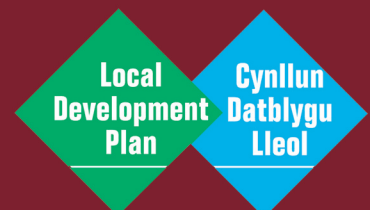


Vale of Glamorgan Local Development Plan 2011-2026

Housing Provision



2015



Housing Provision Background Paper (2015)

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Introduction

- 1.1 This background paper responds to the publication of the Welsh Government (WG) 2011-based household projections which were published in February 2014 following the public consultation on the Council's Deposit Local Development Plan (LDP). The paper also clarifies issues raised in representations received on the Deposit LDP. This background paper should therefore be read in conjunction with the Population and Housing Projections Background Paper 2013.
- 1.2 This paper sets out the Council's detailed consideration of the latest official WG household projections and then sets out all other relevant and material considerations when assessing the potential implications for the LDP's overall residential requirement.

Addendum to the Population and Housing Projections Background Paper 2013

2.0 What are household projections?

- 2.1 In order to interpret and consider the implications of the household projections, it is important to understand the role of the statistics. Household projections provide an indication of future demand for household spaces. Household projections are not forecasts of dwellings or houses but are an indication of the future number of household units based on trends and assumptions about the future population growth.

3.0 Limitations of trend-based projections

- 3.1 As explained in the Population and Housing Projections Background Paper September 2013', the latest Welsh Government projections are based on trends and are only an indication of what might happen if the trend used within a set of projections actually materialises.
- 3.2 The limitations with trend based projections are that they do not make allowances for any changes that have not already taken place or yet had an effect; therefore they do not consider the future effects of any policies or socio-economic changes.
- 3.3 Predicting household formation rates for the future is also based on what is known from the past and, therefore, trend-based projections become increasingly uncertain the further forward they are projected.

4.0 What is the Popgroup Software?

- 4.1 Popgroup is an Excel spreadsheet based suite of software developed to forecast demographic forecasting. The Popgroup software family includes forecasting population, households and the labour force for areas and social groups.
- 4.2 Now in its fourth version, it is recognised as the industry standard in the UK for demographic analysis within strategic planning and data modules within the suite and provides the ability to replicate official government projections as an example for population and households.
- 4.3 Popgroup itself provides the models for population projections for one or multiple areas. Derived Forecasts provide the models for household projections, labour force projections, and any other characteristics derived from an age-sex structure of population. Although the two sets of software are independent, they are designed to work together to assess the implications for population of housing and jobs investment.
- 4.4 Further details about the software can be found in Appendix 1

5.0 Welsh Government Local Authority Projections –

- 5.1 The first set of Welsh Government Local Authority Projections was the 2006-based projections. The second set being the 2008-based and the latest is the 2011-based.
- 5.2 The 2006-based projections introduced the new local methodology, the bottom-up approach, meaning that the projections started with low level (local authority) data and built up. This approach has continued to be used within the projections that followed.
- 5.3 However, the first two sets of projections did not add up to the overall Wales projections, unlike the latest set of projections, which have now been constrained to sum to the Wales (National) projections.
- 5.4 All sets of Welsh Government's Local Authority Principal Population Projections have been based on a short-term migration trend, i.e. the average of the latest 5 years of migration to the base year.
- 5.5 To demonstrate the effects of using different trends, the Welsh Government has always produced variant projections. With the latest set of projections, the Welsh Government was able to

produce an additional variant, the 10-Year Average Migration variant.

- 5.6 As the Welsh Government projections are trend-based projections, when considering all the projections produced by the Welsh Government, it would seem advantageous to give the longer trend of the 10-Year Average Migration variant, equivalent consideration to that of the Principal projections as the longer trend period for average migration allows for a more realistic and robust estimate of the population projections.

6.0 The Welsh Government 2011-based household projections

- 6.1 The 2011-based Household Projections for Local Authorities in Wales were published by the Welsh Government (WG) in February 2014. The projections have been prepared through collaboration with the Wales Sub-national Projections Working Group (WASP), local authorities and key users across Wales.

- 6.2 In preparing 2011-based household projections, the Welsh Government has utilised the same methodology as used in two previous publications. The household projections use the population projections (the latest using 2011) as a base and are dependent on a number of core assumptions about the future fertility, mortality and migration rates, which are key elements to the population projections.

- 6.3 The 2011-based Population Projections were subject to examination at the time of publication and further details can be found in the Population and Housing Projections Background Paper September 2013.

- 6.4 The 2011-based household projections provide an estimate of the future number of households and are not forecasts of dwellings. Households and dwellings are defined in the Census and by the Welsh Government¹.

7.0 What has changed in this set of household projections?

- 7.1 The changes that have been identified within the 2011-based Welsh Government projections can be attributed to the following elements.

- This set of household projections uses data from the 2001 and 2011 Census to establish the household membership rates, whereas the previous two sets of

¹ Welsh Government Household Projections for Wales (2011-based) Technical Report - Page 22 and 23 defines Households and Dwellings --- <http://wales.gov.uk/docs/statistics/2014/140717-household-projections-2011-based-technical-report-en.pdf>.

projections had used data from the 1991 and 2001 Census.

- Changes which can be attributed to the 2011 Census are:
 - i. Changes in life expectancy,
 - ii. Changes in fertility rates; also
 - iii. Other Changes including unattributable changes.
- The Welsh Government has in addition, including previous variants, now produced the 10-Year Average Migration variant.
- The Welsh Government Local Authority Projections now sum to that of the National Projections for Wales

7.2 These changes are considered in more detail in the following sections.

Other changes including unattributable changes

7.3 It should be recognised that the other changes, including unattributable data, identified through the 2011 Census, would have caused an underestimation of the population in the 2001 Census, which has not been taken into account within the 2011-based projections.

7.4 The Office for National Statistics (ONS) identified changes in the population for all local authorities through the 2011 Census which could not definitely be attributed to inward or outward migration, other than by recognising it as an underestimation of international migration over the decade or a shortfall in the 2001 census estimates which was carried forward through the decade. ONS has classified these changes within the population as “Other Changes including Unattributable changes”.

