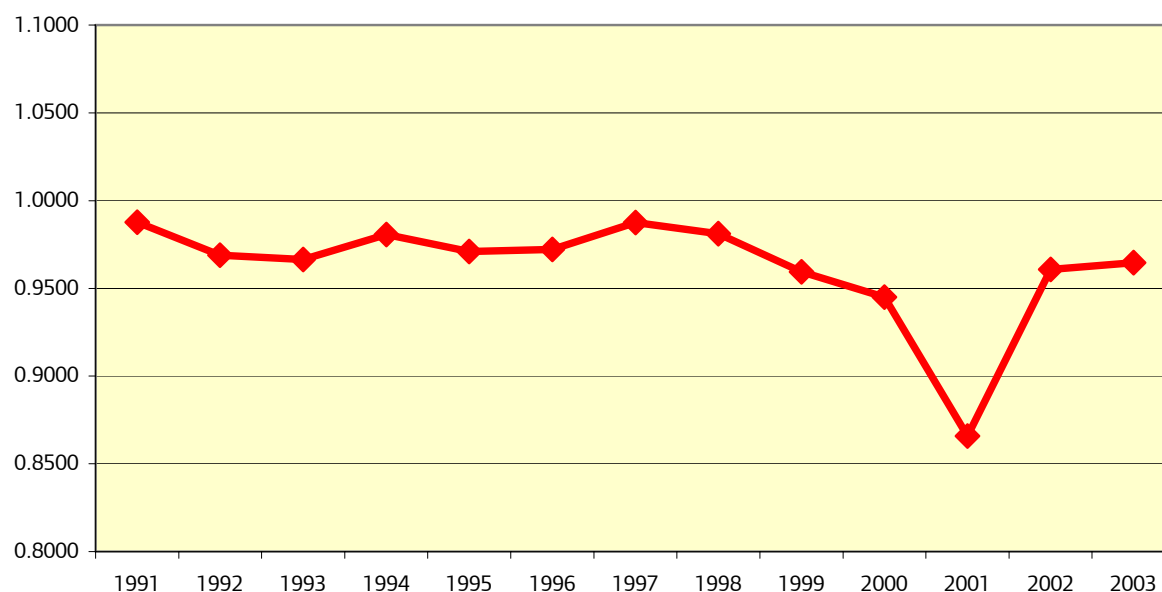


Changes to the 2001 base population used in the GLA Demographic model

The Office for National Statistics (ONS) mid-year estimates form part of the data used to produce the GLA population projections. In particular the mid-2001 estimates currently form the base year for the projections, and will do so until the 2011 Census is carried out and the results of this, and subsequent mid-year estimates for 2011, are published. Following an observation that the number of children aged 0 in mid-2001 was inconsistent with the number of births in the period 2000-01, ONS acknowledged that the age structure in the mid-2001 population estimates was likely to be incorrect for children, particularly at ages 0 to 4. This is likely to have been caused by inconsistencies in the coverage of the 2001 Census for young children. This issue is covered in more detail in a previous Demography Update – 2004/7.

The chart below illustrates the problem that occurred in 2001. The plotted line shows the ratio of the number of 0-year olds at mid-year to births in the year to mid-year. There is a clear 'blip' in 2001 when compared with the previous and subsequent years.

Chart 1: Ratios of 0 year olds to relevant births – Waltham Forest



In some boroughs the 'blip' is in the opposite direction, that is, there were more 0-years olds than births, but in around half of boroughs there were lower mid-year estimates of under 1s than the births would suggest. Ratios relevant to higher ages – for example 1-year olds in 2001 to births in 1999-00; 2 year olds in 2001 to births in 1998-99 – also showed a similar picture in many boroughs, that the estimates numbers of young children in the 2001 mid-year estimates might have been erroneous.

Use of the ONS mid-year estimates as the base population in the GLA projections was leading to problems for boroughs in planning for Education Services. This is a particular problem for planning 4-year old reception places, because 0-year olds in 2001 became 4-year olds in 2005 and in many cases boroughs have seen a fall in the projections of 4-year olds in 2005 followed by a significant rise in 2006.

In the 2005 Round of projections a separate set of base figures were calculated for those boroughs which were part of the GLA School Rolls Project for School Roll Projections, but not the GLA standard demographic projections. However, further thought about the problems in the age structure has led to the decision that all boroughs should be consistent and so the base has been adjusted for all boroughs and wards, and will be used in all future GLA projections.

The first step was to calculate new 2001 mid-year estimate figures for 0 to 4 year olds at borough level. This was done by taking the average of the previous 5 years ratios of 0-year olds to births in the previous year; 1-year olds to births in the year before and so on. The table below shows this.

