Richmondshire District Council

Demographic Forecasts 2011-2028

Employment-led demographic forecasts

March 2014

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Acknowledgements

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1. Introduction

Requirement

1.1 During 2011-12 Edge Analytics delivered a range of demographic forecasts from which Richmondshire District Council might consider future growth trajectories. Three scenarios were presented in this analysis:

- 'SNPP-2008' - replicated the 2008-based sub-national population projections, incorporating historical evidence from 2004-2008;
- 'Migration-led-revision' - used the 2006-2010 period as the basis for derivation of its migration assumptions from the components of change evident in the revised mid-year estimates released by ONS in November 2011;
- 'Dwelling-led' -evaluated the population implications of a trajectory of dwelling growth equivalent to 200 new units per year.

1.2 Using the previous scenario configuration, Richmondshire District Council has sought to extend this analysis with a range of employment-led forecasts which consider jobs growth over a 2011-2028 forecast period:

- 'Jobs-led High': jobs growth of 3,000 over the forecast period (+176 new jobs per year);
- 'Jobs-led Central': jobs growth of 2,200 over the forecast period (+129 new jobs per year);
- 'Jobs-led Low': jobs growth of 1,000 over the forecast period (+59 new jobs per year).

Forecasting methodology

1.3 Demographic forecasts have been developed using the POPGROUP suite of products. POPGROUP is a family of demographic models that enables forecasts to be derived for population, households and the labour force, for areas and social groups. The main POPGROUP model (Figure 1) is a cohort component model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions.

1.4 The Derived Forecast model (Figure 2) sits alongside the population model, providing a headship

rate model for household projections and an economic activity rate model for labour-force projections.

1.5 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.

1.6 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.
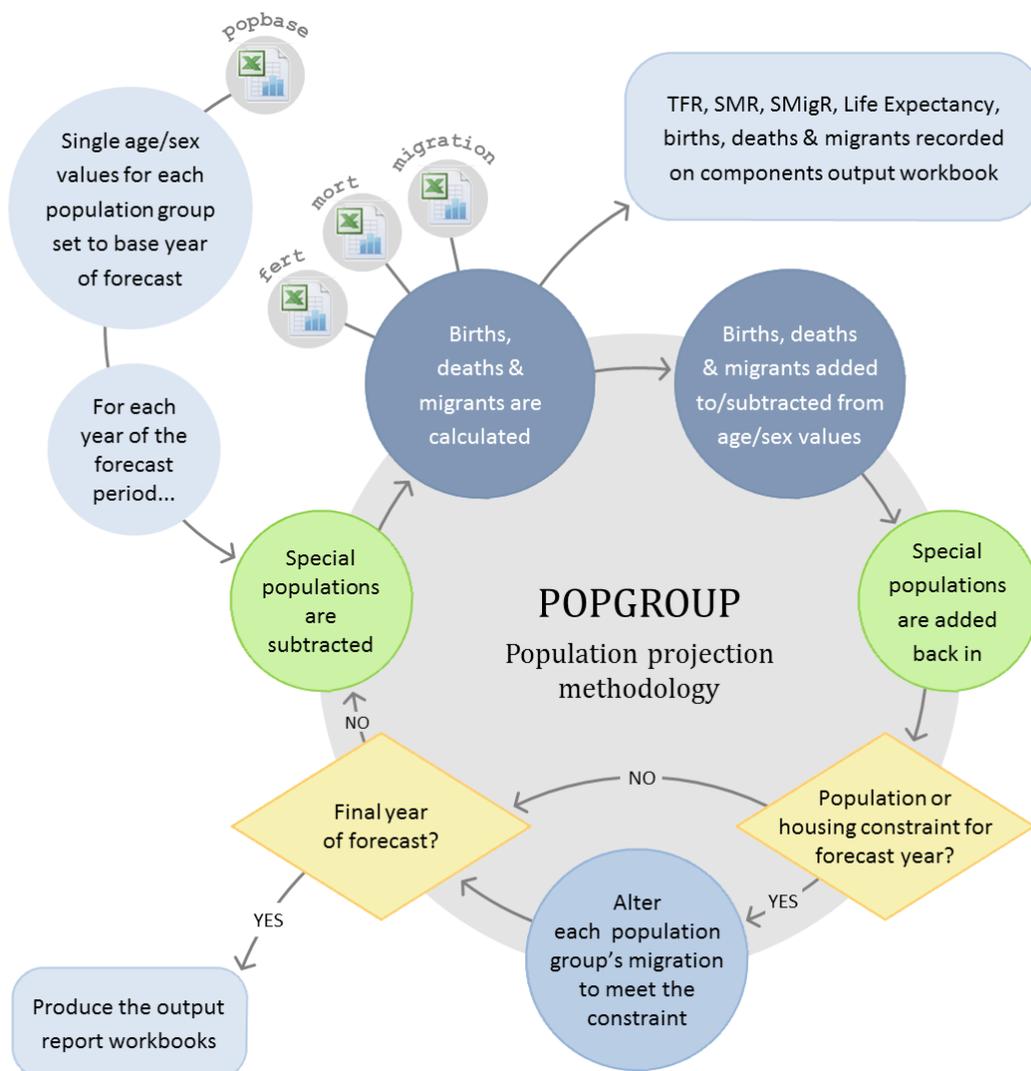
Figure 1: POPGROUP population projection methodology

