



HOUSING VISION

**Independent Assessment of  
Housing Needs and SHMA  
Update:  
the implications of 2012-  
based Subnational  
Population and Household  
Projections**

**Final Report**

July 2015

# Independent Assessment of Housing Needs and SHMA: the implications of 2012-based Subnational Population and Household Projections

## Final Report

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## Introduction

- 1.1 This section updates the HNA report of December 2013 with results from the Office for National Statistics' (ONS) 2012-based sub-national population projections (SNPP) and the 2012-based household projections from the Department for Communities and Local Government (CLG).
- 1.2 The population projections are produced on a two yearly cycle. They are trend-based, informed by estimates of change due to births, deaths and migration in the 5-6 year period leading up to the base year. The method takes account of the inevitable momentum of change caused by the age structure of the population at the base date of the projections. More details of the methods and data are in the main HNA report (paragraphs 5.10-5.26).
- 1.3 The 2012-based population projections take full account of the results of the 2011 Census and the subsequent revisions to estimates of population and migration for the period 2001-2011. They also incorporate data from ONS' 2012 Mid Year Population Estimates, and data on migration, births and deaths during 2011-2012.
- 1.4 The household projections are based on the population projections, together with trends in household formation dating back to the 1971 Census. More detail about the methods is in paragraphs 5.28 to 5.32 of the main HNA report .The projections make use of additional data from the 2011 Census, but detailed data on household representative rates for local authorities, by age, sex and relationship status could not be incorporated within CLG's timetable. Furthermore, at the time of writing, the full breakdown of the projections into household types had not been published. The process of reworking household trends in the light of the 2011 Census is not yet complete. More details are on the CLG website: (<https://www.gov.uk/government/collections/household-projections#2012-based-projections>).

## Projected population by age

- 1.5 Table 1 sets out the population by age over the period 2011-203, according to the 2012-based sub-national population projections (SNPP). It is in the same format as Table 4.20 in the main HNA report; this sets out results from ONS' 2010-based projections. This table starts from ONS' 2011 Mid-Year Estimate, based on the Census carried out in that year.

**Table 1: projected population of St Albans by age, 2011-2031 (2012 SNPP)**

Age Band	Population ('000s)					Population Change 2011-2031	
	2011	2016	2021	2026	2031	Numbers ('000s)	%
0-14	28.5	31.0	33.5	34.4	34.7	6.2	21.8%
15-24	14.5	13.3	13.3	14.7	15.8	1.3	9.0%
25-34	17.5	18.0	18.5	18.0	17.5	0.1	0.4%
35-44	22.8	22.7	23.1	24.1	24.6	1.8	8.0%
45-54	20.3	21.9	22.2	22.3	23.0	2.7	13.4%
55-64	15.9	16.0	18.1	19.6	19.7	3.9	24.8%
65-74	11.1	12.8	13.3	13.7	15.6	4.5	40.6%
75-84	7.6	7.9	8.8	10.4	11.0	3.4	44.5%
85+	3.2	3.8	4.5	5.2	6.3	3.1	95.2%
<b>All ages</b>	<b>141.2</b>	<b>147.5</b>	<b>155.4</b>	<b>162.4</b>	<b>168.2</b>	<b>27.0</b>	<b>19.1%</b>

(Source: 2012-based Sub-National Population Projections, ONS 2014, Office for National Statistics website, <http://www.ons.gov.uk/ons/index.html>. Contains public sector information licensed under the Open Government Licence v1.0 <http://www.nationalarchives.gov.uk/doc/open-government-licence/>.)

Note: figures rounded independently to nearest hundred.

### Key findings

- The population in St Albans is projected to increase by about 27,000, or 19%, between 2011 and 2031; the scale of growth is similar to that in ONS' 2010-based projection (26,700).
- The age profile of the population is projected to change between 2011 and 2031, with implications for the number and type of households. The pattern of age change in the 2012-based projections differs from that in the 2010 projections; figures from the latter are in brackets.
  - numbers below 15 years of age are projected to grow by 6,200 or 22% (17% in the 2010 projections);
  - numbers aged 15-24 are projected to grow by 1,300 or 9% (15%);
  - numbers aged 25-34 show little change: less than +1% (+6%);
  - numbers aged 35-44 are projected to grow by 1,800 or 8% (9%);
  - numbers aged 45-54 are projected to grow by 2,700 or 13% (10%);
  - numbers aged 55-64 are projected to grow by 3,900, or 25% (27%).
  - High levels of growth are projected for all those aged 65 as follows:

- 4,500, or 41%, growth in those aged 65-74 (36%);
- 3,400, or 45%, growth in those aged 75-84 (43%); and
- 3,100, or 95%, growth in those aged 85 and over (100%)

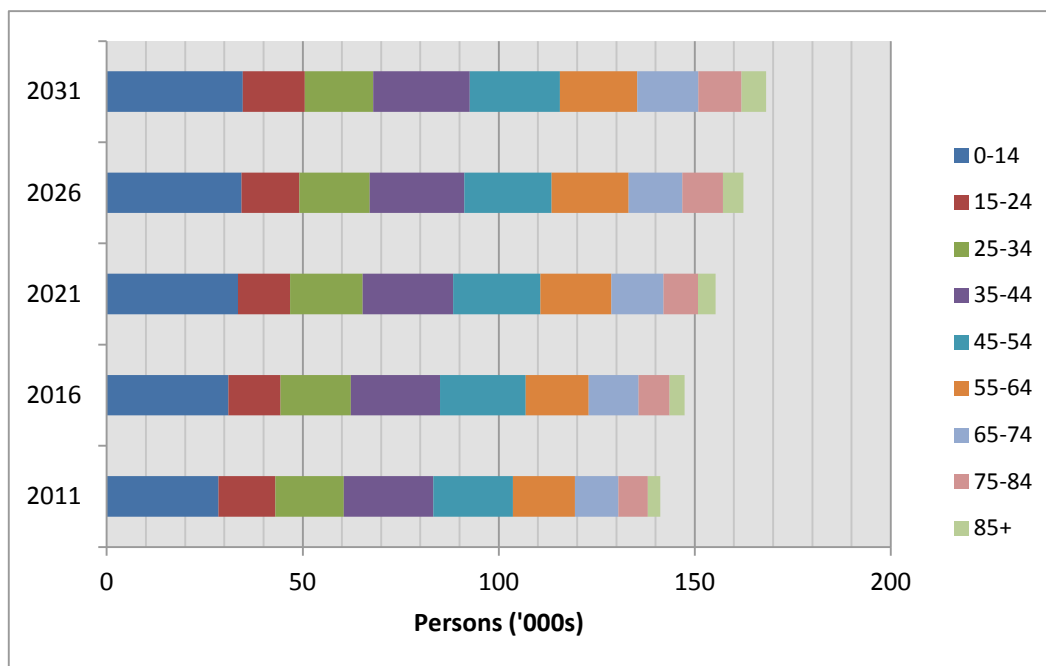
1.6 The impacts of population change on household change vary by age (see Figure 2 later). Changes in numbers below the age of 25 have little direct impact on household numbers; 25-34 is a key age group when households form for the first time. High projected growth in the older population is vital as it affects the release of second-hand housing. Additionally it will result in:

