



Joint Strategic Planning Unit

Population in Berkshire 2001 Review

GREATER LONDON AUTHORITY

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Population in Berkshire:

2001 Review of Berkshire Population Estimates and Projections

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D Slough

E West Berkshire

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In most tables the results are shown to the unit, this does not imply this level of accuracy. It is recommended that accuracy should be considered to be to the nearest 100. However, with small populations in some SGAs, as well as in certain age groups in all areas, it is not appropriate to round all output in all circumstances. Care should be exercised in using and interpreting any numbers below 100 from the tables in this report.

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1. Introduction

This report is the eighth to be prepared since the former Berkshire County Council's Population Estimates and Projections Service was contracted to a consortium headed by the London Research Centre. It is the second under the renewed contract between the Joint Strategic Planning Unit and the Greater London Authority, which absorbed the LRC in 2000.

The report updates the **2000 Review** and presents a full set of population estimates and projections using the former county council's forecasting model, now referred to as the JSPU model.

The underlying base for the work is provided by the full results of the 1991 Census. The Census statistics for each ward and parish were adjusted to allow for under-enumeration in the Census in order to provide an initial estimate for 1 April 1991. The most recent estimates relate to 1 April 2000. The method of producing the estimates is shown in Appendix 1.

The 2000 estimates form the base for the subsequent annual projections to 2006. These are prepared using forecasts of natural change and the effect of future housebuilding upon migration patterns in each ward or parish. The housebuilding forecasts are the development committed by planning authorities. In each district the parish/ward projections are consistent with the 40 thousand additional dwellings to be provided in the County between 1991 and 2006 as recommended in the Berkshire Structure Plan. From 2006 to 2016 the district level projections are consistent with the Deposit Draft of the Berkshire Structure Plan (March 2000).

The estimates and projections are presented at three levels; the former county, each district, and each parish and/or ward within the districts. There are 172 areas, referred to as the smallest geographic areas (SGAs),

which enable results to be prepared for each parish and/or ward. Detailed output, by age groups and gender, for all areas for each year up to 2006 are also included. The maps presented in the **1999 Review** will assist in locating the SGAs.

The basic methodologies are broadly the same in all respects as the methods used in previous years and are described in Appendices 1 and 2. The data that are used are described at appropriate sections of the report.

All the areas used in this report relate to the boundaries of and within the county as amended in April 1995, when Slough incorporated parts of Buckinghamshire and Surrey, and April 1998 when some re-warding took place in West Berkshire (see Chapter 5 for details).

Copies of this **Review** can be consulted in most public libraries within Berkshire. Personal copies can be purchased via the Joint Unit that has been established by the Unitary Authorities to deal with strategic planning issues in Berkshire:

The Joint Strategic Planning Unit
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Other related publications available in many libraries include the **OPCS 1991 Census County Report for Berkshire**, which is in two parts. In addition copies of the 1991 Census tables themselves can be found at the five main reference libraries in Berkshire. These tables refer to wards and parishes in the local area and, unlike the areas used in this report, the boundaries are fixed in their 1991 positions. The libraries are in Bracknell, Maidenhead, Newbury, Reading and Slough. The Reading library also holds a set of Census data for the whole of Berkshire.

2. 1991 Population Base

Relationship to the 1991 Census usual resident population

The estimates and projections contained in this report take the 1991 Census usually resident populations and improve them in line with work by ONS that investigated the extent to which the population was underenumerated at the Census.

Following boundary changes in April 1995, which added a new ward, the population of Slough in 1991 has increased by a further 3,238.

The basic population definition is unaltered but the populations are enlarged as shown below.

Table 1: 1991 Populations on 1995 boundaries

Source: ONS 1991 Census Local Base Statistics and ONS special analyses

	Census Residents	Under-enumeration	Base Population
Bracknell Forest	95,949	1,600	97,546
Reading	128,877	4,800	133,678
Slough	104,304	1,900	106,196
West Berkshire	136,700	2,100	138,803
Windsor & Maidenhead	132,465	2,000	134,468
Wokingham	138,189	1,800	140,993
Berkshire	737,484	14,200	751,684

The starting point for the 1991 Berkshire population base is reached by adding the estimated underenumeration to the Census usual residents. 14,200 persons have been added to the Census figure to produce a 1991 population of 751,684.