7.5 Table 1 highlights the “Other Changes including the unattributable changes” which were not included in the population base.

Table 1: Other Changes including the unattributable changes

Table 1: Components of population change by Welsh local authority, 1991 onwards
 Author: Welsh Government
 Local authority: Vale of Glamorgan

	Population at end of period (1)								Population at end of period (1)
	Population at start of period (2)	Natural change during period (3) = (4)-(5)		Natural change during period (3)	Net migration and other changes during period			Net migration and other changes during period (6) = (2)+(4)-(5)-(1)	
		Births during period (4)	Deaths during period (5)		Net internal migration during period (7)	Net international migration during period (8)	Other changes, including unattributable changes, during period (9)		
1991 to 1992	118,053	1,596	1,242	354	..	..	..	-802	117,605
1992 to 1993	117,605	1,486	1,306	180	..	..	..	-735	117,050
1993 to 1994	117,050	1,546	1,456	90	..	..	..	-290	116,850
1994 to 1995	116,850	1,478	1,334	144	..	..	..	-647	116,347
1995 to 1996	116,347	1,365	1,310	55	..	..	..	-75	116,327
1996 to 1997	116,327	1,466	1,316	150	..	..	..	473	116,950
1997 to 1998	116,950	1,486	1,299	187	..	..	..	1,160	118,297
1998 to 1999	118,297	1,398	1,315	83	..	..	..	-436	117,944
1999 to 2000	117,944	1,335	1,277	58	..	..	..	1,274	119,276
2000 to 2001	119,276	1,224	1,315	-91	..	..	..	92	119,277
2001 to 2002	119,277	1,169	1,307	-138	889	138	121	1,140	120,279
2002 to 2003	120,279	1,225	1,306	-81	911	-120	117	782	120,980
2003 to 2004	120,980	1,296	1,329	-33	564	-2	110	1,154	122,101
2004 to 2005	122,101	1,320	1,215	105	504	-9	119	671	122,877
2005 to 2006	122,877	1,289	1,247	42	637	91	121	723	123,642
2006 to 2007	123,642	1,372	1,226	146	611	64	122	944	124,732
2007 to 2008	124,732	1,504	1,250	254	486	101	133	727	125,713
2008 to 2009	125,713	1,435	1,184	251	45	61	128	198	126,162
2009 to 2010	126,162	1,517	1,201	316	-37	-79	102	-43	126,435
2010 to 2011	126,435	1,403	1,125	278	-17	-110	63	-34	126,679
2011 to 2012	126,679	1,431	1,149	282	108	-207	-31	-130	126,831
2012 to 2013	126,831	1,336	1,258	78	290	-16	-24	250	127,159

<https://stats.wales.gov.uk/Catalogue/Population-and-Migration/Population/Components-of-Change/ComponentsOfPopulationChange-by-LocalAuthority-Component>

7.6 As the ONS could not attribute these changes to any one factor, and for consistency with previous Welsh Government local authority projections, the Welsh Government did not take these changes into account when producing the 2011-based household projections.

Should the Census Unattributable Population have been ignored in the latest set of Welsh Government Projections?

7.7 It is crucial to recognise that the Welsh Government projections are only a starting point and for the benefit of future comparison, the starting point is consistent with previous projections. It is for each local authority to consider to what extent the Unattributable population would have influenced the 2011-based projections.

- 7.8 When considering the impact on the Vale of Glamorgan, together with the Welsh Government 2011-based Principal Projections, the effect of the unattributable population would have been negligible.
- 7.9 Table 1² (Welsh Government Components of Population Change by Welsh Local Authority, 1991 onwards – Other Changes, including unattributable changes, during period) illustrates that from 2001 to 2011 there is an average unattributable change of 100 people per year, being 0.1% of the overall population.
- 7.10 Although this underestimation will lead to differences between the 2011-based projections and previous sets, and changes in population will affect household formation rates which are an essential element of the household projections, it is considered that the unattributable population would not have made a sizable impact on the overall principal projection.
- 7.11 Therefore, for consistency with the Welsh Government and previous deposit LDP projections, this paper does not take the other changes, including unattributable changes, into account in any alternative trend scenarios.

Other Changes including the 10-year Average Migration Variant and National Wales Projections

- 7.12 The inclusion of the 10-Year Average Migration variant should be considered as an advantage in demonstrating the uncertainty of trend-based projections and should show that a short-term trend does not always capture sufficient trends for future predictions.
- 7.13 The sub national (LA) projections summing to the National (Wales) level projections will have had an impact on the 2011-based Local Authority household projections. As this was not done for previous projections this change adds extra constraint the individual Local Authority Population Projections (in order for the national projections to sum to the overall Wales projection).
- 7.14 It should also be noted that the 2011-based projections are also constrained by the changes between the two Censuses and by excluding the unattributable data into the population base, which is used as a base for the household projections. Therefore, some constraints already existed within the population projections, although not to the same degree as summing to the national projection.

² Page 6 – paragraph 6.5.2 – of this paper.

