



Demographic Analysis & Forecasts

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For the attention of:

Michael Reep

Planning Policy Manager
North Somerset Council
Town Hall,
Walliscote Grove Road,
Weston-super-Mare
BS23 1UJ

edge analytics
www.edgeanalytics.co.uk

Contact Details

Dr Peter Boden

pete@edgeanalytics.co.uk

Dr Kate Staines

kate@edgeanalytics.co.uk

Edge Analytics Ltd

Leeds Innovation Centre

103, Clarendon Road

Leeds

LS2 9DF

www.edgeanalytics.co.uk

Acknowledgements

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Executive Summary

Requirements

- E1. North Somerset Council has sought to update its demographic evidence with the development of a suite of population, household and housing forecasts for the unitary authority. These forecasts incorporate the latest evidence from:
- 2011 Census statistics on population and households
 - Revised mid-year population estimates for the period 2002–2010 (ONS)
 - 2011-based household projections for 2011–2021 (CLG)
- E2. This report has presented the suite of alternative growth scenarios using POPGROUP technology. They evaluate trend, policy and economic considerations; they are accompanied by a transparent definition of key assumptions; and they are presented in a consistent format that contrasts the impact of scenario assumptions upon changes to population, households, dwellings, labour force and jobs. All scenarios have been run from a 2011 base year, with a 2026 and 2031 horizon. Historical data has been included for 2001–2010.

Outcomes

- E3. The latest demographic evidence has provided a timely update to North Somerset's population profile, aligning the new 2011 Census total with an historical time series back to 2001. The substantial 're-calibration' of North Somerset's population estimates has presented considerable uncertainty with regard to the factors that have driven the downward adjustment in the authority's 2011 population.
- E4. The new demographic evidence has enabled the development of alternative 2011-based trend projections that consider the potential future impact of migration. These provide an important update to ONS' 2011-based interim projections which do not provide a sound basis for analysis due to their reliance upon 2010-based assumptions in conjunction with 2011 Census statistics.

- E5. Five-year and ten-year historical perspectives have been used to set migration assumptions in the trend scenarios. The 5-year alternative suggests a lower growth forecast than the 10-year, reflecting the reduction in net in-migration to North Somerset since 2007.
- E6. Dwelling-led and jobs-led growth alternatives have been developed to contrast directly to official forecasts and the updated trend forecasts. In addition, scenario outcomes produced on behalf of developers with local land interests have been compared directly to the new evidence presented here.
- E7. The analysis of scenario outcomes is complicated by the 'choice' of appropriate headship rates with which household (and dwelling) growth is estimated. The latest 2011-based rates (Option A) have been calibrated after a period of unprecedented economic change and stagnation in the housing market and thus suggest a slower rate of household formation than the previous 2008-based rates (Option B), calibrated from data collected in a time period with very different market characteristics.
- E8. As evidence for the Local Plan, it is recommended that North Somerset considers its scenario alternatives within the following summary classification.

North Somerset – growth scenario classification

	Dwelling requirement 'range' <i>dwelling per year</i>
1 'Previous' trend growth <i>SNPP-2010, Mig-led_10yrs-X, Mig-led_5yrs-X</i>	1,282 - 1,457
2 Economic growth forecast <i>Jobs-led</i>	1,400
3 'Current' trend growth <i>Mig-led_5yrs, Mig-led_10yrs5yrs, Mig-led_10yrs</i>	812 - 1,018
4 Dwelling-led growth <i>Dwelling-led</i>	806
5 Zero migration <i>Net Nil</i>	243

Recommendations

E9. Zero net-migration

The 'Net-Nil' scenario does not provide a realistic basis for future planning but does provide an important indication of the degree to which dwelling growth is driven by natural change. Even with a declining population, household numbers are seen to increase due to an expected reduction in average household size, linked primarily to the gradual ageing of North Somerset's population. In the absence of migration, North Somerset Council should consider a minimum housing need of approximately 243 homes per year based on the 'Net-Nil' scenario outcomes.

E10. Previous trend growth

The 2011 Census has updated the trend in North Somerset's population growth 2001–2011 and has enabled a rescaling of the effects of migration upon this growth. Whilst there remains uncertainty over the degree to which international migration will influence future demographic change, the 'previous trend growth' scenarios are now out-of-date and do not provide a robust basis for future planning.

E11. Dwelling-led growth

This scenario replicates North Somerset Council's housing growth trajectory of approximately 17,000 new dwellings over the planning period 2006/07–2025/26. With estimated completions of 806 units over the 2011–2026 forecast horizon, growth falls below that suggested by the range of 'current trend growth' scenarios

E12. Economic growth forecast

North Somerset Council has identified a potential jobs growth target of +9,750 for the 2011–2026 period. With an ageing population and a natural decline in the relative size of the labour force, this scenario results in high net in-migration and a larger housing requirement. However, this forecast is based on relatively modest improvements to underlying economic activity rates in older age-groups and no-change to the existing commuting balance for the unitary authority.

E13. Current trend growth

The latest demographic evidence from the 2011 Census, the revised mid-year population estimates and the new household projections, has allowed new trend forecasts to be formulated. This range of forecasts most accurately captures the historical impact of migration upon North Somerset and its potential impact upon future growth. It provides the most robust and up-to-date evidence for future planning purposes.

- E14. It is recommended that North Somerset Council adopts the range of ‘current trend growth’ scenarios as the basis for its review of future housing provision in the unitary authority.**
- E15. In line with NPPF guidelines¹, it is recommended that the economic growth implications of the ‘current trend growth’ scenarios is considered against the viability and local sustainability of the policy aspirations defined by the ‘Jobs-led’ scenario, which anticipates significantly higher local jobs growth. This is a particularly important issue given the inevitable impact of an ageing population upon the composition of the labour force.
- E16. In relation to the key assumptions used in the scenarios presented here, it is recommended that the ‘hybrid’ (average) of the option A and option B alternatives is used as the basis for the assessment of future housing growth. In addition, it is recommended that North Somerset Council gives due consideration to the sensitivity of housing need to the potential changes in both the commuting balance and rates of economic activity associated with the local labour force. A reduced net out-commute and/or higher rates of economic participation in the older age-groups could each contribute to lower housing need over the plan period.

¹ National Planning Practice Guidance. <http://planningguidance.planningportal.gov.uk/>

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1. Context & Requirements

Context

- 1.1 North Somerset's Core Strategy was adopted in April 2012, identifying a district housing requirement of a minimum of 14,000 dwellings (700 dwellings per year) over the 20-year planning horizon 2006-2026 (Policy CS13). Technical evidence to support the housing strategy was published in two stages, completed in October 2010¹.
- 1.2 The analysis brought together a range of economic and demographic scenarios to synthesise a housing number for North Somerset. Whilst providing a comprehensive analysis and commentary to support the derivation of the housing numbers, demographic forecasts were not formulated using a recognised forecasting model, although statistics on average household size and household dwelling ratios were derived from 'Chelmer' output.
- 1.3 In March 2013, a successful high court judgement resulted in the adopted policy being remitted back to the Planning Inspectorate for re-examination, on the grounds that the Inspector had 'failed to give adequate or intelligible reasons for his conclusion that the Council's target of 14,000 dwellings made sufficient allowance for latent demand (i.e. demand unrelated to the creation of new jobs)'.
- 1.4 Given the time that has elapsed since the original Core Strategy was adopted, the judgement concluded with a recommendation that the re-examination should not be restricted to the specific, 'latent demand' issue, but should include all aspects of North Somerset's housing assessment work.
- 1.5 Since the judgement was made, additional evidence on future housing requirements has been published on behalf of developers with land interests in Bath and North East Somerset². With a focus on the wider West of England Housing Market Area, the study identified a recommended housing growth target for North Somerset in excess of 1,400 dpa for the twenty-year period 2011–2031.

¹ Woodhead, K. (2010). North Somerset Council: Determining a locally derived District Core Strategy housing requirement to 2026. <https://www.n-somerset.gov.uk/NR/rdonlyres/442D093F-583F-45C3-A5F9-0A50F4667B10/0/NSomersetStage2FinalReportonHousingrequirements.pdf>

² Barton Willmore, West of England Housing Study, April 2013

- 1.6 During the last 6 months, a substantial amount of new demographic evidence has been published, including 2011 Census statistics and revised mid-year population estimates for 2002–2010 from the Office for National Statistics (ONS) and a 2011-based household projection model from Communities and Local Government (CLG). The analysis presented in this report provides an update to previous evidence commissioned by North Somerset Council¹.

Requirements

- 1.7 North Somerset Council is seeking to prepare itself for re-examination and has identified a series of stages required to update the evidence that underpins its housing strategy. A key component of this new evidence is a critique of published population projections from ONS and CLG and the provision of an alternative suite of forecasts which meet policy objectives whilst being compliant with the National Planning Policy Framework (NPPF)².
- 1.8 North Somerset Council has commissioned Edge Analytics to complete an updated demographic analysis, including the development of a suite of population, household and labour force forecasts using POPGROUP demographic modelling technology.
- 1.9 Forecast scenarios which evaluate both trend and policy-led growth alternatives, have been produced for a 2011–2026 time period, with historical data provided for 2001–2011. The following key datasets have been used within the analysis:
- 2011 Census statistics on population and households
 - Revised mid-year population estimates for the period 2002–2010 (ONS)
 - 2011-based household projections for 2011–2021 (CLG)

Forecasting Methodology

- 1.10 Demographic forecasts have been developed using the POPGROUP suite of products. POPGROUP is a family of demographic models which enables forecasts to be derived for population, households and the labour force, for areas and social groups.

¹ Woodhead, K. (2010). North Somerset Council: Determining a locally derived District Core Strategy housing requirement to 2026. <https://www.n-somerset.gov.uk/NR/rdonlyres/442D093F-583F-45C3-A5F9-0A50F4667B10/0/NSomersetStage2FinalReportonHousingRequirements.pdf>.

² CLG (2012a). National Planning Policy Framework. <http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf>

- 1.11 POPGROUP models are used extensively by local authorities across the UK, providing a desktop utility for the evaluation of alternative growth scenarios to support local planning. Under licence to the Local Government Association (LGA), Edge Analytics provides product development and technical support to the product suite and its user base.
- 1.12 Appendix A provides a summary overview of the POPGROUP model methodology. More detail can be found online at <http://www.popgroup.org.uk/>.

Report Structure

- 1.13 Section 2 provides the geographical context for the North Somerset analysis.
- 1.14 Section 3 provides a short commentary on demographic change in North Somerset since 2001 and presents new demographic evidence available from the revised mid-year estimates for 2002–2010 (ONS) and the latest 2011-based household projections (CLG).
- 1.15 Section 4 describes the suite of scenario alternatives, developed to evaluate trend and policy growth trajectories.
- 1.16 Section 5 summarises the outcomes of each of these scenarios, presenting growth in terms of population, households, dwellings, labour force and jobs impacts. Additional analysis is provided to examine the impact of commuting flows upon scenario outcomes and additional evidence is presented to support the ‘latent demand’ debate.
- 1.17 A concluding section summarises the analysis and makes a number of recommendations for North Somerset to consider in the development of evidence to support re-examination of the housing components of its Core Strategy.
- 1.18 The Appendix to this document contains guidance on the methodology, data inputs and assumptions used in the development of the scenarios.

2. Area Definition

- 2.1 The geographical focus of the analysis presented in this report is the unitary authority (UA) of North Somerset, which in conjunction with Bath and North East Somerset, Bristol and South Gloucestershire, is part of the West of England local enterprise partnership (Figure 1).

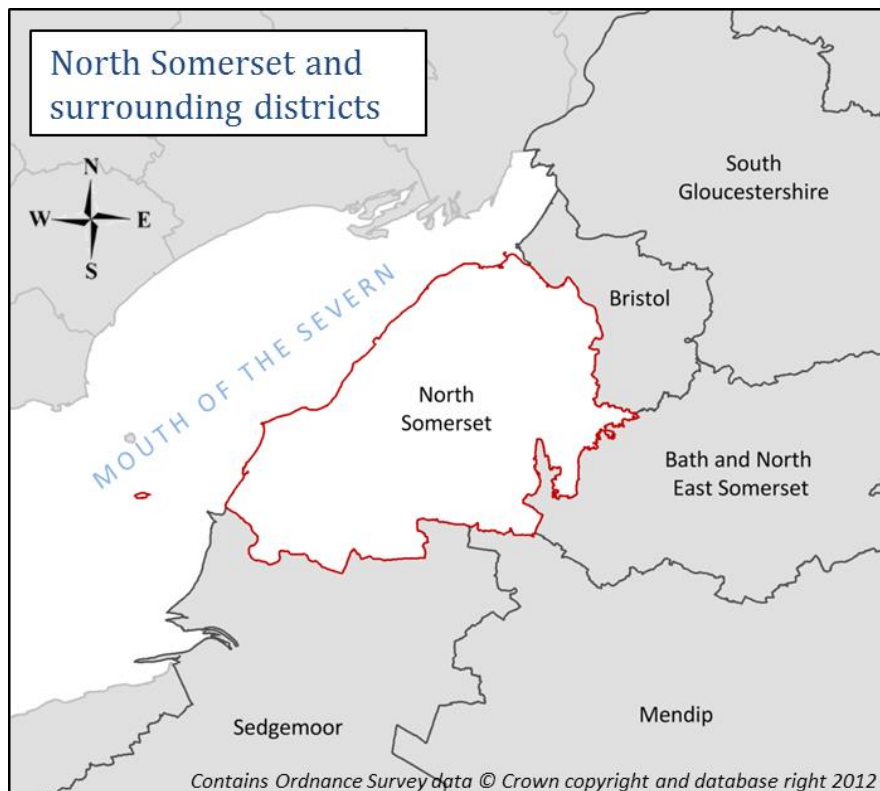


Figure 1: North Somerset – Geographical context.

- 2.2 In 2011, North Somerset UA had a population of approximately 203,000, an increase of 8% from its 2001 total of 188,337. The main concentrations of population are in Weston-super-Mare, Portishead, Clevedon and Nailsea.
- 2.3 Evidence from the 2001 and 2011 Censuses suggest that housing growth over the ten-year period has been most significant in the wards of Weston-super-Mare East, Portishead Central and East and Banwell and Winscombe (Figure 2).