- a proportionately higher level of the under-occupation of family housing unless options to downsize are available and taken up; and
- a proportionately greater need for housing which meets the needs of older households, including housing with care.
- greater need for places in care and nursing homes

These developments are considered in the main HNA report.

1.7 The following chart illustrates the changing age profile of the population between 2011 and 2031. It is comparable to figure 4.2 on page 170 in the main HNA report. It highlights rapid growth in the child population and those aged 55 and older.

**Figure 1 Projected population of St Albans by age band, 2011 to 2031, '000s**



(Source: 2012-based Sub-National Population Projections, ONS 2014)

Office for National Statistics website, <http://www.ons.gov.uk/ons/index.html>. Contains public sector information licensed under the Open Government Licence v1.0 (<http://www.nationalarchives.gov.uk/doc/open-government-licence/>.)

## Understanding Components of Population Change

1.8 Table 2a summarises the Components of Population Change for the period 2011-2031, showing the contribution of natural change (births minus deaths), internal migration to and from the rest of the UK and international migration. Similar results from the 2010 projections are in Table 4.21, page 171, of the main HNA report, but in a different format. Furthermore, figures in the main HNA report are calculated using the rounded outputs from ONS; this can lead to some distortion when summing or calculating differences. Consequently, Table 2b presents the 2010-based projections in the same format as Table 2a, and figures are calculated using the unrounded source data. Following ONS guidance, the figures in the table have been rounded for presentation.

**Table 2a: 2012-based Components of Population Change for St Albans, 2011-2031, 000s**

Component	2011-12*	2012-16	2016-21	2021-26	2026-31	Total 2011-31
<b>Natural Change</b>	<b>1.0</b>	<b>3.8</b>	<b>5.0</b>	<b>5.0</b>	<b>4.7</b>	<b>19.5</b>
Births	2.0	8.0	10.2	10.4	10.3	40.8
Deaths	1.0	4.2	5.2	5.3	5.6	21.3
<b>All Migration Net</b>	<b>-0.3</b>	<b>1.8</b>	<b>2.8</b>	<b>2.0</b>	<b>1.1</b>	<b>7.3</b>
UK Migration In**	8.2	32.4	41.8	42.4	43.4	168.1
UK Migration Out**	7.9	30.2	38.4	39.8	41.6	158.0
<b>UK Migration Net**</b>	<b>0.2</b>	<b>2.2</b>	<b>3.4</b>	<b>2.6</b>	<b>1.7</b>	<b>10.1</b>
International Migration In	0.6	2.7	3.4	3.4	3.4	13.5
International Migration Out	1.2	3.2	4.0	4.0	4.0	16.3
<b>International Migration Net</b>	<b>-0.6</b>	<b>-0.4</b>	<b>-0.6</b>	<b>-0.6</b>	<b>-0.6</b>	<b>-2.8</b>

(Source: Components of Population Change, 2012-based Sub-National population projections & Mid Year Population Estimates 2011 and 2012, ONS <http://www.ons.gov.uk/ons/index.html>. Contains public sector information licensed under the Open Government Licence v1.0 (<http://www.nationalarchives.gov.uk/doc/open-government-licence/>.)

Note: Figures independently rounded; differences calculated from exact figures then rounded.

Note\*: 2011-12 figures are from Mid-Year estimates

Note\*\* UK migration comprises "within England" and 'cross-border' (other UK) migration flows; shown separately in ONS projections but not in ONS estimates.

**Table 2b: 2010-based Components of Population Change for St Albans 2011-2031, 000s**

Component	2011-12*	2012-16	2016-21	2021-26	2026-31	Total 2011-31
<b>Natural Change</b>	<b>1.0</b>	<b>4.0</b>	<b>5.0</b>	<b>4.9</b>	<b>4.5</b>	<b>19.4</b>
Births	2.0	8.2	10.2	10.3	10.1	40.9
Deaths	1.0	4.2	5.3	5.4	5.6	21.5
<b>All Migration Net</b>	<b>0.4</b>	<b>1.9</b>	<b>2.3</b>	<b>1.6</b>	<b>0.8</b>	<b>7.1</b>
UK Internal Migration In**	8.1	33.2	42.8	43.5	44.5	172.1
UK Internal Migration Out**	7.6	31.1	40.0	41.4	43.2	163.3
<b>UK Internal Migration Net**</b>	<b>0.5</b>	<b>2.1</b>	<b>2.8</b>	<b>2.1</b>	<b>1.3</b>	<b>8.7</b>
International Migration In	1.0	3.8	4.8	4.8	4.8	19.1
International Migration Out	1.0	4.0	5.3	5.3	5.3	20.8
<b>International Migration Net</b>	<b>0.0</b>	<b>-0.2</b>	<b>-0.5</b>	<b>-0.5</b>	<b>-0.5</b>	<b>-1.7</b>

(Source: Components of Population Change, 2010-based Sub-National population projections; ONS, <http://www.ons.gov.uk/ons/index.html>.)

