

Testing the advice on the range of housing  
supply provided by the National Housing and  
Planning Advice Unit

# Interim Report

December 2008

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### Contents

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<b>Executive summary</b> .....	<b>i</b>
<b>Introduction</b> .....	<b>1</b>
<b>1 Future population and migration trends, based on the ONS latest release</b> ... 1	
1.1 Household estimates and 2006 based projections .....	1
1.2 Methodology.....	1
1.3 Data Sources .....	1
1.4 Comparison with the revised 2004 based CLG projections.....	1
1.5 Results .....	1
1.6 Migration Flows .....	1
1.7 Households by tenure .....	1
<b>2 Identification of the scale of likely household growth arising as a result of economic growth</b> .....	<b>1</b>
2.1 Methodology.....	1
2.2 Regional results .....	1
2.3 District level results .....	1
2.4 Scenario Migration flows .....	1
2.5 Alternative household scenario: trends in housing starts and completions .....	1
2.6 Alternative household scenarios: fixed household representative rates .....	1
<b>3 Expected patterns of income levels, house prices and affordability</b> .....	<b>1</b>
3.1 Earnings methodology.....	1
3.2 Yorkshire & Humber earnings .....	1
3.3 Yorkshire & Humber earnings by occupation .....	1
3.4 House price methodology.....	1
3.5 House prices by region.....	1
3.6 Affordability projections .....	1
<b>4 Identifying the volume of social and affordable housing required</b> .....	<b>1</b>
4.1 Strategic housing market assessments.....	1
4.2 2006 trend based affordability demand .....	1
4.3 Easing of affordability scenario .....	1
<b>5 Testing the efficacy of the trend based projections used by NHPAU</b> .....	<b>1</b>
5.1 Methodological comparison.....	1
5.2 Results comparison.....	1
5.3 Low migration variant projections .....	1

### Appendix A: About us

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Approved by: Eric McVittie  
Position: Research Director  
Date: 04/12/2008

## Executive summary

Yorkshire Forward and the Yorkshire and Humber Assembly commissioned Experian to develop an understanding of the relationship between economic growth and household formation. This project reviews the scale and distribution of housing provision in the approved Regional Spatial Strategy in light of both recent NHPAU advice and the household projections as implied by the latest official population and household formation projections.

The assembly require an early warning of the likely content of the 2006 based household projections given the large uplift in the 2006 based population projections compared to the 2004 based series. This is an interim report published to help inform responses to the RSS Update 2009 Spatial Options Consultation. Page iv of this summary sets out the further work on migration, the institutional population and regional economic performance that remains outstanding. This is a technical report that forms part of the evidence for the RSS Update along with the other areas of work, it is not a policy position and the content has not been agreed by the Assembly.

### Trend based projections

Our trend based household series is based on a combination of the most up-to-date sub-national estimates and population projections produced by the ONS applied to projections of household formation rates sourced from CLG. The household projections are expected to be very close to those released by CLG in the Spring of 2009.

A comparison of the 2006 based projections with the revised 2004 based CLG projections show that the region has higher annual average household growth between 2006 and 2026, with the number of households now projected to grow at 31,700 per annum to 2026 against 23,400 per annum in the 2004 based projections. Between 2008 and 2026, housing supply would need to increase by an average of 32,000 households per annum to achieve the projected trend based level of households by 2026.

Population growth in the Yorkshire and Humber region is expected to outstrip UK rates; Total population in Yorkshire & Humber is expected to grow from 5.2 million in 2008 to approximately 6.1 million in 2026 - an average annual growth rate of 0.86 per cent per annum. This is caused by a combination of net inflows of migrants from other UK regions and higher rates of net inflows of international migrants compared to the UK average. Net migration into Yorkshire and Humber is expected to decline from 30,800 in 2008 to 26,600 in 2026.

As levels of migration decline, natural change is expected to play a larger role in driving future population growth in both the region and in the UK as a whole. The decline in net migration to Yorkshire and Humber can be explained by a combination of a reduction in net internal migration combined with a modest reduction in net international and cross border migration.

### Household growth and economic growth

The Experian migration model uses the trend based population series as a starting point and adjusts for differentials in regional house prices and regional economic prospects. The adjustments are controlled so that the final projections remain between 2% (upper limit) and 3% (lower limit) of the ONS projections. This restriction is intended to take account of the supply-side of the housing market. Future housing supply will be reflected in the official projections, since ONS projections guide housing policy and projects. The argument is that if population is forecast to be much higher than official projections,

then the demand for housing will outstrip supply and prices will rise disproportionately and this will suppress migration.

The consequences of the economic growth adjustment is to increase total population by 2026 in the South East and Greater London. Yorkshire and Humber (along with the East of England, South West and North West) experiences an increase in out-migration and consequently will have lower levels of population by 2026 compared to trend. The economic growth adjustment results in a 1 per cent fall in total population and a 1 per cent fall in households compared to trend. The results from the economic growth led scenario run indicate that housing supply would need to increase by an average of 30,500 per annum to achieve the projected level of households in 2026.

Implicit within the household projection methodology is the assumption that average household size declines over the length of the forecast period. This is driven by incremental increases in the CLG household representative rates (HRR) used. Recent evidence from the Labour Force Survey and Acxiom's National Research Opinion Poll suggest the rate of decline in average household size has levelled off in recent years. The result of keeping the household representative rates fixed is a reduction in household growth from 32,000 per annum (in the trend based projections) to 27,500 households per annum. It shows the component of household growth that can be solely attributable to changing population projections.

### Affordability projections

Affordability projections have been derived by combining official estimates of earnings and house prices (using Annual Survey of Hours and Earnings and Land Registry data respectively) with Experian projections taken from the Regional Planning Service (RPS). Affordability defined as the ratio of lower quartile house prices to lower quartile full time employee earnings worsened in the first half of the decade as the growth in rising lower quartile house prices outstripped increases in lower quartile earnings. However, the affordability indicator is expected to peak at 6.3 in 2007 in Yorkshire & Humber and then decline rapidly in the next three years before declining at a reduced rate until the end of the forecast period.

The affordability indicator is expected to decline rapidly in the short term due to earnings growing stronger than house prices. The weaker house price growth over the short term is reflective of the current downturn in the housing market. Over the long-term, the performance of the housing market improves, but average earnings growth is still stronger, leading to the muted but continued decline in the affordability indicator.

There is a variable range of affordability across the regions districts with the highest rates witnessed Annual Survey of Hours and Earnings in the north of the region in 2007 (Hambleton: 9.7, Ryedale: 9.3) and the lower measures of affordability found in the south east of the region (Kingston upon Hull: 4.3, North East Lincolnshire: 5.0).

### The volume of social and affordable housing required

A regional estimate of newly arising housing need has been produced by examining the individual needs of the housing market areas contained within the existing strategic housing market assessments (SHMAs). There are approximately 36,000 newly arising housing needs in the region per annum comprised of 16,500 new households per annum which might be considered unable to buy or rent in the open market and a further 19,500 that fall under the other housing need category. Other housing need includes existing households falling into need and adjustments made for in-migrant households

requiring affordable accommodation and out-migrants unable to afford market housing. However there is considerable uncertainty surrounding these figures as the source data may not be strictly comparable.

Two adjustments to this baseline have been made. Firstly as the baseline uses new household formation per annum taken from the 2004-based household projections we have scaled the housing need values by the uplift prevalent in the 2006 based household projections. Total newly arising housing need per annum increases from 36,000 to 42,600 households. Secondly, we have considered the effect of the easing of the affordability indicator projections. With the affordability indicator expected to fall to 3.7 by 2026 from its peak in 2007 of 6.3, we have assumed the trends in affordability are mirrored in a decline in both new household formation which might be considered unable to buy or rent in the open market and existing households falling into need. The annual average newly arising housing need per annum is expected to fall from 42,600 in the trend based analysis to 32,410 in this scenario.

## Testing the efficacy of the trend based projections used by NHPAU

The final section in the report identifies the main differences from the various household projection methodologies and resultant projections presented thus far and the methods and resultant projections produced by the NHPAU in the paper "Meeting the housing requirements of an aspiring and growing nation: taking the medium and long-term view - Advice to the Minister about the housing supply range to be tested by Regional Planning Authorities". The differences have been summarised as follows:

	NHPAU approach	Experian approach
Population projections	ONS 2004 based	ONS 2006 based & economic growth led scenario projection
Affordability approach	The upper limit shows the number of new homes required to stabilise the lower quartile house price to earnings ratio at the level it was at in the first quarter of 2007.	Examines potential trends in the affordability indicator using house price and earnings projections produced in its RPS
Affordability projection	The NHPAU report that, all things being equal, emerging RSS plans would lead to a further worsening of affordability prospects, with the lower quartile ratio in England deteriorating from 7.25 in 2007 to 8.6 by 2026	The affordability indicator is expected to peak at 6.3 in 2007 in Yorkshire & Humber and improve to 3.7 by 2026
Earnings projections	The NHPAU have assumed a 1.5 per cent growth in income in real terms until 2026	Earnings expected to increase at 4.1 per cent per annum in nominal terms
House prices projections	Income elasticity within the affordability model, the elasticity of house prices with respect to real incomes is approximately 2.0 which equates therefore to house price growth of 3 per cent per annum	House price growth used in the affordability indicator calculation is 1.5 per cent per annum for the region in nominal terms

The NHPAU proposed housing supply range is for 23,800 to 26,400 average annual net household additions between 2008 to 2026. (Trend based for comparison: 32,000, Economic Growth led scenario: 30,500). Both the NHPAU supply range and Experian's derived projections are frontloaded, i.e. they propose more households at the start of the range compared to the end.

### Outstanding tasks

The following tasks are required for the final version of this project.

1. Further testing of the institutional population assumptions is required. Currently institutional population is kept fixed at 2001 census levels for age groups below the age of 75. There is concern that this doesn't reflect the growth in the student component of institutional population given the expansion of halls of residence accommodation since 2001. Work is in progress to identify the halls of residence component within the census data and to identify the current capacity of halls of residence accommodation.
2. Experian are in the process of conducting a range of employer interviews to determine their views on the future levels of economic migrancy expected. The interviews focus on current and future trends in migration and the findings will feedback into the conclusions and provide a sense check for some of the official datasets used.
3. The economic forecasts used in the project are from the Spring 2008 RPS, the Autumn 2008 RPS was released mid way through the duration of this project. Experian will rerun the economic growth led scenario with the updated long run average growth rate in January 2009.

#### Contact us

Richard Dennis  
Managing Economist  
T 44 (0) 20 7746 8231  
E Richard.Dennis@uk.experian.com

Experian  
Cardinal Place  
6th Floor  
80 Victoria Street  
London SW1E 5JL  
[www.business-strategies.co.uk](http://www.business-strategies.co.uk)

## Introduction

Yorkshire Forward and the Yorkshire and Humber Assembly have commissioned Experian to develop understanding of the relationship between economic growth in the regional economy and household formation and demand for private housing and the ability of these households to afford private market housing.

This project reviews the scale and distribution of housing provision in the approved Regional Spatial Strategy in light of NHPAU advice and the household projections as proposed in the latest ONS / CLG trend based population and household formation projections.

This is an interim report, published to aid respondents to the RSS Update 2009 Spatial Option consultation that closes on 30 Jan 2009. A final report will be published in January. This will include further information on migration and further sensitivity testing of the forecasts for economic growth in the region. This is a technical report that forms part of the evidence for the RSS Update along with the other areas of work, it is not a policy position and the content has not been agreed by the Assembly.

# 1 Future population and migration trends, based on the ONS latest release

In chapter one we utilise official population and household representative rate projections to produce a trend based district level household series. Population growth is broken down into its component parts to examine the extent of population growth that is attributable to natural change and migration. Finally, we examine recent and expected future trends in household tenure.

## 1.1 Household estimates and 2006 based projections

A trend based district level household series is based on a combination of the most up-to-date sub-national estimates (2007) and population projections from ONS (2006 based) applied to projections of household formation rates from CLG (2004-based revised).

District level household estimates and projections which incorporate the latest, 2006 based Sub-National Population Projections have been produced which replicate the methodology used by Anglia University / CLG in producing the revised 2004 household projections. The revised 2004 household projections were produced using a long-standing methodology based on the extrapolation of decomposite household representative rates and their application to population disaggregated by age and gender.

The official household projections due for release in Spring 2009 by CLG will include a number of additional years of LFS data. However, in past updates (in 2003 and 2004), the inclusion of additional LFS data made negligible difference to the household representative rates and as such purely demographic changes were the driver of changes to average annual household growth. As no new demographic releases are expected between now and Spring 2009, the projections presented here are expected to be very close to those released by CLG. Household representative rates are derived using a combination of census data (from 1971, 1981, 1991 and 2001) and LFS data post 2001. The existing methodology weights the census and LFS data relative to the survey size therefore the inclusion of additional LFS data in the 2006 projections, due to the relatively small size of the survey, is likely to only have a marginal effect.

This projection has been undertaken because the Regional Assembly require an early warning of the likely content of the 2006 based household projections given the large uplift in the 2006 based population projections compared to the 2004 based series. The late publication of the 2004 based household projections created problems in preparing the current approved RSS.

## 1.2 Methodology

The approach makes use of a four stage process:

1. Population estimates and projections are taken from the ONS national and sub-national population estimates and projections.
2. The institutional population is either assumed to stay at a constant level from the Census (for age groups aged up to 75) or at a constant share (older age groups aged 75 plus).
3. The institutional population is deducted from the total population to give the household population.

4. Household representative rates (HRRs) are taken from the Household Projection Service (HoPS) model at the age/ sex/ district level and applied to the household population at the age/ sex/ district level and are then summed across age/ sex/ districts to give total household numbers.

### 1.3 Data Sources

- Census of Population, 2001. Release date: 30 March 2004.
- ONS Sub-national population estimates, 2001-2007, by gender and quinary age bands. 2007 release date: 21 August 2008.
- ONS Sub-national population projections, 2006-2031, by gender and quinary age bands. Release date: 12 June 2008.
- ONS National level population projections, 2006-2056, by gender and quinary age bands. Release date: 23 October 2007.
- Anglia University / CLG 2004 revised projections of household representative rates, by age and gender, by LAUAD, 2001-2029.

