



GL Hearn

# Housing Need in the North Derbyshire & Bassetlaw HMA

## Sensitivity Testing Analysis

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## 1 INTRODUCTION

### Summary Review of National Research

- 1.1 There are various papers which have been prepared dealing with demographic projections and forecasting housing requirements over the last 18 months. These include:
- PAS (Nov 2013) *Ten Principles to Owning your Housing Number – Finding your Objectively Assessed Needs*;
  - CCHPR (March 2013) *Choice of Assumptions in Forecasting Housing Requirements – Technical Notes*;
  - Holmans, A. (Sept 2013) *New Estimates of Housing Demand and Need in England, 2011 to 2031*; and
  - CCHPR<sup>1</sup> (Jan 2014) *Planning for Housing in England – Understanding Recent Changes in Household Formation Rates and their Implications for Planning for Housing in England*.
- 1.2 Understanding the timing here is important. The PAS Paper and *Choice of Forecasting Assumptions* were published prior to the CLG 2011-based Household Projections which were made available in April 2013. In April 2013 the ONS also released revised Components of Population Change data for the 2002-11 period to take account of the 2011 Census.
- 1.3 The *Choice of Forecasting Assumptions* Paper sets out that projections assume that 'trends continue.' It considers the various components of population and household projections, concluding that projections for housing need are particularly sensitive to assumptions on migration and household formation rates and that on this basis sensitivity testing would reasonably focus on these. It cautions against reducing assumptions on migration relative to trends without clear evidence; but recognises the uncertainty particularly in predicting future international migration. At the point at which it was published in advance of the CLG 2011-based Household Projections it was arguing that household formation patterns in the official projections should be used unless strong local evidence indicated to the contrary. In some respects the debate has moved on from this in light of the 2011-based Projections and more recent demographic data.
- 1.4 The 'Holmans Paper' from September 2013 for the TCPA reviewed the latest 2011-based Household Projections. Looking at data for England as a whole it identified an abrupt break with longer-term trends in household formation between 2001-11. In broad terms, it suggested that across England between 2001-11 the net growth in households was 20% less than might have been expected based on trends in household formation since 1971 with 370,000 fewer households forming. The Holmans analysis suggested that of these 370,000 fewer households, around 200,000 could be attributed to over-projection of households due to the much larger proportion of recent

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<sup>1</sup> Cambridge Centre for Housing & Planning Research (CCHPR)

immigrants in the population whose household formation rates are lower. Holmans suggested that this effect will not be reversed. It suggested that the other 175,000 is attributed to the economy and the state of the housing market and is assumed to gradually reverse. On this basis Holmans revised household projections, adjusting household formation rates on the basis of a partial return to long-term trends.

1.5 The Holmans Paper is significant in that it does suggest that household formation rates in the 2008-based Household Projections are likely to over-estimate future trends. Equally it suggests that household formation in the 2011-based Household Projections – when looking over the longer-term – may be on the conservative side.

1.6 The January 2014 RTPI Paper on *Understanding Recent Changes in Household Formation* identifies that undertaking demographic projections at a time when established trends have changed significantly is challenging and that projecting forward trends in the 2011-based Household Projections should be undertaken with some caution. It reaffirms the Holmans analysis in regard to household formation rates and identifies that in considering the appropriateness of recent demographic trends in planning terms, the following questions need to be considered:

- The extent to which patterns of household formation locally have been affected by an increase in international migrants;
- The extent to which household formation patterns have departed from previous trends, including through analysis of changes in household formation rates for different age groups; and
- Whether there have been significant changes in the projected net migration flow to/from other local authorities in the 2011-based projections, and the degree to which these are consistent with the underlying evidence / previous projections.

1.7 In regards to migration, this paper is picking up a particular issue with the modelling approach in the 2011-based Interim Population Projections on which the Household Projections are based. The critical point made in the paper related to the need to look at household formation trends, and undertake sensitivity testing at a local authority level.

1.8 **These recent studies raises questions regarding the robustness of both the CLG 2008- and 2011-based Household Projections.** They point to a need to look in detail at demographic dynamics, particularly in regard to projections of migration and household formation rates. The need for housing is particularly sensitive to these two factors.

### Purpose of this Paper

1.9 In light of these research studies, and particularly the most recent research which has emerged since the publication of the SHMA, this paper:

- Provides a sensitivity analysis of the projections prepared in the Strategic Housing Market Assessment considering alternative scenarios for household formation;

- Considers the most recent evidence regarding migration trends to test if the underlying population projections on which household growth is projected remain sound; and
- Considers the projections for employment growth understanding past trends and likely future prospects for economic activity and employment rates.



