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The University of Manchester

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# Population forecasts for Birmingham

CCSR Working Paper 2007-12

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**The forecast has been completed for eight ethnic group categories – White, Caribbean, African, Indian, Pakistani, Bangladeshi, Chinese and Other, and extends to 2028. Birmingham's population is expected to grow steadily to 1.1m by 2026, reversing the decline of the 1990s. Birmingham's population was diverse in 2001, with White, Pakistani, Indian and Caribbean populations numbering over 40 thousand. African and Bangladeshi populations will also number more than 40 thousand by 2026. A further 150 thousand or more than 10% of the population will come from a diverse range of other groups. The White population is not expected to fall below one half of the total until 2024, and it will remain more than twice the size of any other group. The working age population will grow as whole by 62 thousand in the next 20 years, most of this growth at older ages. Black and minority ethnic residents will make up 50% of the population aged 40-64 by 2026, where they are 25% in 2006.**

## Preface

This report was commissioned by Birmingham City Council from the Cathie Marsh Centre for Census and Survey Research (CCSR), University of Manchester. CCSR will also provide forecasts of the number of households in Birmingham, disaggregated by ethnic group.

The forecast has been completed for eight ethnic group categories – White, Caribbean, African, Indian, Pakistani, Bangladeshi, Chinese and Other, and extends to 2028. The trends for smaller groups and in the more distant future are less predictable. For this reason the growth of the African and Chinese groups should be seen as less firm than other results.

The Census data which have been used extensively and are reported in some sections, are Crown copyright. Some have been accessed directly from the Office for National Statistics, others via the academic service provided by the JISC/ESRC Census Initiative, and some via Birmingham City Council.

## Contents



The results of the population forecast are also provided on Excel files in full detail together with interrogation software. A separate technical report provides evidence from the 1991 and 2001 Censuses, describes how it was incorporated in the forecasts presented here, how to use the Excel files to explore the results further, and how to develop the forecasts with further data and alternative assumptions.

This report: “Population forecasts for Birmingham CCSR Report.doc”
Technical report: “Population forecasts for Birmingham CCSR Tech.doc” (available, with reports on household forecasts, at http://www.ccsr.ac.uk/research/egpf.htm)

## Executive Summary

Ethnic group has been recorded in the national census twice, in 1991 and 2001. By monitoring change in fertility and migration in the 1990s, it has been possible to project forward the population of Birmingham with an ethnic group dimension, while maintaining consistency with the government forecast of Birmingham's total population.

The work is based on careful analysis of past trends and the most likely future scenarios and is therefore labelled a forecast. Some of the future changes are clear and reliable, a result of the current age structure and long-standing movement to less urban areas, for example. Future migration however is not closely predictable because it is dependent partly on government policy and on economic trends. Thus the results of the forecast should not be taken as a precise picture of the future.

The main implications for Birmingham's population and services are as follows:

- Birmingham's population is expected to grow steadily to 1.1m by 2026, reversing the decline of the 1990s.
- The White population is not expected to fall below one half of the total until 2024, and it will remain more than twice the size of any other group. Its reduction is due to movement out from Birmingham to other areas of the West Midlands and Britain. Births and deaths are quite closely balanced for the White population.
- Birmingham's population was diverse in 2001, with Pakistani, Indian and Caribbean populations numbering over 40 thousand. African and Bangladeshi populations will also number more than 40 thousand by 2026. A further 150 thousand or more than 10% of the population will come from a diverse range of other groups.
- The proportion of children aged under 16 who are of black and ethnic minorities is currently about 50% and will rise to about 64% by 2026, confirming the growing diversity of Birmingham's population.
- As Birmingham's minority groups mature demographically, there will be noticeable growth in the workforce. The working age population will grow as whole by 62 thousand in the next 20 years, most of this growth at older ages. Black and minority ethnic residents will make up 50% of the population aged 40-64 by 2026, where they are 25% in 2006.
- The number of black and minority ethnic residents aged 65 and older is expected to grow from 21 thousand in 2006 to 36 thousand in 2026, when this will be one quarter of the total aged 65 and older.
- The greatest reason for the growth of Birmingham's population is the natural momentum of a population with a relatively young age structure. For the largest minority group, the Pakistani population, immigration accounts for about one third of its growth during the next 20 years. Only for the African and Chinese groups is

immigration a greater contribution to their growth than their young age structure. These are the two smallest and most recently immigrating groups.

