Population and Population Projections
Housing Evidence Base Briefing Note 3 (BN3) Version 2

Summary
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) change in the population equates to an additional 3,850 persons per year for Cornwall.

Migration is the main driver of population change in Cornwall as up until the last couple of years natural change (births and deaths) would have resulted in a decline in the resident population.

The population of Cornwall was recorded as 532,300 persons in 2011.

Population projections have varied over time, and the latest 2012 based population projections predict that the population of Cornwall will be 617,000 persons by 2030.

Long term growth trends would indicate that the population of Cornwall will continue to grow and that some 87,000 additional people will live in Cornwall by 2030 than did in 2010.

The age breakdown for Cornwall between 2012 and 2032 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 the end of the Local Plan period.
National Policy Context
The NPPF (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\textsuperscript{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’.

National Planning Practice Guidance\textsuperscript{ii} (NPPG) is clear that one of the primary objectives in identifying ‘objectively assessed need’ is to ‘identify the future quantity of housing needed, including a breakdown by type, tenure and size’. Household projections are one of the key factors in identifying how many new homes are needed and these are based on population projections as produced by the Office for National Statistics.

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. These ‘comings’ and ‘goings’ are:

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

How reliable is the data\textsuperscript{iii}?
- 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 understand although some\textsuperscript{iv} 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.

Context
Migration is the single greatest driver of population change, with internal migration (i.e. migration 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\textsuperscript{v}.

The graph below gives an indication of how each of these elements has impacted on population growth\textsuperscript{vi} since 2001:
Past Population

The following chart shows how the population of Cornwall has grown between Census 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 through migration to the area is usually between 4 and 5,000 persons per year, and the long term average is 5,140 persons per year.

The graph below shows how levels of net migration to Cornwall have changed over the last fourteen years. 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 4,340 which is less than the longer term average and could underestimate the impact of migration in population projections undertaken at this time.

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.
Natural change in Cornwall, until very recently, had a decreasing effect on the resident population as significantly more people died than were born. The following chart shows how natural change moved towards a more balanced position over the twelve years to 2011/2012 and how it has since changed:
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 University of Exeter and Falmouth University 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 experienced an influx 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 was 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.

**Life Expectancy in Cornwall:** A contributor to Cornwall’s resident population growth is improvements in life expectancy rates. Life expectancy for males in Cornwall at birth in 1991 was just under 75 years whereas by 2014 it was estimated to be almost 80 years. Life expectancy for females in Cornwall at birth in 1991 was just under 80 years and by 2014 it was estimated to be over 83 years.

Life expectancy for older people is also rising and in the future this age group 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. The chart below shows how life expectancy from the age of 65 has improved for both men (increase of 2.4 years) and women (increase of 1.5 years) in Cornwall over a relatively short period of time.
Current Population

Population and Households: Cornwall population’s was 532,300 on Sunday 27th 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 indicate that the population of Cornwall was 545,335 in mid-2014.

Population Movement: The Census provides us with detail on residents in Cornwall at the time of the Census who had a different address one year before. The following graph shows the net increase or decrease to Cornwall from different areas of England and Wales in the year prior to the Census. Overall there was a net increase of over 3,300 persons as expected given that migration is the main driver for population growth in Cornwall. Over 80% of the net increases in numbers were children and working age people, confirming that Cornwall is not predominantly a retirement destination as is commonly thought.
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 age group.

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 (usually over five years) 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: \( P_p = P_c + B \cdot S_1 + B \cdot S_2 - D + M_w + M_i \)

\( P_p = \) 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 1:** 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 2012 based projections and these are available at an England and sub-national level\(^\text{xiii}\). These projections trend forward at a lower rate than both the 2006 and 2008 based projections (see chart below), but at a steeper angle of increase than the 2010 based projections. 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 2010 based population projections, and it is worth noting that these indicate a very similar figure by 2031 (i.e. 2010 = 621,400 and 2012 = 620,500).

**Note 2:** 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
4,300 persons per year – 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.

The latest 2012 based population projections suggest that the population of Cornwall will grow by some 87,000 persons between 2010 and 2030. It should be borne in mind that these are still based on ‘recessionary’ net migration figures and that this figure could be higher if longer term trends were applied. The following table demonstrates how population in Cornwall has been predicted to change using the various projections available over the twenty year plan period (or nearest estimation):

<table>
<thead>
<tr>
<th>Projections</th>
<th>2010</th>
<th>2021</th>
<th>2030</th>
<th>20Yr Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 Based</td>
<td>548,300</td>
<td>618,800</td>
<td>673,300</td>
<td>+ 125,000</td>
</tr>
<tr>
<td>2008 Based</td>
<td>537,500</td>
<td>588,100</td>
<td>630,300</td>
<td>+ 92,800</td>
</tr>
<tr>
<td>2010 Based</td>
<td>536,100</td>
<td>581,600</td>
<td>615,800</td>
<td>+ 79,700</td>
</tr>
<tr>
<td>2010 Based (SHMA)</td>
<td>(2011) 533,760</td>
<td>572,530</td>
<td>611,309 (2031)</td>
<td>+ 77,550</td>
</tr>
<tr>
<td>2011 Based</td>
<td>(2011) 533,800</td>
<td>585,900</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>2012 Based</td>
<td>(2012) 537,900</td>
<td>578,400</td>
<td>616,800 (624,100 in 2032)</td>
<td>+ 86,200</td>
</tr>
</tbody>
</table>

These 2012 based population projections indicate that natural change is predicted to remain positive for some time over the next twenty year period. This is as a result of anticipated increases in life expectancy and birth rates. Net migration is also expected to remain high.

