5	2.3	2.1	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Castle Point	1.4	1.4	1.3	1.4	1.3	1.6	1.3	1.6	3.5	3.3	3.0	3.3	3.1	2.7	2.4	2.1	1.9	1.8	1.9	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	2.0
Chelmsford	1.2	1.3	1.3	1.2	1.2	1.4	1.4	1.4	2.8	2.6	2.7	3.0	3.0	2.8	2.6	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
Colchester	1.3	1.3	1.3	1.3	1.4	1.6	1.6	1.7	3.1	2.7	2.8	3.0	3.0	2.9	2.8	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3
Epping Forest	1.5	1.5	1.6	1.4	1.4	1.5	1.5	1.6	3.1	2.9	2.9	3.0	2.8	2.3	1.8	1.4	1.3	1.3	1.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Harlow	2.0	2.3	2.3	2.1	2.4	2.8	3.0	2.9	5.0	4.7	4.8	4.8	4.6	4.2	3.9	3.5	3.2	3.0	3.0	3.0	3.0	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.5	3.6	3.6	3.6	3.5
Maldon	1.3	1.2	1.3	1.2	1.2	1.5	1.5	1.4	3.0	2.6	2.4	2.5	2.3	2.0	1.7	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4
Rochford	1.4	1.3	1.3	1.1	1.1	1.1	1.0	1.2	2.4	2.3	2.2	2.7	2.7	2.5	2.3	2.2	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	2.0
Tendring	2.4	2.3	2.3	2.1	2.1	2.5	2.6	2.8	4.5	4.5	4.6	4.7	4.5	4.2	4.0	3.6	3.2	2.9	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	3.0
Uttlesford	0.6	0.7	0.8	0.8	0.8	0.9	0.8	0.8	2.0	1.8	1.7	2.0	2.0	1.7	1.3	1.1	1.0	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.8	1.5
Southend-on-Sea	3.2	3.1	2.9	2.7	2.8	3.1	2.9	2.9	4.9	4.9	5.1	5.3	5.3	5.2	5.2	4.8	4.5	4.1	4.0	3.9	3.8	3.8	3.8	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8	3.8	4.2
Thurrock	2.2	2.1	2.0	2.1	2.3	2.4	2.3	2.3	4.1	4.1	4.2	4.5	3.3	2.8	2.5	2.3	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.6
Cambridge	1.5	1.6	1.6	1.5	1.5	1.6	1.5	1.4	2.1	1.9	1.8	2.0	2.0	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.6
South Cambridgeshire	0.7	0.9	0.9	0.8	0.8	0.9	0.8	0.9	1.8	1.5	1.4	2.0	2.0	1.7	1.5	1.3	1.3	1.3	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6
Broxbourne	1.4	1.5	1.6	1.7	1.8	1.9	1.6	1.7	3.4	3.5	3.7	3.8	3.6	3.1	2.6	2.2	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.4
East Hertfordshire	0.6	0.8	0.8	0.8	0.9	1.0	0.9	1.0	2.2	2.0	2.0	2.4	2.3	1.8	1.4	1.1	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.6
Welwyn Hatfield	1.0	1.3	1.3	1.3	1.4	1.5	1.3	1.4	2.5	2.5	2.4	2.7	2.7	2.5	2.2	2.0	1.8	1.7	1.7	1.7	1.7	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1
Babergh	1.3	1.3	1.4	1.2	1.1	1.3	1.3	1.4	2.9	2.4	2.5	2.4	2.2	1.7	1.4	1.2	1.1	1.2	1.4	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	1.3
Ipswich	3.0	3.3	3.6	3.1	2.7	3.2	3.0	3.0	4.7	4.5	5.0	5.0	5.0	5.1	5.1	4.8	4.4	4.1	3.8	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.8	3.8	3.8	3.9	4.0	4.0	4.0	4.1
Mid Suffolk	1.2	1.1	1.1	1.1	1.0	1.1	1.1	1.2	2.2	2.0	2.1	2.2	2.2	1.9	1.7	1.6	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6
Suffolk Coastal	1.4	1.5	1.5	1.2	1.0	1.2	1.0	1.1	2.1	2.0	2.0	2.1	2.1	2.0	1.8	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5
St Edmundsbury	1.2	1.3	1.2	1.2	1.2	1.6	1.5	1.7	3.0	2.5	2.5	2.7	2.6	2.3	2.1	1.9	1.8	1.8	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1

Figure 11: Unemployment Rate (Source: EEFM)

Commuting Ratio

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Av. 2011-33
Basildon	1.01	1.05	0.99	1.01	1.04	1.02	1.00	0.99	0.95	1.00	0.99	1.00	1.01	1.01	1.02	1.03	1.03	1.04	1.04	1.05	1.05	1.06	1.06	1.06	1.07	1.07	1.07	1.08	1.08	1.08	1.09	1.09	1.09	1.05
Braintree	1.31	1.27	1.21	1.25	1.28	1.27	1.17	1.21	1.23	1.31	1.32	1.33	1.33	1.33	1.33	1.33	1.34	1.34	1.34	1.34	1.34	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.36	1.35	1.35	1.35	1.34
Brentwood	1.01	0.94	0.92	0.91	0.93	0.94	0.89	0.95	0.89	1.07	1.10	1.11	1.12	1.12	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.13	1.13	1.13	1.13	1.13	1.13	1.12
Castle Point	1.90	1.83	1.80	1.80	1.79	1.68	1.66	1.65	1.60	1.59	1.59	1.59	1.60	1.61	1.61	1.62	1.63	1.63	1.63	1.63	1.63	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.63
Chelmsford	1.06	0.97	0.95	0.97	1.03	1.02	1.02	0.97	0.93	0.93	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.89
Colchester	1.03	1.03	0.98	0.97	1.00	0.97	0.96	0.97	0.97	0.99	0.98	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.96	0.96	0.96	0.96	0.96	0.96	0.97	0.97	0.97	0.97
Epping Forest	1.50	1.42	1.38	1.33	1.22	1.27	1.20	1.19	1.08	1.08	1.08	1.08	1.08	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Harlow	0.99	0.94	1.00	1.12	1.15	1.04	1.01	0.93	1.01	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.01
Maldon	1.41	1.40	1.35	1.49	1.53	1.43	1.45	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.40	1.40	1.40	1.40	1.40	1.41	1.40	1.41	1.41	1.41	1.39
Rochford	1.65	1.70	1.73	1.85	1.97	1.91	1.88	1.81	1.71	1.84	1.85	1.85	1.85	1.84	1.84	1.84	1.84	1.84	1.83	1.83	1.83	1.83	1.82	1.82	1.82	1.82	1.81	1.81	1.81	1.81	1.80	1.80	1.80	1.82
Tendring	1.30	1.21	1.13	1.14	1.12	1.05	1.08	1.12	1.09	1.09	1.09	1.10	1.10	1.11	1.11	1.12	1.12	1.12	1.12	1.12	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.12
Uttlesford	1.01	0.96	0.93	1.00	1.03	1.01	0.99	1.00	0.99	1.02	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.04	1.04	1.04	1.02
Southend-on-Sea	1.11	1.04	1.08	1.11	1.22	1.21	1.16	1.13	1.15	1.21	1.21	1.21	1.21	1.22	1.22	1.22	1.22	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.24	1.23	1.24	1.24	1.24	1.24	1.23
Thurrock	1.21	1.15	1.16	1.18	1.25	1.19	1.17	1.15	1.09	1.13	1.13	1.13	1.11	1.09	1.09	1.08	1.08	1.08	1.07	1.07	1.07	1.06	1.06	1.05	1.05	1.05	1.04	1.04	1.04	1.03	1.03	1.03	1.03	1.07
Cambridge	0.63	0.62	0.63	0.67	0.65	0.59	0.61	0.61	0.66	0.69	0.69	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
South Cambridgeshire	1.08	1.08	1.09	1.13	1.10	0.98	1.00	1.01	0.97	0.97	0.97	0.97	0.96	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.94
Broxbourne	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
East Hertfordshire	1.18	1.15	1.15	1.15	1.14	1.04	1.11	1.12	1.15	1.21	1.21	1.22	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Welwyn Hatfield	0.84	0.87	0.84	0.78	0.84	0.82	0.79	0.78	0.75	0.77	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.74	0.74	0.74	0.74	0.74	0.74	0.75
Babergh	1.25	1.23	1.28	1.21	1.29	1.25	1.30	1.36	1.35	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
Ipswich	0.82	0.81	0.84	0.82	0.86	0.82	0.85	0.84	0.86	0.88	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.84	0.84	0.84	0.84	0.84	0.84	0.85
Mid Suffolk	1.23	1.18	1.28	1.22	1.26	1.26	1.29	1.33	1.33	1.30	1.30	1.30	1.30	1.30	1.30	1.29	1.29	1.29	1.29	1.29	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Suffolk Coastal	1.09	1.05	1.04	1.05	1.11	1.03	1.04	1.08	1.11	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
St Edmundsbury	1.00	1.02	1.00	0.96	1.00	1.00	1.03	1.04	0.93	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91

Figure 12: Commuting Ratio (Source: EEFM)

5. Scenario Definition

Summary

5.1 A total of six scenarios have been tested on each of the 24 local authority districts. These scenarios are as follows:

Scenario Name	Description
SNPP 2010	A 'trend' scenario which reproduces the 2010-based sub-national population projections (SNPP) from ONS
SNPP 2010 – R	A 'trend' scenario which reproduces the 2010-based sub-national population projections (SNPP) from ONS but uses 'rescaled' headship rates to derive its household estimates
Net-Nil Migration – R	A 'trend' scenario which maintains in-migration and out-migration to each district but sets the overall net balance to be zero
Approved RSS– R	A 'dwelling-led' scenario that is controlled by the annual rate of dwelling provision set out in Policy H1 of the Approved RSS; for Harlow, East Hertfordshire and Epping Forest housing trajectories have been modified as the districts felt appropriate for the purposes of modelling in this study (as in 'Approved RSS Realistic – R' scenario in Phase 2)
AMR Dwelling Trajectory – R	A 'dwelling-led' scenario that is controlled by the latest housing development trajectory available from each district
Economic – R	A 'jobs-led' scenario that is controlled by an employment growth trajectory derived from the most recent forecasts from the EEFM

Note: The 'R' suffix on scenarios indicates that they have used headship rates that have been scaled to ensure consistency with Council Tax property statistics provided for each district.

5.2 All scenarios have been run with a 2010 base year and a 2033 horizon. At the base year the population is the indicative ONS mid-year estimate for 2010 (published November 2011). A summary of the population and household forecasting model methodology is provided in Appendix 1. More detail on data inputs and assumptions to the respective models is provided in section 4 of this document.

Trend Scenarios

5.3 The **SNPP-2010** scenario is the benchmark against which all other scenarios are compared.

The scenario replicates the 2010-based sub-national projection from ONS; the latest set of 'official' projections for local authority districts in England. Refer to section 2 & 3 for a detailed analysis of the drivers of the 2010-based projections. To reiterate the key points made with regard to the factors that will be working, in combination, to produce the population growth projections that are evident in the 2010-based statistics:

- The scale and pattern of fertility, mortality and migration experienced by each local authority in the five years period 2006-2010 has been used as the basis for the trend projection.

- The national assumptions on fertility, mortality and international migration defined by ONS will influence how long-term demographic change affects a local area.

- Changes to international migration estimation for 2006-2010 will modify the significance of this component of change compared to the 2008-based projection. If immigration totals have been reduced from previous estimates, this will generally mean lower population growth in the future resulting from international migration; vice versa if estimates have been increased.

- Internal migration is determined from historical trends. But, future levels of projected migration inflow to an authority will also continue to be influenced by population growth in local authority areas in other parts of the UK. This is particularly significant for EPOA districts which have historically been recipients of migrants from London Boroughs. Continued population growth in these Boroughs will drive higher out-migration, resulting in higher in-migration to receiving local authorities.

5.4 The **SNPP 2010 – R** scenario has an identical *population* projection to the SNPP 2010 version. The only difference between the two scenarios is that this second version calculates its household totals from headship rates that have been scaled to be consistent with Council Tax statistics (see section 4 for further guidance). These rescaled headship rates are also used to calculate household numbers in each of the remaining scenarios.

5.5 An alternative 'trend' scenario is presented in the form of the **Net-nil Migration-R** scenario. This assumes that the 'net' impact of migration is zero throughout the projection period. This does not mean zero migration. The scenario assumes that in and out-migration continue (for both internal and international flows) but the overall balance between the two

is zero. This is achieved by balancing the in and out flows in each case whilst maintaining different age profiles for in and out-migrants. All other assumptions are consistent with the SNPP-2010 scenario.

Dwelling-led scenarios

5.6 Two dwelling-led scenarios have been produced. These scenarios are provided with a pre-defined trajectory of housing growth, from which the POPGROUP model determines the likely level of both household and population growth. To do this POPGROUP amends the trend rate of net migration such that a future population is produced that can be accommodated by the pre-defined number of dwellings. This means that if the dwelling-led scenario can accommodate a higher population than indicated by the historic trend then net migration will be higher, and the converse if a lower population can be accommodated.

The relationship between dwellings, households and population levels is controlled by two factors; a vacancy rate which determines the balance between households and dwellings; and headship rates which determine the number of households expected given the age-sex composition of the population. Headship rates for each local authority district have been scaled for consistency with historical Council Tax dwelling statistics (see section 4 for more detail on these factors).

5.7 **Approved RSS–R** is the first of the two dwelling-led scenarios. Its dwelling-growth trajectory is based on the housing provisions set out in Policy H1 of the Approved Regional Spatial Strategy (May 2008). For each local authority district, RSS dwelling growth acts as a 'constraint' on population and household growth, with 'migration' used to balance the population and households required to achieve the dwelling target.

The dwelling-growth trajectories applicable to each local authority district are summarised in Figure 13. Note that for Harlow, East Hertfordshire and Epping Forest housing trajectories have been modified to a distribution based on the Approved RSS that the districts felt appropriate for the purposes of modelling in this study (see 'Approved RSS Realistic – R' scenario in Phase 2).

5.8 The **AMR Dwelling Trajectory–R** is the second dwelling-led scenario and forecasts the demographic implications of the housing growth suggested by the latest Annual Monitoring Report (AMR) data from each local authority district (Figure 7). Once again, dwelling growth

acts as a 'constraint' on population and household growth, with 'migration' used to balance the population and households required to achieve the dwelling target.

The dwelling-growth trajectories applicable to each local authority district are summarised in Figure 14. This scenario typically has a dwelling growth trajectory that reverts to zero before the end of the forecast period. This is because the AMR statistics are generally based on the current availability of identified sites for residential development rather than potential housing provision set out in policy documents such as the RSS.

Scenario: Approved – RSS

Net Dwellings

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	Total
Basildon	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	14,490
Braintree	290	290	290	290	290	290	290	290	290	290	290	385	385	385	385	385	385	385	385	385	385	385	385	7,810
Brentwood	170	170	170	170	170	170	170	170	170	170	170	175	175	175	175	175	175	175	175	175	175	175	175	3,970
Castle Point	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	4,600
Chelmsford	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	830	19,090
Colchester	830	830	830	830	830	830	830	830	830	830	830	855	855	855	855	855	855	855	855	855	855	855	855	19,390
Epping Forest	150	150	150	150	150	505	505	505	505	505	505	530	530	530	530	530	530	530	530	530	530	530	530	10,140
Harlow	530	530	530	530	530	530	530	530	530	530	530	50	50	50	50	50	50	50	50	50	50	50	50	6,430
Maldon	110	110	110	110	110	110	110	110	110	110	110	120	120	120	120	120	120	120	120	120	120	120	120	2,650
Rochford	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	5,750
Tendring	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	9,890
Uttlesford	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	9,890
Southend	290	290	290	290	290	290	290	290	290	290	290	325	325	325	325	325	325	325	325	325	325	325	325	7,090
Thurrock	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	21,850
Cambridge City	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	25,530
South Cambridgeshire	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	30,590
Broxbourne	240	240	240	240	240	240	240	240	240	240	240	280	280	280	280	280	280	280	280	280	280	280	280	6,000
East Hertfordshire	660	660	660	660	660	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	1,285	26,430
Welwyn-Hatfield	480	480	480	480	480	480	480	480	480	480	480	500	500	500	500	500	500	500	500	500	500	500	500	11,280
Babergh	245	245	245	245	245	245	245	245	245	245	245	250	250	250	250	250	250	250	250	250	250	250	250	5,695
Ipswich	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	26,220
Mid Suffolk	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	8,625
Suffolk Coastal	295	295	295	295	295	295	295	295	295	295	295	350	350	350	350	350	350	350	350	350	350	350	350	7,445
St Edmundsbury	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
Essex CC	4,850	4,850	4,850	4,850	4,850	5,205	5,205	5,205	5,205	5,205	5,205	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	4,885	114,100
Greater Essex	6,090	6,090	6,090	6,090	6,090	6,445	6,445	6,445	6,445	6,445	6,445	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	143,040
Essex Thames Gateway	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,355	2,355	2,355	2,355	2,355	2,355	2,355	2,355	2,355	2,355	2,355	2,355	53,780
Heart of Essex	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	25,710
Essex Haven Gateway	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,790	1,790	1,790	1,790	1,790	1,790	1,790	1,790	1,790	1,790	1,790	1,790	39,740
Suffolk Haven Gateway	2,055	2,055	2,055	2,055	2,055	2,055	2,055	2,055	2,055	2,055	2,055	2,115	2,115	2,115	2,115	2,115	2,115	2,115	2,115	2,115	2,115	2,115	2,115	47,985
Haven Gateway	3,715	3,715	3,715	3,715	3,715	3,715	3,715	3,715	3,715	3,715	3,715	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	87,725
West Essex	1,110	1,110	1,110	1,110	1,110	1,465	1,465	1,465	1,465	1,465	1,465	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	26,460
Hertfordshire (East)	900	900	900	900	900	1,525	1,525	1,525	1,525	1,525	1,525	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	32,430
Stansted/M11 Corridor	2,010	2,010	2,010	2,010	2,010	2,990	2,990	2,990	2,990	2,990	2,990	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	58,890
Harlow Joint Working Area	1,340	1,340	1,340	1,340	1,340	2,320	2,320	2,320	2,320	2,320	2,320	1,865	1,865	1,865	1,865	1,865	1,865	1,865	1,865	1,865	1,865	1,865	1,865	43,000
ALL AREAS	11,965	11,965	11,965	11,965	11,965	12,945	12,945	12,945	12,945	12,945	12,945	12,780	12,780	12,780	12,780	12,780	12,780	12,780	12,780	12,780	12,780	12,780	12,780	290,855

