

A map of the Sheffield City Region, outlined in red, set against a light grey background. The map shows the regional boundary and internal district boundaries. The text is overlaid on the map.

# Sheffield City Region

Demographic forecasts: 2014–2034

Phase 2

April 2015

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# Acknowledgements

Demographic statistics used in this report have been derived from data from the Office for National Statistics licensed under the Open Government Licence v.1.0.

*The authors of this report do not accept liability for any costs or consequential loss involved following the use of the data and analysis referred to here, which is entirely the responsibility of the users of the information presented in this report.*

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# Executive Summary

- E1. In April 2014, Edge Analytics completed a macro-level examination of the jobs growth ambition of the Sheffield City Region (SCR) Local Enterprise Partnership (LEP). This 'Phase 1' analysis examined the potential level of household and dwelling growth associated with the delivery of 70,000 net new jobs within the SCR, as outlined in the LEP's Strategic Economic Plan (SEP).
- E2. 'Phase 2' (this report) presents new information and additional scenarios for the individual SCR districts, and for the aggregate LEP, to inform the assessment of future housing need<sup>1</sup>. This includes:
- The most recent, 2012-based, official sub-national population projection (SNPP) from the Office for National Statistics (ONS), which serves as the 'starting point' in the Phase 2 assessment of housing need.
  - A 'net nil' scenario, which provides an indication of the degree to which future demographic growth will be driven by the balance between births and deaths.
  - A 'dwelling-led' scenario, which assesses the demographic implications of the SCR's 'current planned provision' housing-growth trajectory.
  - Three 'jobs-led' scenarios, which assess the demographic implications of the SCR's 'Aspirational', 'Steady' and 'Baseline' jobs growth forecasts, given key assumptions on each district's economic activity rates, unemployment rate and commuting ratio.
  - Jobs-led (Aspirational, Steady and Baseline) 'sensitivity' scenarios, which consider the demographic implications of higher economic activity rates in the SCR districts.
- E3. The household growth implications of each scenario have been assessed using assumptions from the latest, 2012-based, household projection model from the Department for Communities and Local Government (DCLG). Sensitivities have also been run to examine the alternative household growth implications suggested by the previous 2008-based and 2011-based interim DCLG models. The dwelling growth implications of these different household growth trajectories have been assessed through the application of district-specific (2011 Census) vacancy rates.

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<sup>1</sup> This Phase 2 report presents evidence to inform the assessment of future need. It does not represent policy.

The range of dwelling growth outcomes suggested by the scenarios (relative to the 2012-based SNPP) is presented below, providing a comparison of the influence of alternative drivers of demographic growth.

Sheffield City Region - core and sensitivity dwelling growth outcomes (HH-12)

*Note: household and dwelling growth outcomes have been assessed using assumptions from the 2012-based DCLG household projection model, together with district specific vacancy rates*

Scenario	Average annual dwelling requirement (2014–2034)									
	SCR	Barnsley	Bassetlaw	Bolsover	Chesterfield	Derbyshire Dales	Doncaster	North East Derbyshire	Rotherham	Sheffield
<b>SNPP-2012</b>	<b>5,122</b>	<b>808</b>	<b>318</b>	<b>210</b>	<b>209</b>	<b>237</b>	<b>597</b>	<b>233</b>	<b>614</b>	<b>1,896</b>
Net Nil	3,125	414	96	82	103	-32	613	5	427	1,417
Dwelling-led Planned	6,374	1,070	456	253	380	295	1,230	315	926	1,450
Jobs-led Aspirational	9,246	1,181	629	609	626	387	1,493	497	1,161	2,663
Jobs-led Steady	7,515	745	383	892	455	268	1,193	316	1,174	2,088
Jobs-led Baseline	5,775	309	135	1,173	283	149	893	134	1,188	1,512
<i>Jobs-led Aspirational SENS1</i>	7,424	919	554	525	558	401	1,202	438	932	1,895
<i>Jobs-led Steady SENS1</i>	5,761	504	314	796	391	282	914	262	945	1,353
<i>Jobs-led Baseline SENS1</i>	4,088	87	73	1,066	223	161	626	84	957	810
<i>Jobs-led Aspirational SENS2</i>	6,669	822	506	489	510	369	1,079	397	830	1,667
<i>Jobs-led Steady SENS2</i>	5,035	414	270	755	346	252	796	224	843	1,135
<i>Jobs-led Baseline SENS2</i>	3,392	5	33	1,020	182	133	513	49	855	602

E4. This Phase 2 report provides a robust and consistent suite of information for the individual local authority districts within the SCR. However, a number of issues should also be considered in the assessment of housing need:

- The latest DCLG 2012-based household projection data has provided national and local authority projections and assumptions for the total number of households by age-group and relationship status group (i.e. Stage One). DCLG intends to release additional data (Stage Two) which will enable disaggregation of these projections by each of seventeen household types. Whilst it is not expected that the data will

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change the household growth assumptions implied by the Stage One, it is recommended that the scenario outcomes are reconsidered when the additional Stage Two data is released by DCLG, providing additional detail on the profile of growth by household-type implied by the 2012-based household projection assumptions.

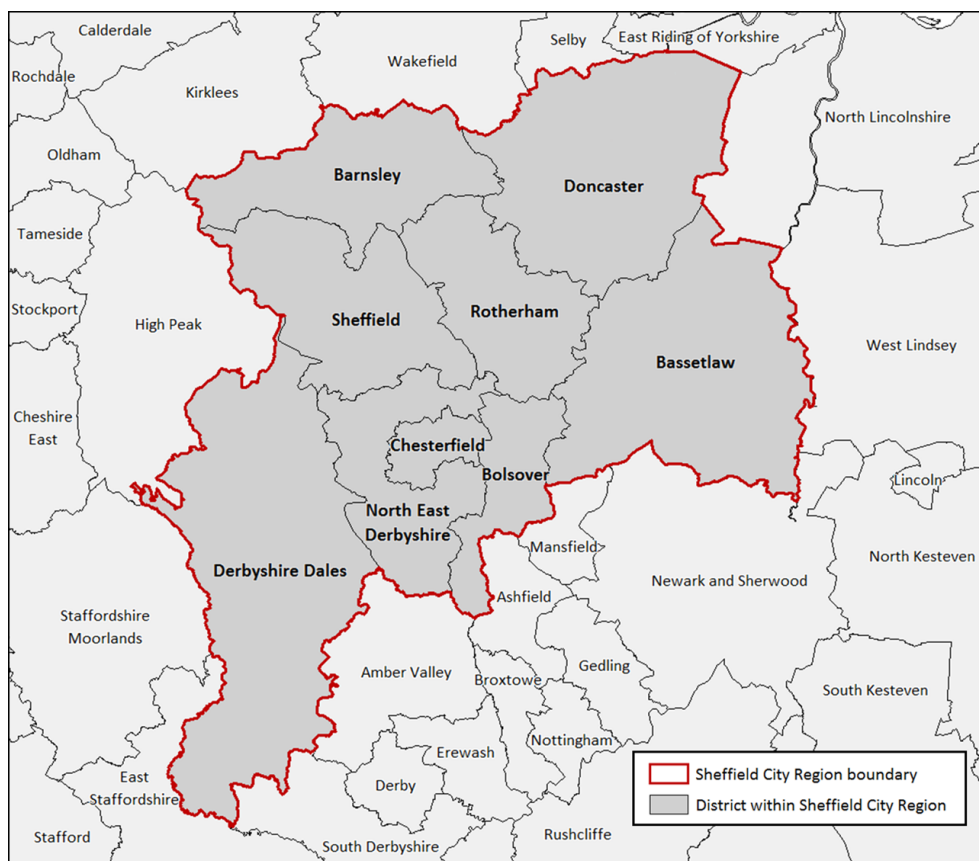
- SCR member authorities might also consider how alternative commuting assumptions may affect the three jobs-led scenario outcomes. Altering the balance between the size of the resident workforce and the number of jobs available could result in alternative scenario outcomes.

E5. The evidence presented in this Phase 2 report is intended to be considered by each SCR local authority in conjunction with additional (area specific) evidence to inform spatial policy developments and to facilitate the statutory duty to co-operate. Whilst the assumptions and base data used are appropriate, it may be necessary for local authorities to consider alternative available or more recent local data to inform their own objective assessment of housing need.

# 1. Introduction

## Context

- 1.1 The Sheffield City Region (SCR) Local Enterprise Partnership (LEP) consists of nine local authorities; Barnsley, Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales, Doncaster, North East Derbyshire, Rotherham and Sheffield (Figure 1). The SCR is overlapped to the north by the Leeds City Region LEP and to the south by the Derby, Derbyshire, Nottingham and Nottinghamshire LEP. The SCR has a population of over 1.8 million, providing approximately 700,000 jobs.



Source: Contains Ordnance Survey data © Crown copyright and database right 2013

Figure 1: Sheffield City Region

- 1.2 In April 2014, Edge Analytics completed a macro-level examination of the SCR's jobs growth ambition. This 'Phase 1' analysis examined the potential level of household and dwelling growth

associated with the delivery of 70,000 net new jobs within the SCR, as outlined in the SCR's Strategic Economic Plan (SEP)<sup>2</sup>.

- 1.3 'Phase 2' (this report) is intended to complement the Phase 1 analysis, facilitating the statutory 'duty to co-operate' by providing a robust and consistent evidence base for the individual local authority districts within the SCR. This includes a review of the latest official population and household projections from the Office for National Statistics (ONS) and the Department for Communities and Local Government (DCLG) respectively, in addition to alternative trend, dwelling-led and jobs-led scenarios.

## Requirements

- 1.4 The SCR has recognised that the process of co-operation between neighbouring authorities can be facilitated if approaches and methods used to generate evidence and formulate plans are comparable, and if underpinning data and assumptions are consistent.
- 1.5 The SCR has commissioned Edge Analytics to produce a suite of population and household forecasts for each of its constituent districts, using the latest demographic inputs and economic assumptions. The forecasts will form a key part of the duty to co-operate, facilitating discussions around the distribution of population growth across the SCR.

## Approach

### *Official Guidelines*

- 1.6 The development and presentation of demographic evidence to support Local Plans is subject to an increasing degree of public scrutiny. The National Planning Policy Framework (NPPF)<sup>3</sup> and Planning Practice Guidance (PPG)<sup>4</sup> provide guidance on the appropriate approach to the objective assessment of housing need.

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<sup>2</sup> <http://sheffieldcityregion.org.uk/wp-content/uploads/2014/03/SCR-Growth-Plan-March-2014.pdf>

<sup>3</sup> <http://planningguidance.planningportal.gov.uk/blog/policy/>

<sup>4</sup> <http://planningguidance.planningportal.gov.uk/blog/guidance/>



- 1.7 These advocate that official statistics should provide a starting point for the evaluation of growth scenarios and that local circumstances, alternative assumptions and the most recent demographic evidence should be considered (PPG paragraphs 2a-015 and 2a-017). Evidence that links demographic change to forecasts of economic growth should also be assessed (PPG paragraph 2a-018).
- 1.8 The use of demographic models, which enable a range of growth scenarios to be evaluated, is now a key component of the objective assessment process. The POPGROUP suite of demographic models, which is widely used by local authorities and planners across the UK, provides a robust and appropriate forecasting methodology. For further information on POPGROUP, refer to Appendix A.
- 1.9 The choice of assumptions used within POPGROUP has an important bearing on scenario outcomes. This is particularly the case when trend projections are considered alongside population and household forecasts that are linked directly to anticipated jobs growth. The scrutiny of demographic assumptions is now a critical component of the public inspection process, providing much of the debate around the appropriateness of a particular objective assessment of housing need.

### *Edge Analytics Approach*

- 1.10 Edge Analytics has developed a range of demographic scenarios for each of the nine SCR districts using POPGROUP (v.4) technology.
- 1.11 As the starting point of this Phase 2 assessment, the most recent, 2012-based, sub-national population projection (SNPP) for each of the SCR districts (and the aggregate LEP) is presented, with an analysis of the underlying components of population change. These statistics are compared to previous population estimates and to the historical data on births, deaths and migration.
- 1.12 A number of alternative scenarios have been developed and are compared to the 2012-based SNPP 'benchmark'. These include:
- A 'net nil' scenario, with net internal migration flows and net international migration counts set to zero, providing an indication of the degree to which future demographic growth is driven by the balance between births and deaths.

- A 'dwelling-led' scenario, to assess the demographic implications of the SCR's 'current planned provision' housing-growth trajectory.
- Three 'jobs-led' scenarios, to assess the demographic implications of the SCR's 'Aspirational', 'Steady' and 'Baseline' jobs growth forecasts.
- Jobs-led (Aspirational, Steady and Baseline) sensitivity scenarios, to examine the impact of alternative economic activity assumptions.

1.13 All scenarios have been run to a 2034 horizon, with historical data included for the period 2001–2013.

1.14 The household growth implications of the scenarios has been assessed using assumptions from the 2012-based household projection model, from DCLG. Sensitivities have also been run to examine the alternative household growth implications suggested by the 2008-based and 2011-based interim household projection models.

## Report Structure

1.15 The report is structured as follows:

- Section 2 provides headline statistics, illustrating the extent to which the SCR districts (and the LEP as a whole) have been affected by demographic change between the 2001 and 2011 Censuses and in the latest mid-year population estimates.
- Section 3 reviews the demographic evidence that has become available since the Phase 1 report was completed, including the 2012-based population and household projections.
- Section 4 provides a summary of the scenarios that have been tested for the SCR districts, whilst Section 5 presents the outcomes of these scenarios in terms of population, household, dwelling and jobs growth.
- Section 6 summarises the report, providing an overview of the analysis and identifying a number of key issues for the SCR member authorities to consider.
- Appendix A presents an overview of the POPGROUP methodology.

- Appendix B provides detail on the data inputs and assumptions used in the development of the POPGROUP scenarios.

## 2. SCR District Profiles

### Headline Demographic Change 2001–2011

- 2.1 The 2011 Census recorded a resident population of over 1.8 million within the SCR LEP, a 5.6% increase over the 2001–2011 decade. Household and dwelling growth between the Censuses was slightly higher at 6.6%, suggesting a reduction in average household size (Table 1).

Table 1: Sheffield City Region, demographic change, 2001–2011

Source: ONS, 2001 and 2011 Census

	2001	2011	Change	
			Absolute	Percentage
<b>Population</b>	1,710,749	1,806,257	95,508	5.6%
<b>Households</b>	719,121	766,520	47,399	6.6%
<b>Dwellings</b>	744,950	794,411	49,461	6.6%

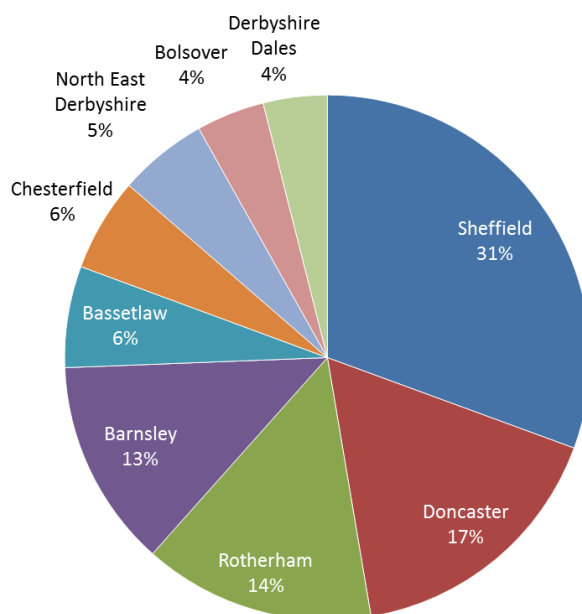
#### *Population Change*

- 2.2 Between the 2001 and 2011 Censuses, rates of population growth varied across the nine SCR local authority districts. Sheffield experienced the highest rate of growth (7.7% over the decade) whilst Derbyshire Dales experienced the lowest rate of growth (2.2%) (Table 2).
- 2.3 Between 2001–2011, the largest absolute change occurred in Sheffield, with a population increase of almost 40,000. Of the remaining districts, only Barnsley and Doncaster experienced population growth in excess of 10,000 (Table 2).
- 2.4 In 2011, four districts (Sheffield, Doncaster, Rotherham and Barnsley) accounted for almost 75% of the SCR's population, approximately 1.3 million in total. The remaining districts (Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales and North East Derbyshire) accounted for just over 25% of the SCR's population, approximately 463,000 (Table 2, Figure 2).

Table 2: Sheffield City Region, population change, 2001–2011

Source: ONS, 2001 and 2011 Census

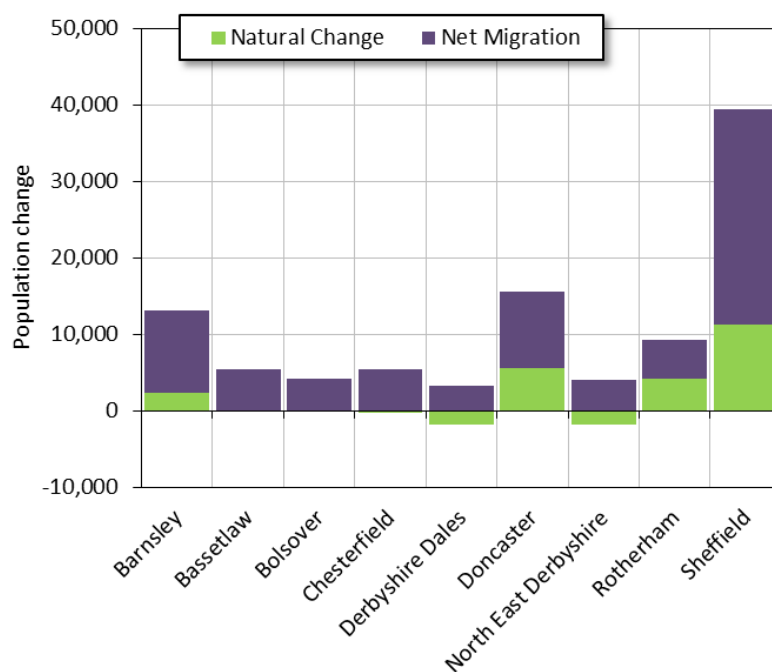
Area	Population			
	2001	2011	Change	
			Absolute	Percentage
Barnsley	218,101	231,221	13,120	6.0%
Bassetlaw	107,578	112,863	5,285	4.9%
Bolsover	71,763	75,866	4,103	5.7%
Chesterfield	98,768	103,788	5,020	5.1%
Derbyshire Dales	69,616	71,116	1,500	2.2%
Doncaster	286,821	302,402	15,581	5.4%
North East Derbyshire	96,833	99,023	2,190	2.3%
Rotherham	248,045	257,280	9,235	3.7%
Sheffield	513,224	552,698	39,474	7.7%
<b>Sheffield City Region</b>	<b>1,710,749</b>	<b>1,806,257</b>	<b>95,508</b>	<b>5.6%</b>



Source: ONS, 2011 Census

Figure 2: Sheffield City Region, population distribution, 2011

- 2.5 Over the 2001–2011 decade, population change within the SCR was driven by a combination of natural change (the difference between births and deaths) and net migration (the overall balance of growth resulting from in-migration, out-migration, immigration and emigration).
- 2.6 Between 2001–2011, net migration had a positive impact upon growth within each of the SCR districts, with the largest net in-flow experienced in Sheffield (Figure 5).
- 2.7 Whilst net migration was consistently positive across the SCR, the impact of natural change was variable. Natural change made the largest contribution to growth in Sheffield, with smaller positive impacts in Doncaster, Barnsley and Rotherham. For the districts outside the South Yorkshire boundary (Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales and North East Derbyshire) natural change had a small negative impact. In these areas, an excess of deaths over births resulted in a small population decline.

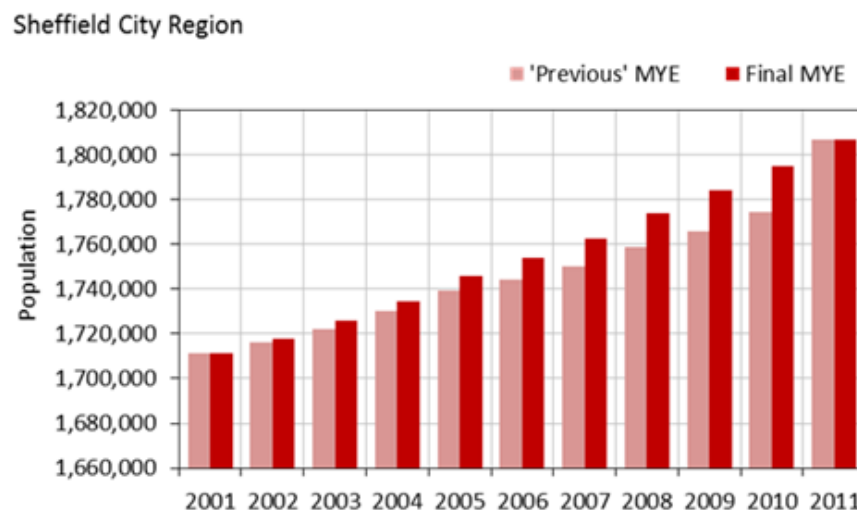


Source: ONS, 2001 and 2011 Census

Figure 5: Sheffield City Region, components of population change, 2001–2011

## Mid-Year Population Estimates

- 2.8 Between successive censuses, population estimation is necessary. These mid-year population estimates (MYEs) are derived through estimation of the components of population change (i.e. counts of births and deaths and counts of internal and international migration).
- 2.9 Following the 2011 Census, the 2002–2010 MYEs were ‘rebased’ to align them with the new population evidence<sup>5</sup>, ensuring the correct transition of the growth and age profile of the population over the 2001–2011 decade.
- 2.10 For the SCR, as a collection of nine districts, the 2011 Census population total proved to be *higher* than that suggested by the trajectory of growth from the previous MYEs, implying that previous MYEs *under-estimated* the scale of population growth evident within the SCR since the 2001 Census (Figure 3).
- 2.11 This under-estimation was most pronounced in Chesterfield, Derbyshire Dales and Doncaster, with the 2011 Census population total for each of these districts proving to be substantially higher than that suggested by the previous MYEs (Figure 4 – Figure 6).

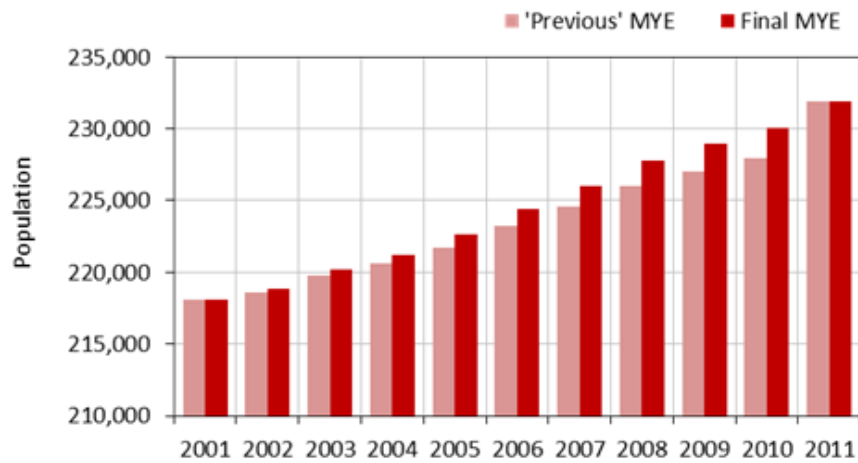


Source: ONS

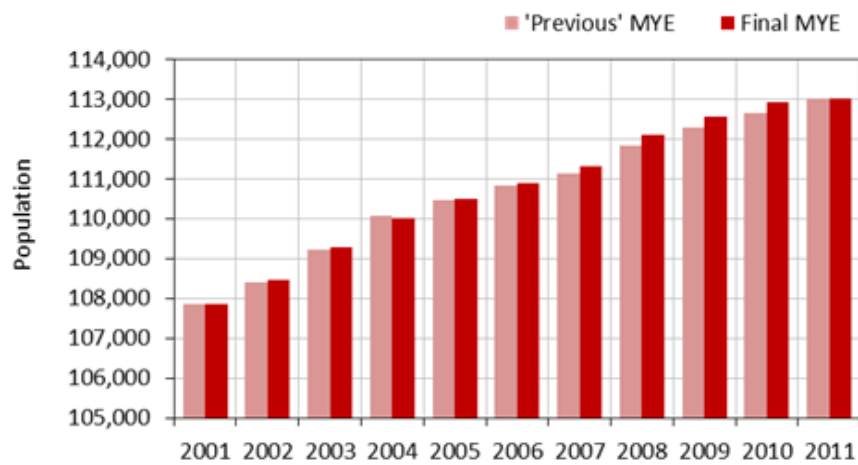
Figure 3: Sheffield City Region, mid-year population estimates, 2001–2011

<sup>5</sup> Revised Annual Mid-year Population Estimates, 2001 to 2010. ONS, December 2013  
[http://www.ons.gov.uk/ons/dcp171778\\_345500.pdf](http://www.ons.gov.uk/ons/dcp171778_345500.pdf)

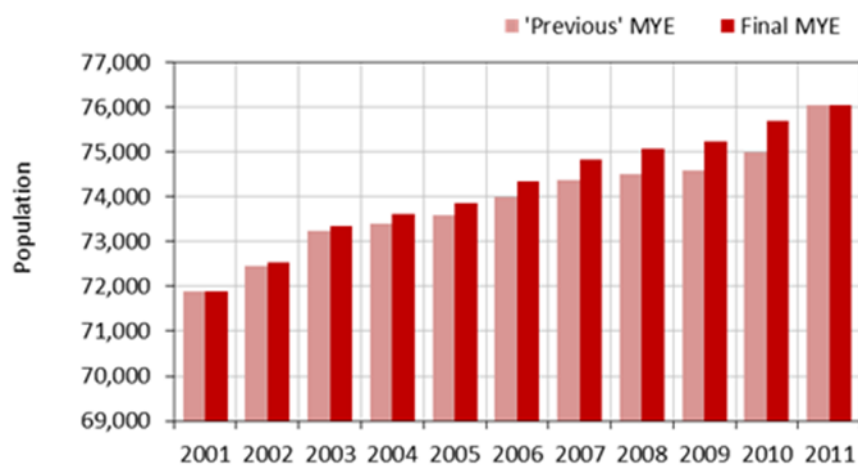
## Barnsley



## Bassetlaw



## Bolsover

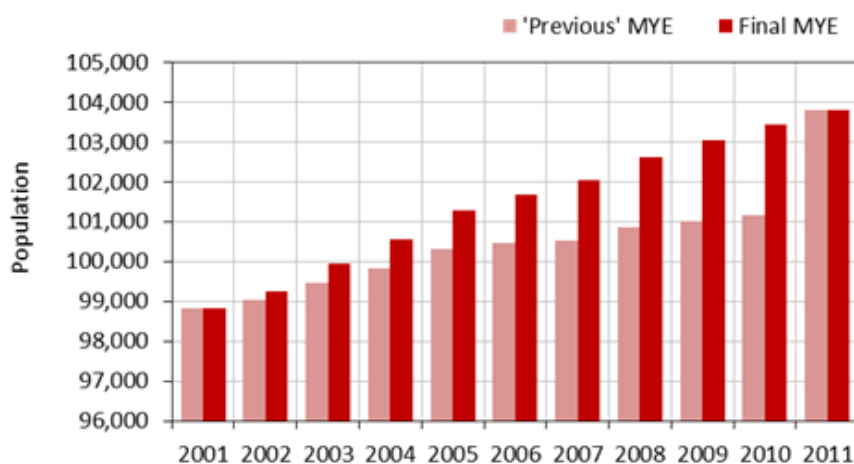


Source: ONS

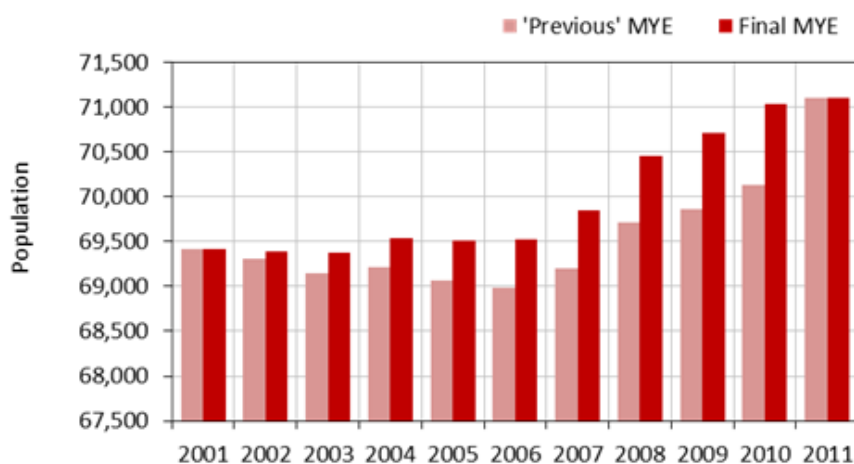
Figure 4: Barnsley, Bassetlaw and Bolsover mid-year population estimates, 2001–2011



