Black Country Study Population and Household Scenario Forecasts 2001-2031

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WEST MIDLANDS REGIONAL ASSEMBLY- REGIONAL PLANNING BODY

This report has been prepared on behalf of the West Midlands Regional Assembly, the Regional Planning Body, as technical advice to inform the Regional Spatial Strategy Phase One Revision- Black Country Study. It is one of a suite of technical reports commissioned to inform the development of spatial policy as part of the Phase One Revision on West Midlands Regional Spatial Strategy.

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1. Summary

This report provides details of population and household scenario forecasts carried out in line with the Black Country Study Terms of Reference Spatial Framework Brief. A number of these forecasts have been taken forward elsewhere in to more detailed spatial planning scenarios, economic forecasts and the PRISM transport model. The forecasts have focused on the four Black Country districts (individually and as a whole) but have also been carried out for the other metropolitan districts and the wider region.

These forecasts should be seen in the context of population change over the last forty years. During the period 1961 to 1971 all districts except Sandwell experienced population growth. Post 1971 all districts except Dudley have experienced population decline to the extent that the population of the Black Country is now less than that in1961.

	1961	1971	1981	1991	2001
Dudley	254	295	301	308	305
Sandwell	338	332	310	293	285
Walsall	246	274	267	261	253
Wolverhampton	261	272	258	248	238
Black Country	1,099	1,172	1,136	1,110	1,081

The first scenario or base line projection assumes throughout the period the continuation of trends in migration experienced over the four year period 1999-2002 as supplied by ONS from the National Health Service Central Register (NHSCR) migration statistics. Taking account of births and deaths this continuation of a net migration loss of 4200 persons per annum for the four Black Country districts as a whole results in a reduction in population of 84,500 persons over the period 2001-2031 accompanied by a net loss of 2,400 households.

ONS 2002 based population projections issued recently for consultation purposes show the Black Country losing 18,000 in population over the period 2002-2027 (25 years) or 22,000 over 30 years, a somewhat lower loss than the NHSCR trend based projection. This contrasts with the previous 1996 based ONS projections that forecast a loss of 66,000 population over 25 years (79,000 over 30 years). These forecasts reflect the much higher levels of population growth forecast at the national level largely due to international migration.

The second scenario projection assumes the RPG level of house-building and clearance to 2021 with zero net migration over the period 2021 to 2031. This results in a population increase of 90,000 persons, a growth in households of 58,800 and implies a net inward average migration level of 480 persons per annum over the period, a significant change to current migration trends.

The third scenario projection assumes the continuation of RPG house-building and clearance rates (2011 to 2021) through to 2031 (ie 3600 new dwellings pa, and clearance of 790 dwellings pa.). This is roughly equivalent to a 5% total household increase between 2021 and 2031. This scenario results in a population increase over the period 2001 to 2031 of 124,800 persons and implies an average net inward migration level of 1,600 persons per annum over the period, a significant reversal of historic trends over the last 20 years.

The fourth scenario projection assumes the RPG level of house-building to 2021 and a 15% increase in total households over the period to 2031 equating to scenario B3 of the Spatial Framework brief. This scenario results in a population increase over the period 2001 to 2031 of over 250,000 people and implies household growth between 2021 and 2031 of more than two and a half times that implied by RPG over the period 2011-2021. Net inward migration rates of well over 5000 persons per annum would be required to sustain this scenario. **A variation of this high growth scenario based on a doubling of RPG house building and demolition rates between 2021 and 2031** was also tested**.** This results in a population increase over the period 2001 to 2031 of over 203,000 people and implies household growth of 98,000 households between 2021 and 2031. Net inward migration rates of 4000 persons per annum over the entire period 2001-2031 would be required to sustain this scenario.

All the projections show significant increases in population of the over 60's. The trend based projection shows a significant decline in all age groups below 60 reflecting the effects of continuing loss of the younger more mobile age groups through migration. The continuing RPG projection shows a small decline in the 30 to 60 age group but an increase in the below 30 age group as migration flows are reversed.

In household terms all projections show a reduction in married couple households overall but with increases in married couple households above retirement age. All projections show significant increases in one-person households in all broad age groups but especially in the retirement age groups. There are also increases in other multi-person households i.e. non-married couples, non family related people sharing.

2. Introduction

In developing a Spatial Framework for translating the aspirations set out in the Black Country Vision into a preferred land use and transportation structure for the Black Country a number of household growth scenarios have been developed and tested.

Four scenario projections have been carried out in line with the original Black Country Terms of Reference Spatial Framework Brief to inform discussion and a final set of three scenario projections were then developed further to provide the demographic background to underpin more detailed spatial planning work on prospects and aspirations for economic growth and the land use and transport implications.

The focus of the projections has been the four Black Country districts (individually and as a whole) but projections have also been carried out for the other metropolitan districts and the wider region.

The four scenario projections are as follows

i) A **continuing outward migration** scenario that assumes the continuation throughout the period 2001-2031 of average migration flows over the period 1999-2002 as defined by NHSCR migration trends.

ii) **Meeting of RPG housing targets to 2021 with zero net migration after 2021**. This scenario assumes that the levels of house building and demolitions from Tables 1 and 2 of draft RPG modifications are achieved over the period 2001-2021 and that over the period 2021 to 2031 that zero net migration takes place for each district. This corresponds closely to scenario B1 of the Spatial Framework Brief.

iii) **Meeting of RPG housing targets to 2021 and continuation through to 2031.** This scenario assumes that the levels of new house building and demolitions from Tables 1 and 2 of draft RPG Modifications are achieved over the period 2001-2021 and that the same levels for the period 2011-2021 are assumed to continue through 2021 to 2031 (ie 3600 new dwellings pa, and clearance of 790 dwellings pa). This scenario equates to scenario B2 of the Spatial Framework brief.

iv) The **RPG housing targets plus 15% increase in total households** scenario equating to scenario B3 of the Spatial Framework brief assumes that the levels of new house building and demolitions from Tables 1 and 2 of draft RPG Modifications are achieved over the period 2001-2021 and that a 15% increase in total households occurs over the period 2021 to 2031. A variation of this high growth scenario was also tested based on **doubling RPG house building rates to 7200 pa between 2021 and 2031.**

This report also considers these forecasts in the context of the household forecasts carried out as part of the RPG technical work on housing demand and supply and considers the potential implications of the current round of ONS population projections.