### 1.4 Comparison with the revised 2004 based CLG projections

A comparison of the 2006 based projections with the revised 2004 based CLG projections show:

- The region has higher annual average household growth between 2006 and 2026, with the number of households now projected to grow at 31,700 per annum to 2026 against 23,400 per annum in the 2004 based projections.
- There is higher projected annual average growth across all unitary authorities and counties – only at local authority level are lower average growth rates evident. Only Richmondshire has a marginally lower annual rate than in the 2004 projections. As the 2004 data is only published rounded to the nearest thousand households we cannot be certain this is a genuine decrease.
- The increased growth is not evenly distributed across the districts of the region. The districts of Leeds, Sheffield, Bradford and Kingston upon Hull have substantially higher growth rates than in the 2004 based projections with their levels of average growth rising by 2,700, 1,300, 800 and 800 per annum respectively. The districts of Ryedale, Scarborough, Selby, Hambleton and Richmondshire have the lowest change in growth rates. These districts all have an average growth rate within a hundred households in the 2006 based projections compared to the 2004 vintage.

### 1.5 Results

The starting point for our analysis is to understand what level of housing would be required to meet the increase in the official population projections, given the assumptions contained within the household representative rates that average household size is set to decline over the forecast period. We sensitivity test some assumptions in further sections of the report. Initial discussions with local planners revealed concern with the migration and household representative rate assumptions utilised here, therefore these issues are explored further.

The results from the baseline run indicate that housing supply would need to increase by an average of 32,000 per annum between 2008 and 2026 to achieve the projected level of households in 2026. In absolute terms, the increase in households is concentrated in Leeds and the bordering districts of Bradford and Kirklees (see figure 1.5.4). The distribution of the district level household projections is

based on past trends, within both the population and HRR projections and future policy interventions may change this.

Table 1.5. 2006 trend based household projections (thousands)

	2008	2014	2020	2026	2008-2026 change
East Riding of Yorkshire	144.8	160.4	177.1	192.5	47.6
Kingston upon Hull	114.2	125.2	135.2	143.8	29.6
North East Lincolnshire	69.3	73.9	78.5	82.1	12.8
North Lincolnshire	69.5	76.2	82.9	89.0	19.5
Craven	24.6	26.8	29.2	31.8	7.2
Hambleton	36.9	40.0	42.7	45.7	8.8
Harrogate	69.3	76.8	84.1	91.4	22.1
Richmondshire	20.8	23.2	25.5	27.6	6.9
Ryedale	22.9	25.0	26.9	29.2	6.4
Scarborough	49.6	53.3	57.4	61.4	11.9
Selby	33.9	37.2	40.5	43.4	9.5
York	85.2	94.7	103.7	111.3	26.1
Barnsley	98.4	105.5	112.8	119.5	21.1
Doncaster	124.6	131.7	138.9	145.2	20.6
Rotherham	108.2	115.2	122.8	128.8	20.7
Sheffield	232.9	250.3	266.9	282.0	49.2
Bradford	196.0	215.3	235.7	255.4	59.4
Calderdale	87.3	95.0	103.2	110.8	23.5
Kirklees	168.9	180.9	193.4	205.1	36.1
Leeds	336.6	375.8	411.8	443.4	106.8
Wakefield	140.6	150.7	161.7	171.5	30.9
<b>Yorkshire &amp; Humber Total</b>	<b>2,234.4</b>	<b>2,432.9</b>	<b>2,630.6</b>	<b>2,811.1</b>	<b>576.7</b>

Source: Experian.

Figure 1.5.1. LAD map template



Figure 1.5.2. Trend based household levels, 2008

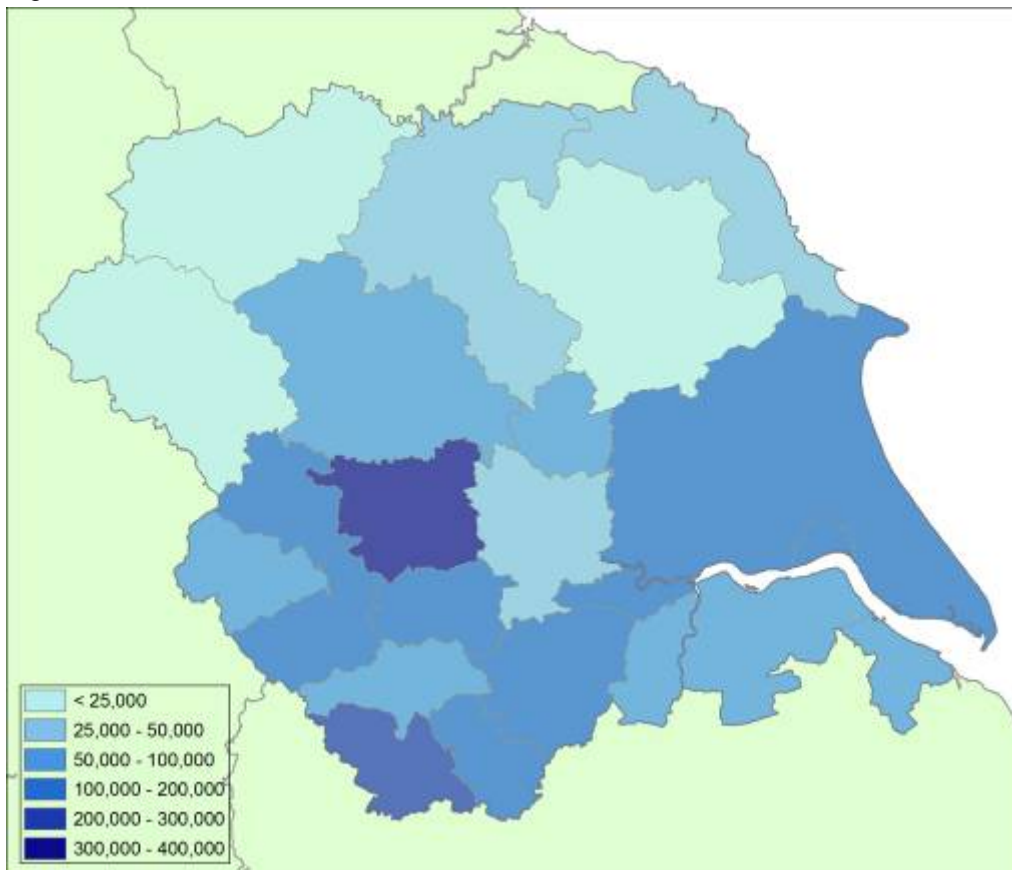


Figure 1.5.3. Trend based household levels, 2026

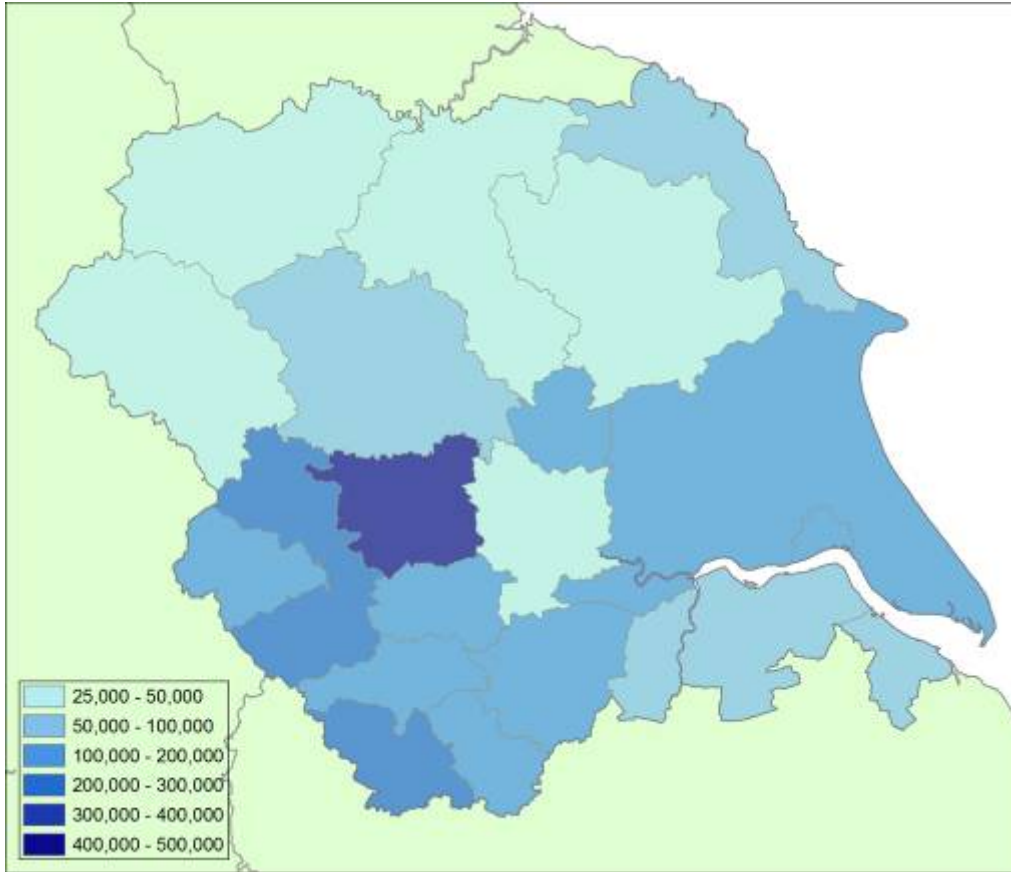


Figure 1.5.4. Trend based annual average change in household levels, 2008 to 2026

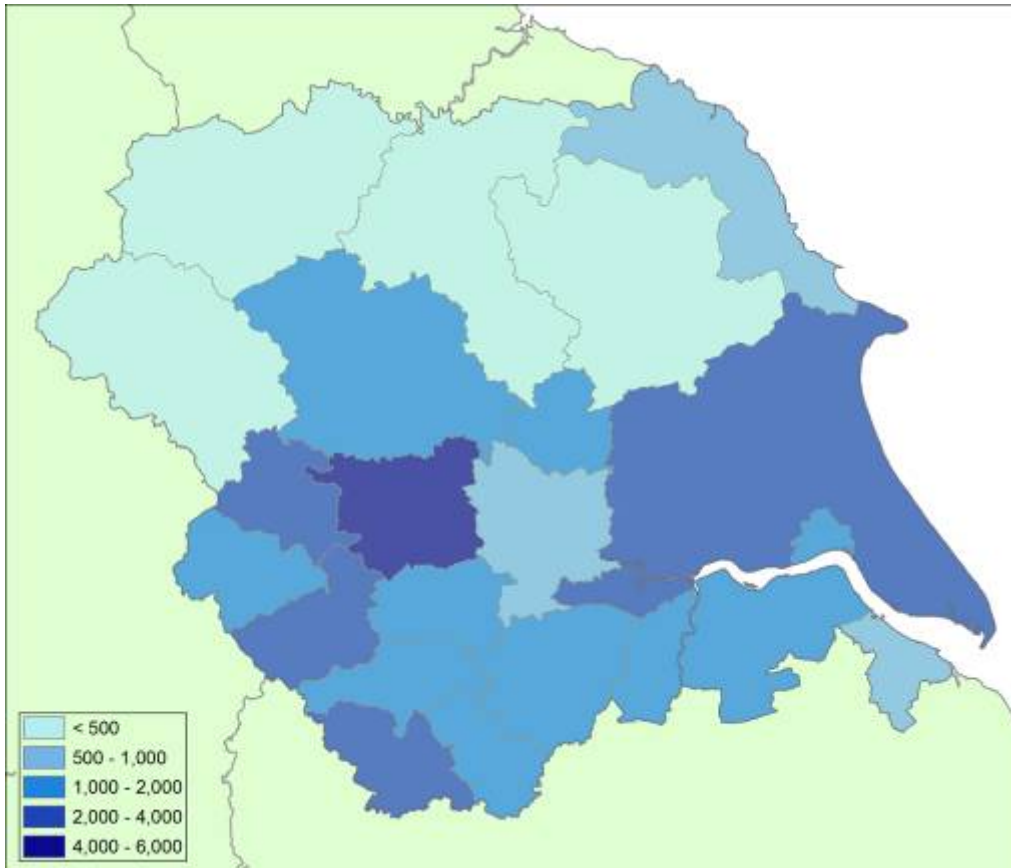
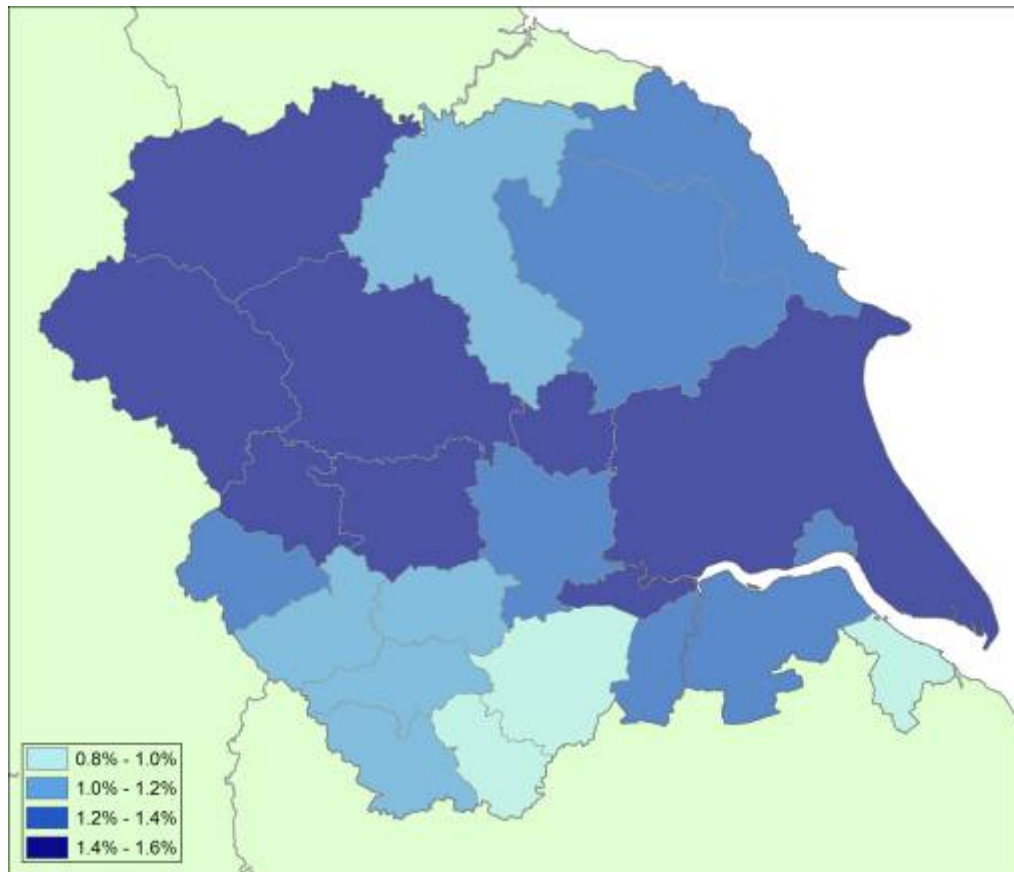


Figure 1.5.5. Trend based per cent average change in households per annum, 2008 to 2026



## 1.6 Migration Flows

This section utilises the natural change and migration summaries from the 2006-based sub-national population projections and identifies the baseline internal and international and cross border migration components of population change. This will be compared to the migration flows derived in the economic growth led scenario in section 2.