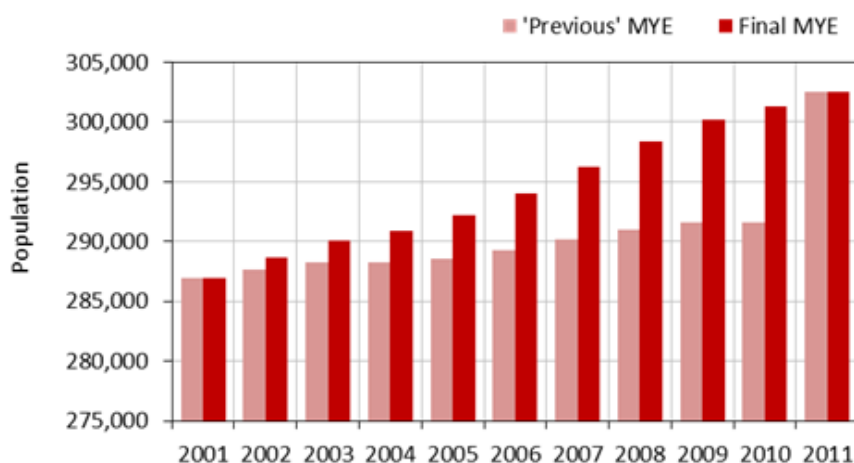
## Chesterfield



## Derbyshire Dales



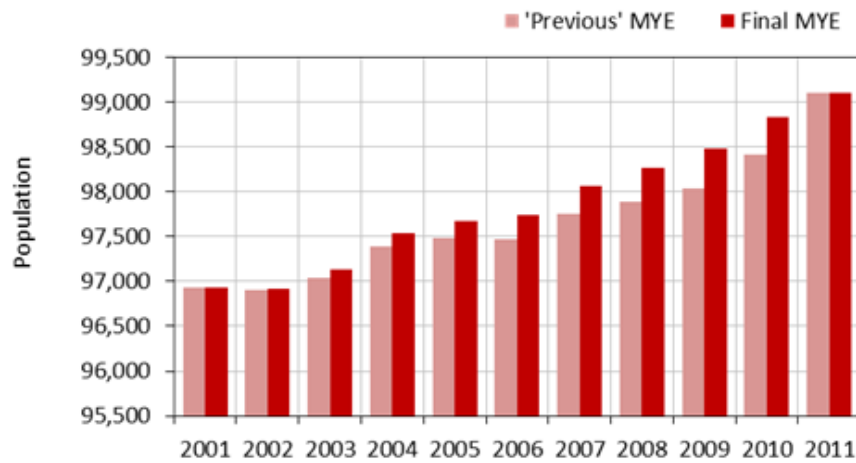
## Doncaster



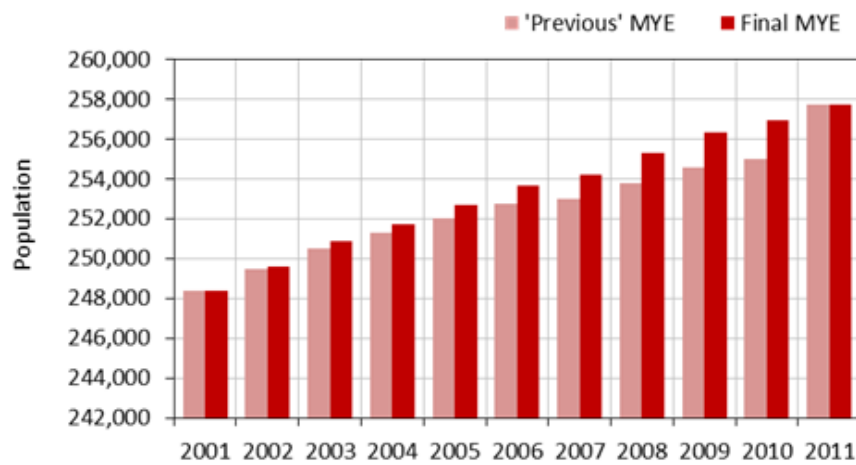
Source: ONS

Figure 5: Chesterfield, Derbyshire Dales and Doncaster mid-year population estimates, 2001–2011

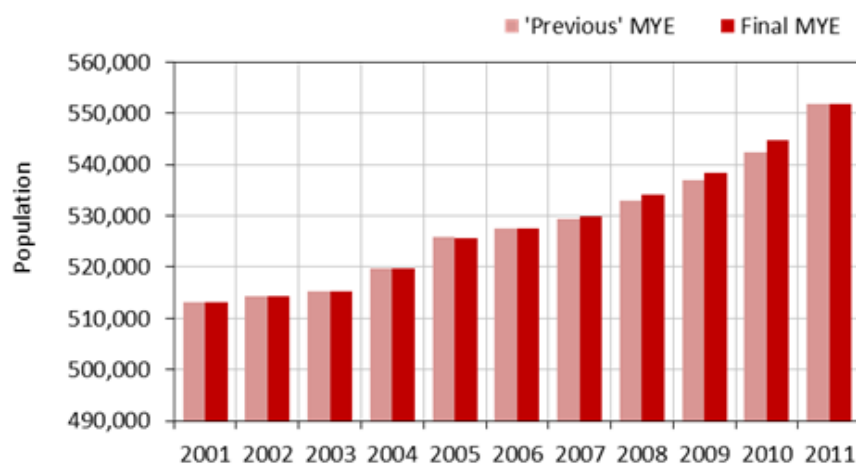
## North East Derbyshire



## Rotherham



## Sheffield

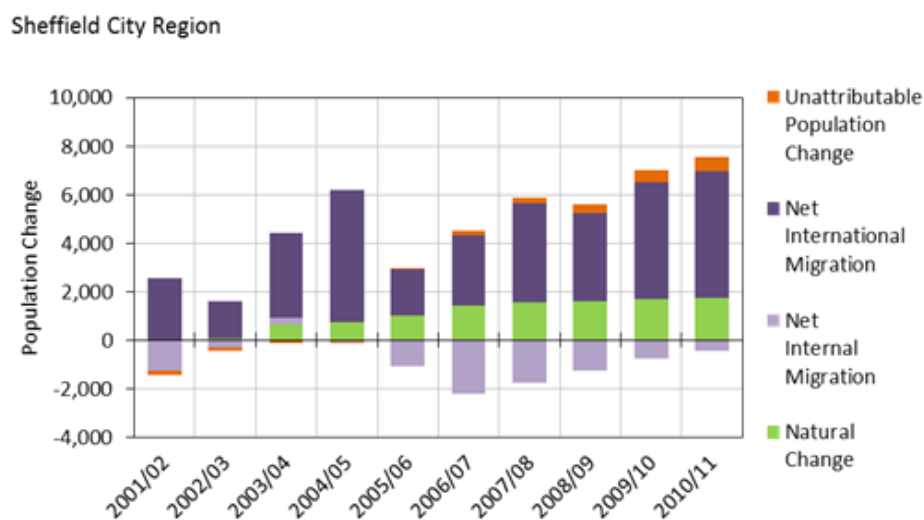


Source: ONS

Figure 6: North East Derbyshire, Rotherham and Sheffield mid-year population estimates, 2001–2011

## Components of Population Change

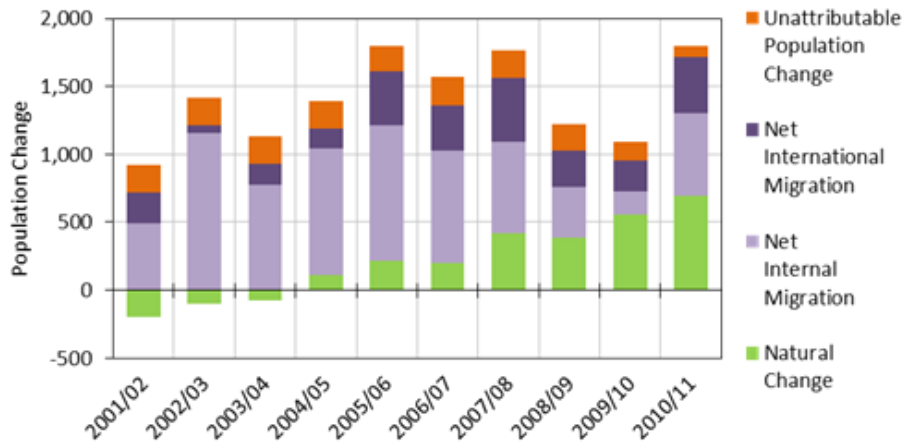
- 2.12 The rebasing of the MYEs involved the recalibration of the components of population change for 2001/02–2010/11.
- 2.13 Between censuses, births and deaths are accurately recorded in vital statistics registers and provide a robust measure of ‘natural change’ (the difference between births and deaths) in a geographical area. Given that births and deaths are robustly recorded, and assuming that the 2001 Census provided a robust population count, the ‘error’ in the MYEs is due to the difficulties associated with the estimation of migration.
- 2.14 Internal migration is adequately measured through the process of GP registration, although data robustness may be lower where there is under-registration in certain age-groups (young males in particular). It is therefore most likely that the ‘error’ in the previous MYEs was associated with the mis-estimation of international migration, i.e. the balance between immigration and emigration flows to and from the SCR districts.
- 2.15 However, ONS has not explicitly assigned the MYE adjustment to international migration. Instead it has identified an additional ‘unattributable population change’ (UPC) component, suggesting it has not been able to accurately identify the source of the 2001–2011 ‘error’ in population estimation (Figure 7 – Figure 10).



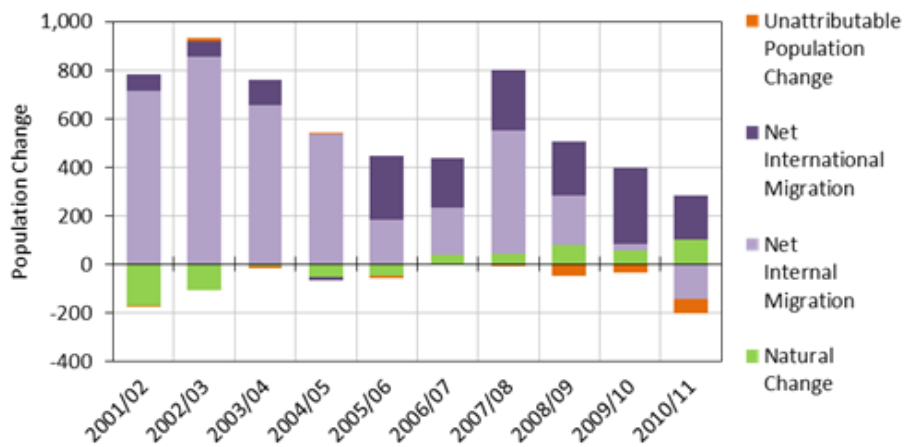
Source: ONS

Figure 7: Sheffield City Region, components of change, 2001/02–2010/11

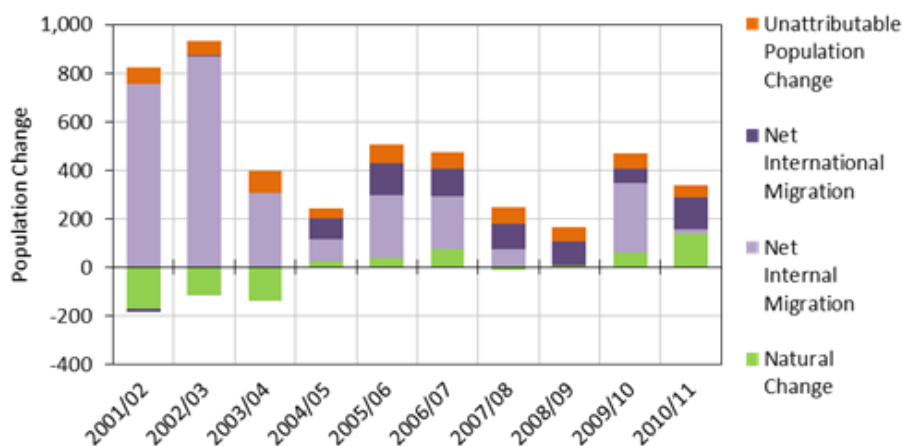
**Barnsley**



**Bassetlaw**



**Bolsover**



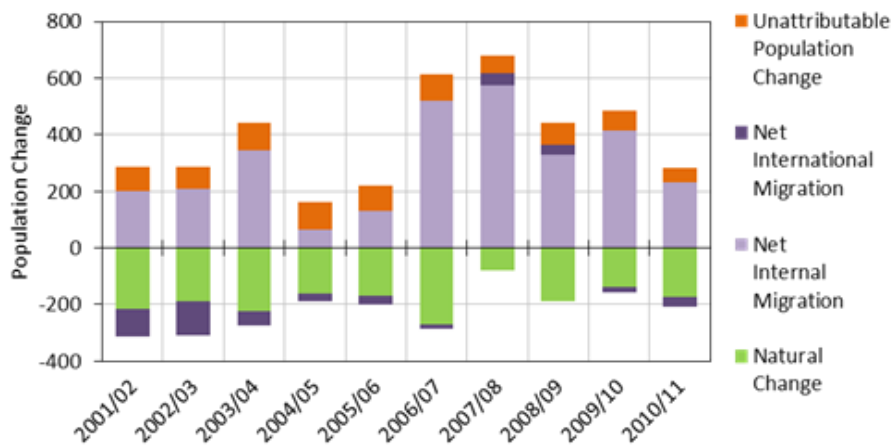
Source: ONS

Figure 8: Barnsley, Bassetlaw and Bolsover components of change, 2001/02–2010/11

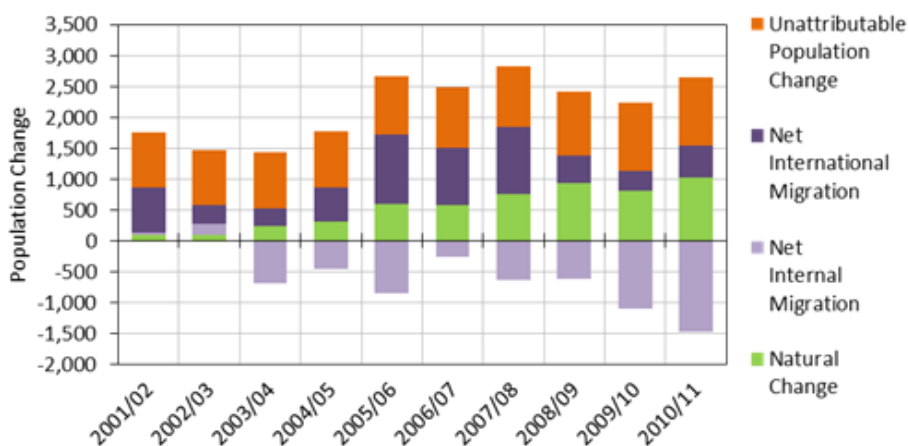
Chesterfield



Derbyshire Dales



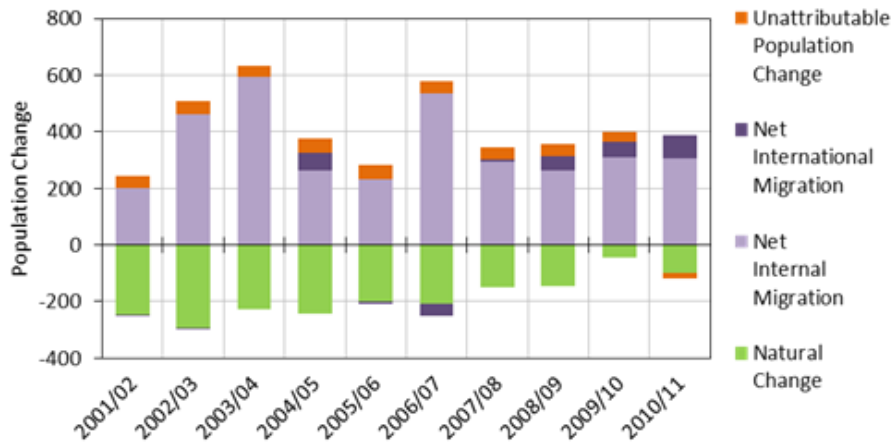
Doncaster



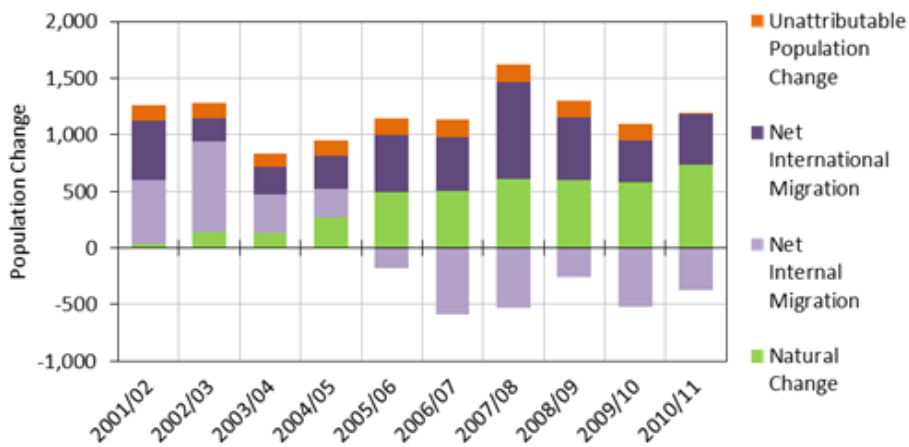
Source: ONS

Figure 9: Chesterfield, Derbyshire Dales and Doncaster components of change, 2001/02–2010/11

North East Derbyshire



Rotherham



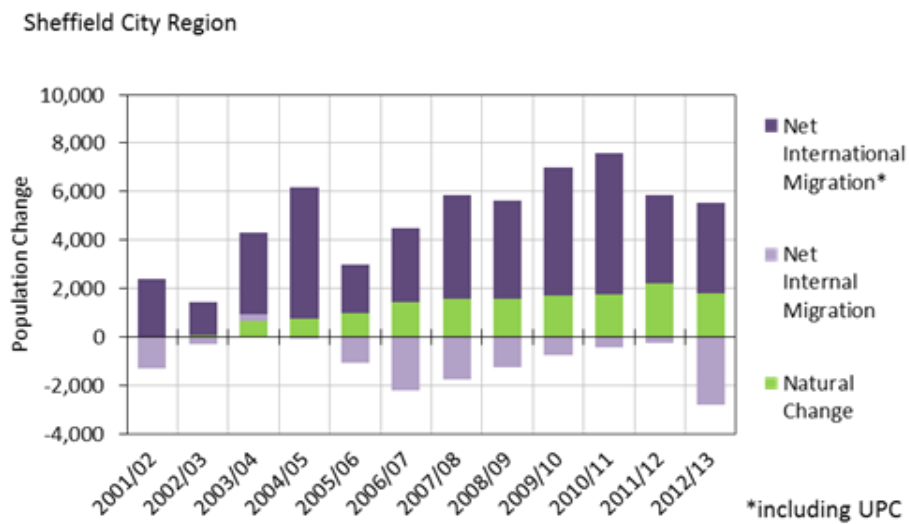
Sheffield



Source: ONS

Figure 10: North East Derbyshire, Rotherham and Sheffield components of change, 2001/02–2010/11

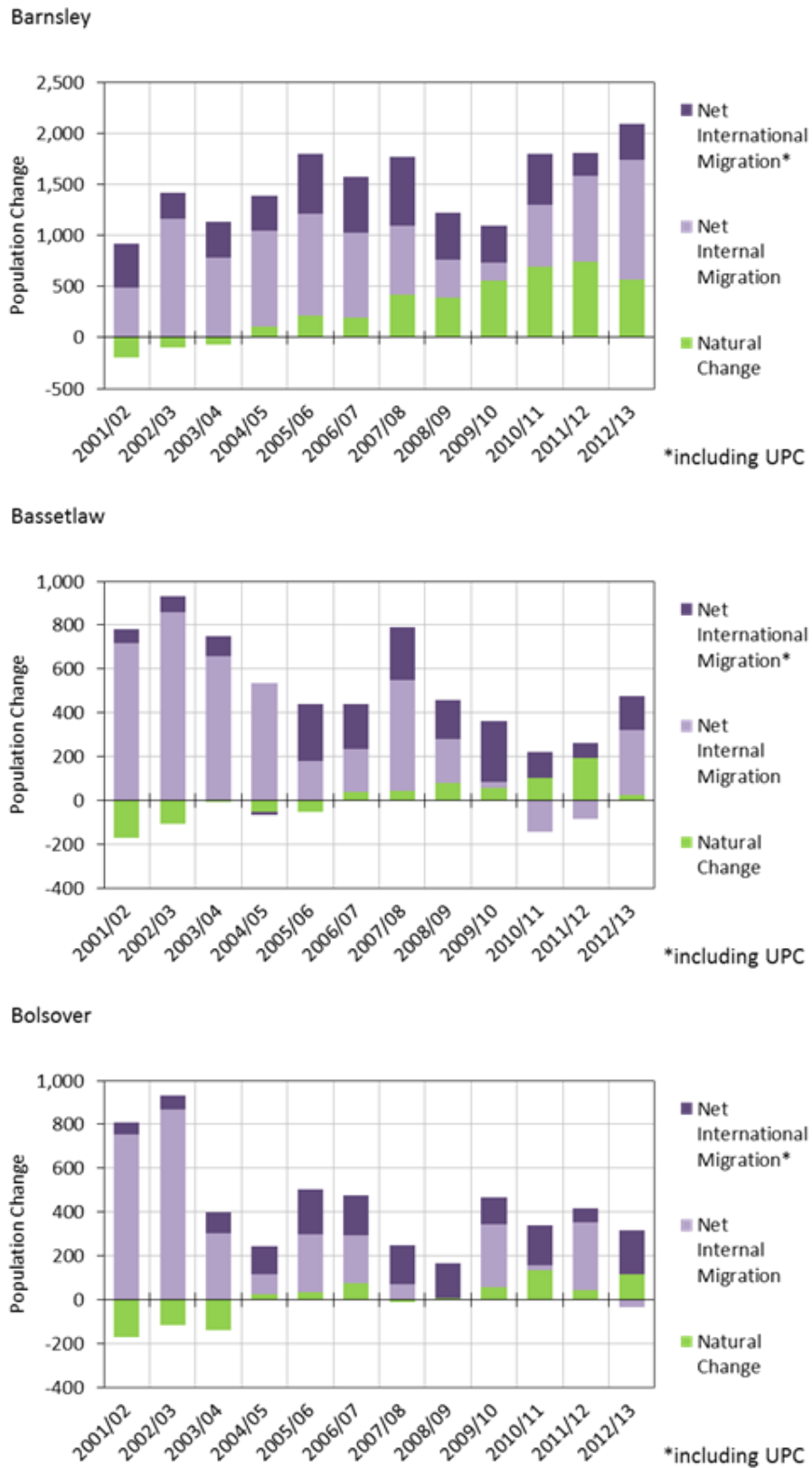
- 2.16 For demographic analysis, the classification of UPC is unhelpful, but given the robustness of births, deaths and internal migration statistics compared to international migration estimates, it is assumed that it is most likely to be associated with the latter.
- 2.17 With the assumption that the UPC element is assigned to international migration (for estimates up to 2011) and with the inclusion of statistics from the 2012 and 2013 MYEs (released by ONS in June 2013 and June 2014 respectively), a twelve-year profile of the ‘components of population change’ for the SCR and its nine districts is presented (Figure 11 – Figure 14).
- 2.18 For the SCR as a whole, natural change has had a positive impact upon population growth since 2003, with an excess of births over deaths. At sub-regional level, a similar trend has been experienced in Barnsley, Doncaster, Rotherham and Sheffield. Conversely, Derbyshire Dales and North East Derbyshire have experienced negative natural change since 2001, with the number of deaths exceeding the number of births. For the remaining districts (Bassetlaw, Bolsover and Chesterfield), the impact of natural change has been more variable.
- 2.19 Net internal migration between the SCR and elsewhere in the UK resulted in a net inflow in 2003/04, which reverted to a net outflow for the remainder of the period. At district level, a similar trend has been experienced in Doncaster, Rotherham and Sheffield, with a net outflow of migrants occurring between 2005/06 – 2012/13. The districts of Barnsley, Derbyshire Dales and North East Derbyshire have experienced net in-migration since 2001. The remaining districts (Bassetlaw, Bolsover and Chesterfield) have experienced a declining net inflow of internal migrants since 2001/02.
- 2.20 For the SCR as a whole, net international migration (the difference between immigration and emigration) has had a positive impact upon population growth in all years since 2001/02. At district level, all areas (with the exception of Bassetlaw and Derbyshire Dales) have experienced a consistent net inflow of international migrants since 2001, although the inflow has been most pronounced in Chesterfield, Doncaster, Rotherham and Sheffield.