# 1 Population change to 2026: total and age groups

The population forecast for Birmingham as a whole replicates ONS estimates of an increase between 2001 and 2006. The forecast continues this growth and is a reversal of the decrease in the 1990s.

- The number of infants is expected to increase up to 2021; the number of primary school age children is expected to grow from 2009 and of secondary school age children from 2014. In total, those in compulsory school ages 5-15 are expected to reach 164 thousand in 2026, sixteen thousand more than in 2006.

- The population of working ages – 16 to 59 (women) and 64 (men) – will steadily grow, from 623 thousand in 2006 to 677 thousand in 2026.

- The population aged 85 and over is likely to increase steadily, exceeding twenty thousand from about 2011. Those aged 75-84 are not expected to increase in number, but the increase in the 'young elderly' (from retirement up to age 74) will also result in an increase in numbers at older ages towards the end of the period. These changes will impact in particular on health and caring services.

| YEAR | 0-4 | 5-10 | 11-15 | 16-17 | 18 - retired | retired - 74 | 75-84 | 85+ | Total |
|---|---|---|---|---|---|---|---|---|---|
| *1991* | 77450 | 86300 | 62300 | 24450 | 577100 | 111250 | 52100 | 13600 | 1004500 |
| *1996* | 75600 | 91500 | 69500 | 26250 | 567750 | 103350 | 51750 | 15400 | 1001100 |
| *2001* | 69850 | 85900 | 72800 | 27450 | 565300 | 95250 | 51000 | 17100 | 984650 |
| *2006* | 73650 | 79850 | 68700 | 29650 | 593650 | 91000 | 49300 | 18750 | 1004600 |
| *2011* | 77950 | 82200 | 63950 | 27300 | 618250 | 91050 | 47850 | 20600 | 1029050 |
| *2016* | 81850 | 87400 | 64200 | 25800 | 633800 | 92300 | 48100 | 22100 | 1055600 |
| *2021* | 83350 | 91450 | 68200 | 27500 | 643000 | 95250 | 48950 | 23800 | 1081450 |
| *2026* | 83050 | 93350 | 71300 | 28250 | 649000 | 102500 | 51850 | 25950 | 1105250 |

These changes in age structure are due to a combination of factors including the expected end to a fall in fertility; an improvement in mortality; and the growing Asian and African populations which currently have a relatively young age structure but a growing number reaching retirement age.

## 2 Population change to 2026: ethnic group

While the population of Birmingham as a whole is expected to increase, the population is expected to become more diverse, with fewer White and Caribbean residents and more of each other group [1]. Birmingham's White population is expected to fall below one half of the total in 2024, but it will remain more than twice the size of any other single group, the largest of which will be the Pakistani population with 232 thousand residents in 2026.

- The White population decrease is about six thousand each year, or a net reduction of about 10% in a decade. This percentage of White out-migration is more than from other city districts.

- The African and Chinese populations are the fastest growing populations in Birmingham, but remain relatively small. The population with Pakistani origins will grow to about 232 thousand by 2026, larger than other ethnic minority groups but less than half the size of the White population.

- The increase in the ethnic minority populations as a whole is around eleven thousand each year. The influences of fertility and migration are discussed below, but the growth is mainly due to a young age structure, such that there are relatively few deaths.

| YEAR | Birmingham | White | Caribbean | African | Indian | Pakistani | Bangla-deshi | Chinese | Other |
|---|---|---|---|---|---|---|---|---|---|
| 1991 | 1004500 | 773400 | 53950 | 3550 | 55050 | 71150 | 13650 | 3850 | 29900 |
| 1996 | 1001100 | 736950 | 52800 | 4150 | 56100 | 88550 | 17650 | 4150 | 40650 |
| 2001 | 984650 | 689700 | 48450 | 6550 | 56500 | 106200 | 21250 | 5250 | 50700 |
| 2006 | 1004600 | 655900 | 48700 | 11650 | 59400 | 129850 | 26500 | 7100 | 65550 |
| 2011 | 1029050 | 623550 | 47100 | 18600 | 61150 | 155300 | 32050 | 8950 | 82300 |
| 2016 | 1055600 | 592050 | 45500 | 26700 | 62400 | 180900 | 37450 | 10600 | 100000 |
| 2021 | 1081450 | 560600 | 43550 | 35650 | 62950 | 206450 | 42700 | 12100 | 117500 |
| 2026 | 1105250 | 527700 | 41400 | 45750 | 63000 | 232350 | 47800 | 13450 | 133800 |