While forecasts have been carried out at individual district level the main commentary throughout this report is for the Black Country as a whole with reference to individual districts and the wider region where appropriate.

These forecasts are compared to past trends in population change and migration levels to provide a context for the discussion of the scale of changes required by each of the scenarios.

The forecasts have been carried out using the ‘Chelmer Population and Household Model’ (CPHM). This is a ‘cohort survival’ model developed and enhanced over many years by Anglia Polytechnic University, used by the majority of local authorities in the UK and has been tested many times through Structure Plans, Unitary Development Plans, Regional and sub-regional studies by both local authorities and

the private sector including the House Builders Federation. It is now largely accepted as the industry standard and is unusual in allowing 'what if' housing led scenarios to be tested rather than the traditional migration led approach. This 'what if' approach makes use of powerful modern programming techniques. Use of CPHM allows the debate to focus on input assumptions and outputs rather than the technicalities of the modelling process itself.

3. Population and Household forecasts underpinning RPG11 Review

The CPHM was used by Mott MacDonald in providing the scenario forecasts for the review of RPG11. These forecasts formed a key component of the technical housing demand and supply work underpinning housing land allocations in RPG and were contained within the background paper for RPG entitled 'Housing Demand in the West Midlands Region 1996-2021'. A range of forecasts were carried out for the West Midlands Region, shire counties and unitary authorities. These included a 'Zero Net Migration' forecast, a forecast 'Net of intra-regional migration' and a forecast including higher levels of international migration. All these forecasts were based on the 1991 Census based mid-year estimates and used the most up to date input data sets available for mortality, fertility, marital status etc as supplied by Anglia Polytechnic University. Household formation rates were the 1996 based DETR rates. All the forecasts were controlled to the 1996 mid year estimates and then the various scenarios applied from 1996 to 2021.

Estimates of intra-regional migration (within the region) were obtained from DETR and for the second scenario these migration totals were removed from the net migration input assumptions for each area. Intra-regional migration is assumed to be largely housing led rather than longer distance employment led inter-regional migration and by removing this element from the projection a scenario is produced that allows estimates of housing supply requirements to be generated that set against housing capacity estimates identifies shortfall and surpluses as compared with locally generated household growth. Other factors were also taken into account in determining final housing allocations such as vacancy rates, clearance, concealed households and increased international migration but ultimately final RPG allocations in draft RPG were also a matter of additional allocations as a matter of policy in order to achieve the 'step change' in slowing down or halting historic decentralisation trends.

Draft RPG envisaged 392,000 new dwellings over the period 1996-2021 and final RPG 308,000 over the period 2001 to 2021. For the Black Country the corresponding figures are 74,400 and 61,400. In order to obtain household growth account needs to be taken of demolitions. For the Black Country this amounts to 16,200 dwellings respectively over the period 2001 to 2021 in final RPG leading to a net increase in dwellings of 45,200.

These figures have been used as input control assumptions for RPG scenario projections using the CPHM with both base data as per the original RPG projections

and the latest base data sets as provided by Anglia Polytechnic University. The comparative figures are as follows

RPG 1991 based projections (using CPHM model as in previous RPG projections carried out in February 2001)

	1991	1996	2001	2006	2011	2016	('000's) 2021
Population	1,118	1,097	1,082	1,079	1,074	1,087	1,108
Households	433	436	439	447	456	469	482
Migration (per annum)		-7,156	-5,706	-2,319	-2,479	+896	+2,031

New RPG 2001 based projections (using latest CPHM model data sets)

	2001	2006	2011	2016	2021
Population	1,082	1,095	1,100	1,118	1,143
Households	439	447	456	469	482
Migration (per annum)		+809	-1,132	+1,197	+2,002

The two projections have been carried out using the same household controls i.e. the net change in dwelling stock as given by Tables 1 and 2 of RPG11 June 2004. It can be seen that the level of population required to sustain this level of household growth is now estimated to be higher than that previously forecast. Or looking at it another way the average household size now expected in the Black Country is not projected to decline at the same rate as that produced by using earlier data sets. Changes of this nature should not be unexpected as the base data sets have changed significantly e.g. the latest forecasts use the age/sex totals and structure as estimated by ONS at mid year 2001 using the 2001 Census as well as updated fertility and mortality rates from the Government Actuary's Department (GAD).

Both sets of projections do demonstrate that a step-change in the direction and level of migration is required to sustain this level of household growth. The current level of migration as measured by the NHSCR is some 4000 persons net outward migration per annum over the last four years and as derived from ONS mid-year estimates 1996-2001 is some 5000 persons per annum. The 1991 based projection above shows that the model required a level of net outward migration of 5,700 per annum 1996-2001 to meet the mid year estimates at 1996 and 2001.