Source: ONS

Figure 11: Sheffield City Region, components of change 2001/02 – 2012/13, including the UPC component





Source: ONS

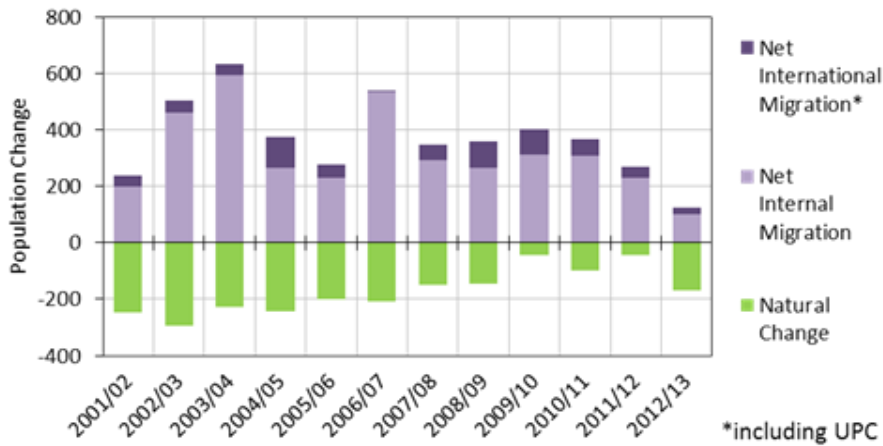
Figure 12: Barnsley, Bassetlaw and Bolsover components of change 2001/02 – 2012/13, including the UPC component



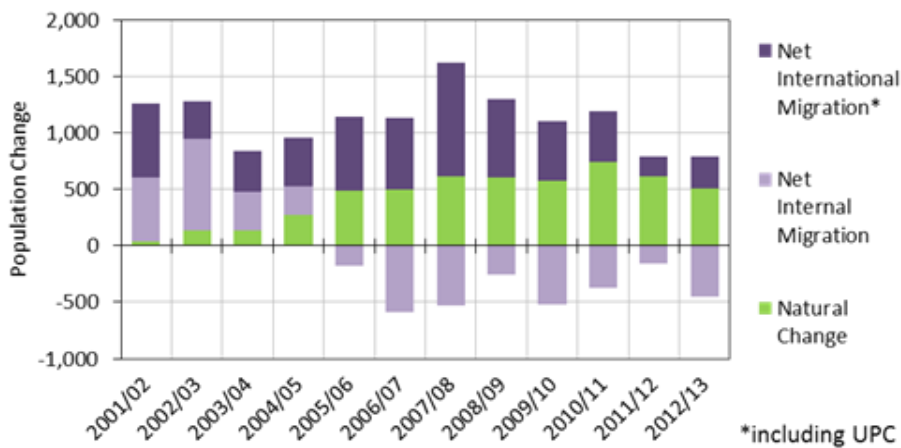
Source: ONS

Figure 13: Chesterfield, Derbyshire Dales and Doncaster components of change 2001/02–2012/13, including the UPC component

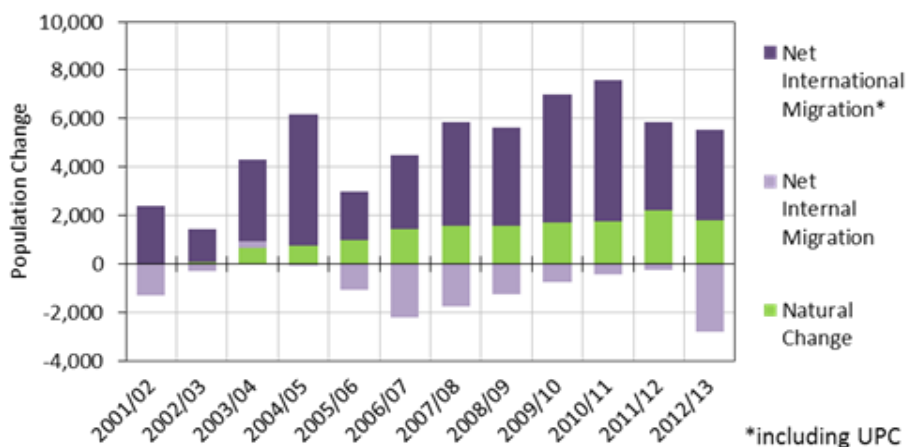
North East Derbyshire



Rotherham



Sheffield



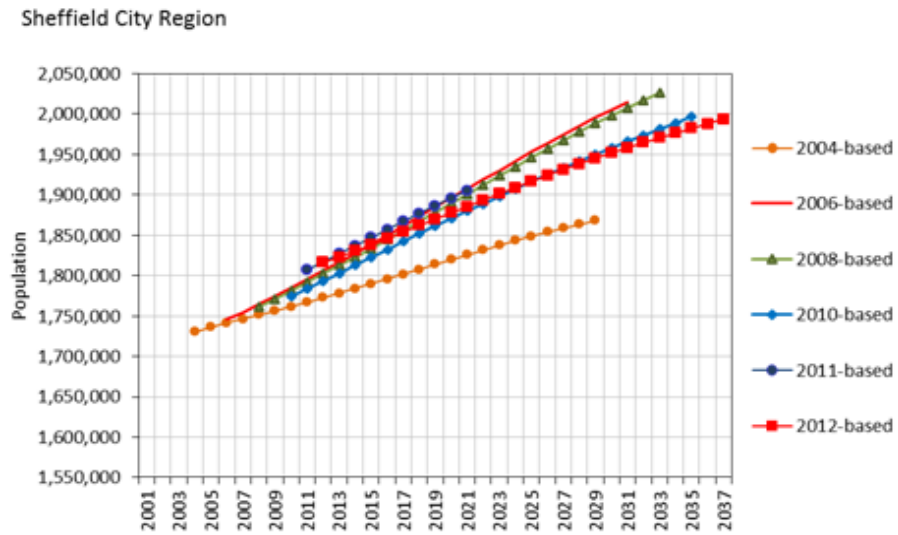
Source: ONS

Figure 14: North East Derbyshire, Rotherham and Sheffield components of change 2001/02–2012/13, including the UPC component

## 3. Official Projections

### 2012-Based Sub-National Population Projection

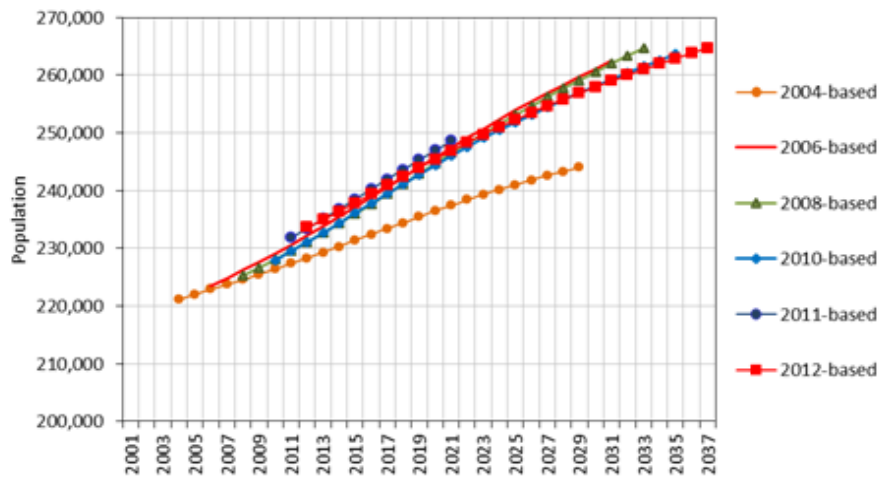
- 3.1 In the development and analysis of population forecasts, it is important to benchmark any growth alternatives against the latest official population projection.
- 3.2 The Phase 1 SCR report used the ONS 2010-based sub-national population projection as the trend benchmark.
- 3.3 For the Phase 2 analysis, the 2012-based sub-national population projection, released by ONS in May 2014, is the most recent official population projection. This projection is compared to the earlier ONS population projections to illustrate the variation in projected growth outcomes for the SCR and each of its nine districts (Figure 15 – Figure 18).
- 3.4 For the SCR as a whole, the 2012-based SNPP suggests a *lower* rate of population growth than the 2010-based projection. Under the 2012-based SNPP, the population of the SCR is projected to increase by 177,001 over the 2012–2037 projection period, a 9.7% increase. Under the 2010-based SNPP, the population was projected to increase by 12.5% over its 25-year projection period (2010–2035).
- 3.5 For the SCR districts, the rate of population growth suggested by the 2012-based SNPP and the 2010-based SNPP is compared (Table 3). In all cases, a lower rate of population growth is suggested by the 2012-based SNPP, compared to the 2010-based SNPP. Growth suggested by the 2012-based SNPP ranges from 4.3% (Doncaster) to 13.6% (Sheffield), whilst growth suggested by the 2010-based SNPP ranges from 7.9% (Doncaster) to 15.7% (Barnsley).



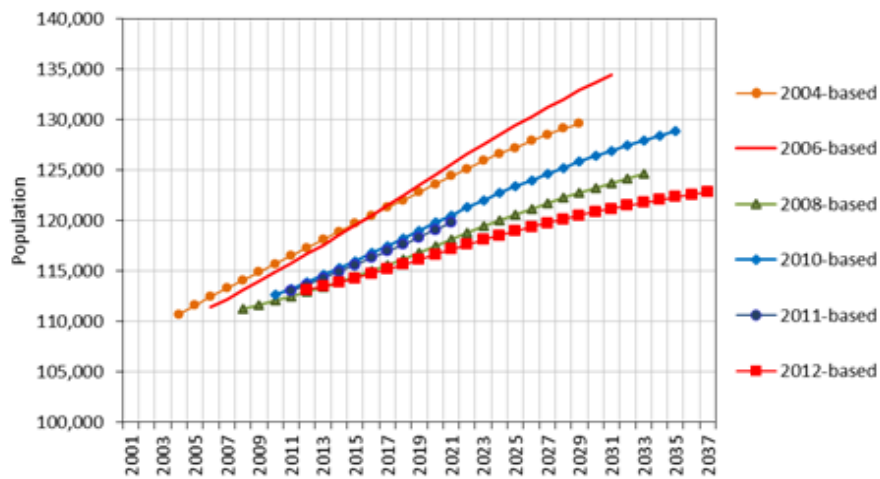
Source: ONS

Figure 15: Sheffield City Region, official population projections

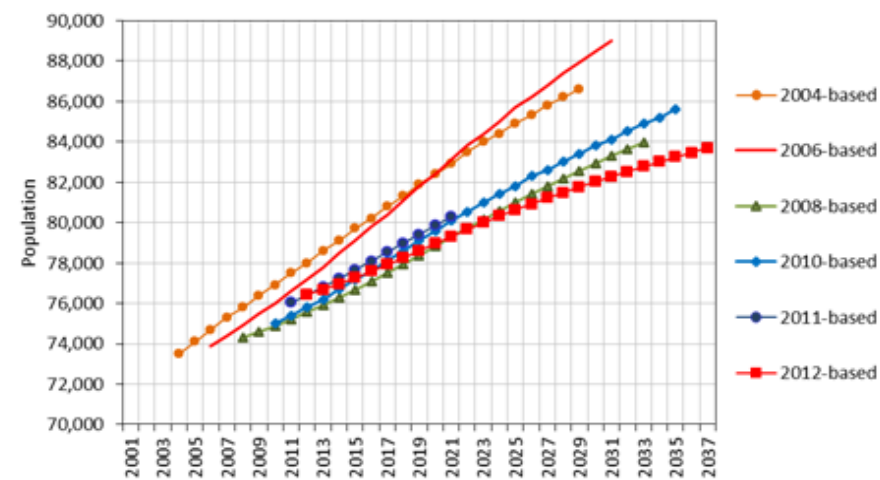
Barnsley



Bassetlaw



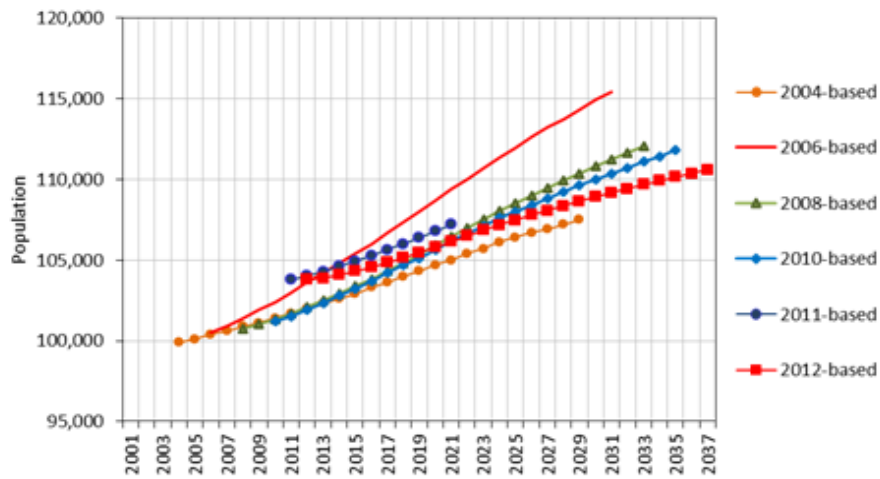
Bolsover



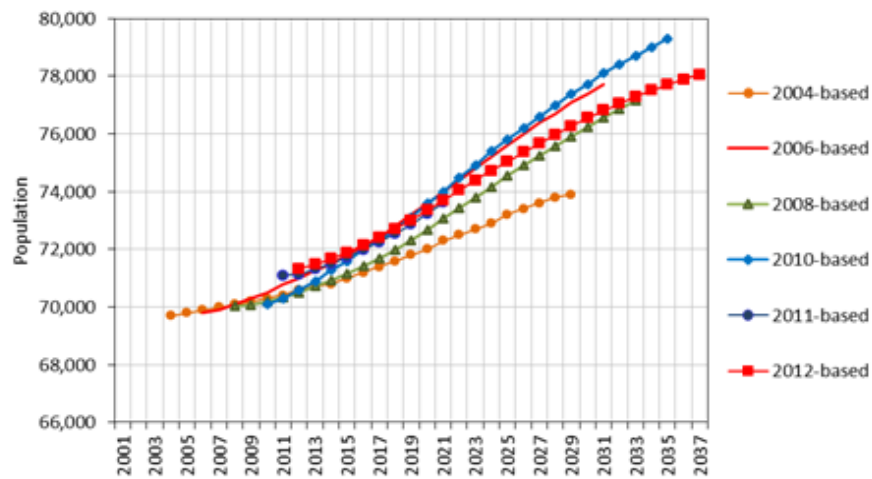
Source: ONS

Figure 16: Barnsley, Bassetlaw and Bolsover official population projections

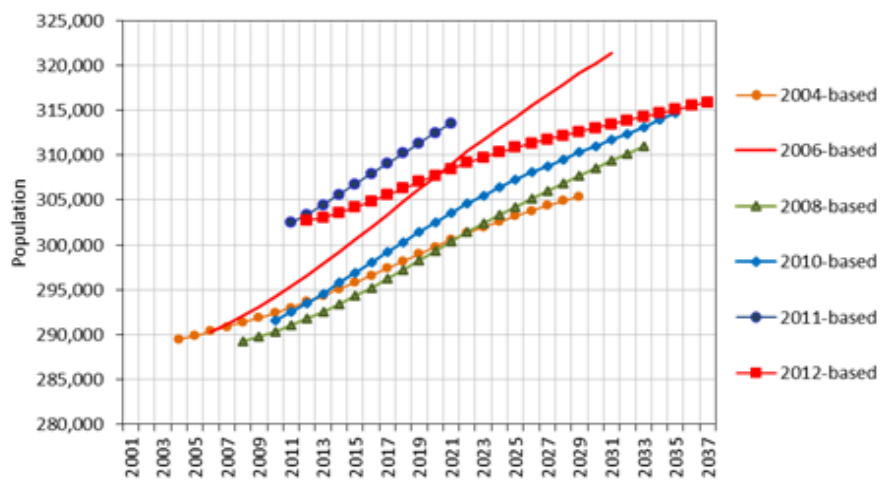
Chesterfield



Derbyshire Dales



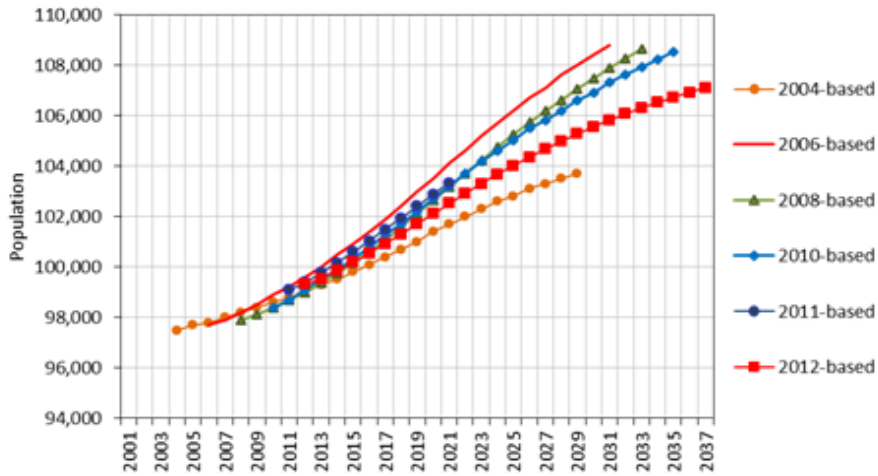
Doncaster



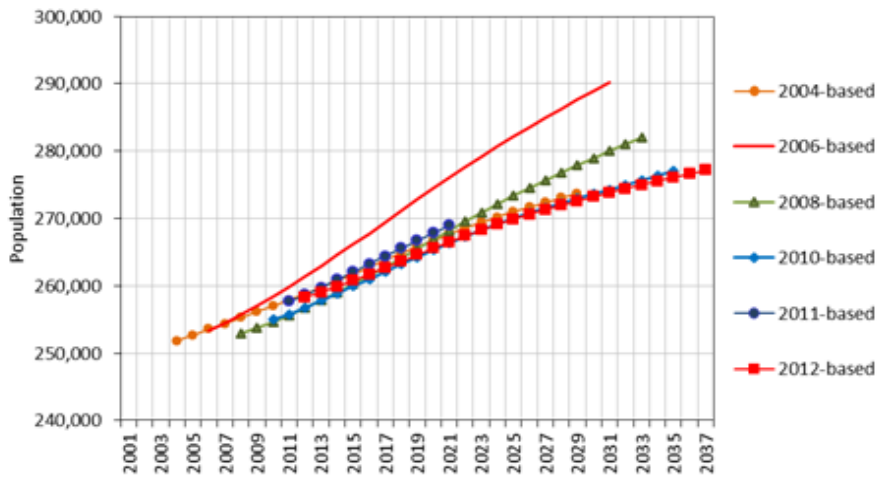
Source: ONS

Figure 17: Chesterfield, Derbyshire Dales and Doncaster official population projections

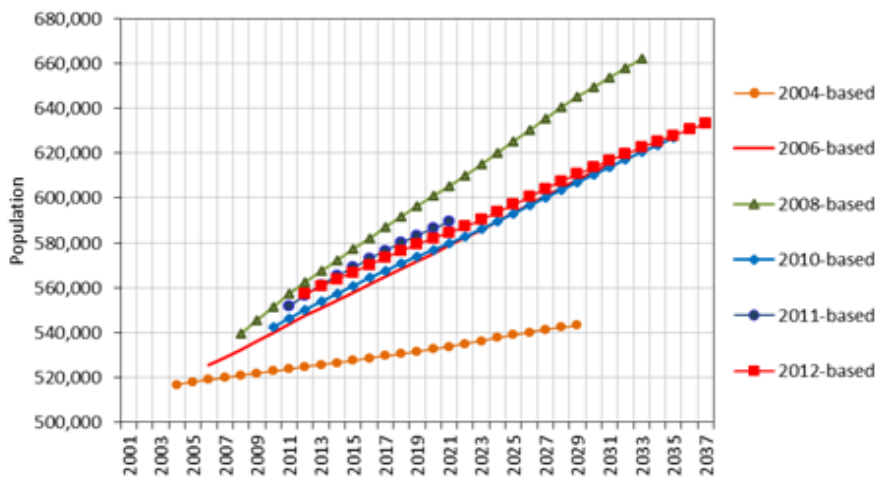
North East Derbyshire



Rotherham



Sheffield



Source: ONS

Figure 18: North East Derbyshire, Rotherham and Sheffield official population projections



Table 3: Sheffield City Region, 2012-based SNPP and 2010-based SNPP comparison

Source: ONS

Area	2010-based SNPP (2010—2035)		2012-based SNPP (2012—2037)	
	Change	Change (%)	Change	Change (%)
Barnsley	35,800	15.7%	31,037	13.3%
Bassetlaw	16,200	14.4%	9,650	8.5%
Bolsover	10,600	14.1%	7,236	9.5%
Chesterfield	10,600	10.5%	6,790	6.5%
Derbyshire Dales	9,200	13.1%	6,720	9.4%
Doncaster	23,100	7.9%	13,148	4.3%
North East Derbyshire	10,100	10.3%	7,778	7.8%
Rotherham	22,100	8.7%	18,792	7.3%
Sheffield	84,200	15.5%	75,849	13.6%
<b>Sheffield City Region</b>	<b>221,900</b>	<b>12.5%</b>	<b>177,001</b>	<b>9.7%</b>

## 2012-Based Household Projections

- 3.6 The 2012-based household projections were released by DCLG in February/March 2015<sup>6</sup>. Underpinned by the 2012-based population projections, the new statistics provide a household growth projection for each local authority area in England for the period 2012–2037.
- 3.7 The methodological basis of the 2012-based household projections is consistent with that employed in the previous, 2008-based and 2011-based interim household projections<sup>7</sup>. In each, household projections have been derived through the application of projected household membership rates (also referred to as headship rates) to a projection of the private household population, disaggregated by age, sex and marital status.
- 3.8 Whilst methodologically similar to previous releases, the 2012-based household projections provide an important update on the 2011-based interim household projections, with the inclusion of the following new information (Source: p5 of DCLG Methodology):

<sup>6</sup> 2012-based household projections in England, 2012 to 2037. DCLG 27<sup>th</sup> February 2015.

<https://www.gov.uk/government/statistics/2012-based-household-projections-in-england-2012-to-2037>

<sup>7</sup> 2012-based household projections: methodology, DCLG 2<sup>nd</sup> March 2015.

<https://www.gov.uk/government/statistics/2012-based-household-projections-methodology>

- *2012-based sub-national population projections by sex and age that extend to 2037 (rather than to 2021 as was the case in the 2011-based interim projections).*
- *Household population by sex, age and relationship-status consistent with the 2011 Census (rather than estimates for 2011, which were derived from 2001 Census data, projections and national trends, as used in the 2011-interim projections).*
- *Communal population statistics by age and sex consistent with the 2011 Census (rather than the previous estimate, which were calibrated to the total communal population from the 2011 Census).*
- *Further information on household representatives from the 2011 Census relating to aggregate household representative rates by relationship status and age.*
- *Aggregate household representative rates at local authority level, controlled to the national rate, based on the total number of households divided by the total adult household population (rather than the total number of households divided to the total household population).*
- *Adjustments to the projections of the household representative rates in 2012 based on the Labour Force Survey (LFS).*

3.9 The household projection methodology consists of two distinct stages:

- ‘Stage One’ produces the national and local authority projections for the total number of households by age-group and relationship-status group over the projection period. The underpinning household representative rate projections have been derived using a combination of two fitted trends using data from historical Census points (1971, 1981, 1991, 2001 and 2011). All Stage One output has been released by DCLG.
- ‘Stage Two’ provides the detailed ‘household-type’ projection by age-group, controlled to the previous Stage One totals. Seventeen different household types are typically included in household model outputs. For the 2012-based household projections, DCLG has indicated that only partial information has so far been drawn from the published 2011 Census data to derive the most detailed household representative rates. Stage Two assumptions and output, which provide the more detailed household-type statistics, have yet to be released by DCLG.

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### *Scenario Development*

- 3.10 The 2012-based household projections are underpinned by the accompanying 2012-based sub-national population projection. Whilst this provides a benchmark outcome from ONS, it is only one perspective on likely population growth; the local authority planning process necessitates the evaluation of a range of alternative population growth outcomes, driven by a combination of demographic and economic considerations.
- 3.11 Using the key assumptions from the 2012-based household projection, it is possible to evaluate the household growth implications of any population forecast. For each local authority area, these key assumptions are:
- Household representative rates by age-group, sex and relationship status
  - Communal population by age-group and sex
- 3.12 The analysis presented in this report evaluates the household growth outcomes associated with a range of scenarios using assumptions from the 2012-based household model. For comparison, the household growth implications suggested by the 2008-based and 2011-based household assumptions are also presented for each scenario.

## 4. Scenario Development

### Core Scenario Definition

- 4.1 There is no single definitive view on the level of population growth expected within the SCR LEP. A combination of economic, demographic and national/local policy issues will ultimately determine the speed and scale of change within each district. For local planning purposes it is necessary to evaluate a range of growth alternatives to establish the most 'appropriate' basis for determining future housing provision.
- 4.2 Edge Analytics has used POPGROUP (v.4) technology to develop six 'core' scenarios for each of the SCR districts. The alternative scenarios, which include a trend scenario, a dwelling-led scenario and three jobs-led scenarios, are benchmarked against the latest official population projection from ONS.
- 4.3 For details on the POPGROUP methodology, refer to Appendix A. For details on the assumptions underpinning the scenarios, refer to Appendix B.

### *Official Projections*

- 4.4 In accordance with the PPG, the alternative scenarios are benchmarked against the most recent, 2012-based, official population projection from ONS. The **SNPP-2012** scenario replicates this official population projection.

### *Alternative Trend Scenario*

- 4.5 An alternative trend scenario has been developed to enable a clearer understanding of the impact of migration on population and household growth and, in particular, the role that migration would play in supporting the SEP jobs growth target:
- **Net Nil:** net internal migration flows and net international migration counts are set to zero, providing an indication of the degree to which future population growth is driven by natural change.

### *Dwelling-led Scenario*

- 4.6 The impact of a planned housing provision trajectory can be evaluated against alternative growth scenarios by running a 'dwelling-led' scenario. POPGROUP evaluates the impact of a designated dwelling target by measuring the relationship between the number of homes in an area, the number of households and the size of the resident population. If there is an imbalance between the 'target' number of new homes and the resident population, migration is used to redress the imbalance. For a given year, a higher level of net in-migration will occur if there is insufficient population to occupy the dwellings in the relevant area, whilst a higher level of net out-migration will occur if the population would be too high relative to the number of dwellings.
- 4.7 For this **Dwelling-led Planned** scenario the purpose is to provide what could be described as a 'baseline Local Plan' position. The number of dwellings in future years are based on those planned to be built in current local authority strategies. This is taken from annual dwelling completion targets specified by the individual SCR member authorities for the period 2013/14–2033/34, consistent with current adopted or emerging plans. In each case the latest authority position is taken, accounting for any recent examination inspectors' reports, council decisions on Local Plan strategies and positions on five-year land supply. Where a Local Plan or Core Strategy figure has been taken and a backlog has accrued this is accounted for (Table 4).
- 4.8 The **Dwelling-led Planned** scenario is illustrative only and intended to highlight how current housing provision policies would affect population growth in relation to the other scenarios, and amongst other things will inform the SCR as to what policy changes might be required in order for the SEP to be delivered.

Table 4: Sheffield City Region, current planned housing provision (2013/14–2033/34)

Source: SCR member authorities

Area	Time Period	Annual Net Dwelling Target	Notes
Barnsley	2013/14–2033/34	1,070	Barnsley's housing requirement in the Local Plan Consultation 2014 is 20,330 net additional homes between the period 2014–2033. This figure gives an indicative annualised figure of 1,070 dwellings per annum (dpa).
Bassetlaw	2013/14–2027/28	465	Bassetlaw is now using the objectively assessed need figure of 435 dpa from the latest SHMAA (2013) to calculate a five year housing supply from April 2014 onwards. A backlog has been added and a 20% buffer is also applied. Resultant provision over the period to 2028 gives 465 dpa.
	2028/29–2033/34	435	
Bolsover	2013/14–2030/31	255	Currently Bolsover has no adopted development plan with a housing figure/target. The Local Plan Strategy proposed a SHMAA-based figure of 250 dpa. It reached examination last year, but was withdrawn by the Council in June 2013 (for reasons unrelated to the proposed housing figures). The Council has resolved to produce a single new Local Plan. Initial consultation on the figure of 235–240 dpa identified in the SHMA for the period 2011–2031. The assessment found no convincing evidence that housing supply would need to increase to support demographic growth. Following the latest government advice the current published five year supply of deliverable housing for the district has been based on 240 dpa.
	2031/32–2033/34	240	
Chesterfield	2013/14–2033/34	380	Chesterfield's Adopted Core Strategy provision (2006–2026) is used. As the more recent 2013 SHMAA (joint with Bassetlaw, Bolsover & NED) has indicated a lower figure any backlog accruing in the Core Strategy has not been added.
Derbyshire Dales	2013/14–2033/34	295	The figure is the one the Inspector at examination in 2014 identified as the minimum housing requirement for Derbyshire Dales.
Doncaster	2013/14–2033/34	1,230	Doncaster's Adopted Core Strategy provision of 1,230 dpa is used. The emerging OAHN figure in a draft SHMAA is likely to be less, consequently any backlog accruing from 2011 against 1,230 has not been added.
North East Derbyshire	2013/14–2033/34	315	North-East Derbyshire's 6,000 dpa is net and is based on the 2013 SHMAA (joint with Bassetlaw, Bolsover & NED). The current Initial Draft Local Plan establishes a 5-year land supply & backlog of delivery since 2011 giving 315 dpa.
Rotherham	2013/14–2027/28	958	For the 15 year Plan Period 2013/14–2027/28 Rotherham's total planned provision is 14,321 or 958 pa. (net).
	2028/29–2033/34	850	
Sheffield	2013/14–2025/26	1,466	Sheffield's housing requirement set out in the Core Strategy is 1,425 per annum net to 2016–2026. The Core Strategy housing target is the basis for the 5-year housing land supply. Taking into account a backlog of 532 dwellings for the plan period gives 1,450 dpa over the projection period.
	2026/27–2033/34	1,425	

Note: any backlog from Earlier Plans/work is accounted for where necessary.