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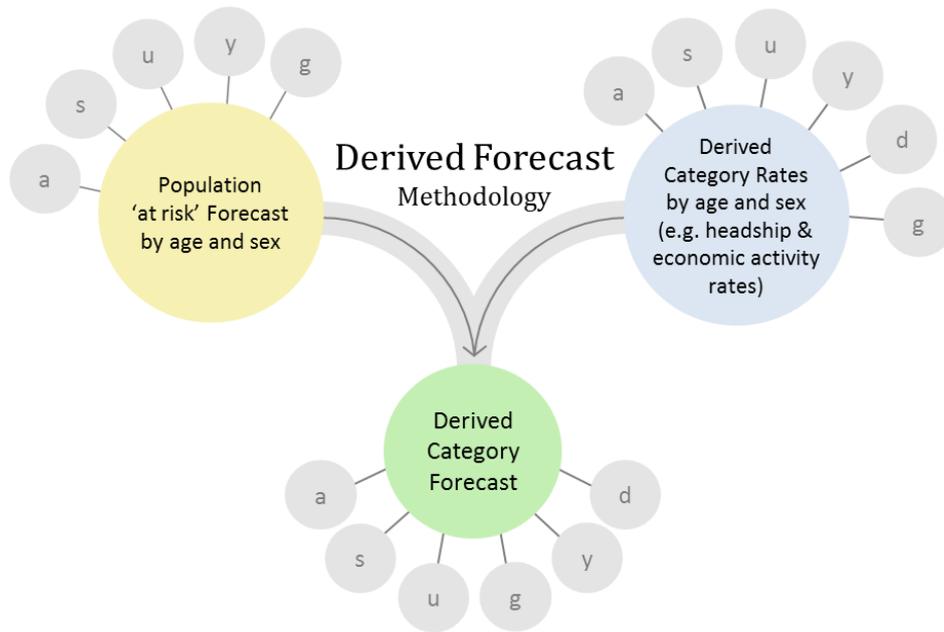
$$D_{a,s,u,y,d,g} = \frac{P_{a,s,u,y,g} \; R_{a,s,u,y,d,g}}{100}$$

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 2: Derived Forecast (DF) methodology

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Report Structure

1.7   Section 2 confirms the scenarios that have been tested in this additional analysis.

1.8   Section 3 summarises the outcomes of each of these scenarios, presenting growth in terms of population, households, dwellings, labour force and jobs impacts for Richmondshire.

1.9   The Appendix to this document contains guidance on the data inputs and assumptions used in the development of the scenarios.

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2. Scenario Definition

Scenario Context

2.1   The National Planning Policy Framework (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.

2.2   For any local authority area, there is no single, definitive view on the likely level of future growth, 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 requirements.

2.3   The use of a recognised forecasting product (e.g. POPGROUP), which incorporates industry-standard methodologies (i.e. a cohort component model for population forecasting and a headship rate model for household forecasting) ensures a robustness of approach and enables a focus on assumptions and output, rather than methods.

2.4   In 2011-2012 Richmondshire District Council commissioned Edge Analytics to produce a range of trend and dwelling-led forecasts, including 'SNPP', 'Migration-led-revision' and 'Dwelling-led' scenarios. As an extension of that project, Richmondshire District Council has requested Edge Analytics to produce a number of additional employment-led scenarios.