Figure 13: Dwelling Growth Trajectory – Approved RSS (Source: RSS, EPOA

Scenario: AMR Dwelling Trajectory – R

Net Dwellings

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	Total
Basildon	172	370	173	925	862	491	630	492	203	200	183	183	42	42	42	42	42	-	-	-	-	-	-	5,094
Braintree	450	221	233	334	307	335	414	292	230	247	215	270	285	279	210	160	-	-	-	-	-	-	-	4,482
Brentwood	394	119	218	168	165	99	92	84	94	106	119	98	95	95	95	77	-	-	-	-	-	-	-	2,118
Castle Point	110	81	81	81	81	81	197	197	197	197	197	116	116	116	116	116	-	-	-	-	-	-	-	2,080
Chelmsford	234	254	390	1,098	1,504	1,383	1,358	1,267	1,008	847	485	-	-	-	-	-	-	-	-	-	-	-	-	9,828
Colchester	673	837	756	853	997	944	891	870	826	879	865	849	791	699	423	250	-	-	-	-	-	-	-	12,403
Epping Forest	368	60	273	163	137	111	113	175	175	175	175	-	-	-	-	-	-	-	-	-	-	-	-	1,925
Harlow	116	282	287	190	253	480	515	459	317	258	500	500	300	300	300	300	300	300	-	-	-	-	-	5,957
Maldon	36	84	65	54	88	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350
Rochford	42	92	191	284	165	327	361	250	286	290	190	275	325	300	300	250	100	-	-	-	-	-	-	4,028
Tendring	217	246	170	464	680	644	517	381	280	282	249	400	400	400	400	400	400	400	400	400	400	400	400	8,930
Uttlesford	298	298	453	360	375	272	287	79	65	56	57	57	62	106	100	99	40	-	-	-	-	-	-	3,064
Southend	183	191	298	433	696	901	517	304	342	167	92	92	92	64	64	64	-	-	-	-	-	-	-	4,500
Thurrock	290	513	780	509	901	1,065	1,884	1,884	1,884	1,884	1,884	950	950	950	950	-	-	-	-	-	-	-	-	17,278
Cambridge City	390	413	841	1,632	1,696	1,497	1,079	1,201	1,079	533	348	130	81	72	10	-	-	-	-	-	-	-	-	11,002
South Cambridgeshire	659	692	791	1,170	1,124	1,159	1,362	1,290	1,150	1,165	820	600	500	500	500	500	500	500	500	500	500	500	500	17,482
Broxbourne	152	278	282	281	338	282	153	133	133	133	133	104	104	104	104	104	-	-	-	-	-	-	-	2,818
East Hertfordshire	200	378	401	507	691	705	647	300	300	300	300	300	300	300	300	-	-	-	-	-	-	-	-	5,929
Welwyn-Hatfield	201	273	205	382	484	256	219	73	97	103	133	101	59	67	63	34	18	-	-	-	-	-	-	2,768
Babergh	216	280	457	400	387	312	170	160	120	120	95	70	70	-	-	-	-	-	-	-	-	-	-	2,857
Ipswich	337	250	348	591	893	864	731	1,052	859	811	733	871	790	790	773	690	690	-	-	-	-	-	-	12,073
Mid Suffolk	330	354	493	543	573	603	434	338	338	288	288	288	288	288	288	288	-	-	-	-	-	-	-	6,022
Suffolk Coastal	216	259	448	721	696	653	615	518	510	490	469	469	380	380	380	380	380	-	-	-	-	-	-	7,964
St Edmundsbury	267	357	388	775	756	616	489	584	609	594	674	746	669	515	585	585	620	625	625	625	585	-	-	
Essex CC	3,110	2,944	3,290	4,974	5,614	5,190	5,375	4,546	3,681	3,537	3,235	2,748	2,416	2,337	1,986	1,694	882	700	400	400	400	400	400	60,259
Greater Essex	3,583	3,648	4,368	5,916	7,211	7,156	7,776	6,734	5,907	5,588	5,211	3,790	3,458	3,351	3,000	1,758	882	700	400	400	400	400	400	82,037
Essex Thames Gateway	797	1,247	1,523	2,232	2,705	2,865	3,589	3,127	2,912	2,738	2,546	1,616	1,525	1,472	1,472	472	142	-	-	-	-	-	-	32,980
Heart of Essex	664	457	673	1,320	1,757	1,505	1,450	1,351	1,102	953	604	98	95	95	95	77	-	-	-	-	-	-	-	12,296
Essex Haven Gateway	1,376	1,388	1,224	1,705	2,072	1,946	1,822	1,543	1,336	1,408	1,329	1,519	1,476	1,378	1,033	810	400	400	400	400	400	400	400	26,165
Suffolk Haven Gateway	1,099	1,143	1,746	2,255	2,549	2,432	1,950	2,068	1,827	1,709	1,585	1,698	1,528	1,458	1,441	1,358	1,070	-	-	-	-	-	-	28,916
Haven Gateway	2,475	2,531	2,970	3,960	4,621	4,378	3,772	3,611	3,163	3,117	2,914	3,217	3,004	2,836	2,474	2,168	1,470	400	400	400	400	400	400	55,081
West Essex	782	640	1,013	713	765	863	915	713	557	489	732	557	362	406	400	399	340	300	-	-	-	-	-	10,946
Hertfordshire (East)	352	656	683	788	1,029	987	800	433	433	433	433	404	404	404	404	104	-	-	-	-	-	-	-	8,747
Stansted/M11 Corridor	1,134	1,296	1,696	1,501	1,794	1,850	1,715	1,146	990	922	1,165	961	766	810	804	503	340	300	-	-	-	-	-	19,693
Harlow Joint Working Area	684	720	961	860	1,081	1,296	1,275	934	792	733	975	800	600	600	600	300	300	300	-	-	-	-	-	13,811
ALL AREAS	6,284	6,825	8,634	12,143	14,093	13,487	13,186	11,799	10,493	9,531	8,530	6,723	6,030	5,852	5,418	3,754	2,470	1,200	900	900	900	900	900	150,952

Figure 14: AMR Dwelling Growth Trajectory – 2012 Revised (Source: EPOA)

Jobs-led scenario

5.9 The final scenario, **Economic-R**, is one which constrains future population and household growth to the economic baseline forecast of Spring 2012, produced by the East of England Forecasting Model (EEFM) (report in preparation for publication at http://www.insighteast.org.uk/). Output from the EEFM includes a projected growth trajectory for jobs in each district. The total growth in jobs expected over the 2010-2033 forecast period is summarised in Figure 15; with the year-on-year change detailed in Figure 16.

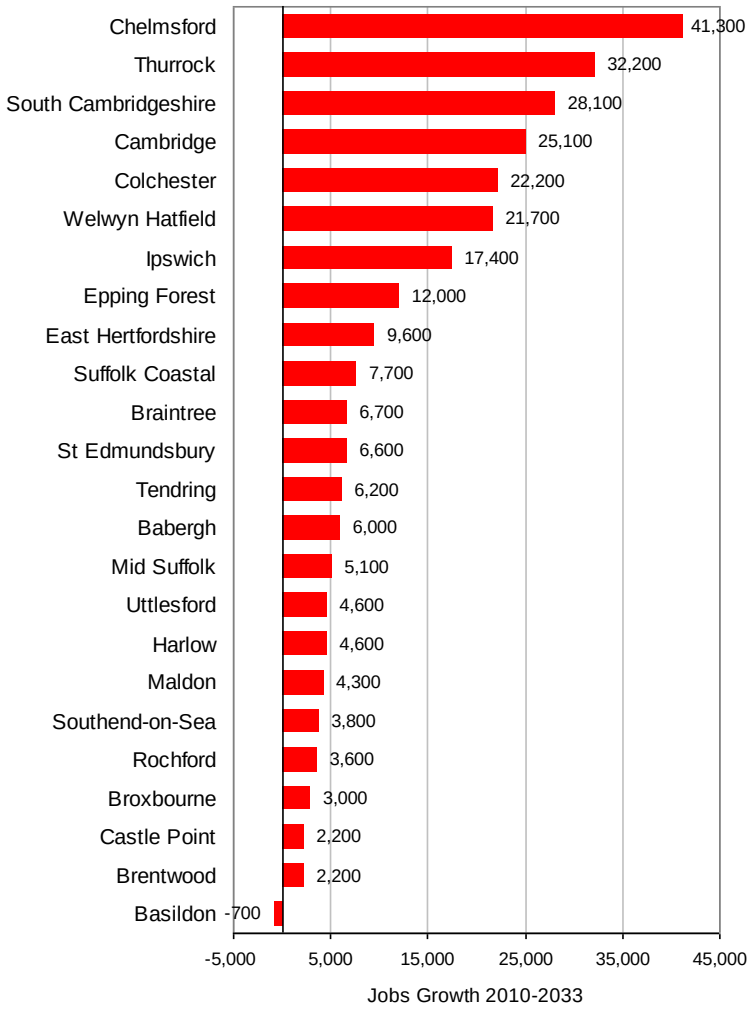


Figure 15: Jobs Growth Forecast, 2010-2033 (Source: EEFM)

5.10 The total forecast growth in jobs numbers to 2033 is +275,500. Approximately 27% of this growth is centred on Chelmsford & Thurrock, a further 45% in the districts of South

Cambridgeshire, Cambridge, Colchester, Welwyn Hatfield and Epping Forest. At the opposite end of the spectrum, a decline in jobs numbers is expected in Basildon over the next 25 years.

5.11 For each district, the annual jobs growth acts as a 'constraint' on population and household growth, with 'migration' used to balance the population and households required to achieve the jobs growth target. The relationship between population, the labour force and the number of jobs in a district is controlled by three parameters: economic activity rates, unemployment rates and a commuting ratio.

5.12 Economic Activity rates by age and sex have been derived from the former East of England Regional Assembly (EERA) demographic forecasts undertaken during RSS preparation. These activity rates take account of changing labour force participation expected in the older age-groups as a result of proposed increases in the pension age (see section 4).

5.13 There are important differences in the way that the latest EEFM economic growth scenarios have been processed within the POPGROUP model between Phase 2 and Phase 3 of this study. In Phase 2, demographic change was constrained to the size of the resident labour-force, projected by the EEFM model. Commuting ratios and unemployment rates were fixed at 2001 levels and kept constant throughout the projection period. All jobs growth estimates for each of the Phase 2 scenarios were calculated using the same commuting ratios and unemployment rates.

In order to align more closely with the latest EEFM model output, a different approach has been adopted for the Phase 3 scenarios. Firstly, demographic change in the Economic-R scenario has been constrained to jobs totals forecasts in the EEFM model (rather than resident labour force). Secondly, commuting ratios and unemployment rates have been taken directly from the EEFM model, with each varying year-on-year throughout the forecast period (see section 4).

For consistency and to aid comparison, all jobs growth estimates for each of the Phase 3 scenarios were calculated using the EEFM model commuting ratios and unemployment rates.

Scenario: Economic – R

Jobs - Change

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	Total Change
Basildon	-200	-700	300	700	600	300	100	-100	-100	-100	-100	-100	-200	-100	-100	-200	-100	-100	-100	-100	-100	-100	-100	-700
Braintree	-700	-300	500	1,000	900	700	600	300	300	300	200	300	200	300	200	300	200	300	200	300	200	200	200	6,700
Brentwood	-1,500	-600	300	700	800	600	400	300	200	100	200	100	100	0	100	0	100	0	0	0	100	100	100	2,200
Castle Point	0	-100	100	300	300	300	100	100	100	100	0	100	0	100	100	0	100	100	0	100	100	100	100	2,200
Chelmsford	1,800	1,200	1,900	2,600	2,500	2,200	2,000	1,700	1,600	1,700	1,600	1,600	1,600	1,700	1,600	1,700	1,700	1,700	1,700	1,800	1,800	1,800	1,800	41,300
Colchester	3,400	1,200	1,800	2,100	2,000	1,500	1,200	900	800	800	700	700	600	500	600	500	400	500	400	400	400	400	400	22,200
Epping Forest	300	100	800	1,400	1,600	1,300	1,100	700	500	400	400	300	300	300	300	300	300	200	300	200	300	300	300	12,000
Harlow	500	-100	400	700	600	400	400	100	200	100	100	100	100	100	100	100	100	100	100	100	100	100	100	4,600
Maldon	100	100	300	500	500	400	300	200	100	200	100	200	100	100	200	100	100	100	200	100	100	100	100	4,300
Rochford	-300	-100	300	400	400	300	300	100	200	100	100	100	200	100	100	200	100	100	200	100	200	200	200	3,600
Tendring	300	-100	300	600	500	400	400	200	300	200	300	200	300	200	300	200	200	300	200	300	200	200	200	6,200
Uttlesford	600	200	300	800	800	700	500	300	200	100	100	100	0	100	0	0	-100	0	0	-100	0	0	0	4,600
Southend	-400	-700	400	700	800	500	200	200	100	100	100	100	200	100	100	100	200	100	200	100	200	200	200	3,800
Thurrock	0	100	5,100	3,200	2,500	2,000	1,600	1,300	1,200	1,100	1,100	1,000	1,100	1,000	1,000	1,000	1,100	1,100	1,000	1,100	1,200	1,200	1,200	32,200
Cambridge City	1,600	700	2,300	2,900	2,500	1,900	1,500	1,100	900	800	800	700	700	700	700	700	600	600	700	600	700	700	700	25,100
South Cambridgeshire	1,300	600	1,600	2,300	2,400	2,100	1,800	1,400	1,100	1,100	900	1,000	1,000	900	1,000	900	900	1,000	900	900	1,000	1,000	1,000	28,100
Broxbourne	-900	-400	300	600	700	600	400	200	200	100	100	100	100	100	100	100	100	100	0	100	100	100	100	3,000
East Hertfordshire	-400	-100	900	1,400	1,500	1,100	800	600	500	300	300	300	300	300	200	200	300	100	200	200	200	200	200	9,600
Welwyn-Hatfield	500	500	1,400	2,000	1,900	1,600	1,300	1,000	900	800	800	800	800	800	700	700	700	700	700	700	800	800	800	21,700
Babergh	500	100	400	700	600	500	400	200	200	100	100	200	100	200	100	200	200	200	200	200	200	200	200	6,000
Ipswich	3,700	800	900	1,200	1,000	800	600	600	500	500	600	500	600	500	500	500	500	600	500	500	500	500	500	17,400
Mid Suffolk	500	200	500	700	700	500	400	200	200	100	100	100	100	100	100	0	100	100	100	0	100	100	100	5,100
Suffolk Coastal	1,100	300	300	800	700	600	400	400	200	300	200	200	200	200	200	200	200	200	200	200	200	200	200	7,700
St Edmundsbury	900	100	600	1,100	1,000	700	500	200	200	100	100	100	100	100	100	0	100	100	100	100	100	100	100	6,600
Essex CC	4,300	800	7,300	11,800	11,500	9,100	7,400	4,800	4,400	4,000	3,700	3,700	3,300	3,400	3,500	3,200	3,100	3,300	3,200	3,200	3,400	3,400	3,400	109,200
Greater Essex	3,900	200	12,800	15,700	14,800	11,600	9,200	6,300	5,700	5,200	4,900	4,800	4,600	4,500	4,600	4,300	4,400	4,500	4,400	4,400	4,800	4,800	4,800	145,200
Essex Thames Gateway	-900	-1,500	6,200	5,300	4,600	3,400	2,300	1,600	1,500	1,300	1,200	1,200	1,300	1,200	1,200	1,100	1,400	1,300	1,300	1,300	1,600	1,600	1,600	41,100
Heart of Essex	400	700	2,500	3,800	3,800	3,200	2,700	2,200	1,900	2,000	1,900	1,900	1,800	1,800	1,900	1,800	1,900	1,800	1,900	1,900	2,000	2,000	2,000	47,800
Essex Haven Gateway	3,100	900	2,900	4,200	3,900	3,000	2,500	1,600	1,500	1,500	1,300	1,400	1,200	1,100	1,300	1,100	900	1,200	1,000	1,100	900	900	900	39,400
Suffolk Haven Gateway	5,800	1,400	2,100	3,400	3,000	2,400	1,800	1,400	1,100	1,000	1,000	1,000	1,000	1,000	900	900	1,000	1,100	1,000	900	1,000	1,000	1,000	36,200
Haven Gateway	8,900	2,300	5,000	7,600	6,900	5,400	4,300	3,000	2,600	2,500	2,300	2,400	2,200	2,100	2,200	2,000	1,900	2,300	2,000	2,000	1,900	1,900	1,900	75,600
West Essex	1,400	200	1,500	2,900	3,000	2,400	2,000	1,100	900	600	600	500	400	500	400	400	300	300	400	200	400	400	400	21,200
Hertfordshire (East)	-1,300	-500	1,200	2,000	2,200	1,700	1,200	800	700	400	400	400	400	400	300	300	400	200	200	300	300	300	300	12,600
Stansted/M11 Corridor	100	-300	2,700	4,900	5,200	4,100	3,200	1,900	1,600	1,000	1,000	900	800	900	700	700	700	500	600	500	700	700	700	33,800
Harlow Joint Working Area	400	-100	2,100	3,500	3,700	2,800	2,300	1,400	1,200	800	800	700	700	700	600	600	700	400	600	500	600	600	600	26,200
ALL AREAS	12,700	3,000	22,000	29,400	27,800	22,000	17,300	12,200	10,600	9,400	8,900	8,800	8,600	8,400	8,300	7,800	8,100	8,200	8,000	7,900	8,700	8,700	8,700	275,500

Figure 16: Jobs Growth Trajectory (Source: EEFM)

6. Scenario Output

Summary

6.1 In this section a summary of the results of each of the six scenarios is provided for each local authority area and for each macro area. The summary takes the form of a 'chart' and an accompanying 'table' of statistics.

The 'chart' illustrates the trajectory of population change resulting from each scenario. Scenarios are colour-coded and symbol-coded for ease of interpretation.

The 'table' then summarises the change in population and household numbers 2010-2033 that result from each scenario. The scenarios are 'ranked (high to low) based upon the level of population change 2010-2033 (so scenarios are not tabulated in the same order for each area). Each table also shows the average annual net migration associated with the population change; plus the expected average annual dwelling and jobs growth based on the assumptions used in each scenario.

6.2 It should be noted that the SNPP 2010 and SNPP 2010–R scenarios have identical population growth. However, household and dwelling growth will vary between the two scenarios due to the use of the rescaled household headship rates in the SNPP 2010-R scenario but not in the SNPP 2010 scenario (see Section 4).

6.3 The AMR Dwelling Trajectory–R scenario typically has a dwelling growth trajectory that reverts to zero before the end of the forecast period (the date of which is indicated at the foot of each table). This is because the AMR dwelling trajectories are generally based on the current availability of identified sites for residential development rather than potential housing provision set out in policy documents such as the RSS. Average annual migration, dwellings and jobs will be influenced by this 'partial' trajectory so any comparison with other scenarios should take due recognition of this fact.

All Areas scenario summary

6.4 A total of 24 local authority areas are included within the EPOA study area. These aggregate to produce the 'All Areas' total within the POPGROUP output. A summary of the output from each of the six scenarios for the All Areas geography is included below.

6.5 The Economic – R scenario results in the largest population growth; an additional 673,000 (23.6%) over the forecast period. The SNPP 2010 and SNPP 2010–R scenarios result in lower growth of 21.5% from 2010-203. The Approved RSS-R scenario results in population growth of 17%. The Net-nil migration scenario achieves population growth of 2.6%, due solely to natural change with the net balance of migration set to zero.

6.6 The AMR Dwelling Trajectory–R scenario results in growth of 5%. However, direct comparison of this scenario with the other five scenarios is not possible for All Areas or indeed any of the Macro areas. This is because the AMR Dwelling Trajectory–R scenario reverts to zero dwelling change in individual authorities at different dates.

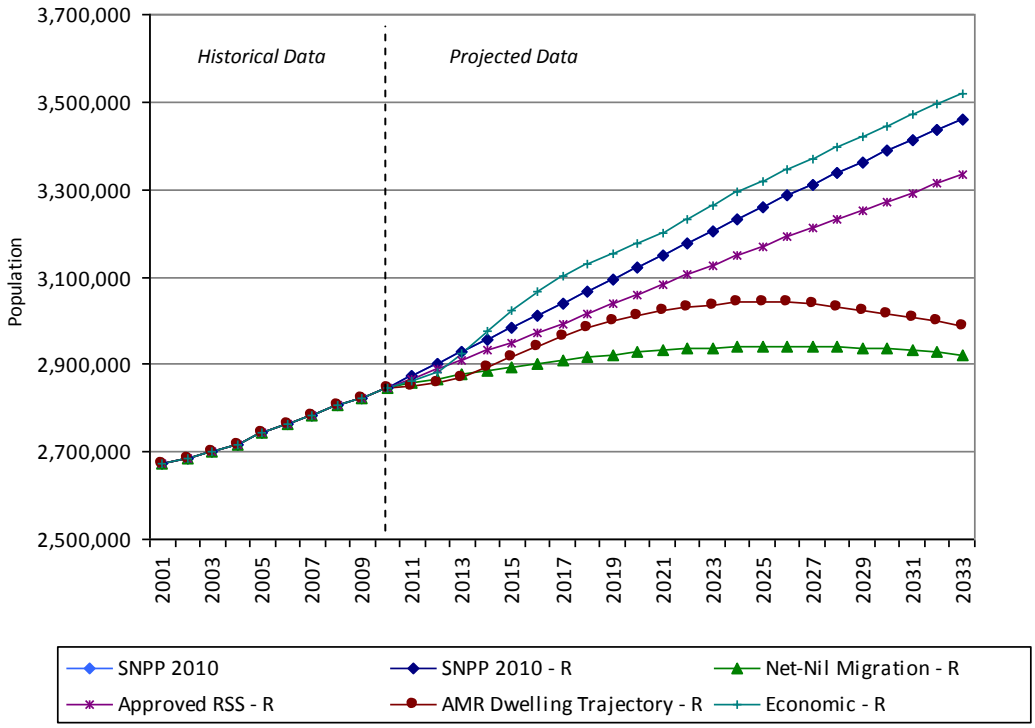
6.7 Household change statistics follow the sequence of population change estimates although the percentage change is higher in each case. This reflects the trend towards increasing rates of household formation and smaller household sizes over the forecast period.

6.8 The average annual net migration statistics give an indication of how the 'trend' scenarios compare with the 'constrained' scenarios. For the economic and dwelling scenarios, migration is used to balance the level of population required to meet the jobs or dwelling targets set, year-on-year. In the case of the economic scenario, an average annual net migration of +20,400 would be required to meet the jobs forecasts, a larger total than the trend scenario of +18,600 would suggest. For the dwelling scenarios the average annual net migration totals reduce further to reflect the lower population required to meet the housing targets set. Net migration in the Net-nil migration scenario is zero in each year of the forecast period.

6.9 The average annual dwelling totals reflect the estimated housing provision resulting from each scenario. For the RSS and AMR Dwelling Trajectory scenarios, the average annual totals are equal to the housing totals provided by each authority and detailed in Figures 13 & 14.

6.10 The average annual jobs totals provide an estimate of the number of new jobs that would result from each growth scenario, taking into account population, economic activity rates, unemployment rates and commuting ratios. For all scenarios, the economic activity rates, unemployment rates and commuting ratios are consistent with those applied in the EEFM forecasts.