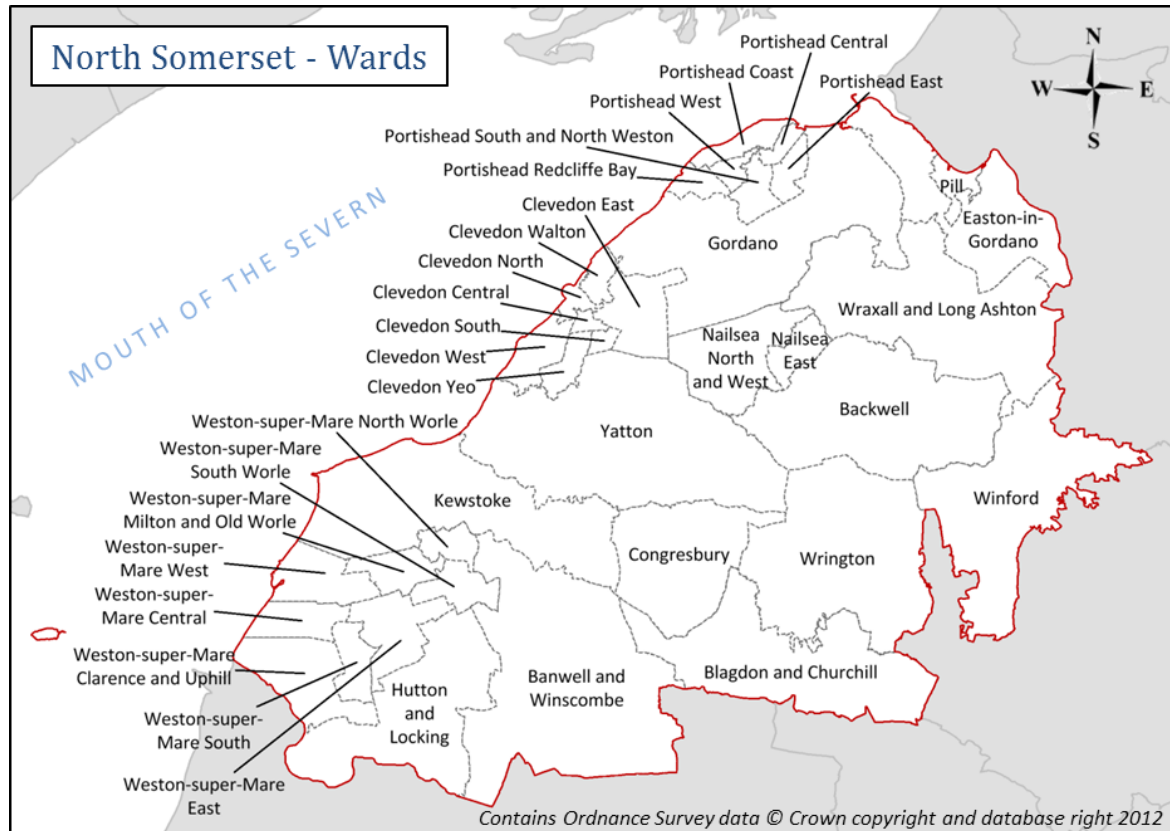


Figure 2: North Somerset – Local geographies

3. The Latest Demographic Evidence

New Evidence

- 3.1 In April 2013, ONS released its 'recalibrated' time-series of mid-year population estimates for the 2002–2010 period (ONS, 2013)¹. These take account of the newly released 2011 Census statistics and have recalculated the components of change (specifically international migration) that have driven local population growth between the 2001 and 2011 Census dates.
- 3.2 Also in April 2013, CLG released its new household projections for local authority districts in England². These household projections are underpinned by the 2011-based interim sub-national projections published by ONS in September 2012.
- 3.3 This section summarises the impact that these data releases have had on the demographic profile of North Somerset, providing a context for the new scenario development reported in subsequent sections.

Headlines 2001–2011

- 3.4 The population of North Somerset at the 2011 Census was 202,566, an increase of 7.6% from 188,337 in 2001 (Table 1). An estimated 9,059 properties were added to the dwelling stock, an increase of 11%. This compares to a slightly lower household growth, which was 10.3% over the decade. With household and dwelling growth higher than population change, the average household occupancy has reduced from 2.31 in 2001 to 2.26 in 2011.
- 3.5 There has been a steady increase in the number of births in North Somerset between 2001 and 2011 (Figure 3). In contrast, the number of recorded deaths has reduced over the decade. The number of births has exceeded deaths since 2006/7, resulting in population growth due to 'natural change'; this contrasts to the first half of the decade when deaths exceeded births.

¹ ONS (2013). Methods used to revise the sub-national population estimates for mid-2002 to mid-2010. <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2002-to-mid-2010-revised--subnational-/index.html>.

² CLG (2013a). Household interim projections (2011 to 2021) in England. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/182412/Stats_Release_2011FINALDRAFT.pdf

Table 1: North Somerset – Summary of demographic change 2001–2011

	2001	2011	Change	%
Population	188,337	202,566	14,229	7.6%
Communal Population	3,773	3,341	-432	
Households	80,021	88,227	8,206	10.3%
Dwellings	82,635	91,694	9,059	11.0%
Occupancy	2.31	2.26		

Occupancy = private household population / households

(Source: 2001 & 2011 Census)

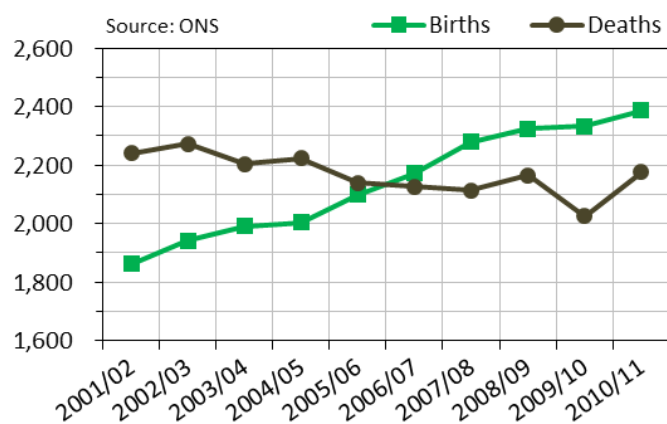


Figure 3: North Somerset – births and deaths 2001/2 to 2010/11

- 3.6 Population change between 2001 and 2011 has varied between age groups (Figure 4). The effect of the larger birth cohorts of the post-war and 1960s upon the age-profile is reflected in the increase in the 40-50 and 60+ age-groups over the 2001–2011 period. In the younger age-groups, the higher birth statistics in recent years have resulted in growth of the under 5s.

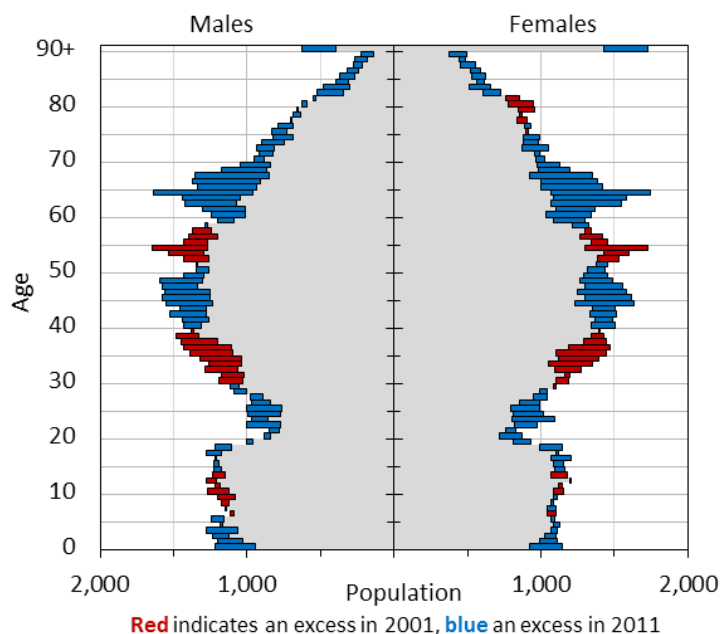


Figure 4: Change in the age profile of North Somerset's population, 2001–2011.

Mid-Year Estimate Revisions

- 3.7 In May 2013, ONS published its revised mid-year population estimates, which align the 2002-10 populations with the latest 2011 data. These new data have recalibrated the 'components of change' to ensure the correct transition of the age profile of the population over the 2001–2011 decade, taking into account births, deaths, internal migration and international migration.
- 3.8 For North Somerset, the 2011 Census population total proved to be considerably lower than the trajectory of growth suggested by previous mid-year estimates. For this reason the revised mid-year estimates deviate by a large amount from the original data with the difference increasing over time (Figure 5).
- 3.9 Between successive censuses, births and deaths are accurately recorded in vital statistics registers and provide the most robust measure of 'natural change' (the difference between births and deaths) in a geographical area. Internal migration data are derived from GP registers, providing an accurate representation of inter-area flows, albeit with some issues with regard to potential under-registration in certain age-groups (young males, in particular). International migration is the most difficult component to estimate with confidence.

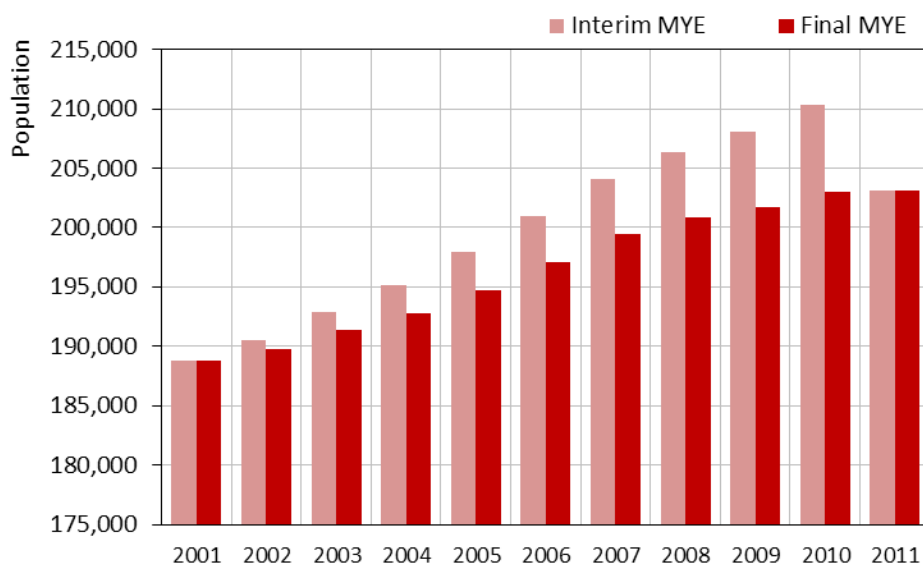


Figure 5: North Somerset – mid-year population estimate revisions. (Source: ONS)

- 3.10 On the assumption that births, deaths and internal migration have been robustly measured (and that the 2001 Census provided a robust population count for North Somerset), the 'adjustment' that resulted from the mid-year estimate revisions is predominantly associated with the mis-

estimation of international migration; the balance between immigration and emigration flows to and from North Somerset.

- 3.11 ONS has recalibrated the components of change for North Somerset to ensure the correct age-profile of the population over the decade, taking account of natural change, internal migration and international migration. The 'before-and-after' profile of the components is presented, including the additional 2010/11 statistics that accompany the 2011 mid-year estimates (Figure 6; Figure 7).

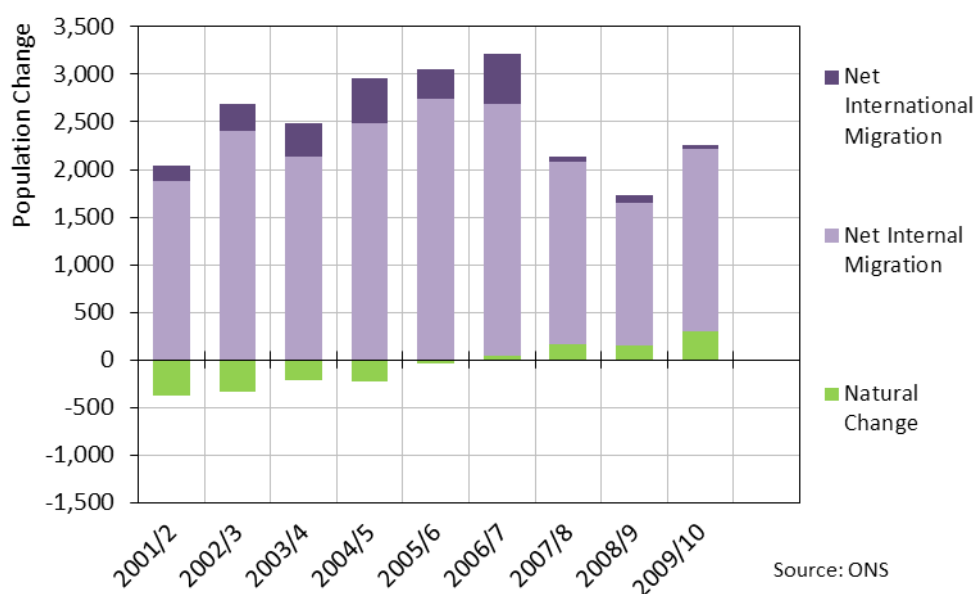


Figure 6: Components of change – **old** mid-year estimates

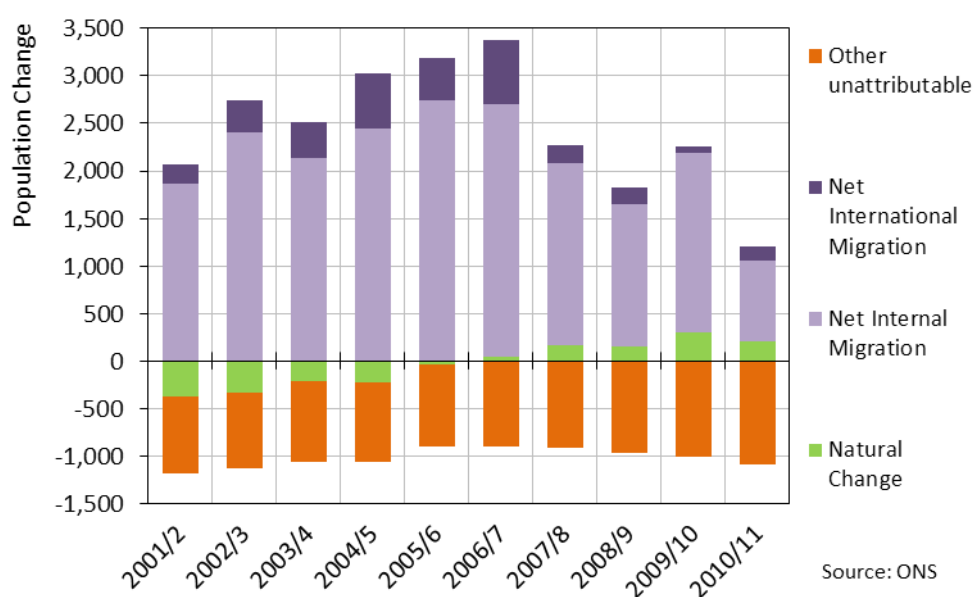


Figure 7: Components of change – **revised** mid-year estimates

- 3.12 The result of the recalibration is that birth and death totals (and therefore natural change) remain largely unchanged. Small changes to internal migration impacts are evident but not significant.
- 3.13 With regard to international migration, ONS has not explicitly assigned the mid-year estimate adjustment to international migration. Instead it has identified an additional 'other unattributable' component, suggesting it has not been able to accurately identify the source of the 2001–2011 over-count.
- 3.14 The forecasting analysis presented in this report assumes that the 'other unattributable' component of change is most likely associated with international migration, although sensitivity tests are presented for this assumption. An alternative argument might be that the 2001 Census may have 'over-counted' North Somerset's 2001 population but this is unlikely and difficult to verify. Similarly, the 2011 Census may have 'under-counted' North Somerset's population but the 96% household response rate for the UA suggests a robust enumeration process.
- 3.15 Assuming that mis-estimation of international migration is the main reason for the 2011 Census adjustment, the components of change which have determined North Somerset's population growth since 2001 are presented (Figure 8). This illustration includes the very latest evidence from the 2012 mid-year population and its estimated components of change for the year 2011/12.