The population of the UK is expected to grow steadily from 61.3 millions in 2008 to 69.2 million in 2026, representing an annual average growth rate of 0.67 percent. The population of Yorkshire and Humber is expected to grow at a faster rate relative to the UK over the same period. The population of Yorkshire & Humber is expected to grow from 5.2 million in 2008 to approximately 6.1 million in 2026 - an average annual growth rate of 0.86 per cent per annum.

Table 1.6.1. UK & Yorkshire & Humber Population summaries

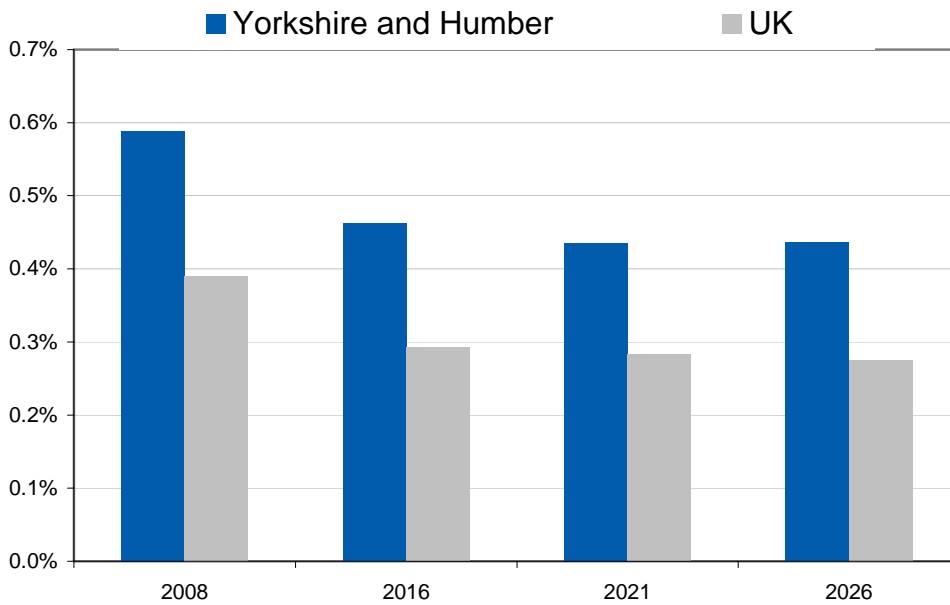
	2008	2016	2021	2026	2008-2026
<b>UK</b>					
Total population	61,396.7	64,954.5	67,170.4	69,241.8	0.67%
Net total migration	239.7	189.9	190.1	190.3	-1.27%
Net natural change	198.6	253.5	247.0	206.7	0.22%
Net total change	438.3	443.3	437.1	396.9	-0.55%
<b>Yorkshire and Humber</b>					
Total population	5,224.4	5,612.0	5,857.0	6,092.4	0.86%
Net total migration	30.8	25.9	25.5	26.6	-0.81%
Net natural change	15.7	24.1	23.8	20.5	1.48%
Net total change	46.5	50.0	49.3	47.1	
<i>Source: Experian, ONS</i>					

Yorkshire and Humber is expected to experience a higher proportion of net migration, as a share of total population than the UK average. In 2008, this is caused in part by the region experiencing a net inflow of migrants from other UK regions which isn't possible at the national level. Beyond 2008 however, when the net internal migration is close to zero, migration rates are still higher than the national average. Rates of international migration, as a proportion of total population have been higher in the region compared to the UK for every year since 2000.

ONS projections suggest net migration to Yorkshire and Humber is expected to fall from 0.6 per cent in 2008 to 0.4 per cent in 2026. Consequently, as levels of migration decline, natural change is expected to play a larger role in driving future population growth in both the region and in the UK as a whole.

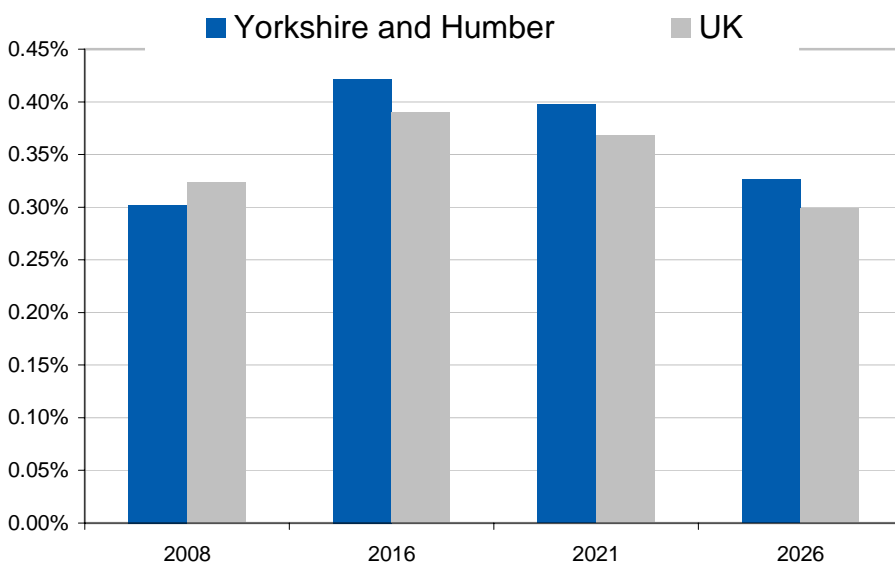
The ONS report that most of the increase in overall fertility rates in England and Wales can be attributed to rising fertility among UK born women, who make up the majority of the female population of childbearing age (85 per cent in 2007). According to new estimates, the total fertility rate (TFR) for women born in the UK has risen substantially in recent years, from 1.68 children per woman in 2004 to 1.79 in 2007. Foreign-born women living in England and Wales continue to have higher fertility than UK born women in all age groups. In 2007, the estimated TFR for non-UK born women was 2.54. Foreign-born women are making up an increasing share of the childbearing population in England and Wales. Between 2004 and 2007, the proportion of women of childbearing age who were born outside the UK grew from 13 per cent to 15 per cent. Because this group has higher fertility on average than those born in the UK, their increasing population share is helping to push the overall TFR upwards, even though their fertility is stable.

Figure 1.6.1. Net migration as a share of Total population



source: Experian, ONS

Figure 1.6.2. Natural change as a share of Total population



Source: Experian, ONS

Net migration to the UK is expected to fall from 240,000 in 2008 to 190,000 in 2026. Net migration in Yorkshire and Humber is also expected to decline from 30,800 in 2008 to 26,600 in 2026. The decline in net migration to Yorkshire and Humber can be explained by a combination of a reduction in net internal migration combined with a modest reduction in net international and cross border migration.

Table 1.6.2. Migration flows, Yorkshire & Humber

	2008	2016	2021	2026
Internal Migration In	90.0	93.4	93.4	95.8
Internal Migration Out	86.5	93.0	93.5	95.1
International and Cross Border Migration In	60.4	60.5	60.5	60.5
International and Cross Border Migration Out	33.1	35.4	35.4	35.4
Net total migration	30.9	25.5	25.0	25.8
<i>Source: Experian, ONS</i>				

## 1.7 Households by tenure

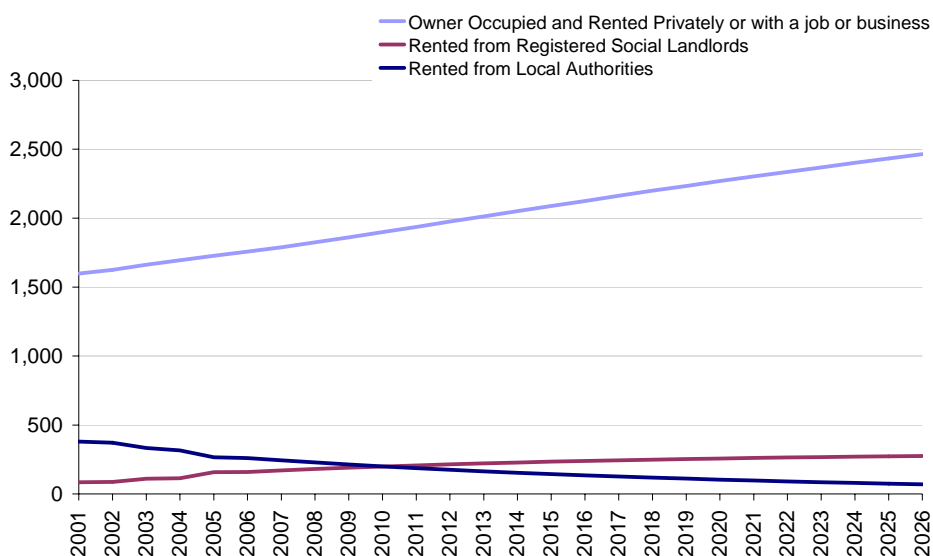
The methodology for producing the supply side household projections by tenure utilises simple extrapolation techniques at the regional level. Household projections by tenure have been produced disaggregated into households that are owner occupied, rented privately or with a job or business, rented from registered social landlords or rented from local authorities.

The method for disaggregation uses time series data derived from the following tables produced by CLG:

1. Table 109 Dwelling stock: by tenure and region, from 1991;
2. Table 232 House-building: permanent dwellings completed, by tenure and region;
3. Table 648 Sales of council houses: Right-to-buy and other council house sales by district and region, from 1979/80; and
4. Table 675 Social housing sales: Registered social landlord stock sold through the right-to-buy scheme, by region.

The method extrapolates the house-building by tenure estimates at a regional level to produce a first cut projection and then adjustments are made concerning the gains and losses for each tenure category due to sales of council houses and social housing sales. A final adjustment converts the dwelling time series data into households to make the tenure projections consistent with the household projections presented in this report.

Figure 1.7. Household estimates & projections by tenure, Yorkshire



- In the last five years, the share of housing stock either owner occupied or rented privately or with a job or business has increased from 77 per cent in 2001 to 81 per cent in 2006, equivalent to 1,599 thousand households and 1,757 thousand households in 2001 and 2006 respectively;
- Social housing in the form of rental properties from either registered social landlords or from local authorities has declined in both in absolute terms (from 466 thousand households in 2001 to 420 thousand households in 2006) and percentage terms ( 23 per cent and 19 per cent in 2001 and 2006 respectively) over the same period;
- Within social housing there are some divergent patterns. There has been little house building for properties available for rental from local authorities in the last decade with no new house building recorded in the region in the CLG data in the last five years. This, coupled with the sales within this tenure category result in the number of properties available for rental from local authorities falling in the recent past and this trend is expected to continue in the future. The quantity of properties available for rental from registered social landlords is expected to increase over the forecast period as there are housing gains in this category from both house building and local authority sales.
- If the recent trends in building patterns and sales of social housing continue, by the 2026, social housing is expected to comprise 12 per cent of the total housing stock, equivalent to 346 thousand households.
- The headline outputs that the region has agreed for affordable housing through the Housing Corporation for the period 2008-11 are for 2,600 additional new homes per annum. This is comprised of 1,900 affordable homes plus 700 low cost home ownership. This if realised would represent a big step change from recent history; in the decade to 2006, the data suggests approximately only 800 social households have been built per annum.
- Section 4 of this report identifies the scale of social and affordable housing as outlined in the strategic housing market assessments.

## 2 Identification of the scale of likely household growth arising as a result of economic growth

In this chapter we adjust the official regional population projections by examining the expected relative economic growth of the Yorkshire & Humber economy compared to the UK average. The basic premise is that regions with high relative economic growth will attract inward migration from other parts of the country. Once the economic growth led population series is established we derive a household projection consistent with this scenario. At the end of the chapter we test some of the assumptions contained in our household projection methodology by looking at future trends in housing starts and completions and by testing the impact of fixing household representative rates at their current levels.

### 2.1 Methodology

This section utilises the forecast methodology contained within the Yorkshire Forwards Regional Econometric Model<sup>1</sup>. The most recent version of the model draws on Experians baseline forecasts produced within the Spring 2008 Regional Planning Service (RPS). The Spring 2008 RPS contains the ONS 2006-based national population projections but currently does not contain the 2006 sub-national population projections nor the 2007 mid year estimates of population, therefore, an interim RPS has been produced for this project incorporating the latest official datasets.

The ONS projections undergo two adjustments in the standard RPS. The first is a policy based adjustment based on housing development allocations as outlined in each of the Regional Spatial Strategies set out by Regional Assemblies. The method applied is to estimate the projected population implied if all the house build occurred. Half of this value is then applied to the district level population projections. This stage has been removed from the bespoke RPS methodology adopted for this project to avoid any issues with circularity.

The second adjustment is for Experian migration assumptions, taken from our migration model, which take account of differentials in regional house prices and economic prospects. The adjustments are controlled so that the final projections remain between 2% (upper limit) and 3% (lower limit) of the ONS projections. This restriction is intended to take account of the supply-side of the housing market. Future housing supply will be reflected in the official projections, since ONS projections guide housing policy and projects. The argument is that if population is forecast to be much higher than official projections, then the demand for housing will outstrip supply and prices will rise disproportionately and this will suppress migration.

Once the economic growth led total population series had been established, a household projection was produced replicating the trend based methodology. Namely, a residential population series has been produced by subtracting institutional population by age and gender at the district level from the economic growth led total population. A district level projection of the number of households is derived by applying projections of household formation rates from CLG (revised 2004-based) to the economic growth led residential population projections.