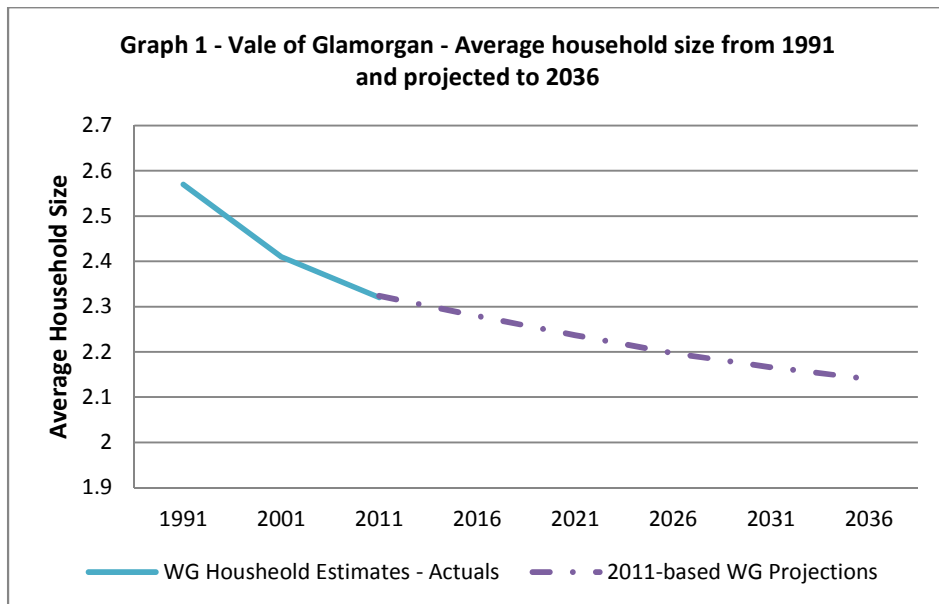
7.15 Other differences identified through the 2011 Census were the changes in the average household size and structures; further details of these changes are given below.

Average Household Size

7.16 The 2011-based Welsh Government household projections average household size for the Vale of Glamorgan is illustrated at Table 2 and indicates that the average household size will decrease, although not to the same extent as that predicted in the 2008-based household projections.

Table 2 - Projected Average household size for the Vale of Glamorgan - 2011-based household projections for local authorities in Wales, 2011 to 2036									
2011	2016	2021	2026	2031	2032	2033	2034	2035	2036
2.32	2.28	2.24	2.20	2.17	2.16	2.16	2.15	2.15	2.14
https://statswales.wales.gov.uk/Catalogue/Housing/Households/Projections/Local-Authority/2011-Based/HouseholdProjections-by-LocalAuthority-Type-Year									

7.17 Graph 1 below illustrates the changes in the average household sizes from 1991 to 2011 followed by the 2011-based Welsh Government average household size projections to 2036.



7.18 The difference between the predictions can be compared with the extracted Table 13 below which shows the average household size previously forecast under the 2008-based household projections was estimated to be 2.27 (0.05 lower) in

2011 and 2.10 (0.07 lower) in 2031 (shown as persons per household)³.

See note 3 – Extract from Population and Housing Projections Background Paper September 2013 – Table13: Projected Average Household Size for the Vale of Glamorgan, 2008 - 2031						
Year	2008	2011	2016	2021	2026	2031
Average household size	2.31	2.27	2.21	2.16	2.13	2.10

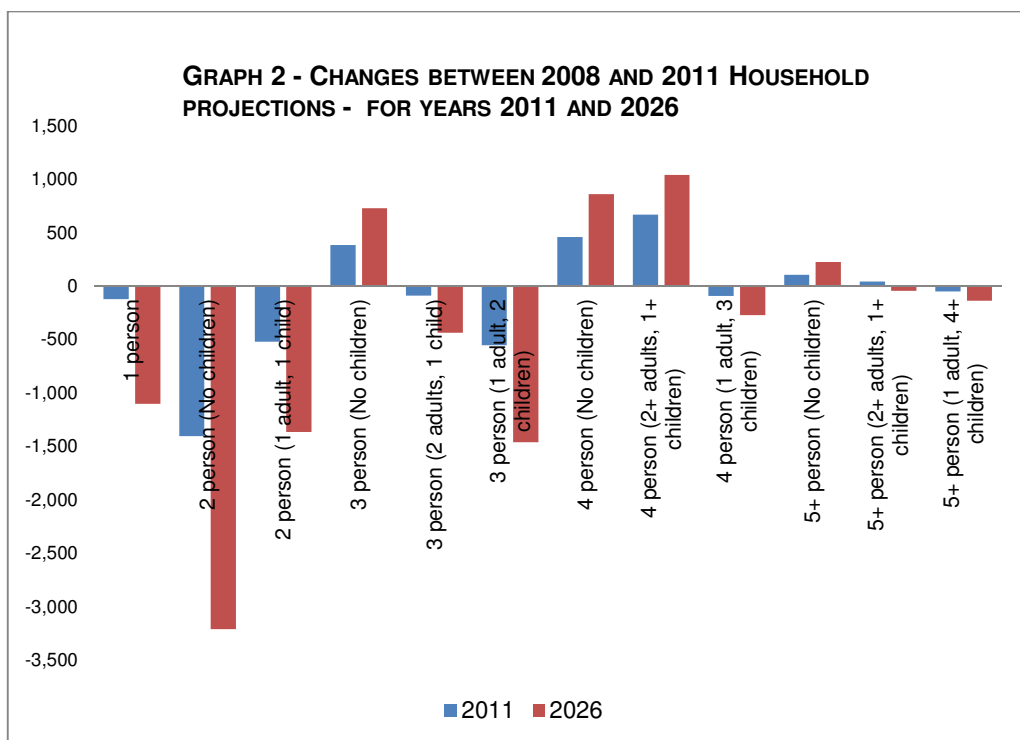
7.19 Although the changes in the average household size in the 2011-based household projections follow a similar pattern to that of the 2008-based household projections, the effect of the average household size not decreasing as previously expected, results in a higher average household size in the 2011-based projections which will contribute to a lower number of households predicted over the projection period.

7.20 Projected average household size is an important assumption as it has a significant bearing when calculating dwelling projections. In considering this trend in the 2011-based projections, it is important to recognise the socio-economic context that has resulted in a higher forecast average household size over the projection period. Whilst the 2011-based average household size (2.20 in 2026) is accepted as the basis for further consideration in this paper, this difference and the potential impact of a return to past trends, requires consideration. Constraints on new household formation, and the underlying factors that could affect average household size, are therefore reflected on in the concluding sections of this paper.

Changes in the Household Structures

7.21 Graph 2 below illustrates changes in household structures between the 2008 and 2011 household projections.

³ Page 23 - Table 13 – of the Population and Housing Projections Background Paper September 2013 identifies the 2008-based predicted change.