Underenumeration has been distributed amongst the districts as shown in Table 1, and within each district it is spread amongst the age/gender groups as suggested by ONS. Most of the undercount was found amongst males aged 20-34 and amongst the over 85s. Within each age/gender group in each district the undercount is distributed proportionally between the wards and parishes.

Overall the allowance for underenumeration increases the population of the county by 1.9%. However, only Reading, boosted by 3.7%, is increased by more than the county average, with the smallest boost being only 1.3% in Wokingham.

Relationship to the ONS 1991 mid-year estimates

In preparing the 1991 mid-year estimates (MYE), ONS had to make a number of corrections to allow for the differences in definitions of resident students and armed forces from those used in the 1991 Census. There was also a need to calculate the effect of the different dates (April 21 as against June 30) and finally it was necessary to take account of Census underenumeration.

Table 2: 1991 Mid-year Estimate on 1995 boundaries

Source: ONS Monitor PP1 96/1

	Mid-year Estimate
Bracknell Forest	98,800
Reading	136,200
Slough	105,600
West Berkshire	139,300
Windsor & Maidenhead	134,200
Wokingham	142,000
Berkshire	756,200

Table 2 shows the ONS MYE. This estimate is about 4,500 higher than the JSPU estimate for the county and is also higher in all districts except Slough and Windsor & Maidenhead. In both these districts ONS calculated that there were negative adjustments associated with the definitions of students. Slough was also estimated to have had a net loss of population between Census and mid-year. In all districts the JSPU 1991 base populations are closer to the MYE than to the Census unadjusted figure.

The nominal date that applies to all JSPU estimates and projections in this report is 1 April. Therefore all births, deaths and migration used as either input or output relate to the year ending 31 March.

3. 2000 Estimates

Overall Change: 1991-2000

Population: total

Berkshire's population rose throughout the 1980s. The pace of growth is estimated to have slowed from over 7,500 per year between 1981 and 1986 to just 4,000 per year from 1986 to 1991. In the earlier period nearly 80% of growth took place in West Berkshire and Wokingham, but in the later period over half the increase was found in Bracknell Forest, with small declines estimated in Reading and in Windsor & Maidenhead.

Table 3: 2000 JSPU Population Estimates

	JSPU Estimate
Bracknell Forest	114,109
Reading	145,518
Slough	108,963
West Berkshire	146,051
Windsor & Maidenhead	138,040
Wokingham	148,869
Berkshire	801,551

The JSPU estimates for 2000 show that growth has continued in the county since 1991 at the average rate of over 5,500 per year. The estimates also show that while all districts have increased their populations over the last nine years the most noticeable changes have been in Bracknell Forest (16,500), Reading (11,800) and West Berkshire (7,200).

Population: age structure

With nine years having elapsed since the Census, the 2000 estimates show some significant changes in the age structure of the County. Table 4 shows the county population in broad age groups.

These changes are consistent with the trends in the population of England and Wales as shown by the ONS mid-year estimates. The only age groups to have shown a decline over the last nine years are pre-school (by

1,100) and young adults (16-24). The 20% decline is a result of the ageing of populations, with the large birth cohorts of 1966-75 being replaced in the age-band by the smaller birth cohorts of 1975-84.

Table 4: County Population in Broad Age Groups: 1991-2000

Age	1991	2000
0-4	52,756	51,699
5-15	104,149	116,934
16-24	102,390	82,290
25-44	244,814	262,775
45-64	155,298	183,132
65-74	51,641	54,343
75+	40,626	50,379
Total	751,684	801,551

Most of the increase in Berkshire's population has been as a result of natural change, with a relatively small part of the change being due to net inward migration. However, the gross migration flows within, into and out of the county are large. The county's net migration flows tend to increase the numbers of children and of adults in their thirties and forties, while depleting the numbers of those in their twenties.

The 18% rise in persons aged 45-64 is largely due to the replacement of those born in 1926-35 - low birth years - with those born in 1946-55 - which cover the post-war baby boom years.