During the development of this project, the Autumn 2008 RPS was released and revealed that after five years of growth at slightly above the UK rate, the economic downturn hit the region hard. However, in

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<sup>1</sup> Background to the REM can be found at <http://www.yorkshirefutures.net/cb.aspx?page=4371969A-0577-4D13-8A4A-C6B55553D962>

the long term, we expect the region to match the UK growth rate, an improvement in relative terms on the past two decades. A sharp contraction in construction and falling manufacturing output have undermined performance. Short-term prospects for the region are for a fall in output of 0.8% in 2009 as the region's key sectors come under further pressure. This is broadly in line with the UK contraction. Output is expected to increase by 1.3% in the region in 2010 and then average a 2% increase in the next five years.

In the period to 2026, Yorkshire & the Humber's GVA growth is expected to ease slightly to average 2.1% a year. But several regions are expected to see a much sharper drop on their historic growth rates. Thus the gap against the UK average is eliminated. As the regions relative performance to the UK in the Autumn 2008 RPS is broadly in line with the Spring 2008 vintage, our household projections under the economic growth scenario are expected to be unaffected in the long term.

## 2.2 Regional results

The consequences of the economic growth adjustment is to increase total population by 2026 in the South East and Greater London. The East of England, South West and North West all experience an increase in out-migration and consequently have lower levels of population by 2026 compared to trend. This is also the case for Yorkshire and Humber; the economic growth adjustment results in a 1 per cent fall in total population and consequently a 1 per cent fall in households compared to trend. The constraint at the UK level ensures total population in the scenario will always equal the trend based series at the national level. This is not the case for households, as each regions different household representative rates feed through the modelling process, small changes in the national housing levels can occur at a UK level.

Table 2.2a. Trend based regional total population (thousands).

Region	2008	2014	2020	2026
East Midlands	4,446	4,725	5,007	5,281
East of England	5,714	6,066	6,414	6,747
Greater London	7,622	7,999	8,337	8,634
North East	2,573	2,622	2,681	2,734
North West	6,894	7,103	7,322	7,528
Northern Ireland	1,772	1,845	1,910	1,964
Scotland	5,145	5,234	5,305	5,351
South East	8,374	8,761	9,154	9,544
South West	5,229	5,530	5,842	6,150
Wales	2,994	3,083	3,172	3,249
West Midlands	5,409	5,589	5,781	5,967
Yorkshire & Humber	5,224	5,514	5,808	6,092
<b>UK</b>	<b>61,397</b>	<b>64,070</b>	<b>66,733</b>	<b>69,242</b>

Source: Experian, ONS

Table 2.2b. Economic growth led regional total population (thousands).

Region	2008	2014	2020	2026
East Midlands	4,448	4,737	5,032	5,319
East of England	5,708	6,020	6,324	6,608
Greater London	7,630	8,060	8,455	8,811
North East	2,571	2,612	2,661	2,704
North West	6,889	7,064	7,247	7,416
Northern Ireland	1,771	1,839	1,899	1,948
Scotland	5,143	5,219	5,277	5,310
South East	8,386	8,849	9,325	9,805
South West	5,223	5,489	5,760	6,024
Wales	2,995	3,088	3,182	3,263
West Midlands	5,410	5,602	5,805	6,003
Yorkshire & Humber	5,222	5,493	5,767	6,031
UK	61,397	64,070	66,733	69,242

Source: Experian, ONS

## 2.3 District level results

The results from the economic growth led scenario run indicate that housing supply would need to increase by an average of 30,500 per annum (Trend: 32,000 households per annum) to achieve the projected level of households in 2026.

We have assumed that the scenario spatial distribution at the district level is the same as in the baseline. Consequently, the increase in households remains concentrated in Leeds and the bordering districts of Bradford and Kirklees. This straightforward approach has been adopted for two reasons. Firstly, the district level population projections are one of the inputs into the RPS. The baseline economic growth projections at a district level will therefore already build in population growth rates. Any further adjustment raises issues with circularity. Second, commuting flows and mobility have not been explicitly considered as part of this project. Commuting flows would need to be built into the model to produce a more detailed picture of the relationship between economic growth and migration at a local level.

Table 2.3. 2006 based economic growth led household projections (thousands)

	2008	2014	2020	2026	2008-2026 change
East Riding of Yorkshire	144.7	159.8	175.8	190.5	45.7
Kingston upon Hull	114.1	124.7	134.2	142.4	28.2
North East Lincolnshire	69.2	73.6	77.9	81.3	12.0
North Lincolnshire	69.4	75.9	82.3	88.1	18.7
Craven	24.6	26.7	29.0	31.5	6.9
Hambleton	36.9	39.8	42.4	45.3	8.4
Harrogate	69.3	76.5	83.5	90.5	21.2
Richmondshire	20.7	23.1	25.3	27.3	6.6
Ryedale	22.8	24.9	26.7	28.9	6.1
Scarborough	49.5	53.1	57.0	60.8	11.3
Selby	33.9	37.0	40.2	42.9	9.1
York	85.2	94.3	102.9	110.2	25.0
Barnsley	98.3	105.1	112.0	118.3	20.0
Doncaster	124.5	131.2	137.9	143.7	19.2
Rotherham	108.1	114.8	122.0	127.5	19.4
Sheffield	232.7	249.4	265.0	279.2	46.4
Bradford	195.9	214.5	234.1	252.8	56.9
Calderdale	87.2	94.6	102.4	109.6	22.4
Kirklees	168.8	180.2	192.0	203.0	34.1
Leeds	336.4	374.4	408.9	438.8	102.4
Wakefield	140.5	150.1	160.5	169.7	29.2
<b>Yorkshire &amp; Humber Total</b>	<b>2233.2</b>	<b>2423.8</b>	<b>2612.3</b>	<b>2782.4</b>	<b>549.2</b>

Source: Experian, CLG

Figure 2.3.1. Economic growth led scenario household levels, 2008

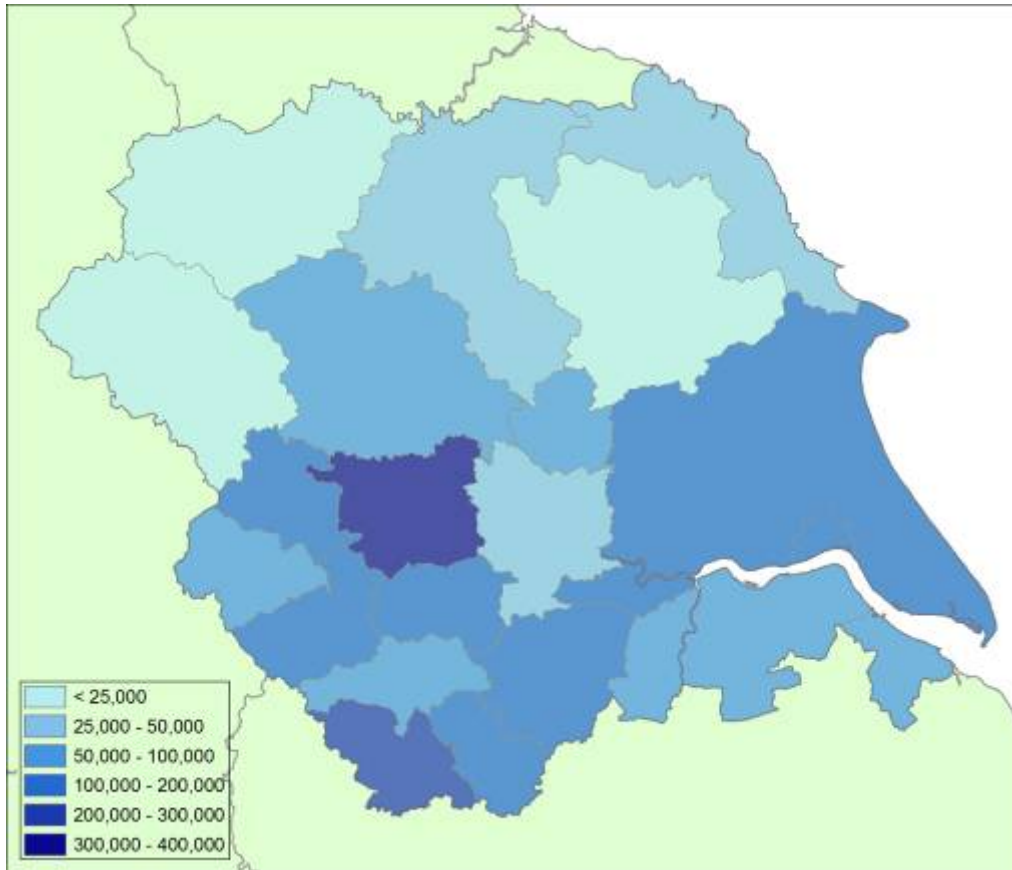


Figure 2.3.2. Economic growth led scenario household levels, 2026

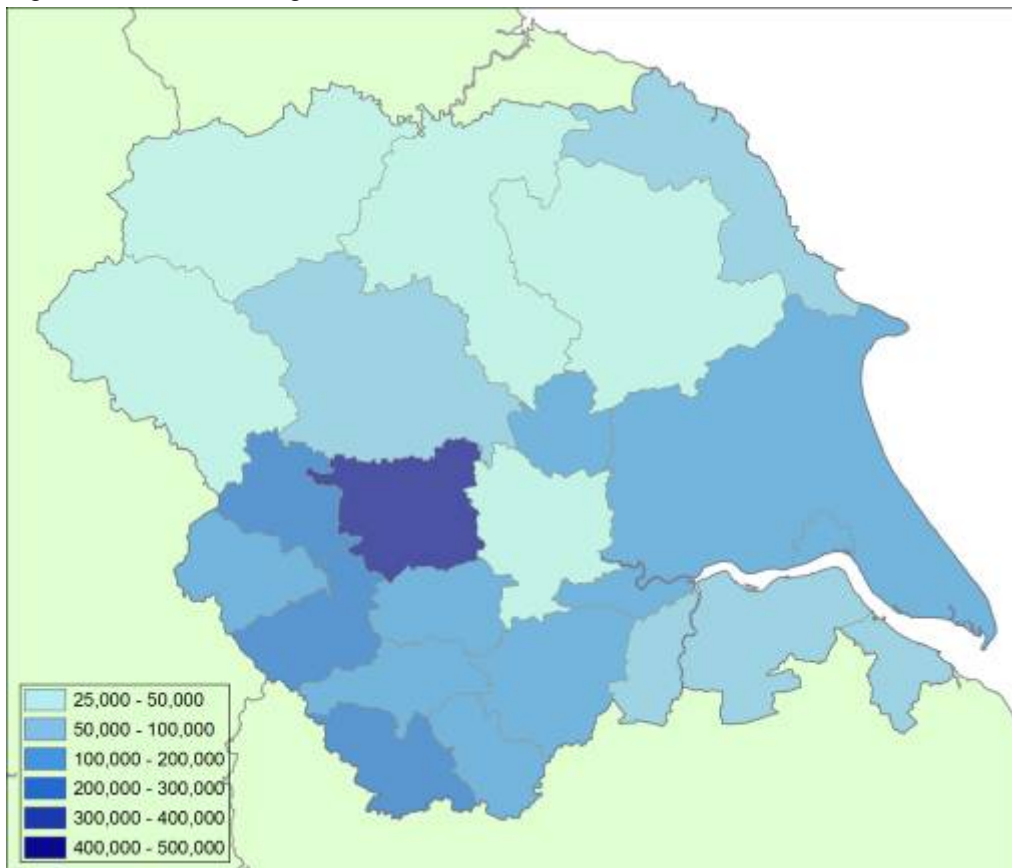


Figure 2.3.3. Economic growth led scenario annual average change in household levels, 2008 to 2026