Figure 8: Components of change – **revised** mid-year estimates

- 3.16 These data suggest that net growth through internal migration has been the dominant driver of population growth since 2001, higher in the first half of the decade than the second. Natural change has become an increasingly important factor influencing growth, switching from a negative impact to a positive impact after 2007.
- 3.17 The re-calibration of the mid-year estimates presents international migration as having a negative impact upon North Somerset's population change, a net loss in each year 2001/2 to 2010/11. The latest 2012 mid-year estimate retains the internal migration and natural change components but suggests a small net growth due to international migration
- 3.18 There is clearly considerable uncertainty associated with the recalibration of population statistics, especially international migration as a component of change. The sensitivity of this component is examined further in the scenario analysis. Further evidence on both internal and international migration is presented below, providing additional context for the scenario development in subsequent sections of this report.

Migrant Profiles

- 3.19 Internal migration statistics are provided by the Patient Register Database Service (PRDS), tracking the movement of the population upon re-registration with a GP. Data presented here relate to moves between local authorities within England and Wales during the period 2001/2 to 2010/11, excluding flows to and from Scotland and Northern Ireland.
- 3.20 The pattern of movement to and from North Somerset has been a relatively constant out-migration flow (average 7,150 per year over the time-period) countered by a higher in-migration flow (average 9,275 per year) resulting in a positive net inflow (average +2,130). The level of in-migration has reduced since 2007, resulting in a lower net in-flow to the UA (Figure 9).
- 3.21 The internal migration totals hide a complex mix of inflows and outflows from and to a large number of localities, across different age-groups. However, within this complexity there are some dominant trends (Figure 10).
- 3.22 The dominant feature of migration is the exchange between North Somerset and its immediate neighbours, particularly Bristol. Whilst inflows and outflows are apparent with Bristol and South Gloucestershire, the overall balance has been a net gain to North Somerset, highest for the exchange with Bristol (average 1,306 per year). In contrast, the exchange with Sedgemoor has

resulted in an average net loss to North Somerset (-86 per year).

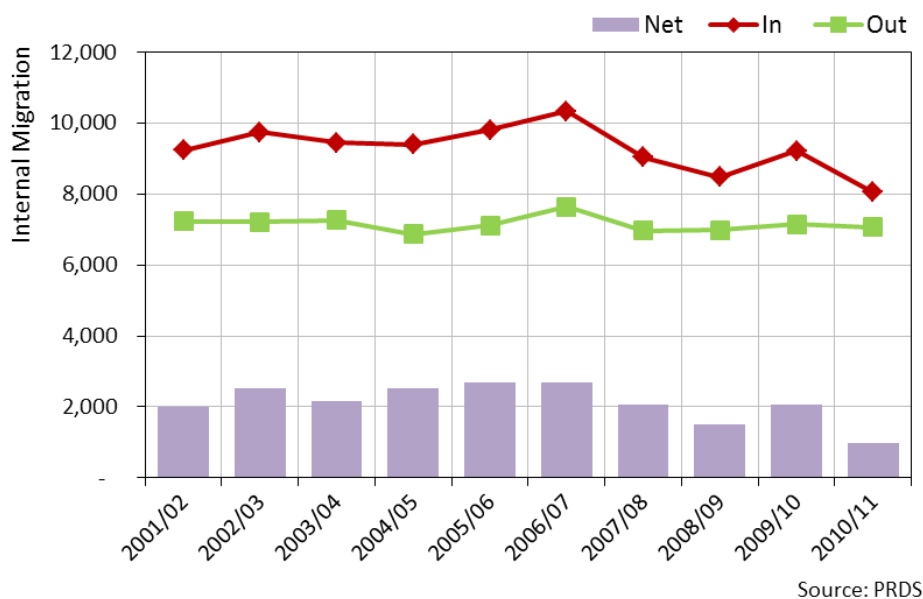


Figure 9: North Somerset – Internal in-, out- and net-migration 2001/2–2010/11

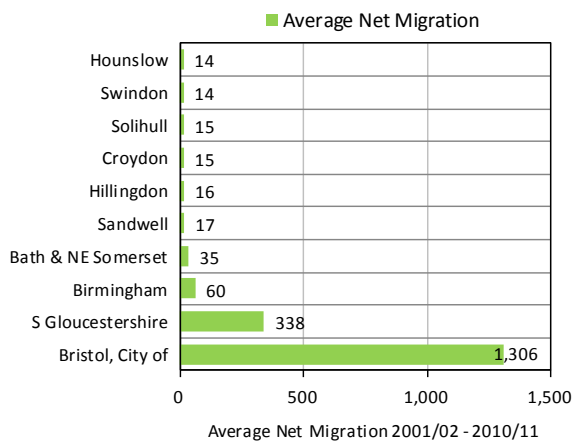
- 3.23 The net inflow of migrants has been positive across all age-groups with the exception of the 15-19 age-range, where the movement of students to higher education results in a large net outflow of migrants.
- 3.24 PRDS statistics on internal migration enable quite a detailed migrant profile to be presented; robust statistics on international migration are less accessible. The ONS population estimates suggest there is considerable uncertainty associated with the impact of international migration upon North Somerset and statistics on national insurance number (NINo) registrations provide an insight to the level and profile of migrant workers in the UA (Figure 11).
- 3.25 North Somerset is an authority that had experienced very little impact from international migration prior to EU expansion in 2004¹. Since 2004, it is migrants from the 'Accession' countries that have been the dominant nationalities registering to work in the UA, reducing from a peak in 2007, to approximately 460 in calendar year 2011. In total, there were 710 NINo registrations to foreign nationals in 2011.
- 3.26 Unfortunately, NINo does not provide any indication of return migration, making the validation of ONS assumptions on net immigration impacts difficult for the 2001–2011 period.

¹ Home Office, Social and Public Service Impacts of International Migration at the Local Level, Research Report 72. July 2013 www.gov.uk/government/uploads/system/uploads/attachment_data/file/210324/horr72.pdf

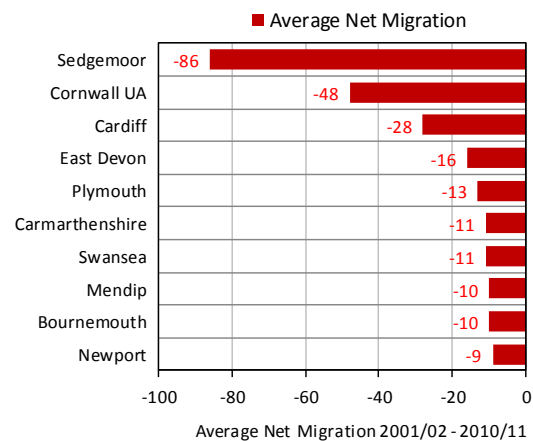
North Somerset - Internal Migration profile

Top Ten Inflows		Top Ten Outflows	
average 2001/02-2010/11		average 2001/02-2010/11	
Bristol, City of	2,454	Bristol, City of	1,148
South Gloucestershire	710	Sedgemoor	603
Sedgemoor	517	South Gloucestershire	372
Bath and North East Somerset	263	Bath and North East Somerset	228
Birmingham	185	Cornwall UA	196
Wiltshire UA	158	Plymouth	157
Cornwall UA	148	Wiltshire UA	150
Plymouth	144	Mendip	144
Mendip	134	Cardiff	141
Cardiff	113	Birmingham	125

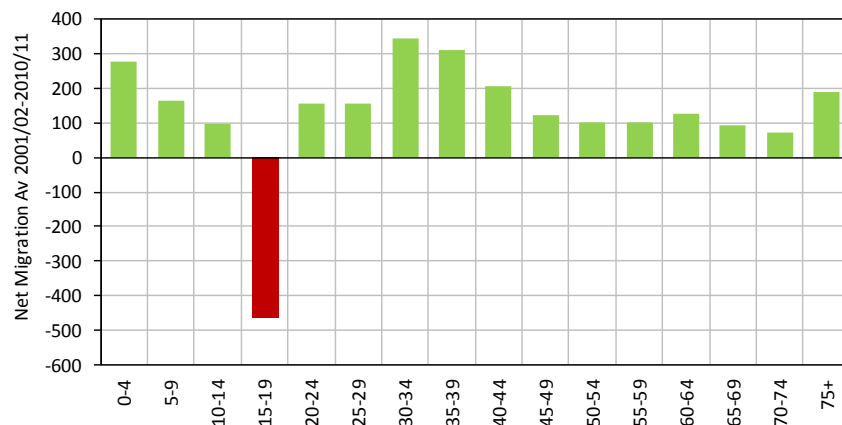
Top Ten net Inflows



Top Ten net Outflows

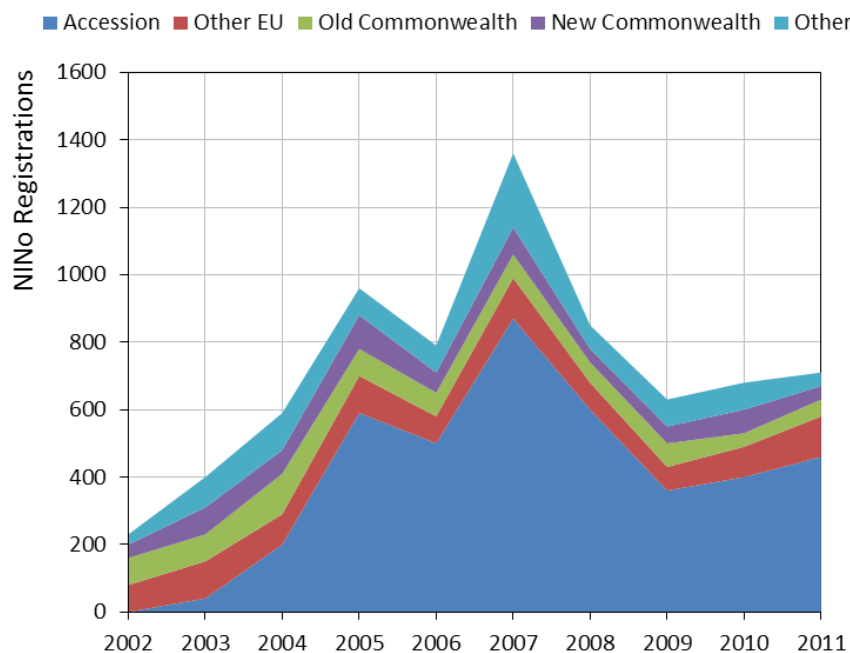


Age-group net flows



Source: PRDS

Figure 10: North Somerset – Internal migration profile, 2001/2–2010/11



Source: DWP (see Appendix C for definition of country-of-origin categories)

Figure 11: North Somerset - NINO registration profile.

Household Projections

- 3.27 Household projections are derived through the application of household headship rates (also referred to as 'household representative rates' in the CLG documentation). The projected household headship rates used in the 2011-based household model have been derived using 2011 Census data in combination with statistics from the LFS.
- 3.28 The new household projections replace the previous, 2008-based household projections. They provide an update on likely household growth trajectories, taking account of the unprecedented economic conditions that have affected local communities since 2008.
- 3.29 The new CLG household model provides an important update to the evidence base, with the general trend in the 2011-based projections suggesting a reduction in the rate of household growth from 2011 to 2021, compared to previous projections.
- 3.30 Rates of household growth are determined by two factors: first, the profile and change in household headship rates by household type, age and sex; and second, the underlying rate of population growth.
- 3.31 The new CLG household model projections are underpinned by the interim 2011-based

population projection (ONS). This projection uses 2011 Census statistics for its base period population, but uses assumptions from the 2010-based population projection to define its fertility, mortality and migration components of change. For this reason, the 2011-based population projections do not provide a suitably robust ‘trend’ projection of population growth.

- 3.32 In order to present an appropriate test of the ‘sensitivity’ of the new household headship rates upon future household growth, the ONS 2010-based sub-national population projection has been used in conjunction with 2008-based and 2011-based household headship rates. The population projection is scaled to match 2011 Census totals, following the 2010-based growth trend thereafter.
- 3.33 The impact of the 2011 headship rates is to reduce the scale of household growth over the 2011–2021 period (Figure 12). Using the 2010-based sub-national population projection, scaled to the 2011 Census total, household numbers are projected to increase by 13.8% using the 2011-based headship rates, compared to 14.8% with the 2008-based headship rates (Table 2).

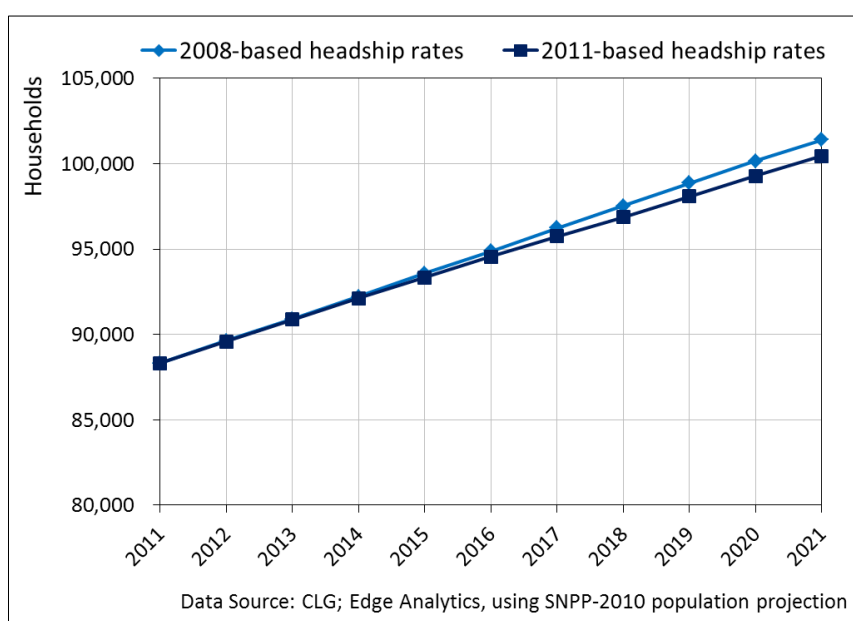


Figure 12: Impact of the 2011 headship rates on the scale of household growth (2011–2021)

Table 2: Change in household numbers 2011–2021 using 2008-based and 2011-based headship rates

	Households			Change 2011-2021	
	2011	2016	2021	Total	%
2008-based headship rates	88,311	94,872	101,390	13,079	14.8%
2011-based headship rates	88,304	94,543	100,456	12,152	13.8%

Source: CLG; Edge Analytics. Using SNPP-2010 population projection

- 3.34 With a reduction in the projected rate of household formation, a higher average household size is maintained when applying the 2011-based headship rates; by 2021, the occupancy ratio in North Somerset using the 2008-based headship rates is 2.20, compared to a ratio of 2.22 when using the 2011-based headship rates (Table 3).

Table 3: Change in household size 2011–2021 using 2008-based and 2011-based headship rates

	Population / Households		
	2011	2016	2021
2008-based headship rates	2.26	2.23	2.20
2011-based headship rates	2.26	2.24	2.22

Source: CLG; Edge Analytics. Using SNPP-2010 population projection

- 3.35 The revised 2011-based headship rates have had the most significant impact upon single-person households (OPMAL, OPFEM) and family households with no children (FAMC0). This has been slightly offset by increases in households comprising a couple and one or more other adults with no dependent children (MIXC0) and the miscellaneous ‘Other’ (OTHHH) classification (Figure 13).