7.22 Graph 2 and Table 3 use the same household structures for both the 2008 and 2011-based projections. For comparison purposes, the differences between the 2011 and 2026 forecasts are shown.

Table 3 – Household Structures - Derived Forecasts Summary Report - Vale of Glamorgan Households - All Persons - All Ages

Category of Households	2008-based Household Projections		2011-based Household Projections		Changes between 2011 and 2008 Household Structures	
	2011	2026	2011	2026	2011	2026
1 person	16,035	21,442	15,913	20,337	-122	-1,105
2 person (No children)	18,382	21,513	16,975	18,300	-1,407	-3,212
2 person (1 adult, 1 child)	2,473	3,546	1,952	2,180	-521	-1,366
3 person (No children)	3,160	2,835	3,543	3,563	384	728
3 person (2 adults, 1 child)	4,058	4,460	3,967	4,022	-91	-438
3 person (1 adult, 2 children)	1,721	2,511	1,166	1,048	-555	-1,463
4 person (No children)	679	472	1,137	1,332	458	861
4 person (2+ adults, 1+ children)	4,820	4,202	5,488	5,243	668	1,040
4 person (1 adult, 3 children)	471	665	378	392	-93	-273
5+ person (No children)	105	67	209	290	104	223
5+ person (2+ adults, 1+ children)	2,719	2,394	2,761	2,348	42	-45
5+ person (1 adult, 4+ children)	183	262	132	123	-51	-138
Total	54,805	64,367	53,620	59,179	-1,185	-5,188
Private household population	124,543	136,905	124,595	130,016	51	-6,889
Population / Households	2.27	2.13	2.32	2.20	0.05	0.07

Note: This report was compiled from a forecast produced using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

7.23 Graph 2 and Table 3 show that the most significant changes between the two sets of projection figures are primarily between the smaller households.

7.24 If the trend in the 2011-based household projections materialises, the household structures in 2026 would result in 5,188 less dwellings required than forecast by the 2008-based projections. There has also been a change in the predicted household structure with a lower number of smaller households predicted than previously forecast (for 1, 2, and 3 person households) as shown in Table 3 above. Therefore, when considering why the 2008 and 2011-based household projections are so different, the projected number of households and household structures should also be considered.

8.0 2011-based Welsh Government Principal Household Projections for the Vale of Glamorgan

8.1 Principal Projections – this is the name provided for the main Welsh Government projections. The principal projection is produced alongside any variants that are produced in statistical software such as Popgroup.

8.2 Having set out the main changes which should be considered in using the 2011-based household projections; this section assesses the 2011-based principal projections in detail and considers variations through the Popgroup software.

8.3 The Welsh Government 2011-based Principal household projections indicate an overall increase of 7,432 or 14% of households from 2011 to 2036 in the Vale of Glamorgan.

8.4 The overall projected increase for the Vale of Glamorgan, in this latest set of projections, equates to 14% (7,432), whereas Cardiff is expected to increase by 41% (58,990) being the highest percentage of change in Wales. Projected increases in adjoining authority areas are 14% in Bridgend (8,497) and 9% in Rhondda Cynon Taf (9,402).

8.5 When considering the 2011-based principal projections for the LDP period (2011-2026), household growth increases by 5,559 (53,620 – 59,179) which equates to a 10% (5,559 / 53,620) increase in households. However, when comparing this to the predicted growth in the 2008-based household projections, the Vale of Glamorgan was predicted to grow by 17% (9,561).

8.6 Table 4 gives a 25 year summary and breakdown by category of the projected household growth for the Principal 2011-based

household projections for the Vale of Glamorgan by household structure.

**Table 4 – Derived Forecasts Summary Report – Vale of Glamorgan
2011 Households – All Persons – All Ages**

Category of Households	2011	2016	2021	2026	2031	2036
1 person	15,913	17,368	18,863	20,337	21,556	22,570
2 person (No children)	16,975	17,528	18,005	18,300	18,385	18,291
2 person (1 adult, 1 child)	1,952	2,018	2,097	2,180	2,229	2,265
3 person (No children)	3,543	3,636	3,632	3,563	3,493	3,428
3 person (2 adults, 1 child)	3,967	3,981	3,999	4,022	4,000	3,963
3 person (1 adult, 2 children)	1,166	1,106	1,079	1,048	1,012	979
4 person (No children)	1,137	1,258	1,308	1,332	1,395	1,463
4 person (2+ adults, 1+ children)	5,488	5,367	5,288	5,243	5,197	5,119
4 person (1 adult, 3 children)	378	377	387	392	392	392
5+ person (No children)	209	247	271	290	321	355
5+ person (2+ adults, 1+ children)	2,761	2,605	2,474	2,348	2,231	2,114
5+ person (1 adult, 4+ children)	132	127	126	123	119	114
Total	53,620	55,618	57,529	59,179	60,329	61,052

Note: This report was compiled from forecasts produced using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

9.0 Implications of Welsh Government Principal 2011-based Projections for the Vale of Glamorgan

- 9.1 When considering the Welsh Government’s 2011-based household projections for the LDP, the relationship between households and dwellings is a primary consideration which is detailed below.
- 9.2 Household to Dwelling Ratio – The Welsh Government has previously indicated that a conversion ratio of 1.04 dwellings per household can be used. This conversion ratio accommodates vacancy rates, probabilities in the housing market and an element of ‘hidden’ households; however, it is a conjectural ratio and its use has been varied between local authorities; for example Conwy had investigated local data and proposed a 1.08 ratio in their LDP.
- 9.3 The Welsh Government considers this ratio to be appropriate to determine a dwelling requirement; however, it leaves the precise worth of this ratio to be determined by the local planning authority based on their local evidence.
- 9.4 For consistency with previous (2006 and 2008) Welsh Government household projections, the Vale of Glamorgan Council has utilised the latest version of the Popgroup software to produce a forecast of the predicted number of required dwellings based on the 2011-based Welsh Government household projections and the Welsh Government ratio is only given for comparison purposes.