2.5   Each of the new scenarios has been developed using the data and assumptions applied to the previous scenario forecasts, incorporating a 2010 base year and a scenario horizon of 2028.

Employment-led forecasts

2.6   Forecasting models are 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 determine the demographic implications of this growth: economic activity rates by age and sex; an unemployment rate for the district; and a commuting

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ratio for the district.

2.7   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.

2.8   If there is an 'imbalance' between 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.

2.9   Richmondshire District Council has provided jobs targets for the 2012-2028 forecast period which provide the basis for the development of three employment-led scenarios:

- 'Jobs-led High': jobs growth of 3,000 over the forecast period (+176 new jobs per year);
- 'Jobs-led Central': jobs growth of 2,200 over the forecast period (+129 new jobs per year);
- 'Jobs-led Low': jobs growth of 1,000 over the forecast period (+59 new jobs per year).

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3. Scenario summary

3.1   The results of the three employment-led ('Jobs-led') scenarios are detailed here, presented in conjunction with the three scenarios from the original Richmondshire analysis.

3.2   It is important to reiterate that all scenarios have been formulated using the <u>original</u> data and assumptions. No account has been taken of later Census statistics, mid-year population revisions or the 2011-based household projection model. Assumptions on the size and composition of the Armed Forces population remain consistent with the previous analysis.

3.3   However, to enable a jobs and population evaluation of the original and new scenarios, statistics on economic activity and unemployment have been drawn from the most recent evidence, taking account of anticipated changes in these assumptions over time. Details are provided in the Appendix to this document.

3.4   The original 'SNPP-2008' scenario suggested relatively high population growth, 13.7% to 2028. The 'Dwelling-led' and 'Migration-led-revision' resulted in lower growth, 6.7% and 4.9% respectively, albeit from a lower start-point following ONS' interim revisions to its mid-year population estimates.

3.5   The employment-led scenarios model the effect of population change that is linked directly to jobs growth. The 'High', 'Central' and 'Low' scenarios result in 14.6%, 11.0% and 5.6% population growth respectively.

3.6   Based on the 2008-based household formation rate assumptions, this equates to a range of average dwelling requirements for all six scenarios from 179-293 dwellings per year.

3.7   The characteristic 'shape' of the three employment-led scenario growth trajectories is determined by the economic activity and unemployment assumptions. Between 2011 and 2021, increased rates of economic activity and reducing unemployment (between 2012 and 2028) expand the size of the labour force to accommodate jobs growth. After 2021, the economic activity rates remain fixed, so any shortfall in the balance between the number of new jobs and the size of the resident labour force is only partially accommodated through reduction in unemployment; the rest is accommodated through net in-migration, higher population growth and a higher dwelling requirement.

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3.8   Underpinning these changes is the inevitable 'ageing' of Richmondshire's population, resulting in a natural reduction in the size of the labour force. Maintaining the size of the labour force in relation to anticipated jobs growth, can be achieved by improved economic activity, reducing unemployment or through in-migration of population in the labour-force ages. No account is taken of any changes in the commuting balance that might result from jobs growth over time.