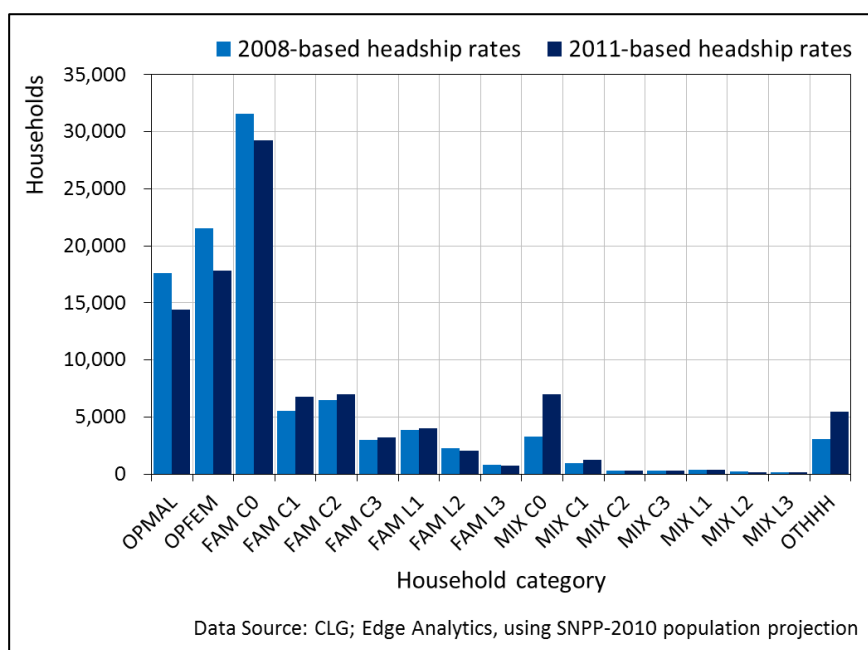


Figure 13: Households by household type in 2021

4. Scenario Development

Scenario Context

- 4.1 The NPPF provides guidance on the development of a robust evidence base to support the development of local housing plans. The guidance makes it clear that data inputs, assumptions and methodology should be robust and should consider future growth potential from a number of perspectives.
- 4.2 There is no single, definitive view on the likely level of growth expected in North Somerset, with a mix of economic, demographic and national/local policy issues ultimately determining the speed and scale of change. For local planning purposes, it is necessary to evaluate a range of growth alternatives to establish the most 'appropriate' basis for determining future housing (and other service) provision.
- 4.3 The development of Local Plans is made considerably more challenging by the dynamic nature of key data inputs. Economic and demographic factors, coupled with the continuous release of new statistics, often undermine the robustness of underpinning evidence. This has been a particular issue during 2013, with the release of new 2011 Census statistics, updated household projections and revisions to historical population estimates.
- 4.4 Evidence presented in Local Plans 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 (POPGROUP), which incorporates an industry-standard methodology (cohort component model) removes this obstacle and enables a focus on assumptions and output, rather than methods.
- 4.5 Transparency is an important component of any forecasting analysis. It is necessary to ensure that all data inputs and assumptions are clearly documented and that outcomes are benchmarked against the latest 'official' forecasts, wherever possible.
- 4.6 A number of alternative growth scenarios have been tested for North Somerset. These scenarios have been developed using POPGROUP technology; they use the latest available statistics from both ONS and CLG; they evaluate trend, policy and economic considerations; they are accompanied by a transparent definition of key assumptions; and they are presented in a

consistent format that contrasts the impact of scenario assumptions upon changes to population, households, dwellings, labour force and jobs. All scenarios are run from a 2011 base year, with both a 2026 and a 2031 horizon. For context, historical data are included for 2001–2010.

Official Projections (ONS)

- 4.7 In all scenario analysis it is important to ‘benchmark’ any growth alternatives against the latest ‘official’ population projection. Although ONS has released an ‘interim’ 2011-based population projection, it has used assumptions from the 2010-based population projection to define its fertility, mortality and migration components of change. For this reason, the 2011-based population projections do not provide a suitably robust benchmark trend projection.
- 4.8 The 2010-based sub-national projection (SNPP-2010) from ONS is used in this analysis as the trend benchmark. This scenario has been developed using historical evidence from the period 2006–2010 and incorporates long-term assumptions on fertility, mortality and international migration that were defined in the 2010-based national projection for England.
- 4.9 The SNPP-2010 scenario is scaled to ensure consistency with the 2011 Census population, following its designated growth trend thereafter.

Alternative Trend Scenarios

- 4.10 During 2012/13, ONS has released detailed statistics from the 2011 Census and has followed this with a release of the revised mid-year population estimates for 2002–2010. These new data provide the basis for the derivation of a number of alternative ‘trend’ scenarios to complement the most recent official projection (SNPP-2010).
- 4.11 In determining the migration assumptions for a new ‘2011-based’ trend projection, historical data on the components of demographic change during the 2001–2011 time period are a key consideration (see Section 3).
- 4.12 A five-year historical period is a typical time-frame from which migration ‘trend’ assumptions are derived (this is consistent with the ONS official methodology). However, given the unprecedented economic changes that have occurred since 2008, it is important to give due consideration to an extended historical time period for assumption derivation.

4.13 A range of ‘migration-led’ scenario alternatives have been developed and tested, as follows:

- **‘Mig-led_5yrs’**: internal and international migration assumptions are based on the last five years of historical evidence;
- **‘Mig-led_10yrs’**: internal and international migration assumptions are based on the last 10 years of historical evidence;
- **‘Mig-led_10yrs5yrs’**: internal migration assumptions are based on the last 10 years of historical evidence, international migration assumptions based on the last 5 years;
- **‘Net Nil’**: in-migration, out-migration, immigration and emigration are maintained, but the net migration balance is set at zero.

4.14 The Mig-led10yr5yr has been included as it could be argued that a longer-term historical period is appropriate to derive internal migration assumptions (smoothing out short-term variation), but a shorter-term, five-year period is more appropriate for international migration (given the changes that have occurred since EU expansion in 2004-2006).

4.15 The first three of the above scenarios are referred to in subsequent text as the ‘core’ trend scenarios, distinguishing them from the alternatives which consider the uncertainty associated with the ‘other unattributable’ element of North Somerset’s estimated population growth since 2001.

4.16 Section 3 has illustrated how the ‘recalibration’ of North Somerset’s population has resulted in considerable uncertainty with regard to the components of population change during the 2001–2011 inter-censal period. Whilst the trend scenarios listed above assume that the 2001–2011 population adjustment is accounted for in the international migration assumptions, the nature of the ‘other unattributable’ amendment suggests that a sensitivity test on its importance is appropriate.

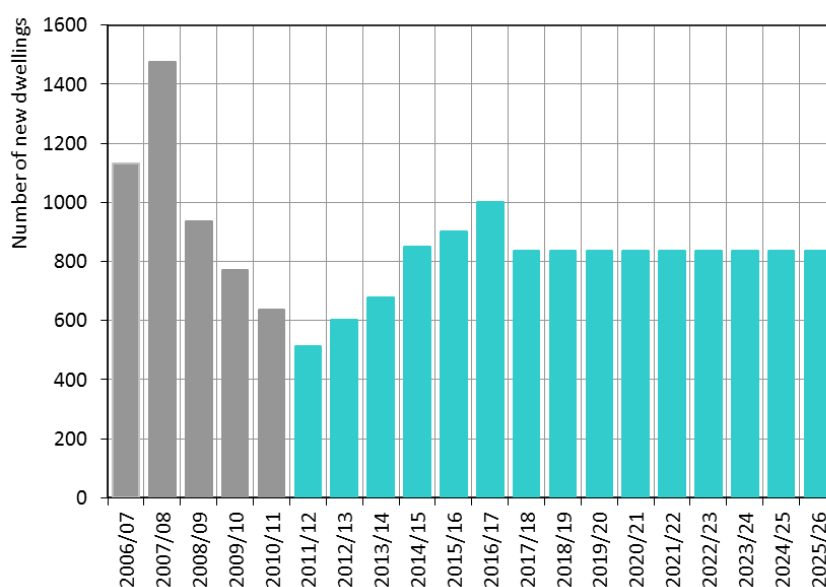
4.17 Two further ‘migration-led’ scenarios have been developed as follows:

- **‘Mig-led_5yrs-X’**: internal and international migration assumptions are based on the last five years of historical evidence, ignoring the ‘other unattributable’ element of the ONS mid-year estimate recalibration.
- **‘Mig-led_10yrs-X’**: internal and international migration assumptions are based on the last 10 years of historical evidence, ignoring the ‘other unattributable’ element of the ONS mid-year estimate recalibration.

Policy-based Scenarios

Dwelling-led Scenario

- 4.18 North Somerset Council has established that it could achieve housing growth of approximately 17,000 new dwellings over the planning period 2006/07–2025/26. This suggests a completion rate of approximately 852 dwellings per year.
- 4.19 The impact of this level of growth upon anticipated demographic change can be evaluated against other scenario alternatives by running a ‘dwelling-led’ configuration of the forecasting model. A ‘Dwelling-led’ scenario has been developed which constrains future population growth to the housing growth trajectory suggested by North Somerset Council (Figure 14). An estimated dwelling target of +505 per year has been used for the extended 2026/27 – 2030/31 period.



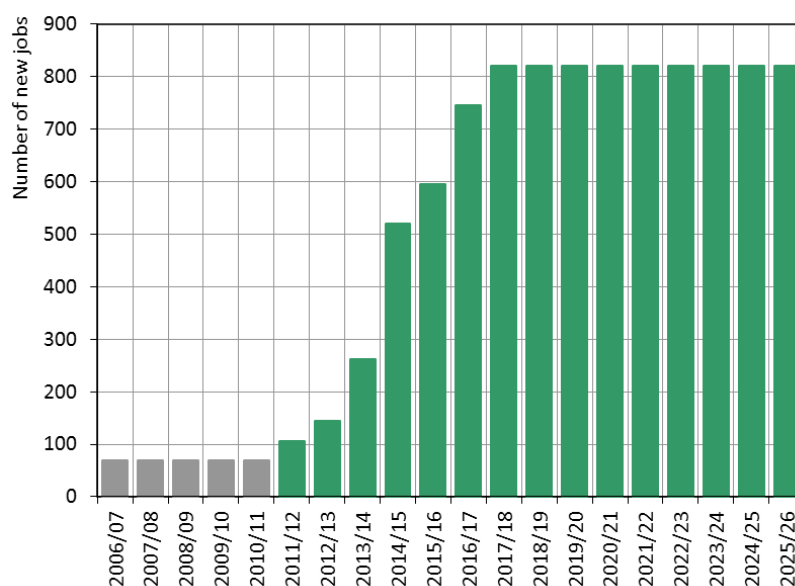
Source: North Somerset Council

Figure 14: Annual dwelling targets

- 4.20 POPGROUP is able to evaluate the impact of a particular dwelling trajectory by measuring the relationship between the number of homes in an area, the number of households and the size of the resident population.
- 4.21 If there is an ‘imbalance’ between the ‘target’ number of new homes and the resident population, then migration is used to redress the imbalance. A higher level of net in-migration will occur if there is insufficient population to meet dwelling targets. A higher level of net out-migration will occur if the population is too high relative to dwelling targets.

Jobs-led Scenario

- 4.22 The impact of an anticipated growth in employment can also be evaluated using a ‘jobs-led’ formulation of the model, which uses in- and out-migration to balance the relationship between the size of the labour force and the number of new jobs anticipated.
- 4.23 North Somerset Council has provided an anticipated jobs growth trajectory for the Unitary Authority (Figure 15). An estimated jobs target of +838 per year has been used for the extended 2026/27 – 2030/31 period.



Source: North Somerset Council

Figure 15: Annual jobs targets

- 4.24 POPGROUP is able to evaluate the impact of a particular jobs growth trajectory upon demographic change by measuring the relationship between the number of jobs in an area, the size of its labour force and the size of the resident population. In modelling the potential impact of jobs growth, three key parameters are used: economic activity rates by age and sex; an unemployment rate for the Unitary Authority; and a commuting ratio for the Unitary Authority.
- 4.25 Economic activity rates control the relationship between the size of the population and the size of the labour force. The unemployment rate and the commuting ratio determine the relationship between the size of the labour force and the number of jobs available. Both the unemployment rate and commuting ratio are kept fixed across the forecast period (see Appendix B for more detail on key assumptions).
- 4.26 If there is an ‘imbalance’ the ‘target’ number of new jobs and the resident population, then

migration is used to redress the imbalance. A higher level of net in-migration will occur if there is insufficient population to meet job targets. A higher level of net out-migration will occur if the population is too high relative to job targets.

Household Forecasts

4.27 Section 4 has provided a summary of the impact of the CLG's latest household projection model. Using evidence from the 2011 Census, this has introduced new 'headship rates', which determine the scale and profile of future household formation.

4.28 For the analysis presented here, two alternative headship rate assumptions are used, reflecting the uncertainty associated with future rates of household formation and accommodating the fact that the latest 2011-based data only run to 2021.

- Option A: CLG 2011-based headship rates, with the 2011–2021 trend continued after 2021;
- Option B: CLG 2008-based headship rates, scaled to be consistent with the 2011 Census but following the original trend thereafter.

4.29 The household impact of the population growth scenarios is modelled using each of the two headship rate alternatives. Option A and Option B outcomes are presented for each scenario.

Scenario Definition Summary

4.30 To summarise, the following suite of scenarios has been evaluated:

Table 4: Scenario definition summary

Scenario Type		Household Headship Rates	
		CLG 2011 trend	CLG 2008 rescaled
Official		SNPP-2010_A	SNPP-2010_B
Trend		Mig-led_5yrs_A Mig-led_10yrs_A Mig-led_10yrs5yrs_A Net Nil_A Mig-led_5yrs-X_A Mig-led_10yrs-X_A	Mig-led_5yrs_B Mig-led_10yrs_B Mig-led_10yrs5yrs_B Net Nil_B Mig-led_5yrs-X_B Mig-led_10yrs-X_B
Policy-based	Dwelling-led	Dwelling-led_A	Dwelling-led_B
	Jobs-led	Jobs-led_A	Jobs-led_B

5. Scenario Forecasts

Scenario Summary

- 5.1 A summary of the results of each scenario is provided in the form of a chart and an accompanying table of statistics. The chart illustrates the trajectory of population change resulting from each scenario. The table summarises the change in population and household numbers from 2011–2026 that result from each scenario. The scenarios are ‘ranked’ (high to low) according to the estimated level of population change throughout 2011–2026. The table also shows the average annual net migration associated with the population change; plus the expected average annual dwelling and jobs growth based on the assumptions used in each scenario.
- 5.2 Scenario results are presented in two separate illustrations, each one relating to the application of different household headship rates:
- Option A: CLG 2011-based headship rates, with the 2011–2021 trend continued after 2021;
 - Option B: CLG 2008-based headship rates, scaled to be consistent with the 2011 Census but following the original trend thereafter.
- 5.3 Additional scenario outcomes with a 2011–2031 forecast period are presented in Appendix D.