## *Jobs-led Scenarios*

4.9 In a 'jobs-led' scenario, population growth is linked directly to the change in the number of jobs available within an area. POPGROUP evaluates the impact of a jobs growth trajectory by measuring the relationship between the number of jobs in an area, the size of the labour force and the size of the resident population. Migration is used to balance the relationship between the size of the labour force and the forecast number of jobs. A higher level of net in-migration will occur if there is insufficient population and resident labour force to meet the forecast number of jobs. A higher level of net out-migration will occur if the population is too high relative to the number of jobs.

4.10 The following jobs-led scenarios have been produced for the SCR districts:

- **Jobs-led Aspirational:** a 'policy-on' scenario, where population growth is linked to the delivery of 70,000 net additional jobs to 2024, as specified in the SEP. The distribution of jobs numbers underpinning this scenario have been generated by Ekosgen for the Sheffield City Region LEP<sup>8</sup>. They represent a split of 70,000 jobs by sector and location, based upon representation of SEP growth sectors by district. To provide an estimate of jobs growth for the full forecast period, the forecast rate of growth has been rolled forward to 2034 (Table 5). Note that this scenario suggests lower overall jobs growth for Rotherham and Bolsover compared to the **Jobs-led Baseline** scenario.
- **Jobs-led Steady:** population growth is linked to each district achieving a rate of jobs growth that is the average of the **Jobs-led Aspirational** and **Jobs-led Baseline** scenarios.
- **Jobs-led Baseline:** population growth is linked to a continuation of historical jobs growth trends within each district (Table 5). The jobs numbers underpinning this scenario represent the (weighted) average 'employment performance' for the historical periods 1998–2008 and 2009–2013 (Table 6).

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<sup>8</sup> Final Assumptions for FLUTE Model – Ekosgen 2015.

Table 5: Sheffield City Region, average annual jobs growth, aspirational, baseline and steady scenarios

Source: Ekosgen, Edge Analytics

Area	Average Annual Employment Growth (2013/14—2033/34)		
	Aspirational	Baseline	Steady
Barnsley	751	-20	365
Bassetlaw	367	-167	100
Bolsover	417	947	682
Chesterfield	490	93	292
Derbyshire Dales	136	-133	2
Doncaster	1,186	540	863
North East Derbyshire	188	-87	51
Rotherham	912	940	926
Sheffield	2,562	1,140	1,851
<b>Sheffield City Region</b>	<b>7,001</b>	<b>3,253</b>	<b>5,127</b>

Table 6: Sheffield City Region, historical jobs growth used to define the 'Baseline' jobs growth forecast

Source: Ekosgen

Area	Employment Performance				Employment Growth		
					Average Annual		Weighted Average
	1998	2008	2009	2013	1998—2008	2009—2013	1998—2013
Barnsley	71,800	69,400	71,600	73,700	-240	525	-20
Bassetlaw	45,400	43,500	45,200	44,600	-190	-150	-167
Bolsover	17,200	26,300	25,000	30,100	910	1,275	947
Chesterfield	50,000	48,300	46,400	49,500	-170	775	93
Derbyshire Dales	31,800	33,900	34,700	30,600	210	-1,025	-133
Doncaster	105,700	115,900	112,700	110,600	1,020	-525	540
North East Derbyshire	25,600	25,600	26,900	25,600	0	-325	-87
Rotherham	81,100	99,400	96,500	92,300	1,830	-1,050	940
Sheffield	224,000	248,000	246,100	239,200	2,400	-1,725	1,140
<b>Sheffield City Region</b>	<b>652,600</b>	<b>710,300</b>	<b>705,100</b>	<b>696,200</b>	<b>5,770</b>	<b>-2,225</b>	<b>3,253</b>

Note: figures for 1998–2008 are sourced from the Annual Business Inquiry (ABI). Figures for 2009–2013 are sourced from the Business Register and Employment Survey (BRES).



- 4.11 Three key data inputs are required to run a jobs-led scenario and link jobs growth to population change: economic activity rates by age and sex for each year of the forecast period; a corresponding unemployment rate to estimate that portion of the labour force that remains out of work; and a commuting ratio, which estimates the balance between the number of jobs available and the size of the resident labour force. In the official, trend and dwelling-led scenarios, these data inputs are used to derive labour force and jobs growth from population change.
- 4.12 In the core scenarios, the 2011 Census economic activity rates for each district (by sex, for the aggregate 16-74 age-group) have been applied and remain fixed at their base level throughout the forecast period. The unemployment rate for each district has been incrementally reduced to account for recovery following the recession. The 2011 Census commuting ratio for each district has been applied, also remaining unchanged throughout the forecast period. More detail on these items is provided in Appendix B.

## Jobs-led Sensitivity Scenarios

- 4.13 Additional jobs-led (Aspirational, Steady and Baseline) sensitivity scenarios have been tested to examine the impact of alternative economic activity assumptions on population and household growth:
- **SENS1:** For each district, the 2011 Census economic activity rates (by sex, for the aggregate 16-74 age-group) have been applied, adjusted after 2014 to match the England and Wales average by 2025 and fixed thereafter (Table 7).
  - **SENS2:** For each district, the 2011 Census economic activity rates (by sex, for the aggregate 16-4 age-group) have been applied, adjusted after 2014 to match the England and Wales average by 2025, uplifted by one percentage point. After 2025, the economic activity rates are fixed (Table 8).

Table 7: Sheffield City Region, economic activity rates applied in the **SENS1** scenarios

Source: 2011 Census

Area	SENS1 Economic Activity Rates		
	2011	2034	Difference
Barnsley	67%	70%	3%
Bassetlaw	68%	70%	2%
Bolsover	67%	70%	3%
Chesterfield	68%	70%	2%
Derbyshire Dales	70%	70%	0%
Doncaster	67%	70%	3%
North East Derbyshire	68%	70%	2%
Rotherham	67%	70%	3%
Sheffield	66%	70%	4%

Note: in the core scenarios, economic activity rates remain fixed at the 2011 figure.

Table 8: Sheffield City Region, economic activity rates applied in the **SENS2** scenarios

Source: 2011 Census

Area	SENS2 Economic Activity Rates		
	2011	2034	Difference
Barnsley	67%	71%	4%
Bassetlaw	68%	71%	3%
Bolsover	67%	71%	4%
Chesterfield	68%	71%	3%
Derbyshire Dales	70%	71%	1%
Doncaster	67%	71%	4%
North East Derbyshire	68%	71%	3%
Rotherham	67%	71%	4%
Sheffield	66%	71%	5%

Note: in the core scenarios, economic activity rates remain fixed at the 2011 figure.

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## Household & Dwelling Growth

- 4.14 The household growth implications of the core and jobs-led sensitivity scenarios have been assessed using assumptions from the 2012-based DCLG household projection model.
- 4.15 Sensitivities have also been run to examine the alternative household growth implications suggested by the previous 2008-based and 2011-based interim DCLG models.
- 4.16 In the Phase 1 report, the household-growth implications of each scenario were assessed using assumptions from the 2008-based household projection model. In this Phase 2 analysis, the alternative headship rates have been applied to each scenario, producing **HH-12**, **HH-08** and **HH-11** outcomes:
- In **HH-12** scenarios, the DCLG 2012-based headship rates have been applied.
  - In the **HH-08** scenarios, the DCLG 2008-based headship rates have been applied, scaled to be consistent with the 2011 DCLG household total but following the original trend thereafter.
  - In the **HH-11** scenarios, the DCLG 2011-based headship rates have been applied, with the 2011–2021 trend continued after 2021.
- 4.17 The dwelling growth implications of these different household growth trajectories are then assessed through the application of district-specific vacancy rates (refer to Appendix B for further information).

## Scenario Summary

- 4.18 In summary, six core scenarios and six jobs-led sensitivity scenarios have been produced for the SCR districts under four scenario types; official, trend, dwelling-led and jobs-led (Table 9 and Table 10).

Table 9: Sheffield City Region, core scenario summary

Type	Name	Description
Official	<b>SNPP-2012</b>	This scenario mirrors the 2012-based SNPP from the ONS. This is the official benchmark scenario.
Trend	<b>Net Nil</b>	Net internal migration flows and net international migration counts are set to zero, providing an indication of the degree to which future population growth is driven by natural change.
Dwelling-led	<b>Dwelling-led Planned</b>	Population growth is matched to annual dwelling completion targets specified by the individual SCR member authorities.
Jobs-led	<b>Jobs-led Aspirational</b>	Population growth is linked to the delivery of 70,000 net additional jobs to 2024, as specified in the SCR Strategic Economic Plan. Economic activity rates (for the aggregate 16-74 age-group) from the 2011 Census are applied, the unemployment rate is incrementally reduced and a fixed 2011 Census commuting ratio is applied.
	<b>Jobs-led Steady</b>	Population growth is linked to each district achieving the rate of jobs growth mid-way between the <b>Jobs-led Aspirational</b> and <b>Jobs-led Baseline</b> scenarios. Economic activity rates (for the aggregate 16-74 age-group) from the 2011 Census are applied, the unemployment rate is incrementally reduced and a fixed 2011 Census commuting ratio is applied.
	<b>Jobs-led Baseline</b>	Population growth is linked to a continuation of historical jobs growth trends. Economic activity rates (for the aggregate 16-74 age-group) from the 2011 Census are applied, the unemployment rate is incrementally reduced and a fixed 2011 Census commuting ratio is applied.

Table 10: Sheffield City Region, jobs-led sensitivity scenario summary

Type	Name	Description
Jobs-led Sensitivity	<b>Jobs-led Aspirational SENS1</b>	Population growth is linked to the delivery of 70,000 net additional jobs to 2024, as specified in the SCR Strategic Economic Plan. The 2011 Census average economic activity rates for England and Wales (for the aggregate 16-74 age-group) (70%) are achieved by 2025, the unemployment rate is incrementally reduced and a fixed 2011 commuting ratio is applied.
	<b>Jobs-led Steady SENS1</b>	Population growth is linked to each district achieving the rate of jobs growth mid-way between the Jobs-led Aspirational and Jobs-led Baseline scenarios. The 2011 Census average economic activity rates for England and Wales (for the aggregate 16-74 age-group) (70%) are achieved by 2025, the unemployment rate is incrementally reduced and a fixed 2011 commuting ratio is applied.
	<b>Jobs-led Baseline SENS1</b>	Population growth is linked to a continuation of historical jobs growth trends. The 2011 Census average economic activity rates for England and Wales (for the aggregate 16-74 age-group) (70%) are achieved by 2025, the unemployment rate is incrementally reduced and a fixed 2011 commuting ratio is applied.
	<b>Jobs-led Aspirational SENS2</b>	Population growth is linked to the delivery of 70,000 net additional jobs to 2024, as specified in the SCR Strategic Economic Plan. The 2011 Census average economic activity rates for England and Wales (for the aggregate 16-74 age-group), uplifted by one percentage point (71%), are achieved by 2025, the unemployment rate is incrementally reduced and a fixed 2011 commuting ratio is applied.
	<b>Jobs-led Steady SENS2</b>	Population growth is linked to each district achieving the rate of jobs growth mid-way between the Jobs-led Aspirational and Jobs-led Baseline scenarios. The 2011 Census average economic activity rates for England and Wales (for the aggregate 16-74 age-group), uplifted by one percentage point (71%), are achieved by 2025, the unemployment rate is incrementally reduced and a fixed 2011 commuting ratio is applied.
	<b>Jobs-led Baseline SENS2</b>	Population growth is linked to a continuation of historical jobs growth trends. The 2011 Census average economic activity rates for England and Wales (for the aggregate 16-74 age-group), uplifted by one percentage point (71%), are achieved by 2025, the unemployment rate is incrementally reduced and a fixed 2011 commuting ratio is applied.

## 5. Scenario Results

### Guidelines: Scenario Growth

- 5.1 For the SCR LEP and each of the nine SCR local authority districts, a detailed summary of the results of each scenario forecast is provided in the form of a chart and an accompanying table of statistics (Figure 19 – Figure 38).
- 5.2 The chart illustrates the trajectory of population change resulting from each scenario, for the time-period 2001–2034. The table summarise the change in population and household numbers that result from each scenario, for the period 2014–2034.
- 5.3 Within the table, the scenarios are ranked according to the estimated level of population change over the forecast period. The table illustrates 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.

### Guidelines: Dwelling Growth Implications

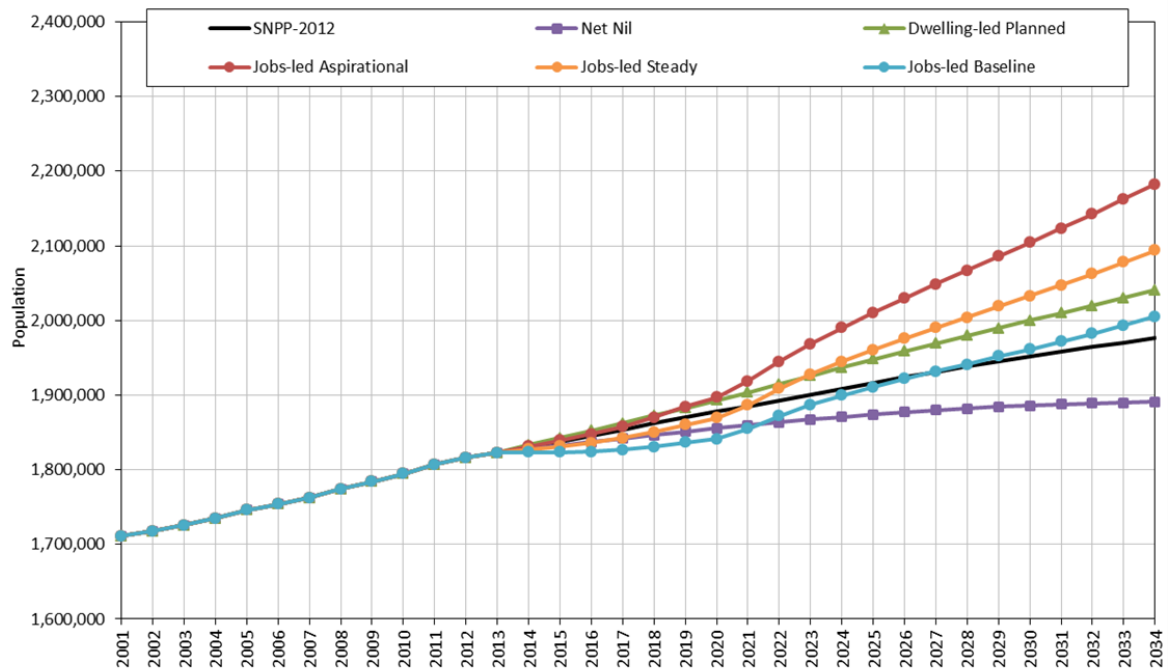
- 5.4 The household growth implications of the core and jobs-led sensitivity scenarios have been assessed using assumptions from the 2012-based DCLG household projection model.
- 5.5 Sensitivities have also been run to examine the alternative household growth implications suggested by the previous 2008-based and 2011-based interim DCLG models.
- 5.6 In the Phase 1 report, the household and dwelling growth implications of each scenario were assessed using assumptions from the 2008-based household projection model only.
- 5.7 In this Phase 2 analysis, the dwelling growth outcomes for each of the core and jobs-led sensitivity scenarios are presented, comparing the alternative dwelling requirements suggested by headship rate assumptions from the 2012-based household model (**HH-12**), the 2008-based household model (**HH-08**) and the 2011-based interim household model (**HH-11**) (Table 11– Table 20).

## Sheffield City Region

### *Core Scenario Growth Summary*

- 5.8 For the SCR as a whole, the **SNPP-2012** scenario records total population growth of +8.0% (2014–2034), with an anticipated net migration impact of +3,660 per year (Figure 19).
- 5.9 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests lower population growth (+3.5%), driven solely by natural change.
- 5.10 The **Dwelling-led Planned** scenario, which for each district matches population growth to a dwelling completion target, suggests relatively high population growth (+11.3%) compared to the SNPP benchmark.
- 5.11 For the core scenarios, the highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+19.2%), with higher annual net in-migration (+12,724) necessary to achieve the ‘Aspirational’ jobs growth target in each SCR district. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.
- 5.12 The **Jobs-led Steady** and **Jobs-led Baseline** scenarios, which for each district are driven by (generally) lower economic growth forecasts than the **Jobs-led Aspirational** scenario, anticipate lower population, household and dwelling growth.

## Sheffield City Region



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	351,389	19.2%	178,372	22.8%	12,724	9,246	7,009
Jobs-led Steady	266,454	14.6%	144,934	18.6%	9,147	7,515	5,131
Dwelling-led Planned	207,131	11.3%	122,903	15.7%	6,351	6,374	3,745
Jobs-led Baseline	181,633	10.0%	111,321	14.3%	5,557	5,775	3,253
SNPP-2012	146,267	8.0%	98,832	12.6%	3,660	5,122	2,522
Net Nil	63,166	3.5%	60,488	7.8%	0	3,125	610

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 19: Sheffield City Region, HH-12 core scenario outcomes

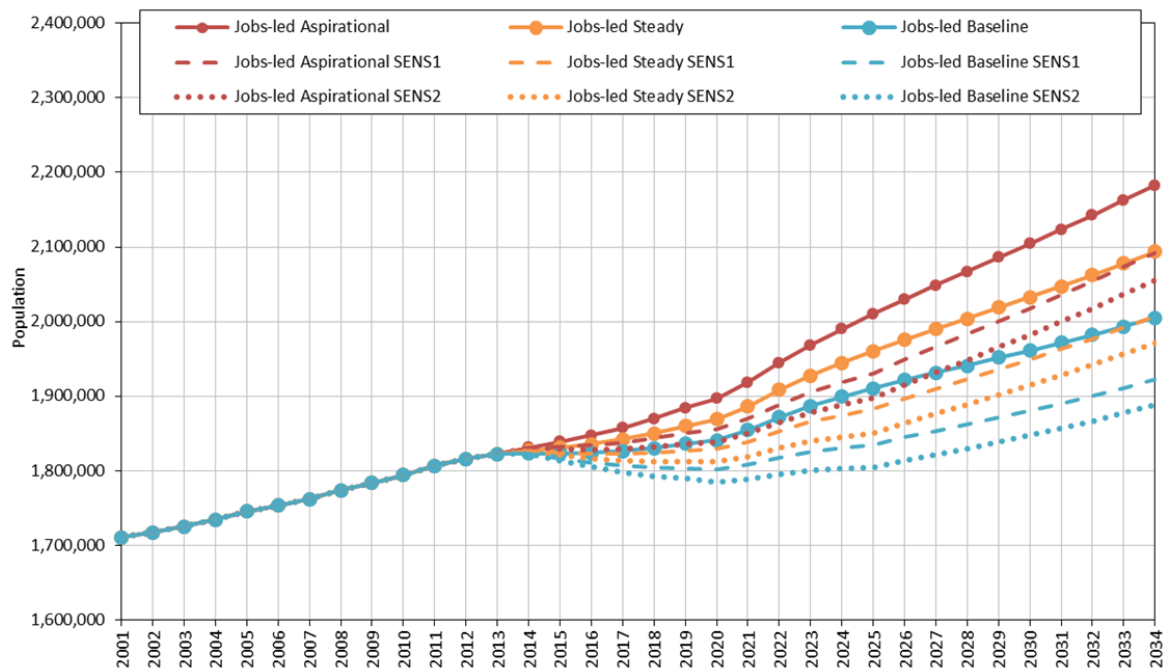


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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.13 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that economic activity rates of 70% (the 2011 Census average for England and Wales) are achieved in each district by 2025 (**SENS1**), results in reduced population growth: +14.3% (**Jobs-led Aspirational SENS1**); +9.9% (**Jobs-led Steady SENS1**); and +5.4% (**Jobs-led Baseline SENS1**) (Figure 20). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.14 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +12.3% (**Jobs-led Aspirational SENS2**); +7.9% (**Jobs-led Steady SENS2**); and +3.6% (**Jobs-led Baseline SENS2**).
- 5.15 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Sheffield City Region



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>351,389</b>	<b>19.2%</b>	<b>178,372</b>	<b>22.8%</b>	<b>12,724</b>	<b>9,246</b>	<b>7,009</b>
<b>Jobs-led Steady</b>	<b>266,454</b>	<b>14.6%</b>	<b>144,934</b>	<b>18.6%</b>	<b>9,147</b>	<b>7,515</b>	<b>5,131</b>
<i>Jobs-led Aspirational SENS1</i>	<i>261,444</i>	<i>14.3%</i>	<i>143,115</i>	<i>18.3%</i>	<i>9,144</i>	<i>7,424</i>	<i>7,009</i>
<i>Jobs-led Aspirational SENS2</i>	<i>224,549</i>	<i>12.3%</i>	<i>128,550</i>	<i>16.5%</i>	<i>7,653</i>	<i>6,669</i>	<i>7,009</i>
<b>Jobs-led Baseline</b>	<b>181,633</b>	<b>10.0%</b>	<b>111,321</b>	<b>14.3%</b>	<b>5,557</b>	<b>5,775</b>	<b>3,253</b>
<i>Jobs-led Steady SENS1</i>	<i>180,134</i>	<i>9.9%</i>	<i>110,993</i>	<i>14.2%</i>	<i>5,711</i>	<i>5,761</i>	<i>5,131</i>
<i>Jobs-led Steady SENS2</i>	<i>144,808</i>	<i>7.9%</i>	<i>96,996</i>	<i>12.4%</i>	<i>4,283</i>	<i>5,035</i>	<i>5,131</i>
<i>Jobs-led Baseline SENS1</i>	<i>98,933</i>	<i>5.4%</i>	<i>78,694</i>	<i>10.1%</i>	<i>2,265</i>	<i>4,088</i>	<i>3,253</i>
<i>Jobs-led Baseline SENS2</i>	<i>65,174</i>	<i>3.6%</i>	<i>65,265</i>	<i>8.4%</i>	<i>900</i>	<i>3,392</i>	<i>3,253</i>

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 20: Sheffield City Region, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.16 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +3,125 (**Net Nil**) to +9,246 (**Jobs-led Aspirational**) (Table 11).
- 5.17 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 11: Sheffield City Region, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>10,012</b>	<b>8,647</b>	<b>9,246</b>
<b>Jobs-led Steady</b>	<b>8,248</b>	<b>6,935</b>	<b>7,515</b>
<i>Jobs-led Aspirational SENS1</i>	<i>8,151</i>	<i>6,834</i>	<i>7,424</i>
<i>Jobs-led Aspirational SENS2</i>	<i>7,379</i>	<i>6,081</i>	<i>6,669</i>
<b>Dwelling-led Planned</b>	<b>6,374</b>	<b>6,374</b>	<b>6,374</b>
<b>Jobs-led Baseline</b>	<b>6,478</b>	<b>5,217</b>	<b>5,775</b>
<i>Jobs-led Steady SENS1</i>	<i>6,456</i>	<i>5,189</i>	<i>5,761</i>
<b>SNPP-2012</b>	<b>5,827</b>	<b>4,613</b>	<b>5,122</b>
<i>Jobs-led Steady SENS2</i>	<i>5,715</i>	<i>4,466</i>	<i>5,035</i>
<i>Jobs-led Baseline SENS1</i>	<i>4,755</i>	<i>3,538</i>	<i>4,088</i>
<i>Jobs-led Baseline SENS2</i>	<i>4,044</i>	<i>2,845</i>	<i>3,392</i>
<b>Net Nil</b>	<b>3,895</b>	<b>2,712</b>	<b>3,125</b>

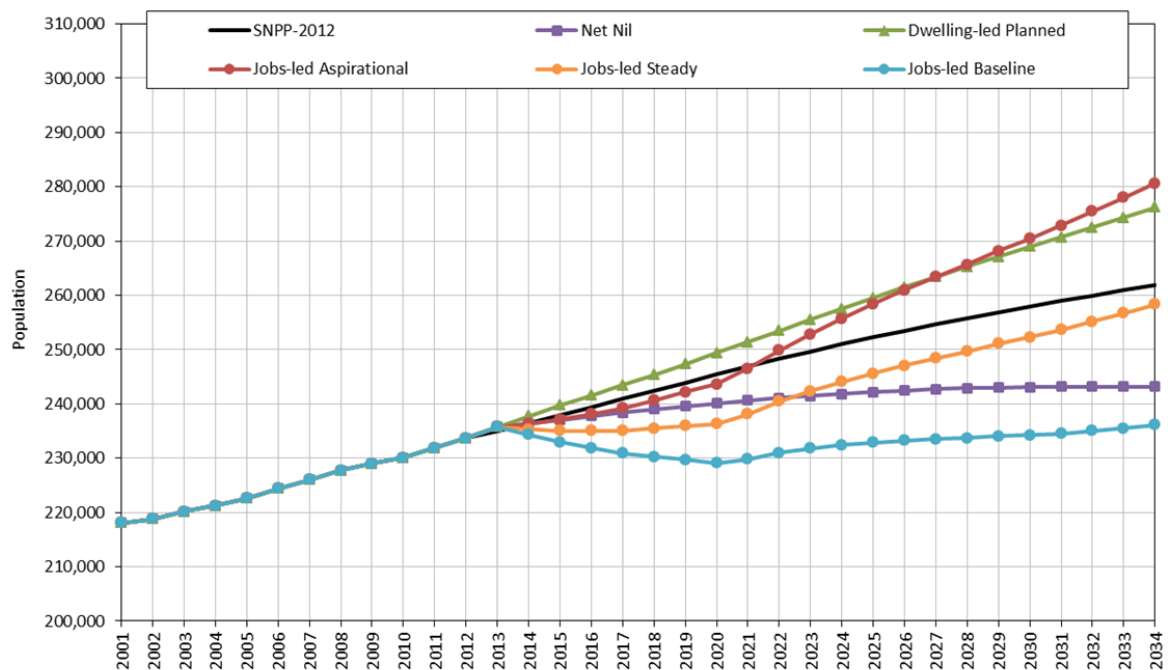
Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

## Barnsley

### *Core Scenario Growth Summary*

- 5.18 For Barnsley, the **SNPP-2012** scenario records total population growth of +10.8% (2014–2034), with an anticipated net migration impact of +802 per year (Figure 21). Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests lower population growth (+2.8%), driven solely by natural change.
- 5.19 The **Dwelling-led Planned** scenario, which matches population growth to an annual dwelling completion target of +1,070, suggests relatively high population growth (+16.2%) compared to the SNPP benchmark.
- 5.20 The annual dwelling completion target underpinning the **Dwelling-led Planned** scenario was put forward in Barnsley’s consultation draft Local Plan in 2014 as the annual figure to meet its Objectively Assessed Housing Need figure of around 1,100 dwellings per annum. This was based on demographic modelling produced for Barnsley Metropolitan Borough Council (BMBC) by Edge Analytics, and additional commentary from the Strategic Housing Market Assessment 2014 around past trends in delivery and market signals. The figure factors in the jobs growth that Barnsley is seeking to achieve and also takes account of the fact that the number of economically active people living in Barnsley would still outnumber the level of jobs proposed. This means a significant number of people will still need to out-commute to work. Given the size of the resident labour force, it was not considered necessary to add a disproportionately high figure onto the housing requirement to account for the proposed jobs growth.
- 5.21 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+18.7%), with higher annual net in-migration (+1,650) necessary to achieve the average annual jobs growth target of +751. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.
- 5.22 The **Jobs-led Steady** and **Jobs-led Baseline** scenarios, which are driven by lower economic growth forecasts (+365 jobs and -20 jobs respectively), result in lower population, household and dwelling growth.