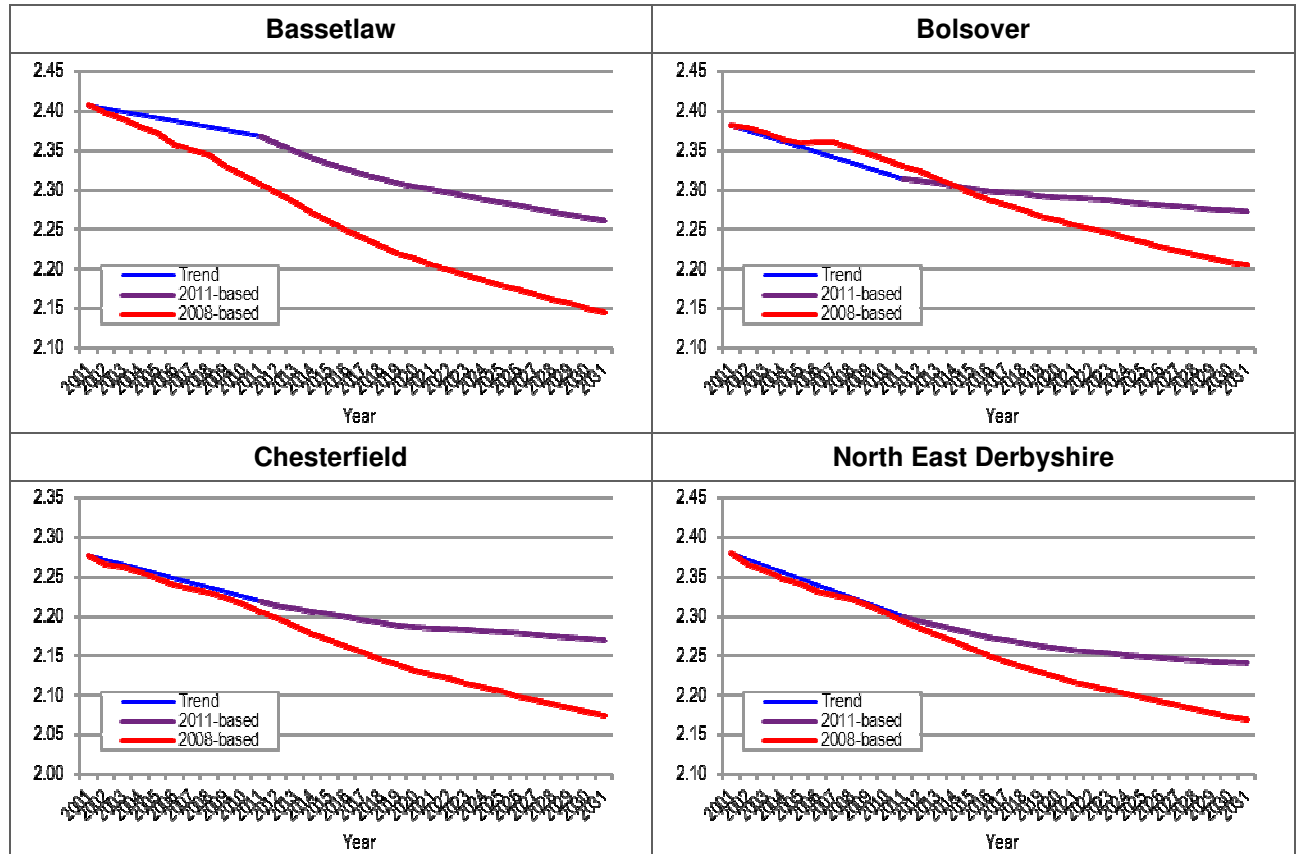
## 2 SENSITIVITY TO HOUSEHOLD FORMATION RATES

### Introduction

- 2.1 The SHMA report bases the main projections on 2011-based CLG household formation (headship rates) which have been rolled forward to 2031. A sensitivity was also provided to look at housing needs if the trends shown in the 2008-based projections were used.
- 2.2 There is some evidence that the 2011-based projections project forward lower household formation relative to longer-term trends, as they are based on the period from 2001 to 2011 where data shows fewer households were formed relative to population change than was expected based on previous trends. This can be demonstrated by an analysis of household sizes in comparison of the sizes expected in the 2008-based CLG projections (as shown below).
- 2.3 The figure below shows the average household size in 2001 and 2011 (as informed by the Census) along with the average household sizes expected in the 2008-based CLG Household Projections. The projected change in average household sizes in the 2011-based CLG Projections is also shown (extended beyond 2021 to 2031 as in the SHMA Report).
- 2.4 The data suggests in Bassetlaw that whilst household sizes have declined this has not been at the same rate as was expected in the 2008-based Household Projections; and moving forward household sizes are projected to fall at a lower rate than in the 2008-based Projections.
- 2.5 In Bolsover, the data shows that the average household size in 2011 was actually lower than expected in the 2008-based Projections (hence arguably at one level there is no evidence of constrained household formation). However, in the future the reductions in average household size are more modest when compared to the 'trend' expected in the 2008-based Household Projections.
- 2.6 In Chesterfield and North East Derbyshire the average household size in 2011 is roughly the same as was expected in the 2008-based Projections. This would suggest no constraint in the 2001-11 period. Moving forward however it is clear that the 2011-based Projections are expecting a modest further decline in average household sizes when compared with the figures in the 2008-based projections.
- 2.7 Overall this data indicates that household formation trends shown in the 2011-based Household Projections are lower than in the 2008-based Projections.
- 2.8 It should be noted that the average household size used in the figures below also includes the institutional population and has been based on a simple 'population divided by households'

calculation. The figures are therefore not technically 'household sizes' although the inclusion of the institutional population does not have any impact on the trends shown or the outputs from analysis.

**Figure 1: Trends and projected average household size**



2.9 The national research highlights two possible factors which may have underpinned lower levels of household formation over the 2001-11 period relative to previous trends. The Holmans Study (TCPA, Sept 2013) sets out:

*“The central question for the household projection is whether what happened in 2001 – 11 was a structural break from a 40-year trend; or whether household formation was forced downwards by economic and housing market pressures that are likely to ease with time. At the time of the 2011 Census, the British economy was still in recession and the housing market was depressed. The working assumption in this study is that a considerable part but not all of the 375,000 shortfall of households relative to trend was due to the state of the economy and the housing market. 200,000 is attributed to over-projection of households due to the much larger proportion of recent immigrants in the population, whose household formation rates are lower than for the population as a whole. This effect will not be reversed. The other 175,000 is attributed to the economy and the state of the housing market and is assumed to gradually reverse.”*

- 2.10 Holmans indicated that across England the net growth in households between 2001-11 was 20% lower than predicted in the 2008-based Household Projections. The 'working assumption' in his paper is that around half of the lack of expected households is due to market factors, with roughly half attributable to other issues (notably international migration). This observation drives the analysis in this section.
- 2.11 In the future, household formation trends are likely to be effected by the speed and pace of recovery in the economy and housing demand (as well as growth in housing supply). These factors are inherently difficult to accurately predict.
- 2.12 Given the uncertainty about how household formation rates might change in the future and whether or not we might see some improvement in the ability of households to form (relative to the trends in the 2011-based Projections), it is worthwhile to consider different scenarios for housing need by undertaking a sensitivity analysis around household formation rates.
- 2.13 The additional scenarios tested are to some degree justified by analysis carried out by CCHPR at a national level which suggests that about half of the difference between long-term trends in household formation (as in the 2008-based Household Projections) and trends over the 2001-11 decade (as in the 2011-based Household Projections) is due to higher levels of international migration and growth in BME communities; with about half being due to market factors (such as constrained household formation due to a lack of mortgage availability).
- 2.14 There are a number of alternative ways to look at this issue. In this paper we discuss three alternatives:
- [Method A: A Partial Return to Trend](#)  
This is the methodology used by CCHPR and looks to return headship rates back towards those in the 2008-based Projections, in a partial way and phased over time.
  - [Method B: Using 2011-based Household Formation Rates to 2021 and then 2008-based Rates \(suitably rebased\) thereafter.](#)  
This method has been used in a number of studies and models household formation based on the CLG 2011-based Household Projections to 2021. It recognises the influence of housing market conditions on rates of household formation. In the longer-term it assumes that household formation will be more similar to longer-running trends as shown in the 2008-based Household Projections.
  - [Method C: Tracking Headship Rates at a midpoint between 2011- and 2008-based rates \(from the mid-2011 baseline\)](#)  
This method is similar to Method 1, above although it takes a more consistent position between different areas and doesn't attempt to over- or under-correct in locations that have seen a bigger/smaller divergence from the 2008-based Position.

2.15 We have therefore run a series of additional projections looking at the impact of a range of different assumptions about household formation (headship) rates. The projections are based on the population projections in the SHMA.

2.16 For clarity the three additional scenarios are:

- A: Part Return to Trend
- B: 2011-based Headship Rates to 2021 then tracking 2008-based Rates
- Tracking midpoint between 2011- and 2008-based Headship Rates

### Sensitivity A: Modelling a “Part Return to Trend” in Household Formation

2.17 One method to look at household formation rates is to project for there to be some return to the long-term trends shown in the 2008-based CLG Household Projections. This approach has been used by CCHPR in a number of recent assessments, including in preparing demographic projections for the West Northamptonshire Joint Planning Unit (JPU).

2.18 Essentially for a number of (particularly younger) age groups there has been a significant shift away from long-term trends in rates of household formation (as included in the CLG 2008-based Household Projections) which in part is considered to be due to market conditions such as difficulties in obtaining mortgage finance.

2.19 The methodology employed has been based on the CCHPR work for West Northamptonshire although there are some small differences in the detail. CCHPR make the following assumption:

***A ‘Partial return to trend’ projection.*** *This assumes that after 2015 household formation rates recover towards the 2008-based rates, reaching the mid-way point by 2025. Thereafter, they are assumed to remain half-way between the two until 2031. There is no particular science behind the ‘half-way’ assumption: it is an assumption chosen on the basis that it is unlikely that there will no move back towards the previous trend and improbable that there will be a full return to that trend in the foreseeable future.*

2.20 Our analysis follows this broad approach but considers that household formation rates begin to recover from 2011 and that they reach the ‘midpoint’ by 2031 (which is the end of the projection period covered in the report). In line with CCHPR research all analysis is applied for individual age (and sex) groups.