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Note: Figures independently rounded; differences calculated from exact figures then rounded.

Note\*: figures for 2011 to 2012 are projected from the 2010 base year

Note\*\* UK migration comprises 'internal' (within England) and 'cross-border' (other UK) migration flows

### Key findings

- Natural change makes the greatest contribution to projected population growth in St Albans, causing a net increase of 19,500 people in the period 2011-2031. However natural growth includes an increase of 6,000 among those aged under 15 years of age (Table 1), because of higher birth numbers in the future. Increases in the number of children do not directly feed into household projections over a 20-year period, but might have implications for demands for types of housing. The scale of natural change is similar in the 2010 and 2012 projections.
- The second main contributor to population growth is net migration from the rest of the UK, with a net gain of about 10,100 people over the period 2011-2031. This is some 1,400 greater than the gain in the 2010-based projection, which was 8,700; in the main HNA report the 2010 figures can be further broken down into England (+9,600) and cross-border flows (-900), but this cannot be done for the 2012 projections (see footnote to Table 2a).
- However, a net loss through international migration of 2,800 is projected during the period 2011-2031. This is a larger loss, by about 1,100, than in the 2010-based projections;

- As noted earlier, the age composition of the population is projected to change, with implications for the scale and the composition of household change.
- Note that the total population change 2011-2031 in the projections, 27,000 (Table 1) differs by about 200 from the sum of the components of population change, 26,800. ONS adjusts the projections for local authorities to match the results of the national projection for England.

### Comparison with earlier projections

1.9 In recent years, ONS has published population projections for the base years of 2008, 2010, and 2011. Table 3 compares the basic results of the 2012-based projections with these older projections. All point to significant growth during the period, but vary to some extent: growth for the period 2011-2031 ranges from 24,400 to 27,000.

**Table 3: ONS Sub-national Population Projections for St Albans**

Base year	Population (,000s)			Change('000s)		
	2011	2021	2031	2011-21	2021-31	2011-31
2008*	138.7	151.8	163.1	+13.1	+11.3	+24.4
2010*	138.0	152.7	164.7	+14.7	+12.0	+26.7
2011**	141.2	154.6	n/a	+13.4	n/a	n/a
<b>2012**</b>	<b>141.2</b>	<b>155.4</b>	<b>168.2</b>	<b>+14.2</b>	<b>+12.9</b>	<b>+27.0</b>

(Source: Sub-national Population projections for England, ONS  
<http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Subnational+Population+Projections>  
 Contains public sector information licensed under the Open Government Licence v1.0  
<http://www.nationalarchives.gov.uk/doc/open-government-licence/>)

Note: figures rounded independently to nearest hundred;

Note\*: 2011 figures are projected from the respective base year

Note: \*2011 figures are from the 2011 Population Estimates, based on the Census;

### Key findings

- The 2012 projections show the greatest change over the period 2011-2031.
- Growth in the 2012-based projections is only slightly higher than in the 2010-based projections but there are noticeable differences in the age composition of change (see paragraph 1.5).
- Differences between the projections arise from:
  - differences in the population base year figures
  - the updating of trend-based evidence to a later year
  - revisions to methods and the estimates of historical trends in migration



- different national assumptions about future international migration
- 1.10 The 2011 and 2012-based projections start from a 2011 population base that is anchored to the greater security of the Census, which was carried out that year. The Census showed that neither the 2008 nor the 2010 projections accurately projected the population in 2011.
  - 1.11 Differences stem partly from updated assumptions about future births, deaths and migration in the light of more recent data. Most of the trend data used to compile assumptions is taken from the 5/6 year period leading up to the base year. The 2008 and 2010 reflect older trends. This diminishes their relevance. Furthermore, the trend data used in these projections has been superseded, for reasons discussed in the next paragraph.
  - 1.12 Comparisons between projections are hampered by changes in methodology and revisions to estimates of past migration. Changes were introduced in every new projection. There are data differences between the 2008 and 2010 projections. The 2010-based projections introduced new methods and sources for estimating flows of international migrants to local areas within England. In principle, this method applies to the subsequent projections. However, the 2011 Census showed that the data on past trends used in the 2010 projections was inaccurate to some extent; the 2012 projections use trend data revised in the light of the Census.
  - 1.13 The 2011-based ONS Sub-national Population Projections started from a population base anchored to the Census. However, when they were prepared, historical trend data had not been revised to take account of the Census, and assumptions from the 2010 sub-national projections were used. For this reason, they were termed 'interim', with a limited time horizon to 2021. As described earlier, the 2010-based assumptions used inaccurate data about recent migration trends. Furthermore the migration, mortality and fertility rates were taken directly from the 2010 projections. They could not be recalculated as the population estimates for 2002-2010, used as denominators, had yet to be revised to reflect the Census. The rates were incompatible with the revised 2011 population base to which they were applied; this problem particularly affected internal migration rates for local authorities. Consequently the 2011-based projections are seriously flawed and contain strange results for many areas.
  - 1.14 In technical terms, the 2012-based projections must be considered the most robust as they are informed by evidence that has been revised in the light of the 2011 Census. However, all projections of the future are subject to a degree of uncertainty. This is heightened by ongoing problems in the quality of data available to monitor population change, and the limitations of projection methods. Future revisions to the methods and data are expected.