Components of Change: 1991-2000

Births and Deaths

Part of the input data to the estimates are the annual numbers of births and deaths recorded as having occurred between April 1 and March 31 the following year to residents in each district. The model also uses data at the ward level and district level on age-specific fertility rates and survival rates to distribute the numbers of births and deaths to each SGA. The district level data for the period 1991-2000 are presented in Table 5. The annual number of births in the county has recently fluctuated between 10,900

(1991-92, 1997-98 and 1998-99) and 10,600 (1993-94). In 1999-2000 there were 10,279 births.

Numbers of deaths have changed very little in the last nine years, with 6,217 recorded in 1999-2000. Annual changes in deaths are a feature of winter conditions and viral epidemics rather than indicators of real changes in survival rates.

Table 5: Natural Change in JSPU Estimates: 1991-2000

	Births	Deaths	Natural Change
Bracknell Forest	13,709	7,183	6,526
Reading	18,244	10,947	7,297
Slough	16,827	8,213	8,614
West Berkshire	16,541	10,486	6,055
Windsor & Maidenhead	14,891	11,984	2,907
Wokingham	16,643	8,999	7,644
Berkshire	96,855	57,812	39,043

Migration

Net migration is the difference between two calculations. The first of which estimates the annual outflow from each SGA and the second determines the necessary inflow to balance the estimated total population. The population is determined by changes in the SGA electorates and the county school age population. Annual net migration is more volatile than annual births and deaths totals as it is dependent upon the rate at which new dwellings come onto the market and are occupied.

Table 6: Change Analysis in JSPU Estimates: 1991-2000

	Natural Change	* Net Migration	Total Change
Bracknell Forest	6,526	10,036	16,562
Reading	7,297	4,542	11,839
Slough	8,614	-5,848	2,766
West Berkshire	6,055	1190	7,244
Windsor & Maidenhead	2,907	664	3,571
Wokingham	7,644	231	7,875
Berkshire	39,043	10,815	49,858

* includes changes in institutional population

Communal Establishments

In 1991 there were 10,559 persons in the county resident in communal establishments of various types. Only the total age structure is shown in the estimates but more details of the types of institutions may be obtained from 1991 Census publications, either the **County Report** at district level or the **Local Base Statistics** at ward level.

Information relating to the location of Armed Forces in the county, made available by ONS, together with additional information received from organisations that run other such establishments has led to an estimated rise in the population in communal establishments in 2000 to 11,295.

4. 2000-based Projections

Results

Population: total

The notable outcome of the projection is that the total population of the county increases by 5 thousand over the period between 2000 and 2006. In this period West Berkshire (5,600) and Slough (790) will experience most growth; while Windsor & Maidenhead and Wokingham both expected to experience a decline, by 1,200 and 1,100 respectively. Table 7 shows the total populations of each of the authorities. These changes should be studied alongside the changes in households and dwellings in following tables. Between 2006 and 2016 most growth is expected in the districts of Bracknell Forest and Wokingham.

Table 7: JSPU Population Projections: 2000-2016

	2000	2006	2016
Bracknell Forest	114,109	114,107	121,755
Reading	145,518	146,127	149,548
Slough	108,963	109,753	110,302
West Berkshire	146,051	151,644	153,604
Windsor & Maidenhead	138,040	136,830	135,107
Wokingham	148,869	147,735	153,285
Berkshire	801,551	806,196	823,601

Population: age structure

Table 8 shows the projected changes in the age structure of the county in broad age bands. The decline in pre-school age children is a consequence of the national expectation of lower fertility rates, together with a decrease in the numbers of women in the main childbearing age groups. This assumption also affects the decline in the main school ages that is noticeable after 2001.

The changes in the older age groups are mainly brought about by past changes in annual numbers of births and the ageing of each cohort. These effects are compounded to a limited extent by the relative net migration patterns of each age group.

The most significant changes up to 2006 are the 28,000 decline in those aged 25-44; the 17,100 increase in persons aged 45-64 and the 8,500 increase in persons over the age of 75. This rise will have a major impact upon social services and health care in general, and is expected to persist until well past 2006, by which time the 65-74 age group will also be increasing more rapidly. In the period to 2016 the population shows significant ageing, best demonstrated by growth in the age range 65-74.