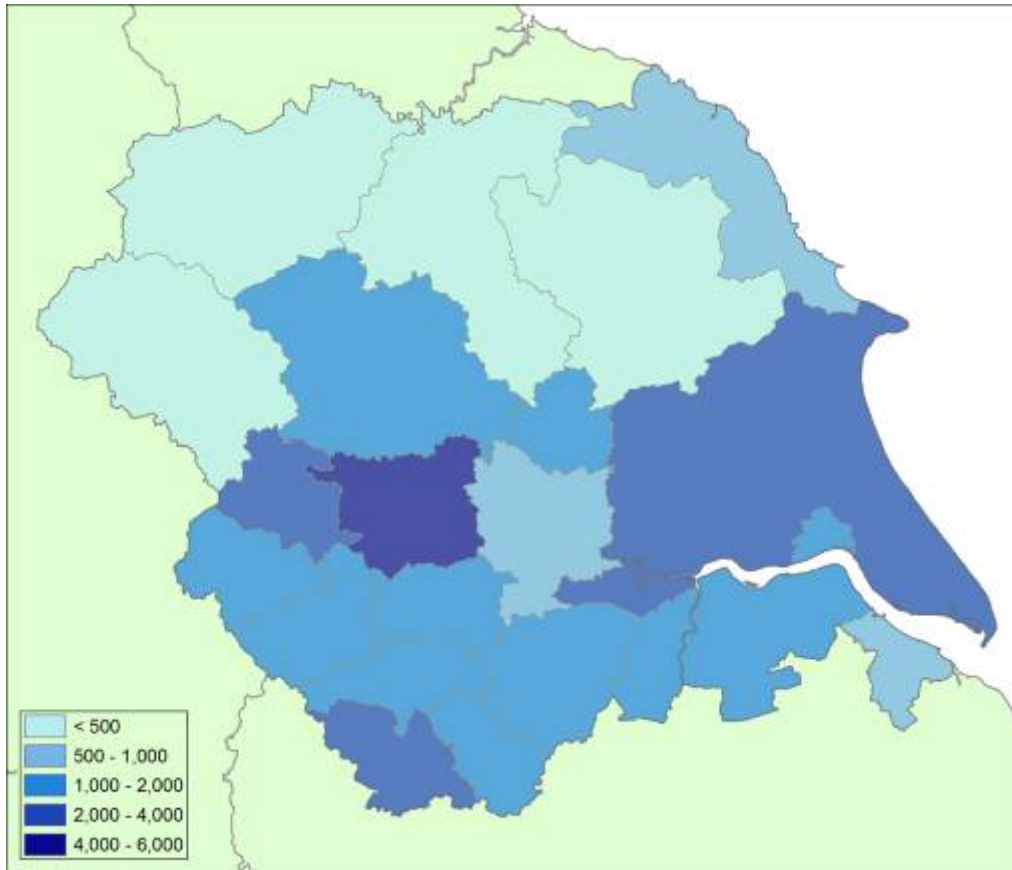
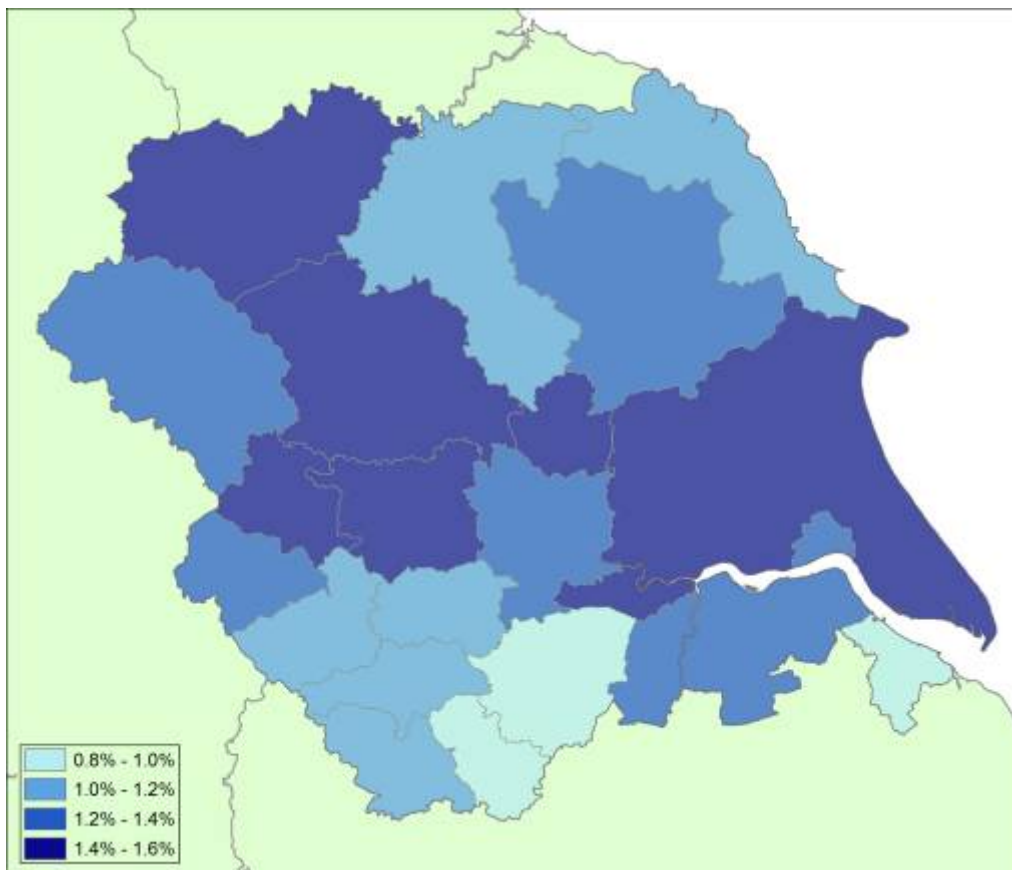


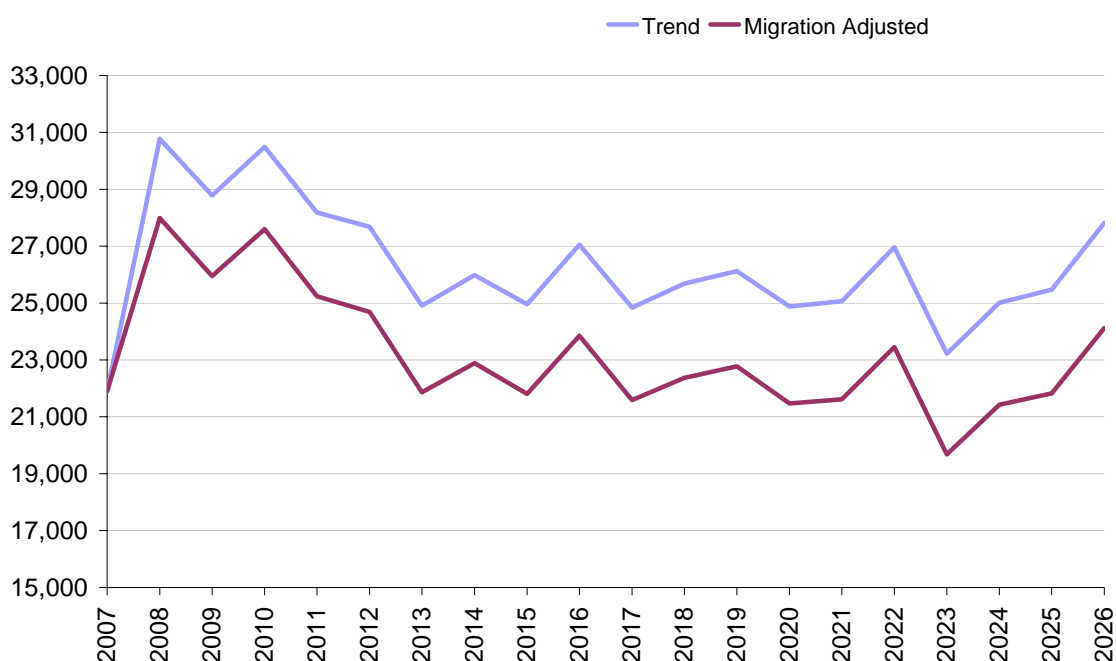
Figure 2.3.4. Economic growth led scenario per cent average change in households per annum, 2008 to 2026



## 2.4 Scenario Migration flows

External migration is modelled on its past values. Internal migration for a particular region is dependent on its workplace employment rate relative to the UK and a trend based house price forecast. Regions with higher employment rates will see more internal migration. Yorkshire & Humber, with lower relative employment rates relative to the UK (Yorkshire & Humber employment rate: 75.7% in 2008, UK: 79.8%) has experienced a reduction in the levels of net internal migration in this scenario compared to trend. Total net migration (internal and external migration combined) is equal to an average of 26,500 persons per annum in the trend based projections which falls to 23,300 persons under the scenario. Figure 2.4 shows net migration projections for trend and scenario.

Figure 2.4. Net Migration, Yorkshire & Humber.



Source: Experian, ONS

Internal and external migration by regions is summed together with net natural change to give total change per year and from that population projections. The sum of the regions is then constrained to the total trend based UK figure<sup>2</sup>.

## 2.5 Alternative household scenario: trends in housing starts and completions

A key assumption made in trend based methodology is that the average household size is declining in Yorkshire & Humber. A consequence of this assumption is that the rate of growth in households exceeds the rate of headcount population growth. The starting point for this scenario is to examine the recent trend in housing starts and completions in the region and produce a short term forecast of housing starts and completions. CLG compile the historic data series, sourced from P2m/P2Q returns from local authorities and the National House Building Council.

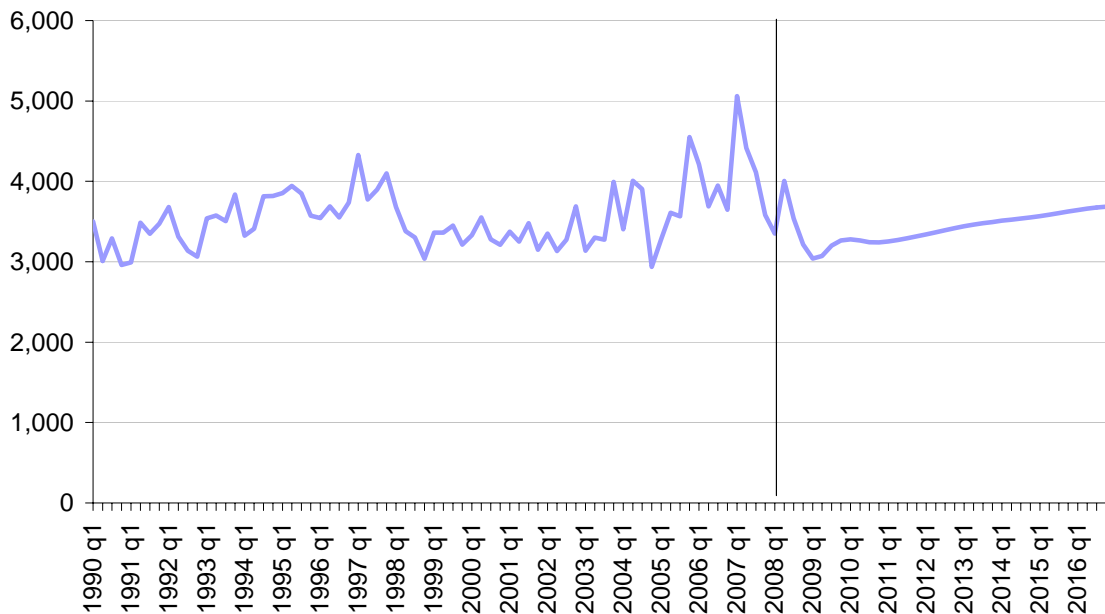
(see <http://www.communities.gov.uk/documents/housing/xls/141200.xls>).

<sup>2</sup> Low migration variant projections and the impact on household numbers are reported in Section 5.3 of this report

The basic hypothesis is that house builders react to price signals in deciding how many houses to start. The price signals in question are the ratio of what prices in one quarter are expected to be in a year's time relative to construction costs. The rationale for this is that when house prices are expected to be high, builders will make more profits and hence will start more houses. Housing completions forecasts are simply a lagging stochastic function of Housing Starts.

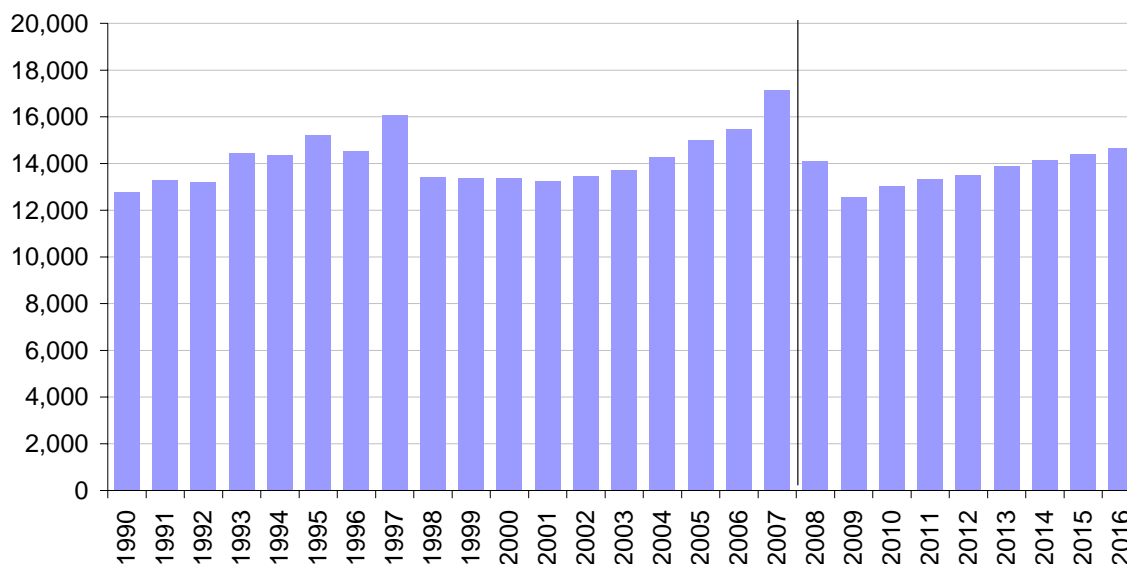
The seasonally adjusted quarterly housing completion projections are shown in Figure 2.5. CLG estimates are included up to 2008 quarter one with the projections running from 2008 quarter two to 2016. Housing completions peaked in 2007 at 17,200 households per annum, however, completions are forecast to decline to 14,100 in 2008 and average 13,700 per annum from 2008 to 2016. The ratio of house prices to construction costs drives the forecast in housing starts and subsequently housing completions. House price forecasts have been taken from Experians Spring 2008 Regional Planning Service, house price history is taken from the CLG. Construction costs are taken from BCIS (at a national level only).

Figure 2.5a. Quarterly total housing completions, Yorkshire & Humber.



Source: Experian, CLG.

Figure 2.5b. Annual total housing completions, Yorkshire &amp; Humber.



Source: Experian, CLG.

To gain a fuller picture of changes in the housing stock an adjustment is required to account for depreciation. Any net additions to housing stock from housing completions need to be considered in the light of losses from demolitions and net gains from conversions. CLG data is unpublished in the case of conversions and demolitions so has not been included here.

## 2.6 Alternative household scenarios: fixed household representative rates

- Implicit within the household projection methodology is the assumption that average household size declines over the length of the forecast period. The decline in average household size is driven by incremental increases in the CLG household representative rates (HRR) used; HRR measure the probability of being head of household for each age / gender / district cohort within the population datasets.
- Growth in the number of households in the region can be driven by an increase in household population and/or a decline in the average household size. This scenario tests the implications of keeping household representative rates fixed at their 2007 levels for each age / gender / district cohort. It therefore shows the component of household growth that can be solely attributable to changing population.
- The argument for this is that due to affordability constraints in the early half of the decade, households may not realise the projections of continued decline in average household size implicit in the CLG data. Recent evidence from the Labour Force Survey suggest that at a national level, the rate of decline in average household size has levelled off in recent years. This is reinforced by evidence at the regional level from Acxiom's National Research Opinion Poll which shows a constant average household size time series from 2004 to 2007.

- Table 2.7. shows the results from keeping the household representative rates fixed is a reduction in household growth from 32,040 per annum (in the trend based projections) to 27,490 households per annum under the scenario.
- By 2026, Yorkshire & Humber would have 2,728,000 households under the scenario (trend in 2026: 2,811,000)
- The scenario has varying effects across the districts of the region; the impact is greatest in Leeds and Sheffield where households fall under the scenario by 4.4% and 4.2% by 2026 compared to trend respectively. The scenario only has a marginal impact in Craven and Selby, equal to a fall in household of 0.9% and 1.2% compared to trend respectively under the scenario.
- This implies that population growth is driving 86 per cent of household growth, declining average household size drives the remaining 14 per cent of the change in household levels.