These latest base data sets will also be updated as new data becomes available from the 2001 Census on household representative rates. These household representative rates will also be used in the next round of ODPM household projections based on the ONS 2002 based sub-national population projections. It is inevitable that significant divergences can occur in such projections and it should be recognised that although the best and most up to date input data sets are used that the projections represent only what would happen if all these assumptions were realised. There is a level of uncertainty that is not possible to quantify in statistical terms but nevertheless the projections and forecasts represent broad indications of the levels of change that would need to occur under the various scenarios.

4. ONS 2003 based population projections

ONS Sub-national population projections were published on the 25th November 2004 and are consistent with the national 2003 based population projections produced by the Government Actuary's Department and released on the 30th September 2004.

These projections show that the United Kingdom population is projected to increase gradually from an estimated 59.6 million in 2003 to reach 65.7 million by 2031. The population of the UK is expected to peak at nearly 67 million by 2050 and thereafter very gradually start to fall. Of the projected 6.1 million increase between 2003 and 2031 some 2.5 million (41%) is projected natural increase while the remaining 3.6 million (59%) is the assumed total number of net migrants.

The number of people of state pensionable age is projected to increase from 11 million in 2003 to 15 million by 2031. Generally speaking the population will gradually become older with the average (mean) age expected to rise from 39.4 years in 2003 to 43.6 years in 2031.

These significant increases in the national level population projections are reflected in the sub-national projections. The 1996 based projections for the West Midlands Region show a population increase of 68,000 between 2001 and 2021 while the 2003 based projections show an increase of 288,800 between 2003 and 2023 and a further 62,800 increase by 2028. Migration levels at the regional level are forecast to increase from a zero level of net migration to over 7,500 per annum by 2028. These are significant increases and will have implications for the level of household growth at the regional level and its distribution at sub-regional level.

The next round of household projections will be based on these ONS 2003 based population projections and will incorporate projected household formation rates derived from the 2001 Census. Given the much higher levels of population growth it follows that higher numbers of households will also be expected. However both the population and household projections will start from a revised base and the interim mid-year household estimates for England for 2001 show a lower level of households than the 1996 based household projections for 2001. It is not possible to give any firm guidance at this stage as to the implications of these new population projections on household growth as compared to previous household projections underpinning RPG11.

However it is true to say that household projections starting from the same population base and incorporating higher levels of net inward migration will lead *ceteris paribus* to higher levels of household growth.

5. Black Country population and household scenario forecasts

Each of the four population and household scenario forecasts have been carried out utilising the latest CPHM model and datasets. The forecasts are based on ONS mid-year 2001 populations by five year age and sex cohorts themselves based on the 2001 Census updated to the mid-year and revised in November 2003 in the light of research into population estimates following the 2001 Census. They also incorporate the latest data sets on mortality and fertility both nationally and locally. Household representative rates and marital status rates are 1996 DETR (now ODPM) based and await further data from the 2001 Census and GAD before they can be updated. These data-sets will be incorporated in to the next round of ODPM household projections based on the ONS 2002 based population projections and will not be available before Spring/Summer 2005. The ONS 2002 based population projections that are currently out for consultations incorporate significantly higher international migration assumptions than in the previous 1996 based projections upon which RPG was based and regionally this has the effect of leading to higher population projections for the region and *ceteris paribus* higher household projections. The policy implications of this increase intra-regionally will be the subject of the next review of RPG11.

Four scenarios covering a wide range of household growth implications have been developed and forecasts carried out at individual Black Country district level. These are now considered in turn for the Black Country as a whole with details at district level contained within Appendix 1.

i) Continuing outward migration

This scenario assumes that for each district the current level of net migration as derived from NHSCR data for the period 1999-2002 continues throughout the period 2001 to 2031.

The migration assumptions for each district are shown below with a comparison of migration derived from ONS mid-year estimates components of change for the period 1996-2001.

Migration (persons per annum):

	NHSCR	ONS
Dudley	-375	-740
Sandwell	-1,350	-1,380
Walsall	-1,100	-1,740
Wolverhampton	-1,375	-1,420
Black Country	-4,200	-5,280

These levels of migration have been fairly consistent for at least the last fifteen years although Dudley has experienced periods of net inward migration principally from other parts of the conurbation as major housing sites have come on stream.

This scenario forecast shows the following population and household totals and changes for the Black Country.

	Population			Population Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	1,081	1030	997	-24.6	-26.5	-33.4
		(Cumulative)			(-51.1)	(-84.5)
	Households			Household Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	439	444	436	+1.7	+3.2	-7.3
		(Cumulative)			(+4.9)	(-2.4)

For the Black Country as a whole although the continuation of current trends in migration results in significant losses in population over the two ten year periods to 2021 there is still an increase in households and a consequent requirement for an increase in dwelling stock. In the ten year period from 2021 to 2031 the continuing loss of population results in an absolute loss of households resulting in higher vacancy rates and/or reduction of the housing stock through clearance.

ii) Meeting of RPG housing targets to 2021 with zero net migration after 2021.

This scenario assumes for each district that RPG housing targets as detailed in Tables 1 and 2 of RPG11 (June 2004) are fully met up to the end of 2021 and that from 2021 to 2031 there is a net balance of inward and outward migration from each district.

The actual RPG derived input assumptions are as follows for each district

RPG Completions and Demolitions assumptions:

	2001-2011		2011-2021	
	Completions	Demolitions	Completions	Demolitions
Dudley	6,400	1,100	9,750	1,500
Sandwell	9,000	5,600	9,750	3,900
Walsall	5,000	500	8,250	1,000
Wolverhampton	5,000	1,100	8,250	1,500
Black Country	25,400	8,300	36,000	7,900

For the Black Country as a whole RPG expects 61,400 new dwellings to be completed along with 16,200 demolitions, a net increase in dwelling stock of 45,200 dwellings over the period 2001-2021.