| YEAR | Birmingham | White | Caribbean | African | Indian | Pakistani | Bangla-deshi | Chinese | Other |
|---|---|---|---|---|---|---|---|---|---|
| 1991 | 100% | 77% | 5% | 0% | 5% | 7% | 1% | 0% | 3% |
| 1996 | 100% | 74% | 5% | 0% | 6% | 9% | 2% | 0% | 4% |
| 2001 | 100% | 70% | 5% | 1% | 6% | 11% | 2% | 1% | 5% |
| 2006 | 100% | 65% | 5% | 1% | 6% | 13% | 3% | 1% | 7% |
| 2011 | 100% | 61% | 5% | 2% | 6% | 15% | 3% | 1% | 8% |
| 2016 | 100% | 56% | 4% | 3% | 6% | 17% | 4% | 1% | 9% |
| 2021 | 100% | 52% | 4% | 3% | 6% | 19% | 4% | 1% | 11% |

[1] The forecast has used eight ethnic group categories which were recorded in both the 1991 and 2001 censuses. The classification changed, including Mixed categories in 2001, which cannot be matched to categories used in 1991. They have been allocated to the 'Other' category for this work.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *2026* | 100% | 48% | 4% | 4% | 6% | 21% | 4% | 1% | 12% |

# 3 Population: age and ethnic group

The tables on the following two pages show how the age structure of each ethnic group is expected to develop in the future. Analysis of other age groups for specific services can be extracted from the files accompanying this report.

- The proportion of children aged under 16 who are of Pakistani origin is expected to increase to 28% by 2026, up from 21% in 2006; the proportion who are of ethnic minorities is expected to increase to 64%.

- The ethnic composition of children can be taken as an indication of the longer-term future for Birmingham as a whole. It confirms a diverse and metropolitan population.

- Among the White population of Birmingham, the number of children and those of working age will reduce.

- The number of White residents aged 65 and older will remain steady at about 115 thousand from 2006, while the number of very elderly will increase.

- The number of ethnic minority residents aged 65 and older will increase from its current 21 thousand to about 36 thousand in the next two decades to 2026. The impact on services depends on how the care of the elderly is balanced within and outside the family. This in turn may be influenced by the labour market and the involvement of men and women in it. Government policy is to encourage greater economic activity of women, which is currently relatively very low among Pakistani and Bangladeshi women with children. A greater use of institutional support for the elderly would reinforce the impact on care services of greater numbers of elderly.

- For those of working age, the strongest rate of growth is among the older group aged 40-64, for the African, Chinese, Bangladeshi and Pakistani populations. This reflects a maturing of the age structure of these growing Birmingham groups. By 2026, the Pakistani population will make up about 20% of both the older and the younger working age population, which will be increasingly diverse.

## Ethnic composition at each age: number

| Age 0-15 | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 226050 | 236600 | 228550 | 222250 | 224100 | 233450 | 242950 | 247700 |
| ***African*** | 900 | 1100 | 1750 | 2650 | 4600 | 7500 | 10600 | 13100 |
| ***Bangladeshi*** | 6400 | 7350 | 8450 | 9950 | 11800 | 13250 | 14100 | 14450 |
| ***Caribbean*** | 12400 | 13050 | 10450 | 8750 | 7400 | 6450 | 6000 | 5700 |
| ***Chinese*** | 750 | 800 | 800 | 850 | 1050 | 1350 | 1600 | 1650 |
| ***Indian*** | 17150 | 16000 | 14000 | 12650 | 12600 | 12750 | 12700 | 12200 |
| ***Other*** | 14150 | 18750 | 22500 | 23650 | 27250 | 32750 | 38950 | 42650 |
| ***Pakistani*** | 30600 | 34450 | 39250 | 46950 | 55000 | 61900 | 66100 | 69100 |
| ***White*** | 143700 | 145150 | 131300 | 116750 | 104400 | 97500 | 92950 | 88800 |