2.21 As noted in the CCHPR report:

*“It is our assumption that a full return to trend is highly unlikely over the plan period in part because economic improvement is expected to be slow and in part because there are structural factors suggesting some slowdown in formation rates. “*

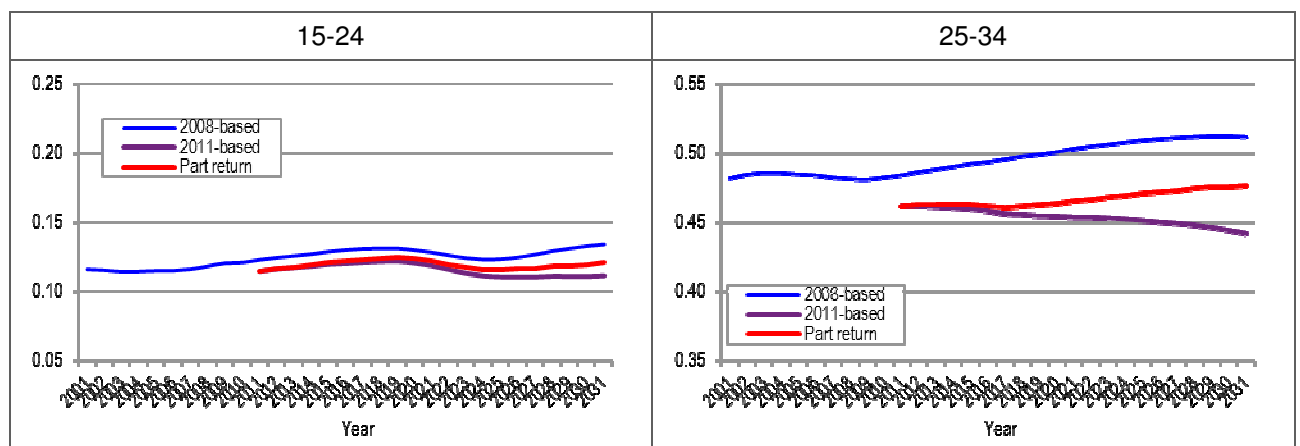
2.22 Before providing the outputs of this projection we can study the particular impacts of different age groups.

2.23 In the figure below we have set out household formation rates, which show the proportion of households in different age groups who are the 'head of a household' – the figures are for the four local authorities combined. For the purposes of setting out the charts, we have combined males and females and used broad 10-year age categories. The population element of the figures provided include the institutional population although this will make no notable difference to the trends observed. In the analysis carried out, headship rates have been derived for 5-year age groups, for both sexes and with the exclusion of the institutional population. For the various charts below the scale is different but in all cases the range is 0.2 to allow relative differences between age groups to be easily compared.

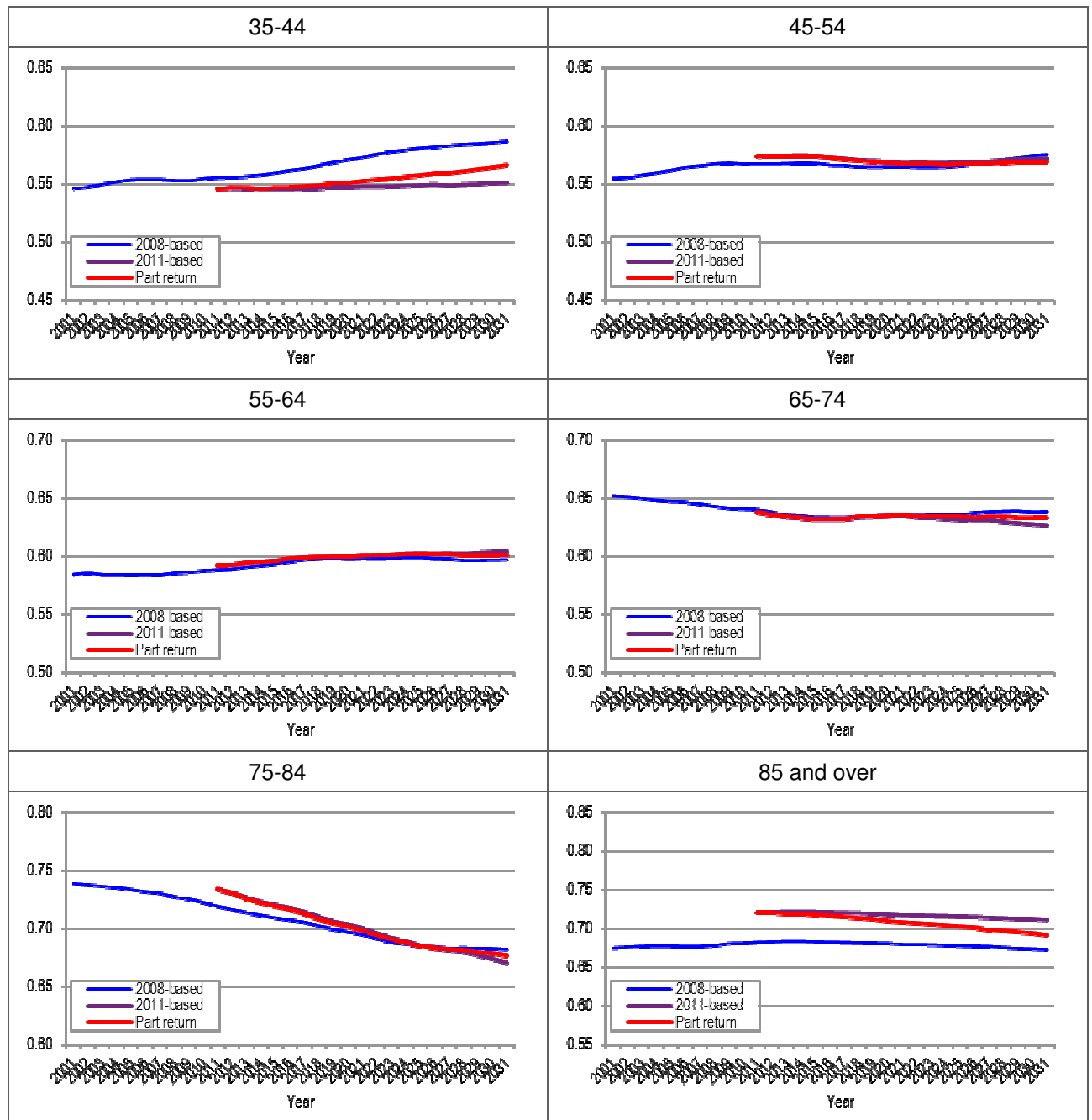
2.24 The data confirms that differences between 2008- and 2011-based projections are mainly in the younger age groups with all age groups up to 44 showing lower rates in the 2011-based Projections when compared with 2008-based figures. The most notable differences are for the 25-34 and 35-44 age groups. The analysis below shows that in both cases the part return projection sees an expected increase in household formation rates against a backdrop where the 2011-based rates expected household formation to either fall or remain largely unchanged.

2.25 The difference between the 2011- and 2008-based household formation rates for all other age groups are pretty minor. It is however interesting to note that the 2011-based Projections actually expected a higher headship rate amongst those aged 75-84 and 85 and over than was observed in the 2008-based Projections (which could for instance reflect a trend towards lower proportions of people resident in care homes).<sup>2</sup>

**Figure 2: Projected household formation rates by age of head of household (both sexes combined) – HMA**



<sup>2</sup> Whilst this is adjusted downwards on the basis of providing a consistent basis for modelling a 'partial return to trend' we would expect the higher headship rates to continue based on a shift away from housing people in care homes. Given that the 75-84 and 85+ age groups are small, this will have a modest impact on overall figures.



2.26 The rates above (in their more refined form in terms of age/sex groups) can be run through our demographic analysis. The outputs in terms of housing numbers can be seen in the figure below (the figures are compared with those based on 2011-based headship rates).

2.27 The data shows that with this partial return to trend methodology, a higher level of housing need is shown than in the 2011-based Projections. Taking the 20-year period to 2031 the analysis shows a

need for 1,200 dwellings per annum across the HMA compared with 1,065 using the household formation assumptions in the 2011-based Household Projections. This is an increase of 13%.

- 2.28 Looking at the individual authorities, the analysis shows a notably higher housing need in Bassetlaw and Chesterfield when compared with the other two areas. The differences will be to a large degree be related to the extent to which the start point in 2011 is different to the expected position in the 2008-based Projections.