In this 'what if' mode of CPHM operation completions and demolitions are input controls and migration becomes an output The resulting migration flows for the Black Country are shown below.

Migration (persons per annum):

	2001-2011	2011-2021	2021-2031
Black Country	-150	+1600	0

In the first ten year period migration levels represent on average a small net outflow from the Black Country as a whole, a significant reduction from current trends of over 4,000 persons per annum. In the second ten year period the migration flow reverses from the historic outward migration flow to a net inward flow of migration of some 1600 persons per annum, a significant step change.

This scenario forecast shows the following population and household totals and changes for the Black Country.

	Population			Population Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	1081	1142 (Cumulative)	1171	+18.5	+42.9 (+61.4)	+28.9 (+90.3)

	Households			Household Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	439	483 (Cumulative)	498	+16.6	+27.1 (+43.7)	+15.1 (+58.8)

The planned increase in households in the Black Country implicit in RPG11 is some 2300 per annum over the period 2001-2021. The scenario of a balance of inward and outward migration in then period 2021-2031 results in a household increase of 1,500 per annum. The total increase in households over the whole period is nearly 58,800 households accompanied by a population increase of 90,000 persons. This scenario can only be sustained by a significant shift in current outward migration to a position of net inward migration.

In the period 2021 to 2031 although all districts are assumed to have zero net migration Dudley experiences a small net loss in population while the other districts experience varying degrees of population increase. This is due to the varying age structures of each district with Dudley having an older age structure than the other three districts and therefore producing fewer births and more deaths over the period.

iii) Meeting of RPG housing targets to 2021 with a continuation of RPG building and clearance rates through to 2031

This scenario assumes for each district that RPG housing targets as detailed in Tables 1 and 2 of RPG11 (June 2004) are fully met up to the end of 2021 as with the previous scenario but that the building and clearance rates expressed in RPG11 for the period 2011-2021 are carried forward to the period 2021-2031.

As in the previous scenario migration becomes an output of the CPHM. The resulting migration flows are shown below. For the first two ten year periods the migration flows are the same as the scenario above i.e a reversal of current migration trends, but in the period 2021-2031 the net inward migration flow required to sustain this level of house building increases to 3,200 per annum as compared to a current net outward migration flow of 4,200 persons per annum.

Migration (persons per annum):

	2001-2011	2011-2021	2021-2031
Black Country	-150	+1600	+3,200

This scenario forecast shows the following population and household totals and changes for the Black Country.

	Population			Population Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	1081	1142	1,206	+18.5	+42.9	+63.4
		(Cumulative)			(+61.4)	(+124.8)

	Households			Household Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	439	483	510	+16.6	+27.1	+27.1
		(Cumulative)			(+43.7)	(+ 70.8)

Under this scenario the planned increase in households of 2,700 per annum over the period 2011-2021 is carried forward through to 2031. This scenario implies an accelerating population growth reaching 6,300 per annum in the final ten year period. Over the 30 year period there is a population increase of nearly 125,000 sustained by what would be high levels of net inward migration as compared to trends over the last twenty years.

iv) Meeting of RPG housing targets to 2021 with a 15% increase in total households from 2021 to 2031

This scenario assumes for each district that RPG housing targets as detailed in Tables 1 and 2 of RPG11 (June 2004) are fully met up to the end of 2021 as with the

previous scenario but that an increase in households of 15 percent of the total number of households takes place between 2021 and 2031.

As in the previous scenarios migration becomes an output of the CPHM. The resulting migration flows are shown below. For the first two ten year periods the migration flows are the same as the scenario above i.e a reversal of current migration trends, but in the period 2021-2031 the net inward migration flow required to sustain this level of household growth increases to 15,500 per annum as compared to a current net outward migration flow of 4,200 persons per annum. Clearly this represents an extremely ambitious housing growth scenario.

Migration (persons per annum)

	2001-2011	2011-2021	2021-2031
Black Country	-150	+1600	+15,500

This scenario forecast shows the following population and household totals and changes for the Black Country.

	Population			Population Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	1081	1142	1,336	+18.5	+42.9	+193.2
			(Cumulative)		(+61.4)	(+254.6)

	Households			Household Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	439	483	555	+16.6	+27.1	+72.4
			(Cumulative)		(+43.7)	(+126.1)

Under this scenario the planned increase in households of 2,700 per annum over the period 2011-2021 is accelerated to over 7,000 per annum over the period 2021 to 2031. This scenario implies an accelerating population growth reaching over 19,000 per annum in the final ten year period. Over the 30 year period there is a population increase of nearly 250,000 sustained by what would be extremely high levels of net inward migration.

As this scenario implied a major acceleration in change from 2021**, a variation was tested based on doubling RPG housebuilding and demolition rates between 2021 and 2031**. The implications for migration levels to sustain this level of housebuilding are shown below.

Migration (persons per annum)

	2001-2011	2011-2021	2021-2031
Black Country	-150	+1600	+10,600

	Population	Population Change	(000's)

	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	1081	1143	1284	+18.5 (Cumulative)	+42.9 (+61.4)	+141.2 (+202.7)

	Households			Household Change		(000's)
	2001	2021	2031	2001-2011	2011-2021	2021-2031
Black Country	439	483	537	+16.5 (Cumulative)	+27.1 (+43.6)	+54.3 (+98.0)

This scenario implies very high levels of net migration into the Black Country in the latter period in order to achieve the doubling of RPG building rates over the period 2021 to 2031. It implies a strong housing led growth strategy. This scenario implies an acceleration of household growth in the period 2011-2021 to meet RPG targets and then a further doubling of household growth in the period 2021-2031.

6. Changes in age structure and household types

Within the overall population and household changes described above there are also significant changes in the age structure of the population and also the types of households. The overall direction of these changes is common to all three scenarios but the scale of change does vary significantly for different age group and household types between the scenarios.