Richmondshire
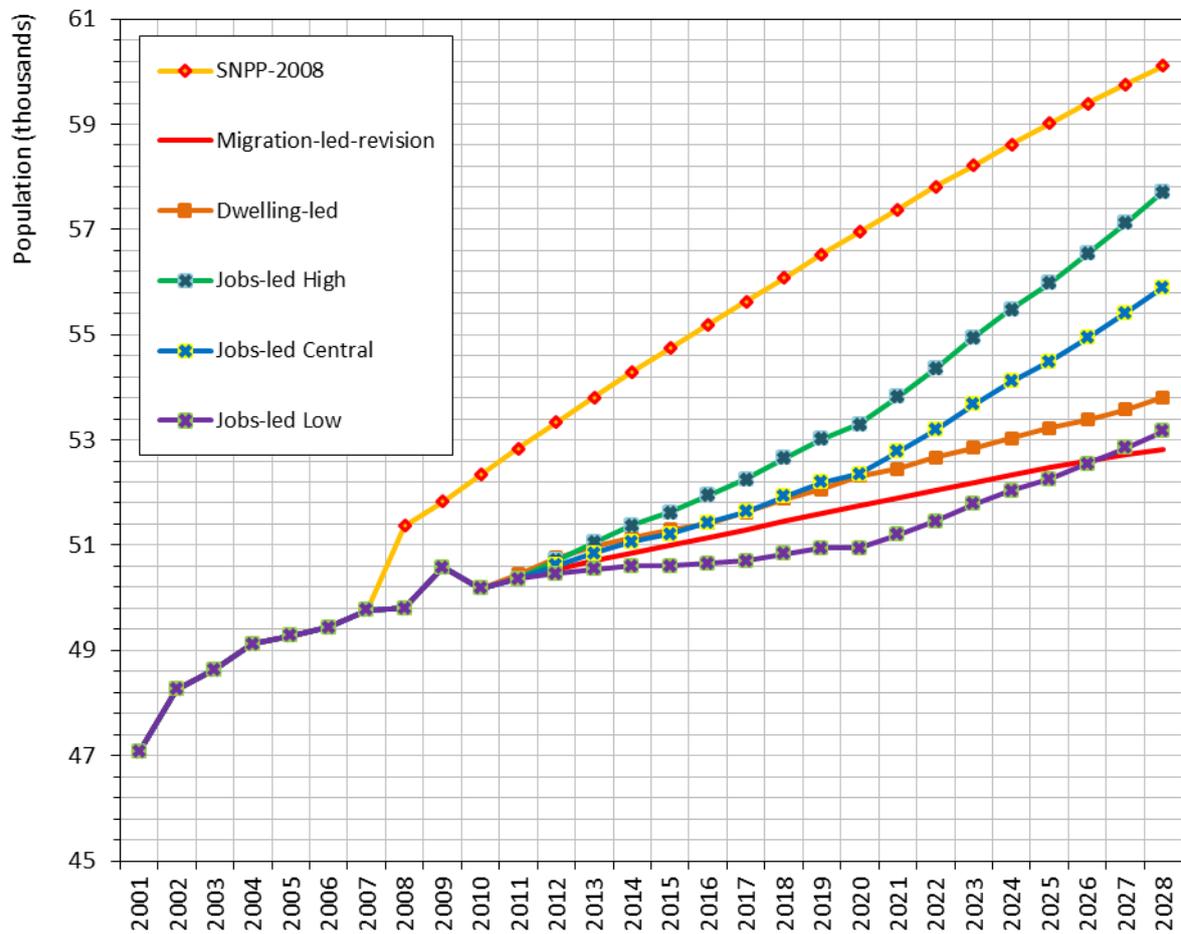
Scenario	Change 2011 - 2028				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Jobs
Jobs-led High	7,365	14.6%	4,596	23.6%	396	293	176
SNPP-2008	7,265	13.7%	3,983	19.4%	344	254	134
Jobs-led Central	5,539	11.0%	3,939	20.2%	304	251	129
Dwelling-led	3,363	6.7%	3,138	16.1%	185	200	71
Jobs-led Low	2,808	5.6%	2,947	15.1%	166	188	59
Migration-led-revision	2,461	4.9%	2,805	14.4%	140	179	48

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4. Appendix: Data inputs & assumptions

4.1   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. Since the population and household related data used in the projections are the same as in the original project delivered to Richmondshire District Council in 2011-2012, their detailed descriptions have been excluded from this document. For more details see '*Richmondshire. Scrutiny of population estimates and projections*' report from March 2012.

4.2   In the following sections, a narrative on the economic data inputs and assumptions underpinning the new scenarios is presented.

Economic Activity Rates

2011 Census Economic Activity Rates

4.3   'Economically active' refers to the population that is both employed and unemployed, i.e. the labour force.

4.4   Economic activity rates provide the basis for calculating the size of the labour force within the population. Economic activity rates by five year age group (ages 16-74) and sex have been derived from 2011 Census statistics.

4.5   The 2011 Census statistics include an open-ended 65+ age categorisation, so economic activity rates for the 65–69 and 70–74 age groups have been estimated using a combination of Census 2011 tables, disaggregated using evidence from the 2001 Census.

4.6   A comparison of the 2001 and 2011 economic activity rates for Richmondshire is provided (Figure 3). This comparison indicates that economic activity rates have increased in the older age groups for both males and females, particularly for females, for whom rates have seen a general increase across all age-groups.