Table 1: Births, mid-year estimates and ratios of 0-4s to births, Waltham Forest

	Births		MYE by age					Ratios of MYE to relevant births									
			0	1	2	3	4	0	1	2	3	4					
1990-91	3811	1991	3,764								0.9877						
1991-92	3864	1992	3,744	3,652							0.9689	0.9583					
1992-93	3865	1993	3,735	3,640	3,567						0.9664	0.9420	0.9360				
1993-94	3772	1994	3,699	3,666	3,565	3,491					0.9806	0.9485	0.9226	0.9160			
1994-95	3730	1995	3,622	3,557	3,564	3,461	3,443				0.9710	0.9430	0.9221	0.8957	0.9034		
1995-96	3587	1996	3,487	3,485	3,429	3,454	3,402				0.9721	0.9343	0.9091	0.8937	0.8804		
1996-97	3522	1997	3,478	3,368	3,352	3,315	3,385				0.9875	0.9389	0.8987	0.8788	0.8758		
1997-98	3673	1998	3,604	3,434	3,294	3,277	3,279				0.9812	0.9750	0.9183	0.8786	0.8693		
1998-99	3539	1999	3,395	3,414	3,315	3,102	3,111				0.9593	0.9295	0.9412	0.8648	0.8340		
1999-00	3563	2000	3,367	3,259	3,238	3,192	2,999				0.9450	0.9209	0.8816	0.9063	0.8361		
2000-01	3524	2001	3,051	3,138	3,155	3,085	3,067				0.8658	0.8807	0.8915	0.8399	0.8708		
Average of 1995-96 to 1999-00							0.9690	0.9397	0.9098	0.8844	0.8591						
Applying average rates to appropriate births							3,415	3,348	3,220	3,249	3,026						

Once the number of 0-4s was calculated, the totals needed to be split into males and females. This was done using the gender ratios of the existing mid-year estimates. This calculation produced new population figures for males and females by single year of age 0 to 4. However, as these totals were slightly different to those in the existing mid-year estimates, for consistency the calculated 0-4s were constrained back to the mid-year estimates. Detailed calculations are shown overleaf.

		2001 MYE	Gender ratio	Adjusted 0-4s (gender split based on existing ratios)	Adjusted 0-4s constrained to existing total 0-4s
Total	0-4	15,496		16,257	
	0	3,051		3,415	
	1	3,138		3,348	
	2	3,155		3,220	
	3	3,085		3,249	
	4	3,067		3,026	
Male	0-4	8,006		8,399	8,006
	0	1,567	0.514	1,754	1,672
	1	1,634	0.521	1,743	1,662
	2	1,630	0.517	1,663	1,586
	3	1,590	0.515	1,674	1,596
	4	1,585	0.517	1,564	1,491
Female	0-4	7,490		7,858	7,490
	0	1,484	0.486	1,661	1,583
	1	1,504	0.479	1,605	1,530
	2	1,525	0.483	1,556	1,483
	3	1,495	0.485	1,574	1,500
	4	1,482	0.483	1,462	1,394

Taking 0 year old males:

$$\text{Total adjusted 0 year olds} \times \text{Existing gender ratio} = \text{Adjusted 0 year old males}$$

$$3,415 \quad \times \quad 0.514 \quad = \quad 1,754$$

Constraining to the existing mid-year estimate:

$$\frac{\text{Adjusted 0 year old males}}{\Sigma \text{ Adj 0 to 4 year old males}} \times \Sigma \text{ Existing 0 to 4 males} = \text{Constrained 0 year old males}$$

$$\frac{1,754}{8,399} \times 8,066 = 1,672$$

The final step in rebasing the projections was to calculate the new ward populations for 2001.

	Current 2001 Base					New 2001 Base				
	M 0	M 1	M 2	M 3	M 4	M 0	M 1	M 2	M 3	M 4
WALTHAM FOREST	1,567	1,634	1,630	1,590	1,585	1,672	1,662	1,586	1,596	1,491
Cann Hall	127	102	98	98	101	136	103	95	98	95
Cathall	84	90	90	79	92	90	91	88	79	87
Chapel End	79	101	104	85	95	85	102	101	85	89
Chingford Green	40	56	57	38	43	42	57	55	38	40
Endlebury	52	51	45	63	59	55	52	44	63	56
Forest	77	74	59	68	65	82	75	57	68	61
Grove Green	65	102	80	68	67	69	103	78	68	63
Hale End and Highams Park	65	84	68	90	92	69	85	66	90	87
Hatch Lane	44	63	60	62	48	47	65	58	62	46
High Street	89	71	100	84	73	95	73	97	84	69
Higham Hill	86	81	79	95	89	92	82	77	95	84
Hoe Street	109	78	86	80	75	116	79	84	80	71
Larkswood	64	58	59	74	66	68	59	57	74	62
Lea Bridge	102	102	112	105	90	108	103	109	105	85
Leyton	98	119	126	105	107	104	121	123	105	100
Leytonstone	74	69	68	71	63	79	71	66	71	60
Markhouse	79	78	104	94	90	85	79	101	94	85
Valley	62	76	71	60	78	66	77	69	60	74
William Morris	80	77	85	88	97	86	78	83	88	91
Wood Street	89	103	79	84	93	95	104	77	84	87

Taking 0 year old males in Cann Hall as an example:

$$\frac{\text{Current ward population}}{\text{Current borough population}} \times \text{New borough base} = \frac{127}{1,567} \times 1,672 = 136 = \text{New ward base}$$

This exercise was carried out for all boroughs in London and the wards within all borough except those in the City of London, as ward projections are not produced for the City.

The new base data and all calculations as detailed in this *Update* are available on request.

For more information please contact Georgia Hay, Data Management and Analysis Group, Greater London Authority, City Hall, The Queen's Walk, London SE1 2AA. Tel: 020 7983 4347 e-mail: georgia.hay@london.gov.uk

Copyright © Greater London Authority. Data are reproduced in this *Update* with the permission of the Controller of Her Majesty's Stationery Office and is © Crown Copyright. An acknowledgement of the source is given at the end of each table.