Age structure

All three scenario forecasts show the over 60's age group increasing significantly as the peak in births in the post war years rolls through and as life expectancy continues to increase. The table below shows the broad age structure of the population at 2001, 2021 and 2031 for the migration trend scenario and the RPG continuing to 2031 scenario.

The table clearly demonstrates that the impact of a change to net inward migration in the RPG continuing to 2031scenario is much more significant for the younger age groups. This is because migration is heavily biased towards the younger age groups especially the 15-29 age group. The over 60's age groups increase significantly under both scenarios but more so under the RPG scenario. Over the 30 year period both scenarios result in a decrease in the 30 to 59 age groups although significantly less so under the RPG scenario.

It can be seen from the table below that in proportionate terms the population of over 60's increases from 22% in 2001 to 30% for the continuing migration trend scenario and to 26% for the RPG continuing scenario. That is under the RPG scenario although the absolute numbers of the over 60's increase more than the trend scenario the proportion of the over 60's decreases. This overall ageing of the population is consistent with the latest ONS 2003 based national population forecasts that show the

proportion of the population of over 60's increasing from 21% in 2003 to 30% in 2033.

Change in age structure of the population 2001-2021-2031

(000's)

	2001		2021 Scenario's			2031 Scenario's				Change 2001-2031 Scenario's	
Age Group		(%)	i)	(%)	iii)	(%)	i)	(%)	iii)	(%)	i)	iii)
0-14	212	(19.6)	186	(18.1)	218	(19.1)	180	(18.1)	235	(19.5)	-33	+23
15-29	198	(18.3)	193	(18.7)	221	(19.3)	180	(18.1)	231	(19.2)	-18	+33
30-44	238	(22.0)	175	(17.0)	208	(18.2)	179	(18.0)	233	(19.3)	-59	-5
45-59	198	(18.3)	211	(20.5)	223	(19.5)	160	(16.5)	193	(16.0)	-37	-5
60-74	154	(14.2)	169	(16.4)	174	(15.2)	190	(19.1)	200	(16.6)	+35	+46
75+	81	(7.5)	96	(9.3)	99	(8.7)	108	(10.8)	113	(9.4)	+27	+33
Total	1081	(100)	1030	(100)	1143	(100)	997	(100)	1206	(100)	-85	+125

Household type

The CPHM allows changes in household types to be forecast including the age of the head of the household. In all scenario forecasts there is a reduction in married couple households overall but with increases in married couple households above retirement age. All three forecasts show significant increases in one-person households in all broad age groups but especially in the retirement age groups. There are also increases in other multi-person households i.e. non-married couples, non family related people sharing. Changes in married couple households by age of head of household are shown below for the trend based forecast and the RPG continuing forecast.

Change in Married Couple Households 2001-2021 & 2031 (Trend scenario)

Black Country	15-29	30-44	45-RA	RA+	(000's) Total
2001-2021	-0.9	-26.1	-15.1	+6.4	-35.6
2001-2031	-1.4	-24.0	-26.0	+12.4	-39.0

Change in Married Couple Households 2001-2021 & 2031 (RPG scenario)

Black Country	15-29	30-44	45-RA	RA+	(000's) Total
2001-2021	+0.4	-19.3	-10.9	+7.8	-21.9
2001-2031	+0.8	-12.7	-15.5	+15.5	-11.8

The two projections show that there is a decline in married couple households overall in both projections with the trend migration scenario projection leading to a net fall of some 39,000 married couple households over the period 2001-2031. Although migration in the RPG continuing to 2031 scenario is reversed to a net inward migration flow, the projection still shows a decline in married couple households overall (though this decline is reversed post 2021 and replaced by a modest growth). Both projections show an increase in married couple households in the retirement age groups.

Change in Other Multi-Person Households 2001-2021 & 2031 (Trend scenario)

Black Country	15-29	30-44	45-RA	RA+	(000's) Total
2001-2021	+1.4	-0.1	+11.0	+4.6	+17.0
2001-2031	+0.5	+0.2	+5.5	+6.7	+12.9

Change in Other Multi-Person Households 2001-2031 (RPG scenario)

Black Country	15-29	30-44	45-RA	RA+	(000's) Total

2001-2021	+3.7	+4.0	+12.7	+5.1	+25.5
2001-2031	+4.5	+6.8	+9.7	+7.8	+28.8

Other multi-person households include co-habiting couples and other non-related individuals living as a single household. This group of households shows significant increases under both trend and RPG scenarios with the majority of the increase occurring in the 45 plus age groups. Under the RPG scenario the changes entirely off set the decrease in married couple households. The combined married couple and multi-person household changes are shown below.

Change in Combined Married Couple and Multi-Person Households 2001-2021 & 2031 (Trend scenario)

Black Country					(000's)
	15-29	30-44	45-RA	RA+	Total
2001-2021	+0.5	-26.2	-4.1	+11.0	-18.6
2001-2031	-0.9	-23.8	-20.5	+19.1	-26.1

Change in Combined Married Couple and Multi-Person Households 2001-2021 & 2031 (Trend scenario)

Black Country					(000's)
	15-29	30-44	45-RA	RA+	Total
2001-2021	+4.1	-15.3	+1.8	+12.9	+3.6
2001-2031	+5.3	-5.9	-5.8	+23.3	+17.0

Both scenario projections show significant increases in one person households. The growth in one person households for the two scenario projections are shown below. Over the period 2001 to 2021 the greatest increase is in the 45 to retirement age group while over the period to 2001 to 2031 the greatest increase has moved to the over retirement age group. This true for both trend and RPG scenarios and reflects the continuing propensities for single living and higher rates of divorce but also the purely demographic effects of increased numbers of people in these age groups.