All Areas



Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	672,637	23.6%	367,566	30.6%	20,443	16,465	11,978
SNPP 2010	612,123	21.5%	346,770	28.8%	18,601	15,543	10,339
SNPP 2010 - R	612,123	21.5%	342,915	28.6%	18,601	15,371	10,339
Approved RSS - R	486,093	17.1%	294,997	24.6%	13,462	13,186	8,869
AMR Dwelling Trajectory - R	142,105	5.0%	158,493	13.2%	281	7,097	335
Net-Nil Migration - R	75,244	2.6%	153,987	12.8%	24	6,872	-1,502

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory – R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Local authority scenario summaries

6.11 Individual local authority scenario summaries are ordered as follows:

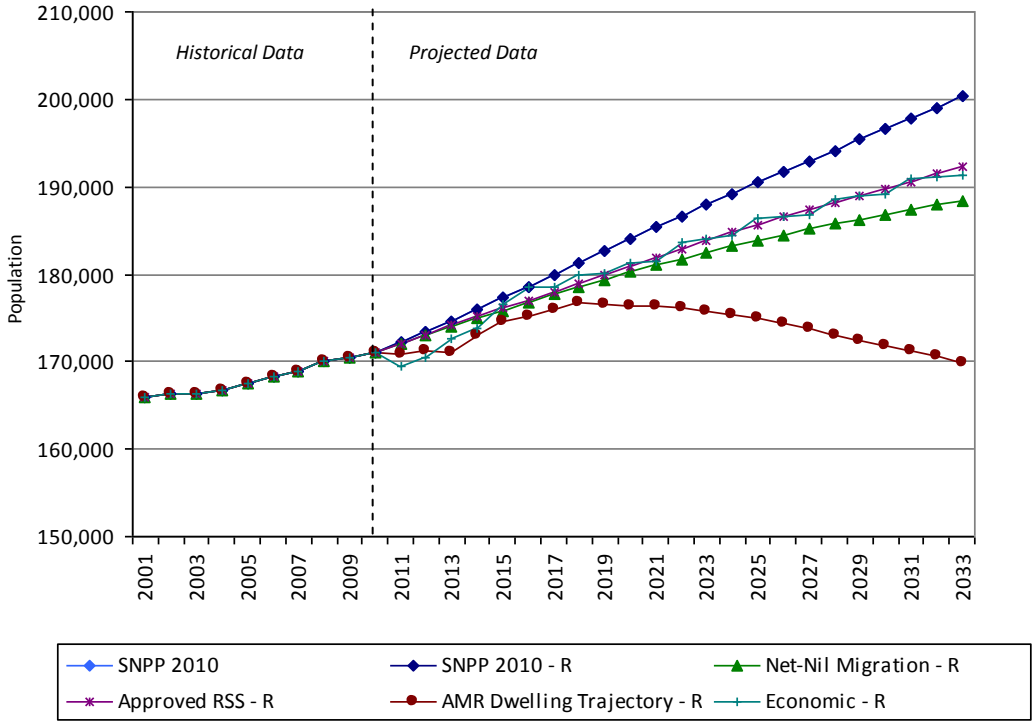
Basildon
Braintree
Brentwood
Castle Point
Chelmsford
Colchester
Epping Forest
Harlow
Maldon
Rochford
Tendring
Uttlesford

Southend-on-Sea
Thurrock

Cambridge
South Cambridgeshire

Broxbourne
East Hertfordshire
Welwyn Hatfield
Babergh
Ipswich
Mid Suffolk
Suffolk Coastal
St. Edmundsbury

Basildon

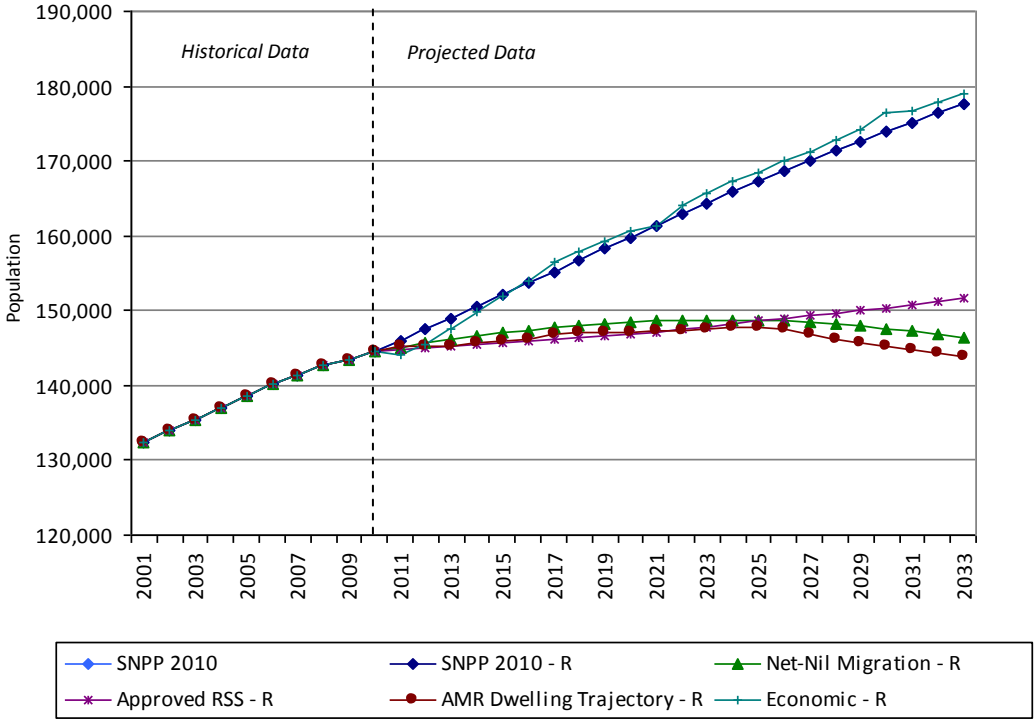


	Change 2010 - 2033				Average per year		
Scenario	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	29,296	17.1%	17,898	24.3%	418	797	162
SNPP 2010 - R	29,296	17.1%	17,604	24.3%	418	783	162
Approved RSS - R	21,268	12.4%	14,157	19.5%	119	630	-5
Economic - R	20,232	11.8%	13,711	18.9%	75	610	-30
Net-Nil Migration - R	17,364	10.2%	12,691	17.5%	0	565	-108
AMR Dwelling Trajectory - R	-1,087	-0.6%	4,977	6.9%	-726	221	-471

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2027 onwards.

Braintree

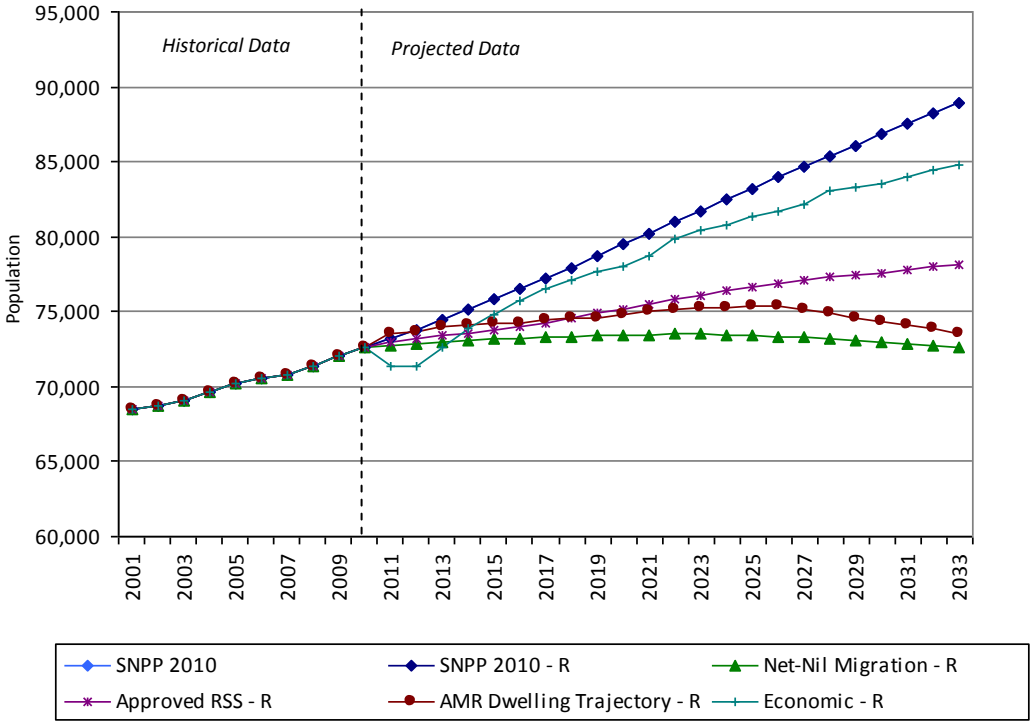


	Change 2010 - 2033				Average per year		
Scenario	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	34,451	23.8%	18,480	30.8%	1,138	824	291
SNPP 2010	32,997	22.8%	18,456	30.2%	1,096	823	274
SNPP 2010 - R	32,997	22.8%	18,100	30.2%	1,096	807	274
Approved RSS - R	7,049	4.9%	7,615	12.7%	134	340	-168
Net-Nil Migration - R	1,819	1.3%	6,338	10.6%	0	283	-284
AMR Dwelling Trajectory - R	-784	-0.5%	4,370	7.3%	-187	195	-305

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards.

Brentwood

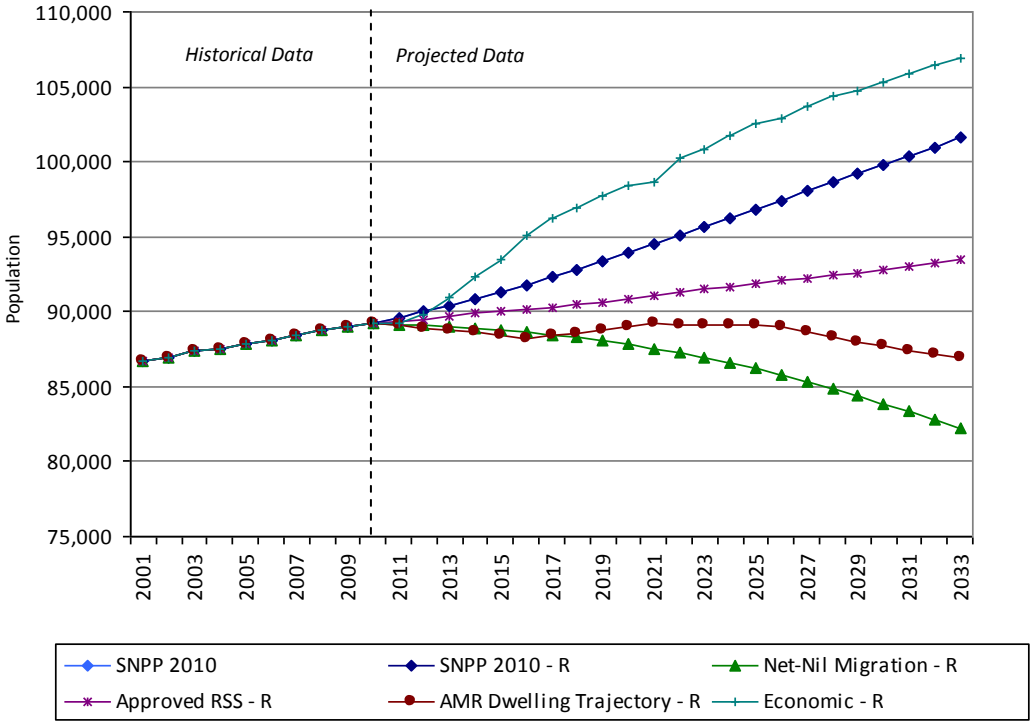


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	16,242	22.4%	8,006	26.2%	577	360	189
SNPP 2010 - R	16,242	22.4%	8,065	26.2%	577	362	189
Economic - R	12,124	16.7%	6,330	20.5%	417	284	96
Approved RSS - R	5,484	7.6%	3,843	12.5%	178	173	-36
AMR Dwelling Trajectory - R	925	1.3%	2,050	6.7%	-4	92	-132
Net-Nil Migration - R	-60	-0.1%	1,699	5.5%	0	76	-175

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards.

Castle Point

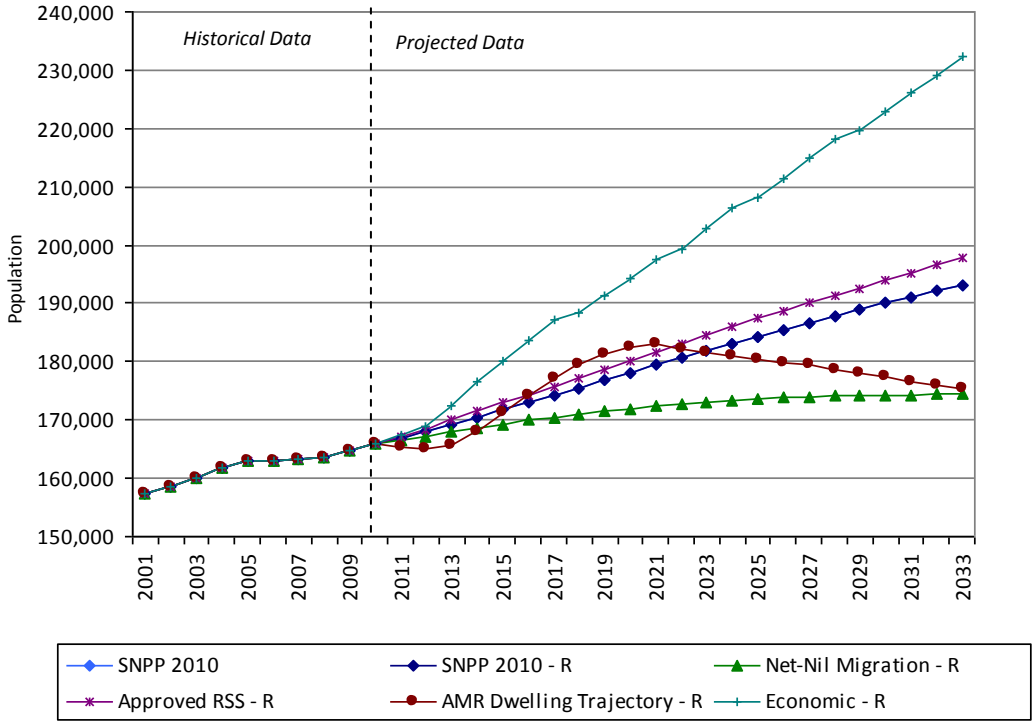


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	17,719	19.9%	9,644	26.4%	930	425	96
SNPP 2010	12,364	13.9%	7,928	21.2%	730	350	26
SNPP 2010 - R	12,364	13.9%	7,726	21.2%	730	341	26
Approved RSS - R	4,209	4.7%	4,536	12.4%	403	200	-82
AMR Dwelling Trajectory - R	-2,314	-2.6%	2,051	5.6%	138	90	-169
Net-Nil Migration - R	-6,970	-7.8%	693	1.9%	0	31	-249

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards.

Chelmsford

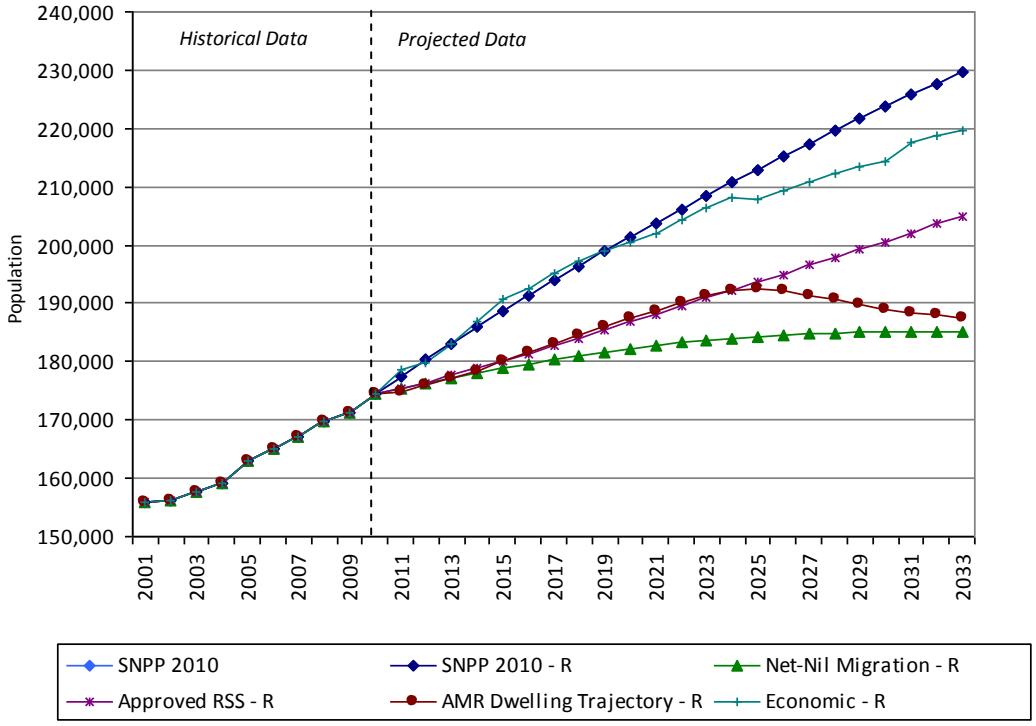


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
Economic - R	66,414	40.1%	31,867	45.7%	2,011	1,414	1,796
Approved RSS - R	32,087	19.4%	18,708	26.8%	798	830	857
SNPP 2010 - R	27,363	16.5%	17,087	24.5%	635	758	730
SNPP 2010	27,363	16.5%	17,241	24.5%	635	765	730
AMR Dwelling Trajectory - R	9,499	5.7%	9,631	13.8%	-93	427	197
Net-Nil Migration - R	8,525	5.1%	9,844	14.1%	0	437	165

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2021 onwards.

Colchester

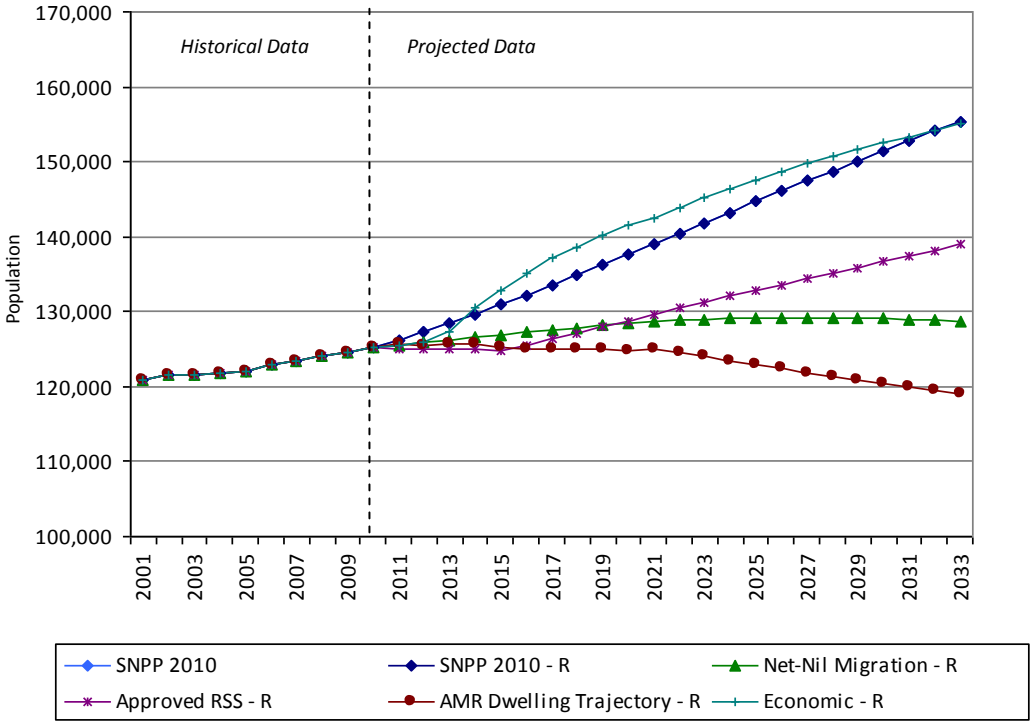


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
SNPP 2010	55,265	31.7%	27,758	38.4%	1,450	1,238	1,186
SNPP 2010 - R	55,265	31.7%	27,902	38.4%	1,450	1,244	1,186
Economic - R	45,300	26.0%	24,775	34.1%	1,075	1,105	965
Approved RSS - R	30,501	17.5%	18,905	26.0%	603	843	619
AMR Dwelling Trajectory - R	12,997	7.5%	12,093	16.6%	-110	539	183
Net-Nil Migration - R	10,778	6.2%	11,529	15.9%	0	514	20

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards

Epping Forest

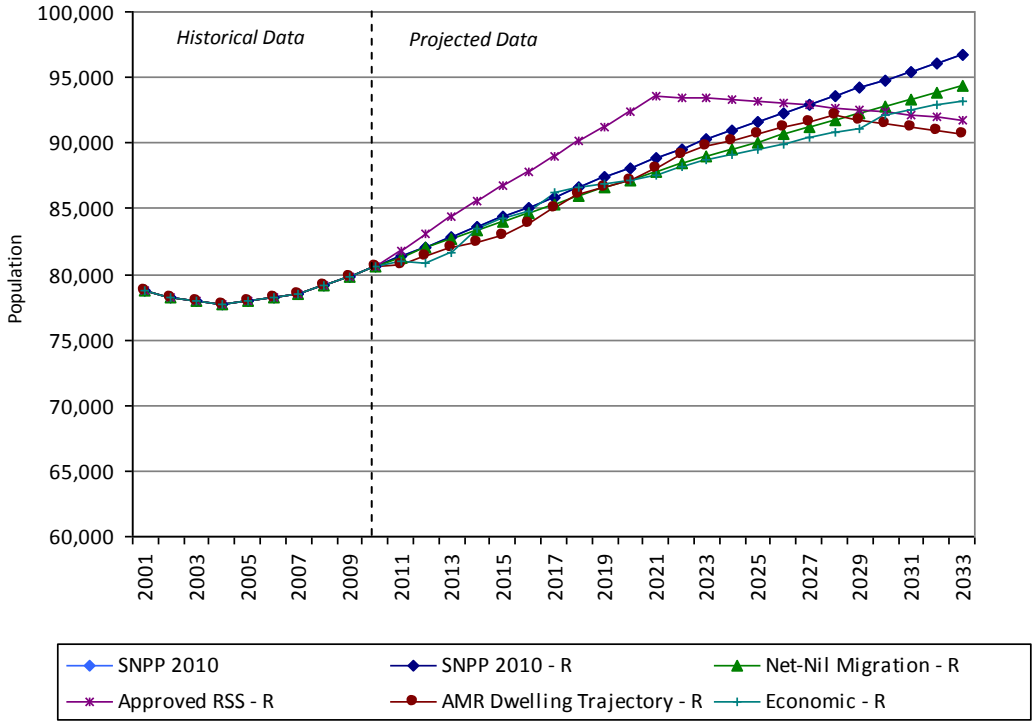


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	30,247	24.2%	16,755	31.4%	943	746	544
SNPP 2010 - R	30,247	24.2%	16,568	31.5%	943	738	544
Economic - R	29,834	23.8%	16,179	30.7%	887	721	522
Approved RSS - R	13,821	11.0%	9,897	18.8%	353	441	185
Net-Nil Migration - R	3,551	2.8%	6,593	12.5%	0	294	-25
AMR Dwelling Trajectory - R	-6,192	-4.9%	1,879	3.6%	-409	84	-250

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2021 onwards.