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—— Economic Activity Rate 2001 (Male)   —— Economic Activity Rate 2011 (Male)

Richmondshire

—— Economic Activity Rate 2001 (Female)   —— Economic Activity Rate 2011 (Female)
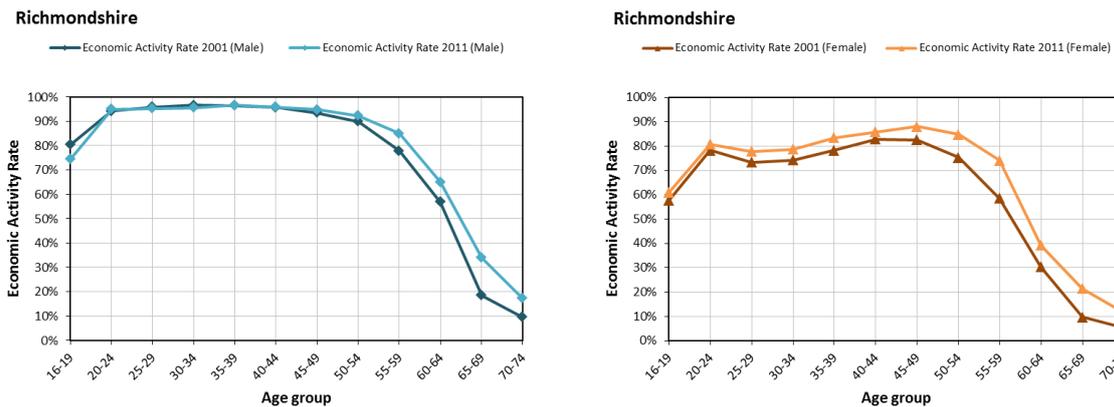
Source: Census 2001 & 2011

Figure 3: Economic activity rates, 2001 vs. 2011 (males & females)

Amendments to Economic Activity Rates

4.7   Using the 2011 Census statistics as a base, changes have been made to the age-sex specific economic activity rates to take account of changes to the State Pension Age (SPA) and to accommodate potential changes in economic participation which might result from an ageing but healthier population in the older labour-force age-groups.

4.8   Employment forecasts routinely apply changes to older-age economic participation rates in the derivation of longer-term forecasts of jobs growth. It is therefore important to give these assumptions due consideration in the demographic assessment of these forecasts.

4.9   The SPA for women is increasing from 60 to 65 by 2018, bringing it in line with that for men. Between December 2018 and April 2020, the SPA for both men and women will then rise to 66. Under current legislation, the SPA will be increased to 67 between 2034 and 2036 (although it has been proposed that the rise in the SPA to 67 is brought forward to 2026–2028[1]) and 68 between 2044 and 2046.

4.10   ONS published its last set of economic activity rate forecasts from a 2006 base[2]. These incorporated an increase in SPA for women to 65 by 2020 but this has since been altered to an accelerated transition by 2018 plus a further extension to 66 by 2020. Over the 2011–2020 period, the ONS forecasts suggested that male economic activity rates would rise by 5.6% and 11.9% in the 60-64 and 65-69 age groups respectively. Corresponding female rates would rise by

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[1] https://www.gov.uk/changes-state-pension

[2] ONS January 2006, Projections of the UK labour force, 2006 to 2020 http://www.ons.gov.uk/ons/rel/lms/labour-market-trends--discontinued-/volume-114--no--1/projections-of-the-uk-labour-force--2006-to-2020.pdf

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33.4% and 16.3% (Figure 4).

4.11 Given the accelerated pace of change in the female SPA and the clear trends for increased female labour force participation across all age-groups in the last decade, these 2011–2020 rate increases would appear to be relatively conservative assumptions.