Change in One Person Households 2001-2021 & 2031 (Trend scenario)

Black Country					(000's)
	15-29	30-44	45-RA	RA+	Total
2001-2021	+1.6	+2.8	+15.7	+5.3	+25.3
2001-2031	+0.7	+3.5	+8.4	+14.1	+26.8

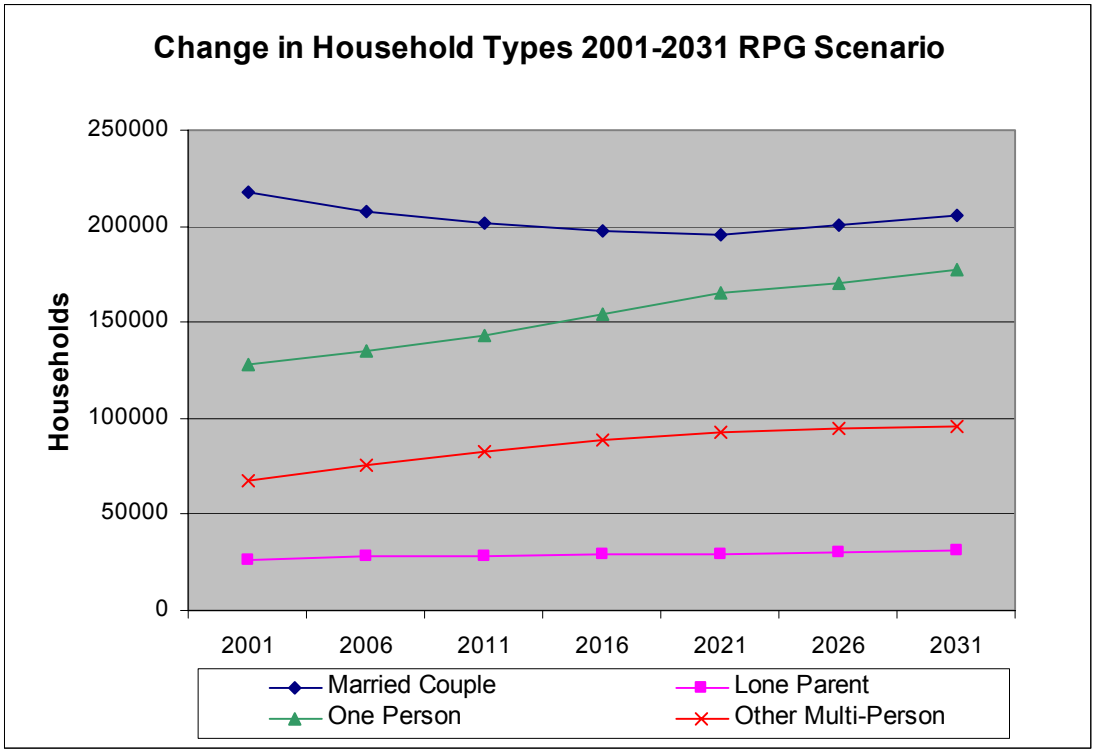
Change in One Person Households 2001-2021 & 2031 (RPG scenario)

Black Country					(000's)
	15-29	30-44	45-RA	RA+	Total

2001-2021	+4.0	+7.8	+18.0	+7.4	+37.2
2001-2031	+4.8	+11.8	+14.4	+18.4	+49.3

In both projections there is an increase of one person households with the RPG scenario projection showing, as would be expected with the reversal in migration and accompanying population growth, a higher level of increase especially in the younger age groups.

The broad changes in household type for the RPG continuing scenario are shown graphically below. The trend based scenario shows similar broad changes with the main differences discussed above.



The main drivers in these changes in the number and type of households are the demographic effects of increases in the population of the Black Country principally due to levels of inward migration under the RPG scenario and the effects of changes in household representative rates over the period. A household representative rate is the propensity of a particular age/sex/marital status category to head a household of a particular type. The future number of households is therefore a result of changes in age structure of the population, changes in rates of marriage and divorce, and changes in household representative rates for these groups. These Chelmer forecasts use the ODPM 1996 based projected household representative rates. Revised rates utilising data from the 2001 Census are unlikely to be available before mid year 2005.

Generally speaking changes in household representative rates result in an overall increase in the number of households per head of population over the period 2001 to 2031 resulting in a decrease in average household size. It is therefore quite possible for decreases in population to be accompanied by increases in households and for

large household increases to be accompanied by relatively low levels of population increase.

Appendix A Individual District Level Forecasts

Black Country Study - Population and Household Scenario Forecasts 2001-2031 by Individual District

i) Continuing outward migration

This scenario assumes that for each district the current level of net migration as derived from NHSCR data for the period 1999-2002 continues throughout the period 2001 to 2031.

The migration assumptions for each district are shown below with a comparison of migration derived from ONS mid-year estimates components of change for the period 1996-2001.

Migration (persons per annum)

	NHSCR	ONS
Dudley	-375	-740
Sandwell	-1,350	-1,380
Walsall	-1,100	-1,740
Wolverhampton	-1,375	-1,420
Black Country	-4,200	-5,280

These levels of migration have been fairly consistent for at least the last fifteen years although Dudley has experienced periods of net inward migration principally from other parts of the conurbation as major housing sites have come on stream.

This scenario forecast shows the following population and household totals and changes for each district.