## Barnsley



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	44,290	18.7%	22,658	21.9%	1,650	1,181	751
Dwelling-led Planned	38,408	16.2%	20,535	19.8%	1,347	1,070	645
SNPP-2012	25,565	10.8%	15,500	15.0%	802	808	413
Jobs-led Steady	23,025	9.8%	14,306	13.9%	752	745	365
Net Nil	6,735	2.8%	7,949	7.7%	0	414	65
Jobs-led Baseline	1,796	0.8%	5,922	5.8%	-148	309	-20

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

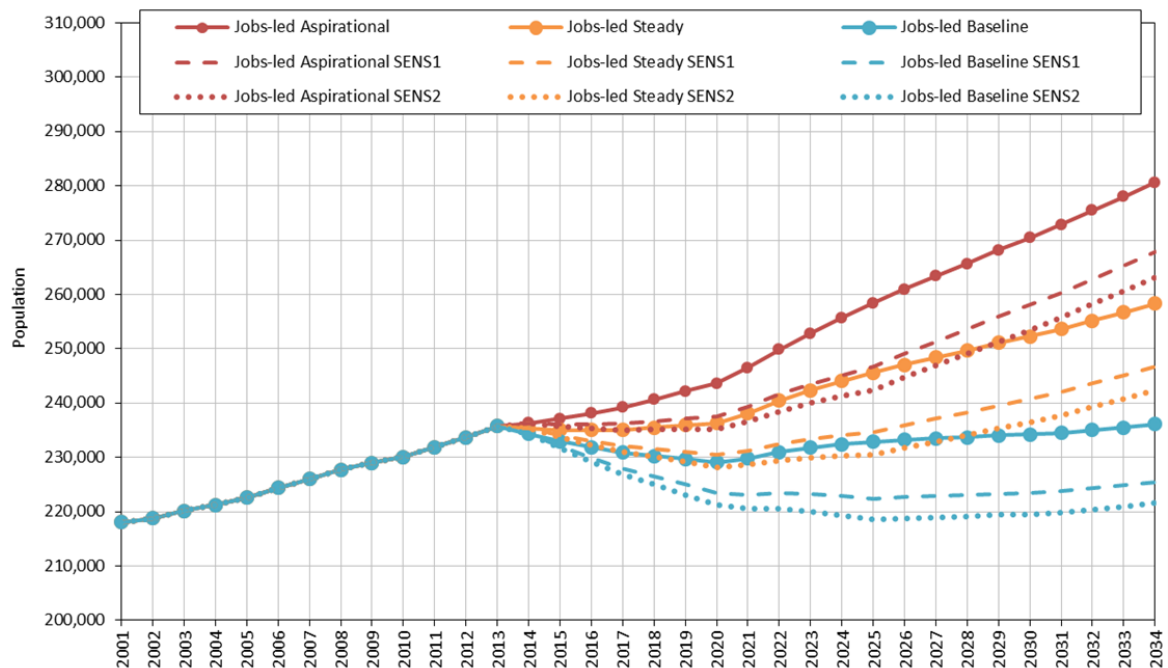
Figure 21: Barnsley, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.23 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +13.4% (**Jobs-led Aspirational SENS1**) and 4.8% (**Jobs-led Steady SENS1**), with the **Jobs-led Baseline SENS1** scenario suggesting population decline (-3.7%) (Figure 22). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.24 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +11.4% (**Jobs-led Aspirational SENS2**) and +3.0% (**Jobs-led Steady SENS2**), with the **Jobs-led Baseline SENS2** scenario suggesting even greater population decline (-5.4%).
- 5.25 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Barnsley



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>44,290</b>	<b>18.7%</b>	<b>22,658</b>	<b>21.9%</b>	<b>1,650</b>	<b>1,181</b>	<b>751</b>
<i>Jobs-led Aspirational SENS1</i>	31,588	13.4%	17,639	17.1%	1,135	919	751
<i>Jobs-led Aspirational SENS2</i>	26,896	11.4%	15,778	15.3%	945	822	751
<b>Jobs-led Steady</b>	<b>23,025</b>	<b>9.8%</b>	<b>14,306</b>	<b>13.9%</b>	<b>752</b>	<b>745</b>	<b>365</b>
<i>Jobs-led Steady SENS1</i>	11,385	4.8%	9,672	9.4%	281	504	365
<i>Jobs-led Steady SENS2</i>	7,084	3.0%	7,954	7.7%	107	414	365
<b>Jobs-led Baseline</b>	<b>1,796</b>	<b>0.8%</b>	<b>5,922</b>	<b>5.8%</b>	<b>-148</b>	<b>309</b>	<b>-20</b>
<i>Jobs-led Baseline SENS1</i>	-8,784	-3.7%	1,672	1.6%	-575	87	-20
<i>Jobs-led Baseline SENS2</i>	-12,693	-5.4%	96	0.1%	-733	5	-20

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 22: Barnsley, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.26 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +5 (**Jobs-led Baseline SENS2**) to +1,181 (**Jobs-led Aspirational**) (Table 12).
- 5.27 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 12: Barnsley, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>1,266</b>	<b>1,100</b>	<b>1,181</b>
<b>Dwelling-led Planned</b>	<b>1,070</b>	<b>1,070</b>	<b>1,070</b>
<i>Jobs-led Aspirational SENS1</i>	<i>998</i>	<i>834</i>	<i>919</i>
<i>Jobs-led Aspirational SENS2</i>	<i>898</i>	<i>735</i>	<i>822</i>
<b>SNPP-2012</b>	<b>889</b>	<b>731</b>	<b>808</b>
<b>Jobs-led Steady</b>	<b>821</b>	<b>661</b>	<b>745</b>
<i>Jobs-led Steady SENS1</i>	<i>574</i>	<i>416</i>	<i>504</i>
<b>Net Nil</b>	<b>493</b>	<b>339</b>	<b>414</b>
<i>Jobs-led Steady SENS2</i>	<i>482</i>	<i>325</i>	<i>414</i>
<b>Jobs-led Baseline</b>	<b>376</b>	<b>222</b>	<b>309</b>
<i>Jobs-led Baseline SENS1</i>	<i>149</i>	<i>-2</i>	<i>87</i>
<i>Jobs-led Baseline SENS2</i>	<i>65</i>	<i>-86</i>	<i>5</i>

Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

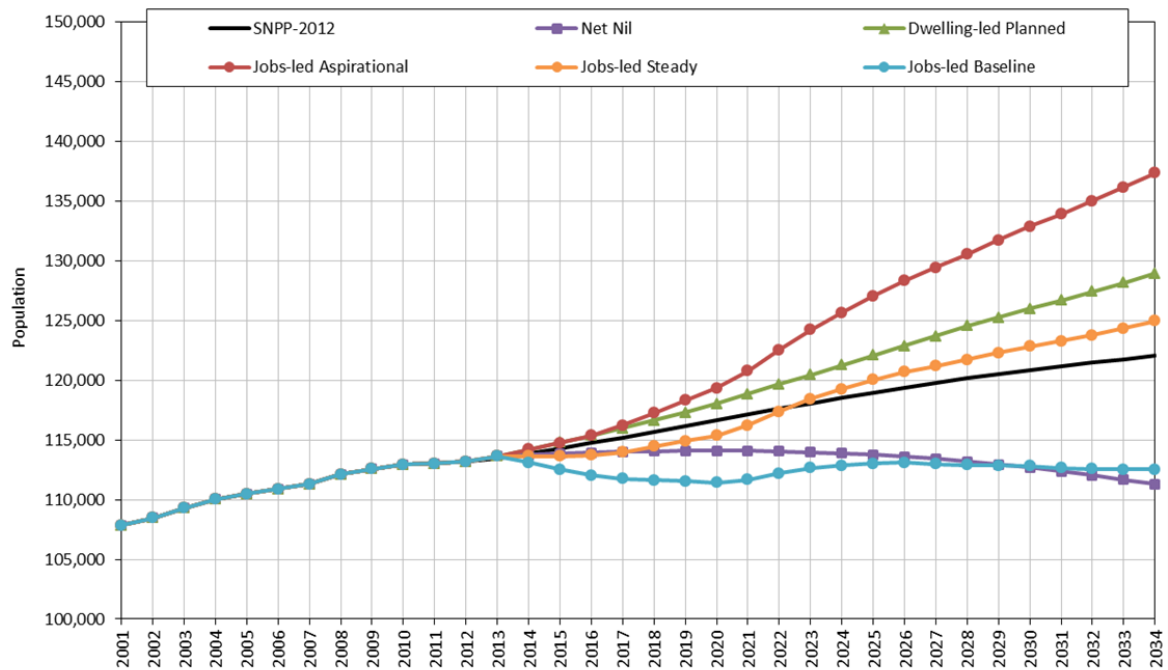


## Bassetlaw

### *Core Scenario Growth Summary*

- 5.28 For Bassetlaw, the **SNPP-2012** scenario records total population growth of +7.2% (2014–2034), with an anticipated net migration impact of +464 per year (Figure 23).
- 5.29 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests population decline (-2.2%), driven solely by natural change.
- 5.30 The **Dwelling-led Planned** scenario, which matches population growth to an *average* annual dwelling completion target of +456, suggests relatively high population growth (+12.9%) compared to the SNPP benchmark.
- 5.31 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+20.3%), with higher annual net in-migration (+1,127) necessary to achieve the average annual jobs growth target of +367. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.
- 5.32 The **Jobs-led Steady** and **Jobs-led Baseline** scenarios, are driven by lower economic growth forecasts (+100 jobs and -167 jobs respectively), resulting in lower population, household and dwelling growth.

## Bassetlaw



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	23,161	20.3%	12,139	24.9%	1,127	629	367
Dwelling-led Planned	14,739	12.9%	8,800	18.1%	754	456	178
Jobs-led Steady	11,293	9.9%	7,383	15.2%	609	383	100
SNPP-2012	8,185	7.2%	6,137	12.6%	464	318	32
Jobs-led Baseline	-561	-0.5%	2,600	5.4%	89	135	-167
Net Nil	-2,450	-2.2%	1,843	3.8%	0	96	-217

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

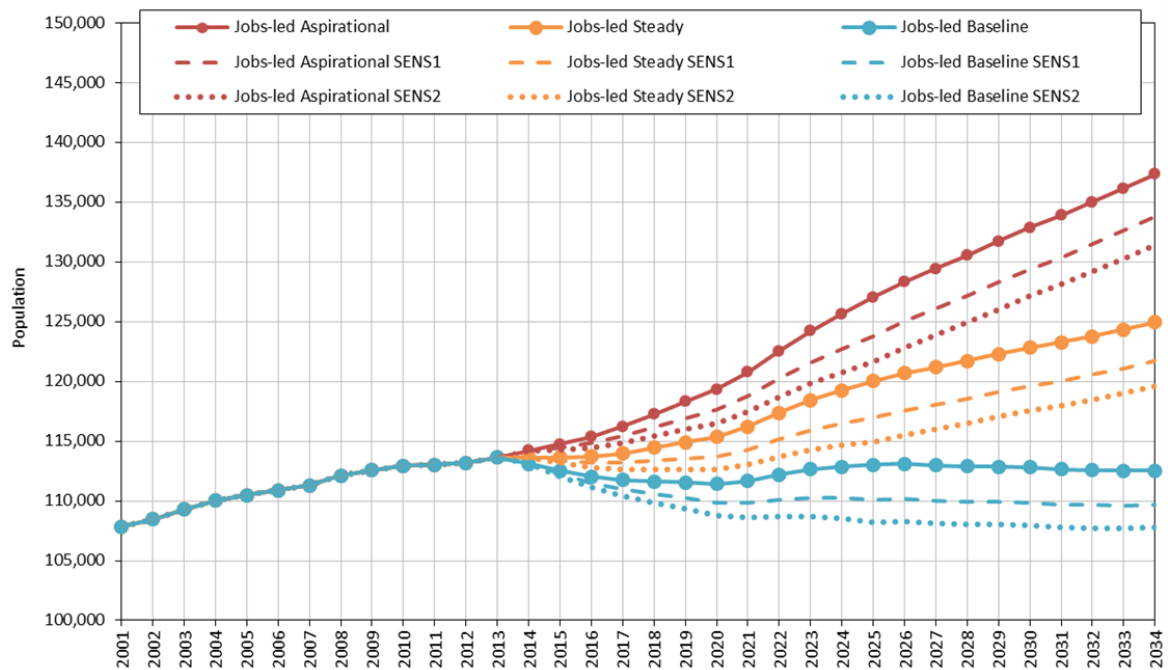
Figure 23: Bassetlaw, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.33 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +17.1% (**Jobs-led Aspirational SENS1**) and 7.1% (**Jobs-led Steady SENS1**), with the **Jobs-led Baseline SENS1** scenario suggesting population decline (-3.1%) (Figure 24). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.34 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +15.1% (**Jobs-led Aspirational SENS2**) and +5.2% (**Jobs-led Steady SENS2**), with the **Jobs-led Baseline SENS2** scenario suggesting even greater population decline (-4.7%).
- 5.35 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Bassetlaw



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>23,161</b>	<b>20.3%</b>	<b>12,139</b>	<b>24.9%</b>	<b>1,127</b>	<b>629</b>	<b>367</b>
<i>Jobs-led Aspirational SENS1</i>	19,578	17.1%	10,695	22.0%	976	554	367
<i>Jobs-led Aspirational SENS2</i>	17,256	15.1%	9,757	20.0%	878	506	367
<b>Jobs-led Steady</b>	<b>11,293</b>	<b>9.9%</b>	<b>7,383</b>	<b>15.2%</b>	<b>609</b>	<b>383</b>	<b>100</b>
<i>Jobs-led Steady SENS1</i>	8,052	7.1%	6,065	12.5%	472	314	100
<i>Jobs-led Steady SENS2</i>	5,952	5.2%	5,209	10.7%	384	270	100
<b>Jobs-led Baseline</b>	<b>-561</b>	<b>-0.5%</b>	<b>2,600</b>	<b>5.4%</b>	<b>89</b>	<b>135</b>	<b>-167</b>
<i>Jobs-led Baseline SENS1</i>	-3,461	-3.1%	1,408	2.9%	-34	73	-167
<i>Jobs-led Baseline SENS2</i>	-5,339	-4.7%	633	1.3%	-113	33	-167

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 24: Bassetlaw, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.36 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +33 (**Jobs-led Baseline SENS2**) to +629 (**Jobs-led Aspirational**) (Table 13).
- 5.37 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 13: Bassetlaw, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>649</b>	<b>579</b>	<b>629</b>
<i>Jobs-led Aspirational SENS1</i>	573	504	554
<i>Jobs-led Aspirational SENS2</i>	525	456	506
<b>Dwelling-led Planned</b>	<b>456</b>	<b>456</b>	<b>456</b>
<b>Jobs-led Steady</b>	<b>402</b>	<b>337</b>	<b>383</b>
<b>SNPP-2012</b>	<b>338</b>	<b>276</b>	<b>318</b>
<i>Jobs-led Steady SENS1</i>	334	269	314
<i>Jobs-led Steady SENS2</i>	289	225	270
<b>Jobs-led Baseline</b>	<b>154</b>	<b>94</b>	<b>135</b>
<b>Net Nil</b>	<b>120</b>	<b>60</b>	<b>96</b>
<i>Jobs-led Baseline SENS1</i>	93	33	73
<i>Jobs-led Baseline SENS2</i>	52	-7	33

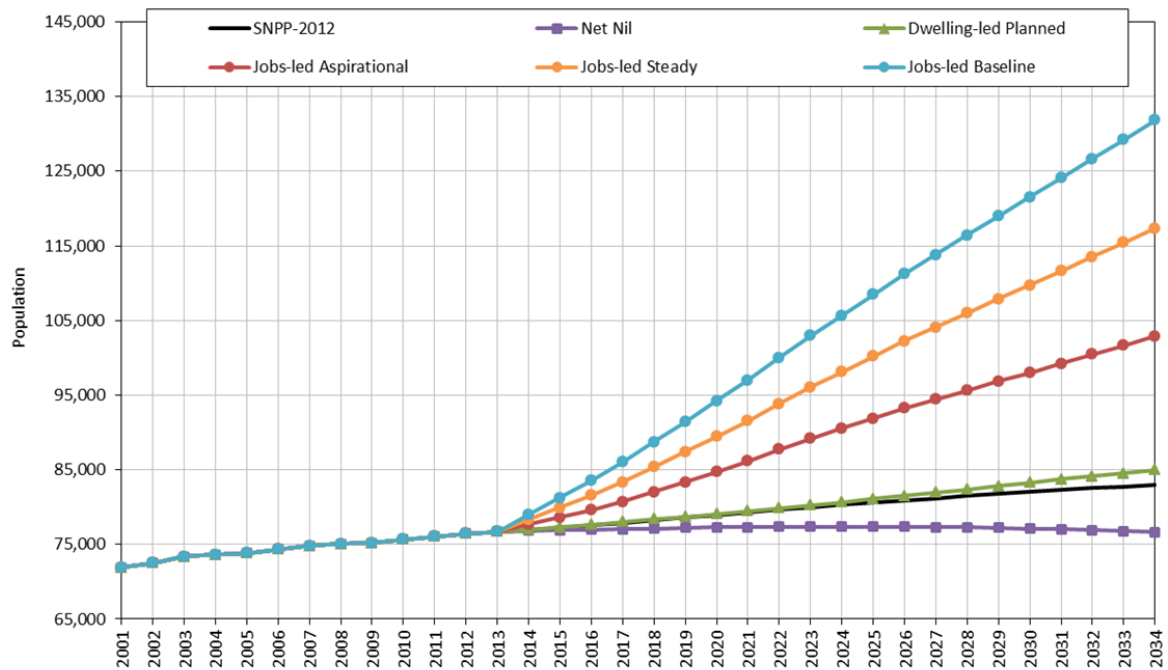
Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

## Bolsover

### *Core Scenario Growth Summary*

- 5.38 For Bolsover, the **SNPP-2012** scenario records total population growth of +7.8% (2014–2034), with an anticipated net migration impact of +273 per year (Figure 25).
- 5.39 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests population decline (-0.2%), driven solely by natural change.
- 5.40 The **Dwelling-led Planned** scenario, which matches population growth to an *average* annual dwelling completion target of +253, suggests relatively high population growth (+10.4%) compared to the SNPP benchmark.
- 5.41 The highest level of population growth is suggested by the **Jobs-led Baseline** scenario (+66.8%), with higher annual net in-migration (+2,324) necessary to achieve the average annual jobs growth target of +947. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.
- 5.42 The **Jobs-led Steady** and **Jobs-led Aspirational** scenarios, are driven by lower economic growth forecasts (+682 jobs and +417 jobs respectively), resulting in lower population, household and dwelling growth.
- 5.43 The suggested annual dwelling requirement ranges from +82 to +1,173, with each of the three jobs-led scenarios suggesting a higher dwelling requirement than the **SNPP-2012** scenario. This reflects the recent high levels of employment growth, outlined in Table 5 and Table 6, in combination with the underpinning assumptions on (relatively low) levels of economic activity and (relatively high) levels of out-commuting (see Table 7 and Table 24). However, it should be noted that past increases in jobs have not led to a significant increase in house-building within the district, with annual completions in this period averaging 238 dwellings per annum. There is no clear evidence of the suppression of household formation due to under provision of homes during this period. In addition, the Strategic Housing Market Assessment research suggests that the economy is not a significant driver of housing demand in the district.

## Bolsover



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Baseline	52,809	66.8%	22,387	65.6%	2,324	1,173	947
Jobs-led Steady	39,005	49.8%	17,022	50.2%	1,723	892	682
Jobs-led Aspirational	25,225	32.5%	11,628	34.5%	1,121	609	417
Dwelling-led Planned	8,015	10.4%	4,825	14.4%	365	253	86
SNPP-2012	6,040	7.8%	4,013	12.0%	273	210	45
Net Nil	-168	-0.2%	1,560	4.7%	0	82	-73

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 25: Bolsover, HH-12 core scenario outcomes

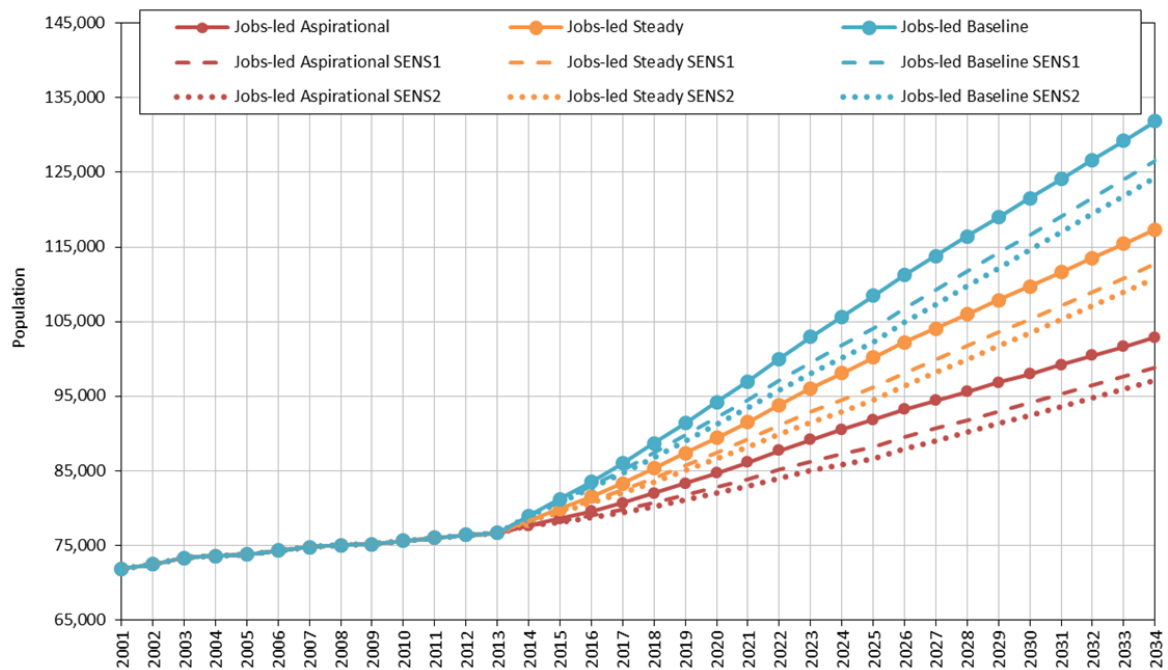
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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.44 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +60.2% (**Jobs-led Baseline SENS1**); +43.9% (**Jobs-led Steady SENS1**); and +27.3% (**Jobs-led Aspirational SENS1**) (Figure 26). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.45 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +57.4% (**Jobs-led Baseline SENS2**); +41.3% (**Jobs-led Steady SENS2**); and 25.1% (**Jobs-led Aspirational**).
- 5.46 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.



## Bolsover



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Baseline</b>	<b>52,809</b>	<b>66.8%</b>	<b>22,387</b>	<b>65.6%</b>	<b>2,324</b>	<b>1,173</b>	<b>947</b>
<i>Jobs-led Baseline SENS1</i>	47,578	60.2%	20,346	59.6%	2,101	1,066	947
<i>Jobs-led Baseline SENS2</i>	45,352	57.4%	19,476	57.1%	2,006	1,020	947
<b>Jobs-led Steady</b>	<b>39,005</b>	<b>49.8%</b>	<b>17,022</b>	<b>50.2%</b>	<b>1,723</b>	<b>892</b>	<b>682</b>
<i>Jobs-led Steady SENS1</i>	34,370	43.9%	15,197	44.8%	1,526	796	682
<i>Jobs-led Steady SENS2</i>	32,397	41.3%	14,418	42.5%	1,442	755	682
<b>Jobs-led Aspirational</b>	<b>25,225</b>	<b>32.5%</b>	<b>11,628</b>	<b>34.5%</b>	<b>1,121</b>	<b>609</b>	<b>417</b>
<i>Jobs-led Aspirational SENS1</i>	21,184	27.3%	10,018	29.8%	949	525	417
<i>Jobs-led Aspirational SENS2</i>	19,465	25.1%	9,331	27.7%	875	489	417

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 26: Bolsover, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.47 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +82 (**Net Nil**) to +1,173 (**Jobs-led Baseline**) (Table 14).
- 5.48 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 14: Bolsover, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Baseline</b>	<b>1,228</b>	<b>1,132</b>	<b>1,173</b>
<i>Jobs-led Baseline SENS1</i>	<i>1,117</i>	<i>1,024</i>	<i>1,066</i>
<i>Jobs-led Baseline SENS2</i>	<i>1,070</i>	<i>979</i>	<i>1,020</i>
<b>Jobs-led Steady</b>	<b>937</b>	<b>850</b>	<b>892</b>
<i>Jobs-led Steady SENS1</i>	<i>838</i>	<i>755</i>	<i>796</i>
<i>Jobs-led Steady SENS2</i>	<i>796</i>	<i>714</i>	<i>755</i>
<b>Jobs-led Aspirational</b>	<b>645</b>	<b>568</b>	<b>609</b>
<i>Jobs-led Aspirational SENS1</i>	<i>558</i>	<i>484</i>	<i>525</i>
<i>Jobs-led Aspirational SENS2</i>	<i>521</i>	<i>448</i>	<i>489</i>
<b>Dwelling-led Planned</b>	<b>253</b>	<b>253</b>	<b>253</b>
<b>SNPP-2012</b>	<b>235</b>	<b>171</b>	<b>210</b>
<b>Net Nil</b>	<b>104</b>	<b>45</b>	<b>82</b>

Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

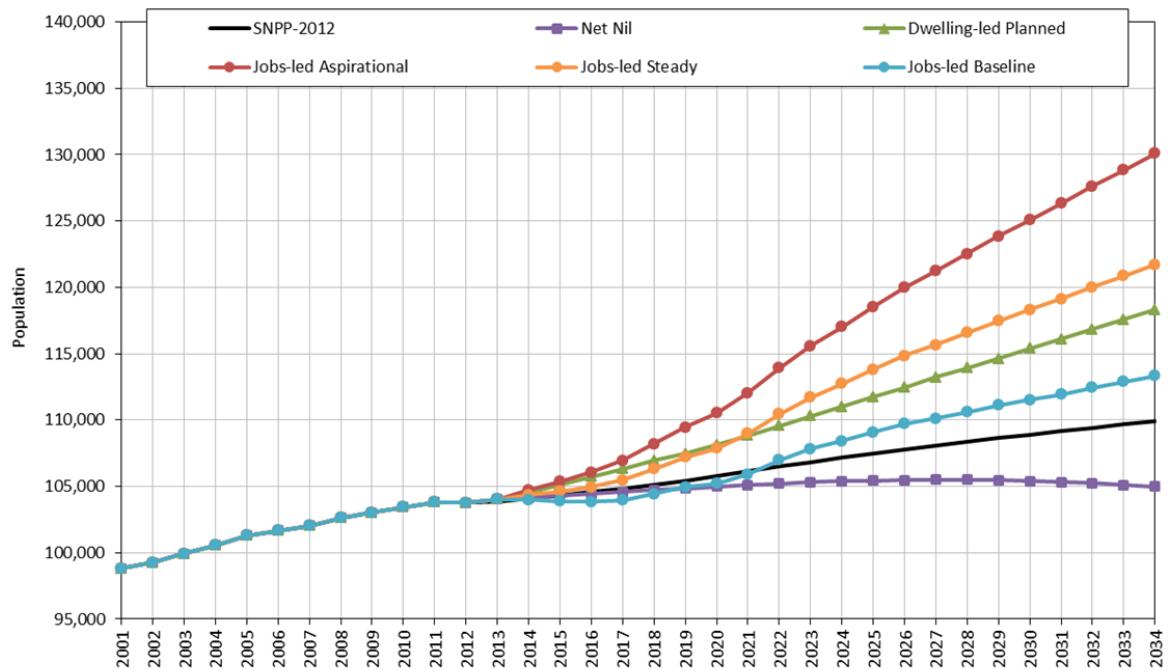
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## Chesterfield

### *Core Scenario Growth Summary*

- 5.49 For Chesterfield, the **SNPP-2012** scenario records total population growth of +5.6% (2014–2034), with an anticipated net migration impact of +223 per year (Figure 27).
- 5.50 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests lower population growth (+0.8%), driven solely by natural change.
- 5.51 The **Dwelling-led Planned** scenario, which matches population growth to an annual dwelling completion target of +380, suggests relatively high population growth (+13.2) compared to the SNPP benchmark.
- 5.52 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+24.2%), with higher annual net in-migration (+1,073) necessary to achieve the average annual jobs growth target of +490. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.