**Table 1: Projected Housing Need per Annum (2011-31) in Updated Demographic Projection – Partial return to 2008-based Headship Rates**

Area	Part return to trend	2011-based rates	Change	% change
Bassetlaw	462	402	60	14.9%
Bolsover	228	210	18	8.6%
Chesterfield	244	211	33	15.6%
North East Derbyshire	266	242	24	9.8%
HMA	1,200	1,065	135	12.6%

### Sensitivity B: Using 2008-based Household Formation Rates post 2021

- 2.29 The second alternative view of headship rates is slightly more simplistic and is based on using the 2011-based rates up to 2021 (which is the full length of time those projections are available for) and then using 2008-based trends thereafter (rebased to a 2021 start point). This methodology essentially assumes that household formation continues over the period to 2021 in line with 2001-11 trends; but increases in line with long-term trends thereafter.
- 2.30 The outputs of this projection are shown in Table 2 below. As with the 'return to trend' scenario, this headship methodology also shows a higher housing need than the projection linked to 2011-based headship rates (as in the SHMA). Over the 20-year period to 2031 the estimated housing need is for 1,213 dwellings per annum across the HMA, which is 14% above the 2011-based figures. The variation between areas somewhat different than was seen in the part return to trend methodology with Bassetlaw seeing a smaller increase relative to other areas.

**Table 2: Projected Housing Need per Annum (2011-31) in Updated Demographic Projection – 2008-based Headship Rates post 2021**

Area	2008-based rates post 2021	2011-based rates	Change	% change
Bassetlaw	439	402	37	9.2%
Bolsover	243	210	33	15.7%
Chesterfield	248	211	37	17.4%
North East Derbyshire	283	242	40	16.7%
HMA	1,213	1,065	147	13.8%

### Sensitivity C: Tracking Midpoint between 2011- and 2008-based Household Formation Rates

- 2.31 The final alternative view of headship rates takes the 2011- and 2008-based figures and projects forward on the basis of the midpoint in trends between the two. In many ways this methodology will reflect the work carried out by CCHPR at a national level where it was observed that about half of the movement away from household size trends was due to international migration and growth in BME communities with the other half being due to market factors (suppressed household formation).
- 2.32 The outputs of this projection are shown in Table 3 below. As with the other scenarios, this headship methodology also shows a slightly higher housing need than the projection linked to 2011-based headship rates. Over the 20-year period to 2031 the estimated housing need is for 1,195 dwellings per annum across the HMA, which is 12% above the 2011-based figures.

**Table 3: Projected Housing Need per Annum (2011-31) in Updated Demographic Projection – tracking Midpoint between 2011- and 2008-based Headship Rates**

Area	Tracking 2011- and 2008-based	2011-based rates	Change	% change
Bassetlaw	435	402	33	8.3%
Bolsover	240	210	30	14.3%
Chesterfield	244	211	33	15.8%
North East Derbyshire	275	242	33	13.5%
HMA	1,195	1,065	130	12.2%

### Conclusions on Headship Rates

- 2.33 Drawing together the analysis together, the sensitivity testing indicates that household formation rates could be stronger than modelled in the 2011-based CLG Household Projections taking into account the recent research evidence.
- 2.34 Overall, the level of need in the 2011-31 period increases by 12%-14% depending on the scenario being run. The sensitivity analysis projections indicate a housing need for between 1,195 and 1,213 dwellings per annum across the four authorities in the HMA, compared to 1,065 dwellings per annum in the 2011-based projections.
- 2.35 Considering each of the methodologies in turn, the issue with the partial return to trend approach (Sensitivity A) is that international migration has been a significant driver of changes to household sizes and household formation rates. This can be expected to have some continuing effect on household sizes for key age groups, and means that trends which see some return towards 2008-based household formation rates over time may over-estimate household formation.



- 2.36 Given an improving housing market position (at least nationally) it does seem that we may see some improvement in household formation rates relative to trends in the 2011-based Projections in the period before 2021; whilst assuming that household formation post 2021 is in line with longer-term trends, based on the Holmans analysis, is arguably optimistic. These are relevant to evaluating Sensitivity B.
- 2.37 Whilst there is merit to each of the methodologies developed we would consider that using a midpoint between 2008- and 2011-based headship rates (Sensitivity C) is probably the most robust – taking account of both suppressed household formation and also the likelihood that some of the change in average household sizes is due to international migration and the growth in BME communities.
- 2.38 In drawing conclusions on overall housing need, as well as considering headship rates it is appropriate to reflect both on the recent migration evidence and the analysis of economic performance; these issues are picked up in the following sections.



### 3 MIGRATION TRENDS AND IMPLICATIONS

#### Introduction

- 3.1 Demographic projections are particularly sensitive to trends in migration and household formation rates. This section considers the latest evidence of migration trends, and assesses whether this continues to support the 'trend-based population projections' based on the 2011-based Sub-National Population Projections (SNPP) set out in the Strategic Housing Market Assessment (SHMA) report.
- 3.2 This analysis considers ONS 'Components of Change' data (up to mid-2012) and compares this with the migration data used in the 2011-based projections.

#### Recent Migration Data

- 3.3 Appendix 1 of this report provides detailed components of change data for each local authority in the period 2001-12. In this section we summarise this data and compare it against the 2011-based projections. Consideration of the most up-to-date migration data is important as the most recent year of data (2011-12) was not available when drafting the SHMA report and additionally the data in the ONS components of change will be used to inform the next round of SNPP due to be published in May/June 2014.
- 3.4 Table 4 below shows a series of data from both past migration trends (from ONS components of change) and also the 2011-based SNPP. For clarity the figures presented can be summarised as:
- Past 5-years average – this column shows the average level of net migration in the 2007-12 period. This figure is important as it will be this data that feeds into the next round of SNPP;
  - Average 2005-10 – this column shows the average level of net migration in the 2005-10 period. This data is important as it covers the timeframe used by ONS to develop their 2011-based SNPP;
  - 2011-based projections start point – this column shows the level of net migration in the first year of the SNPP. This can then be compared against past trends; and
  - 2011-based projections first 5-years average – this looks at the average level of migration expected in the 2011-based projections for the first five years. As with the start point this can be used as a useful comparison with the past trend data.

**Table 4: Past and Projected Net Migration Trends (Persons per Annum)**

	Past 5-years average	Average 2005-10	2011-based projections start point	2011-based projections first 5-years average
Bassetlaw	311	447	478	516
Bolsover	233	273	270	278
Chesterfield	74	155	87	134
North East Derbyshire	328	343	405	464
HMA	946	1,218	1,240	1,392

3.5 Below we discuss the data for each of the local authorities to draw a conclusion about whether or not the 2011-based SNPP remains a sound demographic basis for projecting forward.

***Bassetlaw***

3.6 In Bassetlaw the level of net migration in the 2005-10 period was 447 per annum which was subsequently turned into a projected level of 478 in the first year of the SNPP and 516 over the first five years. These figures look to be fairly consistent (noting that the ONS methodology is quite complex and takes account of age/sex specific migration rates). The more recent migration data (for 2007-12) is however somewhat lower (311 per annum compared with 447) which would suggest that the next round of SNPP will come out lower than the 2011-based version.

***Bolsover***

3.7 In Bolsover, the data again looks to be fairly consistent with a net migration of 273 in the 2005-10 period being translated into a start point of 270 and a five-year average of 278. As with Bassetlaw the more recent migration data does point to a slightly lower level to Bolsover District and so it is quite probable that the new SNPP will moderate population growth slightly moving forward.

***Chesterfield***

3.8 In Chesterfield there is some degree of disconnect between the past trends and future projections with a migration average of 155 in 2005-10 being translated into a start point of 87. However, when looking at the first five-years of the projection an average net migration of 134 is shown; this is fairly consistent with the past trend level. As with other areas, more recent migration data shows a lower trend with an average level of net in-migration of just 74 over the five-year period to 2012.

***North East Derbyshire***

3.9 In North East Derbyshire migration in the period from 2005-10 was an average of 343 per annum. Moving forward ONS has put this at a start point of 405 and an average for the first five years of 464. These figures do look to be somewhat higher than the trends although (as with Bassetlaw) we

would stress that the age/sex specific methodology used by ONS could well explain this trend (which is likely to some degree to be linked to an ageing population). As with other areas, the more recent migration data is slightly lower although differences are fairly moderate when compared with other locations.