Scenario Outcomes (A)

- 5.4 This first set of scenarios has been run using CLG’s 2011-based household headship rates, trended after 2021. The scenario outcomes suggest a range of growth trajectories depending upon the key assumptions that have been applied. With the exception of the ‘Net Nil’ scenario, population growth for 2011–26 ranges from 10.1–22.6%, with estimated dwelling growth from 771–1,406 units per year (Figure 16, Table 5).
- 5.5 With the exception of ‘SNPP-2010’, each scenario uses the same historical data as the basis for its forecast. The SNPP-2010 projection was developed by ONS, using the now out-dated, mid-year estimates. It does not include 2011 Census information, although the forecast presented here has rescaled the 2010 trajectory to the 2011 Census population total, continuing its trend thereafter.

Option A: CLG 2011-based headship rates

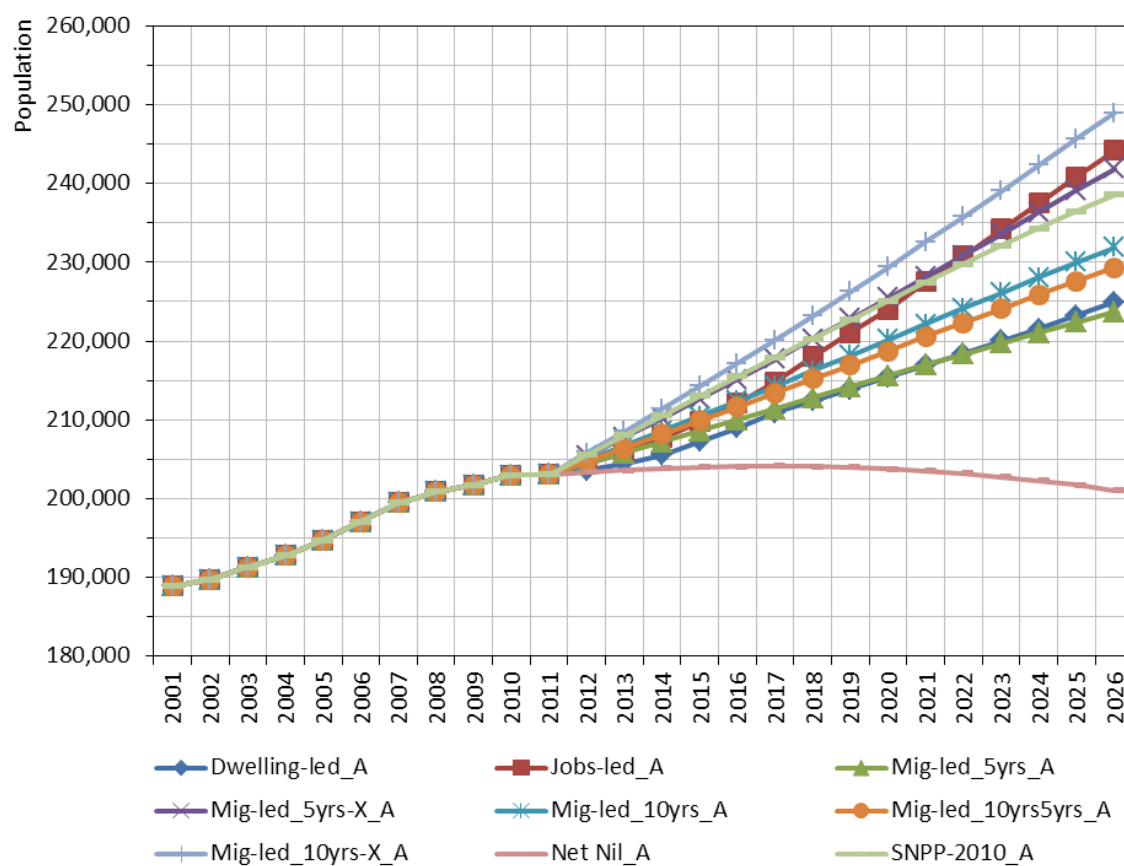


Figure 16: North Somerset, scenario forecasts 2011-26 (A)

Table 5: North Somerset, scenario forecasts 2011-26 (A)

Scenario	Change 2011 - 2026				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Mig-led_10yrs-X_A	45,851	22.6%	20,295	22.9%	2,688	1,406	772
Jobs-led_A	41,113	20.2%	19,335	21.9%	2,426	1,340	650
Mig-led_5yrs-X_A	38,765	19.1%	17,754	20.1%	2,240	1,230	585
SNPP-2010_A	35,465	17.5%	17,871	20.2%	2,145	1,238	474
Mig-led_10yrs_A	28,804	14.2%	14,063	15.9%	1,683	974	277
Mig-led_10yrs5yrs_A	26,186	12.9%	13,298	15.0%	1,524	921	220
Dwelling-led_A	21,851	10.8%	11,632	13.2%	1,259	806	101
Mig-led_5yrs_A	20,572	10.1%	11,123	12.6%	1,171	771	61
Net Nil_A	-2,050	-1.0%	3,083	3.5%	0	214	-631

- 5.6 As it uses 'old' data, the age profile of the SNPP-2010 scenario differs from that of the other scenarios, all of which are based on the latest mid-year estimates but more importantly on the 2011 Census single year population age profile for North Somerset.
- 5.7 The SNPP-2010 scenario suggests a 17.5% increase in population between 2011–2026 (Figure 16, Table 5), which is above the growth estimates of the updated 'core' trend scenarios, which use the recalibrated mid-year estimates as the basis for the derivation of growth assumptions (Mig-led_5yrs, Mig-led_10yrs, Mig-led_10yrs 5yrs). This scenario has a relatively high household growth (20.2%) and annual dwelling requirement (1,238 per year).
- 5.8 The 'Net Nil' scenario suggests that, in the absence of migration, population would decline by approximately -1.0% between 2011–2026, although with reducing levels of household occupancy, household growth of 3.5% would be achieved with an annual dwelling requirement of 214 units per year. With a gradual 'ageing' of the resident population and relatively modest changes to older-age economic activity rates, the job requirement in North Somerset would reduce by -631 per year over the projection period (Figure 16, Table 5).
- 5.9 Of the 'core' trend scenarios, the highest growth trajectory is suggested by the 'Mig-led10yrs' scenario, with a 14.2% growth in population matched by an estimated dwelling requirements of 974 per year to 2026. The use of the ten-year history for the determination of migration assumptions, balances the higher net internal migration at the start of the decade with the lower levels experienced since 2007.
- 5.10 With a more recent 5-year perspective, the 'Mig-led5yrs' scenario results in substantially lower population growth to 2026 (10.1%) and an estimated dwelling requirement of 771 per year. The 'Mig-led_10yrs5yrs alternative provides a balance between the other 'core' trend scenarios, with 12.9% population growth and a dwelling requirement of 921 per year.
- 5.11 The dwelling-led trajectory suggested by North Somerset positions itself between the extremes of the 'core' trend scenarios. Population growth suggested by the dwelling-led alternative is 10.8% to 2026, with an annual net inflow through migration of approximately 1,259 per year.
- 5.12 The jobs-led scenario suggests an altogether different level of growth, exceeding each of the 'core' trend scenarios and the SNPP2010. With an annual jobs growth target of +650 per year, it is estimated that an average net inflow through migration of approximately 2,426 would be required to sustain the labour force. This suggests population growth in excess of 20% to 2026,

with an associated dwelling requirement of 1,340 per year. This scenario assumes that there is no change in the (1.22) commuting balance, maintenance of the (4.2%) unemployment rate but a rise in economic activity rates to accommodate statutory changes to pension age (see Appendix B).

- 5.13 The remaining two trend scenarios present the growth trajectories that result from migration assumptions derived with the exclusion of the 'other unattributable' element to North Somerset's 2001–2011 components of change. The 'core' trend scenarios assume a long-term net loss due to international migration, whereas these two scenarios assume that international migration contributes to annual growth figures. In the case of the 'Mig-led_5yrs-X' scenarios this annual growth due to international migration equates to +251 per year; in the case of the 'Mig-led_10yrs-X' scenario is +316 per year.
- 5.14 The outcome of the 'Mig-led_5yrs-X' scenario is very similar to that of the SNPP2010 scenario. This is understandable as the SNPP2010 was calibrated on mid-year estimates prior to any 2011 Census recalibration. The 'Mig-led_10yrs-X' achieves the highest growth outcome, 1,406 dwellings per year to 2026 based on a 22.6% population increase (Figure 16, Table 5).

Scenario Outcomes (B)

- 5.15 The second set of scenarios has been run using CLG's 2008-based household headship rates (Figure 17, Table 6). The rates have been scaled to ensure that they reproduce the 2011 Census household totals but follow their original trend for the remainder of the projection period.
- 5.16 Section 4 provided context to the alternative use of 2011-based and 2008-based headship rates. The latter have higher rates of household formation for single-person and two-person-no-children households, resulting in a sharper decline in occupancy rates. This is reflected in the option B scenario outcomes which generate the highest household growth forecasts of the two A & B alternatives.
- 5.17 For the trend forecasts, the Option B scenarios result in higher dwelling requirements; the 2008-based headship rates applying a lower average household size resulting in more households per head of population. For example, the 'Mig-led_10yr' scenario suggests a dwelling requirement of 974 per year in Option A, rising to 1,061 per year in Option B.

Option B: CLG 2008-based headship rates

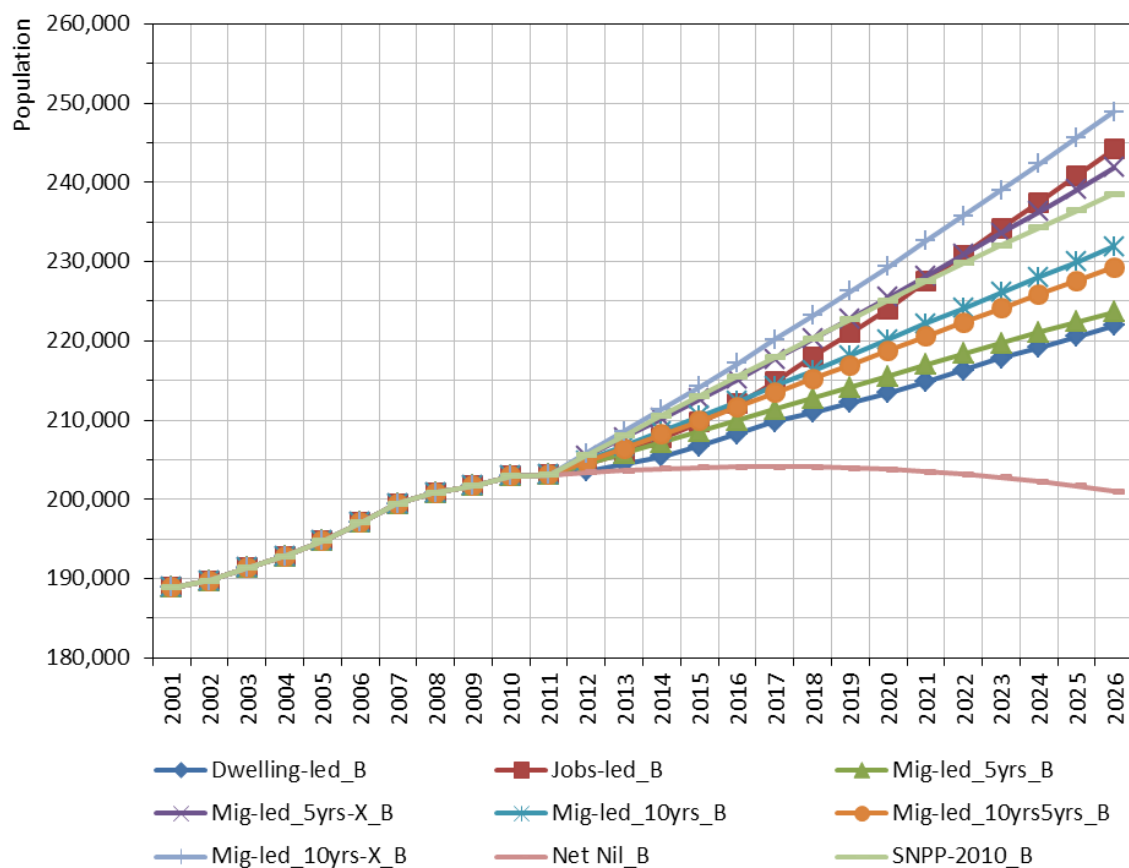


Figure 17: North Somerset, scenario forecasts 2011-26 (B)

Table 6: North Somerset, scenario forecasts 2011-26 (B)

Scenario	Change 2011 - 2026				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Mig-led_10yrs-X_B	45,851	22.6%	21,769	24.6%	2,688	1,508	772
Jobs-led_B	41,113	20.2%	20,794	23.5%	2,426	1,441	650
Mig-led_5yrs-X_B	38,765	19.1%	19,188	21.7%	2,240	1,329	585
SNPP-2010_B	35,465	17.5%	19,122	21.7%	2,145	1,325	474
Mig-led_10yrs_B	28,804	14.2%	15,317	17.3%	1,683	1,061	277
Mig-led_10yrs5yrs_B	26,186	12.9%	14,511	16.4%	1,524	1,005	220
Mig-led_5yrs_B	20,572	10.1%	12,322	13.9%	1,171	854	61
Dwelling-led_B	18,839	9.3%	11,632	13.2%	1,079	806	17
Net Nil_B	-2,050	-1.0%	3,928	4.4%	0	272	-631

- 5.18 Headship rate differences again affect the relationship between the annual dwelling constraint and the population growth associated with the dwelling-led scenario. Population growth is lower in the (B) scenario due to the headship rate trajectory resulting in a lower average household size; the same number of dwellings is associated with a smaller population size. With a more significant reduction in average household occupancy, population growth associated with the dwelling-led scenario reduces further to 9.3% (Table 6). The same number of dwellings is accommodating a smaller population given the effect of the 2008-based headship rates.
- 5.19 For the jobs-led scenario, household growth is again higher in Option B; the 2008-based headship rates applying a lower average household size resulting in more households per head of population.

A Changing Age Profile

- 5.20 Underpinning the growth scenarios are some fundamental changes to the age structure of North Somerset's population. These changes affect the profile of household formation and the relative size of the Unitary Authority's labour force.
- 5.21 Using the 'Mig-led10Yrs' scenario as an example, North Somerset's 2011 population is compared with its 2026 outcome. Over the projection period, births have been maintained at a level that is consistent with the latest historical data, giving a larger population aged 0–20. The size of the adult labour force ages is maintained over the 2011–2026 period with a positive migration balance. What is most striking is the increase in the older age-groups, with the 'inevitable' process of population ageing producing a substantial increase in the old-age dependency balance for the Unitary Authority (Figure 18).
- 5.22 Whilst the number of 0–16 year-olds is maintained at a similar proportion of the total population in 2026, the 65+ age-group increases its share to 26%, from 21% in 2011. Overall, this results in a reduction in the relative size of the labour-force, 61% in 2011 but only 55% in 2026; an increasing level of old-age dependency for North Somerset Council to consider (Figure 19).