- 9.5 To calculate the number of dwellings required from a household projection; the Popgroup model requires an impact supply file which allows Popgroup to convert households to dwellings. One of the conversion ratios Popgroup uses to convert households to dwellings is the number of households with at least one usual resident. The 2011 census identified that the Vale of Glamorgan had approximately 96% of households with at least one usual resident. This figure was used for the single conversion rate for the impact supply file for all the Vale of Glamorgan’s projections.
- 9.6 Table 5 demonstrates the predicted number of dwellings required for the period 2011 to 2026 for the 2011-based Principal projection. Dwelling Change (2011-2026) is calculated through the Popgroup software and results in an increase of 5,778 dwellings. When this is compared to the Welsh Government ratio of 1.04 (shown as the number of supply units in Table 5 below), the required increase is 5,781 dwellings, an insignificant difference (of +3) over the 15 year period. A detailed report is attached at Appendix 2.

Table 5 - Welsh Government 2011-based Principal Projections

Year beginning July 1st	2011	2016	2021	2026	2031	2036
Households						
Number of Households	53,620	55,618	57,529	59,179	60,329	61,052
Change in Households over previous year		+388	+350	+288	+191	+108
Household Change (2011-2026)	+5,559					
Number of supply units	55,738	57,815	59,801	61,517	62,712	63,464
Change in Supply over previous year		+403	+363	+299	+199	+112
Dwelling Change (2011-2026)	+5,778					
WG Household to Dwelling conversion ratio 1:1.04						
						+5,781

Note: This report was compiled from a forecast produced using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

10.0 2011-based Welsh Government Variant Projections

- 10.1 In order to illustrate the uncertainty associated with trend-based projections, the Welsh Government has again published Variant (other) projections alongside the Principal projections.
- 10.2 The variant projections produced ranged from a zero migration; a low natural change; a high natural change; and a ten year average migration (as opposed to a five year average, as used in the principal projection).
- 10.3 These variant projections demonstrate how different assumptions can impact on the population projections, therefore influencing changes in the base constraint of any household projection.

- 10.4 At a local authority level, all four variant household projections have been provided by the Welsh Government using the available variants from the 2011-based population projections.
- 10.5 The four variants are as follows:-
- A high natural change variant – which illustrates the projected population assuming a 5 year migration with high fertility (projected average births 1,369), low mortality (projected average deaths 1,184) giving a net average natural change gain of 185 people per year
 - A low natural change variant – which illustrates the population projections based on an assumption of a 5 year migration with low fertility (projected average births 1,239) and high mortality (projected average deaths 1,293) giving a net average natural change loss of 54 people per year
 - A zero migration (natural change only) projection – to illustrate the projected population if there were no future inward or outward migration
 - A 10-Year Average Migration - In addition to previously published variant household projections, the Welsh Government has produced a new variant projection. This illustrates what could happen when the assumption uses the principal projection fertility (projected average births 1,336) and mortality (projected average deaths 1,263) giving a net average natural change gain of 73 people per year, but instead of a 5 year trend for average migration, this scenario uses a trend of the most recent 10 years (2001-2010) to the base year for inward or outward migration.
- 10.6 At the time of publishing the Population and Housing Projections Background Paper September 2013, actual migration rates for a 10-year period were not available to be used through the Popgroup software, unlike the Welsh Government 10-Year average migration which now utilises the “actual” migration rates. The 10-Year average variant is therefore considered to be a robust demonstration of an alternative trend to that of the Welsh Government Principal (5 year trend) projection.
- 10.7 At the time of the deposit LDP 2013 - Option 3 in the Population and Housing Projections Background Paper September 2013 considered a 10-Year Implied Average Migration. That trend was calculated using an average assumed migration from a 10 year period. This was calculated by using the then Mid-Year Estimate of population at the start of the period, less deaths,

plus births, to calculate the natural population change, then by subtracting the total from the end year population, the difference is the assumed migration figure used in those projections. Table 20 in the Population and Housing Projections Background Paper September 2013 demonstrates the calculation⁴.

10.8 Table 6 demonstrates the differences between the principal and the variant household projections.

Table 6 - Vale of Glamorgan Council - Welsh Government 2011-based Local Authority Household Projections
Based on the 2011-based Local Authority Population Projections for Wales produced by the Welsh Government.

	Principal projection	Higher variant	Lower variant	Ten-year average migration variant	Zero migration variant
2011	53,620	53,620	53,620	53,620	53,620
2012	54,041	54,041	54,041	54,145	53,955
2013	54,450	54,457	54,434	54,659	54,275
2014	54,841	54,862	54,800	55,155	54,570
2015	55,230	55,267	55,155	55,647	54,852
2016	55,618	55,674	55,507	56,139	55,131
2017	56,022	56,100	55,873	56,645	55,429
2018	56,417	56,519	56,230	57,143	55,743
2019	56,808	56,935	56,582	57,638	56,055
2020	57,179	57,333	56,913	58,113	56,338
2021	57,529	57,713	57,223	58,566	56,598
2022	57,895	58,113	57,550	59,035	56,874
2023	58,251	58,507	57,864	59,494	57,158
2024	58,586	58,885	58,154	59,934	57,428
2025	58,891	59,239	58,413	60,344	57,672
2026	59,179	59,582	58,650	60,738	57,900
2027	59,447	59,910	58,865	61,113	58,107
2028	59,695	60,225	59,056	61,469	58,288
2029	59,923	60,523	59,220	61,803	58,446
2030	60,138	60,814	59,366	62,127	58,595
2031	60,329	61,087	59,481	62,428	58,720
2032	60,508	61,354	59,576	62,717	58,831
2033	60,667	61,606	59,644	62,988	58,914
2034	60,808	61,847	59,689	63,242	58,973
2035	60,944	62,089	59,722	63,494	59,027
2036	61,052	62,309	59,721	63,719	59,049

<https://stats.wales.gov.uk/Catalogue/Housing/Households/Projections/Local-Authority/2011-Based/HouseholdProjections-by-LocalAuthority-Variant-Year>

11.0 Comparison of Welsh Government Projections and the Deposit LDP 2013

11.1 Planning Policy Wales (PPW) paragraph 9.2.2 states that the latest Welsh Government projections should be considered as the starting point for any Local Authorities consideration of household projections.