### **HMA**

- 3.10 For the whole HMA we see a level of net migration in the 2005-10 period of 1,218 on average. This is then translated into a start point of 1,240 and a first five year average of 1,392. These figures look entirely reasonable given the ONS methodology and likely changes to the population structure. However, the more recent data about migration is somewhat lower (946 per annum) and would suggest that the next round of ONS projections will show a lower level of population (and hence housing) growth. Overall it can be concluded that using the 2011-based population projections are more likely to over- than under-estimate future population growth in the HMA.

### **Unattributable Population Change**

- 3.11 In addition to recent migration data, we can also consider Unattributable Population Change (UPC). UPC is an adjustment made by ONS in the 2001-11 period to reflect differences between the population in 2011 and the sum of the components of population change in the decade to 2011.
- 3.12 ONS indicate that the UPC is likely to reflect a combination of sampling variability, or other issues, in the following<sup>3</sup>:
- Internal migration estimates (at sub-national level);
  - Census estimates, both in 2001 and 2011; and
  - International migration estimates.
- 3.13 Whilst it is unknown as to what components of change this difference is linked to it is most probable that this will be due to the over- or under-recording of migration. The table below shows the average level of UPC in each area in the 2001-11 period.
- 3.14 The data shows across the HMA that UPC averaged 318 per annum. The positive figure means that the various components of population change, once added together, were less than the actual level of population growth recorded in the Census (and rolled forward to make mid-year population estimates). If the UPC is indeed related to migration data then it would be the case that net migration has been under-recorded over the 2001-11 decade.
- 3.15 For individual areas the data shows a small negative figure in Bassetlaw and small positive figures for Bolsover and North East Derbyshire. It is only in Chesterfield where the UPC can be considered as significant with an average level of 231 per annum.

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<sup>3</sup> See ONS (2014) *2012-based Sub-National Population Projections for England – Report on Unattributable Population Change*

**Table 5: Average Annual Level of Unattributable Population Change (2001-11)**

Area	Average UPC (Persons per Annum)
Bassetlaw	-16
Bolsover	65
Chesterfield	231
North East Derbyshire	38
HMA	318

Source: ONS Components of Change

- 3.16 It should be stressed that at present ONS propose not to make any allowance for this component of population change within the next SNPP, although this has formed an important part of the consultation process (and so there is a possibility that some additional adjustment is made to the figures). However, if an adjustment were made in line with the figures shown above then this would potentially see a level of net migration in the 2007-12 period of 1,264 (946+318). This is close to the level recorded for the 2005-10 period (of 1,218) which has fed into the 2011-based SNPP.
- 3.17 At an HMA level we would therefore conclude that the 2011-based SNPP remains sound as a projection for determining population growth and hence housing need. We would however note that excluding UPC from future projections is expected to see population growth projections fall whilst including UPC would make little difference, other than increasing the need in Chesterfield and reducing it in Bassetlaw. Below we have considered the potential outputs of the next round of SNPP based on the analysis of more recent data contained in this section.

### Implications of New Migration and Population Change Data

- 3.18 At the time of writing the 2011-based Sub-National Population Projections (SNPP) were the most recent published set of data from ONS. However, new (2012-based) SNPP are expected to be published in May/June 2014 and ONS has been consulting on the proposed methodology. In this appendix we have therefore used the likely methodology along with data about Components of Change to attempt to assess where the new set of projections are likely to come out.
- 3.19 These projections should very much be treated as indicative as there are still a number of unknowns which will have an impact on the figures. However the projections do give an indication as to what sort of level of population/household and housing growth might be expected. Two different projections have been developed to consider how the ONS projections might appear once published. These are based on:
- Net migration following the 'trends' shown in the 2011- and 2010-based projections but rebased to take account of the difference between 2005-10 and 2007-12 migration levels
  - As above but with consideration of the Unattributable Population Change (UPC) as an adjustment to the migration levels.

3.20 These two projections have been developed to provide us with an upper and lower estimate of likely housing need arising in the 2012-based projections. The key features of the methodology employed and some of the shortcomings are highlighted below:

- Fertility and mortality rates – these are held at the rates underpinning the 2011- and 2010-based SNPP. These may well change in the 2012-based version although it is considered unlikely that this will have a major impact on population growth
- Profile of migration – this is based on data in the 2010- and 2011-based SNPP. This profile (separately for internal and international migration) will change in the new projections although at present we do not have sufficient information to make an informed judgement as to how this will change and the impact. It is however considered that the impact will not be significant (particularly when compared with the potential impact of how overall rates are expected to develop moving forward)
- Headship rates – these have been based on our midpoint methodology as studied in the previous section of this report

3.21 Although the 2012-based SNPP will take a mid-2012 start date we have maintained a 2011 start point for consistency with the other projections developed in this report and the SHMA.

**Table 6: Past and Projected Net Migration Trends (Persons per Annum)**

	Past 5-years average	Average 2005-10	Difference applied in modelling (excluding UPC)	UPC (per annum)	Difference applied in modelling (including UPC)
Bassetlaw	311	447	-136	-16	-152
Bolsover	233	273	-40	65	+25
Chesterfield	74	155	-81	231	+150
North East Derbyshire	328	343	-15	38	+23
HMA	946	1,218	-272	318	+46

Source: ONS

3.22 Table 7 below shows the outputs of running these alternative projections. Taking account of the most recent migration data and modelling this in-line with earlier 2011- and 2010-based projections shows a need for 1,071 homes per annum across the HMA with all areas (Bassetlaw in particular) seeing a lower level of need when compared with the 2011-based Projections. When including an allowance for the UPC we get a higher level of need (for 1,221 units). This is very slightly higher than found in the 2011-based projections (2% higher) with a notable upward change in Chesterfield and a downward change for Bassetlaw.

**Table 7: Projected Housing Need per Annum (2011-31) in Updated Demographic Projection – taking account of Recent Migration Data and Un-attributable Population Change**

Area	Updated migration	Updated migration and UPC	2011-based
Bassetlaw	375	367	435
Bolsover	222	251	240
Chesterfield	205	317	244
North East Derbyshire	268	285	275
HMA	1,071	1,221	1,195

3.23 In looking at these two projections we would consider that the one linked migration trends (i.e. excluding UPC) is likely to be closer to the 2012-based outputs than the UPC alternative. However, as we cannot be certain if the next set of projections will repeat the ‘trends’ shown in earlier projections it is difficult to say for certain what level of population growth and housing need is going to be shown. We would therefore recommend that the Councils consider the implications of the new SNPP once the data is published in May/June 2014 (although any differences do not automatically mean that the Councils’ should review their plans as the Planning Practice Guidance sets out).

### Conclusions on New Migration and Population Change Data

3.24 Analysis of recent migration data shows that net in-migration has been somewhat lower in the 2007-12 period than it was in the 2005-10 period (which would have fed into the last round of subnational population projections (SNPP)). On this basis it seems likely that the next round of SNPP (to be published in May/June 2014) will show lower levels of population growth than the 2011-based version; this in turn will lead to lower potential housing need.

3.25 Whilst it would be easy to conclude that a lower housing figure might be appropriate there is some merit in understanding the implications of Unattributable Population Change (UPC). Whilst ONS have indicated that they do not intend to utilise data about UPC in the next round of SNPP we consider that to provide the most rounded basis for projections that the impact of UPC should be considered.

3.26 For the HMA as a whole, using UPC as part of the projection methodology tends to support the population growth figures in the 2011-based SNPP; albeit they would be higher in Chesterfield and lower in Bassetlaw. Overall, more recent data about migration and population change (in line with ONS methodology) would suggest housing numbers are more likely to go down rather than up as a result of the forthcoming SNPP release.