| Age 16-39 | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 369300 | 361300 | 354250 | 369950 | 375500 | 380750 | 384750 | 385700 |
| ***African*** | 2000 | 2150 | 3400 | 6400 | 9600 | 12350 | 15100 | 18550 |
| ***Bangladeshi*** | 4750 | 7200 | 9050 | 11700 | 13500 | 14900 | 16800 | 18550 |
| ***Caribbean*** | 26600 | 23800 | 19350 | 17150 | 15000 | 14650 | 14100 | 12250 |
| ***Chinese*** | 2200 | 2350 | 2950 | 4200 | 5100 | 5350 | 5100 | 5200 |
| ***Indian*** | 25300 | 24400 | 24200 | 25800 | 25000 | 23950 | 23050 | 21700 |
| ***Other*** | 12700 | 17800 | 20600 | 30250 | 38450 | 45000 | 49900 | 53950 |
| ***Pakistani*** | 28500 | 38000 | 46350 | 57150 | 64750 | 71900 | 79850 | 88750 |
| ***White*** | 267250 | 245550 | 228350 | 217250 | 204100 | 192550 | 180900 | 166700 |

| Age 40-64 | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 256700 | 254800 | 259900 | 274350 | 292600 | 300600 | 309550 | 320250 |
| ***African*** | 650 | 750 | 1150 | 2200 | 3900 | 6150 | 9100 | 12750 |
| ***Bangladeshi*** | 2300 | 2600 | 2950 | 3550 | 5400 | 7800 | 9950 | 12550 |
| ***Caribbean*** | 12100 | 11550 | 12550 | 15650 | 17950 | 18300 | 17350 | 15900 |
| ***Chinese*** | 700 | 850 | 1100 | 1500 | 2200 | 3250 | 4700 | 5650 |
| ***Indian*** | 10600 | 13200 | 14800 | 16600 | 18850 | 19950 | 20000 | 20550 |
| ***Other*** | 2550 | 3500 | 6100 | 9850 | 14650 | 20250 | 26200 | 33400 |
| ***Pakistani*** | 10600 | 13500 | 15700 | 19800 | 29250 | 39850 | 50950 | 62400 |
| ***White*** | 217250 | 208850 | 205500 | 205200 | 200400 | 185050 | 171400 | 157100 |

| Age 65+ | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 152450 | 148400 | 141950 | 138050 | 136850 | 140800 | 144150 | 151600 |
| ***African*** | 100 | 150 | 250 | 400 | 550 | 700 | 900 | 1350 |
| ***Bangladeshi*** | 200 | 500 | 750 | 1300 | 1400 | 1550 | 1900 | 2300 |
| ***Caribbean*** | 2850 | 4400 | 6050 | 7100 | 6750 | 6100 | 6100 | 7500 |
| ***Chinese*** | 150 | 200 | 400 | 500 | 550 | 600 | 750 | 950 |
| ***Indian*** | 2050 | 2550 | 3550 | 4300 | 4700 | 5700 | 7250 | 8500 |
| ***Other*** | 450 | 600 | 1450 | 1800 | 1950 | 2000 | 2450 | 3800 |
| ***Pakistani*** | 1450 | 2650 | 4950 | 5950 | 6300 | 7200 | 9500 | 12150 |
| ***White*** | 145250 | 137400 | 124550 | 116700 | 114650 | 116900 | 115350 | 115100 |