% Change 2011 - 2020							
Age / Sex	16-24	25-34	35-44	45-59	60-64	65-69	70-74
Males	-3.1%	-0.8%	-0.7%	0.3%	5.6%	11.9%	-5.6%
Females	-1.2%	1.8%	0.4%	3.9%	33.4%	16.3%	0.0%
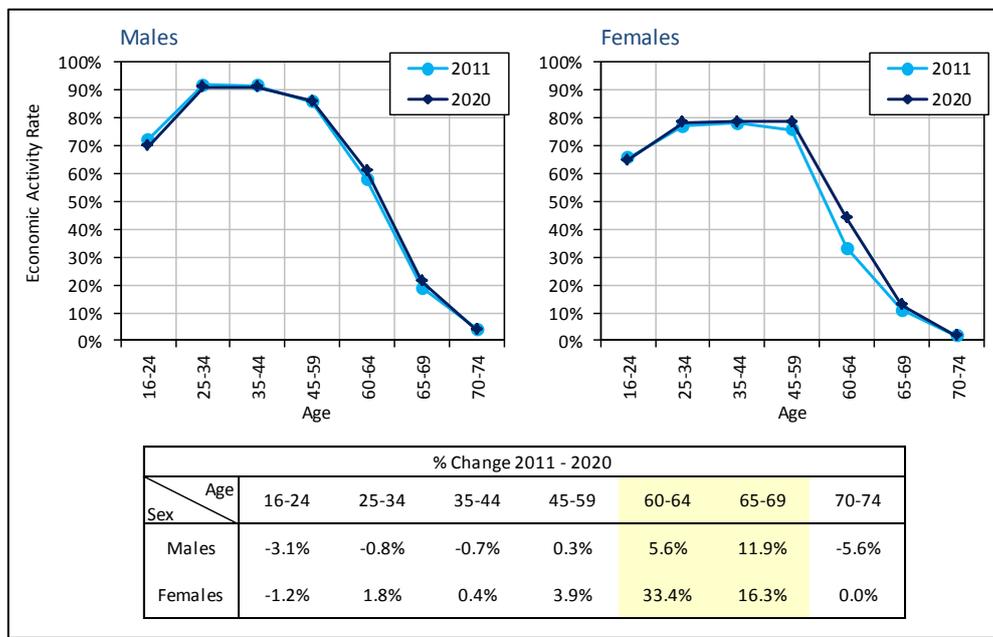
Figure 4: ONS Labour Force Projection 2006 – Economic Activity Rates 2011–2020. Data source: ONS

4.12 To take account of planned changes to the SPA, the following modifications have been made to the economic activity <u>rates</u> for Richmondshire:

- Women aged 60-64: 40% increase from 2011 to 2020.
- Women aged 65-69: 20% increase from 2011 to 2020.
- Men aged 60-64: 5% increase from 2011 to 2020.
- Men aged 65-69: 10% increase from 2011 to 2020.

Note: a 10% increase implies a 10% change in the economic activity <u>rate</u>. So for example a 20% economic activity rate would be increased to 22%. A 10% change does not imply an increase from 20% to 30%.

4.13 Changes have been applied incrementally over the 2011–2020 forecast period. Note that the rates for women in the 60–64 age and 65–69 age-groups are higher than the original ONS figures, accounting for the accelerated pace of change in the SPA. No changes have been applied to other age-groups. In addition, no changes have been applied to economic activity rates beyond 2020. This is an appropriately prudent approach given the uncertainty associated with forecasting future rates of economic participation.

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4.14   These alternative economic activity rates are presented as realistic and robust alternatives to the very unlikely scenario of 'fixed' rates over the forecast period.

Unemployment Rate

4.15   Within the forecasting methodology, the unemployment rate, together with the commuting ratio, controls the balance between the size of the labour force and the number of jobs available within an area.

4.16   The forecasting analysis presented here varies the underlying unemployment statistic to account for a period of recovery post-2013. The change in the rate of unemployment is relatively modest but enables a recovery to an unemployment rate position that is equivalent to Richmondshire's 'average' position over the pre-recession period for which data is available (2004-2008).

4.17   An initial unemployment rate of 5.9% has been defined based upon the average for the last four years (2009-2012) of available data taken from the Annual Population Survey (APS). Over the 2012-2028 forecast period, this initial unemployment rate reduces to 3.6%, a pre-recession average (2004-2007) from the APS.

Commuting Ratio

4.18   The commuting ratio, together with the unemployment rate, controls the balance between the size of the labour force and the number of jobs available within an area.

4.19   The commuting ratio is the balance between the number of workers living in a district (i.e. the resident labour force) and the number of jobs available in the district. The number of workers includes all economically active residents (i.e. all residents aged 16–74).

4.20   Travel-to-work statistics from the 2011 Census have yet to be published so the 2001 Census commuting ratio of 1.11 has been used in the forecasts presented here. In all scenarios, the commuting ratio is held constant for the duration of the forecast period 2011 to 2028.

4.21   A commuting ratio greater than 1.0 indicates that the size of the resident workforce exceeds the number of jobs available in the district, resulting in a net out-commute. A commuting ratio that is less than 1.0 indicates a net in-commute.

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