- 1.15 It is important that users are aware of the limitations of any set of projections or forecasts of the future. ONS state:
- “As a result of inherent uncertainty of demographic behaviour, any set of projections will inevitably be proved wrong, to a greater or lesser extent, as a forecast of future demographic events or population structure. Projections are uncertain and become increasingly so, the further they are carried forward in time, particularly for smaller geographical areas. Care should be taken in interpreting these data, particularly when broken down by age and sex”.*
- (Source: Questions and Answers: 2012-based Sub-national Population projections; ONS May 2014)
- <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Subnational+Population+Projections>)
- 1.16 To this inevitable uncertainty must be added the limitations in the evidence about demographic change and deficiencies in the methods for projecting and forecasting change.
- 1.17 A final consideration about trend-based projections is that outcomes are sensitive to the choice of historical period for calculating assumptions about future trends which is a matter of professional judgement. This is illustrated by the differences between the migration-led scenarios prepared for the main HNA report; the scenario based on a 5-year trend showed a population growth of about 24,400, compared with growth of only 18,100 using a ten year trend (Table 5.5, page 237 of the HNA report of December 2013).
- 1.18 During the consultation carried out by ONS during the preparation of the 2012-based projections, some respondents asked for an additional variant based on 10 years of data to smooth out the effects of the economic recession. (Consultation on the 2012-based Subnational Population Projections for England: Summary of responses, ONS May 2014 <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Subnational+Population+Projections>). In some areas, a 10 year migration trend would lead to greater projected growth, but the reverse is the case for St Albans.

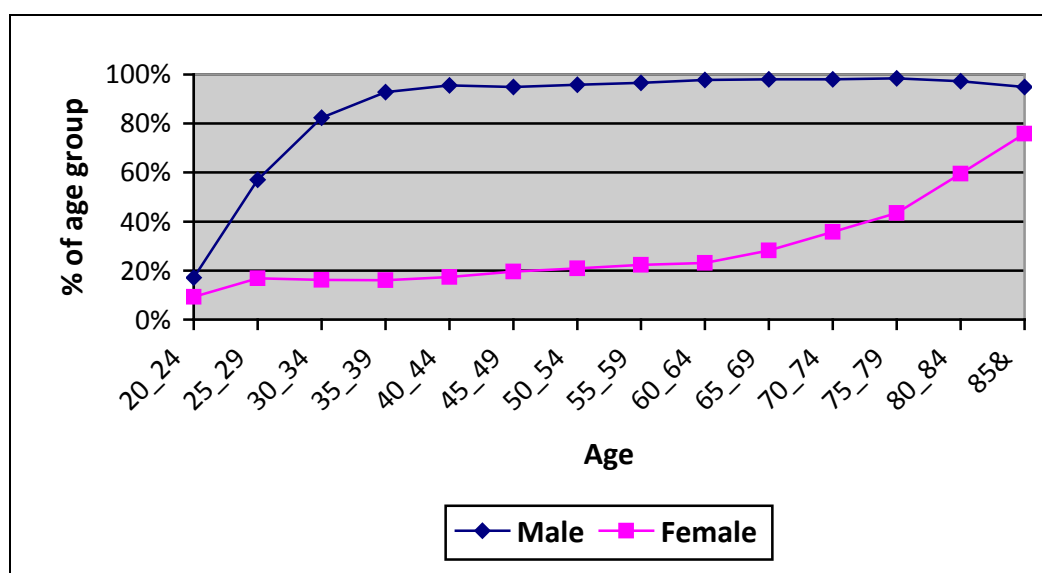
### **Official household projections**

- 1.19 Attention is now turned to official projections of the number of households. These are published by CLG, but use ONS' sub-national projections as one input. Population change is the biggest contributor to changes in the number and type of households.
- 1.20 Household projections have been produced to 2003, 2004, 2006, 2008 and 2011 bases. The 2011 projections were termed 'interim' and like the supporting ONS population projection, only run to 2021. The household formation assumptions in the 2011 projections were informed by the limited amount of Census data that was available at the time of their production. Projections from a 2012 base, consistent with ONS' 2012-based population projections, were published in

February 2015. (source: <https://www.gov.uk/government/collections/household-projections> ). These projections use additional Census data not available for the 2011-based projections. Unfortunately, some important data is still not available. Although the new projections provide a more informed view of household trends 2001-2011, they do not provide a complete revision of trends in the light of the Census.

- 1.21 CLG methodology converts the ONS population projection into households by deducting residents of communal establishments (care homes, prisons etc) and applying household representative rates (formerly headship rates) to the remaining 'household population'. The rate is the number of 'household representatives divided by the household population; rates are calculated for gender, age and relationship (single, married, previously married). Projected future changes in household representative rates are modelled on the basis of long-term historical trends. More detail of the methods is in paragraphs 5.28 to 5.32 of the main HNA report

**Figure 2: 2011 household representative rates in St Albans by age and gender**



(Source: 2012-based Household Projections for England, CLG  
<https://www.gov.uk/government/collections/household-projections>)

- 1.22 Figure 2 shows the 2011 household representative rates from CLG's 2012-based projections for males and females above the age of nineteen; very few household representatives are younger than 20. Female rates are much lower than male rates, although the gap closes in older age groups as a result of widowhood. Male rates increase rapidly after the age of 25; this reflects a period of transition when most people set up home for the first time.