Table 8: County Population Projections in Broad Age Groups: 2000-2016

Age	2000	2006	2016
0-4	51,699	45,970	43,393
5-15	116,933	113,572	102,525
16-24	82,289	96,152	99,094
25-44	262,775	234,299	211,451
45-64	183,132	200,259	220,749
65-74	54,344	57,085	78,438
75+	50,378	58,860	67,951
Total	801,551	806,196	823,601

Components of Change

Births and Deaths

The annual number of births in the county is projected to fall from 10,900 in 2000-01 to 10,400 in 2001-02 and to 9,500 in 2005-06. This decline is in line with national trends in fertility rates and the reducing populations of women in the main childbearing ages. Women born in the high birth years of the early 1960s have left the main fertile ages to be replaced by smaller numbers of women born in the late 1970s and early 1980s. The trend in deaths is the reverse of births, with steady rises from 6,050 in 2000-01 to 6,200 in 2001-02 and 6,800 in 2005-06. The ageing population structure of the county is the main reason.

Table 9: Natural Change in JSPU Population Projections: 2000-2006

	Births	Deaths	Natural Change
Bracknell Forest	8,459	5,089	3,370
Reading	11,745	7,039	4,707
Slough	10,277	5,485	4,792
West Berkshire	10,610	7,182	3,428
Windsor & Maidenhead	9,434	7,492	1,942
Wokingham	10,088	6,306	3,782
Berkshire	60,614	38,592	22,022

for this change as the underlying age-specific mortality rates are expected to decline, albeit very slowly. The trends in births and deaths are seen across the county, though at slightly differing rates of change as between the districts. All districts retain a natural increase up to 2006.

At the county level net migration is negative for all years. All districts are projected to have net losses in all years after 2000 except West Berkshire, which is also the only district to sustained net inflows for the period 2000-2006.

Table 10: Change Analysis in JSPU Population Projections: 2000-2006

	Natural Change	Net Migration	Total Change
Bracknell Forest	3,370	-3,374	- 4
Reading	4,707	-4,098	609
Slough	4,792	-4,002	790
West Berkshire	3,428	2,165	5,593
Windsor & Maidenhead	1,942	-3,151	-1,209
Wokingham	3,782	-4,916	-1,134
Berkshire	22,022	-17,376	4,645

Dwellings

Table 11 shows the numbers of committed dwellings in each of the districts throughout the projection period. These figures reflect the housing provisions of the Berkshire Structure Plan and in the Deposit Draft of March 2000.

Table 11: Dwellings: 2000-2016

Source: JSPU PACS

	2000	2006	2016
Bracknell Forest	42,574	45,382	51,046
Reading	58,636	60,929	66,157
Slough	45,254	47,680	50,762
West Berkshire	58,399	62,670	67,900
Windsor & Maidenhead	56,987	58,643	61,377
Wokingham	57,596	59,747	66,110
Berkshire	320,446	335,051	363,352

Households

Within each SGA the number of households is directly related to the number of available dwellings. The 1991 Census provides the initial relationship between households and dwellings, which is held constant throughout the projections. This assumption can be interpreted as meaning that the percentages of vacant dwellings, holiday lettings and second homes remain the same, as do the very small proportions of households that share their accommodation. Overall, in 1991 the county had a crude net dwelling surplus of 11,800, about 4% of total stock. The surplus is estimated to have grown to nearly 12,700 by 2000.

Table 12: Households: 2000-2016

	2000	2006	2016
Bracknell Forest	42,313	44,069	49,570
Reading	56,254	58,454	63,470
Slough	43,018	45,324	48,255
West Berkshire	55,857	59,943	64,946
Windsor & Maidenhead	54,580	56,166	58,786
Wokingham	55,757	57,840	64,000
Berkshire	307,780	321,795	349,027

The average household size is projected to fall across the county as a consequence of the increasing household representative rates and the changing age structure of the population after 2000. The reduced numbers of children tend to decrease the size of the average family household, while the increasing population of pensioners will increase the proportion of small households, even with constant representative rates. The changing representative rates also reflect the greater likelihood of persons of all ages to live alone.