## 4 CONSIDERING THE BALANCE BETWEEN HOMES AND JOBS

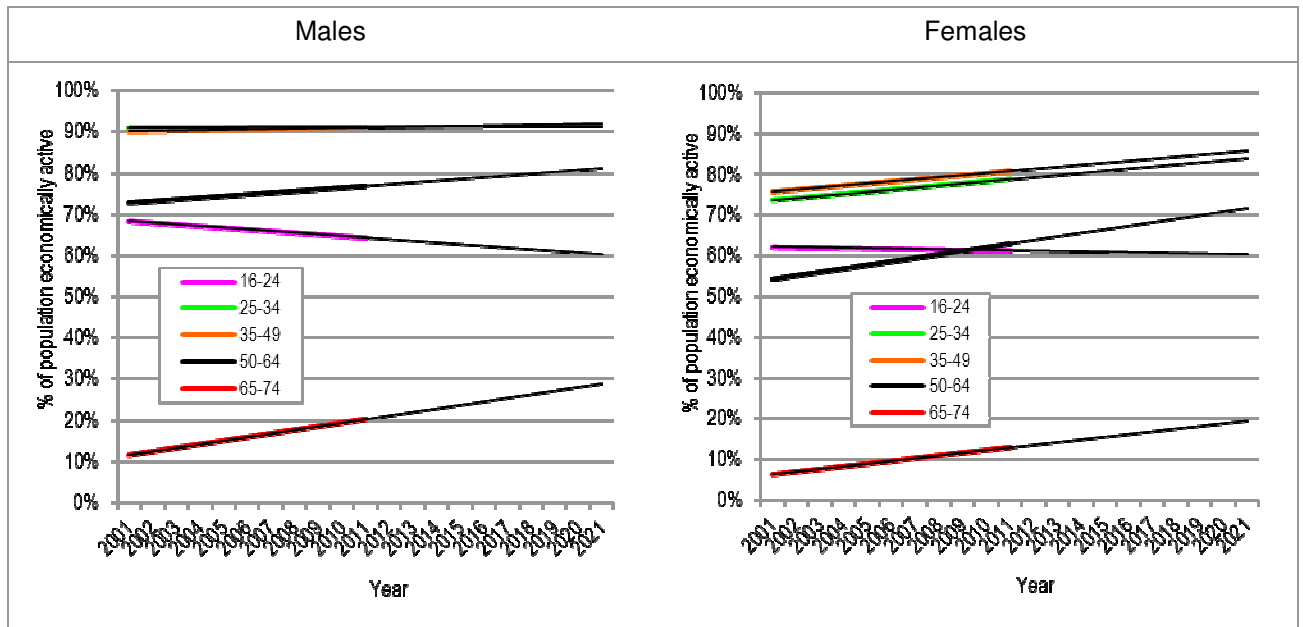
### Introduction

- 4.1 The Planning Practice Guidance sets out that *“plan makers should make an assessment of the likely growth in job numbers based on past trends and/or economic forecasts as appropriate and also having regard to the growth in the working age population in the housing market area ... Where the supply of working age population that is economically active (labour force supply) is less than the projected job growth, this could result in unsustainable commuting patterns (depending on public transport accessibility and other sustainable solutions such as walking and cycling) and could reduce the resilience of local businesses. In such circumstances, plan makers will need to consider how the location of new housing or infrastructure development addresses these problems.”*
- 4.2 The Guidance is effectively setting out that growth in labour supply arising from demographic projections needs to be compared against potential job growth. In the SHMA the interaction between the housing market and the economy was analysed by reference to an Experian forecast for future economic growth.
- 4.3 One of the core assumptions in the SHMA was around how employment rates might change in the future. The analysis was based on a fairly rudimentary assessment that there would be some change due to reduced unemployment and additional changes to certain age groups to take account of changes to pensionable age.
- 4.4 Since the SHMA analysis was carried out additional Census data has been published which allows us to consider past trends and the future potential in more detail. We have also used data from the Labour Force Survey to check trends and test if a consistent pattern is emerging.

### Updated Information about Employment/Economic Activity Rate Changes

- 4.5 Figure 3 below shows past trends in economic activity rates (nationally) from 2001 to 2011 and the linear trend through to 2021 (from Census data). The data shows that there have been some notable increases in activity rates for older age groups over the past decade. There have also been increases for females aged 25-34 and 35-49. The only age group that has seen a decline in economic activity rates is the 16-24 group (in which both males and females have seen some reduction in the proportion of the population who are economically active).

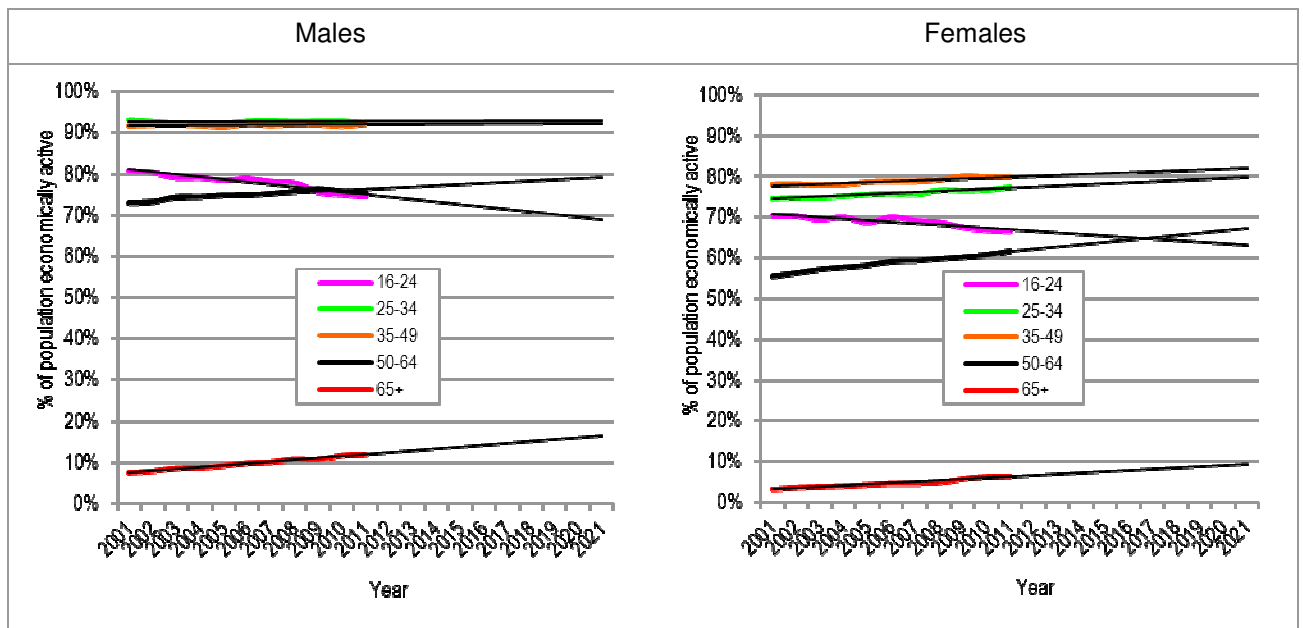
**Figure 3: Past trends and linear change to economic activity rates (national)**



Source Census

4.6 Similar data from the Labour Force Survey (LFS) is shown in Figure 4. Although there are some differences for specific groups the trends are very similar. One difference is the lower apparent increase for older age groups. This is in part due to the LFS analysis being compared against all people aged 65 and over with our Census analysis focussing on the population aged 65-74.