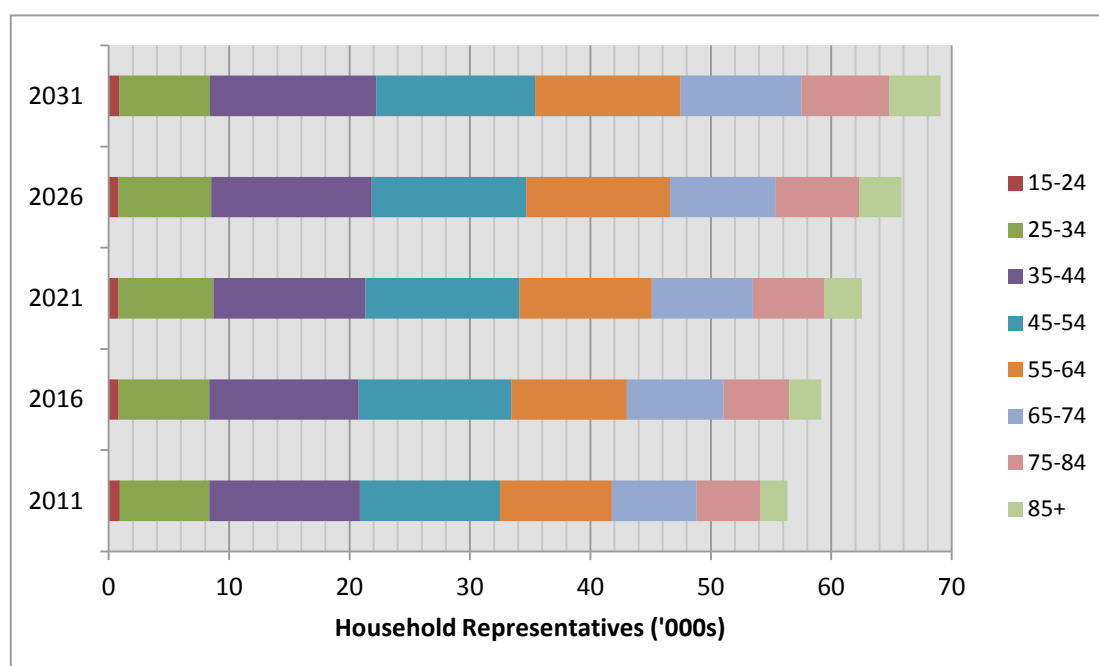
**Table 4: projected change in household representatives in St Albans City and District by age band, 2011-2031, 000s (2012 CLG)**

Age Band	Numbers ('000s)					Change 2011-2031	
	2011	2016	2021	2026	2031	('000s)	%
15-24	0.9	0.8	0.8	0.8	0.9	0.0	-3%
25-34	7.4	7.5	7.9	7.7	7.5	0.1	1%
35-44	12.5	12.4	12.6	13.3	13.8	1.3	10%
45-54	11.6	12.7	12.8	12.8	13.2	1.6	13%
55-64	9.3	9.6	11.0	12.0	12.1	2.8	30%
65-74	7.0	8.0	8.4	8.7	10.0	3.0	43%
75-84	5.3	5.4	5.9	6.9	7.3	2.0	38%
85+	2.2	2.7	3.1	3.5	4.3	2.0	90%
<b>All aged 15+</b>	<b>56.4</b>	<b>59.2</b>	<b>62.5</b>	<b>65.8</b>	<b>69.1</b>	<b>12.7</b>	<b>23%</b>

(Source: 2012-based Household Projections for England, CLG  
<https://www.gov.uk/government/collections/household-projections>.)

Note: Figures independently rounded to nearest 100; sums and differences calculated from exact figures, then rounded.

**Figure 3: household representatives in St Albans by age band, 2011-2031**



(Derived from 2012-based Household Projections for England, CLG  
<https://www.gov.uk/government/collections/household-projections>.)

1.23 Figure 3 and Table 4 shows the projected numbers of household representatives in the 2012-based projections by broad age group. There are very few households with a representative younger than 25 in St Albans. Only modest change in numbers in this group, or in those

aged 25-34 is projected during the period 2011-2031. Greater growth is projected in those aged 35-54, but the most rapid growth is in those aged 55 or older. The number of household representatives aged 85 or older is projected to grow by 2,000 (about 90%); those aged 75-84 are also projected to grow by just over 2,000 (38%). This reflects the ageing of the population. Furthermore, many older people live alone, so the growing number of elderly people has a disproportionate impact on the number and types of household.

- 1.24 Projected changes in household numbers are driven by population change, combined with projected changes in the household representative rates. Table 5 shows the relative contribution of population and household formation to the projected change in household numbers 2011-2031 in CLG's 2012-based projections. The first column show the change that would occur if household representative rates were to remain at the 2011 levels, while population grows and the age composition changes. The second shows what the effect would be if population to remain static at the 2011 level, but household rates were to change as projected. The third shows the change caused by the 'interaction' between changes in numbers of people in each age/gender/relationship group and changes in household representative rates for that group.

**Table 5: drivers of projected change in households 2011-2031, 000s (2012-based CLG projections)**

Indicator	Population	Household rates	Interaction	Total
Numbers	+11.,8	+0.5	+0.4	+12.7
% of total	+92.8%	+4.0%	+3.2%	

(Source: Derived from 2012-based Household Projections for England, CLG  
<https://www.gov.uk/government/collections/household-projections>)

Note: Figures independently rounded to nearest 100

- 1.25 The table shows that population growth and change in age composition are the predominant drivers of projected household growth. It is important to stress the role of changes in age structure and the ageing of the population of St Albans. Changes in age composition are inevitable, barring a major deterioration in mortality rates, as they stem from the ageing of the current population.
- 1.26 Table 6 compares the 2008, 2011 and 2012-based CLG household projections for St Albans; there were no official 2010-based projections. The 2008 projections of household numbers in 2011 were higher than the number recorded in the Census, even though the projected population was lower (Table 3).

**Table 6: 2008, 2011 and 2012-based household projections for St Albans, 000s**

Base year	Households			Change		
	2011	2021	2031	2011-21	2021-31	2011-31
2008	57.3	64.2	70.6	+6.9	+6.4	+13.3
2011	56.4	61.7	n/a	+5.3	n/a	n/a
2012	56.4	62.5	69.1	+6.2	+6.6	+12.7

(Sources: CLG and Household Projections for England, CLG  
<https://www.gov.uk/government/collections/household-projections>)

Note: All figures rounded independently rounded to nearest 100; sums and differences calculated from exact figures and then rounded

1.27 The 2008-based projections show the greatest growth in household numbers over the period 2011-2031: 13,300, compared with 12,700 in the 2012-based projections. Growth in household numbers 2011-2021 is also higher in the 2008-based projections, but growth during the period 2021-2031 is greater in the 2012-based projections. The 2011 projections only run to 2021 and show the smallest growth during this period. Overall differences stem from a complex interaction of differences in contributory factors including:

- population growth;
- age/gender composition of the population;
- relationship assumptions;
- population living in communal establishments; and
- trends in household formation.

