Population and Population Projections
Housing Evidence Base Briefing Note 3:

Policy Context
The NPPF\(^1\) (paragraph 159) states that ‘local planning authorities should have a clear understanding of housing needs in their area. They should prepare a Strategic Housing Market Assessment\(^{BN2}\) to assess their full housing needs... The Strategic Housing Market Assessment should identify the scale and mix of housing and the range of tenures that the local population is likely to need over the plan period which meets household and population projections, taking account of migration and demographic change’.

Definition
The fundamental drivers of how the population of an area changes are relatively simple: the total population in the future is created by the existing population, plus those who come, less those who go. The ‘comings’ and ‘goings’ are:

\[
\text{The number now} \\
\text{plus} \\
\text{Those who arrive (births plus in-migrants from the rest of the UK or abroad)} \\
\text{less} \\
\text{Those who leave (deaths plus out-migrants to the rest of the UK or abroad)}
\]

How reliable is the data\(^\text{ii}\)?

- Births – fertility rates are well understood, and those who will form households in the next 20 years have already been born
- Deaths – are based on life expectancy rates at birth and are well understood although some\(^\text{iii}\) consider that ONS have a tendency to underestimate improvements in mortality rates;
- Internal migration – Migration is the more complex part of population change to estimate as while there is a legal requirement to register a birth or a death there is no such requirement to register a change of address. The robustness of migration data has improved considerably over the last few years and the latest figures reflect what Census is telling us about migration.
- International migration – more uncertainty as the figures vary year on year but not a major contributor to population change in Cornwall so changes and differences will have a minimal effect.

Overview
In order to begin assessing housing needs there is a need to understand what has happened to the population of the area over time, what the current profile of that population is and what could happen to it in the future should past trends continue. Population change is usually looked at in terms of natural change (births and deaths) and migration (people moving in and out of an area).

The long term average (1961-2011) growth in the population equates to some 3,850 persons per year for Cornwall. Migration is the driver of population change in Cornwall as up until the last couple of years natural change (births and deaths) has resulted in a decline in the resident population. Projections and long term growth trends would
indicate that the population of Cornwall will continue to grow and some 78,000 additional people will live in Cornwall by 2030 than did in 2010.

**Context**
Migration is the single greatest driver of population change, with internal migration (i.e. within the UK) accounting for the largest proportion of net migration in Cornwall. Cornwall is one of those areas of the UK that has historically experienced a natural decrease, as deaths exceed births although this trend has reversed itself recently and natural change will account for some of the future population growth in Cornwall. The graph below gives an indication of how each of these elements has impacted on population growth over the last ten years:

**Past Population**
The following chart shows how the population of Cornwall has grown between Censusvi dates from 1961 to 2011. The biggest increase in the population was between 1971 and 1981 and the smallest increase in the population was between 1991 and 2001. The long term average increase per ten years is 38,500 or 3,850 per year.
Cornwall experiences high rates of in-migration (some 20-25,000 people per year) although this is counter-balanced to some extent by out-migration (some 15-20,000 persons per year). The average net gain in people to the area is usually between 4 and 5,000 persons per year, and the long term average is 5,220 persons per year. The graph below shows how levels of net migration to Cornwall have changed over the last fourteen years (please note that not all data is available for 2011-2012 hence the paler hatching and the exclusion from the long term trend). Population projections tend to project forward the patterns in net migration of the previous five years, and this can lead to over or under estimates of future population change if the pattern of net migration changes significantly and natural change remains constant. The last five year average in terms of net migration is around 4,150 which is less than the longer term average and could underestimate migration in future projection work.

In-migration to Cornwall is predominantly for economic and lifestyle reasons rather than for retirement purposes (as commonly believed), and many in-migrants are in fact ‘returners’ (i.e. they were originally from Cornwall). In-migrants are generally of working age and the majority will already have found suitable employment before making their move, and these ‘new families’ will have an impact on the number of children in Cornwall and additional births.
Internal & International Migration Flows

Natural Change 2001-2012

- Births
- Deaths

Version 1: November 2013
Historically, high numbers of young people left Cornwall for education and employment reasons, but this trend is reversing due to the expansion of the higher education sector in Cornwall and improving employment prospects. The Combined Universities in Cornwall have successfully secured funding for an additional 450 places every year starting from 2010 and this growth agenda may have implications for Mid and West Cornwall in terms of the in and out-migration of younger people.