Harlow

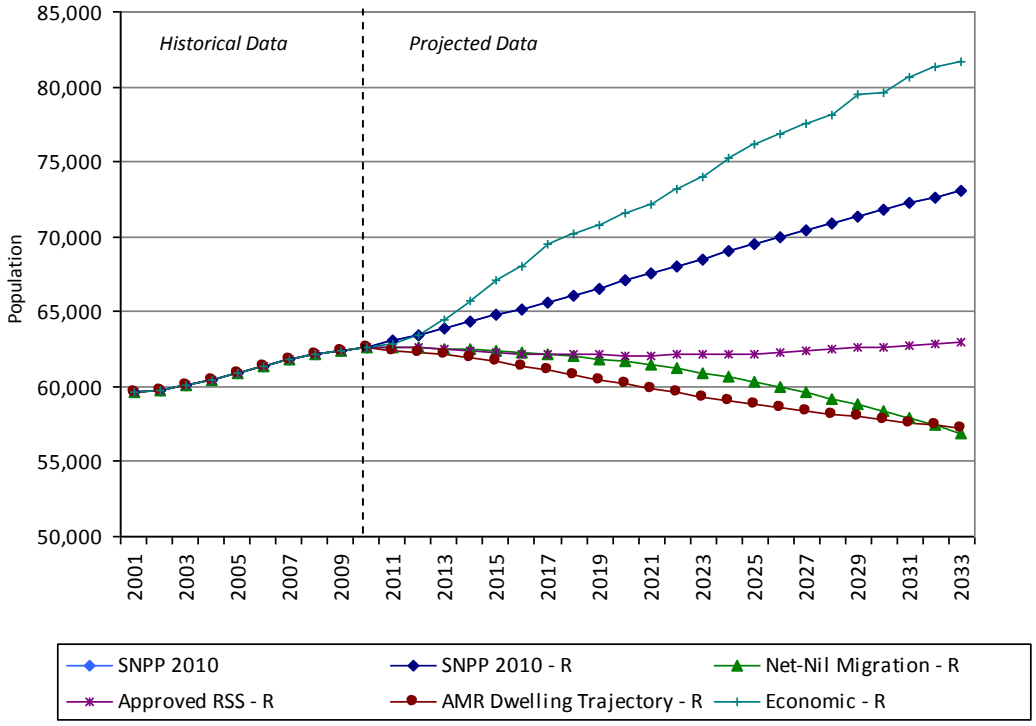


	Change 2010 - 2033				Average per year		
Scenario	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	16,142	20.0%	8,504	24.3%	20	376	283
SNPP 2010 - R	16,142	20.0%	8,489	24.3%	20	375	283
Net-Nil Migration - R	13,787	17.1%	7,609	21.8%	0	337	200
Economic - R	12,593	15.6%	6,915	19.8%	-107	306	200
Approved RSS - R	11,086	13.7%	6,321	18.1%	-213	280	156
AMR Dwelling Trajectory - R	10,028	12.4%	5,856	16.8%	-220	259	130

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2028 onwards.

Maldon

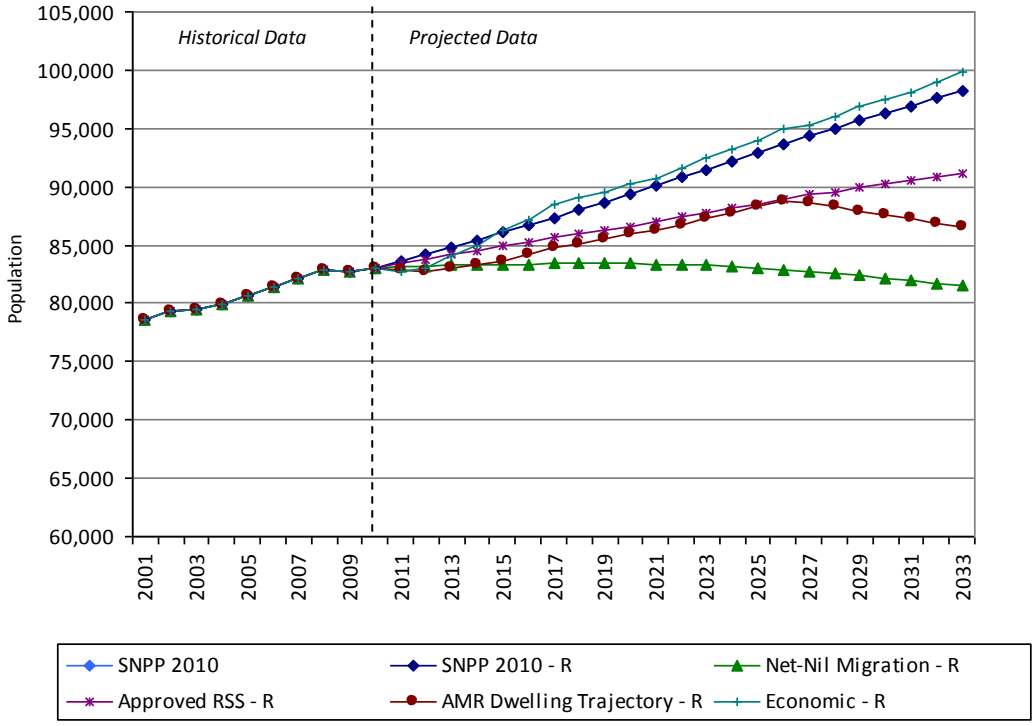


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
Economic - R	19,089	30.5%	9,661	37.6%	935	437	187
SNPP 2010	10,444	16.7%	6,717	25.3%	602	304	54
SNPP 2010 - R	10,444	16.7%	6,495	25.2%	602	294	54
Approved RSS - R	332	0.5%	2,547	9.9%	200	115	-105
AMR Dwelling Trajectory - R	-5,376	-8.6%	336	1.3%	-31	15	-194
Net-Nil Migration - R	-5,707	-9.1%	722	2.8%	0	33	-218

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2016 onwards.

Rochford

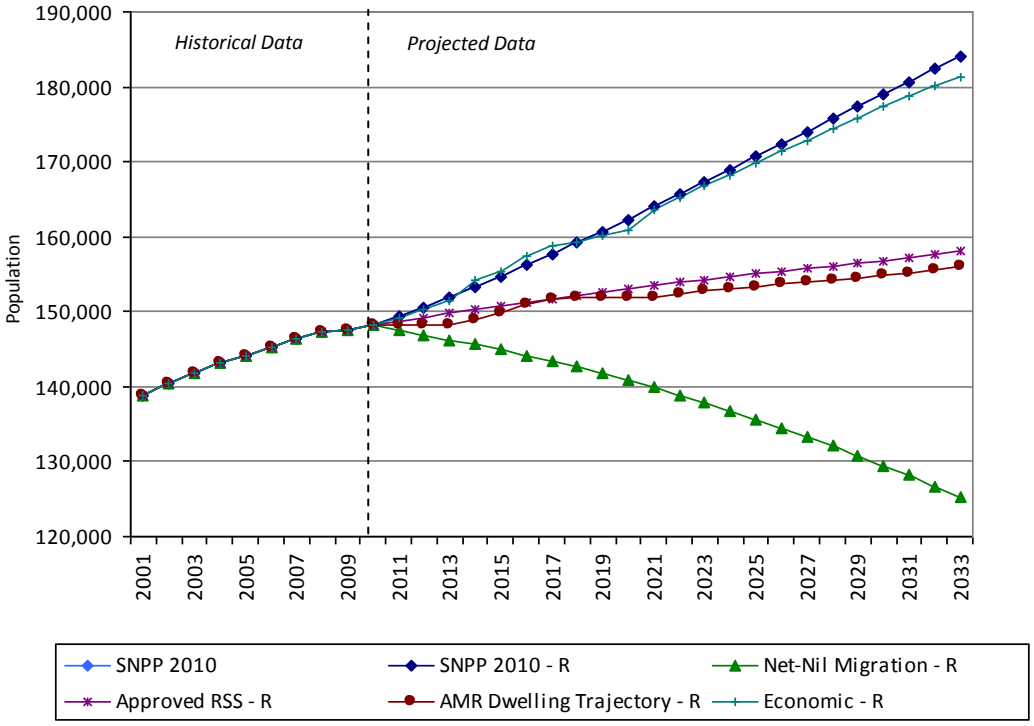


	Change 2010 - 2033				Average per year		
Scenario	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	16,767	20.2%	8,781	26.1%	677	391	157
SNPP 2010	15,104	18.2%	8,564	24.8%	619	381	137
SNPP 2010 - R	15,104	18.2%	8,353	24.8%	619	372	137
Approved RSS - R	8,096	9.7%	5,618	16.7%	348	250	46
AMR Dwelling Trajectory - R	3,542	4.3%	3,935	11.7%	162	175	-16
Net-Nil Migration - R	-1,550	-1.9%	2,118	6.3%	0	94	-82

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2027 onwards.

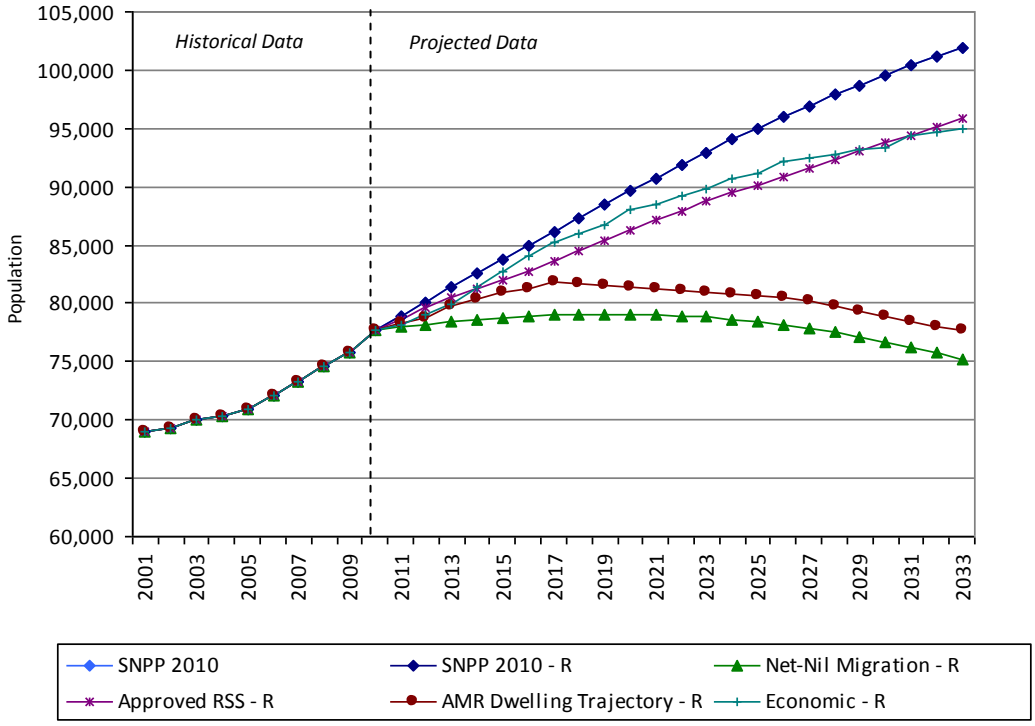
Tendring



Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	35,826	24.2%	21,218	31.9%	2,233	972	317
SNPP 2010 - R	35,826	24.2%	20,370	31.9%	2,233	933	317
Economic - R	33,103	22.3%	19,038	29.8%	2,111	872	270
Approved RSS - R	9,960	6.7%	9,386	14.7%	1,158	430	-113
AMR Dwelling Trajectory - R	7,812	5.3%	8,475	13.3%	1,069	388	-148
Net-Nil Migration - R	-22,781	-15.4%	-474	-0.7%	0	-22	-785

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Uttlesford

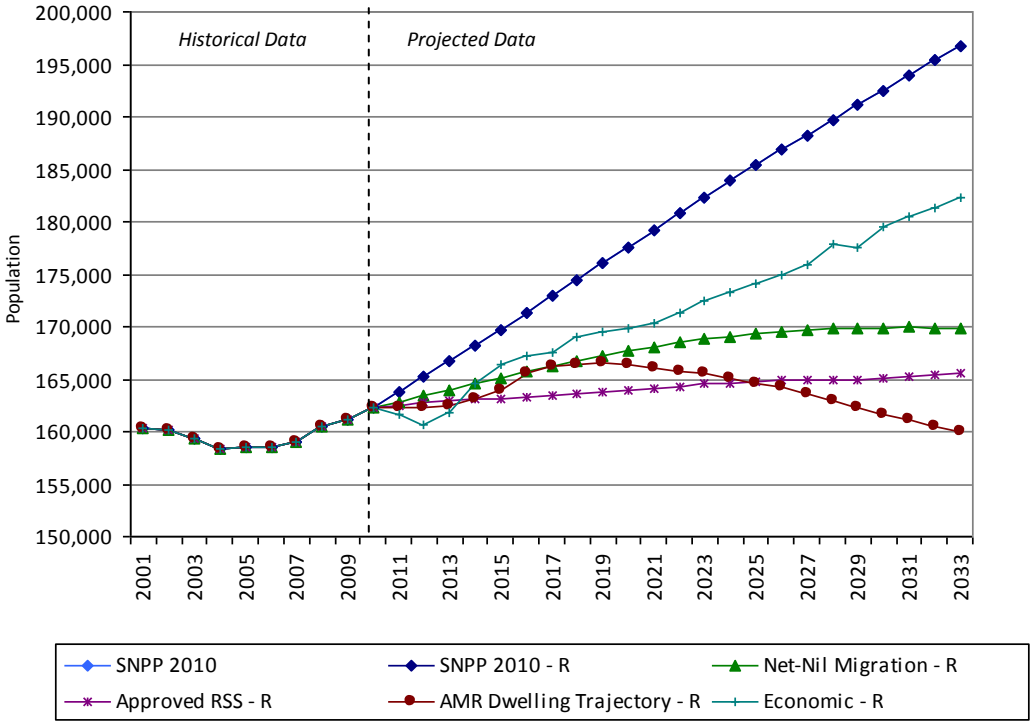


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	24,117	31.0%	11,676	37.5%	880	526	351
SNPP 2010 - R	24,117	31.0%	11,604	37.5%	880	523	351
Approved RSS - R	18,060	23.2%	9,544	30.8%	661	430	223
Economic - R	17,236	22.2%	9,214	29.7%	617	415	200
AMR Dwelling Trajectory - R	-85	-0.1%	2,957	9.5%	-29	133	-173
Net-Nil Migration - R	-2,513	-3.2%	3,159	10.2%	0	142	-253

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2027 onwards.

Southend-on-Sea

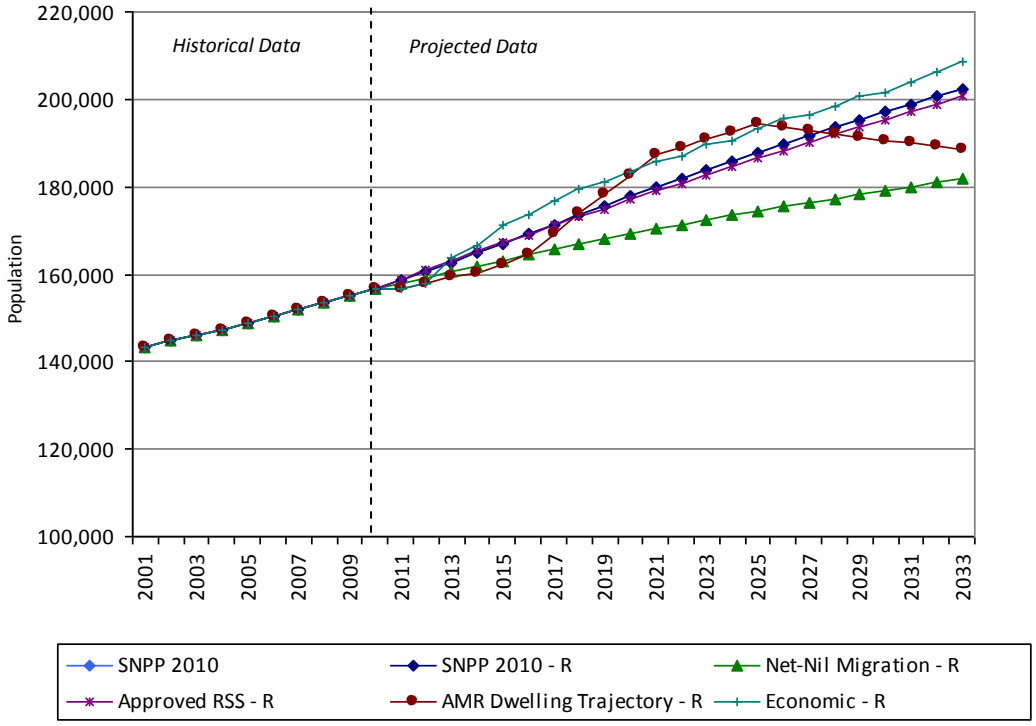


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
SNPP 2010	34,400	21.2%	20,470	27.8%	865	926	422
SNPP 2010 - R	34,400	21.2%	20,843	27.7%	865	943	422
Economic - R	19,927	12.3%	14,215	18.9%	359	643	165
Net-Nil Migration - R	7,530	4.6%	10,622	14.1%	0	481	-73
Approved RSS - R	3,233	2.0%	6,813	9.1%	-249	308	-129
AMR Dwelling Trajectory - R	-2,316	-1.4%	4,325	5.7%	-484	196	-236

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards.

Thurrock

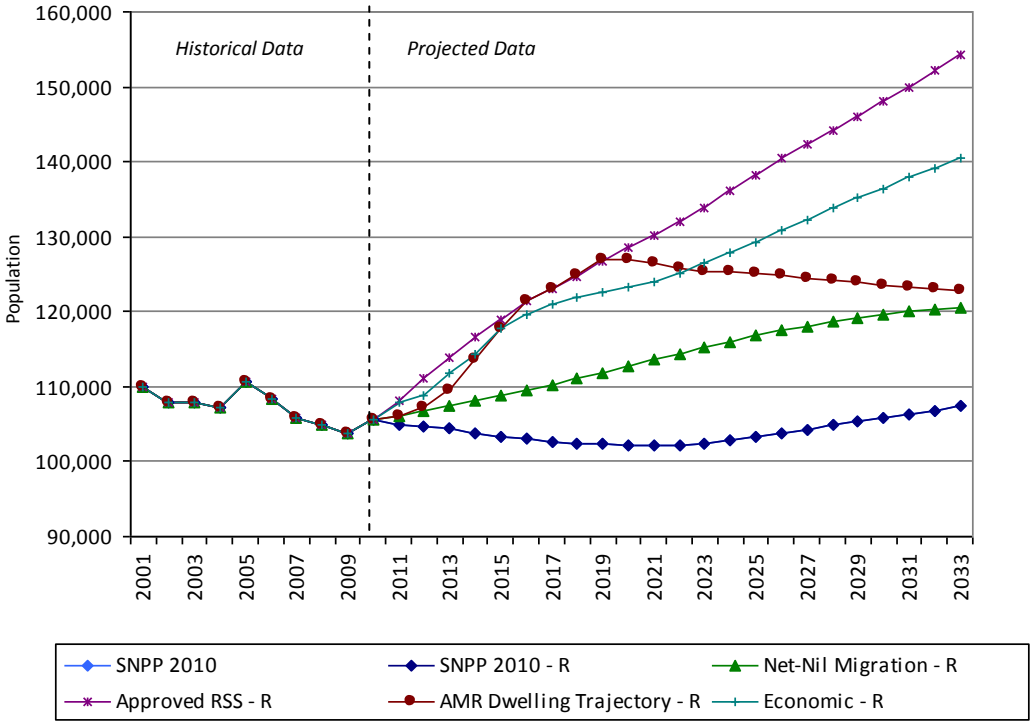


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	52,158	33.3%	24,560	39.1%	878	1,084	1,400
SNPP 2010	45,861	29.3%	23,287	35.6%	681	1,028	1,258
SNPP 2010 - R	45,861	29.3%	22,436	35.7%	681	990	1,258
Approved RSS - R	44,147	28.2%	21,522	34.2%	614	950	1,217
AMR Dwelling Trajectory - R	32,025	20.5%	17,019	27.1%	77	751	902
Net-Nil Migration - R	25,367	16.2%	14,156	22.5%	0	625	739

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2025 onwards.

