

**Demographic Projections for West Oxfordshire: A Review**

# GLA Intelligence Unit

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## Background

The Greater London Authority Data Management and Analysis Group (DMAG), now part of the Intelligence Unit, has produced demographic projections for the districts and wards of Oxfordshire for the County Council for several years.

In August 2010 the County Council approached the GLA to produce another set of projections and organised a meeting with the districts in September. The districts were now having to prepare their own housing strategies, without reference to the Regional Spatial Strategy (the South East Plan) as part of the localism agenda of the Coalition Government, and needed demographic support to help develop their plans

It was agreed that the GLA would prepare new projections that were based on meeting local needs for four of the districts, ie excluding Oxford. It was decided to do this by preparing (i) projections that reflected the actual annual supply of new homes since 2001 and the forecast supply up to 2016, and (ii) projections from 2016 to 2026 that reflected the additional homes required by the population present at 2016 in each district were they to remain resident in the district – that is a ten-year ‘natural change’ projection using only survival and fertility rates.

The process of the projection from 2016 to 2026 was:

- project the 2016 population by age and gender to 2021 and 2026 using survival and fertility rates
- convert the 2021 and 2026 populations to households using the relationships in the CLG 2006-based household projection for West Oxfordshire
- calculate the additional homes required in 2016-21 and 2021-26, and
- use these additional required homes as the future supply in a conventional population projection that allowed for the continuation of migration into and out of the district.

The main data used in the GLA projections were:

### **Base Population:**

Total population by age/gender for mid-2001: Office for National Statistics (ONS) (revised September 2003)

### **Fertility:**

2001 birth rates by age of mother

2001-08 total annual births (mid-year to mid-year)

ONS 2008-based Total Period Fertility Rate projection for England: 2008-09 to 2025-26

### **Mortality:**

2001-08 total annual deaths (mid-year to mid-year)

ONS 2008-based projected deaths and survival rates for England: 2008-09 to 2025-26

### **Migration:**

Annual changes in the population by single year of age and gender using ONS estimates for 1991-2001 (revised September 2004) and 2002-08 (revised May 2010)

### **Households:**

Annual net new homes: actual and forecast from mid-2001 to mid-2016

Population by age, gender and marital status resident in (a) private households and (b) communal establishments; household representative rates by age, gender, marital status and household type; from Department for Communities and Local Government (CLG) 2006-based household projections

**Economic Activity**

Economic activity by age/gender: 2001 Census

Projection of the UK Labour Force to 2020: *ONS Labour Market Trends*, January 2006

## GLA Projections for West Oxfordshire (November 2010)

The methodology used by the GLA is described in detail in ‘Demographic Projections for West Oxfordshire’:

<https://www.westoxon.gov.uk/files/download/7979-4251.pdf>

and will not be rehearsed here, but the key inputs are the annual actual and planned housing developments and the relationships between population and households as used in the CLG 2006-based household projections for West Oxfordshire.

While detailed results are contained in the above document the summary of the projections is shown in Table 1.