11.2 The latest set of projections, (the 2011-based Principal and/or any Variant household projections) have identified a significant reduction in the forecast number of households for the Vale of Glamorgan.

11.3 This reduction in the forecast number of households is attributable to the latest Census results and methodological

⁴ Page 29-31 - Paragraph 19.13 to 19.17 – of the Population and Housing Projections background Paper September 2013

changes between the latest set (2011) and the previous sets (2006 and 2008) of Welsh Government local authority projections. The latest set of household projections uses the 2001 and 2011 data to project household membership rates, whereas the previous sets used the 1991 and 2001 results. Also, the latest set of local authority projections now sum to the Wales (national) level projections, whereas the previous sets did not, therefore influencing the trends used within the population base constraint.

- 11.4 While it is acknowledged that the latest Welsh Government projections need to be considered when determining the number of dwellings required within the LDP, it is also important to consider the underlying trends used within these projections.
- 11.5 For the deposit LDP 2013 - Option 1, the Council's own projections dwelling requirement was constructed from the published 2008-based Welsh Government Principal household projections.
- 11.6 However, it is recognised that although the Office for National Statistics revised the Mid-Year estimates following the Welsh Government publishing the 2008-based projections, the Welsh Government did not review the 2008-based projections to reflect these changes in the Mid-Year estimates. Therefore, for consistency with the Welsh Government projections, the underlying data to the Council's own projections was not reviewed at that time either.
- 11.7 Table 7 illustrates the differences between all published Welsh Government projections for the Vale of Glamorgan and the Council's own projection Option 1. For comparison purposes, this table has used the data that was published at the time of release. Table 7 reflects the key results for population, household and dwelling requirements for the LDP period.

Table 7 - Population Projections Summary Table for the Vale of Glamorgan

Type	Year	2006-based - WG Principal	2008-based - WG Principal	2008-based - LDP Preferred - Option 1 (Excluding Contingency)	2011-based - WG Principal	2011-based - WG 10Yr Av Migration
Population	2006	123,275	-	-	-	-
	2008	125,115	124,123	124,123	-	-
	2011	128,083	126,654	125,804	126,679	126,679
	2016	133,278	130,992	130,062	128,944	130,190
	2021	138,604	135,534	134,540	130,978	133,490
	2026	143,589	139,729	138,686	132,529	136,281
Population Change between 2011-2026=		15,506	13,075	12,882	5,850	9,602
Households	2006	51,778	-	-	-	-
	2008	53,157	52,818	52,818	-	-
	2011	55,342	54,804	54,454	53,620	53,620
	2016	59,174	58,236	57,875	55,618	56,139
	2021	62,822	61,486	61,094	57,529	58,566
	2026	66,131	64,365	63,935	59,179	60,738
Households required between 2011-2026=		10,789	9,561	9,481	5,559	7,118
Dwellings	2006	54,343	-	-	-	-
	2008	55,791	55,434	55,434	-	-
	2011	58,084	57,519	57,152	55,738	55,738
	2016	62,105	61,121	60,742	57,815	58,357
	2021	65,935	64,532	64,121	59,801	60,879
	2026	69,407	67,554	67,102	61,517	63,138
Dwelling required between 2011 - 2026 =		11,323	10,034	9,950	5,778	7,399
WG Household to Dwelling conversion ratio 1:1.04		11,220	9,943	9,860	5,781	7,403

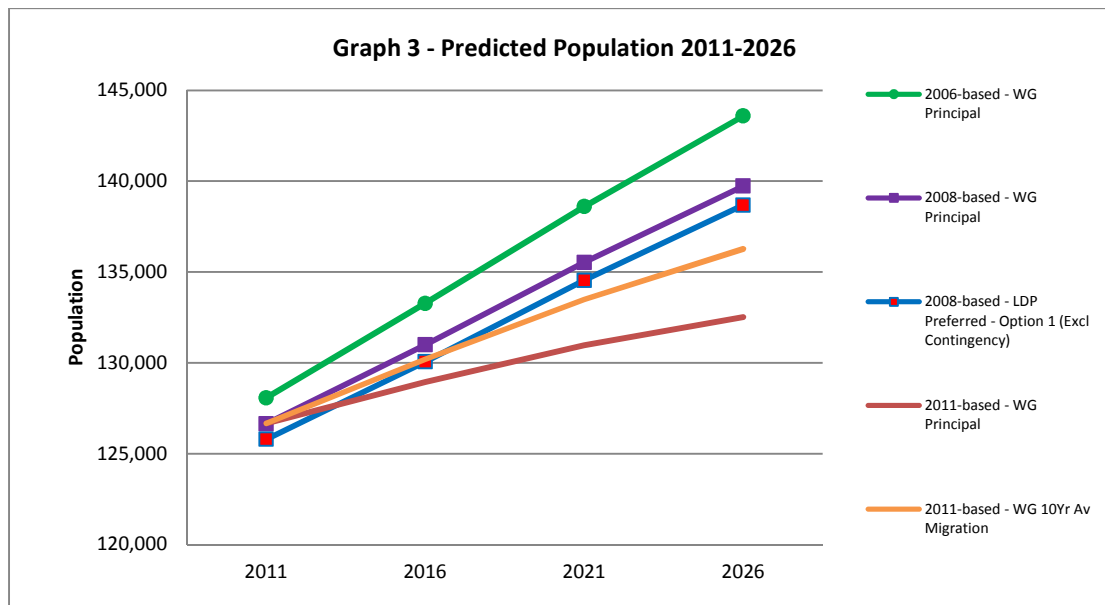
Note: shaded cells have been identified as they are the base year for each projection.

11.8 Graphs 3 and 4 also demonstrate the differences between all sets of the Welsh Government projections and the various options for outcomes on the population, households and dwelling requirements for the LDP period.

11.9 Graph 3 demonstrates the differences in the predicted population growth for all projections from 2011 and shows that although the 2011-based projections start (126,679) at a similar point to that of the 2008-based projections at 2011 (126,654), the end result is noticeably (7,201) lower than that of the 2008-based Principal projections.