Cambridge

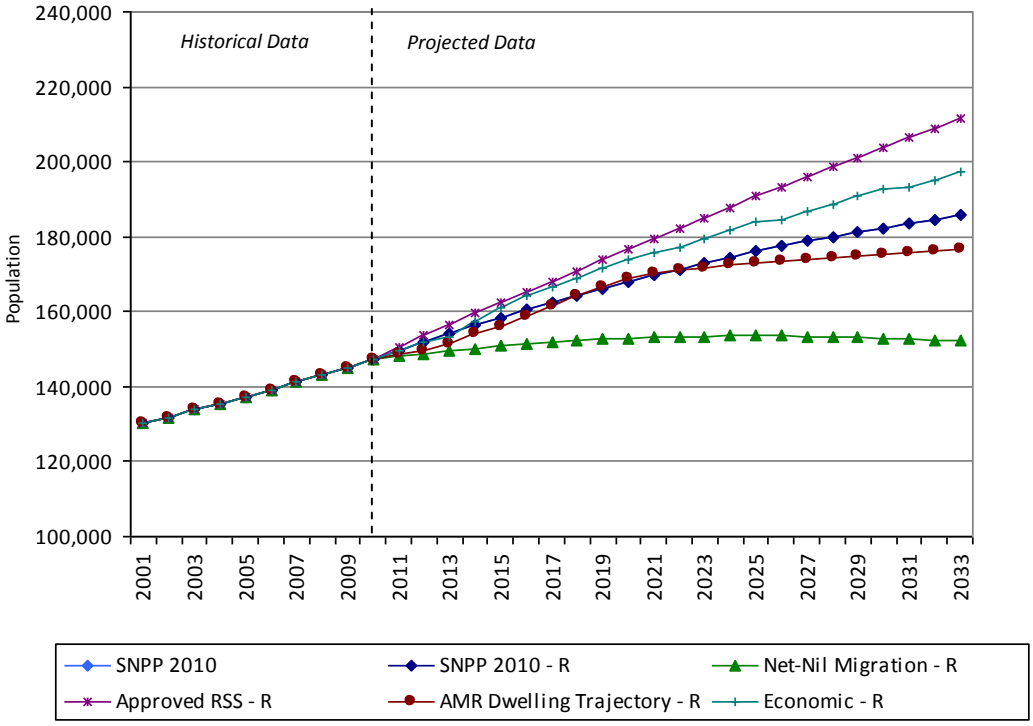


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Approved RSS - R	48,777	46.2%	25,070	52.3%	1,117	1,110	1,552
Economic - R	34,914	33.1%	18,628	38.9%	657	825	1,091
AMR Dwelling Trajectory - R	17,321	16.4%	10,804	22.6%	-43	478	490
Net-Nil Migration - R	14,918	14.1%	12,058	25.2%	0	534	473
SNPP 2010	1,842	1.7%	2,627	6.7%	-346	116	4
SNPP 2010 - R	1,842	1.7%	2,701	5.6%	-346	120	4

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2025 onwards.

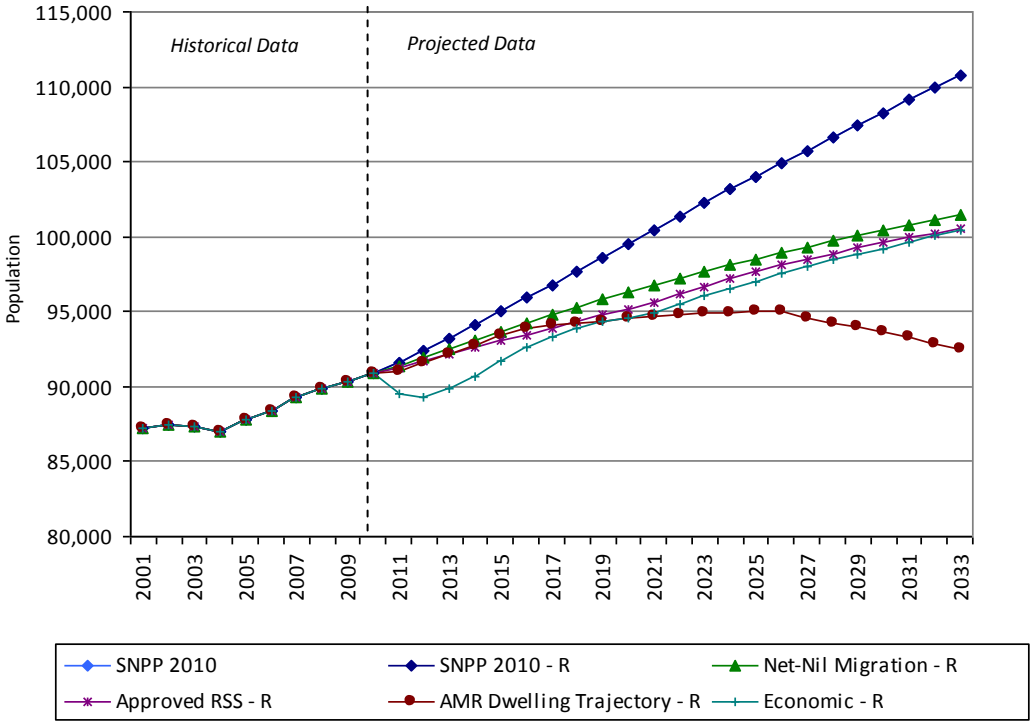
South Cambridgeshire



	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
Approved RSS - R	64,248	43.6%	29,795	50.2%	1,994	1,330	1,611
Economic - R	49,830	33.8%	24,523	41.3%	1,467	1,095	1,222
SNPP 2010 - R	38,275	26.0%	20,179	34.0%	1,063	901	914
SNPP 2010	38,275	26.0%	20,445	34.0%	1,063	913	914
AMR Dwelling Trajectory - R	29,498	20.0%	17,027	28.7%	725	760	671
Net-Nil Migration - R	4,923	3.3%	8,825	14.9%	0	394	5

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Broxbourne

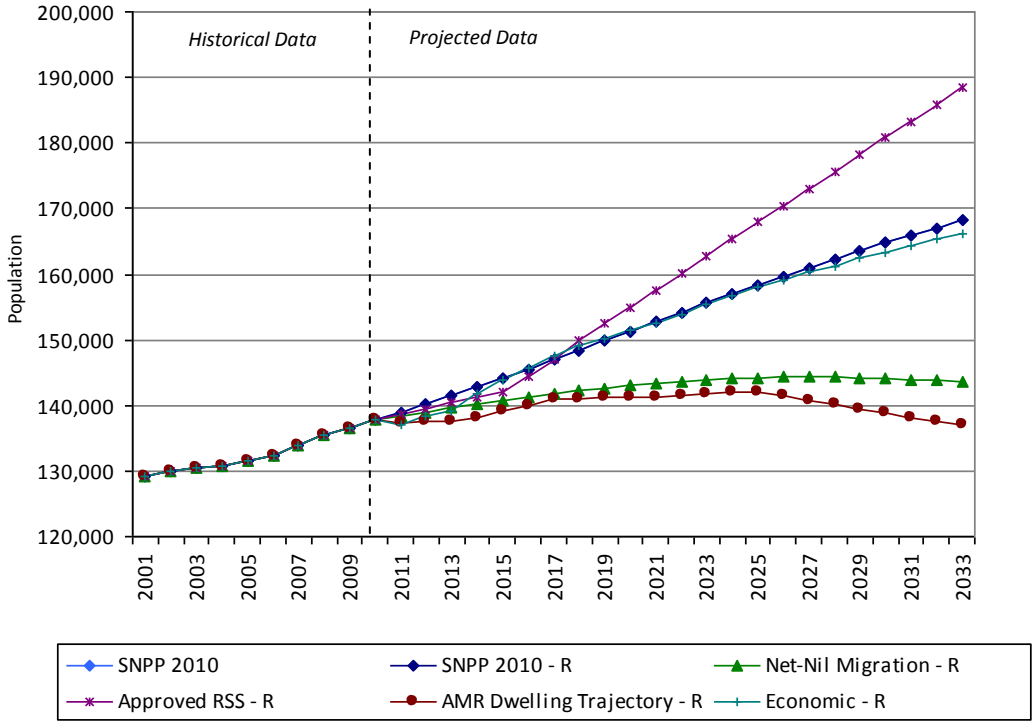


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	19,900	21.9%	9,709	26.2%	323	434	374
SNPP 2010 - R	19,900	21.9%	9,888	26.1%	323	442	374
Net-Nil Migration - R	10,599	11.7%	6,483	17.1%	0	290	166
Approved RSS - R	9,688	10.7%	5,838	15.4%	-42	261	135
Economic - R	9,614	10.6%	5,803	15.3%	-37	259	130
AMR Dwelling Trajectory - R	1,699	1.9%	2,742	7.2%	-352	123	-56

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards.

East Hertfordshire

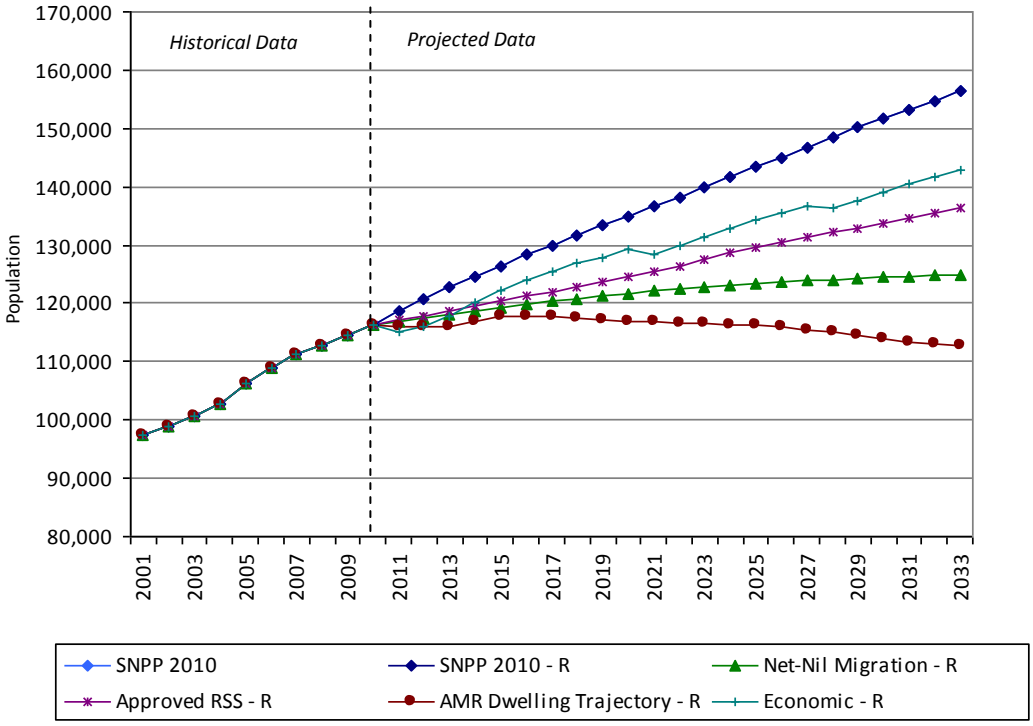


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Approved RSS - R	50,618	36.8%	25,822	45.6%	1,568	1,149	881
SNPP 2010 - R	30,472	22.1%	18,052	31.9%	820	803	462
SNPP 2010	30,472	22.1%	18,231	31.9%	820	811	462
Economic - R	28,455	20.7%	17,180	30.3%	741	765	417
Net-Nil Migration - R	5,835	4.2%	9,308	16.4%	0	414	-56
AMR Dwelling Trajectory - R	-703	-0.5%	5,793	10.2%	-321	258	-183

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2025 onwards.

Welwyn Hatfield

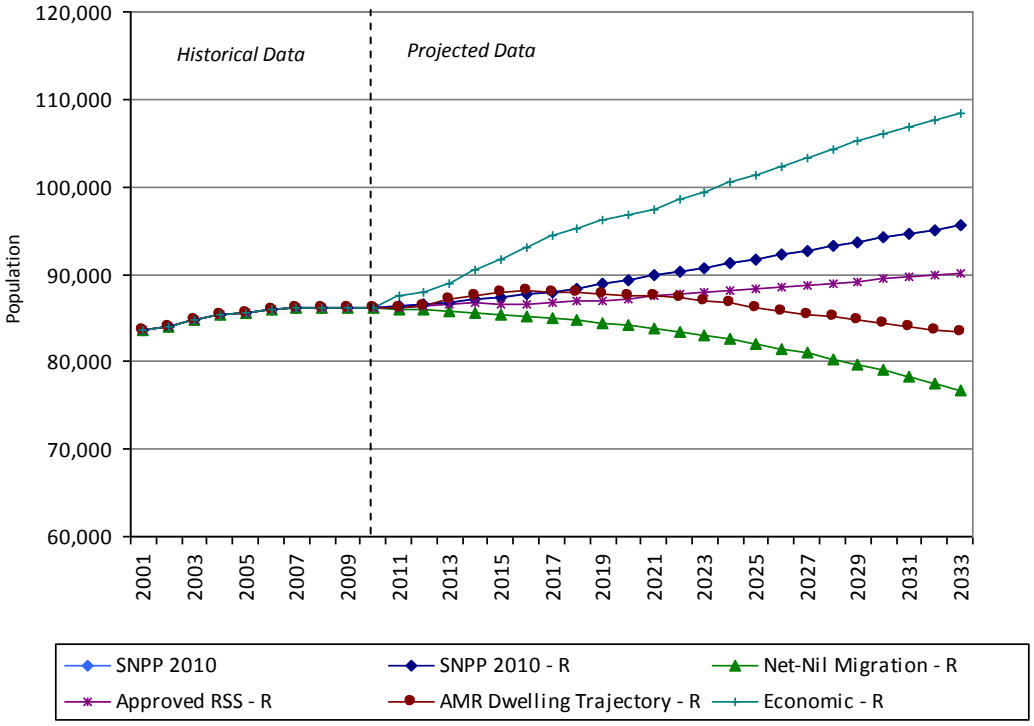


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	39,947	34.3%	18,984	40.9%	1,050	842	1,379
SNPP 2010 - R	39,947	34.3%	18,233	41.0%	1,050	809	1,379
Economic - R	26,620	22.9%	13,400	30.1%	580	594	943
Approved RSS - R	20,003	17.2%	11,054	24.8%	341	490	733
Net-Nil Migration - R	8,543	7.3%	6,498	14.6%	0	288	230
AMR Dwelling Trajectory - R	-3,727	-3.2%	2,713	6.1%	-552	120	-43

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2027 onwards.

Babergh

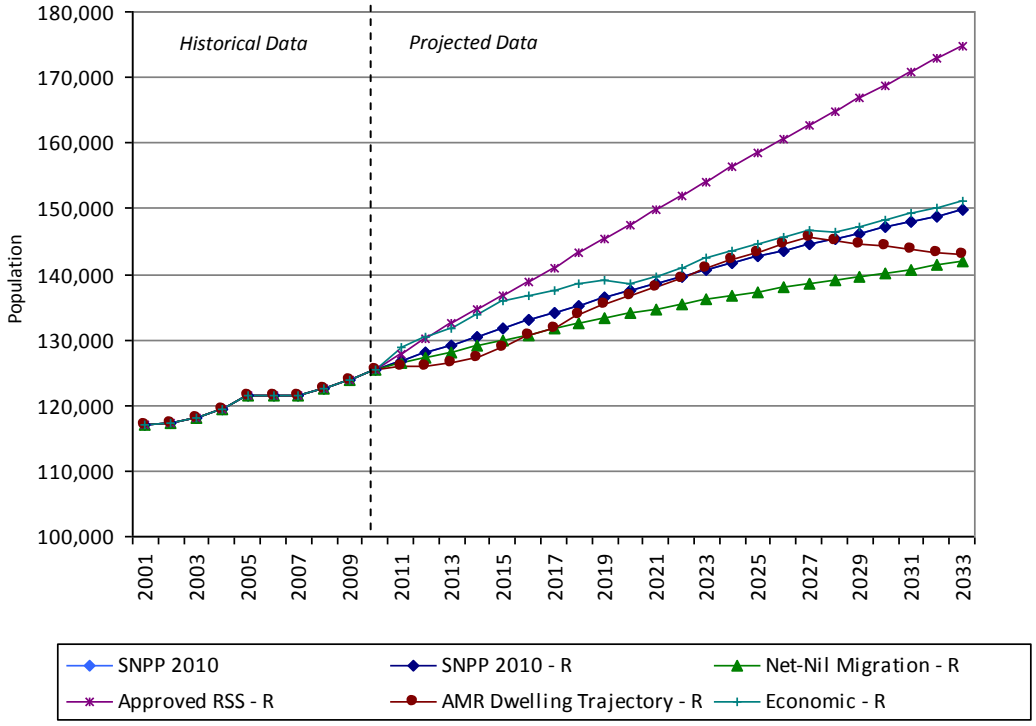


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	22,310	25.9%	12,804	34.4%	1,155	576	261
SNPP 2010	9,447	11.0%	7,628	20.6%	674	343	35
SNPP 2010 - R	9,447	11.0%	7,670	20.6%	674	345	35
Approved RSS - R	4,021	4.7%	5,507	14.8%	464	248	-63
AMR Dwelling Trajectory - R	-2,749	-3.2%	2,763	7.4%	185	124	-183
Net-Nil Migration - R	-9,371	-10.9%	1,172	3.1%	0	53	-318

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2023 onwards.

Ipswich

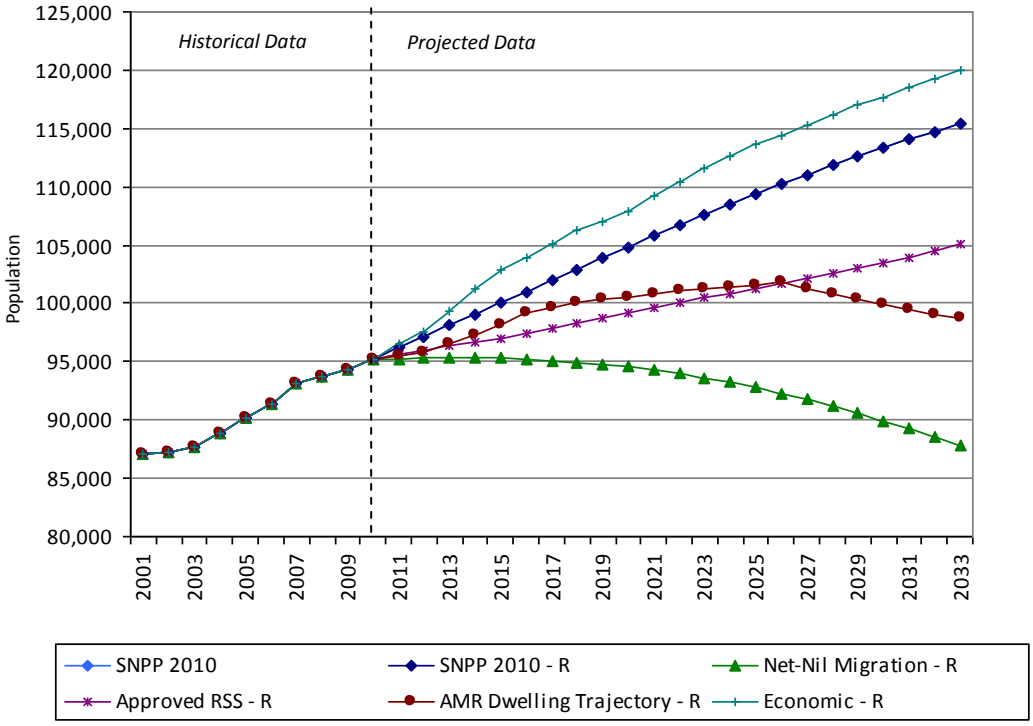


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Approved RSS - R	49,311	39.3%	25,302	44.8%	1,039	1,140	1,420
Economic - R	25,527	20.3%	15,256	27.0%	190	687	757
SNPP 2010 - R	24,247	19.3%	14,832	26.3%	163	668	718
SNPP 2010	24,247	19.3%	14,592	26.3%	163	657	718
AMR Dwelling Trajectory - R	17,401	13.9%	11,650	20.7%	-117	525	504
Net-Nil Migration - R	16,329	13.0%	12,046	21.4%	0	543	440

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2027 onwards.