**Table 1: Summary of GLA Projections for West Oxfordshire (thousands except average household size)**

	2001	2006	2011	2016	2021	2026	Change 2006-26	Change 2006-16	Change 2016-26	Change 2011-26
<b>Married Couples</b>	21.8	22.0	22.1	21.5	21.0	20.6	-1.4	-0.5	-0.8	-1.5
<b>Cohabiting Couples</b>	3.4	4.0	4.8	5.3	5.8	6.1	2.1	1.3	0.7	1.3
<b>Lone Parents</b>	1.7	1.9	2.0	1.9	1.8	1.8	-0.1	0.0	-0.1	-0.2
<b>Other Households</b>	2.0	2.1	2.3	2.5	2.6	2.7	0.6	0.4	0.3	0.4
<b>One Person Households</b>	9.6	11.3	13.1	14.6	16.0	17.3	6.1	3.3	2.8	4.2
<b>Total Households</b>	<b>38.5</b>	<b>41.3</b>	<b>44.3</b>	<b>45.8</b>	<b>47.2</b>	<b>48.6</b>	<b>7.3</b>	<b>4.5</b>	<b>2.8</b>	<b>4.3</b>
<b>Household Population</b>	93.7	97.8	103.9	106.7	110.1	113.7	16.0	8.9	7.1	9.9
<b>Average Household Size</b>	2.43	2.37	2.34	2.33	2.33	2.34	na	na	na	na
<b>Total Population</b>	<b>95.7</b>	<b>100.0</b>	<b>106.2</b>	<b>109.2</b>	<b>112.6</b>	<b>116.5</b>	<b>16.5</b>	<b>9.2</b>	<b>7.3</b>	<b>10.2</b>
<b>Institutional Population</b>	2.0	2.2	2.4	2.5	2.6	2.7	0.5	0.3	0.3	0.4

The projection reflects the net increase of 4,465 homes that are expected to be made available between 2006 and 2016 and the 2,841 additional homes between 2016 and 2026 that reflect the local needs in the next ten years of the population projected to be resident in 2016 as described above. This is a sum of 7,306 net additions to the housing stock over the period 2006 to 2026.

## ONS/CLG 2006-based Projections for West Oxfordshire

At the time the GLA prepared its projections the most recent comprehensive set of population and household projections for West Oxfordshire were the ONS 2006-based Subnational population projections that were the basis for the CLG 2006-based household projections.

The ONS projections were based upon the migration estimated for West Oxfordshire over the period 2001-06 in the ONS mid-year estimates, with the international flows linked to assumptions used in the ONS 2006-based national population projections for England.

**Table 2: West Oxfordshire: Migration in ONS 2006-based Subnational Projections (thousands)**

	<b>In</b>	<b>Out</b>	<b>Net</b>
<b>2001-06</b> (average)	5.8	5.1	0.7
<b>2010-11</b>	6.2	5.4	0.8
<b>2015-16</b>	6.4	5.7	0.8
<b>2020-21</b>	6.6	5.8	0.9
<b>2025-26</b>	6.7	5.9	0.8

The resulting projection incorporated net migration into West Oxfordshire a little higher than had been the average of the reference period of 2001 to 2006.

**Table 3: West Oxfordshire: ONS and CLG 2006-based Projections (thousands)**

	<b>ONS MYE Population</b>	<b>ONS 2006-based Population</b>	<b>CLG 2006-based Households</b>
<b>2001</b>	95.7		38.5
<b>2006</b>	100.2	100.2	41.0
<b>2011</b>		104.9	43.7
<b>2016</b>		109.9	46.7
<b>2021</b>		115.2	49.8
<b>2026</b>		120.1	52.8

The CLG projection shows an increase in households of 2,500 between 2001 and 2006 followed by an increase of 11,800 between 2006 and 2026. The population was projected to grow by 19,900 in the same period.

## ONS/CLG 2008-based Projections for West Oxfordshire

At the time the GLA prepared its projections the ONS 2008-based Subnational population projections for West Oxfordshire were available. These used the same ONS 2008-based national fertility and mortality assumptions that had been used in the GLA projections. However, the CLG 2008-based household projections only became available in November after the GLA projections had been completed.

The ONS projections were based upon the migration estimated for West Oxfordshire over the period 2003-08 in the revised set of ONS mid-year population estimates published in May 2010. The international flows were linked to assumptions used in the ONS 2008-based national population projections for England.

**Table 4: West Oxfordshire: Migration in ONS 2008-based Subnational Projections (thousands)**

	<b>In</b>	<b>Out</b>	<b>Net</b>
<b>2003-08</b> (average)	6.0	5.2	0.8
<b>2010-11</b>	6.3	5.6	0.7
<b>2015-16</b>	6.5	5.7	0.8
<b>2020-21</b>	6.6	5.7	0.9
<b>2025-26</b>	6.7	5.9	0.8

The resulting projection incorporated net migration into West Oxfordshire little different to that in the 2006-based projections.