Cornwall has recently experienced high levels of migrant workers from European and other countries registering to work in the area, and many of these may not be picked up in migration terms if their original intention is to stay for less than a year. The majority of migrant workers are aged 34 and under and may also have had an impact on the rising number of births in the area. Many migrant workers in Cornwall work in the tourism, agriculture & food production sectors. Although the global recession may have an impact on the demand for migrant workers in the short term, there is a need to consider changes in the numbers of migrant workers, as the need for them in the above mentioned sectors is likely to continue and could even increase.

**Life Expectancy in Cornwall:** A contributor to Cornwall’s population growth is improvements in life expectancy rates. Life expectancy for males in Cornwall at birth for the years 2008-10 was estimated to be 79.3 and life expectancy for females in Cornwall at birth for the years 2008-10 was estimated to be 83.1. Disability free life expectancy at age 16 is also rising along with general life expectancy, and older people in the future will include the very active who may still be working in paid employment or in the voluntary sector, as well as those who are more vulnerable because of poor health and deprivation.

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**Life Expectancy from Birth in Cornwall**

![Graph showing life expectancy from birth in Cornwall, 1991-2010, with a steady increase for both males and females.](image)
**Current Population**\(^{xi}\)

**Population and Households:** Cornwall population’s was 532,300 on Sunday 27\(^{th}\) March 2011 (Census day) which was an increase of 6.7% since 2001. 523,400 people (98.3%) in Cornwall live in households giving an average household size of 2.27, with a further 8,800 living in communal establishments (1.7%). There were 230,400 households in Cornwall on Census day - an increase of 6.8% since 2001.

The latest Mid Year Sub National Population Estimates\(^{xii}\) indicate that the population of Cornwall was 537,900 in mid 2012.

**Age Structure:** The changes in Cornwall’s age structure are as would be expected. The numbers of residents in the 5-14, 30-39 and 50-59 age groups have decreased in Cornwall over the last decade. Due to the migration into Cornwall of family age groups and more births the numbers of residents in the 0-4, 15-29 age groups have increased, along with those aged 40-49. The greatest increases in this age range is seen in the 20-24 age group seeing a 28% rise. These figures identify a rise in young adults remaining or returning to Cornwall and support migration evidence that fewer 20-24 year olds are leaving the county to pursue employment and education opportunities elsewhere.

As with the rest of the UK, Cornwall’s population continues to grow older with increases in the 60-74, 75-84 and 85+ age groups. The greatest increases in this age range is seen in the 60-64 age group seeing a 42% rise. The large numbers of 60-64 year olds can be identified as the ‘Baby Boom’ generation and can be traced back in the two previous Censuses as the largest population group.

**Note of Caution 1:** The population figures for Cornwall are lower than expected and represent a nominal reduction from published mid year estimates of population from the ONS. This does not however represent a decline. It is normal for the release of Census figures to lead to a revision of previously published estimates. Cornwall Council will be looking to better understand the reasons behind the apparent slowdown in population and households identified through these figures and will be undertaking a process of cross referencing and analysis of local data.

**Future Population / Population Projections**

Population and sub-national population Projections for England are currently produced every two years by the Office for National Statistics (ONS) and are based upon their Mid Year Population Estimates. Population projections tend to look forward twenty-five years, provide estimates of the size of the future population, and are based on assumptions around births, deaths and migration. The assumptions are based on past trends and so the projections only indicate what may happen should the recent trends continue. Projections done in this way do not make allowances for the effects of local or central government policies on future growth, distribution and change.

The projected population for each year is calculated by ageing on the population from the previous year, applying assumed local fertility and mortality rates to calculate the number of projected births and deaths, and then adjusting for local migration into and out of the area. If past trends continue, population will continue to grow.