11.10 However, if we compare the LDP Option 1 with the 2011-based 10-Year Average Migration scenario, there is only a 1.76% (2,404) population difference at 2026.

Graph 3 – Predicted Population



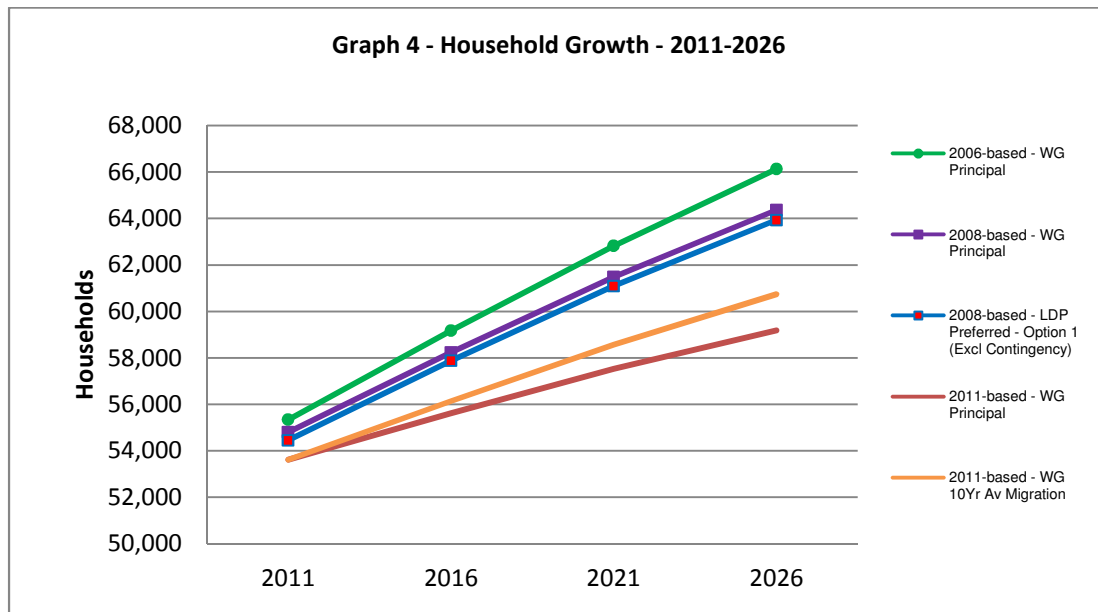
11.11 Graph 4 demonstrates the differences in the predicted household growth for all projections from 2011. This shows that households in the 2011-based projections start from a lower point (53,620), than that of the 2008-based projections (54,804). This is because the numbers of households are calculated as part of the 2011 Census. Therefore, the latest set of household projections reflects this count and it is recognised this will have an impact on the projected dwelling requirement.

11.12 Graph 4 also shows that the number of households at 2026 in the 2011-based principal projections is lower (59,179) than that of the 2006-based Principal projections (66,131) and 2008-based Principal projections (64,365).

11.13 With a lower starting point and the changes to the household sizes and formation, it is inevitable that this latest set of short-term trend-based household projections, would be the lowest set of household projections since the Welsh Government first produced LA projections in 2006; so when comparing the 2008-based Principal Household Projection with the 2011-based Principal Household Projection there is an overall difference of 8.06% (5,186) households at 2026.

11.14 Nonetheless, when considering the LDP option 1 against the 2011-based 10-Year Average Migration, the difference is reduced to 5.00% (3,197) at 2026.

Graph 4 – Forecast Household Growth

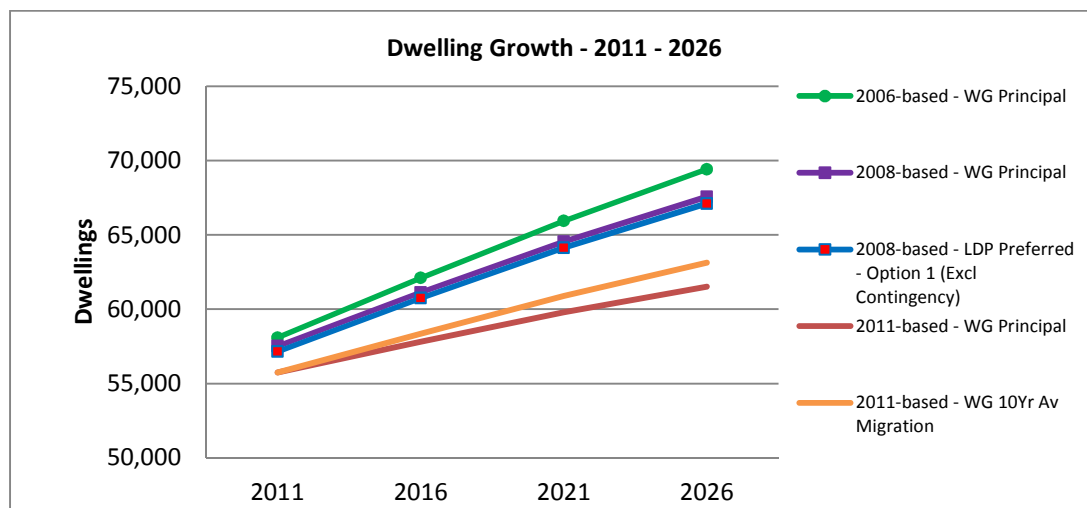


11.15 Graphs 4 and 5 demonstrate the differences between the predicted dwelling requirements for all sets of projections from 2011 through the LDP period.

11.16 When comparing the overall dwelling requirement of the 2011-based principal household projections to the 2008-based principal household projections, there is a difference of 42.42% (4,256) less dwellings between the two sets of projections.