**Table 5: West Oxfordshire: ONS and CLG 2008-based Projections (thousands)**

	<b>ONS MYE Population</b>	<b>ONS 2008-based Population</b>	<b>CLG 2008-based Households</b>
<b>2001</b>	95.7		38.5
<b>2006</b>	100.3		40.8
<b>2011</b>		105.0	43.2
<b>2016</b>		110.0	46.0
<b>2021</b>		115.1	48.9
<b>2026</b>		119.9	51.8

The CLG projection shows a reduced increase in households of 2,300 between 2001 and 2006 compared to the 2006-based projection, followed by a similarly reduced increase of 10,900 between 2006 and 2026. The population was projected to grow by 19,700 in the same period.



## Critique of ONS and CLG Projections

While overall the 2008-based projections show a reduction in growth between 2006 and 2026, including by 900 households, there were more significant changes to the detailed household projection output due to a major overhaul by CLG of its projection methodology and also of the household types being projected – an increase from five types to 17.

Both the 2006-based and the 2008-based CLG household projections show noticeably lower growth in projected households between 2001 and 2011 than the sum of the actual and anticipated net new homes in West Oxfordshire in that period. The CLG 2008-based increase is 4,600 compared to 5,800 net new homes. For 2006-11 the comparison is 2,300 against 3,000.

It must be understood that the ONS population projections are ‘policy neutral’ and designed to show the outcome of a set of specific assumptions that are consistent for all local authority areas in England. Of most importance are the assumptions relating to migration. Migration between local authorities within England is based on the average of the previous five years of estimated flows and the projection is based on continuing age/gender specific probabilities of movement from each local authority with a distribution matrix of destinations by age/gender. Therefore migration within England is zero-sum. There are also estimated flows to and from each local authority with Wales, Scotland and Northern Ireland combined, based upon continuing average flows in the five-year reference period. Flows to and from Overseas are a little more complicated but based on the local authority’s estimated share of gross flows to and from England in the previous five years but scaled to match the assumption of the gross flows for England.

The key point about the projected migration is that it is based on the estimated migration and that the estimates are not directly influenced by the availability of new homes in the district in the five-year reference period. Migration is estimated by a combination of persons changing GPs, students moving to and from higher education, the International Passenger Survey, the Labour Force Survey and a modelling process using a number of local variables.

The CLG household projections are also unaffected by any data on the availability of new homes in the local authority area after the 2001 Census. The household estimates and projections convert ONS population estimates and projections to households based on national and local relationships linking population by age and gender with households in the previous four censuses and, nationally, more recently in the Labour Force Survey. While this modelling process is accepted as ‘gold standard’ the fact that it is not constrained by any information on actual housing stocks and the deliberate ‘planning free’ approach of the ONS population projections, means that, particularly for individual relatively small local authorities, the household projection results cannot be assumed to be a true measure of future local demand for new homes, merely the indication of the demand for homes mainly as a consequence of the ONS assumptions about migration. However, as with many other organisations the GLA does subscribe to the use of the CLG’s projected household representative rates as well as its analysis of the marital/relationship status of residents to inform its own work.

## Updated GLA Projections for West Oxfordshire

The GLA projections have been updated to incorporate the relationships in the CLG 2008-based household projections as well as actual births and deaths occurring in 2008-09 and some other minor technical improvements to the model. However, the results are little different. The improvements have slightly increased the average household size, and hence the total population, as well as indicating slightly more couple households. But the total number of households since 2011, being an input, is the same. The increase in average household size is more noticeable in the early part of the projection and is a direct consequence of the revised CLG methodology that has followed the recent reductions in household formation seen nationally in the Labour Force Survey for England.