**Ethnic composition at each age: distribution between ethnic groups**

| Age 0-15 | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| ***African*** | 0% | 0% | 1% | 1% | 2% | 3% | 4% | 5% |
| ***Bangladeshi*** | 3% | 3% | 4% | 4% | 5% | 6% | 6% | 6% |
| ***Caribbean*** | 5% | 6% | 5% | 4% | 3% | 3% | 2% | 2% |
| ***Chinese*** | 0% | 0% | 0% | 0% | 0% | 1% | 1% | 1% |
| ***Indian*** | 8% | 7% | 6% | 6% | 6% | 5% | 5% | 5% |
| ***Other*** | 6% | 8% | 10% | 11% | 12% | 14% | 16% | 17% |
| ***Pakistani*** | 14% | 15% | 17% | 21% | 25% | 27% | 27% | 28% |
| ***White*** | 64% | 61% | 57% | 53% | 47% | 42% | 38% | 36% |

| Age 16-39 | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| ***African*** | 1% | 1% | 1% | 2% | 3% | 3% | 4% | 5% |
| ***Bangladeshi*** | 1% | 2% | 3% | 3% | 4% | 4% | 4% | 5% |
| ***Caribbean*** | 7% | 7% | 5% | 5% | 4% | 4% | 4% | 3% |
| ***Chinese*** | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| ***Indian*** | 7% | 7% | 7% | 7% | 7% | 6% | 6% | 6% |
| ***Other*** | 3% | 5% | 6% | 8% | 10% | 12% | 13% | 14% |
| ***Pakistani*** | 8% | 11% | 13% | 15% | 17% | 19% | 21% | 23% |
| ***White*** | 72% | 68% | 64% | 59% | 54% | 51% | 47% | 43% |

| Age 40-64 | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| ***African*** | 0% | 0% | 0% | 1% | 1% | 2% | 3% | 4% |
| ***Bangladeshi*** | 1% | 1% | 1% | 1% | 2% | 3% | 3% | 4% |
| ***Caribbean*** | 5% | 5% | 5% | 6% | 6% | 6% | 6% | 5% |
| ***Chinese*** | 0% | 0% | 0% | 1% | 1% | 1% | 2% | 2% |
| ***Indian*** | 4% | 5% | 6% | 6% | 6% | 7% | 6% | 6% |
| ***Other*** | 1% | 1% | 2% | 4% | 5% | 7% | 8% | 10% |
| ***Pakistani*** | 4% | 5% | 6% | 7% | 10% | 13% | 16% | 19% |
| ***White*** | 85% | 82% | 79% | 75% | 68% | 62% | 55% | 49% |

| Age 65+ | 1991 | 1996 | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| **Birmingham** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| ***African*** | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% |
| ***Bangladeshi*** | 0% | 0% | 1% | 1% | 1% | 1% | 1% | 2% |
| ***Caribbean*** | 2% | 3% | 4% | 5% | 5% | 4% | 4% | 5% |
| ***Chinese*** | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% |
| ***Indian*** | 1% | 2% | 3% | 3% | 3% | 4% | 5% | 6% |
| ***Other*** | 0% | 0% | 1% | 1% | 1% | 1% | 2% | 3% |
| ***Pakistani*** | 1% | 2% | 3% | 4% | 5% | 5% | 7% | 8% |
| ***White*** | 95% | 93% | 88% | 85% | 84% | 83% | 80% | 76% |

# 4 Natural change and migration

The table below summarises population change for each group. The White population decrease is steady over the 1990s and the two decades of the forecast, at approximately 1% each year. It is almost entirely the impact of net out-migration as summarised in the lower part of the table. 'Natural change', the balance of births and deaths, becomes positive for the White population, as government expects no further reduction in the fertility rate but a continuing reduction in mortality.

The African population is growing at the fastest rate, mainly from in-migration, equalling the Caribbean population by the end of the forecast with about 45,000 residents. The Pakistani and Bangladeshi populations also grow steadily, but from natural growth more than from migration, and the Pakistani growth is numerically by far the largest. The Indian population growth is entirely from natural increase (births exceeding deaths) which is greater than the steady outflow to other parts of the West Midlands and Britain.