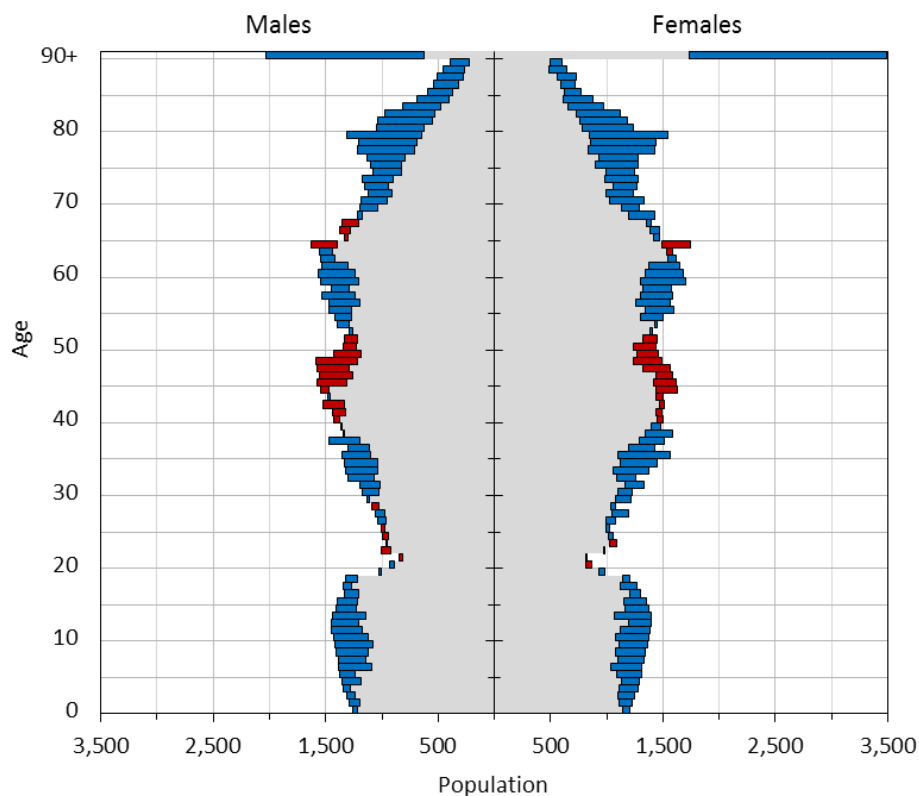


Figure 18: North Somerset scenario age profile 2011–2026 ('Mig-led-10yrs')

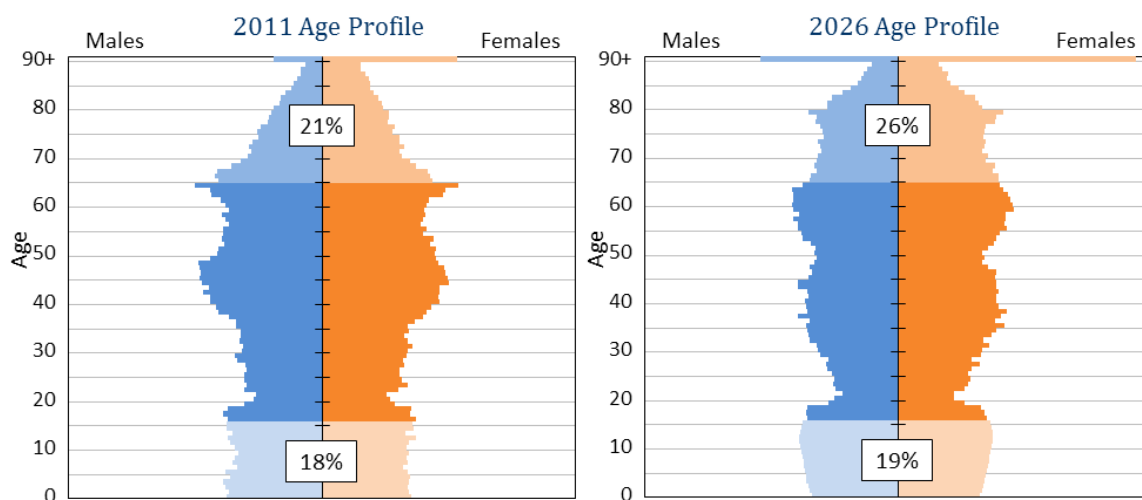


Figure 19: North Somerset scenario age profile 2011 & 2026 ('Mig-led10Yrs')

Commuting Balance Sensitivity

- 5.23 The option A and option B 'jobs-led' scenarios retain a fixed commuting ratio of 1.22 throughout the forecast period indicating that the size of North Somerset's labour force is higher than the number of jobs available locally, resulting in a net out-commute. An increase in net in-migration is used by the forecasting methodology to address the imbalance between the size of the labour force and anticipated annual jobs growth.
- 5.24 Whilst net in-migration will continue to contribute to North Somerset's labour force, it is also likely that substantial jobs growth within the authority would promote greater self-containment of its labour force. Greater self-containment would mean an improvement in the balance between the size of the resident labour force and the number of jobs available; more people living and working locally. A commuting ratio of 1.0 would indicate a local labour force that is equivalent in size to the number of jobs available.
- 5.25 To assess what impact a reduction in the commuting balance might have upon population and household growth, five different commuting ratio assumptions have been applied to North Somerset's jobs-led scenario (local jobs growth of 650 per year to 2026):
- (a) 1.22 in 2011, reduced incrementally to 1.20 by 2026;
 - (b) 1.22 in 2011, reduced incrementally to 1.15 by 2026;
 - (c) 1.22 in 2011, reduced incrementally to 1.10 by 2026;
 - (d) 1.22 in 2011, reduced incrementally to 1.05 by 2026;
 - (e) 1.22 in 2011, reduced incrementally to 1.00 by 2026;

Each scenario has been run twice, testing the impact of both option A and option B household formation rates upon dwelling growth outcomes.

- 5.26 As the commuting ratio reduces, the balance between the size of North Somerset's resident labour force and the number of jobs available is aligned more closely. This has the effect of reducing the level of net in-migration required to achieve the labour force – jobs balance, reducing estimated population growth and the associated dwelling requirement (Table 7).
- 5.27 The modelling approach is replicating a situation where a larger proportion of North Somerset's jobs are taken by local residents. As the relative size of the labour force is naturally declining as a result of population ageing, the changing commuting balance reduces the level of net in-

migration required to achieve the desired jobs growth.

Table 7: Jobs-led scenario dwelling requirement using altered commuting ratios (CR)

Commuting ratio (in 2026)	Change 2011 - 2026		
	Population Change	Population Change (%)	Dwellings per year*
CR 1.22 (i.e. no change)	41,113	20.2%	1,390
CR 1.20	37,693	18.6%	1,295
CR 1.15	29,132	14.3%	1,055
CR 1.10	20,552	10.1%	815
CR 1.05	11,951	5.9%	573
CR 1.00	3,327	1.6%	329

* The estimated dwelling requirement is an average of Option A (using the 2011-based CLG model) and Option B (using the 2008-based CLG model).

- 5.28 Whilst it is unlikely that North Somerset's commuting ratio will remain unchanged throughout the plan period, forecasting the trajectory of change in the balance between the size of the labour force and the number of jobs available is difficult.
- 5.29 Alignment of the anticipated jobs-growth scenario with the outcomes of the range of 'core' trend scenarios would require a change to North Somerset's commuting balance; reducing to 1.15-1.10 over the forecast period. This would require not only that new jobs created are taken up by local residents but that a greater proportion of existing residents take up local employment opportunities arising from the natural ageing of the population.
- 5.30 An additional factor to consider, in conjunction with the commuting ratio, is the underlying rate of economic activity and how it might be influenced in the future by higher rates of labour force participation in the older age-groups. The assumptions made in this analysis apply a relatively modest uplift to older-age economic activity rates, to account for changes to state pension age entitlement. A more significant uplift in the participation of the 60+ age-group within the labour force would reduce both the need for net in-migration and the requirement for new homes.
- 5.31 The scenario outcomes presented in this report are based on a number of specific assumptions derived from recent evidence. In reality, there is a likelihood that both economic activity rates and (in particular) North Somerset's commuting balance will deviate from the values that have been set; increasing the level of economic activity in the older age groups and improving the level of labour force retention. Each of these factors will act to reduce North Somerset's housing need

and, therefore, should be given careful consideration in the deliberations over the unitary authority's long-term housing plan.

Comments on 'latent demand' issues

- 5.32 In previous demographic analysis for North Somerset, a homes:jobs ratio has been used as the basis for the identification of an appropriate housing growth trajectory for the unitary authority¹. A subsequent challenge to this methodology suggested that the approach did not take sufficient account of what was referred to as 'latent demand'²³. An additional note provided further clarification on North Somerset Council's methodological approach⁴.
- 5.33 In the context of housing, (the authors of this report would argue that) 'latent demand' refers to a constraint on household formation resulting from financial and/or economic conditions. The term appears to have been used inappropriately in the North Somerset deliberations to refer to 'demand driven by factors which are not directly related to the creation of new employment'.
- 5.34 The challenges to the Inspector's original judgements on the North Somerset housing plans, has resulted in continued use of the 'latent demand' terminology plus requests for further evidence on *future* household formation that explicitly identifies economically active and inactive households.
- 5.35 Accepting that the use of the 'latent demand' term may be ambiguous, there remains a requirement to identify the relative importance of the key drivers of future household growth and therefore the potential requirement for new homes.
- 5.36 The POPGROUP forecasting methodology used here does not explicitly identify households that are either economically active or inactive. Labour force statistics relate to individuals not

¹ Woodhead, K. (2010). North Somerset Council: Determining a locally derived District Core Strategy housing requirement to 2026. <https://www.n-somerset.gov.uk/NR/rdonlyres/442D093F-583F-45C3-A5F9-0A50F4667B10/0/NSomersetStage2FinalReportonHousingrequirements.pdf>.

² University of Bristol (November 2011) [http://www.n-somerset.gov.uk/Environment/Planning_policy_and-research/localplanning/Documents/Core%20Strategy/PS110a%20University%20of%20Bristol%20position%20statement%20\(pdf\).pdf](http://www.n-somerset.gov.uk/Environment/Planning_policy_and-research/localplanning/Documents/Core%20Strategy/PS110a%20University%20of%20Bristol%20position%20statement%20(pdf).pdf)

³ Hardisty Jones Associates (2011) [http://www.n-somerset.gov.uk/Environment/Planning_policy_and-research/localplanning/Documents/Core%20Strategy/PS110a%20University%20of%20Bristol%20appendix%20a%20\(pdf\).pdf](http://www.n-somerset.gov.uk/Environment/Planning_policy_and-research/localplanning/Documents/Core%20Strategy/PS110a%20University%20of%20Bristol%20appendix%20a%20(pdf).pdf)

⁴ Woodhead, K. (2011) [http://www.n-somerset.gov.uk/Environment/Planning_policy_and-research/localplanning/Documents/Core%20Strategy/HD01b%20issue%201a%20supplementary%20paper%20\(pdf\).pdf](http://www.n-somerset.gov.uk/Environment/Planning_policy_and-research/localplanning/Documents/Core%20Strategy/HD01b%20issue%201a%20supplementary%20paper%20(pdf).pdf)

households; whereas household statistics are classified by one of seventeen household types (see Appendix B). However, different scenario configurations do provide an indication of the underlying effects of the different components of household formation.

- 5.37 The 'Net-Nil' scenario provides an indication of the growth profile that would result if North Somerset's annual net migration balance was zero, with natural change as the main driver of household growth. Under this scenario, population is forecast to decline by 1% to 2026, whereas household numbers increase by 3.5%-4.4%, fuelled by an expected rise in the number of older-age, single-person households. The anticipated dwelling growth associated with this scenario is 243 dwellings per year (taking the average of A and B scenario outcomes). With no replenishment of the younger age-groups through migration, this dwelling growth is associated with a significant decline in the job requirement (-631 per year) as the size of the labour force reduces relative to the population; an increasing level of old-age dependency for North Somerset.
- 5.38 Whilst the 243 dwellings per year might be seen as the most basic measure of housing need over the forecast period, such a sharp decline in the size of the labour force is likely to be unacceptable and some level of net in-migration will invariably be an important feature of North Somerset's future population change. An alternative formulation of the POPGROUP model (not presented in the main scenario analysis) allows a scenario to be tested which maintains the number of jobs at its current level. This 'Zero Jobs Growth' scenario prevents the 'Net-Nil' decline in the size of the labour force by allowing net in-migration to balance the negative effects of population ageing. This scenario results in a 9% population growth to 2026 and an annual average dwelling requirement of 708 homes per year.
- 5.39 The 'core' trend scenarios ('Mig-led_5Yrs', 'Mig-led_10Yrs' and 'Mig-led_10Yrs5Yrs') do not have a jobs-growth constraint but are driven by the continued impact of historical migration trends. With a population increase ranging from 10.1%-14.2%, jobs growth of 61-227 per year is matched to an anticipated range of dwelling growth of 812-1,018 homes per year (taking the average of A and B scenario outcomes).
- 5.40 The 'Jobs-led' scenario presents a more ambitious economic growth scenario, with an annual increment of +650 jobs per year. This scenario is clearly a significant uplift on the 'Zero Jobs growth' alternative, requiring a 20.2% growth in population to 2026 and an estimated dwelling requirement of 1,340 homes per year (under the 'Jobs-led A' scenario). This level of economic

growth is having to contend with a naturally declining labour force and therefore uses net in-migration to replenish the stock of economically active population.

- 5.41 As additional evidence to the (latent) housing demand debate, it is clear that the ageing profile of North Somerset's population has a significant impact upon the size of its labour force and the level of household formation. In the absence of migration, 243 homes per year is a minimum housing requirement. If North Somerset wishes to counteract the ageing effects and, at least, maintain the size of its labour force, a minimum of 708 homes per year is estimated.
- 5.42 Whilst these outcomes provide useful benchmarks, they are derived from a particular set of model assumptions. Improvements in the level of labour force retention (more people living and working within North Somerset) would reduce the required effect of net in-migration and therefore reduce the estimated housing requirement. Similarly, a more substantial change in the rates of economic participation in the older age-groups would help to maintain the size of North Somerset's labour force, again reducing the effect of in-migration and the estimated housing requirement. These factors should be given careful consideration in housing plan deliberations.

6. Summary & Recommendations

Requirements Summary

- 6.1 North Somerset Council has sought to update its demographic evidence with the development of a suite of population, household and housing forecasts for the unitary authority. These forecasts incorporate the latest evidence from:
- 2011 Census statistics on population and households;
 - Revised mid-year population estimates for the period 2002–2010 (ONS);
 - 2011-based household projections for 2011–2021 (CLG).
- 6.2 This report has presented the suite of alternative growth scenarios using POPGROUP technology. They evaluate trend, policy and economic considerations; they are accompanied by a transparent definition of key assumptions; and they are presented in a consistent format that contrasts the impact of scenario assumptions upon changes to population, households, dwellings, labour force and jobs. All scenarios have been run from a 2011 base year, with a 2026 and a 2031 horizon. Historical data has been included for 2001–2011.

Scenario Outcomes

- 6.3 The latest demographic evidence has provided a timely update to North Somerset's population profile, aligning the new 2011 Census total with an historical time series back to 2001. But the substantial 're-calibration' of North Somerset's population estimates has presented considerable uncertainty with regard to the factors that have driven the downward adjustment in the authority's 2011 population.
- 6.4 On the assumption that both the 2001 and 2011 Censuses provided a robust enumeration of North Somerset's population, it is the mis-estimation of international migration that is most likely to have resulted in the over-estimation of mid-year population totals between the two Censuses.
- 6.5 However, ONS does not attribute the population adjustment to international migration, classifying the required change as 'other unattributable' factors. This is unhelpful when determining assumptions for trend projections but the analysis presented here has assumed that

the 'other unattributable' is allocated to an adjustment to international migration estimates. This results in a consistent historical net loss due to international migration.