**Table 6: Summary of Updated GLA ‘natural change’ Projections for West Oxfordshire (thousands except average household size)**

	2001	2006	2011	2016	2021	2026	Change 2006-26	Change 2006-16	Change 2016-26	Change 2011-26
<b>Couple Households</b>	25.3	26.1	27.3	27.4	27.5	27.5	1.3	1.3	0.1	0.2
<b>All Other Households</b>	13.3	15.2	17.1	18.4	19.8	21.2	6.0	3.2	2.8	4.1
<b>Total Households</b>	<b>38.5</b>	<b>41.3</b>	<b>44.3</b>	<b>45.8</b>	<b>47.2</b>	<b>48.6</b>	<b>7.3</b>	<b>4.5</b>	<b>2.8</b>	<b>4.3</b>
<b>Private Household Population</b>	93.7	100.6	108.0	110.5	112.8	115.1	14.5	9.9	4.7	7.1
<b>Average Household Size</b>	2.43	2.43	2.44	2.41	2.39	2.37	na	na	na	na
<b>Institutional Population</b>	2.0	2.1	2.2	2.3	2.4	2.6	0.5	0.2	0.3	0.4
<b>Total Population</b>	<b>95.7</b>	<b>102.7</b>	<b>110.3</b>	<b>112.8</b>	<b>115.2</b>	<b>117.7</b>	<b>15.0</b>	<b>10.1</b>	<b>5.0</b>	<b>7.5</b>

Although this projection is based on the housing requirements of a true ‘natural change’ population projection between 2016 and 2026 the final results reflect the same number of homes being built in a more realistic open market environment – with no barriers to migration.

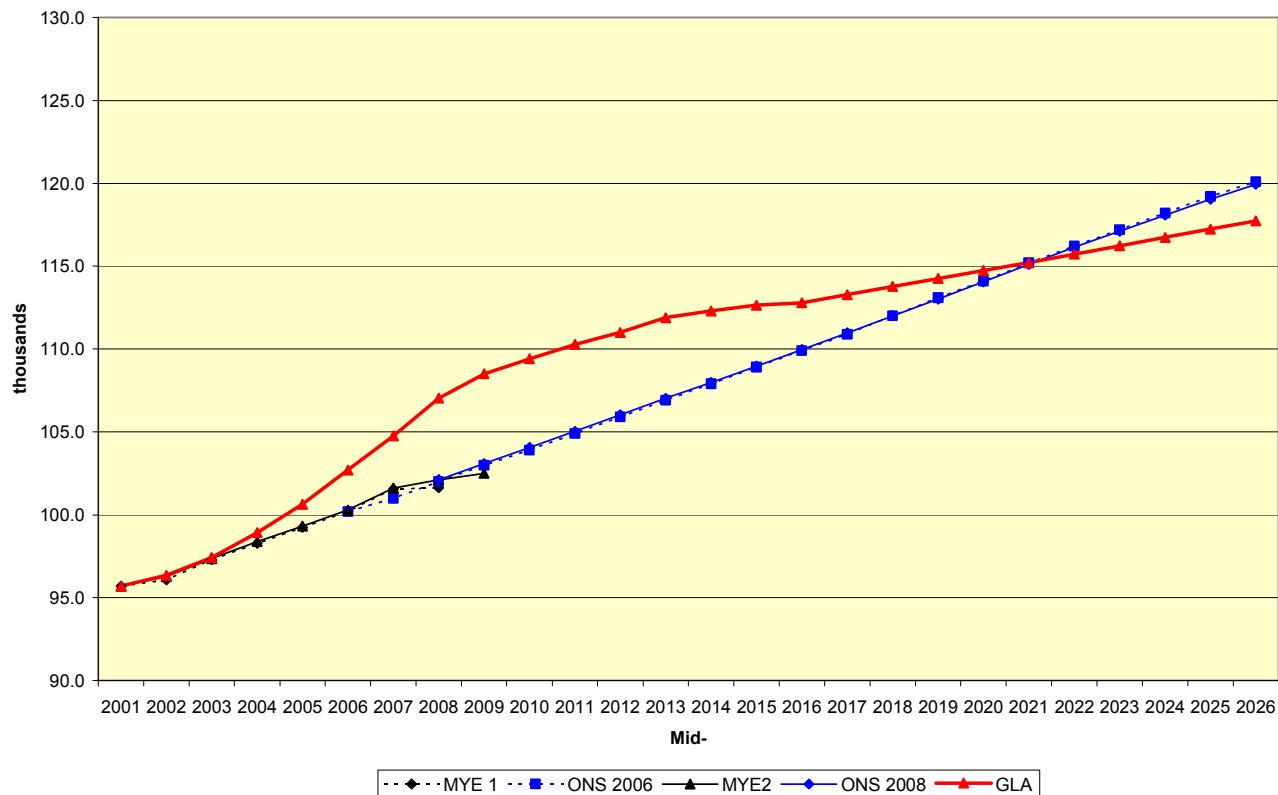
The additional 2,800 homes built in this ten year period act to attract to the district a net inflow of 700 persons – ie 70 a year, equivalent to the residents of about 30 homes each year – out of a 5,000 increase in the total population.