1.28 Table 7 aims to illustrate the differences due to household formation assumptions by applying CLG's 2008, 2011 and 2012-based household representative rates to a consistent population projection: ONS' most recent, 2012-based, projection. CLG's 2012-based assumptions on relationship status and the population in communal establishments have been applied to all projections.

**Table 7: ONS 2012-based population projections for St Albans: effect of different household formation assumptions on household growth**

CLG household assumptions	Households			Change		
	2011	2021	2031	2011-21	2021-31	2011-31
2008*	57.5	64.0	70.9	+6.5	+6.9	+13.4
2011*	56.0	61.7	n/a	+5.7	n/a	n/a
2012	56.4	62.5	69.1	+6.2	+6.6	+12.7

(Calculated from: CLG Household Projections for England, CLG  
<https://www.gov.uk/government/collections/household-projections>)

Note: All figures rounded independently rounded to nearest 100; sums and differences calculated from exact figures and then rounded

\* using 2012-based data on relationship status (single, previously married, married)

- 1.29 The overall relationship between the projections is similar to that in Table 6, although the detailed figures differ. For the period 2011-2021, the 2008-based assumptions produce the greatest growth, and the 2011-based assumptions produce the lowest. However, the broad scale of change is reasonably consistent. The range 12,700 to 13,400 illustrates the degree of sensitivity to different household assumptions. However, the 2008-based household assumptions appear, on the evidence available so far, to slightly overstate the likely trend-based growth in future household numbers
- 1.30 Note the differences in the 2011 base household totals. As in table 6, the 2008-based rates produce a figure that is greater than the actual number of households measured by the Census. The 2011-based projection rates underestimate the number of household in 2011; they were produced before the release of Census data on age, relationship and communal establishments. The 2012-based figure reflects the most recent Census data.
- 1.31 As indicated earlier, the 2012-based household projections do not represent a complete revision of trends; important Census data has still not been obtained. It is hoped that CLG will undertake further work to produce a complete revision.

### **Edge Analytics demographic and household scenarios**

- 1.32 This section examines the new evidence from the 2012-based household and population projections against the scenarios prepared by Edge Analytics for the main HNA report (Housing Growth Forecasts: demographic analysis and forecasts, October 2013). Paragraphs 5.37 to 5.65 of the main HNA report described the Scenarios and the impacts of different population and household formation assumptions.

### ***Demographic Scenarios***

- 1.33 9 demographic Scenarios were produced to show the effects of different assumptions about future migration levels. Most scenarios were based on calculations of migration trends using official ONS data on migration in recent years. Two scenarios explicitly modelled the possible impacts of policies which determined the amount of housing to be provided. The nil-net migration scenario modelled the effect of balancing the flows of migrants into and out of St Albans.
- 1.34 Another Scenario was prepared using assumptions from the 2010-based sub-national population projections. It should be noted that the 2011 population figure was scaled to the Census-based population, rather than the population in the original projection. This has some effect on the projected change during the period 2011-2031, showing growth of 27,300 rather than the 26,700 in the published projections in Table 3 of this report.

### **Household Scenarios**

- 1.35 Two sets of household outputs were prepared for each of the demographic scenarios; these modelled 2011 and 2008-based household-representative rates and were termed A and B respectively. The 2011 projections only run to 2021; for Option A, it was assumed that trends in household representative rates during the period 2011-2021 would persist until 2031.
- 1.36 The 2008-based projections overstated the number of households in 2011. For Scenario B, the projection was controlled to the same total number of households in 2011 as Scenario A, based on the Census. Thereafter the trends in household formation follow the trajectory in CLG's 2008-based projection.
- 1.37 The table include new results showing the effect of applying the 'A' and 'B' household assumptions to the 2012-based population projections. They are consistent with the Edge scenarios in terms of household formation and with CLG's published 2012-based household projections in terms of population. The intention is to provide a context for understanding differences between the Edge scenarios and the published 2012 household projections.

### **Population and household growth**

- 1.38 Table 8 summarises the scenario results from Tables 5.5 and 5.6 of the main HNA report, with the addition of the household scenarios for ONS' 2012-based Subnational Population Projections. As expected, household growth is higher in Option B for all demographic scenarios.

**Table 8: population and household Scenarios: 2011 to 2031**

Population Scenario	Population Change		Scenario A Households		Scenario B Households	
	Nos.	%	Nos.	%	Nos.	%
Mig-led High	28,838	20.4	12,821	22.8	14,494	25.7
Mig-led High X	26,602	18.8	12,099	21.5	13,695	24.3
SNPP-2010	27,329	19.3	12,005	21.3	13,710	24.3
Mig-led (5 years)	24,398	17.3	11,329	20.1	12,834	22.8
Dwell-led 550	23,614	16.7	10,550	18.7	10,526	18.7
Net-nil migration	14,911	10.6	9,098	16.1	10,772	19.1
Mig-led (10 years)	18,093	12.8	8,452	15.0	10,370	18.4
Mig-led Low	17,680	12.5	9,068	16.1	9,960	17.7
Dwell-led 250	8,531	6.0	5,023	8.9	4,999	8.9
<b>SNPP-2012</b>	<b>27,000</b>	<b>19.2</b>	<b>12,038</b>	<b>21.4</b>	<b>13,481</b>	<b>23.9</b>

(Source: Edge Analytics)