Table 2.7. Households, annual average change, 2008 to 2026.

District	Fixed HRR	Trend-based	Difference
East Riding of Yorkshire	2,460	2,650	190
Kingston upon Hull	1,340	1,650	310
North East Lincolnshire	590	710	120
North Lincolnshire	980	1,090	110
Craven	380	400	20
Hambleton	450	490	40
Harrogate	1,150	1,230	80
Richmondshire	340	380	40
Ryedale	310	350	40
Scarborough	590	660	70
Selby	500	530	30
York	1,290	1,450	160
Barnsley	980	1,170	190
Doncaster	930	1,140	210
Rotherham	970	1,150	180
Sheffield	2,080	2,730	650
Bradford	2,960	3,300	340
Calderdale	1,150	1,310	160
Kirklees	1,690	2,010	320
Leeds	4,860	5,930	1,070
Wakefield	1,470	1,710	240
<b>Yorkshire &amp; Humber Total</b>	<b>27,490</b>	<b>32,040</b>	<b>4,550</b>

Source: Experian, CLG

## 3 Expected patterns of income levels, house prices and affordability

Affordability projections are outlined in chapter three which have been derived by combining official estimates of earnings and house prices with Experian projections of occupations, earnings and house prices. The conclusion of the chapter begins to examine the assumptions made in compiling the affordability indicator projections compared to the projections produced by the NHPAU.

### 3.1 Earnings methodology

The Government's chosen affordability indicator is the ratio of lower quartile house prices to lower quartile full time employee earnings. The Annual Survey of Hours and Earnings (ASHE) is based on a one per cent sample of employee jobs. Information on earnings and hours is obtained in confidence from employers. It does not cover the self-employed nor does it cover employees not paid during the reference period.

ASHE data provides a time series from 2002 to 2007 of lower quartile and mean earnings by occupation at the regional level. ASHE data is limited at the district level therefore we have had to make assumptions at the occupational level in the first instance to produce district level forecasts.

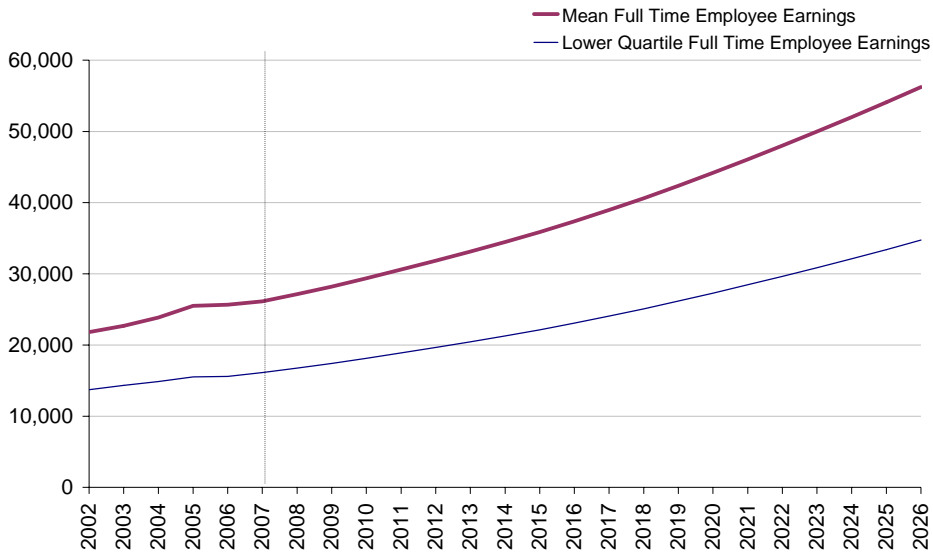
The method for deriving district level lower quartile earnings forecasts utilises a five step process as follows:

1. Gross annual pay for full-time employee jobs is projected forward using an index of UK average earnings growth for the whole economy with adjustments made for Yorkshire & Humber recent earnings growth compared to national growth rates. This earnings forecast is then used as a controlling target.
2. A first cut trend based extrapolation of mean earnings by occupation is derived at the regional level.
3. The REM occupational forecasts are used as weights to constrain the first cut occupation projections so that they are consistent with the regional controlling target.
4. The changing occupational profile sourced from the REM at district level combined with a districts earnings history compared to the region as a whole drives average earnings at the district level.
5. The relationship between lower quartile and mean earnings has been used to convert regional earnings forecasts into lower quartile forecasts. It is assumed the relationship between mean and lower quartile earnings is unchanged in the forecasts.

### 3.2 Yorkshire & Humber earnings

- Full time employee earnings in Yorkshire & Humber increased by an average of 3.7 per cent per annum between 2002 and 2007, marginally below the equivalent national rate (UK: 3.8 per cent);
- Average and lower quartile earnings are expected to increase by 4.1 per cent per annum in the region from 2008 to 2026;

Figure 3.2. Mean, Lower Quartile earnings, Yorkshire & Humber



Source: ASHE, Experian

### 3.3 Yorkshire & Humber earnings by occupation

- There is a large disparity across the 25 occupations examined in the Yorkshire & Humber region. In 2008, at the two extremes in the economy, full time health professionals earn approximately three times the regional average whereas full time sales occupations earn approximately half the regional average;
- This disparity is set to widen by the end of the forecast period. All occupations are set to experience an increase in earnings but generally those currently better paid experience higher rates of growth compared to those occupations at the lower end of the pay range.

Table 3.3. Average Earnings by Occupation

	2008	2026	Annual Average
Corporate Managers	43,741	95,611	4.4%
Managers And Proprietors In Agriculture And Services	32,870	57,079	3.1%
Science And Technology Professionals	34,362	69,829	4.0%
Health Professionals	81,247	207,950	5.4%
Teaching And Research Professionals	34,707	70,239	4.0%
Business And Public Service Professionals	35,491	73,522	4.1%
Science And Technology Associate Professionals	26,723	51,573	3.7%
Health And Social Welfare Associate Professionals	26,706	53,508	3.9%
Protective Service Occupations	33,872	72,413	4.3%
Culture, Media And Sports Occupations	22,826	34,100	2.3%
Business And Public Service Associate Professionals	28,481	48,171	3.0%
Administrative Occupations	18,758	37,838	4.0%
Secretarial And Related Occupations	17,403	31,836	3.4%
Skilled Agricultural Trades	17,276	36,028	4.2%
Skilled Metal And Electrical Trades	25,634	49,943	3.8%
Skilled Construction And Building Trades	24,426	49,904	4.0%
Textiles, Printing And Other Skilled Trades	19,954	39,728	3.9%
Caring Personal Service Occupations	15,228	31,645	4.1%
Leisure And Other Personal Service Occupations	16,440	35,580	4.4%
Sales Occupations	14,278	22,202	2.5%
Customer Service Occupations	16,028	26,310	2.8%
Process, Plant And Machine Operatives	21,669	43,431	3.9%
Transport And Mobile Machine Drivers And Operatives	21,808	44,292	4.0%
Elementary Trades, Plant And Storage Related Occupations	18,051	34,356	3.6%
Elementary Administration And Service Occupations	15,588	30,988	3.9%
<b>Total</b>	<b>27,134</b>	<b>56,233</b>	<b>4.1%</b>

Source: ASHE, Experian

Table 3.4. Average earnings by District

	2008	2026	Annual Average
East Riding of Yorkshire UA	30,170	62,969	4.2%
Kingston upon Hull UA	22,384	45,982	4.1%
North East Lincolnshire UA	24,843	50,567	4.0%
North Lincolnshire UA	28,433	58,520	4.1%
York UA	30,784	64,251	4.2%
Craven	27,684	56,559	4.0%
Hambleton	31,368	60,755	3.7%
Harrogate	32,850	65,472	3.9%
Richmondshire	24,872	51,102	4.1%
Ryedale	31,987	69,847	4.4%
Scarborough	26,459	54,264	4.1%
Selby	34,119	72,061	4.2%
Barnsley	25,292	52,184	4.1%
Doncaster	25,213	51,524	4.1%
Rotherham	27,696	57,148	4.1%
Sheffield	27,486	56,879	4.1%
Bradford	24,641	49,874	4.0%
Calderdale	27,133	55,568	4.1%
Kirklees	28,214	56,659	3.9%
Leeds	27,989	57,839	4.1%
Wakefield	26,498	54,097	4.0%
<b>Yorkshire &amp; Humber</b>	<b>27,134</b>	<b>56,233</b>	<b>4.1%</b>

Source: ASHE, Experian

### 3.4 House price methodology

A time series of lower quartile and mean house prices, based on Land Registry data, are available at the district and regional level. Land Registry data is for the first half of the year only, so it is broadly comparable to the ASHE data which is as at April. Experians regional planning service contains a house price index for Yorkshire & Humber which has been combined with the Land Registry history to produce a controlling target for regional average house prices.

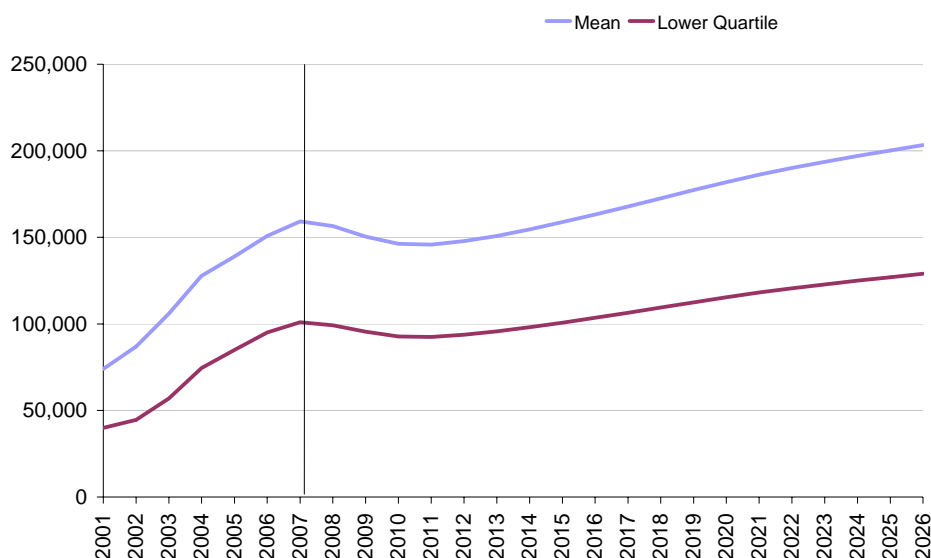
The district level history has been extrapolated and then constrained so that the weighted average is consistent with the regional target. The trend based household projections have been used as weight in the controlling procedure. Lower quartile house prices at both regional and district level use the assumption that the ratio of lower quartile to mean house prices remains constant in the future.

### 3.5 House prices by region

- The regional house price index is taken from the Spring 2008 RPS to ensure consistency with the other data sets used in this project. The index therefore will not reflect any recent movements in the housing market that have occurred in the Summer of 2008.
- The house price projections derived in the RPS are unique to Experian and not taken from any other source. Within the RPS, each region has its own house price equation - the equations are solved and then constrained to the UK total. The regional equations contain variables including house price to earnings ratios in the region, house price to earnings ratios in the UK, regional

employment rates and the difference between real share prices and real house prices in the UK.

Figure 3.5. Mean, Lower Quartile house prices, Yorkshire & Humber



Source: Land registry, Experian

Table 3.5. Average house prices by district

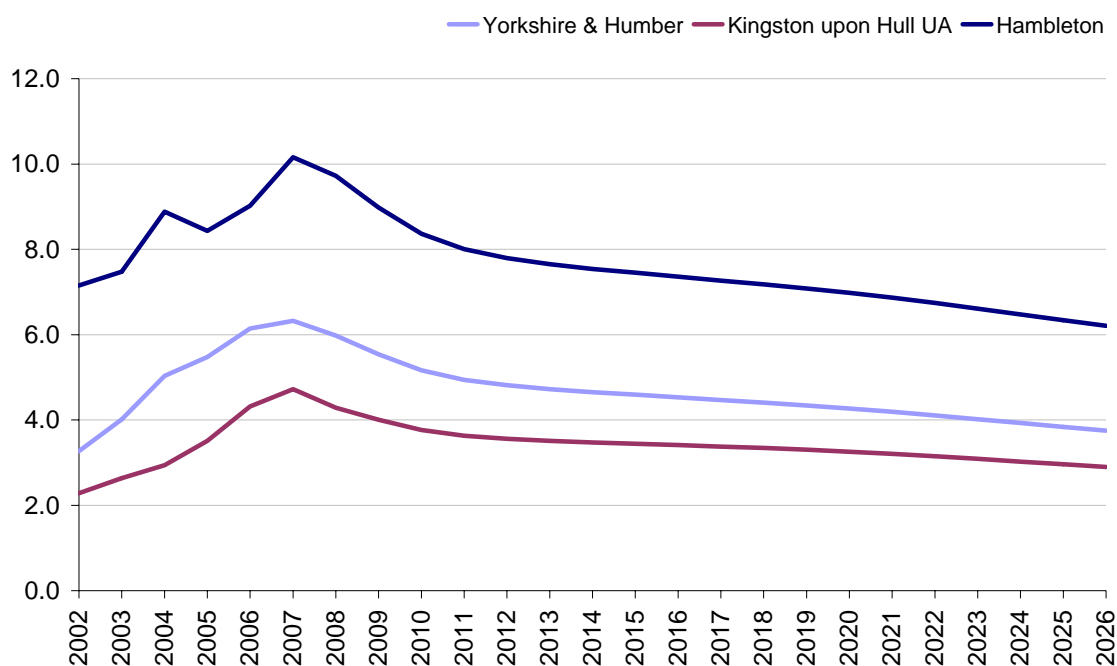
	2008	2026	Annual average growth
East Riding of Yorkshire UA	172,551	224,387	1.5%
Kingston upon Hull UA	95,178	132,225	1.8%
North East Lincolnshire UA	116,247	155,681	1.6%
North Lincolnshire UA	137,629	181,322	1.5%
York UA	200,567	243,369	1.1%
Craven	214,081	273,551	1.4%
Hambleton	236,499	292,546	1.2%
Harrogate	260,171	321,127	1.2%
Richmondshire	220,210	297,183	1.7%
Ryedale	235,301	303,920	1.4%
Scarborough	168,831	220,695	1.5%
Selby	196,295	249,669	1.3%
Barnsley	127,493	171,260	1.7%
Doncaster	132,772	179,775	1.7%
Rotherham	133,969	177,293	1.6%
Sheffield	152,919	193,447	1.3%
Bradford	141,715	189,579	1.6%
Calderdale	145,942	196,613	1.7%
Kirklees	151,702	202,034	1.6%
Leeds	167,675	208,311	1.2%
Wakefield	144,780	189,118	1.5%
<b>YORKSHIRE AND THE HUMBER</b>	<b>156,510</b>	<b>203,316</b>	<b>1.5%</b>