## Chesterfield



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	25,373	24.2%	12,085	25.4%	1,073	626	490
Jobs-led Steady	17,351	16.6%	8,779	18.5%	727	455	292
Dwelling-led Planned	13,790	13.2%	7,334	15.4%	569	380	205
Jobs-led Baseline	9,334	9.0%	5,463	11.5%	381	283	93
SNPP-2012	5,818	5.6%	4,041	8.5%	223	209	11
Net Nil	825	0.8%	1,988	4.2%	0	103	-118

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

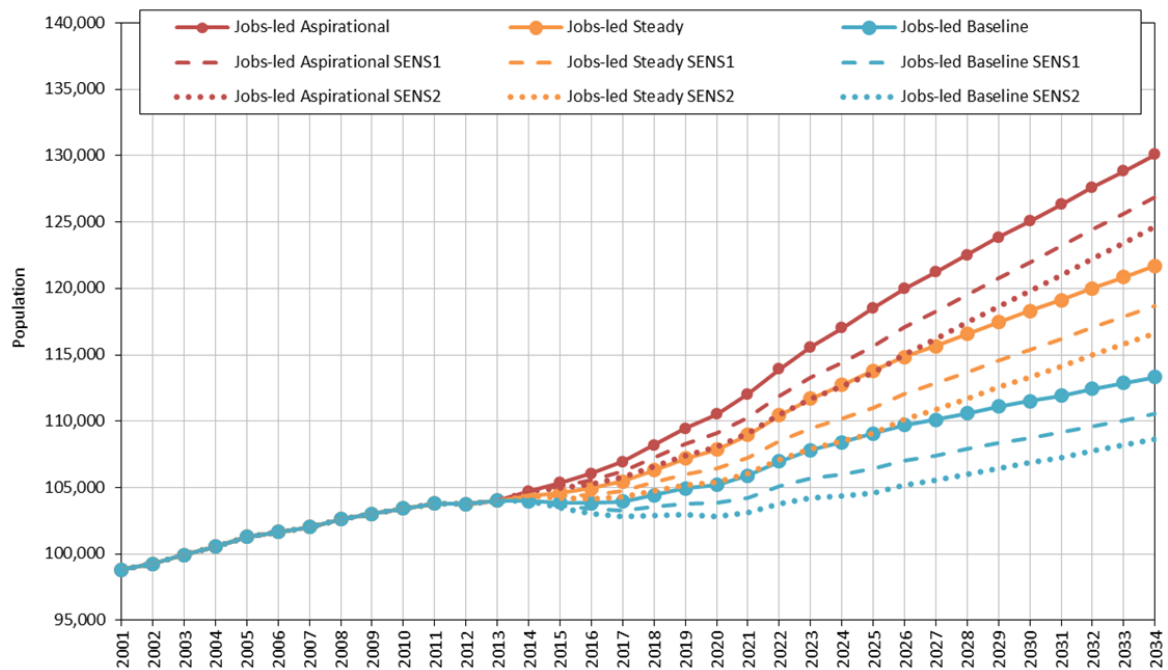
Figure 27: Chesterfield, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.53 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +21.2% (**Jobs-led Aspirational SENS1**); 13.8% (**Jobs-led Steady SENS1**); and +6.3% (**Jobs-led Baseline SENS1**) (Figure 28). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.54 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +19.1% (**Jobs-led Aspirational SENS2**); +11.8% (**Jobs-led Steady SENS2**) and 4.5% (**Jobs-led Baseline SENS2**).
- 5.55 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Chesterfield



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>25,373</b>	<b>24.2%</b>	<b>12,085</b>	<b>25.4%</b>	<b>1,073</b>	<b>626</b>	<b>490</b>
<i>Jobs-led Aspirational SENS1</i>	22,165	21.2%	10,760	22.6%	940	558	490
<i>Jobs-led Aspirational SENS2</i>	19,951	19.1%	9,843	20.7%	848	510	490
<b>Jobs-led Steady</b>	<b>17,351</b>	<b>16.6%</b>	<b>8,779</b>	<b>18.5%</b>	<b>727</b>	<b>455</b>	<b>292</b>
<i>Jobs-led Steady SENS1</i>	14,361	13.8%	7,538	15.9%	603	391	292
<i>Jobs-led Steady SENS2</i>	12,297	11.8%	6,679	14.1%	518	346	292
<b>Jobs-led Baseline</b>	<b>9,334</b>	<b>9.0%</b>	<b>5,463</b>	<b>11.5%</b>	<b>381</b>	<b>283</b>	<b>93</b>
<i>Jobs-led Baseline SENS1</i>	6,562	6.3%	4,305	9.1%	266	223	93
<i>Jobs-led Baseline SENS2</i>	4,647	4.5%	3,504	7.4%	187	182	93

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 28: Chesterfield, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.56 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +103 (**Net Nil**) to +626 (**Jobs-led Aspirational**) (Table 15).
- 5.57 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 15: Chesterfield, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>697</b>	<b>603</b>	<b>626</b>
<i>Jobs-led Aspirational SENS1</i>	626	534	558
<i>Jobs-led Aspirational SENS2</i>	576	486	510
<b>Jobs-led Steady</b>	<b>519</b>	<b>431</b>	<b>455</b>
<i>Jobs-led Steady SENS1</i>	452	366	391
<b>Dwelling-led Planned</b>	<b>380</b>	<b>380</b>	<b>380</b>
<i>Jobs-led Steady SENS2</i>	406	321	346
<b>Jobs-led Baseline</b>	<b>340</b>	<b>259</b>	<b>283</b>
<i>Jobs-led Baseline SENS1</i>	278	199	223
<b>SNPP-2012</b>	<b>262</b>	<b>185</b>	<b>209</b>
<i>Jobs-led Baseline SENS2</i>	235	157	182
<b>Net Nil</b>	<b>154</b>	<b>80</b>	<b>103</b>

Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

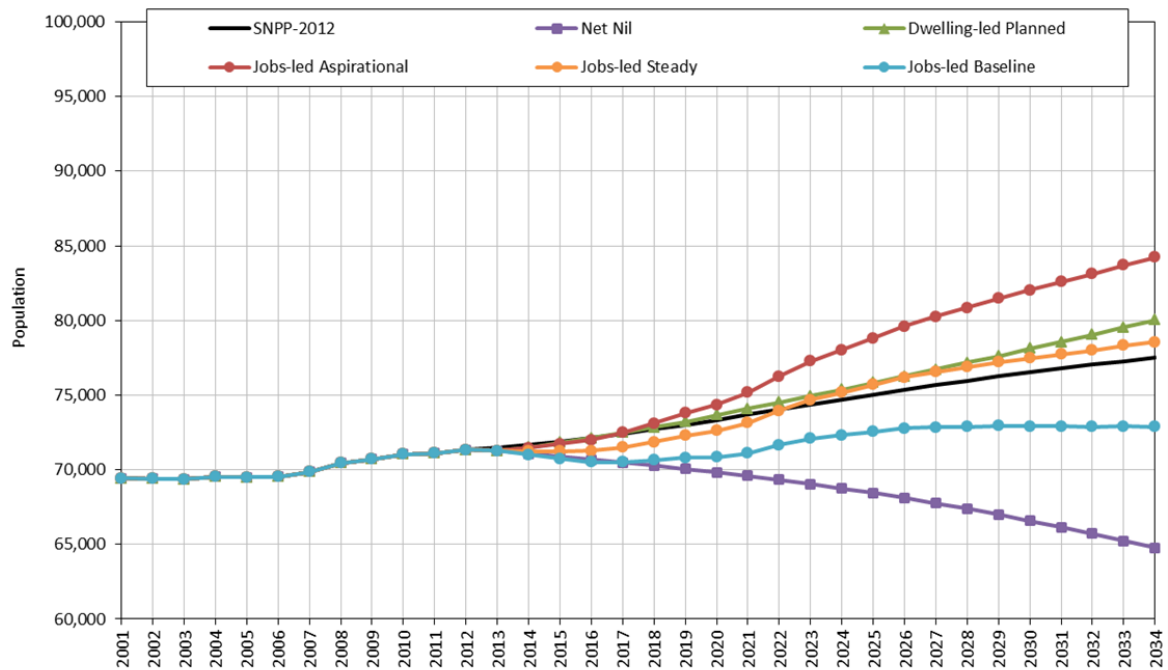
## Derbyshire Dales

### *Core Scenario Growth Summary*

- 5.58 For Derbyshire Dales, the **SNPP-2012** scenario records total population growth of +8.1% (2014–2034), with an anticipated net migration impact of +562 per year (Figure 29).
- 5.59 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests population decline (-8.9%), driven solely by natural change.
- 5.60 The **Dwelling-led Planned** scenario, which matches population growth to an annual dwelling completion target of +295, suggests relatively high population growth (+11.9%) compared to the SNPP benchmark.
- 5.61 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+17.8%), with higher annual net in-migration (+880) necessary to achieve the average annual jobs growth target of +136. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.



## Derbyshire Dales



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	12,759	17.8%	7,105	22.7%	880	387	136
Dwelling-led Planned	8,542	11.9%	5,418	17.3%	688	295	33
Jobs-led Steady	7,321	10.3%	4,928	15.8%	630	268	2
SNPP-2012	5,826	8.1%	4,358	13.9%	562	237	-33
Jobs-led Baseline	1,879	2.6%	2,729	8.8%	379	149	-133
Net Nil	-6,327	-8.9%	-584	-1.9%	0	-32	-337

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

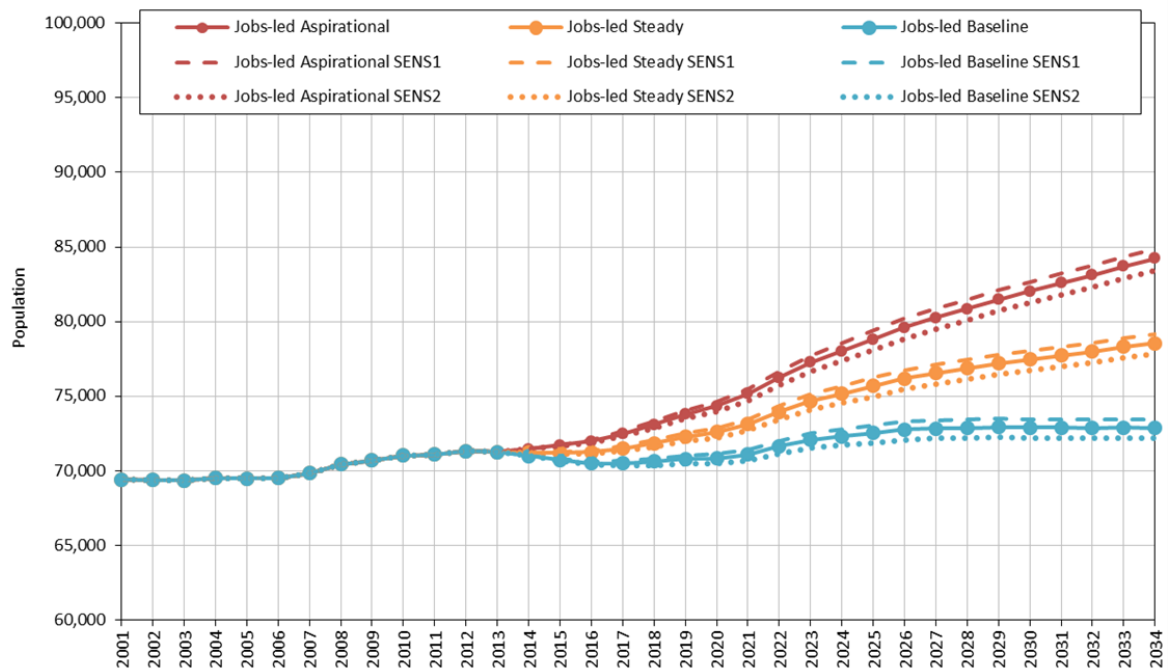
Figure 29: Derbyshire Dales, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.62 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in increased population growth: +18.7% (**Jobs-led Aspirational SENS1**); 11.1% (**Jobs-led Steady SENS1**); and +3.4% (**Jobs-led Baseline SENS1**) (Figure 30). This reflects a smaller proportion of jobs being taken up by local residents, which increases the impact of growth through migration.
- 5.63 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in reduced population growth: +16.7% (**Jobs-led Aspirational SENS2**); +9.2% (**Jobs-led Steady SENS2**); and +1.7% (**Jobs-led Baseline SENS2**). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.64 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Derbyshire Dales



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<i>Jobs-led Aspirational SENS1</i>	13,401	18.7%	7,366	23.5%	909	401	136
<b>Jobs-led Aspirational</b>	<b>12,759</b>	<b>17.8%</b>	<b>7,105</b>	<b>22.7%</b>	<b>880</b>	<b>387</b>	<b>136</b>
<i>Jobs-led Aspirational SENS2</i>	11,959	16.7%	6,780	21.7%	844	369	136
<i>Jobs-led Steady SENS1</i>	7,916	11.1%	5,173	16.6%	657	282	2
<b>Jobs-led Steady</b>	<b>7,321</b>	<b>10.3%</b>	<b>4,928</b>	<b>15.8%</b>	<b>630</b>	<b>268</b>	<b>2</b>
<i>Jobs-led Steady SENS2</i>	6,578	9.2%	4,622	14.8%	597	252	2
<i>Jobs-led Baseline SENS1</i>	2,429	3.4%	2,958	9.5%	404	161	-133
<b>Jobs-led Baseline</b>	<b>1,879</b>	<b>2.6%</b>	<b>2,729</b>	<b>8.8%</b>	<b>379</b>	<b>149</b>	<b>-133</b>
<i>Jobs-led Baseline SENS2</i>	1,194	1.7%	2,443	7.8%	348	133	-133

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 30: Derbyshire Dales, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.65 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from -32 (**Net Nil**) to +401 (**Jobs-led Aspirational SENS1**) (Table 16).
- 5.66 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 16: Derbyshire Dales, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<i>Jobs-led Aspirational SENS1</i>	441	398	401
<b>Jobs-led Aspirational</b>	<b>426</b>	<b>384</b>	<b>387</b>
<i>Jobs-led Aspirational SENS2</i>	408	366	369
<i>Jobs-led Steady SENS1</i>	316	278	282
<b>Dwelling-led Planned</b>	<b>295</b>	<b>295</b>	<b>295</b>
<b>Jobs-led Steady</b>	<b>303</b>	<b>264</b>	<b>268</b>
<i>Jobs-led Steady SENS2</i>	285	248	252
<b>SNPP-2012</b>	<b>269</b>	<b>232</b>	<b>237</b>
<i>Jobs-led Baseline SENS1</i>	191	157	161
<b>Jobs-led Baseline</b>	<b>178</b>	<b>144</b>	<b>149</b>
<i>Jobs-led Baseline SENS2</i>	162	128	133
<b>Net Nil</b>	<b>-6</b>	<b>-34</b>	<b>-32</b>

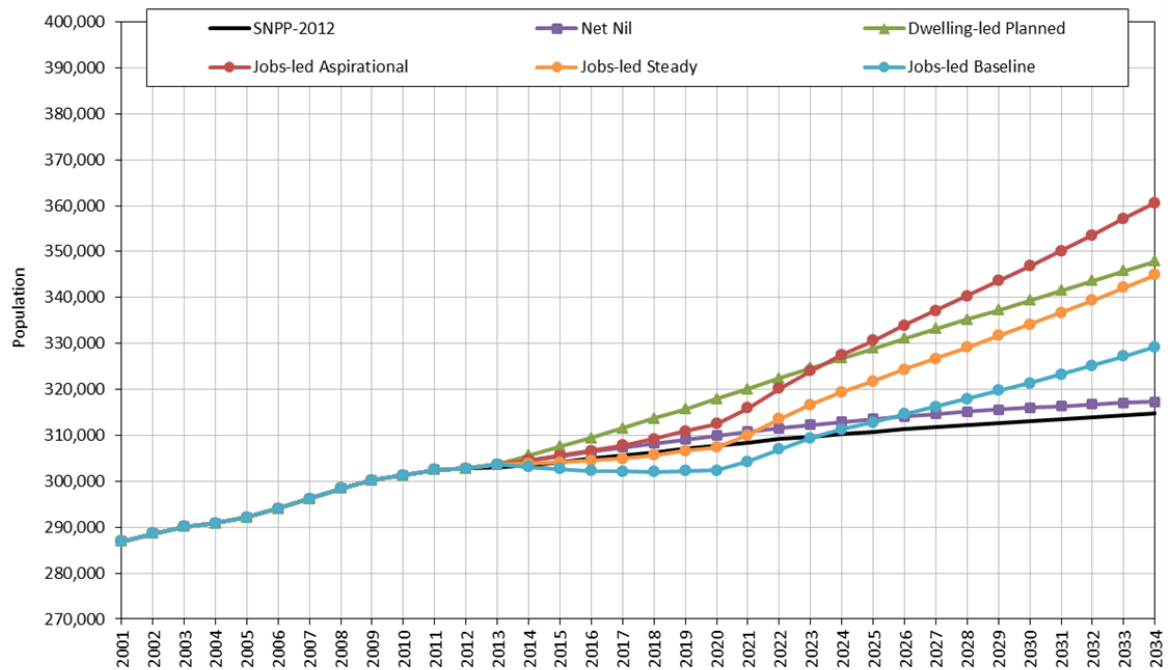
Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

## Doncaster

### *Core Scenario Growth Summary*

- 5.67 For Doncaster, the **SNPP-2012** scenario records total population growth of +3.7% (2014–2034), with an anticipated net migration impact of -52 per year (Figure 31).
- 5.68 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests slightly higher population growth (+4.2%), driven solely by natural change.
- 5.69 The **Dwelling-led Planned** scenario, which matches population growth to an annual dwelling completion target of +1,230, suggests relatively high population growth (+13.8%) compared to the SNPP benchmark.
- 5.70 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+18.4%), with higher annual net in-migration (+1,914) necessary to achieve the average annual jobs growth target of +1,186. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.

## Doncaster



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	56,026	18.4%	28,873	22.5%	1,914	1,493	1,186
Dwelling-led Planned	42,276	13.8%	23,785	18.5%	1,267	1,230	888
Jobs-led Steady	41,062	13.5%	23,077	18.0%	1,286	1,193	863
Jobs-led Baseline	26,110	8.6%	17,270	13.5%	657	893	540
Net Nil	12,744	4.2%	11,856	9.2%	0	613	231
SNPP-2012	11,098	3.7%	11,544	9.0%	-52	597	212

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

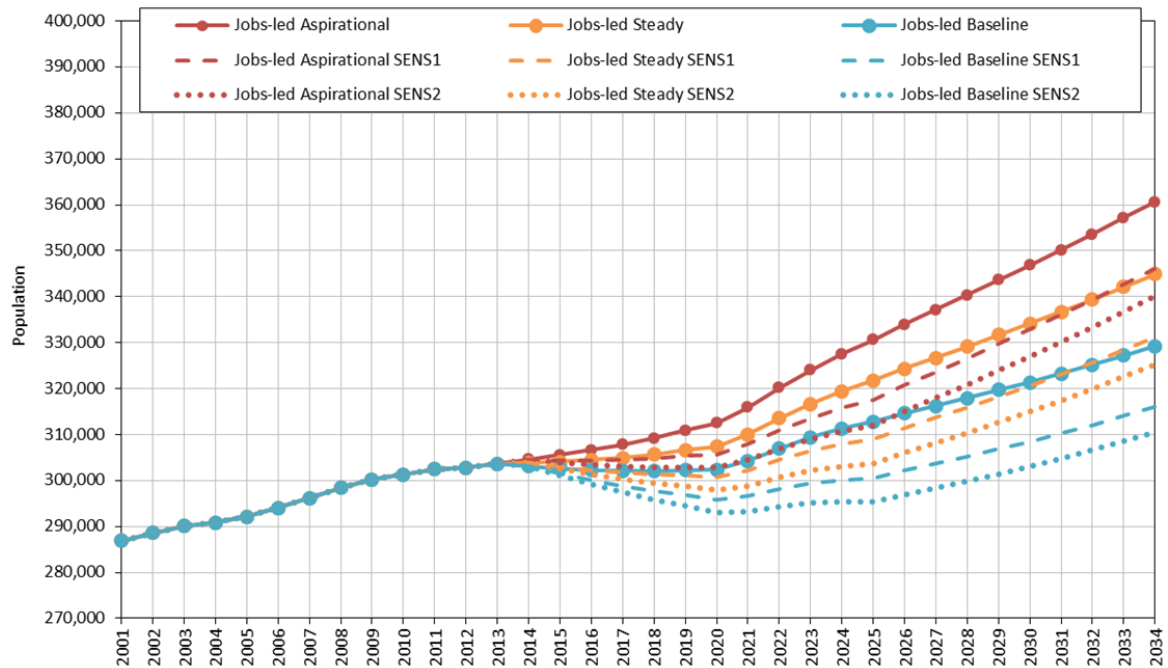
Figure 31: Doncaster, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.71 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +13.7% (**Jobs-led Aspirational SENS1**); +9.0% (**Jobs-led Steady SENS1**); and +4.3% (**Jobs-led Baseline SENS1**) (Figure 32). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.72 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +11.7% (**Jobs-led Aspirational SENS2**); +7.1% (**Jobs-led Steady SENS2**) and 2.5% (**Jobs-led Baseline SENS2**).
- 5.73 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Doncaster



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>56,026</b>	<b>18.4%</b>	<b>28,873</b>	<b>22.5%</b>	<b>1,914</b>	<b>1,493</b>	<b>1,186</b>
<i>Jobs-led Aspirational SENS1</i>	<i>41,613</i>	<i>13.7%</i>	<i>23,243</i>	<i>18.1%</i>	<i>1,334</i>	<i>1,202</i>	<i>1,186</i>
<b>Jobs-led Steady</b>	<b>41,062</b>	<b>13.5%</b>	<b>23,077</b>	<b>18.0%</b>	<b>1,286</b>	<b>1,193</b>	<b>863</b>
<i>Jobs-led Aspirational SENS2</i>	<i>35,529</i>	<i>11.7%</i>	<i>20,859</i>	<i>16.2%</i>	<i>1,088</i>	<i>1,079</i>	<i>1,186</i>
<i>Jobs-led Steady SENS1</i>	<i>27,305</i>	<i>9.0%</i>	<i>17,682</i>	<i>13.8%</i>	<i>733</i>	<i>914</i>	<i>863</i>
<b>Jobs-led Baseline</b>	<b>26,110</b>	<b>8.6%</b>	<b>17,270</b>	<b>13.5%</b>	<b>657</b>	<b>893</b>	<b>540</b>
<i>Jobs-led Steady SENS2</i>	<i>21,497</i>	<i>7.1%</i>	<i>15,398</i>	<i>12.0%</i>	<i>499</i>	<i>796</i>	<i>863</i>
<i>Jobs-led Baseline SENS1</i>	<i>13,008</i>	<i>4.3%</i>	<i>12,110</i>	<i>9.5%</i>	<i>131</i>	<i>626</i>	<i>540</i>
<i>Jobs-led Baseline SENS2</i>	<i>7,477</i>	<i>2.5%</i>	<i>9,925</i>	<i>7.8%</i>	<i>-92</i>	<i>513</i>	<i>540</i>

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 32: Doncaster, HH-12 jobs-led (core and sensitivity) scenario outcomes



### Dwelling Growth Implications

- 5.74 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +513 (**Jobs-led Baseline SENS2**) to +1,493 (**Jobs-led Aspirational**) (Table 17).
- 5.75 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 17: Doncaster, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>1,615</b>	<b>1,357</b>	<b>1,493</b>
<b>Dwelling-led Planned</b>	<b>1,230</b>	<b>1,230</b>	<b>1,230</b>
<i>Jobs-led Aspirational SENS1</i>	<i>1,317</i>	<i>1,064</i>	<i>1,202</i>
<b>Jobs-led Steady</b>	<b>1,309</b>	<b>1,057</b>	<b>1,193</b>
<i>Jobs-led Aspirational SENS2</i>	<i>1,190</i>	<i>940</i>	<i>1,079</i>
<i>Jobs-led Steady SENS1</i>	<i>1,023</i>	<i>777</i>	<i>914</i>
<b>Jobs-led Baseline</b>	<b>1,003</b>	<b>758</b>	<b>893</b>
<i>Jobs-led Steady SENS2</i>	<i>902</i>	<i>659</i>	<i>796</i>
<b>Net Nil</b>	<b>730</b>	<b>491</b>	<b>613</b>
<i>Jobs-led Baseline SENS1</i>	<i>730</i>	<i>490</i>	<i>626</i>
<b>SNPP-2012</b>	<b>709</b>	<b>471</b>	<b>597</b>
<i>Jobs-led Baseline SENS2</i>	<i>614</i>	<i>377</i>	<i>513</i>

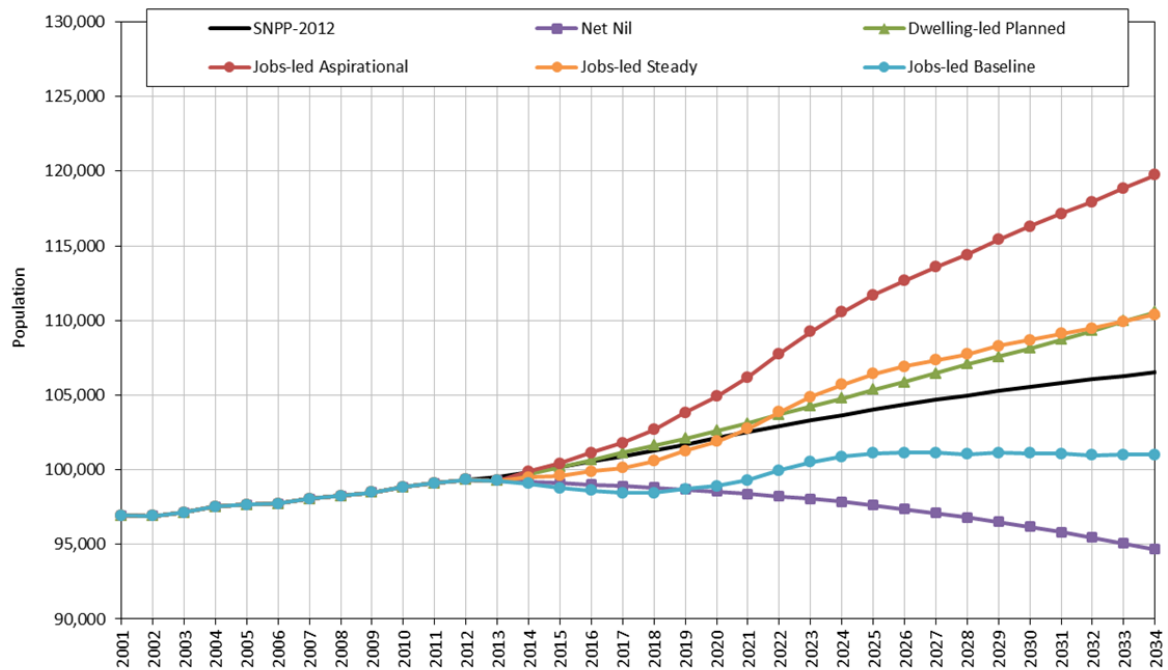
Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

## North East Derbyshire

### *Core Scenario Growth Summary*

- 5.76 For North East Derbyshire, the **SNPP-2012** scenario records total population growth of +6.7% (2014–2034), with an anticipated net migration impact of +497 per year (Figure 33).
- 5.77 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests population decline (-4.6%), driven solely by natural change.
- 5.78 The **Dwelling-led Planned** scenario, which matches population growth to an annual dwelling completion target of +315, suggests relatively high population growth (+10.9%) compared to the SNPP benchmark.
- 5.79 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+19.9%), with higher annual net in-migration (+1,093) necessary to achieve the average annual jobs growth target of +188. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.
- 5.80 The **Jobs-led Baseline** scenario suggests the lowest population, household and dwelling requirement (apart from the **Net Nil** scenario) due to the forecast decline in employment growth, shown in Table 5 and Table 6. This supports the Council's Strategic Housing Market Assessment research conclusion that the district's economy is not a significant driver of housing growth. This is also supported by the fact that the **SNPP-2012** scenario, which is based upon recent population trends, suggests higher population, household and dwelling growth.
- 5.81 The **Jobs-led Steady** and **Jobs-led Aspirational** scenarios raise the population and housing projections in line with the outcome of the Ekosgen forecasts shown in Table 5, in combination with the underpinning assumptions on (relatively low) levels of economic activity and (relatively high) levels of out-commuting (see Table 7 and Table 24).