A basic equation is often used: 

\[
P_p = P_c + B*S_1 + B*S_2 - D + M_w + M_i
\]

\(P_p = \) projected population; \(P_c = \) current population; \(B = \) projected births; \(S_1 = \) sex ratio of males; \(S_2 = \) sex ratio of females; \(D = \) projected deaths; \(M_w = \) net internal migration from within England; and \(M_i = \) net international migration from outside England)
Note of Caution 2: Caution should be applied if the trends experienced in the past five years reflect a period of particular economic ‘boom or bust’. Projecting forward a ‘recessionary’ trend may lead to concealed households not being catered for and an underestimate of the true level of household change. If this is a factor that needs to be taken into account there is a need to examine the trends and projections in relation to household representation rates, age structure and household type to see how they compare.

The latest full set of government population projections available are the 2010 based projections and these are available at an England and sub-national level\textsuperscript{xiii}. These projections trend forward at a lower rate than both the 2006 and 2008 based projections (see chart below). Recent figures show that net migration for Cornwall does fluctuate and this has had an impact on population projections. Also included in this chart are the 2011\textsuperscript{xiv} based short term (only ten year) population projections and these indicate a steeper rise in population growth than the 2010 based population projections for the first ten years.

![Population Projections - Various](chart.png)

Note of Caution 3: As migration is the biggest driver of population growth in Cornwall, the trends experienced over the last few years need to be carefully monitored as any ‘out of the ordinary’ changes will be reflected in the longer term projections, impacting not only on the number of people predicted to be resident but also the demographic profile (age) that result, and which may not show the ‘true picture’ of likely change. The last five years has seen a lower level of net migration than usual (see above diagram – equating to an increase of 4,100 persons per year before figures started to return to a more ‘normal’ level (4,529 in 2009/10 – the long term average is around 4,800 per year) and this is likely to be due to the economic downturn and a corresponding lack of confidence in the housing market over the last five to six years.

Some local analysis and remodeling\textsuperscript{xv} of the 2010 based population projections using the very latest available data and rebased to incorporate Census 2011 findings estimate that the population of Cornwall will grow by some 78,000 in twenty years. It is interesting to note that the 2011 Based Short Term Population Projections which start at a lower figure
in 2011 and incorporate some 2011 Census data show a higher rate of growth over the subsequent ten year period and are almost back to the 2008 based levels by 2021.

<table>
<thead>
<tr>
<th>Projections</th>
<th>2010</th>
<th>2021</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 Based</td>
<td>548,300</td>
<td>618,800</td>
<td>673,300</td>
</tr>
<tr>
<td>2008 Based</td>
<td>537,500</td>
<td>588,100</td>
<td>630,300</td>
</tr>
<tr>
<td>2010 Based</td>
<td>536,100</td>
<td>581,600</td>
<td>615,800</td>
</tr>
<tr>
<td>2011 Based</td>
<td>(2011) 533,800</td>
<td>585,900</td>
<td>n/a</td>
</tr>
<tr>
<td>2010 Based (SHMA)</td>
<td>(2011) 533,760</td>
<td>572,530</td>
<td>611,309 (2031)</td>
</tr>
</tbody>
</table>

These 2011 based short term projections also indicate that natural change is predicted to remain positive throughout the next ten year period. This is as a result of anticipated increases in life expectancy and birth rates.

A crude method of anticipating how the population of Cornwall could change over the next twenty years is to take the long term trend increase of some 3,850 persons per year from the Census and to multiply this by 20. This would indicate that the population of Cornwall could grow by some 77,000 persons between 2010 and 2030. This figure is almost identical (78,000) to that produced by the re-modelling of the 2010 based projections undertaken in the SHMNA as set out above, and as such provides an element of corroboration for this figure.

**Population Projections by Age in Cornwall:** The following age breakdown for Cornwall between 2010 and 2030 shows that there will be a similar proportion of younger aged people, a lower proportion of working age people and a higher proportion of older people in the population by 2030\(^{xvi}\).
In line with national trends, Cornwall’s population is getting older as average life expectancy continues to rise.

**Dependency Ratios:** This changing age structure means that there is likely to be a lower proportion of working age people to support the other two age groups - this is referred to as the dependency ratio. In 2010, Cornwall had a dependency ratio of 60 compared to 56.5 across the South West\textsuperscript{xvii}. This means that in Cornwall, 100 people of working age provide for and support 60 young and pension age people. A higher dependency ratio means that there are more people not working and paying taxes, less people who are working and paying taxes, and more people who could need treatment and/or care. By 2030, the dependency ratio for Cornwall is predicted to rise to 78.8 compared to the South West figure of 74.4 and this increase in dependency ratio will be entirely within the older age group.