- 6.6 The new demographic evidence has enabled the development of alternative 2011-based trend projections that consider the potential future impact of migration. These provide an important update to ONS' 2011-based interim projections which do not provide a sound basis for analysis due to their reliance upon 2010-based assumptions in conjunction with 2011 Census statistics.
- 6.7 Five-year and ten-year historical perspectives have been used to set migration assumptions in the trend scenarios. The 5-year alternative (Mig-led_5yrs) suggests a lower growth forecast than the 10-year (Mig-led 10yrs), reflecting the reduction in net in-migration to North Somerset since 2007.
- 6.8 Two additional trend scenarios have been added to the list, removing the 'other unattributable' adjustment from the historical data used to generate migration assumptions (Mig-led_5yrs-X and Mig-led 10yrs-X). On the basis of the 2011 Census population update, these scenarios provide 'unrealistic' growth options but they achieve two objectives. Firstly, some consistency between the SNPP-2010 and the Mig-led_5yrs-X scenarios is demonstrated. Secondly, they illustrate the extent of population growth that would have resulted from a trend projection that considered ONS population estimates for the 2001–2011 decade without any recalibration to the new Census total.
- 6.9 The analysis of scenario outcomes is complicated by the 'choice' of appropriate headship rates with which household (and dwelling) growth is estimated. The latest 2011-based rates have been calibrated after a period of unprecedented economic change and stagnation in the housing market and thus suggest a slower rate of household formation than the previous 2008-based rates, calibrated from data collected in a time period with very different market characteristics.
- 6.10 Deciding which is the most 'appropriate' trajectory of household growth is difficult. The 2011-based rates have been trended to 2026 for direct comparison with the 2008-based rates. Dwelling growth suggested by the 2011-based (A) scenarios (Figure 16, Table 5) is lower than the 2008-based (B) scenarios (Figure 17, Table 6). An indication of the dwelling growth that would result if an 'average' of the two extremes were applied is provided (Table 8).

Table 8: Scenario dwelling growth summary

Scenario	Average dwelling requirement 2011- 2026
Mig-led_10yrs-X	1457
Jobs-led	1400
Mig-led_5yrs-X	1280
SNPP-2010	1282
Mig-led_10yrs	1018
Mig-led_10yrs5yrs	963
Dwelling-led	806
Mig-led_5yrs	812
Net Nil	243

Note: the average dwelling requirement is an average of Option A (CLG 2011-based headship rates) and Option B (CLG 2008-based headship rates) scenarios

- 6.11 The suite of scenarios can be classified based upon the underlying assumptions associated with each (Table 9). The classification provides the basis for the recommendations that are presented below.

Table 9: North Somerset – scenario classification

Scenario	Average dwelling requirement 2011-2026
1 'Previous' trend growth <i>SNPP-2010, Mig-led_10yrs-X, Mig-led_5yrs-X</i>	1,282 - 1,457
2 Economic growth forecast <i>Jobs-led</i>	1,400
3 'Current' trend growth <i>Mig-led_5yrs, Mig-led_10yrs5yrs, Mig-led_10yrs</i>	812 - 1,018
4 Dwelling-led growth <i>Dwelling-led</i>	806
5 Zero net-migration <i>Net Nil</i>	243

Note: the average dwelling requirement is an average of Option A (CLG 2011-based headship rates) and Option B (CLG 2008-based headship rates) scenarios

Recommendations

- 6.12 Using the latest available statistics on demographic change, this report has presented a range of scenario outcomes for North Somerset Council to consider in its review of future housing provision.

6.13 *Zero net-migration*

The 'Net-Nil' scenario does not provide a realistic basis for future planning but does provide an important indication of the degree to which dwelling growth is driven by natural change. Even with a declining population, household numbers are seen to increase due to an expected reduction in average household size, linked primarily to the gradual ageing of North Somerset's population. In the absence of migration, North Somerset Council should consider a minimum housing need of approximately 243 homes per year based on the 'Net-Nil' scenario outcomes.

6.14 *Previous trend growth*

The 2011 Census has updated the trend in North Somerset's population growth 2001-2011 and has enabled a rescaling of the effects of migration upon this growth. Whilst there remains uncertainty over the degree to which international migration will influence future demographic change, the 'previous trend growth' scenarios are now out-of-date and do not provide a robust basis for future planning.

6.15 *Dwelling-led growth*

This scenario replicates North Somerset Council's housing growth trajectory of approximately 17,000 new dwellings over the planning period 2006/07–2025/26. With estimated completions of 806 units over the 2011-2026 forecast horizon, growth falls below that suggested by the range of 'current trend growth' scenarios

6.16 *Economic growth forecast*

North Somerset Council has identified a potential jobs growth target of +9,750 for the 2011-2026 period. With an ageing population and a natural decline in the relative size of the labour force, this scenario results in high net in-migration and a larger housing requirement. However, this forecast is based on relatively modest improvements to underlying economic activity rates in older age-groups and no-change to the existing commuting balance for the unitary authority.

6.17 *Current trend growth*

The latest demographic evidence from the 2011 Census, the revised mid-year population estimates and the new household projections, has allowed new trend forecasts to be formulated. This range of forecasts most accurately captures the historical impact of migration upon North Somerset and its potential impact upon future growth. It provides the most robust and up-to-date evidence for future planning purposes.

6.18 **It is recommended that North Somerset Council adopts the range of ‘current trend growth’ scenarios as the basis for its review of future housing provision in the unitary authority.**

6.19 In line with NPPF guidelines¹, it is recommended that the economic growth implications of the ‘current trend growth’ scenarios is considered against the viability and local sustainability of the policy aspirations defined by the ‘Jobs-led’ scenario, which anticipates significantly higher local jobs growth. This is a particularly important issue given the inevitable impact of an ageing population upon the composition of the labour force.

6.20 In relation to the key assumptions used in the scenarios presented here, it is recommended that the ‘hybrid’ (average) of the option A and option B alternatives is used as the basis for the assessment of future housing growth. In addition, it is recommended that North Somerset Council gives due consideration to the sensitivity of housing need to the potential changes in both the commuting balance and rates of economic activity associated with the local labour force. A reduced net out-commute and/or higher rates of economic participation in the older age-groups could each contribute to lower housing need over the plan period.

¹ National Planning Practice Guidance. <http://planningguidance.planningportal.gov.uk/>

Glossary

Abbreviation	Definition
ASFR	Age-specific fertility rate
ASMigR	Age-specific migration rate
ASMR	Age-specific mortality rate
CLG	Department for Communities and Local Government
GP	General Practitioner
LEP	Local Enterprise Partnership
LFS	Labour Force Survey
NINo	National Insurance Number
NPPF	National Planning Policy Framework
ONS	Office for National Statistics
PRDS	Patient Register Data Service
SMR	Standardised Mortality Ratio
SNPP	Sub-national population projections
TFR	Total Fertility Rate

Appendix A: Forecasting Methodology

- 6.21 The POPGROUP suite of models is used extensively by local authorities across the UK, providing a desktop utility for the evaluation of alternative growth scenarios to support local planning. Under licence to the Local Government Association (LGA), Edge Analytics provides product development and technical support to the product suite and its user base.
- 6.22 For a more complete review of the functionality and methodology which underpin POPGROUP and the Derived Forecast model, users are referred to the respective user manuals, available from the POPGROUP website: <http://www.popgroup.org.uk/>.
- 6.23 The main POPGROUP model (Figure 20) is a cohort component model which enables the development of population forecasts based on births, deaths and migration inputs and assumptions. The Derived Forecast model (Figure 21) sits alongside the population model, providing a headship rate model for household projections and an economic activity rate model for labour-force projections.

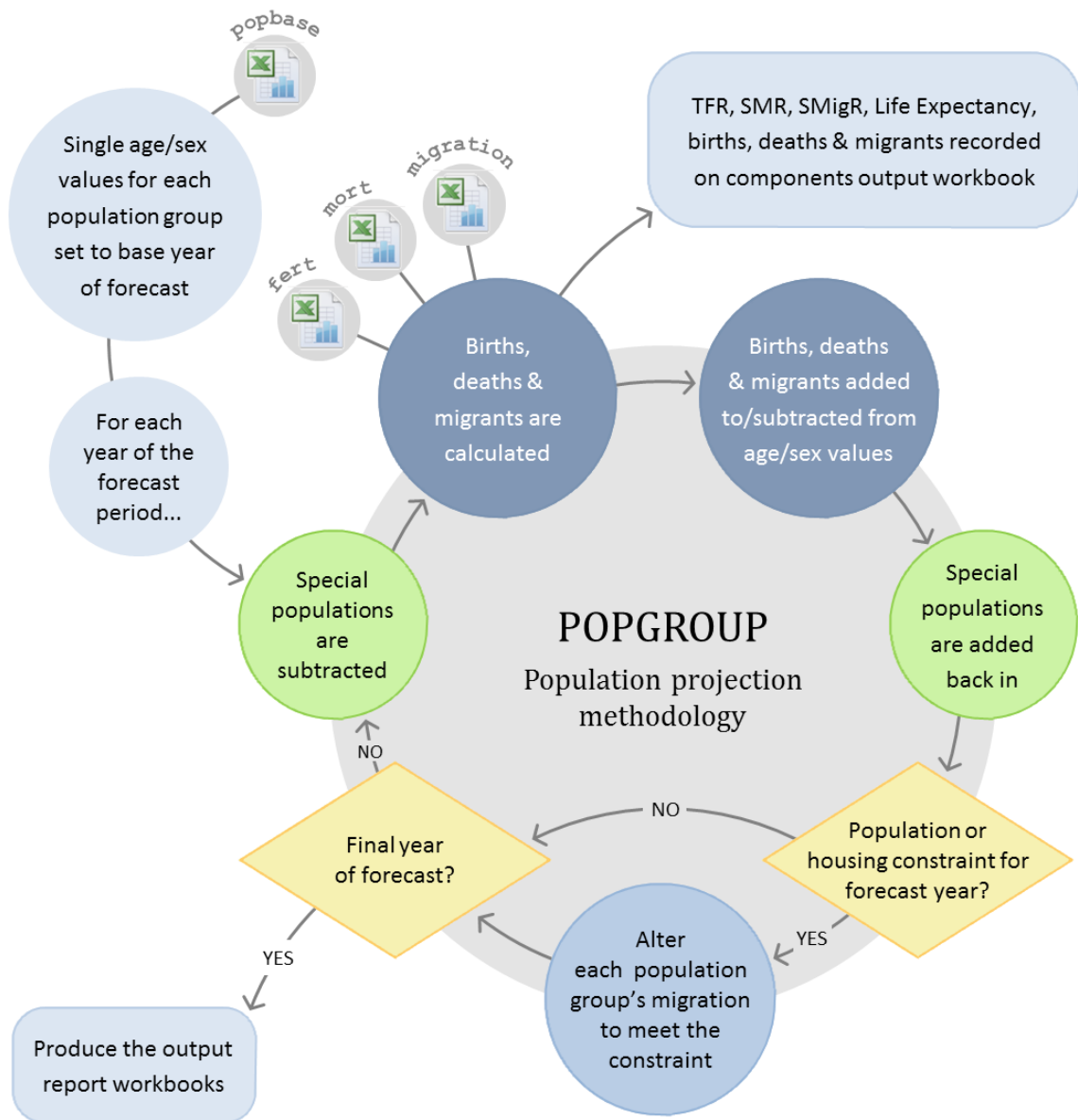
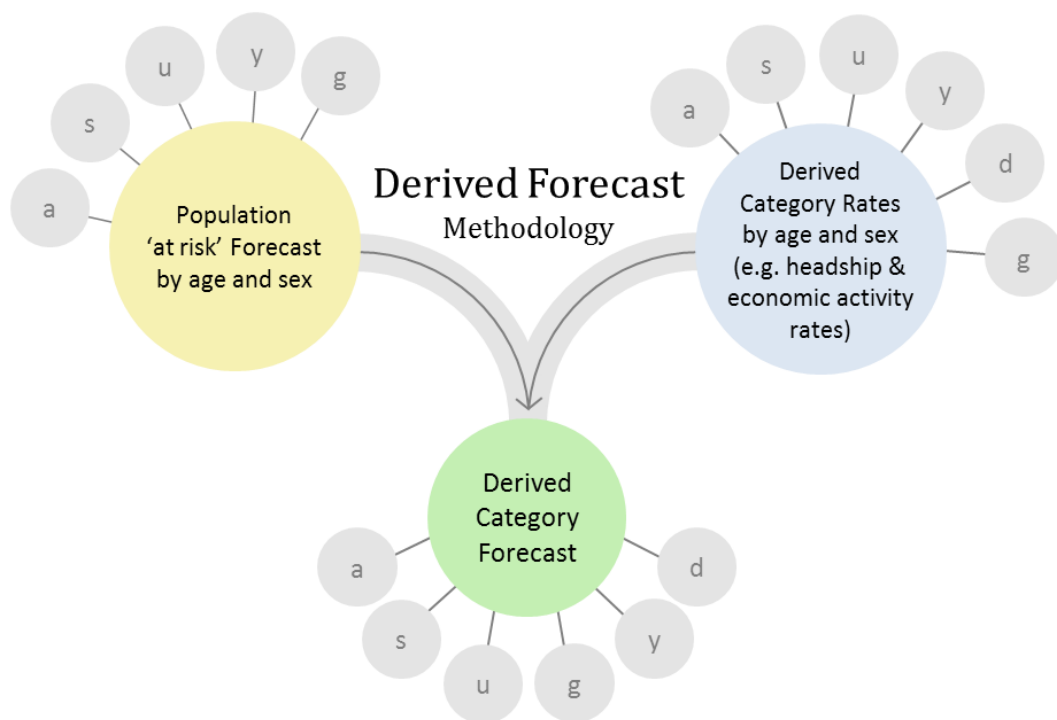


Figure 20: POPGROUP population projection methodology



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

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

Figure 21: Derived Forecast (DF) methodology

Appendix B: Data Input, Assumptions & Methodology

- 6.24 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 the historical data evidence for 2001-2010, in conjunction with information from ONS national projections, a series of assumptions have been derived which drive the scenario forecasts.

Population

- 6.25 Historical population statistics are provided by the mid-year population estimates for 2001 to 2011. All data are recorded by single-year of age and sex. These data include the revised mid-year population estimates for 2002–2010, released by ONS in May 2013, providing consistency in the measurement of the components of change (births, deaths, internal migration and international migration) between the 2001 and 2011 Censuses.

Births and Fertility

- 6.26 Historical mid-year to mid-year counts of births by sex from 2001/2 to 2010/11 have been sourced from ONS Vital Statistics.
- 6.27 A ‘national’ age-specific fertility rate (ASFR) schedule, which measures the expected fertility rates by age and sex for England in 2011/12, is included in the POPGROUP model assumptions. Local birth statistics are combined with this ONS 2010-based standard fertility schedule to produce age-specific fertility rates for the district.
- 6.28 Long-term assumptions on change in age-specific fertility rates are taken from the ONS 2010-based national population projection for England.

Deaths and mortality

- 6.29 Historical mid-year to mid-year counts of deaths by age and sex from 2001/2 to 2010/11 have been sourced from ONS Vital Statistics.