Source: Land registry, Experian

### 3.6 Affordability projections

- Affordability projections have been produced independently and we have not been able to build in any of the results from the NHPAU affordability model. The affordability projections do not adjust for assumptions on the delivery of new housing but use the house price and earnings forecasts from the RPS.
- Affordability defined as the ratio of lower quartile house prices to lower quartile full time employee earnings worsened in the first half of the decade as the growth in rising lower quartile house prices outstripped increases in lower quartile earnings;
- However, the affordability indicator is expected to peak at 6.3 in 2007 in Yorkshire & Humber and then decline rapidly in the next three years before declining at a reduced rate until the end of the forecast period;
- The affordability indicator is expected to decline rapidly in the short term due to earnings growing stronger than house prices. The weaker house price growth over the short term is reflective of the current downturn in the housing market.
- Over the long-term, the performance of the housing market improves, but average earnings growth is still stronger, leading to the muted but continued decline in the affordability indicator.
- The NHPAU assumptions about house-price growth are derived from an assumption of income growth of 1.5 per cent growth in real terms until 2026. In the Experian model, relative house price forecasts are driven by the relative strength of regional economies and by a ripple effect.
- There is a variable range of affordability across the regions districts with the highest rates witnessed in the north of the region in 2007 (Hambleton: 9.7, Ryedale: 9.3) and the lower measures of affordability found in the south east of the region (Kingston upon Hull: 4.3, North East Lincolnshire: 5.0);
- Affordability improves across all districts by 2026 with Kingston upon Hull, North East Lincolnshire, Barnsley and Calderdale all having an affordability indicator below 3.5, the standard income multiple used in mortgage applications.
- The affordability results are different to those produced by NHPAU because of the different methodologies adopted. There are strengths and weaknesses to both approaches. The NHPAU model has the capacity for the relationship between housing delivery and affordability to be measured. It is however, as acknowledged from the outset of the NHPAU report capturing the medium and long term view of house prices, affordability and housing supply. The advantage of using the RPS as a starting point for the affordability projections is that the house price projections and the economic growth led population projections by their very nature capture regional economic growth differentials both in the short and long term. The frequency of the RPS run (it is currently produced every six months and is moving to a quarterly run shortly) allows the short and long term view of the economy to be considered. The Experian approach does not however explicitly measure the extent that house building impacts on affordability. The limits in the migration model implicitly capture the supply-side of the housing market. Future housing supply will be reflected in the official population projections, since ONS projections guide housing policy and projects. The argument is that if population is forecast to be much higher than official projections as a result of high levels of economic growth in a particular area, then the demand for housing will outstrip supply and prices will rise disproportionately and this will suppress migration.

Figure 3.6a. Affordability indicator, Yorkshire & Humber and selected districts



Source: ASHE, Land Registry & Experian

Table 3.6. Affordability indicators by district

	2008	2026
East Riding of Yorkshire UA	5.9	3.6
Kingston upon Hull UA	4.3	2.9
North East Lincolnshire UA	5.0	3.3
North Lincolnshire UA	5.6	3.6
York UA	7.8	4.6
Craven	8.2	5.1
Hambleton	9.7	6.2
Harrogate	8.6	5.3
Richmondshire	8.6	5.6
Ryedale	9.3	5.5
Scarborough	7.0	4.5
Selby	7.0	4.2
Barnsley	5.3	3.5
Doncaster	5.7	3.8
Rotherham	5.5	3.5
Sheffield	6.3	3.9
Bradford	5.6	3.7
Calderdale	5.3	3.5
Kirklees	5.6	3.7
Leeds	6.4	3.9
Wakefield	6.2	4.0
<b>YORKSHIRE AND THE HUMBER</b>	<b>6.0</b>	<b>3.7</b>

Source: Land registry, Experian

Figure 3.6b. Affordability indicator, Yorkshire & Humber districts, 2008

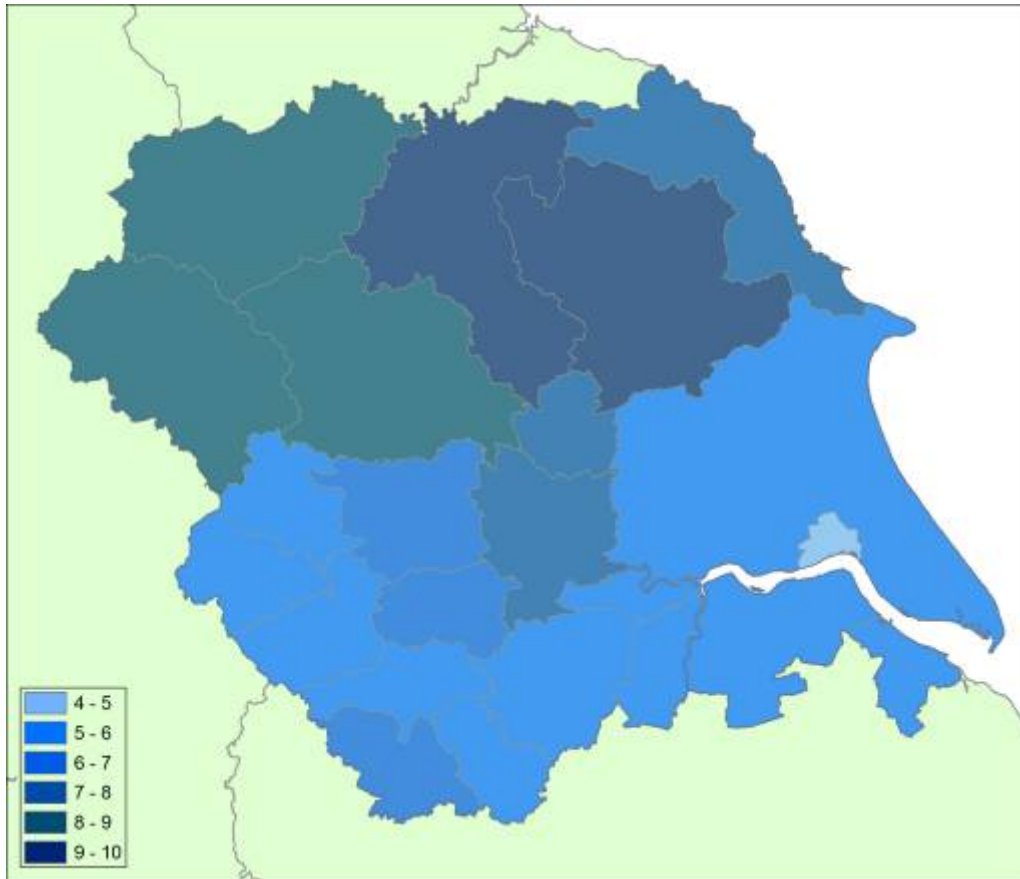
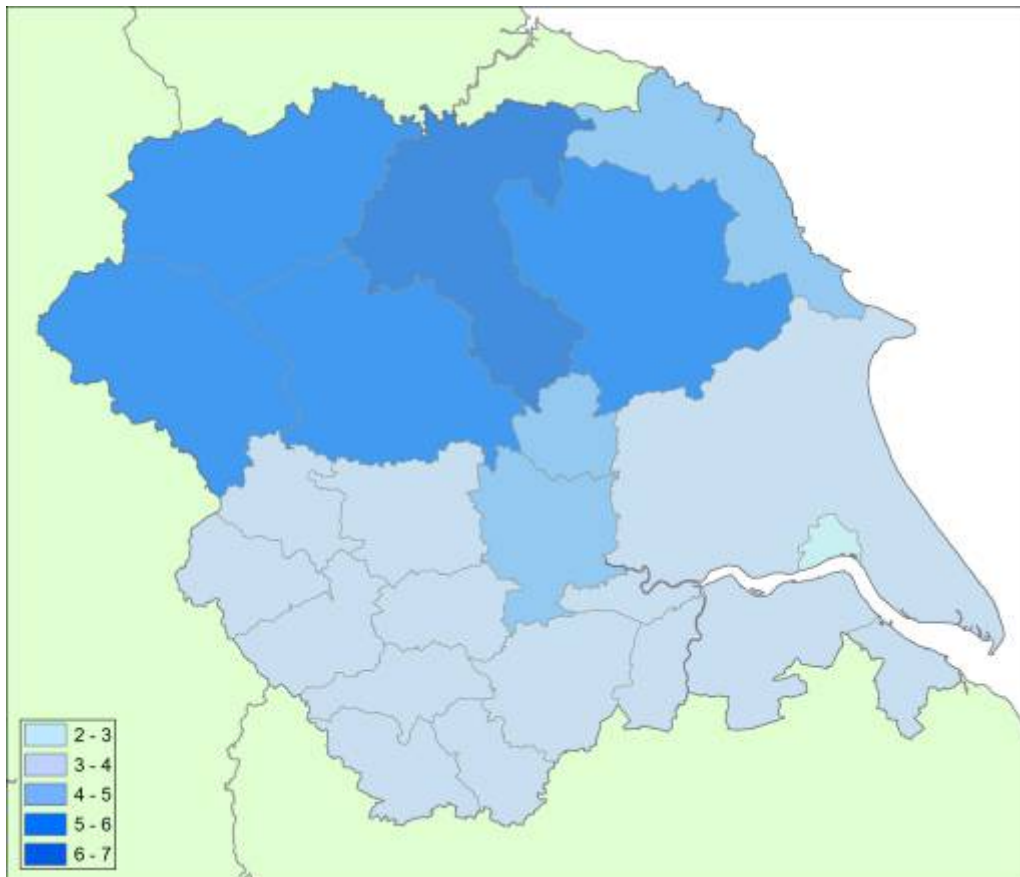


Figure 3.6c. Affordability indicator, Yorkshire & Humber districts, 2026



## 4 Identifying the volume of social and affordable housing required

In chapter 4, we have utilised the strategic housing market assessments produced by the housing market areas to identify newly arising housing need for social and affordable housing. Two adjustments have been made, in section 4.2 we have scaled the housing need values by the uplift prevalent in the 2006 based household projections for consistency with the projections produced in Chapter 1. Secondly, we have considered the effect of the easing of the affordability indicator projections on potential arising housing need.

### 4.1 Strategic housing market assessments

A suite of strategic housing market assessments (SHMAs) for the Yorkshire and the Humber region have been produced in accordance with Government guidance. All SHMAs include an estimate of newly arising housing need per annum. These estimates of existing and newly arising need have been derived from local studies and as such the approach adopted varies slightly across some areas. The approach for each SHMA has been summarised as shown in Table 4.1. The data points in black are taken directly from the SHMAs; blue data points have been derived using additional data sources and assumptions where there are gaps in the data. The Yorkshire & Humber total is the sum of the component SHMAs.

Table 4.1. SHMA summary statistics

Housing Market Area	New household formation per annum (gross)	% which might be considered unable to buy or rent in the open market	New household formation per annum (gross) and which might be considered unable to buy or rent in the open market	Other housing need	Total newly arising housing need (gross) per annum
Barnsley	1,000	80.6%	806	1,183	1,989
Bradford	1,858	43.0%	799	2,380	3,179
Calderdale	1,177	69.9%	823	1,018	1,841
Craven and Richmondshire	1,600	38.8%	621	739	1,360
Doncaster	951	74.1%	705	428	1,133
East Riding	1,251	94.0%	1,176	204	1,380
Hambleton	500	31.2%	156	186	342
Harrogate	964	83.0%	800	76	876
Hull and East Riding	918	48.0%	441	1,798	2,238
Kirklees	2,000	98.0%	1,959	1,626	3,585
Leeds	4,619	57.7%	2,665	4,264	6,929
North and North East Lincolnshire	1,878	68.6%	1,288	1,026	2,314
Ryedale	200	56.5%	113	72	185
Scarborough	600	67.5%	405	180	585
Selby	289	31.8%	92	483	575
Sheffield & Rotherham	3,781	48.1%	1,819	1,734	3,553
Wakefield	1,889	59.8%	1,129	706	1,835
York	1,741	38.6%	672	1,485	2,157
<b>Yorkshire &amp; Humber Total</b>	<b>27,216</b>	<b>60.5%</b>	<b>16,468</b>	<b>19,588</b>	<b>36,056</b>

Source: Yorkshire & Humber SHMAs, Experian

Note: The data in table 4.1 provides a summary of the position for each local authority. Not all data is directly comparable because it has been collected at different times and some is based on a now superseded definition of what constitutes affordable housing. Consequently the headline regional figures in the table and Tables 4.2 and 4.3 which is derived from the same information will represent an over estimate of the real situation. However the analysis does provide a helpful perspective on the continuing need for affordable housing in the region. Further information can be found on the Assembly's web site (<http://www.yhassembly.gov.uk/>).

There are approximately 36,000 newly arising housing needs in the region per annum. This is comprised of 16,500 new households per annum which might be considered unable to buy or rent in the open market and a further 19,500 that fall under the other housing need. Other housing need includes existing households falling into need and adjustments made for In-migrant households requiring affordable accommodation and out-migrants unable to afford market housing.

## 4.2 2006 trend based affordability demand

The table in section 4.1. includes an estimate of newly forming households considered unable to buy or rent in the open market. These values are largely derived in the SHMAs by combining the share of new forming households which might be considered unable to buy or rent in the open market with new household formation per annum taken from the 2004-based household projections. To calculate the annual average affordable housing demand from 2008 to 2026 we have kept the percentage which might be considered unable to buy or rent in the open market fixed at the district level and multiplied them through the 2006 based household projections (from section 1) to derive an 2006 based affordable housing estimate. This is shown in Table 4.2. At the regional level, the total newly arising housing need per annum increases from 36,000 to 42,600 households.

Table 4.2. Annual average demand for affordable housing, 2008 to 2026.