**Population forecasts summary report Birmingham**
***scenario_ONS03proj***

| **Population** | *1991* | *2006* | *2016* | *2026* |
|---|---|---|---|---|
| *Birmingham City* | *1,004,500* | *1,004,600* | *1,055,600* | *1,105,250* |
| White | 773,400 | 655,900 | 592,050 | 527,700 |
| Caribbean | 53,950 | 48,700 | 45,500 | 41,400 |
| African | 3,550 | 11,650 | 26,700 | 45,750 |
| Indian | 55,050 | 59,400 | 62,400 | 63,000 |
| Pakistani | 71,150 | 129,850 | 180,900 | 232,350 |
| Bangl | 13,650 | 26,500 | 37,450 | 47,800 |
| Chinese | 3,850 | 7,100 | 10,600 | 13,450 |
| Other | 29,900 | 65,550 | 100,000 | 133,800 |

| **Population change** | *1991-2006* | | *2006-2016* | | *2016-2026* | |
|---|---|---|---|---|---|---|
| *Birmingham City* | *+100* | *+0.0%* | *+51,000* | *+5.1%* | *+49,650* | *+4.7%* |
| White | -117,500 | -15.2% | -63,900 | -9.7% | -64,350 | -10.9% |
| Caribbean | -5,250 | -9.7% | -3,200 | -6.6% | -4,100 | -9.0% |
| African | +8,100 | +226.5% | +15,050 | +129.1% | +19,050 | +71.4% |
| Indian | +4,300 | +7.8% | +3,000 | +5.1% | +600 | +0.9% |
| Pakistani | +58,700 | +82.5% | +51,050 | +39.3% | +51,500 | +28.5% |
| Bangl | +12,850 | +94.1% | +10,950 | +41.4% | +10,350 | +27.6% |
| Chinese | +3,250 | +85.0% | +3,550 | +49.9% | +2,850 | +26.7% |
| Other | +35,650 | +119.3% | +34,500 | +52.6% | +33,800 | +33.8% |

| **Analysis of population change** | *1991-2006* | | | *2006-2016* | | | *2016-2026* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Natural change* | *Net migration* | *Total change* | *Natural change* | *Net migration* | *Total change* | *Natural change* | *Net migration* | *Total change* |
| *Birmingham City* | *+75,100* | *-75,000* | *+100* | *+82,500* | *-31,500* | *+51,000* | *+94,900* | *-45,250* | *+49,650* |
| White | -13,350 | -104,150 | -117,500 | +1,200 | -65,100 | -63,900 | +5,700 | -70,050 | -64,350 |
| Caribbean | +4,750 | -10,000 | -5,250 | +500 | -3,700 | -3,200 | -150 | -3,950 | -4,100 |
| African | +1,950 | +6,150 | +8,100 | +5,200 | +9,850 | +15,050 | +8,100 | +10,950 | +19,050 |
| Indian | +9,950 | -5,650 | +4,300 | +6,200 | -3,200 | +3,000 | +5,050 | -4,450 | +600 |
| Pakistani | +41,300 | +17,450 | +58,700 | +37,400 | +13,650 | +51,050 | +39,500 | +11,950 | +51,500 |
| Bangl | +9,100 | +3,750 | +12,850 | +8,250 | +2,750 | +10,950 | +8,350 | +2,000 | +10,350 |
| Chinese | +450 | +2,800 | +3,250 | +550 | +3,000 | +3,550 | +550 | +2,250 | +2,850 |
| Other | +20,950 | +14,750 | +35,650 | +23,200 | +11,300 | +34,500 | +27,850 | +5,950 | +33,800 |

*Numbers have been independently rounded to the nearest 50*

# 5 Sources of change: age momentum, fertility, migration in the UK and overseas

The table below gives a further decomposition of the population change which is forecast for each ethnic group between the years of 2001 and 2026. It is calculated by making a series of successively more detailed assumptions, to assess the impact of each assumption separately. Because the assumptions affect the projected population for each year after 2001, the impact for the whole period 2001-2026 is shown.

The assumptions are:

(a) Age momentum: common mortality rates, replacement fertility for each group. Population change varies between groups only due to their age structure.
(b) Fertility: levels of fertility established from the 2001 census for each group.
(c) Migration within the UK: levels of internal migration established from the 2001 census for each group.
(d) Migration overseas: levels of international migration established from the 2001 census and a back-projection between 1991 and 2001.

After assumptions (a) to (d) have been implemented, the population projection is one based on all the information from the 2001 census and an examination of trends between the last two censuses.