	Population		Population Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	305	291	-1.8	-4.2	-7.3
Sandwell	285	263	-8.9	-6.2	-6.5
Walsall	253	235	-4.1	-6.2	-8.1
Wolverhampton	238	207	-9.8	-10.0	-11.4
Black Country	1,081	997	-24.6	-26.5	-33.4
	Households		Household Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	125	132	+4.3	+3.9	-1.1
Sandwell	115	114	-1.4	+0.8	-1.2
Walsall	101	101	+0.6	+0.5	-1.9
Wolverhampton	97	90	-1.8	-2.1	-3.2
Black Country	439	436	+1.7	+3.2	-7.3

For the Black Country as a whole although the continuation of current trends in migration results in significant losses in population over the two ten year periods to 2021 there is still an increase in households and a consequent requirement for an increase in dwelling stock. In the ten year period from 2021 to 2031 the continuing loss of population results in an absolute loss of households resulting in higher vacancy rates and/or reduction of the housing stock through clearance.

ii) Meeting of RPG housing targets to 2021 with zero net migration after 2021.

This scenario assumes for each district that RPG housing targets as detailed in Tables 1 and 2 of RPG11 (June 2004) are fully met up to the end of 2021 and that from 2021 to 2031 there is a net balance of inward and outward migration from each district.

The actual RPG derived input assumptions are as follows for each district

RPG Completions and Demolitions assumptions

	2001-2011		2011-2021	
	Completions	Demolitions	Completions	Demolitions
Dudley	6,400	1,100	9,750	1,500
Sandwell	9,000	5,600	9,750	3,900
Walsall	5,000	500	8,250	1,000
Wolverhampton	5,000	1,100	8,250	1,500
Black Country	25,400	8,300	36,000	7,900

For the Black Country as a whole RPG expects 61,400 new dwellings to be completed along with 16,200 demolitions, a net increase in dwelling stock of 45,200 dwellings over the period 2001-2021.

In this ‘what if‘ mode of CPHM operation completions and demolitions are input controls and migration becomes an output The resulting migration flows for each district are shown below.

Migration (persons per annum)

	2001-2011	2011-2021	2021-2031
Dudley	-150	+700	0
Sandwell	-50	-200	0
Walsall	-50	+500	0
Wolverhampton	+100	+600	0
Black Country	-150	+1600	0

In the first ten year period migration levels represent on average a small net outflow from the Black Country as a whole, a significant reduction from current trends of over 4,000 persons per annum. In the second ten year period the migration flow reverses from the historic outward migration flow to a net inward flow of migration of some 1600 persons per annum, a significant step change.

This scenario forecast shows the following population and household totals and changes for each district.

	Population		Population Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	304.8	311.8	+0.6	+7.6	-1.2
Sandwell	285.0	309.9	+5.0	+7.9	+12.0
Walsall	253.2	282.2	+7.1	+13.3	+8.6
Wolverhampton	238.1	267.4	+5.8	+14.1	+9.5
Black Country	1081.1	1171.3	+18.5	+42.9	+28.9

	Households		Household Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	125.0	139.3	+5.2	+8.0	+1.1
Sandwell	115.4	129.9	+3.3	+5.6	+5.6
Walsall	101.3	116.6	+4.3	+7.0	+4.0
Wolverhampton	97.1	111.8	+3.8	+6.5	+4.4
Black Country	438.8	497.6	+16.6	+27.1	+15.1

The planned increase in households in the Black Country implicit in RPG11 is some 2300 per annum over the period 2001-2021. The scenario of a balance of inward and outward migration in the period 2021-2031 results in a household increase of 1,500 per annum. The total increase in households over the whole period is nearly 58,800 households accompanied by a population increase of 90,000 persons. This scenario can only be sustained by a significant shift in current outward migration to a position of net inward migration.

In the period 2021 to 2031 although all districts are assumed to have zero net migration Dudley experiences a small net loss in population while the other districts experience varying degrees of population increase. This is due to the varying age structures of each district with Dudley having an older age structure than the other three districts and therefore producing fewer births and more deaths over the period.

iii) Meeting of RPG housing targets to 2021 with a continuation of RPG building and clearance rates through to 2031

This scenario assumes for each district that RPG housing targets as detailed in Tables 1 and 2 of RPG11 (June 2004) are fully met up to the end of 2021 as with the previous scenario but that the building and clearance rates expressed in RPG11 for the period 2011-2021 are carried forward to the period 2021-2031.

As in the previous scenario migration becomes an output of the CPHM. The resulting migration flows for each district are shown below. For the first two ten year periods the migration flows are the same as the scenario above i.e a reversal of current migration trends, but in the period 2021-2031 the net inward migration flow required

to sustain this level of house building increases to 3,200 per annum as compared to a current net outward migration flow of 4,200 persons per annum.

Migration (persons per annum)

	2001-2011	2011-2021	2021-2031
Dudley	-150	+700	+1,900
Sandwell	-50	-200	0
Walsall	-50	+500	+800
Wolverhampton	+100	+600	+500
Black Country	-150	+1600	+3,200

This scenario forecast shows the following population and household totals and changes for each district.

	Population		Population Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	304.8	331.5	+0.6	+7.6	+18.5
Sandwell	285.0	310.2	+5.0	+7.9	+12.3
Walsall	253.2	291.1	+7.1	+13.3	+17.5
Wolverhampton	238.1	273.0	+5.8	+14.1	+15.1
Black Country	1081.1	1,205.8	+18.5	+42.9	+63.4

	Households		Household Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	125.0	146.2	+5.2	+8.0	+8.0
Sandwell	115.4	130.0	+3.3	+5.6	+5.6
Walsall	101.3	119.6	+4.3	+7.0	+7.0
Wolverhampton	97.1	113.9	+3.8	+6.5	+6.5
Black Country	438.8	509.7	+16.6	+27.1	+27.1

Under this scenario the planned increase in households of 2,700 per annum over the period 2011-2021 is carried forward through to 2031. This scenario implies an accelerating population growth reaching 6,300 per annum in the final ten year period. Over the 30 year period there is a population increase of nearly 125,000 sustained by what would be high levels of net inward migration as compared to trends over the last twenty years.

iv) Meeting of RPG housing targets to 2021 with a 15% increase in total households from 2021 to 2031

This scenario assumes for each district that RPG housing targets as detailed in Tables 1 and 2 of RPG11 (June 2004) are fully met up to the end of 2021 as with the previous

scenario but that an increase in households of 15 percent of the total number of households takes place between 2021 and 2031.