A further feature of this projection is that the projected resident labour force of West Oxfordshire rises from 59,700 in 2011 to 59,900 in 2016 but then falls back to 58,000 in 2026.

## Comparison of Projections

Chart 1 shows the comparison of the updated GLA population projection with the two ONS series of mid-year estimates and the ONS 2006-based and 2008-based projections.

**Chart 1: West Oxfordshire: Population Estimates and Projections, 2001-26**

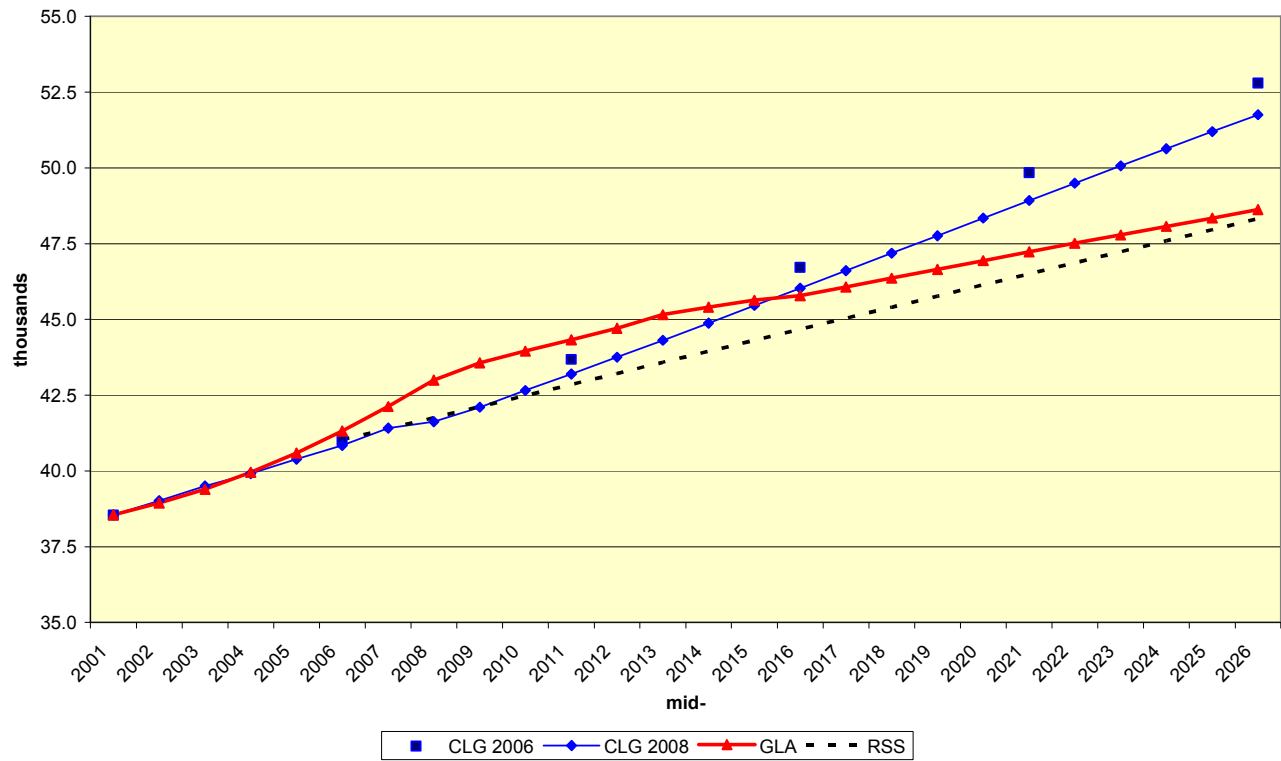


The clear difference is the more accelerated growth in the population as shown by the GLA projections up to 2011. The two ONS projections are little different, as are the pre- and post-revised mid-year estimates.

Chart 2 presents the equivalent household projections to the populations shown in Chart 1 with the addition of a line that indicates the average annual growth in households recommended for West Oxfordshire in the South East Plan (RSS), that is 7,300 over twenty years. This line starts at the CLG 2006-based household figure for 2006 (41,000) and reaches 48,300 in 2026.

Chart 2 helps explain that the accelerated population growth seen in the GLA projection in Chart 1 is due to the net supply of new homes in West Oxfordshire having run ahead of the CLG projections since 2006. This is forecast to continue until 2014, while matching the RSS over the entire 20 years.

**Chart 2: West Oxfordshire: Household Estimates and Projections, 2001-26**



Note that the CLG 2006-based projections were not published for every year.

## Summary

ONS population projections are based on local migration – estimated from a number of sources – relating to the five-year reference period leading up to the base year of the projection.

Local housing information is not directly considered in assessing the ONS migration levels and the ONS projections are free of the influence of local development plans, being described as being ‘policy neutral’ for all local authorities in England.

CLG household projections use a ‘gold standard’ methodology to project local household representative rates from past censuses and more recent national data from the Labour Force Survey.

CLG household projections convert the ONS population projections to households and take no account of actual development in each area since the last (ie 2001) Census.