- 6.30 A 'national' age-specific mortality rate (ASMR) schedule, which measures the expected mortality rates by age and sex for England in 2011/12, is included in the POPGROUP model assumptions. Local death statistics are combined with this ONS 2010-based standard mortality schedule to produce age-specific mortality rates for the district.
- 6.31 Long-term assumptions on change in age-specific mortality rates are taken from ONS 2010-based national population projection for England.

Migration

- 6.32 In determining the migration assumptions for a new '2011-based' trend projection, historical data on the components of demographic change during the 2001–2011 time-period are a key consideration.
- 6.33 Since 2001, the population of North Somerset has increased by over 7.6%, from 188,337 to reach 202,566 in 2011. This population change has been driven by a mixture of (a) natural change (the difference between the number of births and deaths); (b) net internal migration (the difference between in-migration and out-migration from and to other locations within the UK); and (c) net international migration (the difference between immigration and emigration). There has been variation in the relative importance of these components over the 2001–2011 decade.
- 6.34 Implied within the international migration component of change is an 'other unattributable' figure, which ONS identified within its latest mid-year estimate revisions. The POPGROUP model has assigned the 'other unattributable' to international migration as it is the component with the greatest uncertainty associated with its estimation.
- 6.35 A five-year historical period is a typical time-frame from which migration 'trend' assumptions are derived. However, given the unprecedented economic changes that have occurred since 2008, it is important to give due consideration to an extended historical time-period for assumption derivation. For this reason, migration assumptions have been derived from a 5-year and a 10-year historical period, with scenarios configured accordingly.

Household Formation Rates

- 6.36 The most recent household projections come from the 2011-based CLG model, released for local authority areas in 2013. The headship rate statistics and the communal household populations which underpin this model are used as the basis for the development of the household forecasts presented here.
- 6.37 To assess the impact of the newly-available household statistics, the 2008-based CLG statistics have been used in conjunction with the 2011-based rates in each scenario. Each of the scenarios has been run with the 2011-based (Option A) and the 2008-based (Option B) CLG headship rates and communal household population.
- 6.38 There is a 17-fold classification of household types used in both the 2008-based and 2011-based household forecasts (Table 10). This classification underpins the calculation of total household numbers in each scenario.

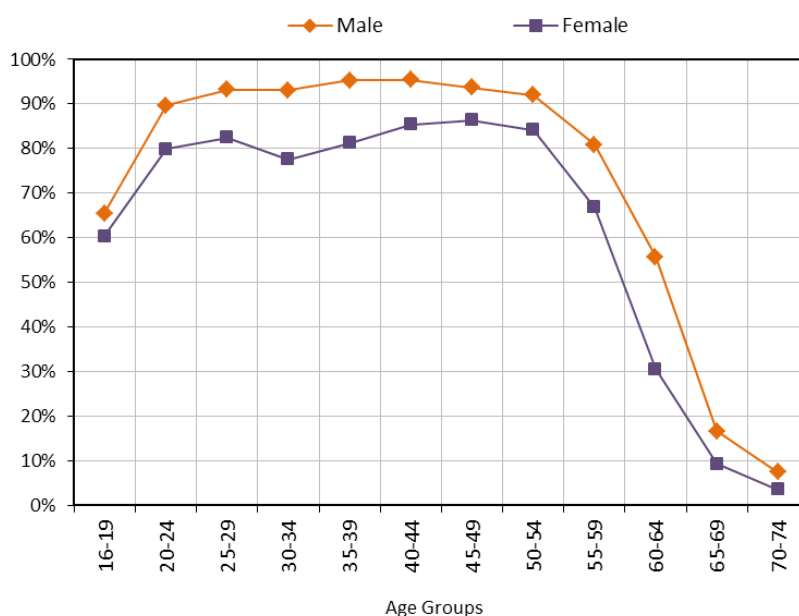
Table 10: Household category descriptions

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

- 6.39 A vacancy rate determines the relationship between the number of households and the number of dwellings. The calculated vacancy rate for North Somerset is 3.8%, taken from the 2011 Census. This value remains constant throughout the forecast period.

Economic Activity Rates

- 6.40 Economic activity rates have been derived from a combination of 2001 Census statistics for North Somerset and the latest evidence from the Labour Force Survey (via NOMIS). NOMIS data provide an average economic activity rate for the period 2007–2011 by broad age-group. Using the 2001 Census data, these activity rates have been disaggregated to provide an economic activity rate by five year age-group and sex for all labour-force ages to age 74 (Figure 22).



Source: NOMIS; ONS

Figure 22: Economic Activity Rates – North Somerset

- 6.41 To account for an expected increase in the rate of labour force participation in the older age groups resulting from changes to state pension age, economic activity rates have been increased in the following way:

- Women aged 60–64: 40% increase by 2020;
- Women aged 65–69: 20% increase by 2020;
- Men aged 60–64: 5% increase by 2020;
- Men aged 65–69: 10% increase by 2020.

6.42 From 2020, economic activity rates are kept constant.

Unemployment Rate

6.43 An average unemployment rate of 4.2% (aged 16+) has been calculated from North Somerset unemployment statistics for the period 2007–2012 (sourced from NOMIS). This value remains constant throughout the forecast period.

Commuting Ratio

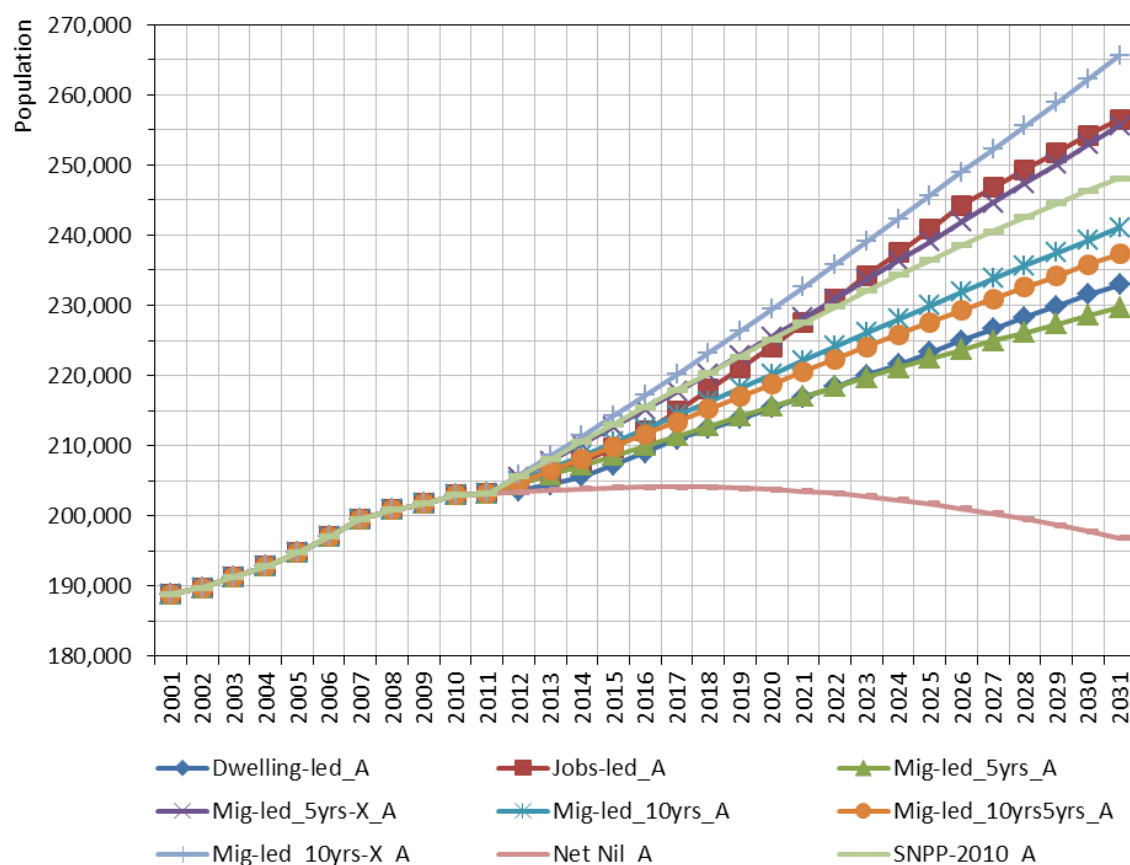
6.44 Using 2001 Census statistics (2011 data is not yet available) a commuting ratio has been derived as the balance between the size of the resident labour force and the number of jobs available in North Somerset. The derived ratio of 1.22 for North Somerset indicates that there is a net inflow of commuters from surrounding districts. This value remains constant throughout the forecast period.

Appendix C: NINO Country Classification

Accession	New Commonwealth	Other Countries
Bulgaria	Antigua	All other countries not listed elsewhere
Cyprus	Bahamas	
Czech Rep	Bangladesh	
Czechoslovakia	Barbados	
Hungary	Barbuda	
Malta	Belize	
Poland	Botswana	
Rep of Estonia	Brunei	
Rep of Latvia	Cameroon	
Rep of Lithuania	Fiji	
Rep of Slovenia	Gambia	
Romania	Ghana	
Slovak Rep	Grenada	
	Guyana	
	Hong Kong	
	India	
	Jamaica	
	Kenya	
	Kiribati	
	Lesotho	
	Malawi	
	Malaysia	
	Maldives Islands	
	Mauritius	
	Mozambique	
	Namibia	
	Nauru	
	Nevis, St Kitts-Nevis	
	Nigeria	
	Pakistan	
	Papua New Guinea	
	Seychelles	
	Sierra Leone	
	Singapore	
	Solomon Islands	
	Sri Lanka	
	St Lucia	
	St Martins	
	St Vincent & Grenadines	
	Swaziland	
	Tanzania	
	Tonga	
	Trinidad & Tobago	
	Tristan da Cunha	
	Tuvalu	
	Uganda	
	Vanuatu	
	Western Samoa	
	Zambia	
	Zimbabwe	
Other EU		
Austria		
Belgium		
Denmark		
E Germany		
Finland		
France		
Germany		
Greece		
Italy		
Luxembourg		
Netherlands		
Portugal		
Rep of Ireland		
Spain		
Sweden		
Old Commonwealth		
Australia		
Canada		
New Zealand		
South Africa		
USA		

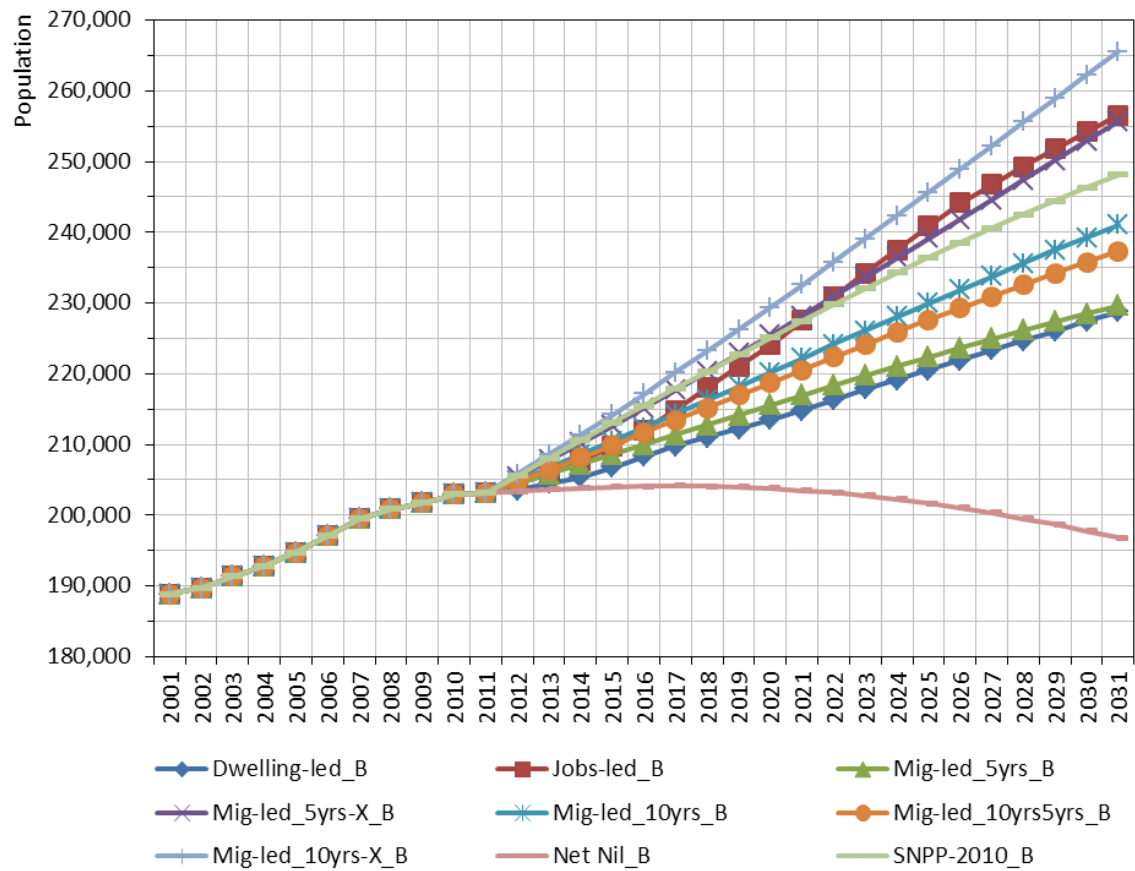
Appendix D: Scenario Outcomes 2011–2031

Option A: CLG 2011-based headship rates



Scenario	Change 2011 - 2031				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Mig-led_10yrs-X_A	62,507	30.8%	27,743	31.4%	2,774	1,442	819
Jobs-led_A	53,462	26.3%	25,173	28.5%	2,380	1,308	614
Mig-led_5yrs-X_A	52,562	25.9%	24,011	27.1%	2,308	1,248	612
SNPP-2010_A	45,032	22.2%	23,083	26.1%	2,120	1,200	453
Mig-led_10yrs_A	37,973	18.7%	18,586	21.0%	1,724	966	298
Mig-led_10yrs5yrs_A	34,261	16.9%	17,458	19.7%	1,559	907	231
Dwelling-led_A	29,847	14.7%	15,663	17.7%	1,353	814	132
Mig-led_5yrs_A	26,567	13.1%	14,342	16.2%	1,198	745	62
Net Nil_A	-6,307	-3.1%	3,051	3.5%	0	159	-625

Option B: CLG 2008-based headship rates



Scenario	Change 2011 - 2031				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Mig-led_10yrs-X_B	62,507	30.8%	29,709	33.6%	2,774	1,544	819
Jobs-led_B	53,462	26.3%	27,065	30.6%	2,380	1,406	614
Mig-led_5yrs-X_B	52,562	25.9%	25,950	29.3%	2,308	1,348	612
SNPP-2010_B	45,032	22.2%	24,808	28.1%	2,120	1,289	453
Mig-led_10yrs_B	37,973	18.7%	20,305	23.0%	1,724	1,055	298
Mig-led_10yrs5yrs_B	34,261	16.9%	19,147	21.6%	1,559	995	231
Mig-led_5yrs_B	26,567	13.1%	16,019	18.1%	1,198	832	62
Dwelling-led_B	25,660	12.6%	15,663	17.7%	1,170	814	46
Net Nil_B	-6,307	-3.1%	4,305	4.9%	0	224	-625