As in the previous scenarios migration becomes an output of the CPHM. The resulting migration flows for each district are shown below. For the first two ten year periods the migration flows are the same as the scenario above i.e a reversal of current migration trends, but in the period 2021-2031 the net inward migration flow required to sustain this level of household growth increases to 15,500 per annum as compared to a current net outward migration flow of 4,200 persons per annum. Clearly this represents an extremely ambitious housing growth scenario.

Migration (persons per annum)

	2001-2011	2011-2021	2021-2031
Dudley	-150	+700	+5,300
Sandwell	-50	-200	+3,600
Walsall	-50	+500	+3,600
Wolverhampton	+100	+600	+3,000
Black Country	-150	+1600	+15,500

This scenario forecast shows the following population and household totals and changes for each district.

	Population		Population Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	304.8	367.6	+0.6	+7.6	+54.6
Sandwell	285.0	348.0	+5.0	+7.9	+50.0
Walsall	253.2	320.7	+7.1	+13.3	+47.0
Wolverhampton	238.1	299.5	+5.8	+14.1	+41.5
Black Country	1081.1	1,335.8	+18.5	+42.9	+193.2
	Households		Household Change		(000's)
	2001	2031	2001-2011	2011-2021	2021-2031
Dudley	125.0	158.9	+5.2	+8.0	+20.7
Sandwell	115.4	143.0	+3.3	+5.6	+18.7
Walsall	101.3	129.5	+4.3	+7.0	+16.9
Wolverhampton	97.1	123.5	+3.8	+6.5	+16.1
Black Country	438.8	554.9	+16.6	+27.1	+72.4

Under this scenario the planned increase in households of 2,700 per annum over the period 2011-2021 is accelerated to over 7,000 per annum over the period 2021 to 2031. This scenario implies an accelerating population growth reaching over 19,000 per annum in the final ten year period. Over the 30 year period there is a population increase of nearly 250,000 sustained by what would be extremely high levels of net inward migration.

6. Changes in age structure and household types

The CPHM allows changes in household types to be forecast including the age of the head of the household. In all scenario forecasts there is a reduction in married couple households overall but with increases in married couple households above retirement age. All three forecasts show significant increases in one-person households in all broad age groups but especially in the retirement age groups. There are also increases in other multi-person households i.e. non-married couples, non family related people sharing. Changes in married couple households by age of head of household are shown below for the trend based forecast and the RPG continuing forecast.

Change in Married Couple Households 2001-2031 (Trend scenario)

	15-29	30-44	45-RA	RA+	(000's) Total
Dudley	-0.2	-6.2	-8.3	+6.3	-8.3
Sandwell	-0.4	-5.9	-5.8	+2.1	-10.0
Walsall	-0.2	-5.8	-6.8	+3.8	-9.1
Wolverhampton	-0.6	-6.1	-5.1	+0.3	-11.5
Black Country	-1.4	-24.0	-26.0	+12.4	-39.0

Change in Married Couple Households 2001-2031 (RPG scenario)

	15-29	30-44	45-RA	RA+	(000's) Total
Dudley	+0.4	-3.3	-6.4	+6.9	-2.4
Sandwell	+0.1	-3.8	-3.5	+2.7	-4.5
Walsall	+0.3	-2.9	-3.7	+4.7	-1.5
Wolverhampton	0	-2.7	-1.9	+1.2	-3.4
Black Country	+0.8	-12.7	-15.5	+15.5	-11.8

The two projections show that there is a decline in married couple households overall in both projections with the trend migration scenario projection leading to a net fall of some 39,000 married couple households over the period 2001-2031. Although migration in the RPG continuing to 2031 scenario is reversed to a net inward migration flow the projection still shows a decline in married couple households overall. Both projections show an increase in married couple households in the retirement age groups.

Both scenario projections show significant increases in one person households and to a lesser extent other multi-person households. The growth in one person households for the two scenario projections are shown below.

Change in One Person Households 2001-2031 (Trend scenario)

	15-29	30-44	45-RA	RA+	(000's) Total
Dudley	+0.2	+1.5	+2.4	+7.6	+11.8
Sandwell	+0.2	+0.8	+2.4	+1.1	+4.6

Walsall	+0.3	+1.0	+1.6	+4.1	+7.0
Wolverhampton	0	+0.1	+1.9	+1.3	+3.4
Black Country	+0.7	+3.5	+8.4	+14.1	+26.8

Change in One Person Households 2001-2031 (RPG scenario)

	15-29	30-44	45-RA	RA+	(000's) Total
Dudley	+0.9	+3.3	+3.3	+8.6	+16.1
Sandwell	+1.2	+2.5	+3.9	+2.0	+9.6
Walsall	+1.1	+3.0	+3.1	+5.3	+12.6
Wolverhampton	+1.6	+2.9	+4.1	+2.5	+11.1
Black Country	+4.8	+11.8	+14.4	+18.4	+49.3

In both projections there is an increase of one person households with the RPG scenario projection showing, as would be expected with the reversal in migration and accompanying population growth, a higher level of increase especially in the younger age groups.