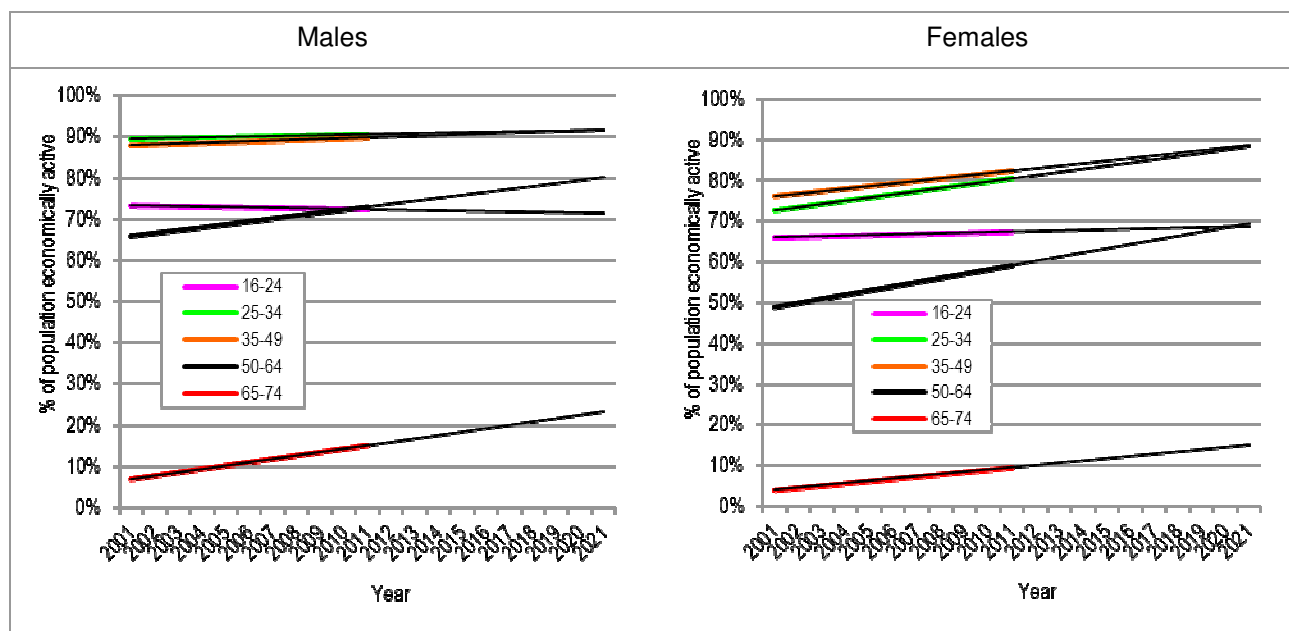
**Figure 4: Past trends and linear change to economic activity rates (national)**



Source: Derived from Labour Force Survey (LFS) data

4.7 We can also check if these trends hold true at a local level. Figure 5 shows Census data for the HMA. The data shows the same trends as seen nationally. If anything the HMA has had slightly more rapid growth in the economically active population than seen for the whole of England. This provides some support for projecting employment rates forward on the basis of national past trends.

**Figure 5: Past trends and linear change to economic activity rates (HMA)**



Source Census

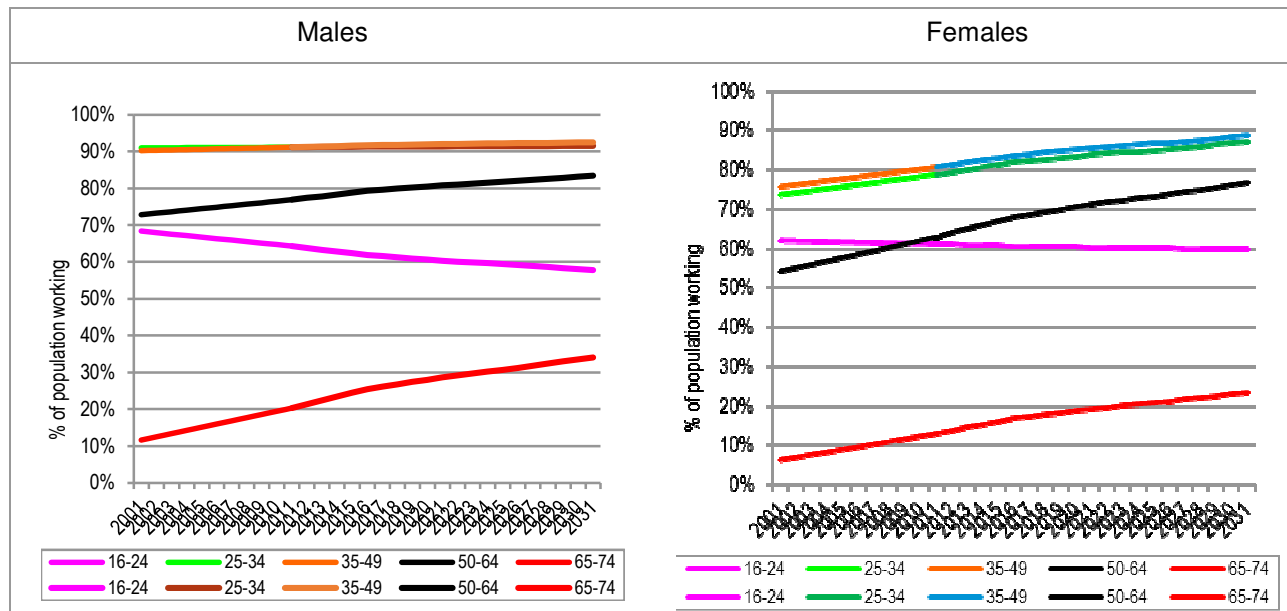
### Projecting Employment Rates

4.8 Projecting forward it seems likely that these trends would be expected to continue to some degree although it is difficult to be precise about how things might change in the future. To look at the future change we have studied an Experian forecast (at a national level) and compared this against the expected population growth in the 2012-based national projections. By adjusting economic activity (employment) rates within this model it is possible to work out how rates would need to change for both the Experian forecast and the projections to be correct.

4.9 Figure 6 shows how rates would need to change for the Experian job levels to emerge and population growth to be in-line with current projections. To undertake this analysis we have kept the general trends shown over the past decade but moderated these to match population growth and jobs. The figure shows that we can expect a continued increase in employment rates for most groups – up until 2016 the increase in rates is broadly in line with the 2001-11 trend with some reduction in the rate of increase thereafter. For those aged 16-24 there is a continued projection for there to be a decline in rates, but again at a lesser rate than seen in the past (post 2016).

4.10 It should be noted in the analysis below that we have used employment rates rather than all economically active people as this more sensibly fits with a job growth projection.

**Figure 6: Past trends and projected change to employment rates (national)**



Source: Derived from ONS 2012-based national projections and Experian economic forecast

4.11 At the local level (for the HMA and districts) it has been assumed that the trends in employment rates shown in the figure above can be applied. Such an approach seems reasonable given that past trends closely follow the trends seen at a national level.

### Job Growth Forecasts

4.12 Having established a view on how employment rates are likely to change in the future, the next stage is to consider the growth and change in the population required to meet forecasts of job growth. Essentially the methodology used is to adjust levels of migration within the demographic model so that the number of working residents equals the number required by economic forecasts. This approach is consistent with that used in the SHMA (but with different assumed employment rates moving forward). The population figures are then translated into housing requirements using the same headship method as described above.

4.13 Below we describe the job growth figures feeding into the economic projections – the figures have not been updated from those used in the SHMA. Two projections have been developed; one based on the change in the number of jobs (jobs baseline) and the second based on the number of residents in employment which takes account of commuting patterns. The text below has largely been lifted from the SHMA.