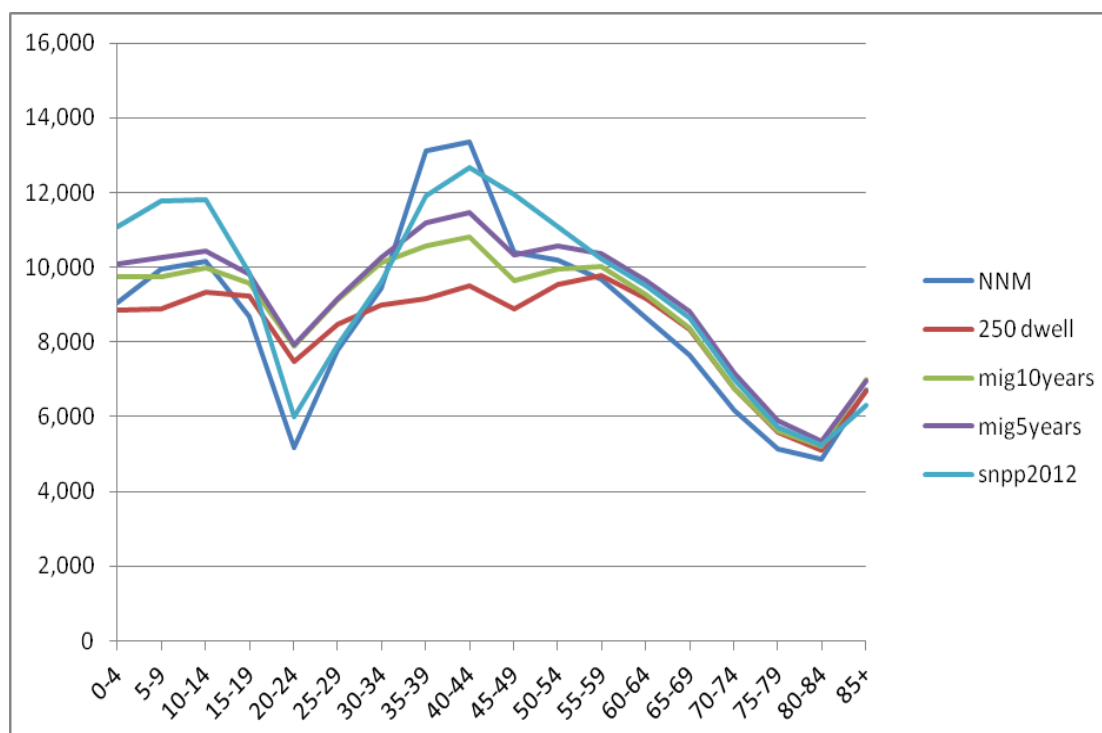
### **Key findings**

- Looking first at projected population change 2011-2031, the 2012-based ONS projection of 27,000 is towards the top end of the range of demographic scenarios, being exceeded only by the Mig-led High and SNPP-2010 based scenario.



- Under Option A household formation assumptions, the 2012 Sub-national Population Projections point to household growth of about 12,000 between 2011 and 2031. This is very close to the number from the 2010 SNPP. It falls within the range of demographic scenarios that were considered in the HNA, albeit towards the upper end.
  - Under Option B household assumptions, the 2012 Sub-national Population Projections point to household growth of about 13,500 between 2011 and 2031. This is nearly 1,500 more than under Option A, illustrating the more rapid household growth produced by Option B's household representative assumptions. Again, the 2012-based projections fall within the range of scenarios, albeit towards the upper end.
  - CLG's 2012-based household projections point to growth of about 12,700 over the period 2011-2031. This is mid-way between the A and B scenarios based on ONS'2012-based population projections, shown in Table 6. This suggests that Option A scenarios tend to underestimate future household growth, while Option B scenarios tend to overstate growth in household formation.
  - The results of the 2012-based population and household projections fall within the range of demographic and household scenarios prepared for the HNA. The exercise therefore succeeded in setting reasonable bounds to the range of possible outcomes from trend-based projections of future change.
  - The exercise has also demonstrated the degree of variability in projected outcomes that can arise from apparently small and detailed changes in data and assumptions.
- 1.39 In addition to total population change it is important to consider age composition. Figure 2 has shown that age is a major factor in household formation.
- 1.40 Figure 4 shows the projected population by age in 2031 for selected scenarios and the 2012-based sub-national population projections.
- Nil-net Migration (NNM): total inflows of migrants balance outflows, but there are net gains in some age groups and losses in others.
  - 250 dwells: shows the impact of controlling housing development to 250 a year over the period 2012-2031. Note that change 2011-2012 is based on the Mid-Year Population Estimates for those years.
  - mig 10 years; based on migration trends from the previous ten-year period.
  - mig 5 years; based on migration trends from the previous five-year period.

**Figure 4: projected population of St Albans by age in 2031 for selected scenarios**



(Source: Edge Analytics)