## North East Derbyshire



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	19,858	19.9%	9,713	22.2%	1,093	497	188
Jobs-led Steady	10,896	11.0%	6,181	14.2%	692	316	51
Dwelling-led Planned	10,825	10.9%	6,160	14.1%	690	315	50
SNPP-2012	6,673	6.7%	4,565	10.4%	497	233	-11
Jobs-led Baseline	1,930	1.9%	2,622	6.0%	288	134	-87
Net Nil	-4,513	-4.6%	92	0.2%	0	5	-185

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

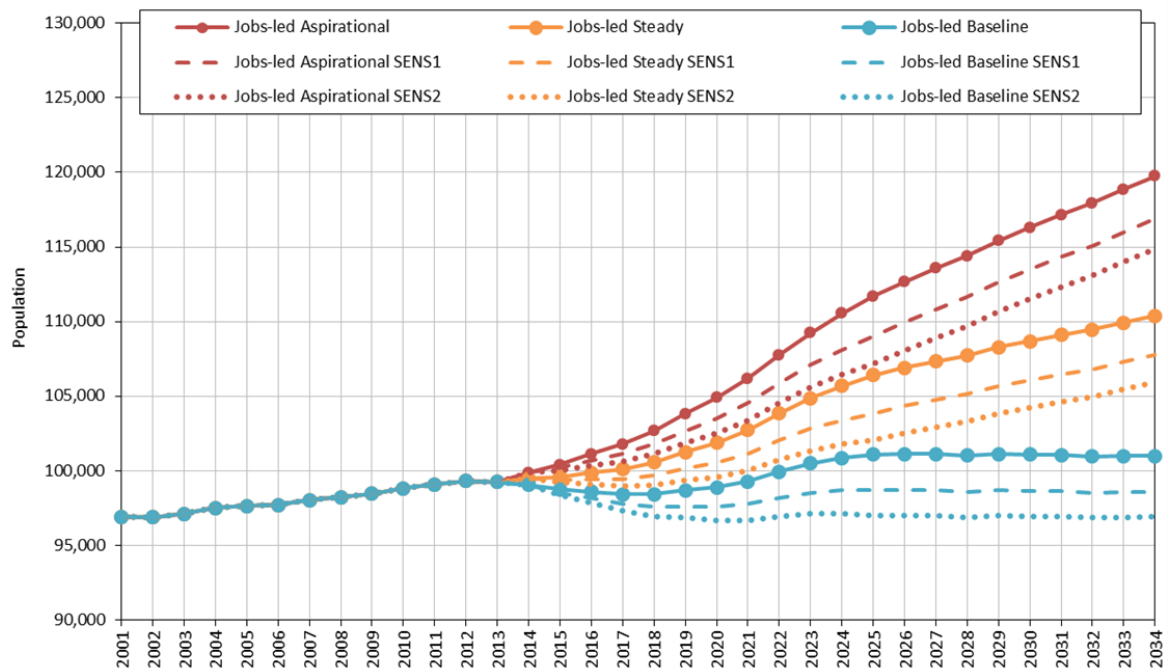
Figure 33: North East Derbyshire, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.82 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +17.0% (**Jobs-led Aspirational SENS1**) and 8.3% (**Jobs-led Steady SENS1**), with the **Jobs-led Baseline SENS1** scenario suggesting population decline (-0.5%) (Figure 34). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.83 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +15.0% (**Jobs-led Aspirational SENS2**) and +6.5% (**Jobs-led Steady SENS2**), with the **Jobs-led Baseline SENS2** scenario suggesting even greater population decline (-2.2%).
- 5.84 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## North East Derbyshire



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>19,858</b>	<b>19.9%</b>	<b>9,713</b>	<b>22.2%</b>	<b>1,093</b>	<b>497</b>	<b>188</b>
<i>Jobs-led Aspirational SENS1</i>	16,991	17.0%	8,573	19.6%	968	438	188
<i>Jobs-led Aspirational SENS2</i>	14,984	15.0%	7,772	17.7%	881	397	188
<b>Jobs-led Steady</b>	<b>10,896</b>	<b>11.0%</b>	<b>6,181</b>	<b>14.2%</b>	<b>692</b>	<b>316</b>	<b>51</b>
<i>Jobs-led Steady SENS1</i>	8,265	8.3%	5,125	11.7%	577	262	51
<i>Jobs-led Steady SENS2</i>	6,423	6.5%	4,383	10.0%	497	224	51
<b>Jobs-led Baseline</b>	<b>1,930</b>	<b>1.9%</b>	<b>2,622</b>	<b>6.0%</b>	<b>288</b>	<b>134</b>	<b>-87</b>
<i>Jobs-led Baseline SENS1</i>	-465	-0.5%	1,649	3.8%	184	84	-87
<i>Jobs-led Baseline SENS2</i>	-2,142	-2.2%	967	2.2%	111	49	-87

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 34: North East Derbyshire, HH-12 jobs-led (core and sensitivity) scenario outcomes

### *Dwelling Growth Implications*

- 5.85 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +5 (**Net Nil**) to +497 (**Jobs-led Aspirational**) (Table 18).
- 5.86 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 18: North East Derbyshire, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>537</b>	<b>468</b>	<b>497</b>
<i>Jobs-led Aspirational SENS1</i>	<i>477</i>	<i>410</i>	<i>438</i>
<i>Jobs-led Aspirational SENS2</i>	<i>435</i>	<i>369</i>	<i>397</i>
<b>Jobs-led Steady</b>	<b>352</b>	<b>289</b>	<b>316</b>
<b>Dwelling-led Planned</b>	<b>315</b>	<b>315</b>	<b>315</b>
<i>Jobs-led Steady SENS1</i>	<i>297</i>	<i>235</i>	<i>262</i>
<b>SNPP-2012</b>	<b>268</b>	<b>206</b>	<b>233</b>
<i>Jobs-led Steady SENS2</i>	<i>259</i>	<i>197</i>	<i>224</i>
<b>Jobs-led Baseline</b>	<b>167</b>	<b>108</b>	<b>134</b>
<i>Jobs-led Baseline SENS1</i>	<i>117</i>	<i>59</i>	<i>84</i>
<i>Jobs-led Baseline SENS2</i>	<i>81</i>	<i>24</i>	<i>49</i>
<b>Net Nil</b>	<b>38</b>	<b>-18</b>	<b>5</b>

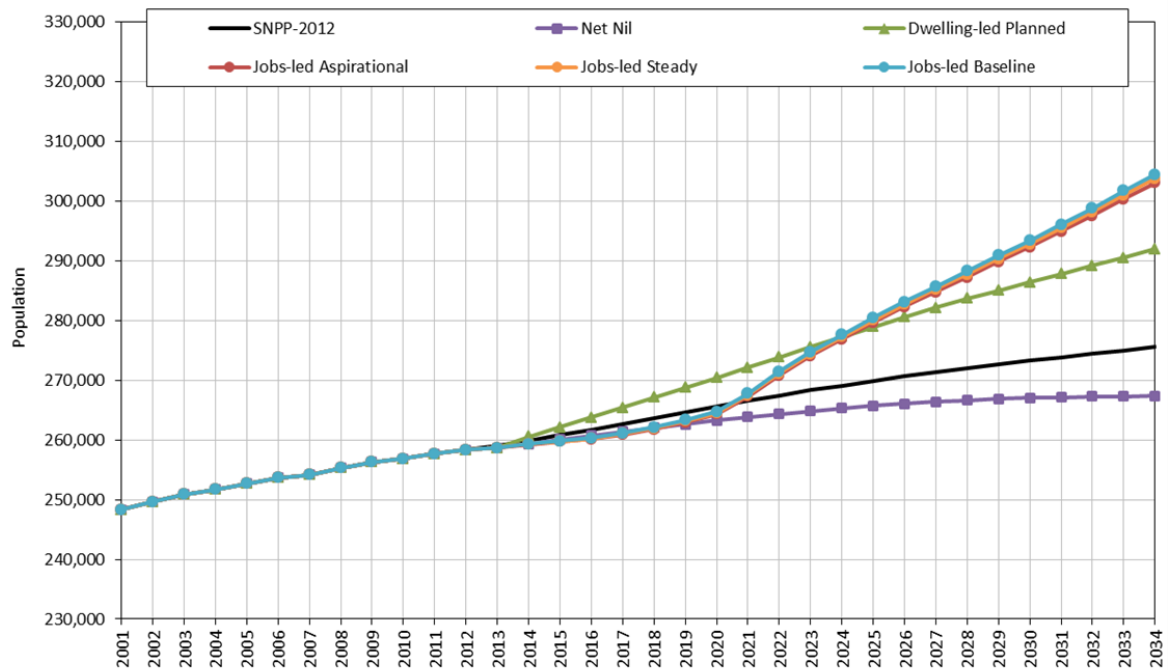
Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

## Rotherham

### *Core Scenario Growth Summary*

- 5.87 For Rotherham, the **SNPP-2012** scenario records total population growth of +6.0% (2014–2034), with an anticipated net migration impact of +331 per year (Figure 35).
- 5.88 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests lower population growth (+3.1%), driven solely by natural change.
- 5.89 The **Dwelling-led Planned** scenario, which matches population growth to an *average* annual dwelling completion target of +926, suggests relatively high population growth (+12.1%) compared to the SNPP benchmark.
- 5.90 The highest level of population growth is suggested by the **Jobs-led Baseline** scenario (+17.4%), with higher annual net in-migration (+1,652) necessary to achieve the average annual jobs growth target of +940. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.
- 5.91 The reason the **Jobs-led Baseline** scenario suggests higher population, household and dwelling growth than the **Jobs-led Aspirational** and **Jobs-led Steady** scenarios can be explained by the unprecedented level of jobs growth that occurred in Rotherham during the period 1999–2004, when around 25,000 additional jobs were created. This was mainly due to large scale regeneration within the Dearne Valley area (a large scale brownfield site at Manvers primarily), which was backed with Objective 1 moneys and resulted in significant investment and location of businesses, particularly large scale call centre operations, employing several thousand people. This inflated the scale of growth that would usually be expected. Historical employment growth, and therefore the trend-based **Jobs-led Baseline** scenario, is therefore ‘inflated’ in the case of Rotherham.

## Rotherham



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Baseline	45,156	17.4%	22,960	20.9%	1,652	1,188	940
Jobs-led Steady	44,490	17.2%	22,706	20.7%	1,624	1,174	926
Jobs-led Aspirational	43,824	16.9%	22,452	20.5%	1,596	1,161	912
Dwelling-led Planned	31,406	12.1%	17,896	16.3%	999	926	648
SNPP-2012	15,678	6.0%	11,865	10.8%	331	614	309
Net Nil	7,993	3.1%	8,262	7.5%	0	427	127

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 35: Rotherham, HH-12 core scenario outcomes

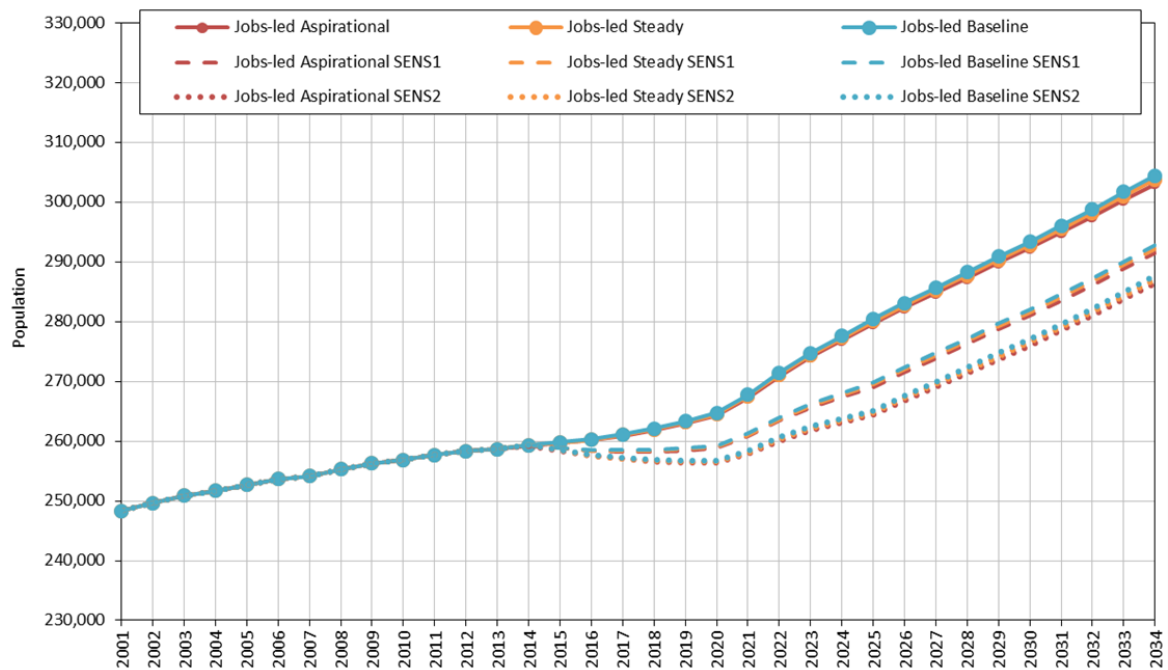


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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.92 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +12.9% (**Jobs-led Baseline SENS1**); 12.7% (**Jobs-led Steady SENS1**); and 12.4% (**Jobs-led Aspirational SENS1**) (Figure 36). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.93 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: 10.9% (**Jobs-led Baseline SENS2**); 10.7% (**Jobs-led Steady SENS2**); and 10.5% (**Jobs-led Aspirational SENS2**).
- 5.94 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Rotherham



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Baseline</b>	<b>45,156</b>	<b>17.4%</b>	<b>22,960</b>	<b>20.9%</b>	<b>1,652</b>	<b>1,188</b>	<b>940</b>
<b>Jobs-led Steady</b>	<b>44,490</b>	<b>17.2%</b>	<b>22,706</b>	<b>20.7%</b>	<b>1,624</b>	<b>1,174</b>	<b>926</b>
<b>Jobs-led Aspirational</b>	<b>43,824</b>	<b>16.9%</b>	<b>22,452</b>	<b>20.5%</b>	<b>1,596</b>	<b>1,161</b>	<b>912</b>
<i>Jobs-led Baseline SENS1</i>	<i>33,536</i>	<i>12.9%</i>	<i>18,507</i>	<i>16.9%</i>	<i>1,184</i>	<i>957</i>	<i>940</i>
<i>Jobs-led Steady SENS1</i>	<i>32,898</i>	<i>12.7%</i>	<i>18,263</i>	<i>16.7%</i>	<i>1,157</i>	<i>945</i>	<i>926</i>
<i>Jobs-led Aspirational SENS1</i>	<i>32,260</i>	<i>12.4%</i>	<i>18,019</i>	<i>16.4%</i>	<i>1,130</i>	<i>932</i>	<i>912</i>
<i>Jobs-led Baseline SENS2</i>	<i>28,394</i>	<i>10.9%</i>	<i>16,531</i>	<i>15.1%</i>	<i>977</i>	<i>855</i>	<i>940</i>
<i>Jobs-led Steady SENS2</i>	<i>27,768</i>	<i>10.7%</i>	<i>16,291</i>	<i>14.9%</i>	<i>950</i>	<i>843</i>	<i>926</i>
<i>Jobs-led Aspirational SENS2</i>	<i>27,142</i>	<i>10.5%</i>	<i>16,051</i>	<i>14.6%</i>	<i>924</i>	<i>830</i>	<i>912</i>

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 36: Rotherham, HH-12 jobs-led (core and sensitivity) scenario outcomes

### Dwelling Growth Implications

- 5.95 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +427 (**Net Nil**) to +1,188 (**Jobs-led Baseline**) (Table 19).
- 5.96 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 19: Rotherham, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Baseline</b>	<b>1,262</b>	<b>1,037</b>	<b>1,188</b>
<b>Jobs-led Steady</b>	<b>1,249</b>	<b>1,024</b>	<b>1,174</b>
<b>Jobs-led Aspirational</b>	<b>1,235</b>	<b>1,011</b>	<b>1,161</b>
<b>Dwelling-led Planned</b>	<b>926</b>	<b>926</b>	<b>926</b>
<i>Jobs-led Baseline SENS1</i>	<i>1,027</i>	<i>808</i>	<i>957</i>
<i>Jobs-led Steady SENS1</i>	<i>1,014</i>	<i>795</i>	<i>945</i>
<i>Jobs-led Aspirational SENS1</i>	<i>1,002</i>	<i>783</i>	<i>932</i>
<i>Jobs-led Baseline SENS2</i>	<i>923</i>	<i>706</i>	<i>855</i>
<i>Jobs-led Steady SENS2</i>	<i>911</i>	<i>694</i>	<i>843</i>
<i>Jobs-led Aspirational SENS2</i>	<i>898</i>	<i>682</i>	<i>830</i>
<b>SNPP-2012</b>	<b>688</b>	<b>488</b>	<b>614</b>
<b>Net Nil</b>	<b>512</b>	<b>317</b>	<b>427</b>

Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.

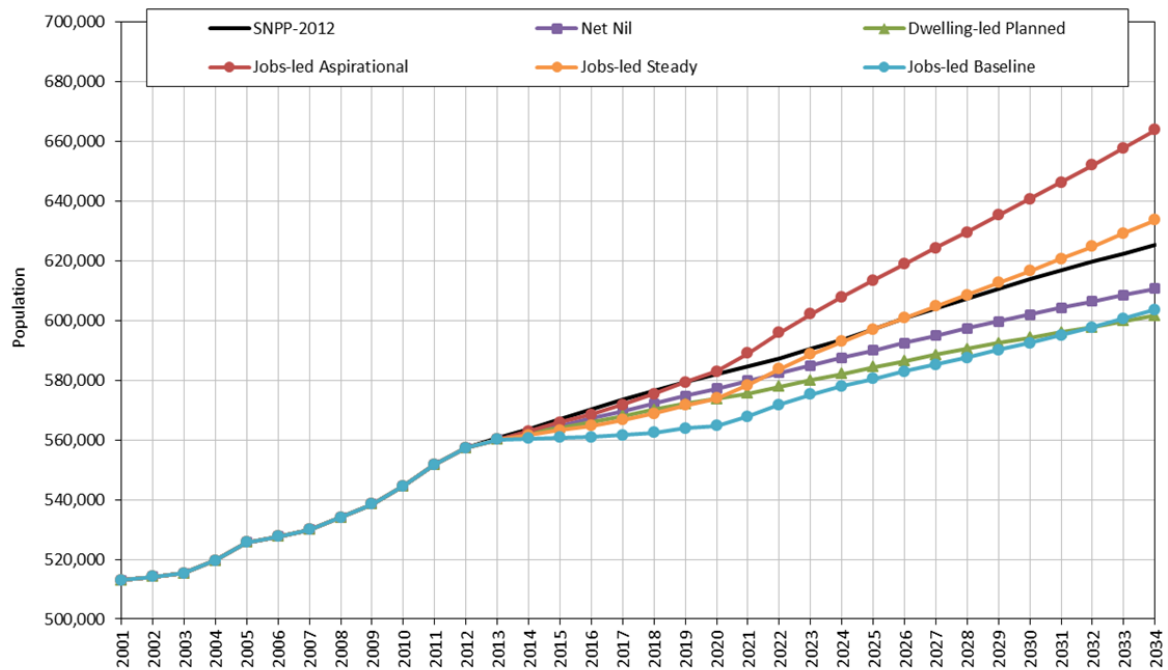
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## Sheffield

### *Core Scenario Growth Summary*

- 5.97 For Sheffield, the **SNPP-2012** scenario records total population growth of +10.9% (2014–2034), with an anticipated net migration impact of +560 per year (Figure 37).
- 5.98 Compared to the SNPP benchmark, the alternative, **Net Nil**, trend scenario, which applies a zero net migration balance in each year of the forecast, suggests lower population growth (+8.6%), driven solely by natural change.
- 5.99 The **Dwelling-led Planned** scenario, which matches population growth to an *average* annual dwelling completion target of +1,450, suggests relatively low population growth (+7.0%) compared to the SNPP benchmark.
- 5.100 The highest level of population growth is suggested by the **Jobs-led Aspirational** scenario (+17.9%), with higher annual net in-migration (+2,272) necessary to achieve the average annual jobs growth target of +2,562. This scenario assumes that underpinning economic activity rates remain at their starting value over the forecast period, unemployment rates decline to a pre-recession average and commuting ratios remain unchanged from their 2011 Census position.

## Sheffield



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led Aspirational	100,871	17.9%	51,718	22.0%	2,272	2,663	2,562
Jobs-led Steady	72,011	12.8%	40,551	17.3%	1,104	2,088	1,851
SNPP-2012	61,384	10.9%	36,809	15.7%	560	1,896	1,544
Net Nil	48,327	8.6%	27,522	11.8%	0	1,417	1,116
Jobs-led Baseline	43,180	7.7%	29,368	12.6%	-66	1,512	1,140
Dwelling-led Planned	39,131	7.0%	28,149	12.0%	-329	1,450	1,013

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

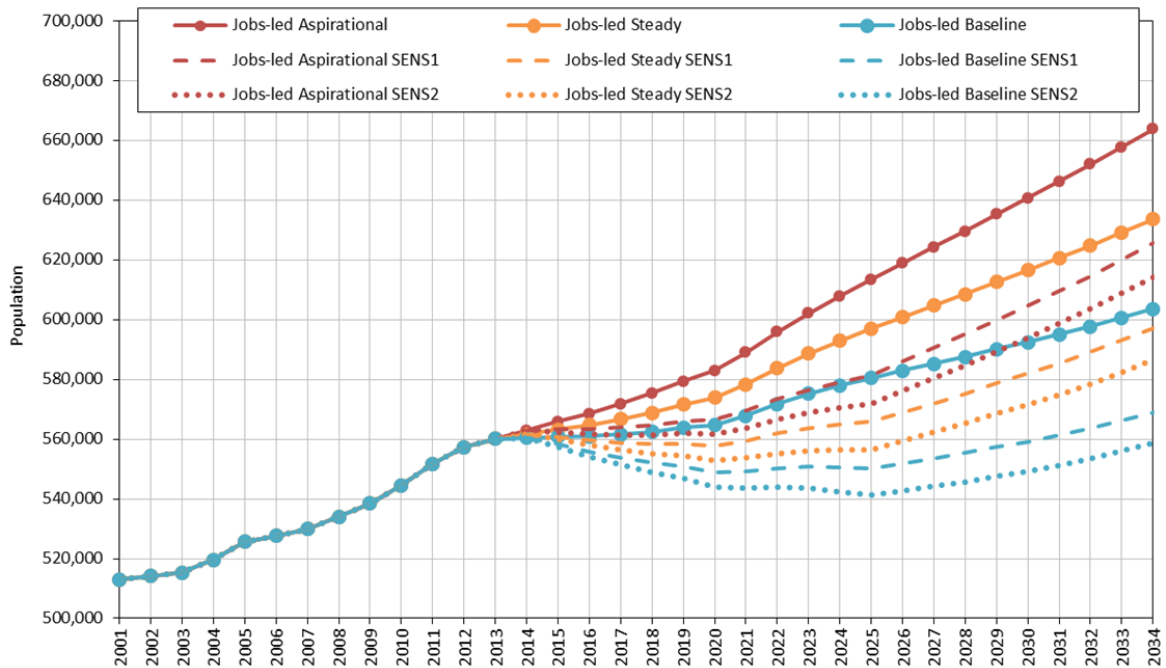
Figure 37: Sheffield, HH-12 core scenario outcomes

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### *Jobs-led Sensitivity Scenario Growth Summary*

- 5.101 For the three jobs-led scenarios, the application of alternative economic assumptions, which assume that an economic activity rate of 70% (the 2011 Census average for England and Wales) is achieved in the district by 2025 (**SENS1**), results in reduced population growth: +11.1% (**Jobs-led Aspirational SENS1**); 6.3% (**Jobs-led Steady SENS1**); and 1.5% (**Jobs-led Baseline SENS1**) (Figure 38). This reflects a larger proportion of jobs being taken up by local residents, which reduces the impact of growth through migration.
- 5.102 Raising the 2025 economic activity rate 'target' to 71% (**SENS2**) results in a further increase in the proportion of jobs taken up by local residents. Consequently, the **SENS2** scenarios suggest a further reduction in population growth: +9.1% (**Jobs-led Aspirational SENS2**) and +4.4% (**Jobs-led Steady SENS2**), with the **Jobs-led Baseline SENS2** scenario suggesting population decline (-0.3%).
- 5.103 All of the **SENS1** and **SENS2** jobs-led sensitivity scenarios are underpinned by the same assumptions on unemployment and commuting as the core jobs-led scenarios.

## Sheffield



Scenario	Change 2014 - 2034				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
<b>Jobs-led Aspirational</b>	<b>100,871</b>	<b>17.9%</b>	<b>51,718</b>	<b>22.0%</b>	<b>2,272</b>	<b>2,663</b>	<b>2,562</b>
<b>Jobs-led Steady</b>	<b>72,011</b>	<b>12.8%</b>	<b>40,551</b>	<b>17.3%</b>	<b>1,104</b>	<b>2,088</b>	<b>1,851</b>
<i>Jobs-led Aspirational SENS1</i>	<i>62,663</i>	<i>11.1%</i>	<i>36,803</i>	<i>15.7%</i>	<i>803</i>	<i>1,895</i>	<i>2,562</i>
<i>Jobs-led Aspirational SENS2</i>	<i>51,367</i>	<i>9.1%</i>	<i>32,378</i>	<i>13.8%</i>	<i>368</i>	<i>1,667</i>	<i>2,562</i>
<b>Jobs-led Baseline</b>	<b>43,180</b>	<b>7.7%</b>	<b>29,368</b>	<b>12.6%</b>	<b>-66</b>	<b>1,512</b>	<b>1,140</b>
<i>Jobs-led Steady SENS1</i>	<i>35,582</i>	<i>6.3%</i>	<i>26,278</i>	<i>11.2%</i>	<i>-296</i>	<i>1,353</i>	<i>1,851</i>
<i>Jobs-led Steady SENS2</i>	<i>24,811</i>	<i>4.4%</i>	<i>22,042</i>	<i>9.4%</i>	<i>-711</i>	<i>1,135</i>	<i>1,851</i>
<i>Jobs-led Baseline SENS1</i>	<i>8,529</i>	<i>1.5%</i>	<i>15,737</i>	<i>6.7%</i>	<i>-1,397</i>	<i>810</i>	<i>1,140</i>
<i>Jobs-led Baseline SENS2</i>	<i>-1,716</i>	<i>-0.3%</i>	<i>11,691</i>	<i>5.0%</i>	<i>-1,792</i>	<i>602</i>	<i>1,140</i>

Note: household and dwelling growth outcomes have been calculated using the 2012-based household assumptions

Figure 38: Sheffield, HH-12 jobs-led (core and sensitivity) scenario outcomes

## Dwelling Growth Implications

- 5.104 With the application of the 2012-based household headship rates, average annual dwelling requirements suggested by the scenarios range from +602 (**Jobs-led Baseline SENS1**) to +2,663 (**Jobs-led Aspirational**) (Table 20).
- 5.105 Compared to the **HH-08** and **HH-11** outcomes, the general pattern resulting from the **HH-12** outcomes is for *higher* dwelling growth compared to the **HH-11** scenarios (reflecting a higher rate of projected household formation), but a *lower* rate of dwelling growth compared to the **HH-08** scenarios (reflecting a lower rate of projected household formation).