Population Projections by Age in Cornwall: The following age breakdown for Cornwall between 2012 and 2032 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 the end of the Local Plan period.

[Graph of Components of Change 2013-2031]

- Natural Change
- Net Migration

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. 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 care and support. By 2030, the dependency ratio for Cornwall is predicted to rise to 80.3 compared to the South West figure of 74.5 and this increase in dependency ratio will be entirely within the older age group.

Applying Different Assumptions to Published Figures
National Planning Practice Guidance is clear that ‘household projections produced by DCLG are statistically robust and are based on nationally consistent assumptions. However, plan makers may consider sensitivity testing specific to their local circumstances based on alternative assumption... any local changes would need to be clearly explained and justified on the basis of established sources of robust data’.

A study looking at the choice of assumptions that could be used when forecasting housing requirements has been undertaken, 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.

Planning Advisory Service guidance\textsuperscript{xix} states that until 2012 household projections are published later in 2014 (now available\textsuperscript{\textit{BN4}}), housing assessments will have to rely on bespoke households projections based on the 2012 based population projections, as the existing household projections are either out of date (2008 based) or interim projections (2011 based) and neither takes full account of Census 2011 data.

To predict migration, the population projections carry forward the trends of the previous five years and this can have an enormous effect on the robustness of projections. The last five years prior to the 2012 based population projections was recession based, and an economic climate during recession tends to suppress household moves. This ‘suppression’ of household moves is then likely to be carried forward into the projections into the future and is likely to result in an undercount of migrating households.

The Cornwall Local Plan Inspector agreed that more work needs to be undertaken to fully understand the reasons why migration may have slowed or increased which may not wholly be related to the economic downturn, as this will provide the justification for looking at alternative scenarios. He agreed that it was appropriate to run scenarios based on carrying forward the migration trends of the last ten or twelve years if this is considered to better reflect trends in an area.

This guidance has also highlighted issues in population projections relating to unattributable population change (UPC) and the fact that this occurs when the 2011 Census finds more or less people in an area than could be traced back to previous population counts. The consensus is that this is migration, and probably international migration, which was unrecorded or recorded to the wrong places, is the most likely explanation for this difference. The 2012 based projections ignore the UPC and assume that it did not happen – and this can have an impact on the projected population for some areas. In terms of Cornwall, international migration does not play that big a part in overall migration figures and therefore is not likely to be a significant issue.

\textbf{Note 3:} 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 in the assessment of ‘objectively assessed need’ and the associated briefing paper BN1 will cover these issues. Cornwall Council’s own review of Local Plan examinations around England have found that identifying the ‘objectively assessed need’ for housing tends to be the most contentious element at examinations.

For example, the Inspector at Stroud stated that ‘when assessing future housing needs, there may be a temptation to modify the household numbers suggested by the projections to reflect the 2011 Census and interim household projections, but this should only be done where there is clear evidence that the changes are not the result of short-term fluctuations which are likely to come back to trend in the medium term. Given that the 2011 figures are a snap-shot taken after a period of economic recession and housing market volatility, it might be reasonable to expect that the numbers of households that formed in the years running up to the Census were significantly below the long term trend’. The latest 2012 population projections also reflect a period of economic recession and housing market volatility and this principle may still apply.

An analysis of Local Plans recently approved (July to November 2015) have shown that Inspectors are generally accepting the 2012 population and household projections as their baseline demographic.

Use in Cornwall Local Plan

The ‘Housing Evidence Base’ includes all the analysis and scenarios used to determine the ‘objectively assessed housing need’ for Cornwall including population changes and projections, and this evidence underpins the housing target as identified in the Cornwall Local Plan: Strategic Policies document Policy 2. How the population is predicted to change also underpins Policies 6 and 8 in terms of the need for different house types, sizes and tenures.

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
BN20 – Local Plan Examinations

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.


4. Mid Year Estimates set out the different components of change (births, deaths and migration) which have made up the historic growth pattern. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates#tab-data-tables

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. https://www.ons.gov.uk/census/2011census

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. https://www.ons.gov.uk/help/localstatistics/

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/

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ii DCLG (2014) Housing and Economic Development Needs Assessment
iii ONS (various) Population Projections
iv Neil McDonald (2013) How do we get to 250,000 homes a year? presentation
vii Office for National Statistics (various) Census
viii Office for National Statistics (2013) Local Area Migration Indicators
x Office for National Statistics (various) Migration Statistics Unit – rebased following release of Census 2011 data
xi Cornwall Council (2012) Census at a Glance
xvii DCLG (2013) Housing and Economic Development Needs Assessment
xviii Cambridge Centre for Housing and Planning Research (2013) Choice of Assumptions in Forecasting Housing Requirements
xix Planning Advisory Service (2014) Objectively Assessed Need and Housing Targets: technical advice note
xxii Office for National Statistics (various) Mid-Year Population Estimates