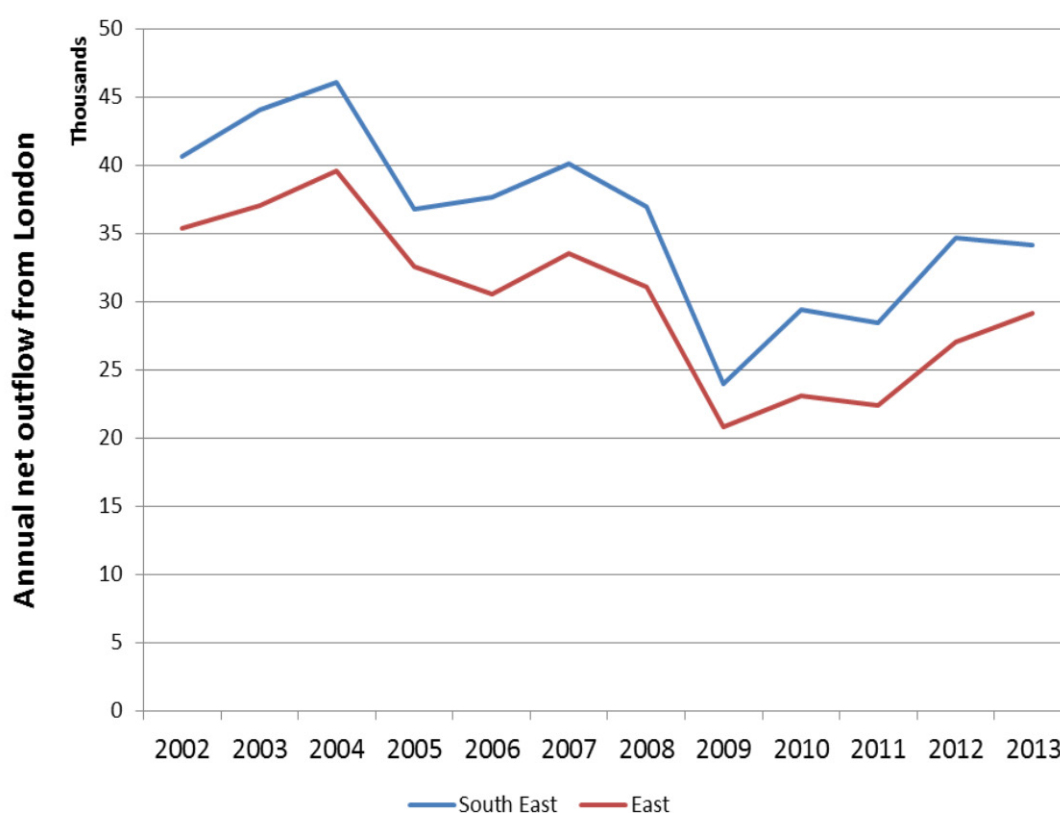
### Key findings

- The two Scenarios based on five and ten-year migration trends have similar shaped age structures. The scenario based on 250 dwellings per annum has a similar shape but the numbers in the 25-54 age groups are smaller.
- The nil-net migration (NNM) scenario has a noticeably different age structure with fewer in the 15-29 age group, but more in the 35-44 age group. This reflects the age composition of inward and outward migration flows differ; balancing the flows to produce a nil-net migration figure has greater impact on certain age groups. In turn, this affects household change, and Figure 2 show how household representative rates are lower in the younger age groups but increase as people progress through early adulthood up to the early 40's.
- This pattern also shows up in the 2012-based Sub-national Population Projections. This projection also has more children than the other Scenarios, although the number of children has no direct impact on the projection of household numbers.
- All scenarios point to growth in the older population. This change is almost inevitable, given the current age composition of the population, which itself stems from the baby booms of the later 1940s and the 1960s.

## The wider spatial context

- 1.41 On 20<sup>th</sup> January 2015, the GLA held very useful meeting sharing technical understanding of the issues in their demographic and household projections. The GLA considers that the 2012-based Subnational Population Projections are technically sound but rely on a trend period for migration that was characterised by recession and lower levels of migration from the capital. A recent set of projections examines the effects for London of using a longer trend period for projecting migration (<http://www.london.gov.uk/mayor-assembly/mayor/publications/gla-intelligence/demography/population>).

**Figure 5: annual net migration between London and adjoining regions: 2002-2013**



(Source: Population Projections for 2013 FALP/SMHA; presentation by GLA Intelligence Unit, 20 January 2015)

### Key findings

- Figure 5 shows a pattern of sharp decline in net migration from London between 2007 and 2009 and a subsequent partial recovery. The extent of variation in these patterns is such that a longer migration trend period is recommended to iron out the impact of short term trends. If applied to St Albans, this could lead to smaller migration gains than in ONS' projections. The HNA scenarios modelled the effects of using 5 and 10-year migration trends. Table 6 showed that a 10-year trend

produces less population and household growth in St Albans. The use of 10-years trends would have variable impacts across local authorities; in some, a 10-year trend would give greater growth.

- 1.42 The pattern of partial recovery is not replicated uniformly across all districts; flows to some districts have shown no recent recovery, while others show little change. Figure 6 is derived from a spreadsheet supplied by the GLA and shows the flows between London and St Albans.

**Figure 6: annual migration between London and St Albans: 2002-2013**



(Source: Internal migration flows district level dropdown (2).xlsx; GLA Intelligence Unit; <http://www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan> )

### Key finding

- This chart shows similarities with the overall picture of flows from London, but the effects of the recession are not as pronounced. Net gains 2011-2013 were slightly higher than any recorded between 2001 and 2011.

### Conclusions

- 1.43 The 2012-based sub-national population and household projections are more up-to-date than their predecessors.
- 1.44 As well as using more recent data, the new projections rest on a sounder base of historical evidence than their predecessors. The

Census showed that demographic trends calculated for earlier projections were based on inaccurate data. The new population projections use evidence about past trends that has been revised in the light of the 2011 Census. Unfortunately, not all the Census evidence needed for a complete review of household trends was available to inform the CLG projections. It is hoped that CLG will complete the required analysis and provide revised projections.

- 1.45 A comparison with the demographic and household scenarios prepared for the main HNA report shows that the scenarios provided a good indication of the range of outcomes to be expected under different assumptions about demographic and household trends.
- 1.46 The 2012-based population point to growth that lies within the range of scenarios prepared for the HNA, albeit towards the upper end of the ranges. The 12,700 household increase in the 2012-based projections falls within the range of scenarios prepared for the HNA
- 1.47 The 2012-based CLG projections point to household formation trends that lie between the A and B scenarios. The A scenarios, using CLG's 2011-based household data, understate growth trends, while the B scenarios, based on CLG's 2008-based projections, overstate growth trends.
- 1.48 Trend projections are sensitive to the length of the historical period used to develop assumptions. ONS currently use a 5/6-year approach, which is a short period on which to base long-term projections. However, arguments have been made by a number of agencies that a longer time span should be used. As noted earlier, the GLA has recently issued projections that examine the effect of using a longer trend period. It is noted that the Inspector considering Cornwall's local plan has recently recommended a 10-year period for setting migration assumptions (<http://www.cornwall.gov.uk/media/12843214/ID05-Preliminary-Findings-June-2015-2-.pdf>).
- 1.49 The methods and data available to those preparing the projections have limitations. Further modifications to methods for estimating migration, in particular, are required.
- 1.50 Projections merely show what the future would be if past trends were to continue into the future. The future is never entirely predictable although the ageing process provides some certainty about aspects of future demographic and household challenges. Evidence shows how variable demographic change has been in the past. The Census has shown up the limitations of the data used to inform demographic and household projections. In these circumstances, consideration of a number of scenarios provides a useful means of understanding the range of uncertainty about future growth and change pressures.