**Applying Different Assumptions to Published Figures**
Recent work\textsuperscript{xviii} looked at the choice of assumptions that could be used when forecasting housing requirements and four of the five assumptions analysed were around the components of change in population. The main conclusions drawn out of the research were:
- **Births:** variations in birth rate assumptions would have a negligible impact as the vast majority of those who would form households within the plan period are already born;
- **Deaths:** death rates could be different to those assumed but the level of uncertainty is not considered to have a significant impact on planning for housing;
- **Internal Migration:** the uncertainty regarding internal migration is much higher and that has been demonstrated by recent fluctuations in annual net migration rates in Cornwall related to the recession. The NPPF is very clear that account must be taken of migration, and it follows that an authority should not depart from official assumptions unless these can be robustly justified. This ‘departure’ would need to include an
explanation of where the households affected are going to live and the results of consultations with the other authorities affected under the ‘duty to co-operate’. Any justification for not planning to meet the ‘objectively assessed needs’ of Cornwall must contain clear evidence that those not being provided for will be accommodated elsewhere;

- International Migration: has varied considerably over the last 20 years, and DCLG analysis shows that relatively wide variations in net flows of between plus or minus 38% have had a much smaller impact on the number of extra households formed of plus 14% or minus 13%. The advice is that areas with relatively small international flows, such as Cornwall, should not regard this as an area of significant uncertainty.

**Note of Caution 4:** The variation of assumptions is an area where authorities are vulnerable to challenge and any decision to change assumptions must be transparent and based on evidence. It is important to understand the sensitivity of assumptions to minor adjustments.

**Risk Assessment and Examination Findings**
Population changes and projections are used for the assessment of ‘objectively assessed need’ and the associated briefing paper will cover these issues.

**Use in Cornwall Local Plan**
An analysis of population changes has been used throughout the development of the Cornwall Local Plan (previously known as the Core Strategy) and the following papers accompanied each consultation:


**Associated Briefing Notes:**
BN1 – Objectively Assessed Needs
BN2 – The Housing Market and the Strategic Housing Market Needs Assessment
BN4 – Households and Household Projections

**Further Information:**
2. The ‘What Homes Where’ toolkit is a very useful interactive web based too which allows users to understand and explore the characteristics of population and how and why it has changed over time, and in the future. It currently uses the 2008 based projections but is being updated with the revised Census information or more recent interim data. The toolkit is accompanied by a companion guide. [http://www.howmanyhomes.org/5.html](http://www.howmanyhomes.org/5.html)

5. Census 2011 provides the most complete source of information we have about the population of Cornwall. The detailed information that Census provides us helps us to understand our communities and the characteristics of people who live and work in Cornwall, and this will help us to plan and deliver services for the future and inform policy decisions for years to come. [http://www.ons.gov.uk/ons/guide-method/census/2011/index.html](http://www.ons.gov.uk/ons/guide-method/census/2011/index.html)

6. Neighbourhood Statistics aims to help local authorities use official statistics to better understand the economic, social and environmental picture for their area, and have been developed using data that will be of use to analysts, economists and policy makers. [http://www.neighbourhood.statistics.gov.uk/dissemination/](http://www.neighbourhood.statistics.gov.uk/dissemination/)

7. NOMIS is a service provided by the Office for National Statistics, ONS, to give you free access to the most detailed and up-to-date UK labour market statistics from official sources. [http://www.nomisweb.co.uk/](http://www.nomisweb.co.uk/)


\textsuperscript{ix} Office for National Statistics (various) Migration Statistics Unit – rebased following release of Census 2011 data - [http://www.ons.gov.uk](http://www.ons.gov.uk)

\textsuperscript{x} Disability Free Life Expectancy is defined as the number of years free from limiting long term illness.


xv GVA/Edge Analytics (2013) Cornwall Housing Demand Model Outputs - these projections use the Census based mid 2011 population data, although they do not fully take into account all the implications of the census, and use previous assumptions relating to fertility, mortality and migration.