Mid Suffolk

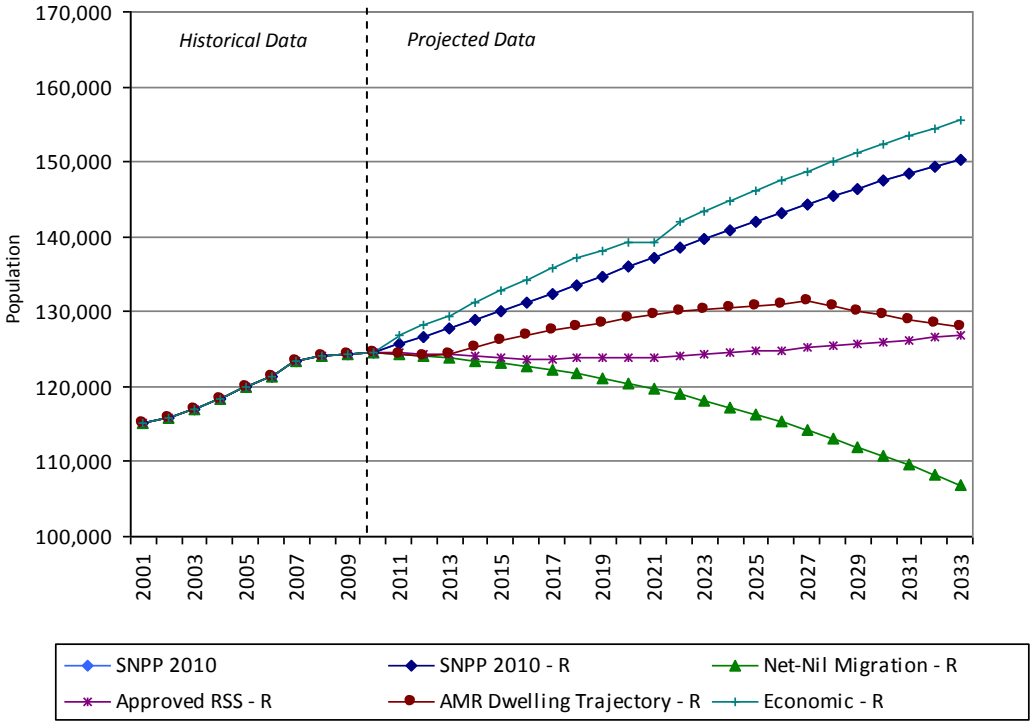


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	24,772	26.0%	14,190	35.7%	1,150	641	222
SNPP 2010	20,211	21.2%	12,251	30.5%	983	553	148
SNPP 2010 - R	20,211	21.2%	12,145	30.5%	983	548	148
Approved RSS - R	9,836	10.3%	8,306	20.9%	595	375	-29
AMR Dwelling Trajectory - R	3,542	3.7%	5,799	14.6%	327	262	-141
Net-Nil Migration - R	-7,408	-7.8%	2,879	7.2%	0	130	-336

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2026 onwards.

Suffolk Coastal

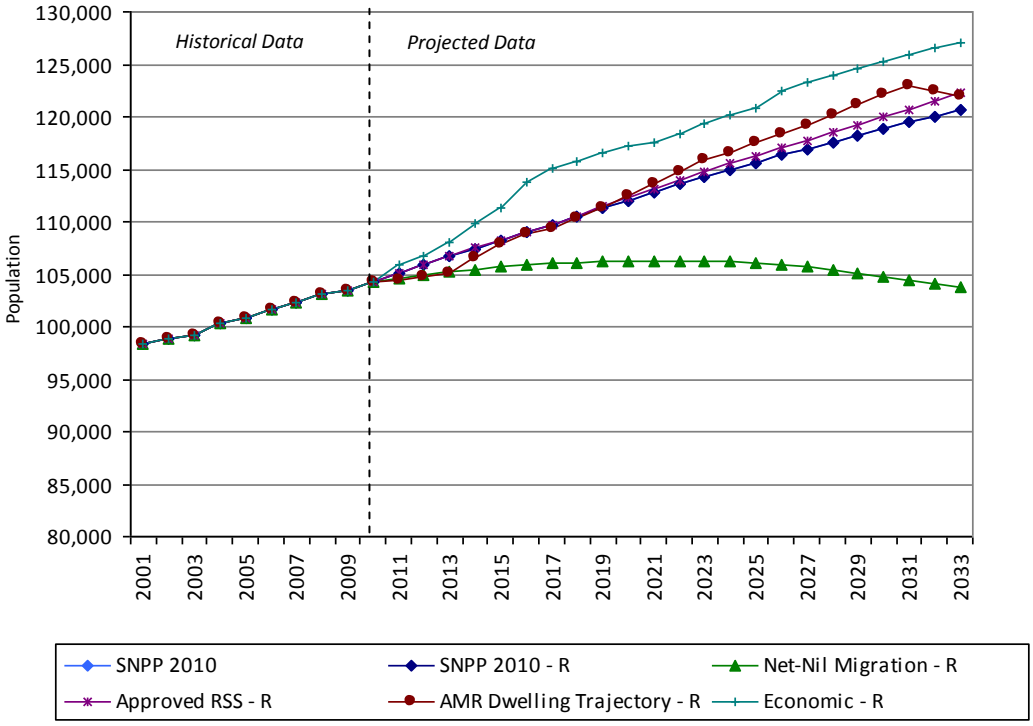


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	30,923	24.8%	18,538	34.4%	1,736	866	335
SNPP 2010	25,769	20.7%	16,824	30.6%	1,543	786	237
SNPP 2010 - R	25,769	20.7%	16,492	30.6%	1,543	770	237
AMR Dwelling Trajectory - R	3,441	2.8%	7,414	13.8%	654	346	-197
Approved RSS - R	2,284	1.8%	6,931	12.9%	634	324	-207
Net-Nil Migration - R	-17,637	-14.2%	2,215	4.1%	24	103	-670

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2027 onwards.

St Edmundsbury



Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	22,721	21.8%	13,875	31.0%	797	626	287
Approved RSS - R	17,974	17.2%	11,960	26.7%	645	540	170
AMR Dwelling Trajectory - R	17,706	17.0%	11,834	26.4%	621	534	155
SNPP 2010	16,344	15.7%	11,001	24.7%	579	497	134
SNPP 2010 - R	16,344	15.7%	11,078	24.7%	579	500	134
Net-Nil Migration - R	-626	-0.6%	5,204	11.6%	0	235	-306

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario reverts to zero dwelling growth from 2031 onwards.

Macro area scenario summary

6.12 Individual macro-area scenario summaries are ordered as follows:

Essex CC

Greater Essex

Essex Thames Gateway

Heart of Essex

Essex Haven Gateway

Suffolk Haven Gateway

Haven Gateway

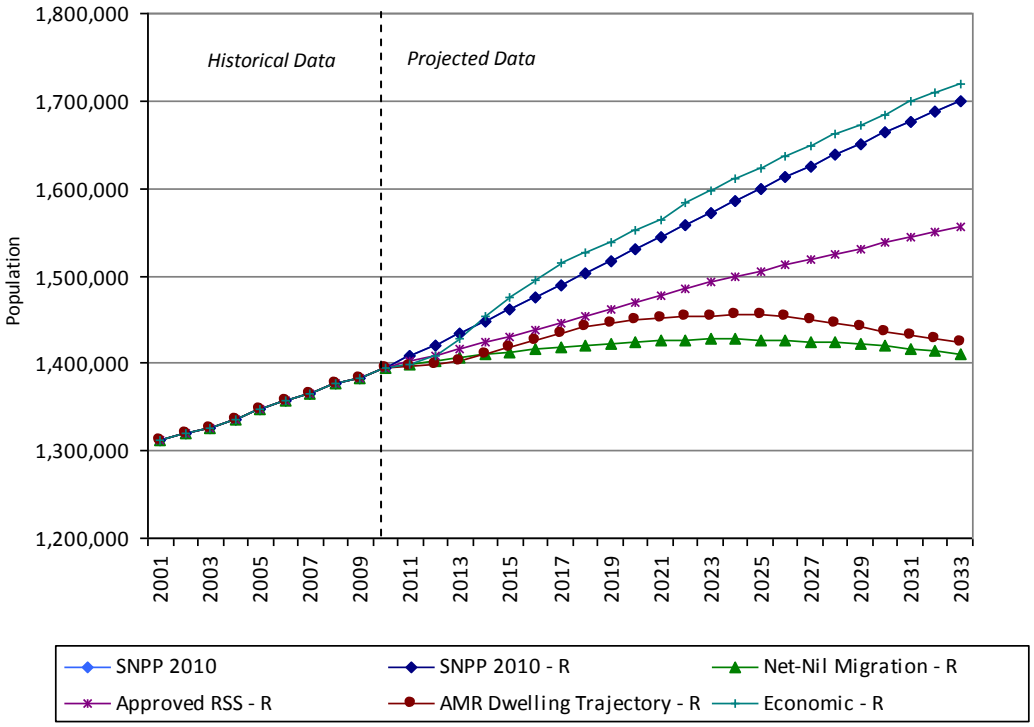
West Essex

Hertfordshire (East)

Stansted/M11 Corridor

Harlow Joint Working Area

Essex County Council

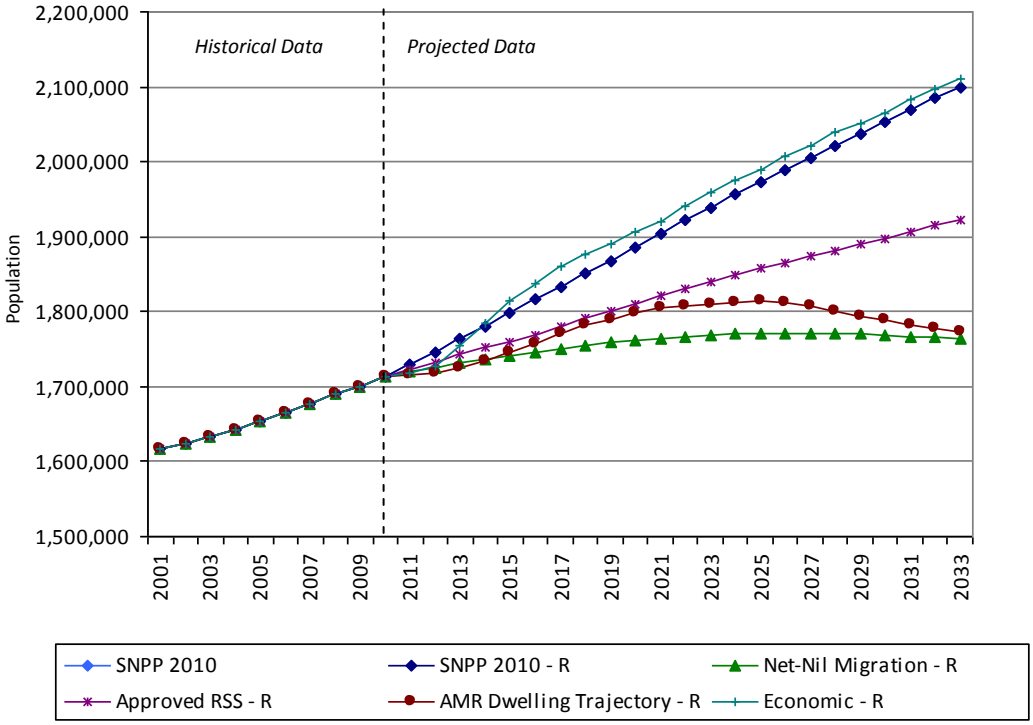


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	324,863	23.3%	174,594	29.9%	10,767	7,804	4,748
SNPP 2010	305,408	21.9%	170,722	28.8%	10,203	7,637	4,254
SNPP 2010 - R	305,408	21.9%	168,364	28.8%	10,203	7,531	4,254
Approved RSS - R	161,952	11.6%	111,075	19.0%	4,741	4,961	1,578
AMR Dwelling Trajectory - R	28,966	2.1%	58,610	10.0%	-439	2,620	-1,348
Net-Nil Migration - R	16,243	1.2%	62,522	10.7%	0	2,783	-1,795

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Greater Essex

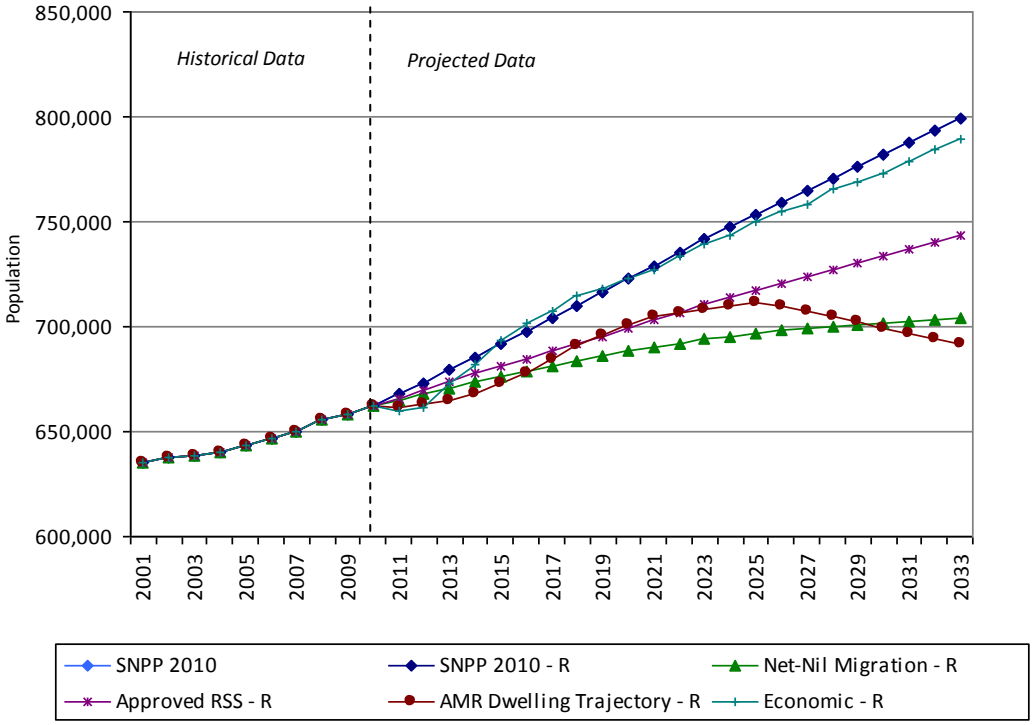


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
Economic - R	396,948	23.2%	213,369	29.6%	12,004	9,531	6,313
SNPP 2010	385,669	22.5%	214,479	29.3%	11,749	9,591	5,934
SNPP 2010 - R	385,669	22.5%	211,643	29.3%	11,749	9,464	5,934
Approved RSS - R	209,332	12.2%	139,410	19.3%	5,106	6,219	2,666
AMR Dwelling Trajectory - R	58,675	3.4%	79,953	11.1%	-847	3,567	-682
Net-Nil Migration - R	49,140	2.9%	87,300	12.1%	0	3,888	-1,129

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Essex Thames Gateway

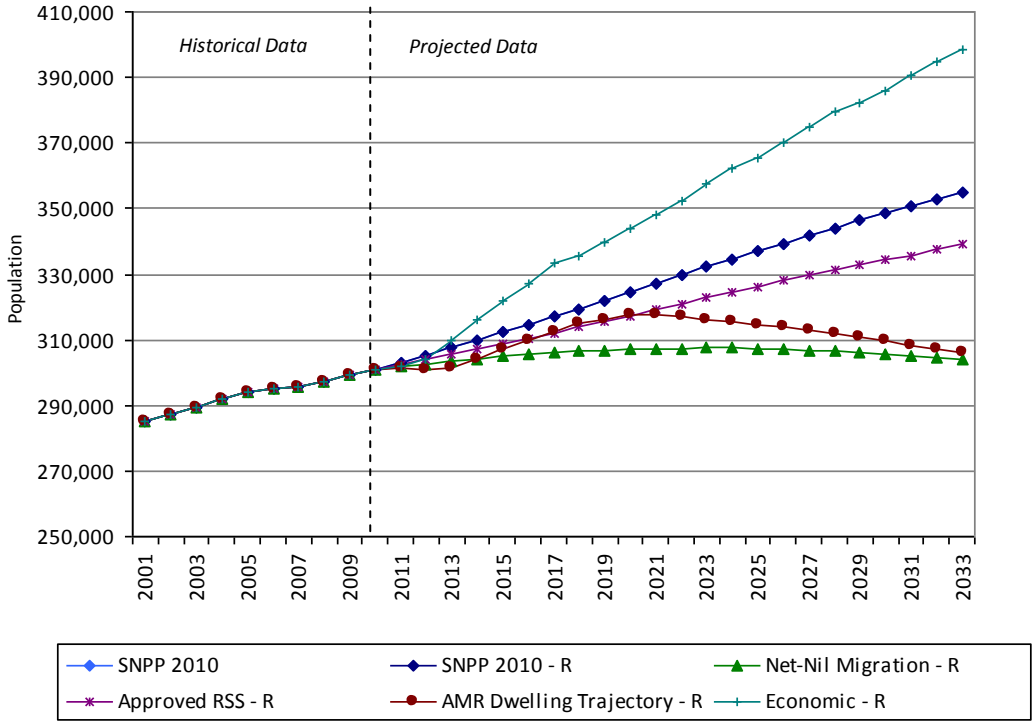


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	137,025	20.7%	78,148	27.4%	3,312	3,481	2,006
SNPP 2010 - R	137,025	20.7%	76,963	27.4%	3,312	3,429	2,006
Economic - R	126,804	19.2%	70,911	25.3%	2,919	3,153	1,787
Approved RSS - R	80,953	12.2%	52,646	18.8%	1,235	2,338	1,047
Net-Nil Migration - R	41,741	6.3%	40,280	14.3%	0	1,795	227
AMR Dwelling Trajectory - R	29,850	4.5%	32,306	11.5%	-833	1,434	10

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Heart of Essex

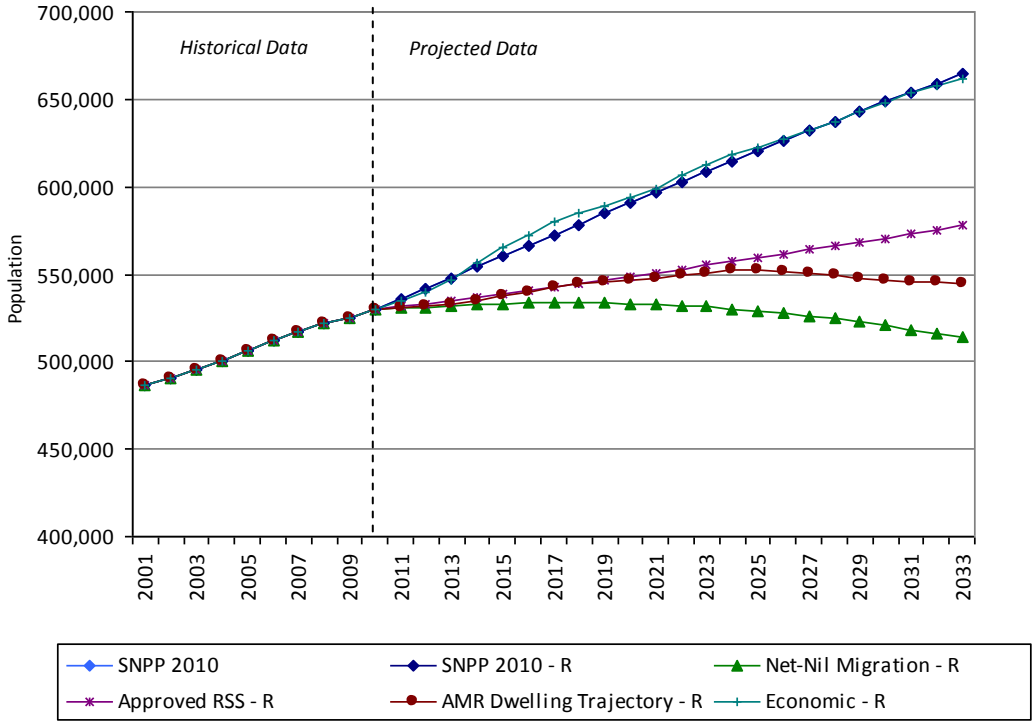


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
Economic - R	97,627	32.4%	47,858	37.9%	3,363	2,135	2,078
SNPP 2010	54,049	18.0%	31,964	25.1%	1,814	1,428	972
SNPP 2010 - R	54,049	18.0%	31,647	25.1%	1,814	1,414	972
Approved RSS - R	37,903	12.6%	25,098	19.9%	1,175	1,118	716
AMR Dwelling Trajectory - R	5,048	1.7%	12,018	9.5%	-128	535	-129
Net-Nil Migration - R	2,758	0.9%	12,265	9.7%	0	546	-229