### Jobs Baseline

- 4.14 This projection looks at the forecast increase in jobs in each district from 2011 to 2031 using the Experian data and assumes a 1:1 relationship between the growth in jobs and the number of local residents in employment. This projection essentially does not include any assumptions about commuting patterns. This projection sees an increase in the number of residents in employment of 14,462 over the 20-year period across the HMA

### Residents in Employment

- 4.15 This projection draws on the Experian data about the number of additional jobs forecast to be created in each District but also considers commuting patterns (from 2001 Census data) and Experian forecasts of job growth in other areas to which people in sub-region currently commute. This generates a slightly higher projected increase in the number of residents in employment of 17,069 over the 20-year period. It takes account of the accessibility of the HMA and the strong economic interactions between parts of the area and surrounding employment centres (including Sheffield). It effectively assumes that some housing demand is driven by job creation outside of the HMA.
- 4.16 Table 8 below shows the estimated increase in the number of residents in employment in five year periods for each of the two economic-led scenarios. The data shows that the strongest employment growth is expected in the 2016-21 period with weaker growth in the first five years of the projection. Looking at the individual local authorities the data expects stronger employment growth in Bassetlaw than any other area. Differences between PROJ A and PROJ B are most marked in North East Derbyshire and Bolsover due to a higher proportion of residents in these areas out-commuting to work relative to the numbers who in-commute.

**Table 8: Employment Growth Assumptions used in Modelling (Total Jobs)**

Period	Jobs Baseline		Residents in Employment	
	Annual	5-year total	Annual	5-year total
2011-2016	562	2,808	739	3,695
2016-2021	897	4,486	1,002	5,010
2021-2026	734	3,670	833	4,165
2026-2031	700	3,498	840	4,199
Total		14,462		17,069
Bassetlaw		6,256		6,160
Bolsover		2,683		3,398
Chesterfield		3,714		3,647
North East Derbyshire		1,809		3,864

Source: Experian 2013 (from SHMA)

- 4.17 The above projections do not make any adjustments to reduce out-commuting. However the level of current employment, particularly in North East Derbyshire and Bolsover Districts, is low relative to the size of the labour force. The case for providing more jobs to allow people to work more locally may be a consideration in the development of planning policies.

### Linking Job Growth to Housing Need

- 4.18 The table below shows the estimated annual housing need under each of these projections and compares this with figures in the SHMA. The most recent projections shows across the HMA that there is a potential need for between 1,176 and 1,270 dwellings per annum. These figures are notably lower than presented in the SHMA (range from 1,489 to 1,585). The new projections in this report are now linked to the midpoint headship rate assumptions discussed above, whereas the original SHMA used rates from the 2011-based household projections. The difference is due to the more considered approach to how employment rates will change in the future although the amended headship rate assumptions will have moderated the difference to some degree.

**Table 9: Housing Requirements under jobs-led projections (figures per annum)**

	<b>Jobs baseline</b>	<b>Residents in employment</b>	<b>Jobs baseline (SHMA)</b>	<b>Residents in employment (SHMA)</b>
Bassetlaw	474	471	570	567
Bolsover	187	214	263	291
Chesterfield	276	273	346	343
North East Derbyshire	238	312	310	385
HMA	1,176	1,270	1,489	1,585

## 5 BRINGING THE EVIDENCE TOGETHER

- 5.1 This report is not intended to undermine or to supersede the conclusions presented in the North Derbyshire and Bassetlaw SHMA. It is intended to test the sensitivity of these. It has considered alternative ways of modelling household formation rates moving forward, and has assessed the most recent evidence regarding migration and employment rates.
- 5.2 Table 10 summarises the sensitivity analysis undertaken. The SHMA concluded that housing need across the HMA fell between 1,180 – 1,350 homes per annum over the 2011-31 period. The sensitivity analysis undertaken indicates housing need falling between 1,071 – 1,270 homes per annum.
- 5.3 The lower end of the recommended range for housing provision in the SHMA was based on meeting housing need based on demographic trends, with the figure of 1,180 homes per annum based on the midway point between the modelling (of PROJ 1) based on 2008- and 2011-based household formation rates. The sensitivity analysis herein based on household formation rates suggests that this figure might fall between 1,195 – 1,213 homes per annum (an uplift of between 1.3 – 2.8%).

**Table 10: Summary of Projections (Housing Need per annum)**

	Bassetlaw	Bolsover	Chesterfield	North East Derbyshire	HMA
Part return to trend	462	228	244	266	1,200
2008-based rates post 2021	439	243	248	283	1,213
Tracking 2011- and 2008-based	435	240	244	275	1,195
Updated migration	375	222	205	268	1,071
Updated migration and UPC	367	251	317	285	1,221
Jobs baseline	474	187	276	238	1,176
Residents in employment	471	214	273	312	1,270

- 5.4 However the sensitivity analysis indicates that whilst household formation rates could in theory result in marginally higher levels of housing provision, there are other factors which have a downside impact on housing need. Updating analysis to take account of more recent migration data would result in a need for between 1,071 – 1,221 homes per annum across the HMA. The lower end of the range for housing need identified in the SHMA falls towards the higher end of this range.
- 5.5 More recent data regarding changes in employment rates has also supported remodelling of the level of housing provision necessary to support the Experian economic forecasts. Across the HMA, the modelling indicates that between 1,176 – 1,270 homes per annum would be necessary to support the jobs forecasts. This is lower than that indicated in the SHMA. The interaction between

housing need and economy will continue to be sensitive to changes in commuting and employment rates, as set out in the SHMA.

- 5.6 Looking at Bolsover District more specifically, the sensitivity analysis undertaken indicates a need for between 222 – 251 homes per annum based on demographic trends. The SHMA identified a need for between 235 – 240 homes per year which falls centrally within this range. The updated analysis of employment rates suggests that this could potentially support the levels of employment growth forecast.



## APPENDIX A: Detailed Components of Change Data

**Table 11: Components of population change (2001-12) – Bassetlaw**

Year	Natural change	Net internal migration	Net international migration	Other changes	Other (unattributable)	Total change
2001/2	-172	705	67	11	-3	608
2002/3	-107	796	62	61	13	825
2003/4	-7	671	101	-14	-10	741
2004/5	-52	424	-16	113	2	471
2005/6	-51	125	264	56	-6	388
2006/7	37	172	204	25	0	438
2007/8	42	486	252	22	-10	792
2008/9	79	214	225	-12	-49	457
2009/10	56	-20	314	48	-37	361
2010/11	100	-121	184	-22	-62	79
2011/12	194	-48	67	-38	-	175

**Table 12: Components of population change (2001-12) – Bolsover**

Year	Natural change	Net internal migration	Net international migration	Other changes	Other (unattributable)	Total change
2001/2	-170	755	-14	1	68	640
2002/3	-116	875	1	-5	61	816
2003/4	-139	299	3	4	91	258
2004/5	25	93	84	-2	43	243
2005/6	35	268	130	-5	75	503
2006/7	75	227	113	-10	70	475
2007/8	-11	76	105	-4	70	236
2008/9	7	1	97	-1	62	166
2009/10	58	287	61	-1	62	467
2010/11	135	19	133	2	49	338
2011/12	43	320	67	-12	-	418

**Table 13: Components of population change (2001-12) – Chesterfield**

Year	Natural change	Net internal migration	Net international migration	Other changes	Other (unattributable)	Total change
2001/2	-230	427	-8	-2	237	424
2002/3	-231	668	8	-8	236	673
2003/4	-142	509	0	3	246	616
2004/5	-61	463	84	2	244	732
2005/6	-71	214	23	-8	239	397
2006/7	30	63	32	-2	230	353
2007/8	115	151	69	2	245	582
2008/9	70	76	64	-8	226	428
2009/10	63	29	53	-10	245	380
2010/11	106	10	82	13	160	371
2011/12	153	-179	17	3	-	-6

**Table 14: Components of population change (2001-12) – North East Derbyshire**

Year	Natural change	Net internal migration	Net international migration	Other changes	Other (unattributable)	Total change
2001/2	-247	213	-6	-13	42	-11
2002/3	-292	457	-6	3	49	211
2003/4	-228	590	0	5	38	405
2004/5	-242	273	63	-9	49	134
2005/6	-202	226	-7	5	52	74
2006/7	-209	548	-43	-13	44	327
2007/8	-151	298	8	-4	43	194
2008/9	-144	262	50	1	44	213
2009/10	-43	318	53	-7	37	358
2010/11	-100	299	80	7	-18	268
2011/12	-44	234	38	-3	-	225