District	New household formation per annum (gross)	New household formation per annum (gross) and which might be considered unable to buy or rent in the open market	Other housing need	Total newly arising housing need (gross) per annum
East Riding of Yorkshire	2,650	2,480	240	2,720
Kingston upon Hull	1,650	800	2,100	2,900
North East Lincolnshire	710	490	750	1,240
North Lincolnshire	1,090	730	410	1,140
Craven	400	150	470	630
Hambleton	490	150	210	360
Harrogate	1,230	1,030	90	1,120
Richmondshire	380	150	410	560
Ryedale	350	200	80	280
Scarborough	660	450	200	650
Selby	530	170	570	740
York	1,450	560	1,780	2,340
Barnsley	1,170	940	1,340	2,280
Doncaster	1,140	840	470	1,310
Rotherham	1,150	550	620	1,170
Sheffield	2,730	1,320	1,340	2,660
Bradford	3,300	1,410	2,820	4,230
Calderdale	1,310	910	1,180	2,090
Kirklees	2,010	1,940	1,830	3,770
Leeds	5,930	3,430	5,170	8,600
Wakefield	1,710	1,010	800	1,810
<b>Yorkshire &amp; Humber Total</b>	<b>32,040</b>	<b>19,700</b>	<b>22,900</b>	<b>42,600</b>

Source: Yorkshire & Humber SHMAs, Experian

### 4.3 Easing of affordability scenario

The final affordable housing demand projections consider the effect of the easing of the affordability indicators as witnessed in section 3.6. With the affordability indicator expected to fall to 3.7 by 2026 from its peak in 2007 of 6.3, we have assumed the trends in affordability are mirrored in a decline in both new household formation which might be considered unable to buy or rent in the open market and existing households falling into need.

Table 4.3. Scenario annual average demand for affordable housing, 2008 to 2026.

District	New household formation per annum (gross)	New household formation per annum (gross) and which might be considered unable to buy or rent in the open market	Other housing need	Total newly arising housing need (gross) per annum
East Riding of Yorkshire	2,650	1,880	180	2,060
Kingston upon Hull	1,650	640	1,660	2,300
North East Lincolnshire	710	390	580	970
North Lincolnshire	1,090	560	310	870
Craven	400	120	360	470
Hambleton	490	110	160	270
Harrogate	1,230	770	70	840
Richmondshire	380	120	320	440
Ryedale	350	140	60	210
Scarborough	660	340	160	500
Selby	530	120	420	540
York	1,450	410	1,280	1,690
Barnsley	1,170	730	1,030	1,760
Doncaster	1,140	660	370	1,020
Rotherham	1,150	420	470	900
Sheffield	2,730	990	1,000	1,990
Bradford	3,300	1,100	2,180	3,290
Calderdale	1,310	710	920	1,630
Kirklees	2,010	1,510	1,430	2,940
Leeds	5,930	2,560	3,790	6,350
Wakefield	1,710	770	610	1,380
<b>Yorkshire &amp; Humber Total</b>	<b>32,040</b>	<b>15,070</b>	<b>17,350</b>	<b>32,410</b>

Source: Yorkshire & Humber SHMAs, Experian

Table 4.3 shows the annual average demand for affordable housing, 2008 to 2026, under this scenario. The annual average newly arising housing need per annum is expected to fall from 42,600 in the trend based analysis to 32,410 in this scenario. The disparity between baseline and scenario widens through out the forecast period as affordability eases, so by the end of the forecast period, in 2026, 27,900 affordable households are required in the scenario compared to 44,000 households in the baseline.

## 5 Testing the efficacy of the trend based projections used by NHPAU

The section identifies the main differences from the various household projection methodologies and resultant projections presented in this project and the methods and resultant projections produced by the NHPAU in the paper “Meeting the housing requirements of an aspiring and growing nation: taking the medium and long-term view - Advice to the Minister about the housing supply range to be tested by Regional Planning Authorities”.

### 5.1 Methodological comparison

- The key difference is that Experian have utilised the 2006 based population projections to produce an implied 2006 household projection whereas revised 2004 based projections are used in the NHPAU demographic analysis. The consequence of this is an uplift in the population projections for the region and its districts. This is, at least in part, due to the ONS revised migration methodology used in the 2006 based population projections. As acknowledged by NHPAU there is much debate surrounding migration data and the impact of the introduction of the new points based system in potentially reducing immigration. This is further discussed in section 5.3.
- A range of household projections were produced by NHPAU. The bottom end of the range is informed by the 2004 based official household projections, 2007 net additions and government targets for the supply of new homes. NHPAU make an allowance for constrained need and demand, vacancies in new supply and the demand for second homes.
- The upper end of the NHPAU range draws on demographic analysis of backlog, and the results from the affordability modelling. The CLG Affordability Model integrates information about the labour and housing markets, and demographic trends. The affordability analysis show the number of new homes required to stabilise the lower quartile house price to earnings ratio at the level it was at in the first quarter of 2007.
- The NHPAU report that, all things being equal, emerging RSS plans would lead to a further worsening of affordability prospects, with the lower quartile ratio in England deteriorating to 8.6 by 2026. Income elasticity within the affordability model, the elasticity of house prices with respect to real incomes is approximately 2.0. A 1 per cent rise in real incomes would therefore increase house prices by 2 per cent, holding all other influences constant. This contrasts with the Experian approach, which doesn't explicitly use affordability in a housing model but has examined potential trends in the affordability indicator. Relative house prices along with relative full time equivalent employment have been used in the economic growth led scenario. Affordability, as derived by variables taken from the Spring 2008 regional planning service is expected to peak at 6.3 in 2007 in Yorkshire & Humber and then affordability improves as the affordability indicator is expected to decline rapidly in the next three years before declining at a reduced rate until the end of the forecast period.
- The NHPAU have assumed a 1.5 per cent growth in income in real terms until 2026 which equates therefore to house price growth of 3 per cent per annum. In comparison, house price growth used by Experian in the affordability indicator calculation is 1.5 per cent per annum for the region in nominal terms with earnings expected to increase at a much faster rate (4.1 per cent, also in nominal terms). House price growth in the Experian model is determined by

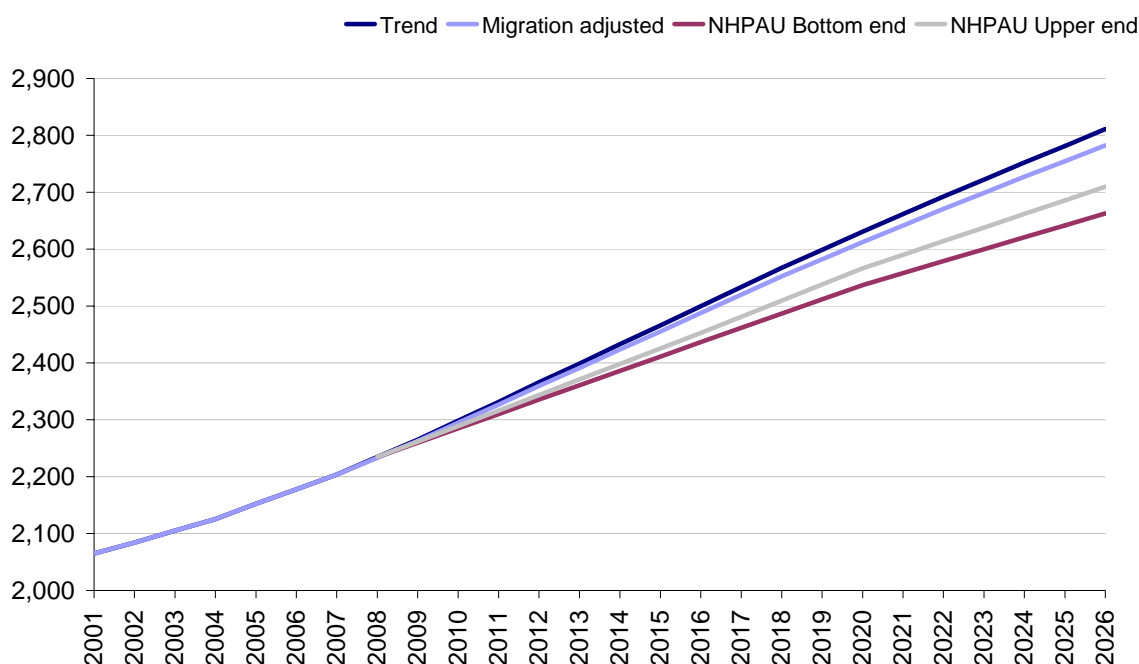
relative economic performance whereas house price growth in NHPAU is derived directly from assumptions about income growth.

- It should be noted that as a priority, the NHPAU are developing their modelling to consider the impact of different outcomes in the finance markets (i.e. the impact of mortgage rationing). A new version of the model is expected at the end of 2008, this will endogenise international migration and uncouple lower quartile earnings growth from median earnings growth.

## 5.2 Results comparison

- Figure 5.2. compares the 2006 trend based, 2006 economic growth led scenario and the bottom and upper end of the NHPAU proposed housing supply range for Yorkshire and Humber. The NHPAU series have been derived by splicing on annual growth rates from 2008 on the 2007 trend based estimate.
- The NHPAU proposed housing supply range is for 23,800 to 26,400 average annual net household additions between 2008 to 2026. (Trend based for comparison: 32,000, Economic Growth led scenario: 30,500). Both the NHPAU supply range and Experian's derived projections are frontloaded, i.e. they propose more households at the start of the range compared to the end.

Figure 5.2. Household projection comparison, Yorkshire and Humber (thousands)



Source: Experian, NHPAU

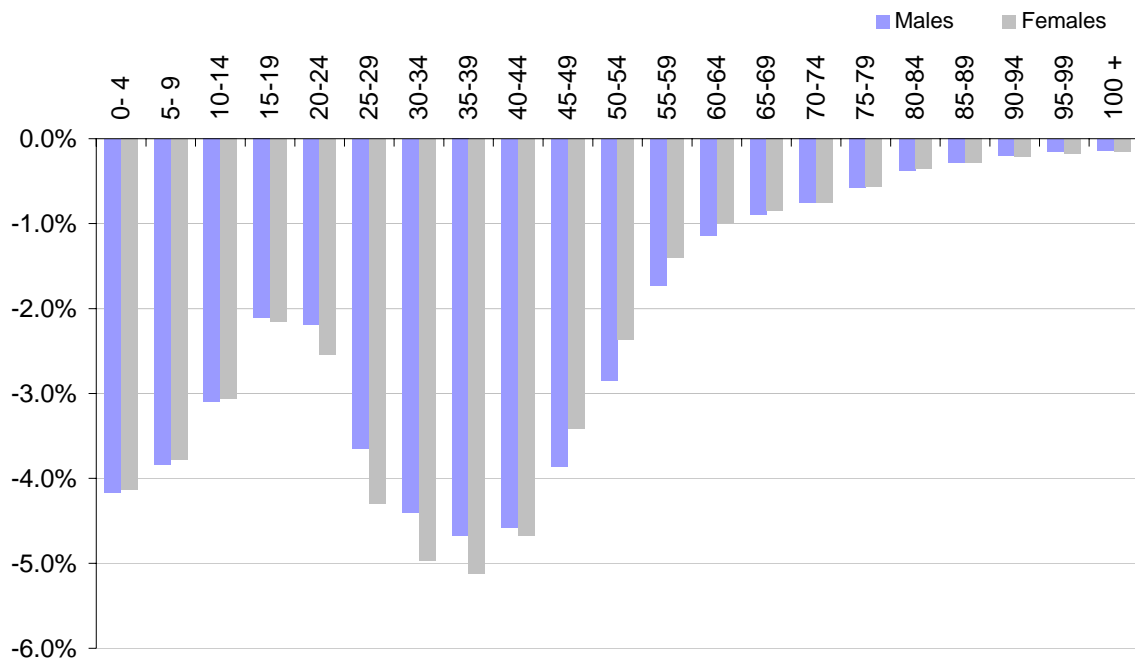
## 5.3 Low migration variant projections

- Under the ONS projections population is expected to rise due to positive natural change and growth in net in-migration. The components of population change are not independent of each other. In particular, the projected numbers of future births and deaths are themselves partly dependent on the assumed level of net migration. The ONS publish low (and also high) migration variant population projections by age and gender at the national level and analysis of

these variant projections allows the components of change and the underlying assumptions to be explored.

- In the 2006 based projections, the assumed level of annual long-term net migration in England in the low migration case is a net annual average inflow of 111,500 persons, compared with 171,500 under the principal projection.
- Compared to the principal projections, low migration variants differences are concentrated in the 30-44 age groups, for both males and females. This is because migration is concentrated at young adult ages.

Figure 5.3. Percentage change in low migration variant projection compared to principal 2006-based projection by age band and gender in 2026, England.



Source: ONS

- By applying the ratio of low migration variant population to principal projection by age and gender cohort at the England level to the 2006 trend based district level household population projections by the same cohorts we have derived district level low migration household population variants for Yorkshire & Humber.
- The variant household projections have been combined with standard household representative rate projections to produce a 2006 based low migration variant household projection.
- The change in housing supply from 2008 to 2026 declines in the low migration variant scenario to 514.9 thousand households in Yorkshire & Humber (Trend: 576.7 thousand households).

Table 5.3. 2006 based trend & low migration variant household projections (thousands), 2008 to 2026 change in households

	Low migration	Trend
East Riding of Yorkshire	44.0	47.6
Kingston upon Hull, City of	26.2	29.6
North East Lincolnshire	11.1	12.8
North Lincolnshire	17.8	19.5
Craven	6.6	7.2
Hambleton	8.0	8.8
Harrogate	20.2	22.1
Richmondshire	6.3	6.9
Ryedale	5.8	6.4
Scarborough	10.8	11.9
Selby	8.6	9.5
York	23.5	26.1
Barnsley	18.7	21.1
Doncaster	17.6	20.6
Rotherham	18.0	20.7
Sheffield	42.6	49.2
Bradford	53.4	59.4
Calderdale	21.0	23.5
Kirklees	31.6	36.1
Leeds	95.7	106.8
Wakefield	27.3	30.9
<b>Yorkshire &amp; Humber Total</b>	<b>514.9</b>	<b>576.7</b>

Source: Experian

# Appendix A

About us

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## Who we are

### Experian

Experian is a global leader in providing information, analytical and marketing services to organisations and consumers to help manage the risk and reward of commercial and financial decisions.

Combining its unique information tools and deep understanding of individuals, markets and economies, Experian partners with organisations around the world to establish and strengthen customer relationships and provide their businesses with competitive advantage.

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