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Essex Haven Gateway

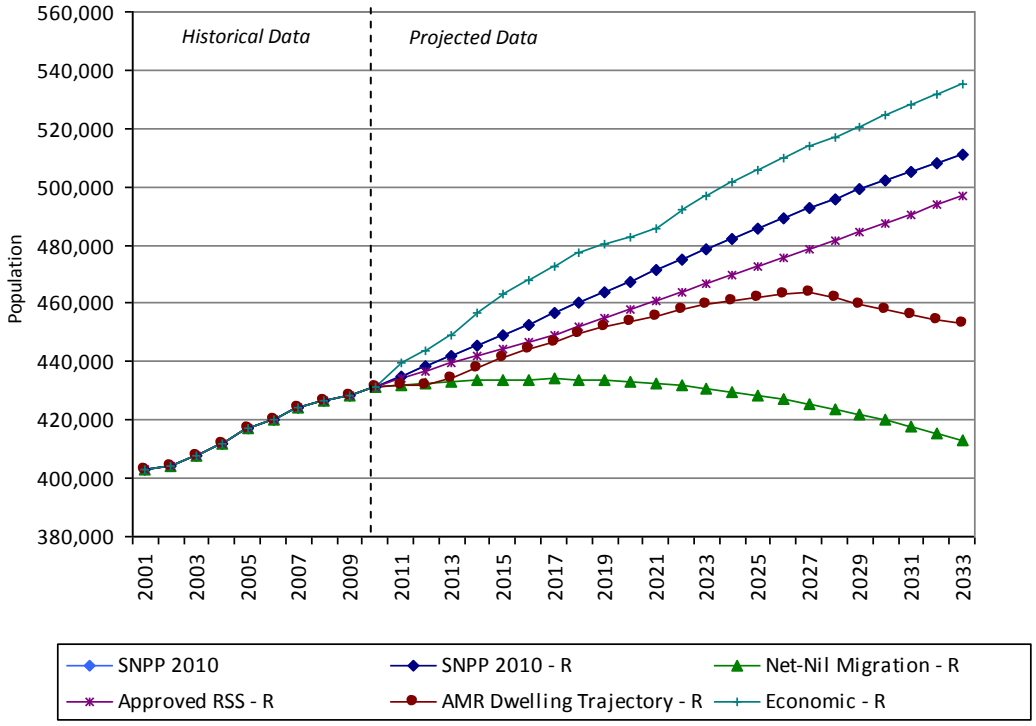


	Change 2010 - 2033				Average per year		
Scenario	**Population Change**	**Population Change %**	**Households Change**	**Households Change %**	**Net Migration**	**Dwellings**	**Jobs**
SNPP 2010	134,532	25.4%	74,149	32.7%	5,381	3,337	1,832
SNPP 2010 - R	134,532	25.4%	72,867	32.8%	5,381	3,278	1,832
Economic - R	131,943	24.9%	71,954	32.4%	5,259	3,238	1,713
Approved RSS - R	47,842	9.0%	38,452	17.3%	2,095	1,728	233
AMR Dwelling Trajectory - R	14,650	2.8%	25,274	11.4%	741	1,138	-463
Net-Nil Migration - R	-15,891	-3.0%	18,116	8.2%	0	808	-1,268

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Suffolk Haven Gateway

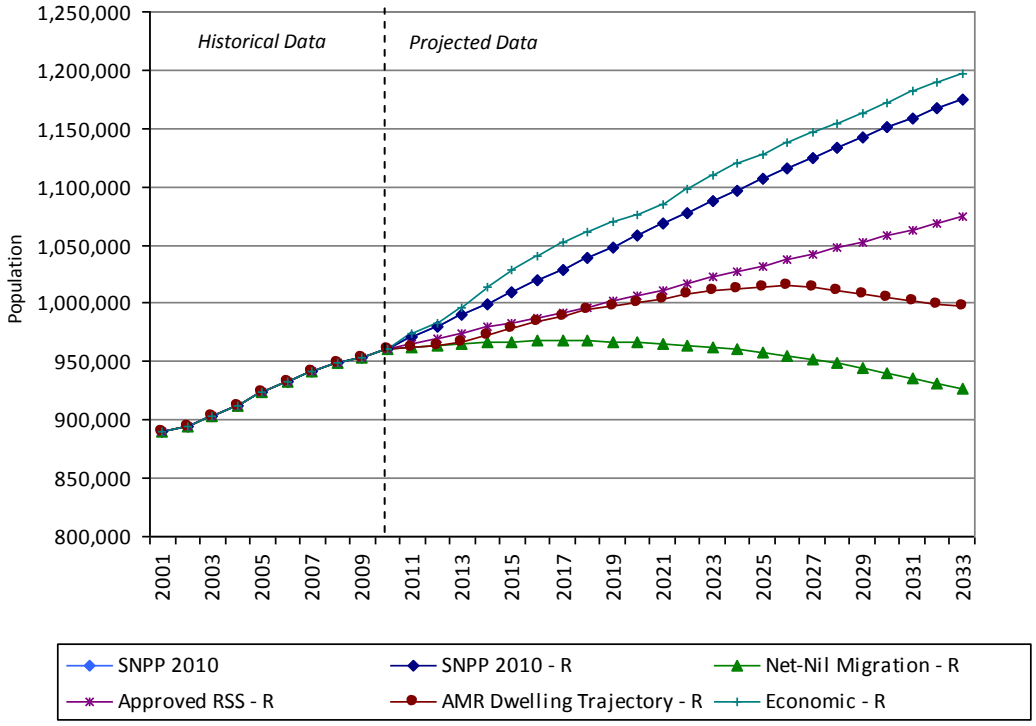


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	103,533	24.0%	60,788	32.4%	4,232	2,769	1,574
SNPP 2010	79,674	18.5%	51,295	27.3%	3,363	2,339	1,138
SNPP 2010 - R	79,674	18.5%	51,140	27.3%	3,363	2,332	1,138
Approved RSS - R	65,452	15.2%	46,047	24.6%	2,732	2,086	1,122
AMR Dwelling Trajectory - R	21,636	5.0%	27,627	14.7%	1,050	1,257	-17
Net-Nil Migration - R	-18,088	-4.2%	18,311	9.8%	24	829	-884

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Haven Gateway

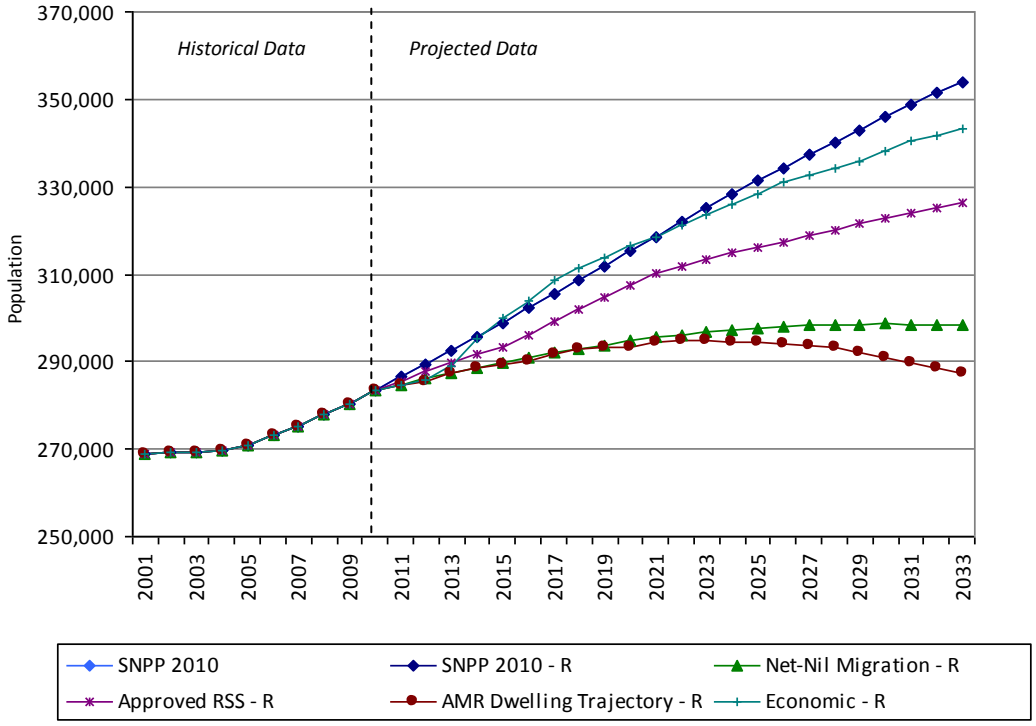


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Economic - R	235,477	24.5%	132,742	32.4%	9,492	6,008	3,287
SNPP 2010	214,206	22.3%	125,444	30.3%	8,744	5,676	2,970
SNPP 2010 - R	214,206	22.3%	124,007	30.3%	8,744	5,610	2,970
Approved RSS - R	113,294	11.8%	84,499	20.6%	4,827	3,814	1,355
AMR Dwelling Trajectory - R	36,286	3.8%	52,901	12.9%	1,791	2,395	-480
Net-Nil Migration - R	-33,979	-3.5%	36,427	8.9%	24	1,637	-2,152

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

West Essex

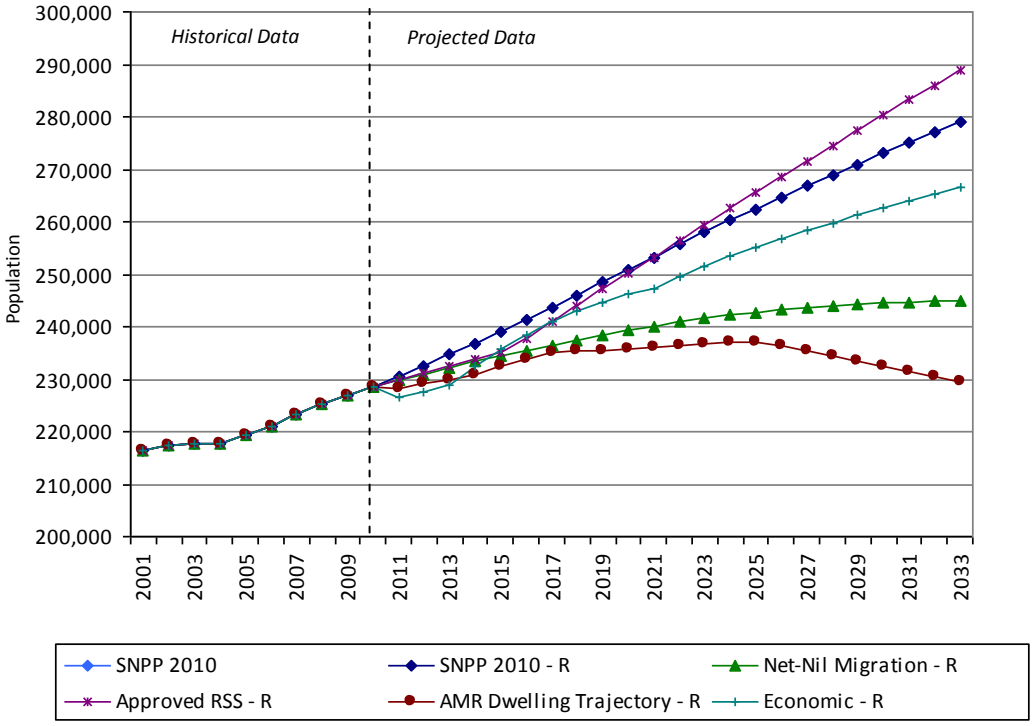


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	70,507	24.9%	36,935	30.9%	1,843	1,649	1,178
SNPP 2010 - R	70,507	24.9%	36,661	30.9%	1,843	1,636	1,178
Economic - R	59,663	21.0%	32,308	27.3%	1,398	1,442	922
Approved RSS - R	42,966	15.2%	25,761	21.7%	801	1,150	564
Net-Nil Migration - R	14,825	5.2%	17,361	14.6%	0	773	-77
AMR Dwelling Trajectory - R	3,751	1.3%	10,691	9.0%	-657	476	-293

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Hertfordshire (East)

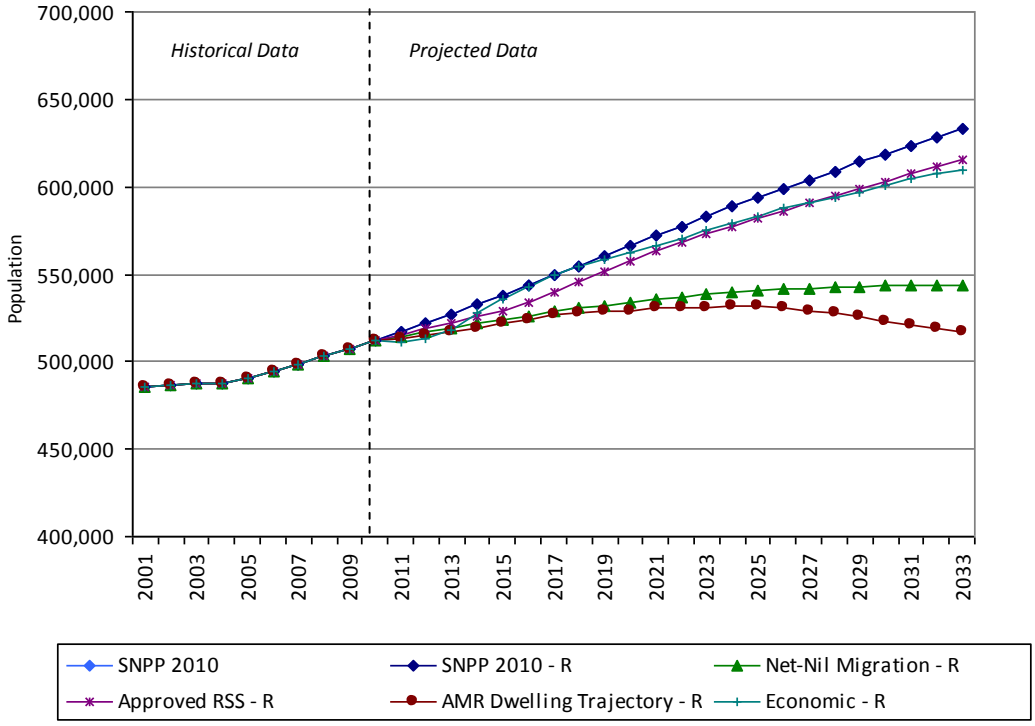


	Change 2010 - 2033				Average per year		
Scenario	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Approved RSS - R	60,307	26.4%	31,660	33.5%	1,526	1,410	1,016
SNPP 2010 - R	50,373	22.0%	27,941	29.6%	1,144	1,245	836
SNPP 2010	50,373	22.0%	27,939	29.6%	1,144	1,245	836
Economic - R	38,069	16.7%	22,983	24.3%	704	1,024	548
Net-Nil Migration - R	16,434	7.2%	15,791	16.7%	0	704	110
AMR Dwelling Trajectory - R	996	0.4%	8,535	9.0%	-673	380	-240

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Stansted/M11 Corridor

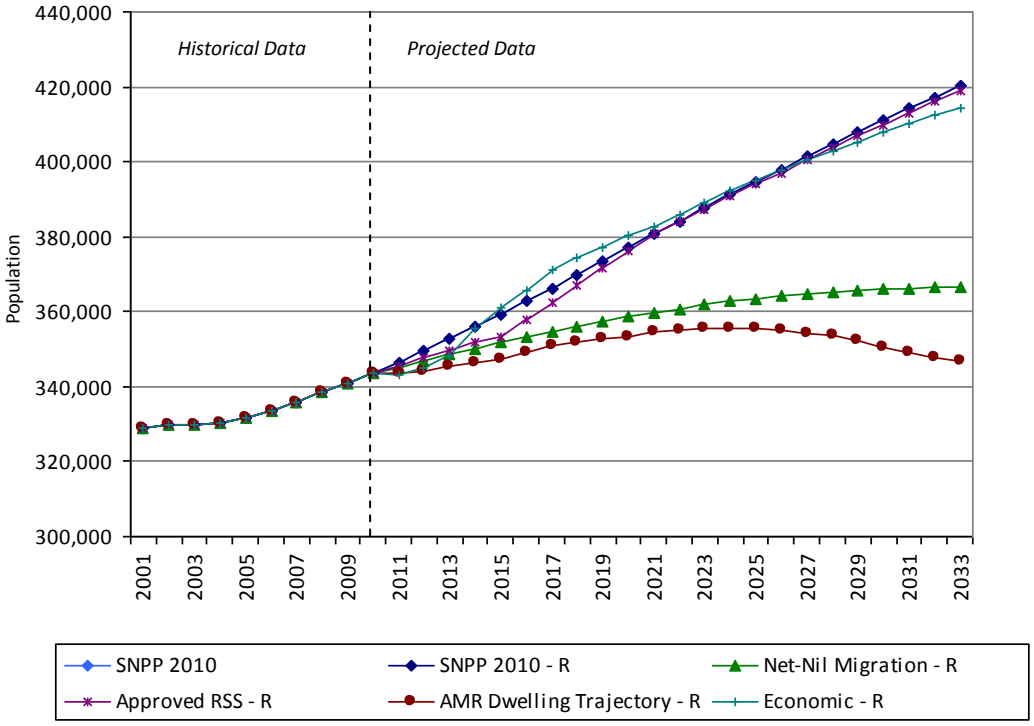


Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	120,879	23.6%	64,875	30.4%	2,987	2,894	2,014
SNPP 2010 - R	120,879	23.6%	64,601	30.3%	2,987	2,882	2,014
Approved RSS - R	103,273	20.2%	57,421	27.0%	2,328	2,560	1,580
Economic - R	97,733	19.1%	55,290	26.0%	2,102	2,466	1,470
Net-Nil Migration - R	31,259	6.1%	33,152	15.6%	0	1,476	32
AMR Dwelling Trajectory - R	4,747	0.9%	19,226	9.0%	-1,331	856	-533

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

Harlow Joint Working Area



Scenario	Change 2010 - 2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
SNPP 2010	76,862	22.4%	43,490	29.9%	1,783	1,934	1,289
SNPP 2010 - R	76,862	22.4%	43,109	29.9%	1,783	1,917	1,289
Approved RSS - R	75,525	22.0%	42,039	29.2%	1,709	1,870	1,222
Economic - R	70,883	20.6%	40,273	27.9%	1,522	1,791	1,139
Net-Nil Migration - R	23,173	6.7%	23,510	16.3%	0	1,044	119
AMR Dwelling Trajectory - R	3,134	0.9%	13,527	9.4%	-950	600	-304

Note: The 'SNPP 2010' and 'SNPP 2010 – R' scenarios have identical population growth. However, household growth will vary between the two scenarios due to the use of different household headship rates.

Note: The 'AMR Dwelling Trajectory - R' scenario combines districts for which dwelling growth reverts to zero at different points in time.

7. Conclusion

Objectives

7.1 The purpose of this study is to produce a consistent set of demographic forecast scenarios for EPOA members to consider; to enable local assessment and to inform policy development. It is not the intention of this report to produce a recommended or preferred demographic forecast for any area. Rather, the approach is to encourage examination of the demography of each area from different perspectives. It will be for each local planning authority to determine its use of the forecasts and other outputs from this project to inform its future spatial policy development.

7.2 Throughout each phase of this project, POPGROUP demographic forecasting models have been applied, ensuring a robustness of approach that is consistent with the methods used by ONS for population and household projections and which are now in common use by local authorities across the UK. In addition all data and assumptions have been presented in a transparent manner to enable the most effective interpretation of the issues and output under consideration.

7.3 This Phase 3 report has presented a large amount of new material for EPOA members to consider, updating the evidence from the previous phases of the project. This new information has included updated trend scenarios from ONS plus new evidence on housing and jobs growth forecasts for each local authority area. With a 2010-2033 time horizon, a total of six scenarios have been tested on each of the 24 local authority districts

Scenario Development

7.4 The key 'trend' scenario presented here is the sub-national population projection published by the Office for National Statistics (ONS) in March 2012. This is based on the 'indicative' 2010 mid-year population estimates published in November 2011 and a set of underlying demographic assumptions regarding future fertility, mortality and migration. The ONS projections are not forecasts and do not attempt to predict the impact that future government or local policies, changing economic circumstances or other factors might have on demographic behaviour. Furthermore, they do not take account of any information from the 2011 Census.

7.5 To complement the 'trend' scenarios, two 'dwelling-led' scenarios have been presented. The first forecasts the likely demographic impact of the Approved RSS housing provision for each area; the second is based on the latest AMR housing prepared by each local authority. Typically, the AMR trajectory only includes housing growth estimates for a portion of the 2010-2033 period, making direct comparison with other scenarios difficult.

7.6 New economic forecasts for each local authority have been produced by Oxford Economics using the East of England Forecasting Model (EEFM). Using the demographic model, the trajectories of jobs growth suggested by these economic forecasts have been used to forecast likely population and household growth. Given the prevailing economic conditions, the robustness of local area economic forecasts remains uncertain. In addition, the alignment of the demographic and economic models presents particular methodological challenges to enable a direct comparison of outcomes.

Scenario Outcomes

7.7 For most, but not all, local authorities, projected population growth is generally highest either in the SNPP 2010 scenario or economic scenario.

For the following areas, the SNPP 2010 trend scenario suggests the highest population growth:

Basildon, Brentwood, Colchester, Epping Forest, Harlow, Tendring, Uttlesford, Southend-on-Sea, Broxbourne, Welwyn Hatfield

The economic growth scenario produces the highest population growth for the following:

Braintree, Castle Point, Chelmsford, Maldon, Rochford, Thurrock, Babergh, Mid Suffolk, Suffolk Coastal, St Edmundsbury

And the RSS scenario remains the highest population growth trajectory for the following:

Cambridge, South Cambridgeshire, East Hertfordshire, Ipswich

7.8 The impact of ONS' new methodology for estimating international migration has had a significant impact upon both the 'indicative' 2006-2010 mid-year estimates and therefore on the 2010-based projections. The general pattern is for the 2010-based projections to suggest lower population growth than the 2008-based alternative, but not in all cases.