(e) Constraint to ONS total: the total births, deaths and migration flows are adjusted to be consistent with ONS 2003-based projection for Birmingham.

| **Absolute change since 2001** | **Birmingham** | **White** | **Caribbean** | **African** | **Indian** | **Pakistani** | **Bangladeshi** | **Chinese** | **Other** |
|---|---|---|---|---|---|---|---|---|---|
| Total population change 2001-2026 | +120,595 | -162014 | -7064 | +39,213 | +6,463 | +126,181 | +26,560 | +8,166 | +83,089 |
| *Impact by 2026 of each factor:* | | | | | | | | | |
| (a) Age momentum | +153,722 | +41,014 | +8,354 | +2,525 | +17,598 | +46,784 | +10,354 | +1,633 | +25,459 |
| (b) Fertility | -36466 | -61474 | -8484 | +489 | -6742 | +24,736 | +5,832 | -1441 | +10,620 |
| (c) Migration within the UK | -156718 | -152111 | -3766 | +13,449 | -8967 | -948 | -3311 | +359 | -1424 |
| (d) Migration overseas | +85,271 | -5238 | -5498 | +18,345 | +439 | +33,253 | +8,709 | +5,528 | +29,732 |
| *Unconstrained population total* | *1030451* | *511894* | *39048* | *41350* | *58845* | *210013* | *42841* | *11352* | *115107* |
| (e) Constraint to ONS total | +74,786 | +15,795 | +2,330 | +4,405 | +4,135 | +22,356 | +4,976 | +2,087 | +18,702 |

| **Percentage change since 2001** | **Birmingham** | **White** | **Caribbean** | **African** | **Indian** | **Pakistani** | **Bangladeshi** | **Chinese** | **Other** |
|---|---|---|---|---|---|---|---|---|---|
| Total population change 2001-2026 | +12% | -23% | -15% | +599% | +11% | +119% | +125% | +155% | +164% |
| *Impact by 2026 of each factor:* | | | | | | | | | |
| (a) Age momentum | +16% | +6% | +17% | +39% | +31% | +44% | +49% | +31% | +50% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (b) Fertility Impact | | -4% | -9% | -18% | +7% | -12% | +23% | +27% | -27% | +21% |
| (c) Migration within the UK | | -16% | -22% | -8% | +206% | -16% | -1% | -16% | +7% | -3% |
| (d) Migration overseas | +9 % | | -1% | -11% | +280% | +1% | +31% | +41% | +105% | +59% |
| (e) Constraint to ONS total | +8 % | | +2% | +5% | +67% | +7% | +21% | +23% | +40% | +37% |

The analysis in the table above is helpful in clarifying that the major reason for Birmingham's growth is its young population which gives a momentum for growth. With no migration and fertility at replacement level, Birmingham would grow by more than 150 thousand or 16% in the twenty five years from 2001 to 2026. This growth is balanced by net out-migration to other parts of the UK. The balance of natural growth and movement away is common to most cities of Britain, including London, Glasgow, Leeds and Manchester. The movement away is often called counter-urbanisation. The natural growth from age momentum alone is clear for all groups including the White population, but it is higher for the younger populations which contain a relatively large proportion of migrants who have moved to Britain most recently – the African, Pakistani and Bangladeshi groups, and the Other group. The age structure of the White population is compared with that of the rest of the population in the charts on the final page of this report, showing clearly the younger age structure of the on-White groups taken together.

Adding the groups' different fertility patterns suggests that this accounts for much less of the growth of every population than the momentum of their age structure. Nonetheless, higher fertility adds significantly to the Bangladeshi, Pakistani and Other populations, and will maintain their young age structure and age momentum further into the future than other groups.

Suburbanisation or migration outwards to other parts of the UK does not occur for the African and Chinese groups whose populations have grown in Birmingham from both movement towards Birmingham within the UK as well as from overseas. The African and Chinese populations are the fastest growing Birmingham groups in this period.

International migration is the major factor for African and Chinese groups, accounting for more than half of their population growth. This is not the case for any other group, for whom international migration is a lesser factor in population growth than natural momentum from their age structure.

The ONS assumptions suggest higher growth in Birmingham than indicated by the most recent census. The faster growth results in particular from ONS assumptions of higher international migration and higher fertility in Birmingham. Although ONS do not yet project with an ethnic growth dimension, these assumptions affect some groups more than others – raising most proportionally the African group's population and then in decreasing order the Chinese, Other, Bangladeshi and Pakistani populations.