Table 20: Sheffield, dwelling growth requirements comparison

Scenario	Average annual dwelling requirement (2014–2034)		
	Option (HH-08)	Option (HH-11)	Option (HH-12)
<b>Jobs-led Aspirational</b>	<b>2,942</b>	<b>2,578</b>	<b>2,663</b>
<b>Jobs-led Steady</b>	<b>2,356</b>	<b>2,021</b>	<b>2,088</b>
<b>SNPP-2012</b>	<b>2,168</b>	<b>1,853</b>	<b>1,896</b>
<i>Jobs-led Aspirational SENS1</i>	<i>2,159</i>	<i>1,823</i>	<i>1,895</i>
<i>Jobs-led Aspirational SENS2</i>	<i>1,927</i>	<i>1,599</i>	<i>1,667</i>
<b>Jobs-led Baseline</b>	<b>1,769</b>	<b>1,463</b>	<b>1,512</b>
<b>Net Nil</b>	<b>1,750</b>	<b>1,430</b>	<b>1,417</b>
<i>Jobs-led Steady SENS1</i>	<i>1,607</i>	<i>1,298</i>	<i>1,353</i>
<b>Dwelling-led Planned</b>	<b>1,450</b>	<b>1,450</b>	<b>1,450</b>
<i>Jobs-led Steady SENS2</i>	<i>1,385</i>	<i>1,083</i>	<i>1,135</i>
<i>Jobs-led Baseline SENS1</i>	<i>1,054</i>	<i>772</i>	<i>810</i>
<i>Jobs-led Baseline SENS2</i>	<i>842</i>	<i>566</i>	<i>602</i>

Note: Dwelling requirements suggested by the **Jobs-led Aspirational** and **Jobs-led Aspirational SENS1/SENS2** scenarios differ to those presented in the Phase 1 SCR report (i.e. the **Jobs-led (70,000)** and **Jobs-led (70,000) EA Sens** scenarios) due to the inclusion of an additional year of historical population data for each district (the 2013 MYE) and the application of alternative assumptions on economic activity, unemployment and commuting.



## 6. Conclusion

### Summary

- 6.1 The purpose of this Phase 2 analysis has been to produce a robust and consistent evidence base for the individual local authority districts within the SCR, including a review of the latest official population projections from ONS and the latest household projections from DCLG.
- 6.2 A consistent set of demographic growth scenarios has been presented for the SCR member authorities to consider, to inform spatial policy developments and to facilitate the statutory duty to co-operate.
- 6.3 The POPGROUP suite of demographic forecasting models has been used, ensuring a robustness and consistency of approach. 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.
- 6.4 The Phase 2 analysis has presented new material for the SCR member authorities to consider, updating the evidence from the previous Phase 1 report. The new information includes:
- The latest 2012-based population projections from ONS, with updated assumptions on migration, fertility and mortality.
  - Statistics from the 2012 and 2013 MYEs
  - The evaluation of all growth scenarios using the 2012-based, 2008-based and 2011-based interim DCLG household models.
  - Housing-growth and jobs-growth trajectories.
- 6.5 With a 2014–2034 horizon a range of population growth scenarios has been presented for each of the SCR districts:
- The ONS 2012-based population projection
  - A net nil scenario

- A dwelling-led scenario based on annual dwelling completion targets from current adopted/emerging plans.
- Three jobs-led scenarios based upon 'Aspirational', 'Steady' and 'Baseline' jobs growth trajectories.

## Further Issues for Consideration

### *2012-based Household Model Assumptions*

- 6.6 The latest DCLG 2012-based household projection data has provided national and local authority projections and assumptions for the total number of households by age-group and relationship status group (i.e. Stage One). DCLG intends to release additional data (Stage Two) which enables disaggregation of these projections by each of seventeen household types, although a date for the future release of this information has not been set. Whilst this new data will provide further detail to the household outputs, it is not expected that they will change the household growth assumptions implied by the Stage One, which will continue to provide the controlling totals for each local authority district.
- 6.7 It is recommended that the scenario outcomes are reconsidered when the Stage Two data is released by DCLG, providing additional detail on the profile of growth by household-type implied by the 2012-based household projection assumptions.

### *Additional Scenarios*

- 6.8 The **SENS1** and **SENS2** jobs-led sensitivity scenarios presented in this report consider the implications upon future housing growth of higher economic activity rates in the SCR districts.
- 6.9 SCR member authorities might also consider how alternative commuting assumptions may affect the three jobs-led scenario outcomes. The 2011 Census commuting ratios (presented in Table 24) provide a 'snapshot' of commuting activity. Altering the balance between the size of the resident workforce and the number of jobs available could result in alternative scenario outcomes.

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# Appendix A

## POPGROUP Methodology

### Forecasting Methodology

- A.1 Evidence is often challenged on the basis of the appropriateness of the methodology that has been employed to develop growth forecasts. The use of a recognised forecasting product which incorporates an industry-standard methodology (a cohort component model) removes this obstacle and enables a focus on assumptions and output, rather than methods.
- A.2 Demographic forecasts have been developed using the POPGROUP suite of products. POPGROUP is a family of demographic models that enables forecasts to be derived for population, households and the labour force, for areas and social groups. The main POPGROUP model (Figure 39) is a cohort component model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions.
- A.3 The Derived Forecast (DF) model (Figure 40) sits alongside the population model, providing a headship rate model for household projections and an economic activity rate model for labour-force projections.
- A.4 The latest development in the POPGROUP suite of demographic models is POPGROUP v.4, which was released in January 2014. A number of changes have been made to the POPGROUP model to improve its operation and to ensure greater consistency with ONS forecasting methods. The most significant methodological change relates to the handling of internal migration in the POPGROUP forecasting model. The level of internal in-migration to an area is now calculated as a rate of migration relative to a defined 'reference population' (by default the UK population), rather than as a rate of migration relative to the population of the area itself (as in POPGROUP v3.1). This approach ensures a closer alignment with the 'multi-regional' approach to modelling migration that is used by ONS.

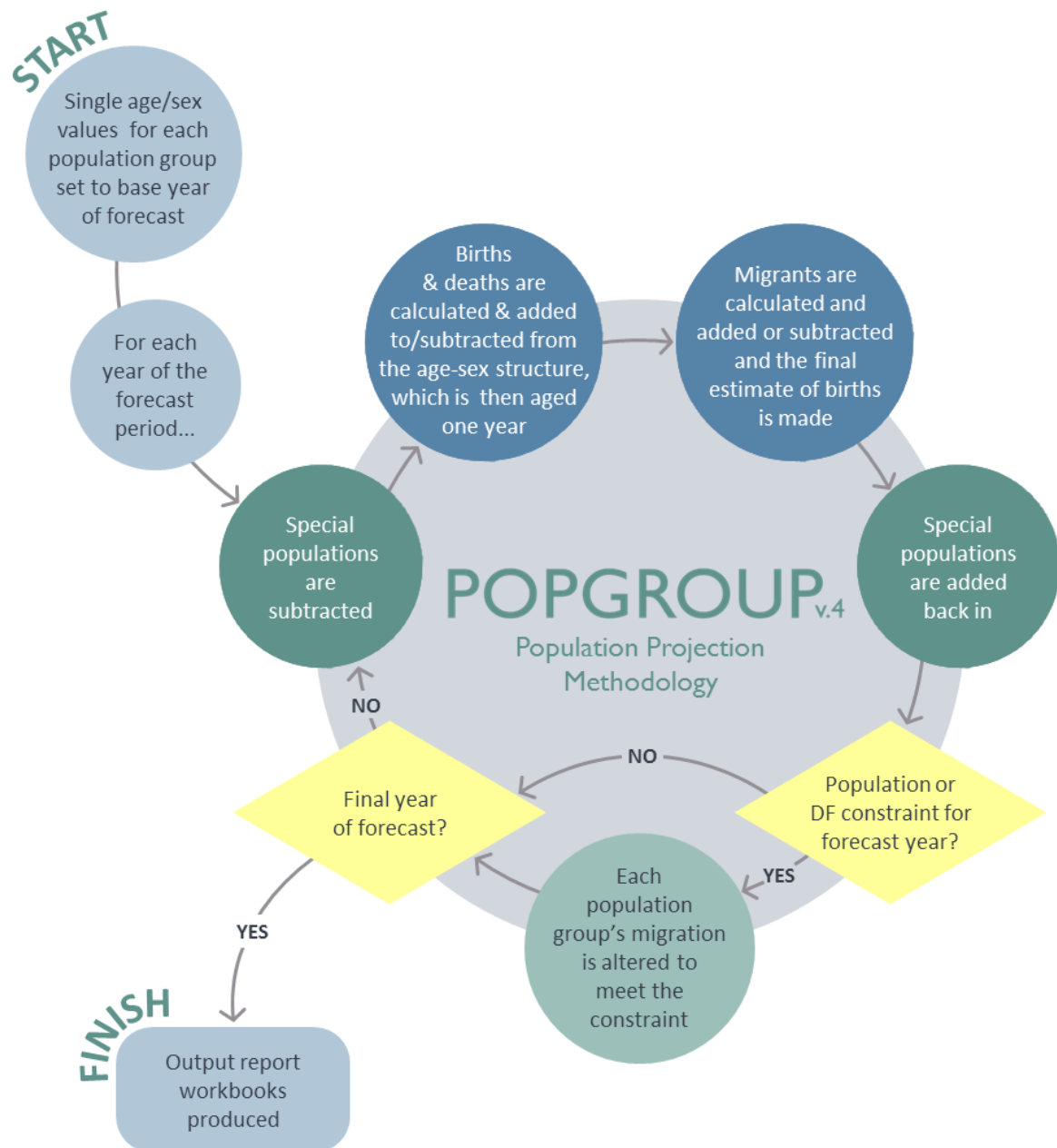
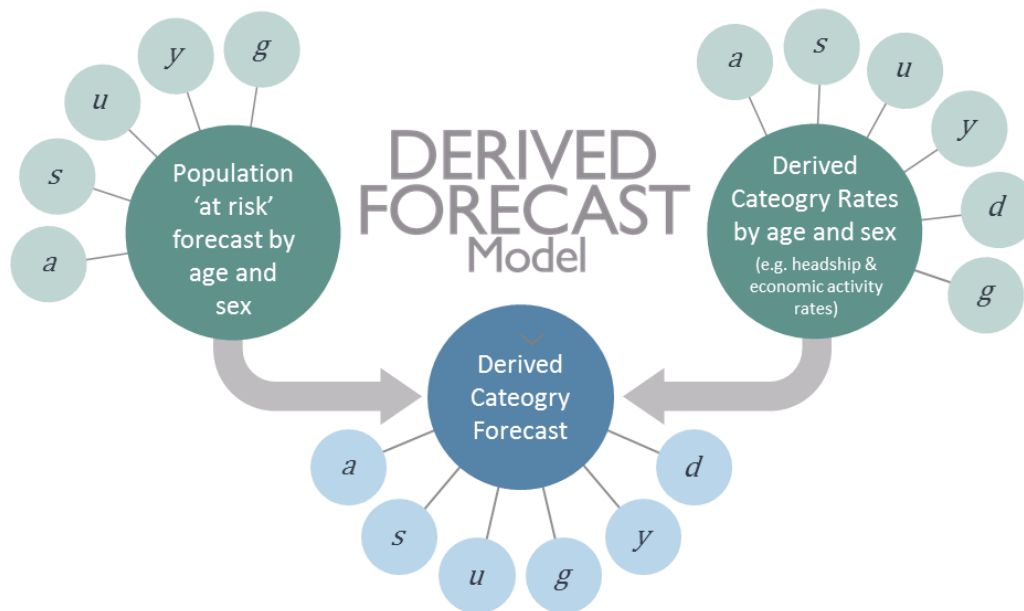


Figure 39: POPGROUP population projection methodology.



$$D_{a,s,u,y,d,g} = \frac{P_{a,s,u,y,g} R_{a,s,u,y,d,g}}{100}$$

<i>D</i>	Derived Category Forecast	<i>y</i>	Year
<i>P</i>	Population 'at risk' Forecast	<i>d</i>	Derived category
<i>R</i>	Derived Category Rates	<i>g</i>	Group (usually an area, but can be an ethnic group or social group)
<i>a</i>	Age-group		
<i>s</i>	Sex		
<i>u</i>	Sub-population		

Figure 40: Derived Forecast (DF) methodology

# Appendix B

## Data Inputs & Assumptions

### Introduction

- B.1 Edge Analytics has developed a suite of demographic scenarios for the Sheffield City Region (SCR) and its nine constituent local authority districts (Barnsley, Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales, Doncaster, North East Derbyshire, Rotherham and Sheffield) using POPGROUP v.4 and the Derived Forecast model.
- B.2 The POPGROUP model draws data from a number of sources, building an historical picture of population, households, fertility, mortality and migration on which to base its scenario forecasts. Using historical data evidence for 2001–2013, in conjunction with information from ONS sub-national population projections (SNPP) and DCLG household projections, a series of assumptions have been derived which drive the scenario forecasts.
- B.3 The following core scenarios have been produced:
- **SNPP-2012**
  - **Net Nil**
  - **Dwelling-led Planned**
  - **Jobs-led Aspirational**
  - **Jobs-led Steady**
  - **Jobs-led Baseline**
- B.4 The following jobs-led sensitivity scenarios have also been produced:
- **Jobs-led Aspirational SENS1 and Jobs-led Aspirational SENS2**
  - **Jobs-led Steady SENS1 and Jobs-led Steady SENS2**
  - **Jobs-led Baseline SENS1 and Jobs-led Baseline SENS2**
- B.5 In the following sections, a narrative on the data inputs and assumptions underpinning the scenarios is presented.

## Population, Births & Deaths

### *Population*

- B.6 In each scenario, historical population statistics are provided by the mid-year population estimates (MYEs) for 2001–2013, with all data recorded by single-year of age and sex. These data include the revised MYEs for 2002–2010, which were released by ONS in May 2013. The revised MYEs provide consistency in the measurement of the components of change (i.e. births, deaths, internal migration and international migration) between the 2001 and 2011 Censuses.
- B.7 In the **SNPP-2012** scenario, future population counts are provided by single-year of age and sex to ensure consistency with the trajectory of the ONS 2012-based SNPP.

### *Births & Fertility*

- B.8 In each scenario, historical mid-year to mid-year counts of births by sex from 2001/02–2012/13 have been sourced from ONS Vital Statistics.
- B.9 In the **SNPP-2012** scenario, future counts of births are specified to ensure consistency with the official projections.
- B.10 In the other scenarios, a ‘local’ (i.e. area-specific) age-specific fertility rate (ASFR) schedule, which measures the expected fertility rates by age in 2013/14, is included in the POPGROUP model assumptions. This is derived from the ONS 2012-based SNPP.
- B.11 Long-term assumptions on changes in age-specific fertility rates are taken from the ONS 2012-based SNPP.
- B.12 In combination with the ‘population-at-risk’ (i.e. all women between the ages of 15–49), the area-specific ASFR and future fertility rate assumptions provide the basis for the calculation of births in each year of the forecast period.

### *Deaths & Mortality*

- B.13 In each scenario, historical mid-year to mid-year counts of deaths by age and sex from 2001/02–2012/13 have been sourced from ONS Vital Statistics.

- B.14 In the **SNPP-2012** scenario, future counts of deaths are specified to ensure consistency with the official projections.
- B.15 In the other scenarios, a 'local' (i.e. area-specific) age-specific mortality rate (ASMR) schedule, which measures the expected mortality rates by age and sex in 2013/14 is included in the POPGROUP model assumptions. This is derived from the ONS 2012-based SNPP.
- B.16 Long-term assumptions on changes in age-specific mortality rates are taken from the ONS 2012-based SNPP.
- B.17 In combination with the 'population-at-risk' (i.e. the total population), the area-specific ASMR and future mortality rate assumptions provide the basis for the calculation of deaths in each year of the forecast period.

## Migration

### *Internal Migration*

- B.18 In all scenarios, historical mid-year to mid-year population estimates of in- and out-migration by five year age-group and sex from 2001/02–2012/13 have been sourced from the 'components of population change' files that underpin the ONS MYEs. These internal migration flows are estimated using data from the Patient Register (PR), the National Health Service Central Register (NHSCR) and Higher Education Statistics Agency (HESA).
- B.19 In the **SNPP-2012** scenario, future counts of internal migrants are specified, to ensure consistency with the official projections.
- B.20 In the **Net Nil** scenario, the internal in- and out-migration net flows are set to zero for each year in the forecast period (i.e. in- and out-migration still occur but the net balance is zero).
- B.21 The **Jobs-led** and **Dwelling-led** scenarios calculate their own internal migration assumptions to ensure an appropriate balance between the population and the targeted increase in the number of jobs or dwellings that is defined in each year of the forecast period. A higher level of net internal migration will occur if there is insufficient population and resident labour force to meet the forecast number of jobs, or if there is insufficient population to meet the forecast number of



dwellings. In the **Jobs-led** and **Dwelling-led** scenarios, the profile of internal migrants is defined by an ASMigR schedule, derived from the ONS 2012-based SNPP.

### *International Migration*

- B.22 Historical mid-year to mid-year counts of immigration and emigration by 5-year age-group and sex from 2001/02–2012/13 have been sourced from the ‘components of population change’ files that underpin the ONS MYEs. Any ‘adjustments’ made to the MYEs to account for asylum cases are included in the international migration balance.
- B.23 In all scenarios, future international migration assumptions are defined as ‘counts’ of migration. In the **SNPP-2012** scenario, the international in- and out-migration counts are drawn directly from the official projection.
- B.24 In the **Net Nil** scenario, the international in- and out-migration net counts are set to zero for each year in the forecast period (i.e. in- and out-migration still occur but the net balance is zero).
- B.25 In the **Jobs-led** and **Dwelling-led** scenarios, international migration counts are taken from the ONS 2012-based SNPP (i.e. counts are consistent with the **SNPP-2012** scenario). An ASMigR schedule of rates from the ONS 2012-based SNPP is used to distribute future counts by single year of age.

## Household & Dwellings

- B.26 The 2011 Census defines a household as:

*“one person living alone, or a group of people (not necessarily related) living at the same address who share cooking facilities and share a living room or sitting room or dining area.”<sup>9</sup>*

- B.27 A dwelling is defined as a unit of accommodation which may comprise one or more household spaces (a household space is the accommodation used or available for use by an individual household).

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<sup>9</sup> <http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-user-guide/glossary/index.html>

B.28 Apart from in the **Dwelling-led** scenario, the household and dwelling implications of the population growth trajectory have been evaluated through the application of headship rate statistics, communal population statistics and a dwelling vacancy rate. These data assumptions have been sourced from the 2001 and 2011 Censuses and the 2012-based, 2008-based and 2011-based interim household projection models from DCLG.

### *Household Headship Rates*

B.29 A household headship rate (also known as household representative rate) is the “*probability of anyone in a particular demographic group being classified as being a household representative*”<sup>10</sup>.

B.30 The household headship rates used in the POPGROUP modelling have been taken from the DCLG 2012-based, 2008-based and 2011-based interim household projections. The DCLG household projections are derived through the application of projected household representative rates (also referred to as headship rates) to a projection of the private household population.

B.31 In the scenarios presented here, headship rate assumptions have been sourced from the new 2012-based household projection model, and from the earlier 2008-based and 2011-based interim models, producing three alternative outcomes for each scenario:

- In the **HH-12** outcome, the 2012-based DCLG headship rates are applied.
- In the **HH-08** outcome, the 2008-based DCLG headship rates are applied, scaled to be consistent with the 2011 DCLG household total, but following the original trend thereafter.
- In the **HH-11** outcome, the 2011-based headship rates are applied, with the 2011–2021 trend continued after 2021.

### *2012-based Headship Rates*

B.32 The 2012-based household projections were released for local authority districts in England in February/March 2015, superseding the 2011-based interim model.

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<sup>10</sup> Household Projections 2012-based: Methodological Report. Department for Communities and Local Government (February 2015). <https://www.gov.uk/government/statistics/2012-based-household-projections-methodology>

B.33 The 2012-based headship rates have been sourced from the new 2012-based household projection model from DCLG. The methodology used by DCLG in its household projection models consists of two distinct stages:

- **Stage One** produces the national and local authority projections for the total number of households by sex, age-group and relationship-status group over the projection period. All Stage One output and assumptions for the 2012-based household projection model has been released by DCLG.
- **Stage Two** provides the detailed 'household-type' projection by age-group, controlled to the previous Stage One totals. Stage Two assumptions and output for the 2012-based model have yet to be released by DCLG.

B.34 In POPGROUP, the 2012-based headship rates are defined by age, sex and relationship status. These rates therefore determine the likelihood of person of a particular age-group, sex and relationship status being head of a household in a particular year, given the age-sex structure of the population.

#### *2008-based & 2011-based Headship Rates*

B.35 The 2008-based and 2011-based headship rates are provided by age-group and household type and therefore define the likelihood of a particular household type being formed in a particular year, given the age-sex profile of the population. Household-types are modelled with a 17-fold classification (Table 21).

B.36 The 2008-based headship rates are scaled to the 2011 DCLG household total from the 2012-based household projection model, following the original trend thereafter.

Table 21: Household type classification

ONS Code	DF Label	Household Type
OPM	OPMAL	One person households: Male
OPF	OPFEM	One person households: Female
OCZZP	FAMC0	One family and no others: Couple: No dependent children
OC1P	FAMC1	One family and no others: Couple: 1 dependent child
OC2P	FAMC2	One family and no others: Couple: 2 dependent children
OC3P	FAMC3	One family and no others: Couple: 3+ dependent children
OL1P	FAML1	One family and no others: Lone parent: 1 dependent child
OL2P	FAML2	One family and no others: Lone parent: 2 dependent children
OL3P	FAML3	One family and no others: Lone parent: 3+ dependent children
MCZDP	MIX C0	A couple and one or more other adults: No dependent children
MC1P	MIX C1	A couple and one or more other adults: 1 dependent child
MC2P	MIX C2	A couple and one or more other adults: 2 dependent children
MC3P	MIX C3	A couple and one or more other adults: 3+ dependent children
ML1P	MIX L1	A lone parent and one or more other adults: 1 dependent child
ML2P	MIX L2	A lone parent and one or more other adults: 2 dependent children
ML3P	MIX L3	A lone parent and one or more other adults: 3+ dependent children
OTAP	OTHHH	Other households
TOT	TOTHH	Total

### *Communal Population*

- B.37 Household projections in POPGROUP exclude the population 'not-in-households' (i.e. the communal/institutional population). These data are drawn from the DCLG 2012-based household projections, which use statistics from the 2011 Census. Examples of communal establishments include prisons, residential care homes and student halls of residence.
- B.38 For ages 0-74, the number of people in each age-group 'not-in-households' is fixed throughout the forecast period. For ages 75-85+, the proportion of the population 'not-in-households' is recorded. Therefore, the population not-in-households for ages 75-85+ varies across the forecast period depending on the size of the population.

### Vacancy Rate

- B.39 The relationship between households and dwellings is modelled using a 'vacancy rate', sourced from the 2011 Census. The vacancy rate is calculated using statistics on households (occupied, second homes and vacant) and dwellings (shared and unshared).
- B.40 For the SCR districts, vacancy rates of between 2.2% (North East Derbyshire) and 8.2% (Doncaster) have been applied, fixed throughout the forecast period. Using these vacancy rates, the 'dwelling requirement' of each household growth trajectory has been evaluated.

Table 22: Sheffield City Region, vacancy rates

Source: 2011 Census

Area	Vacancy Rate
Barnsley	4.0%
Bassetlaw	3.5%
Bolsover	4.5%
Chesterfield	3.5%
Derbyshire Dales	8.2%
Doncaster	3.3%
North East Derbyshire	2.2%
Rotherham	3.3%
Sheffield	2.9%

## Labour Force & Jobs

- B.41 Apart from in the **Jobs-led** scenarios, the labour force and jobs implications of the population growth trajectory are evaluated through the application of three key data items: economic activity rates, an unemployment rate and a commuting ratio.

### Economic Activity Rates

- B.42 The level of labour force participation is recorded in the economic activity rates.

- B.43 In the core scenarios, the 2011 Census economic activity rates for each district (by sex for the aggregate 16-74 age-group) have been applied, fixed to 2034.
- B.44 In the **SENS1** jobs-led sensitivity scenarios, the 2011 Census economic activity rates (by sex, for the aggregate 16-74 age-group) have been applied, adjusted after 2014 to match the England and Wales average by 2025 and fixed thereafter (Table 7).
- B.45 In the **SENS2** jobs-led sensitivity scenarios, the 2011 Census economic activity rates (by sex, for the aggregate 16-74 age-group) have been applied, adjusted after 2014 to match the England and Wales average by 2025, uplifted by one percentage point. After 2025, the economic activity rates are fixed (Table 8).

### *Unemployment Rate*

- B.46 The unemployment rate, together with the commuting ratio, controls the balance between the size of the labour force and the number of jobs available within an area. The same unemployment rate profile is applied in all the scenarios.
- B.47 For each of the SCR districts, an average 'recession' unemployment rate (2009–2013) is applied in 2013 (Table 23). The unemployment rate then incrementally decreases to the 'pre-recession' average (2004–2007) by 2020 and is fixed thereafter. These improvements in the unemployment rate provide an appropriate basis for what is likely to be a gradual recovery from current economic conditions.

Table 23: Sheffield City Region, historical unemployment rates 2004–2012

Source: Annual Population Survey, NOMIS

Area	Unemployment Rate	
	'Recession' average (2009–2013)	'Pre-recession' average (2004–2007)
Barnsley	10.1%	5.3%
Bassetlaw	7.4%	4.8%
Bolsover	7.2%	5.9%
Chesterfield	8.2%	5.7%
Derbyshire Dales	4.3%	3.1%
Doncaster	10.4%	5.5%
North East Derbyshire	6.8%	4.6%
Rotherham	10.5%	5.2%
Sheffield	9.5%	6.1%

Note: Unemployment rates are for January to December

### Commuting Ratio

- B.48 The commuting ratio, together with the unemployment rate, controls the balance between the number of workers living in a district (i.e. the resident labour force) and the number of jobs available in the district. A commuting ratio greater than 1.0 indicates that the size of the resident workforce exceeds the number of jobs available in the district, resulting in a net out-commute. A commuting ratio less than 1.0 indicates that the number of jobs in the district exceeds the size of the labour force, resulting in a net in-commute.
- B.49 From the 2011 Census Travel to Work statistics, published by ONS in July 2014, commuting ratios have been derived for the SCR districts. A comparison with the corresponding value from the 2001 Census is presented (Table 24). In all scenarios, the 2011 Census commuting ratio has been applied, fixed throughout the forecast period. Travel-to-work flows for the SCR districts are also presented (Table 25).

Table 24: Sheffield City Region, 2001 and 2011 Census commuting ratio comparison

Area	Commuting Ratio	
	2001 Census	2011 Census
Barnsley	1.19	1.25
Bassetlaw	0.99	1.02
Bolsover	1.35	1.18
Chesterfield	0.88	0.92
Derbyshire Dales	1.04	0.97
Doncaster	1.09	1.05
North East Derbyshire	1.63	1.49
Rotherham	1.13	1.07
Sheffield	0.90	0.93

Note: 2001 data from Census Table T101 – UK Travel Flows; 2011 data from Census Table WU02UK - Location of usual residence and place of work by age.

Table 25: Sheffield City Region, 2011 Census travel to work flows

		Destination										
		Barnsley	Bassetlaw	Bolsover	Chesterfield	Derbyshire Dales	Doncaster	North East Derbyshire	Rotherham	Sheffield	Other	Total
Origin	Barnsley	65,702	177	70	144	14	3,097	115	8,213	8,334	17,713	103,579
	Bassetlaw	163	35,710	1,004	327	18	3,332	181	1,764	1,826	8,489	52,814
	Bolsover	61	1,654	14,074	3,301	491	201	1,534	600	1,403	11,192	34,511
	Chesterfield	83	360	1,689	30,517	1,941	154	4,412	462	3,131	5,152	47,901
	Derbyshire Dales	22	31	251	1,126	23,088	38	438	145	1,431	8,435	35,005
	Doncaster	1,766	2,217	168	160	21	101,138	148	7,462	4,016	16,719	133,815
	North East Derbyshire	169	347	1,582	8,339	1,633	254	18,059	1,322	8,706	6,447	46,858
	Rotherham	3,352	2,162	456	674	67	5,646	745	70,934	22,465	8,370	114,871
	Sheffield	3,950	883	703	3,216	915	2,455	3,628	11,666	197,836	19,066	244,318
	Other	7,713	8,347	9,354	3,993	8,019	11,272	2,167	5,171	12,275	28,956,511	29,024,822
Total	82,981	51,888	29,351	51,797	36,207	127,587	31,427	107,739	261,423	29,058,094	29,838,494	

Note: 2011 data from Census Table WU02UK - Location of usual residence and place of work by age.