Table 13: Average Household Size: 2000-2016

	2000	2006	2016
Bracknell Forest	2.65	2.55	2.42
Reading	2.55	2.47	2.33
Slough	2.51	2.40	2.27
West Berkshire	2.59	2.50	2.34
Windsor & Maidenhead	2.47	2.38	2.25
Wokingham	2.64	2.52	2.37
Berkshire	2.57	2.47	2.33

The projected reduction in average household size between 2000 and 2006 is about 3.9%, with the fall in Wokingham being both the greatest - in absolute terms (0.12 persons) - and the steepest (4.5%). The smallest reduction in average household size is expected in Reading (3.1%). Windsor and Maidenhead has the lowest levels of average household size throughout the projection; this reflects the older characteristics of much of the housing stock and the older population structure.

The projected reductions in average household size must be viewed in the light

of the equivalent changes between 1981 and 1991. The DETR estimated that the average household size in Berkshire fell by 8.5% in the 1980s, slightly faster than the decline now being projected.

The changing average household size between 2000 and 2006 closely follows the trend shown by the DETR 1996-based household projections, though starting at a significantly higher level: 2.57 in 2000 compared to 2.47 in 1996. This difference has been brought about by restricting the projected number of households in 2000 to be consistent with the growth in the number of dwellings since 1991. An adjustment is made in 2000 that reduces the Berkshire projected household representative rates in each SGA in order to match the available dwellings. This factor is held constant after 2000, but the annual trend in the DETR representative rates is applied without further amendment.

After 2006 average household size continues to fall but at a slower pace than in the earlier period. This is also inline with the DETR projections.

5. Glossary and Abbreviations

General background

The estimates are annual updates of the 1991 base population. The projections are based upon the most recent estimate, in this *Review* that for 2000.

The 1991 Census was taken on 21/22 April. For the convenience of users, as well as the provision of much of the data used in the model, the nominal date to which all the output refer is 1 April of each year. Thus the births, deaths, migration and dwelling stock change statistics refer to the year from 1 April to the following 31 March.

Geography

These estimates and projections use the boundaries of all areas as amended on 1 April 1995 and 1 April 1998. The only external boundary change since the 1991 Census affected Slough - the Berkshire, Buckinghamshire and Surrey (Boundaries) Order, 1994. Areas formerly within Buckinghamshire and Surrey were incorporated, with part of the former ward of Foxborough, to form the new ward of Colnbrook and Poyle. The name Foxborough was retained for the new smaller ward. Details of these boundary changes can be obtained from Slough Borough Council.

Re-warding in West Berkshire came into effect on 1 April 1998. Ward boundaries were revised in Newbury (6 reduced to 4), Thatcham (3 increased to 4) and Tilehurst (2 increased to 3) and the parishes were re-combined to redefine several other wards. Details of these boundary changes can be obtained from West Berkshire Council.

Base population

The model requires two separate base populations; the usual residents in private households and the usual residents in communal establishments. Both of these are provided by the *Local Base Statistics* from the 1991 Census. The statistics for communal establishments are as taken

directly from the Census, but the private household populations have been corrected for underenumeration at each age group in each district. This is a departure from the methodology used in producing estimates and projections based upon the 1981 Census.

Births

The actual number of live births occurring to residents of each district in the period 1 April 1991 to 31 December 2000, together with an estimate for the first quarter of 2001, have been obtained from ONS and allocated to each SGA. The county level age-specific fertility rates, based upon the most recent three years of data, are used to project births in years 2001-02 and beyond by linking them to the latest (2000-based) national fertility trend projection prepared by the Government Actuary's Department.

Deaths

The actual number of deaths occurring to residents of each district in the period 1 April 1991 to 31 December 2000, together with an estimate for the first quarter of 2001, have been obtained from ONS and allocated to each SGA. The Government Actuary's 2000-based national life table, survival improvement factors and local adjustment factors based upon the most recent three years data, are then used to project deaths in years 2001-02 and beyond.

Households

Households are defined, as in the Census, as one person living alone or a group of persons sharing common housekeeping. Household numbers in the estimates are calculated by applying the 1991 Census relationship between households and dwellings to the 2000 number of dwellings in each SGA. The projected numbers of households are based upon the annual building commitments in each SGA to update the dwelling stocks and use also the 1991 estimate to provide the ratio of households to dwellings.