# 6 Method and main assumptions

The forecast uses standard population forecasting techniques based on the cohort component methodology also used by the Office for National Statistics (ONS). It identifies migration, fertility and mortality separately and the detailed age structure of each population. However, we have used an ethnic group dimension which ONS does not yet include in their population forecasts for local authority areas. We have implemented the forecasts in POPGROUP, software developed by and for local authorities and now managed by the University of Manchester. The main advantage of POPGROUP is its flexibility to include information even where it is not complete for every past year, as is the case for ethnic groups.

Our assumptions are summarised as follows:

**Base population**. We use the 1991 and 2001 Censuses' detail of ethnic group age structure, adjusted to be consistent with the latest ONS estimate of full population in each of those years. We also use the ONS population estimate for each year up to mid-2003, without an ethnic group dimension. Thus our 'base year' is 2001 for the ethnic group composition, and 2003 for the Birmingham population as a whole. The base population is disaggregated by single year of age, for males and females separately.

**Fertility**. We estimate fertility from the censuses of 1991 and 2001, noting the reduction in fertility of most groups in Birmingham. The decrease of the Pakistani, Bangladeshi and Other groups from high to moderate fertility is expected to continue until the current excess over the overall fertility is approximately halved. The age pattern of fertility is taken separately for each ethnic group from national census output of mothers of children aged under 1. Future changes in the age-pattern of fertility follow government projections, implying slight increases in fertility.

**Mortality**. In the absence of local evidence, and the ambiguous evidence from national sources, the mortality estimated for government projections for England as a whole is assumed for each group. Birmingham's higher mortality than England's is applied to each group and continued in the future.

**Migration**. Levels of migration for each group from the 1991 and 2001 censuses' special migration statistics show net out-migration for each group from Birmingham to other parts of the UK, apart from the African and Chinese groups. We use census information on immigration from overseas. We further adjust migration estimates after examining the change in population between 1991 and 2001. We continue the same migration experience measured for 2001. The composition of overseas migration is maintained, while migration within the UK is set by probabilities of migration at each age.

**Control to ONS 2003-projection.** When added across ethnic groups, the forecast is consistent with the Office for National Statistics 2003-based projection of births, deaths, UK migration and overseas migration for Birmingham.

**Reliability**. The assumptions made are inevitably approximations of what will in fact happen in the future. They are based on the experience of the past fifteen years and are reliable in the sense of being a good representation of those trends. A separate projection has been provided without control to the ONS projection, based mainly on the experience at the time of the last census. It forecasts a population considerably lower than ONS, primarily because ONS assumes (a) a higher level of overseas immigration than the level in 2001 and (b) higher fertility. It shows a growth of Birmingham's population by 43 thousand between 2003 and 2026, compared to ONS projected growth of 113 thousand. The difference between the projections indicates a range of possible population outcomes. Both projections show a similar change in ethnic composition of Birmingham's population.

Recently ONS has revised their 2003-based projections which were used in this report. The revisions in the 2004-based projections show lower growth in Birmingham mainly because of lower immigration; this reflects a change of methodology by ONS, but the revisions are interim pending further analysis of international migration. The 2003-projections used here are those used by DCLG for household projections for Birmingham as published in 2006. These are also used in a parallel report to this one, giving an ethnic group dimension to household projections.

International migration may remain the most uncertain part of the projection. It is for example unclear how many permanent, rather than short-stay, migrants will have come from new countries acceding to the EU after 2004. Additionally, the level of immigration of African and Chinese groups may not continue at its recent level as assumed.

T**he impact of age structure on population growth.** Section 5 above referred to the momentum of population growth created by a young age structure. The two charts below show the age structure of the White population and that of all other groups taken together, in 2006 and as projected in 2026. The relatively youthful age structure of the groups other than White when taken together is clear in 2006. By 2026 the age structures are less youthful – with no single age being as much as 2% of the total – but there are still relatively few elderly. It will take a further generation after 2026 before the age structures are similar and the impact of momentum becomes small compared to other sources of population growth. This momentum for growth is to be expected for any new population whose young immigrant adults settle to raise families.