Along with many other organisations, the GLA uses the CLG projections in its own work as regards the relationships between population and households but not in any other way.

GLA uses the local authority’s own data on the annual total net additions to the number of homes (both past and future) from all sources (new build, conversions, returns from vacant, demolitions) as the key driver in its demographic projections.

While there are some differences in the results using the CLG 2008-based compared to its 2006-based household representative rates, in overall terms they are minor, relating to a slightly higher average household size.

In assessing development levels required for local needs after 2016 the GLA assumed that the 2016 West Oxfordshire population remained in West Oxfordshire, with no migration flows into or out of the area, and experienced only natural change up to 2026. The additional households resulting from the, older, populations in 2021 and 2026 were then assumed to be the annual housing targets for 2016 to 2026 in a final projection that incorporated migration flows into and out of the district. In this projection the impact of migration into and out of the district after 2016 is a net inflow of about 700 persons as families represented by persons aged 25-44 show a net increase while students and persons aged over 45 experience a net outflow.

## **Conclusion**

The natural change projection is a technically sound and robust method of establishing a local housing target and represents the minimum number of homes to meet the local need for housing for a given population projected forward on the assumptions of future survival using nationally consistent rates by age and gender. The projection reflects the actual supply of new homes since 2001 and forecast supply up to 2016. From 2016 to 2026 the projections reflect the additional number of new homes required by the survivors of the population present at 2016 were they to remain resident in the District until 2026.

The resulting additional households in 2016-26, when added to actual and expected development between 2006 and 2016, amounted to 7,306. This, coincidentally, is the same as the total for West Oxfordshire as shown in the South East Plan.

ONS projections do not provide a robust basis for establishing a local housing target as they are policy neutral, reflecting recent trends of estimated migration levels. They do not have regard to up to date local housing completions data nor circumstances.