Cambridge, Ipswich, Chelmsford, Suffolk Coastal and **Basildon** all experience substantial absolute and percentage reductions in their trend-based projections following the 2010 revisions; all driven primarily by revisions to the international migration component of change.

In contrast, **Broxbourne**, **Harlow**, **East Hertfordshire** and **Epping Forest** all have significantly higher growth trajectories in the 2010-based projections, which will have been influenced by the redistribution of international migration estimates between local authorities.

This redistribution of international migration is having an 'indirect' impact upon assumptions for internal migration. These data are determined from historical trends but future levels of projected migration inflow will also continue to be influenced by population growth in local authority areas in other parts of the UK. This is particularly significant for EPOA districts which have historically been recipients of migrants from London Boroughs (e.g. **Epping Forest**). Continued population growth in the London Boroughs will drive higher out-migration, resulting in higher in-migration to receiving local authorities.

7.9 The results of the economic scenario are likely to be the most problematic to interpret, given the uncertainty over the timing and scale of economic recovery and the challenges associated with the alignment of economic and demographic forecasts. The most substantial economic growth is forecast to be concentrated in a relatively small number of EPOA authorities, with obvious implications for the level of demographic change forecast in these areas (**Chelmsford, Thurrock, South Cambridgeshire, Cambridge, Colchester, Welwyn Hatfield**)

This report has provided a transparent perspective on the scale of jobs growth anticipated and the key relationships between future levels of economic activity, unemployment and commuting. EPOA members should give careful consideration to the assumptions and outcomes of this scenario in relation to future development of their local authority areas.

Future Development

7.10 Given the prevailing economic conditions and the uncertainty with regard to current and future demographic intelligence, it is important for all users of this report to recognise that all forecasts are subject to change. It is imperative that all evidence is subject to monitoring and review as new information is made available and as local communities adapt to

changing economic conditions.

7.11 Phase 4 of this project will consider what impact the first release of 2011 Census statistics will have upon the EPOA demographic picture, both in terms of historical and projected population and household statistics.

7.12 To support the monitoring and review process, it is RECOMMENDED that:

- EPOA engages with ONS to discuss the intelligence presented in this Phase 3 report. Of particular interest is the operation of the ONS sub-national projection model with regard to the long-term impact of growth in London Boroughs upon population change in adjacent EPOA districts;

- EPOA authorities should take steps to maintain knowledge and understanding of future changes in demographic and economic data availability and methods.

Appendix 1: Projection Methodology

A1.1 POPGROUP suite

The forecasting requirements of this project have been delivered using POPGROUP. POPGROUP is a family of demographic models developed to forecast population, households and the labour force for areas and social groups. It uses MS Excel technology to enable direct integration of inputs and outputs with a user's desktop environment. POPGROUP has over 100 users which include academic and public service staff in housing, planning, policy, research, economic development, and social services. On behalf of the Local Government Association, Edge Analytics is responsible for the development and support of the POPGROUP software.

A1.2 Population, household & labour force forecasting

Population projections delivered using POPGROUP use a standard **cohort component** methodology (the methodology used by the UK statistical agencies). The household projections use a standard **household headship rate** as employed Communities and Local Government (CLG) for its household projection statistics. Labour force projections use a standard **economic activity rate** methodology. Household and labour force projections are developed using the Derived Forecast model.

A more detailed description of the population and household projection methodologies is available from the User Guide and Reference Manual on the POPGROUP website www.ccsr.ac.uk/popgroup/about/manuals.html.

The following illustrations provide a summary of the POPGROUP and Derived Forecast methodologies.

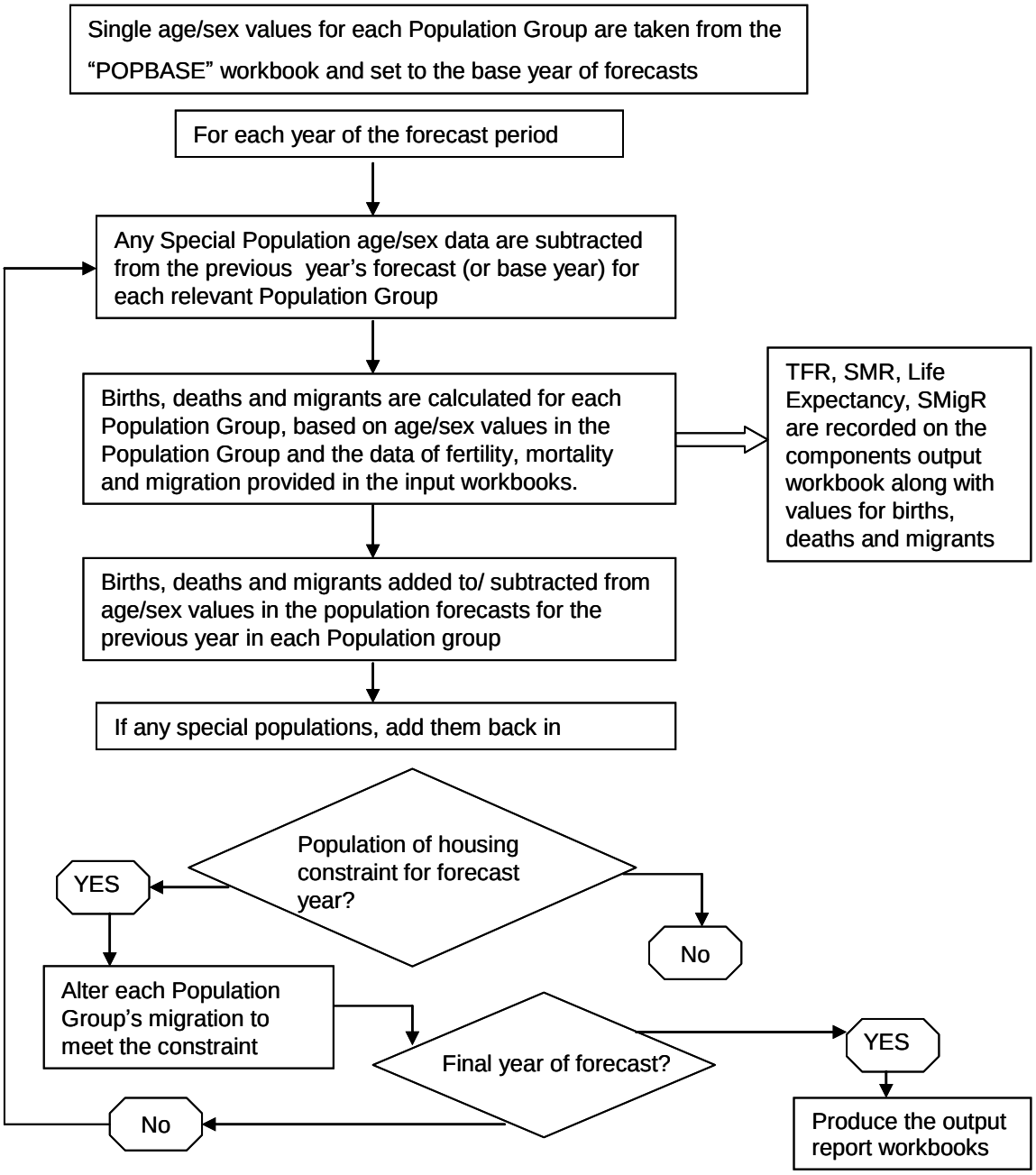
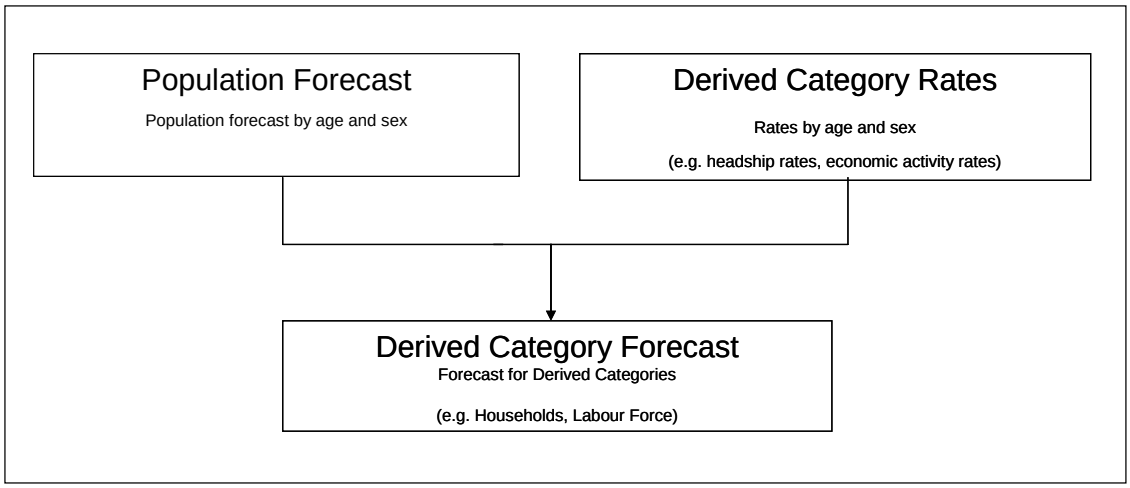


Figure 17: POPGROUP population projection methodology



Algebraically the model is defined as follows:

$$D_{a,s,u,y,d,g} = P_{a,s,u,y,g} * R_{a,s,u,y,d,g} / 100$$

Where:

D = Derived Category Forecast

P = Population 'at risk' Forecast

R = Derived Category Rates

and

a = age-group

s = sex

u = Sub-population

y = year

d = derived category

g = group (usually an area, but can be an ethnic group or social group)

Figure 18: Derived Forecast Model: household & labour force projection methodology

Appendix 2: East of England Forecasting Model

A2.1 The East of England Forecasting Model (EEFM) was originally developed for the East of England Development Agency (EEDA) and regional partners by Oxford Economics. Its purpose was to project economic, demographic and housing trends in a consistent fashion and in a way that would help in the development of both the Regional Economic Strategy (RES) and the Regional Spatial Strategy (RSS) for the East of England. The outputs released are available on the Insight East website:

http://www.cambridgeshire.gov.uk/business/research/economylab/Economic+forecasts.htm .

A number of other related resources can also be accessed on the site

A2.2 The abolition of EEDA has resulted in ownership of the EEFM being transferred to the East of England Local Government Association (EELGA). Cambridgeshire County Council is to manage the Model on behalf of the Association and Oxford Economics has been re-appointed to maintain and operate it for a further 2 years. The latest forecasts were produced in Spring 2012.

A2.3 The EEFM is primarily designed to produce economic forecasts for local authority areas. However, it also includes some demographic information and also includes a facility for forecasting carbon emissions. It is a spreadsheet-based model (EXCEL) which covers a wide range of variables, and is designed to be flexible so that alternative scenarios can be run and the impacts of different assumptions can be measured. For instance, the Model can show the impact on the local economy of different overall economic growth rates or of accelerated growth or decline in particular sectors and the consequence for future dwelling requirements. Similarly, the Model can show the impact that different scale and distribution of dwelling change between authorities may have on the local economy in terms of job growth, commuting and unemployment.

A2.4 The EEFM comprises a full database including 147 separate variables for each of the East of England's 48 pre-April 2009 local authorities, as well as for historic counties, strategic authorities, selected other local authority groupings, the East of England as a whole, and the UK. This is supported by a comprehensive set of tables, charts and 'Powerpoint' slides allowing users to select and assemble data on the variables, localities, scenarios and results they want.

A2.5 Key outputs of the Model are:

- Information at local authority level for individual years to 2031;
- Forecasts of employment and Gross Value Added (GVA) by 29 sectors;
- Numbers of employed people by workplace and residence with net commuting;
- Unemployment;
- Total population, households and dwellings
- Carbon emissions by 4 groups

A2.6 An important feature of the EEFM is its links to other Oxford Economics forecasting models, ensuring that all EEFM forecasts are consistent with Oxford Economics' world, UK national and UK regional forecasts. The links may be summarised as,

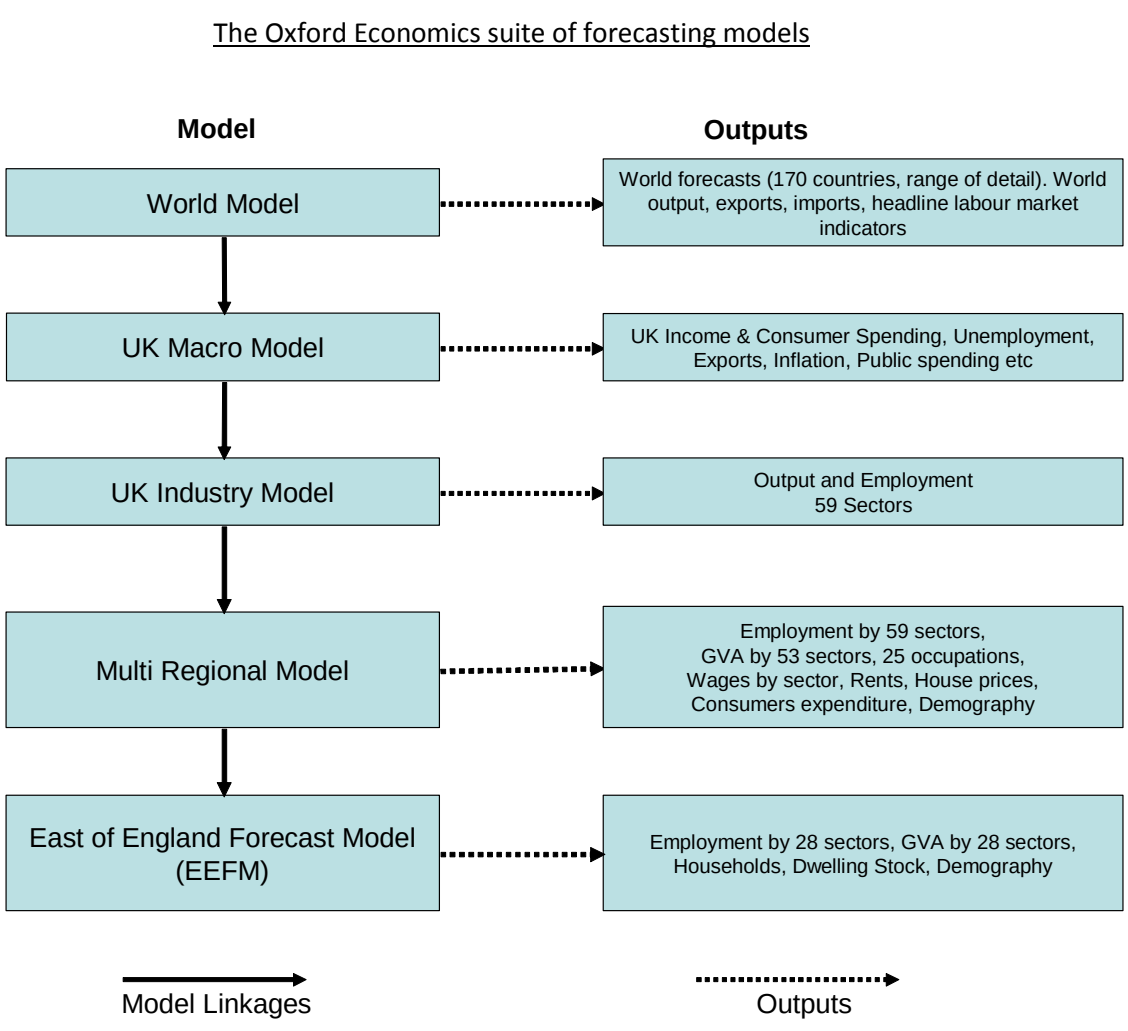


Figure 19: The Oxford Economics suite of forecasting models

A2.7 The overall Model structure of the EEFM captures the interdependence of the economy, demographic change and housing at a local level, as well as reflecting the impact of broader economic trends on the East of England. The employment forecasts take account of the supply and demand for labour, the demographic forecasts reflect labour market trends as they are reflected in migration (and natural change indirectly), and the housing forecasts take account of both economic and demographic factors. This structure allows scenarios to be designed which test the impact of variables upon each other – for example, the impact of housing supply on economic variables as well as vice versa.

A2.8 The EEFM is constructed on an annual basis. Historic data for most variables has been collected over 20 years to provide a basis for estimating the relationships between variables and for forecasting future trends. Forecasts are currently made up to 2031, reflecting the end dates of the available global, national and regional forecasts. But, the longer-term forecasts should be treated with caution, as unforeseen - but inevitable - future change in key causal factors will affect forecast accuracy. Medium-term forecasts are more likely to be better approximations than shorter-term ones, as there can usually be more confidence about medium-term trends than about short-term random fluctuations around the trend.

A2.9 The EEFM is very large, with over 7,000 economic, demographic and housing indicators. Each of these variables is linked to others within the Model, and many key variables are also linked to others in the wider Oxford Economics suite of models. The main internal relationships between variables are encapsulated below,

Main relationships between variables in the EEFM Model

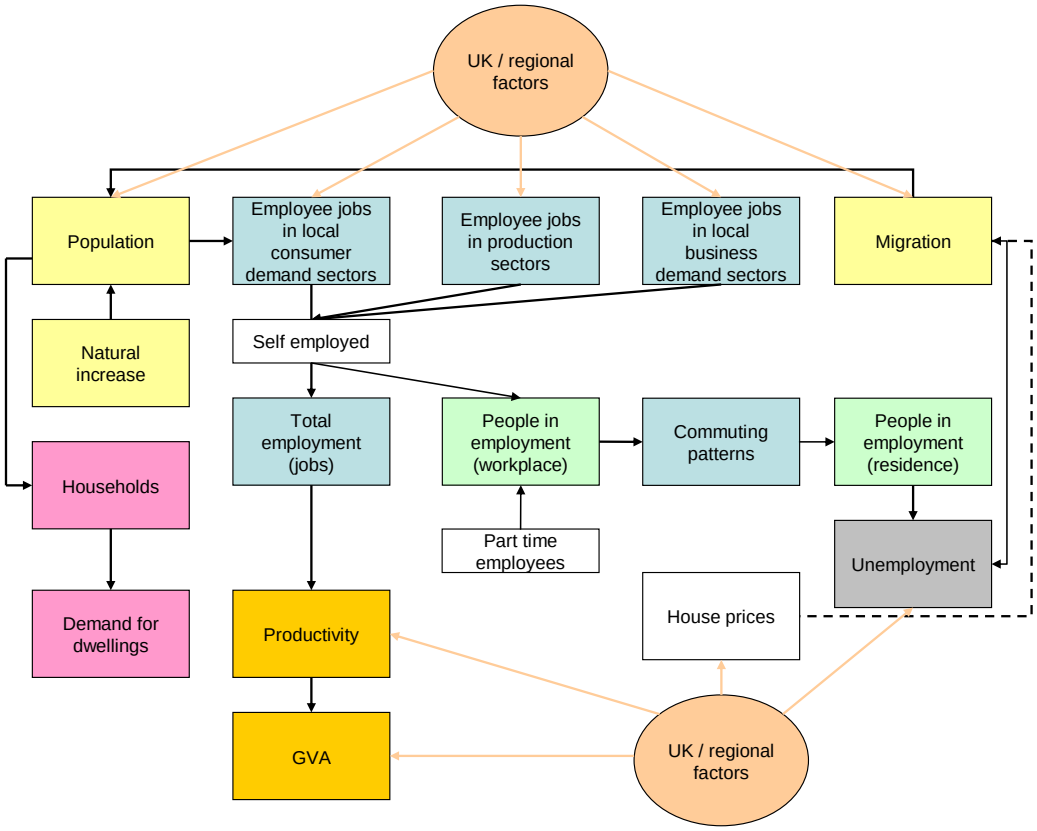


Figure 20: Relationships between variables in the EEFM Model

Appendix 3: Glossary

AMR	Annual Monitoring Reports
ASFR	Age Specific Fertility Rate
ASMR	Age Specific Mortality (Migration) Rate
CLG	Communities and Local Government
Commuting ratio	Ratio between the resident labour force and number of jobs in an area
Dwelling	A domestic property, either occupied or vacant
EEDA	East of England Development Agency
EEFM	East of England Forecasting Model
EELGA	East of England Local Government Association
EERA	East of England Regional Assembly
Emigration	Migration overseas from the UK
EPOA	Essex Planning Officers Association
GVA	Gross Value Added
Household	A person or a group of people living in the same residence
Immigration	Migration to the UK from overseas
Internal Migration	Migration within the UK
International Migration	Migration that crosses the UK border
Labour Force	Population aged 16+ that is economically active (either employed or unemployed)
LGA	Local Government Association
MYE	Mid-year estimate (population)
Natural change	Difference between the level of births and deaths
Net migration	Difference between the level in-migration and out-migration
ONS	Office for National Statistics
POPGROUP	Demographic forecasting software (Local Government Association)
RES	Regional Economic Strategy
RSS	Regional Spatial Strategy
SMR	Standardised Mortality Ratio
SNPP	Sub-national Population Projection
TFR	Total Fertility Rate
Unemployment rate	Number of people out of work as a percentage of the labour force