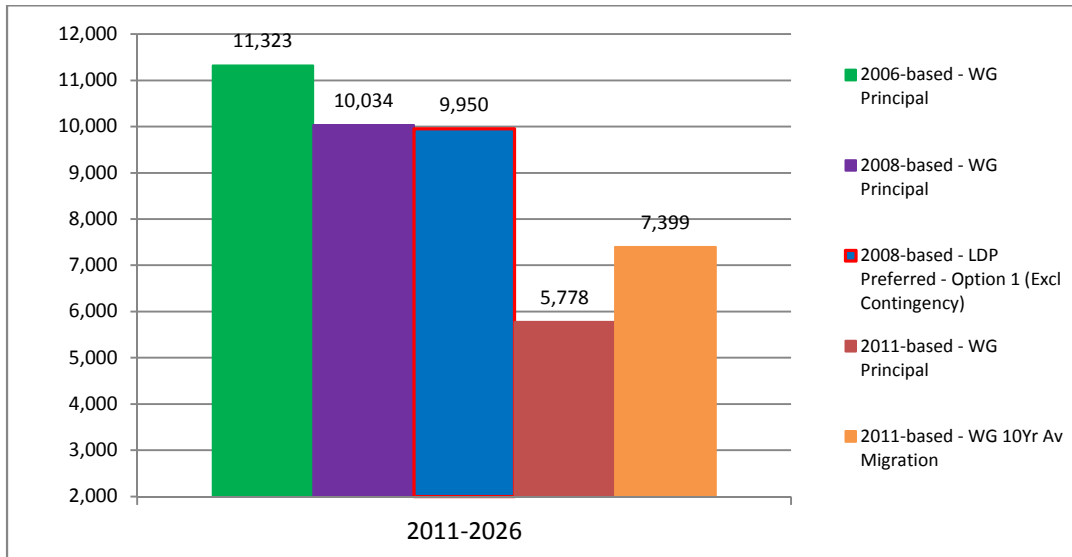
11.17 Whereas, when the LDP Option 1 is compared against the 2011-based 10-Year Average Migration household projections, the difference is 25.64% (2,551) fewer dwellings, demonstrating that by applying different assumptions to the base data, it will be reflected in the overall result.

Graph 5 – Forecast Dwelling Growth



Graph 6 – Forecast Dwelling Requirement Chart

11.18 The bar chart below demonstrates the differences in the requirement figures for the LDP period for all sets of Welsh Government projections.



11.19 These variations will be as a result of the differences already identified above concerning the population and household changes.

12.0 Alternative Trend Scenarios

12.1 As detailed above the Welsh Government's latest projections should only be a starting point for the local authorities.

12.2 Analysis of the 2011-based Welsh Government projections has shown that there are significant differences in the projected population and household forecasts when compared with all other previous Welsh Government projections.

12.3 As the official projections only provide the starting point for the consideration of future household and dwelling requirements, officers have concluded that it is essential to produce alternative trend scenarios for comparison through the Popgroup software. This will enable other population trends to be fully considered when assessing the implications of the 2011-based projections. These alternative trend scenarios can then be used to inform considerations of the overall dwelling requirement for the LDP.

12.4 As set out earlier, it is important to note that there are limitations of the factors that can be considered as part of statistical analysis prepared for the Alternative Trend Scenarios. Other

local circumstances, such as effect of policies and other local socio-economic trends, will need to be considered separately as part of any consideration of the overall dwellings requirements for an area. These are considered in more detail in the following sections.

12.5 Using the latest Popgroup software (V.4) and by following the procedure set out at Appendix 3 “how to move from version 3 to version 4” (produced by Consultants Edge Analytics who developed the Popgroup Software) it is possible to replicate previously produced projections in this version.

12.6 It should be noted that in the appendix of the Edge Analytics manual, some model changes have been identified and they will remain in the results. Although Edge Analytics have described these differences as improvements, the nature of the differences will affect the fertility, mortality and migration and therefore, will affect any replicated projection.

12.7 The scenarios replicated through this procedure were -

- Scenario 1 – Replication of the 2008 Principal Projection – Using the 2008 population base year data and to correspond with the improvements to the software, the 2011 standard rates were used to produce this projection. This scenario produced a population forecast for the LDP period of 13,608 people (124,123 (2008) rising to 140,311 (2026)), 9,698 households (52,818 (2008) increasing to 64,535 (2026)). A full Components of Change (CoC) report is attached in Appendix 4.
- Scenario 2 – Replication of the LDP Option 1 – Using the LDP option 1 2008 population base data and the 2011 standard rates were used to produce this projection. This scenario produced a population forecast for the LDP period of 13,369 people (124,123 (2008) rising to 139,184 (2026)) and 9,628 households (52,818 (2008) increasing to 64,093 (2026)). A full Components of Change (CoC) report is attached in Appendix 5.

12.8 An Alternative Census Base – The 2011 Census was designed to be flexible enough to provide population outputs on a range of alternative bases. In addition to the usual residence base (where people usually live), one of the alternative output bases is the “Out of Term population base”⁵ this is where students and school children who were counted in the usually resident base (i.e. Boarding school or University) are relocated to their family

⁵ <http://www.ons.gov.uk/ons/rel/census/2011-census/out-of-term-population-statistics-for-output-areas-in-england-and-wales/out-of-term-population-of-england-and-wales--an-alternative-2011-census-population-base.html>

home.

- Scenario 3 – Using the “Out of Term” alternative base and the 2011 principal projections standard rates enabled this projection to be produced. This scenario projected a population forecast for the LDP period of 5,850 people (127,497 (2011) increasing to 132,529 (2026)) and 5,324 households (53,855 (2011) up to 59,179 (2026)). A full Components of Change (CoC) report is attached in Appendix 6.
- Scenario 4 – Using the “Out of Term” alternative base and the 10-Year average migration data, scenario 4 projected a population forecast for the LDP period of 10,527 people (127,497 (2011) up to 138,024 (2026)) and 7,470 households (53,855 (2011) rising to 61,325 (2026)). A full Components of Change (CoC) report is attached in Appendix 7.
- As another alternative to show how using different data trends can change the projection, Scenario 5 was produced for the projection to commence from 2008.
- Scenario 5 – Using the Census revised 2008 Mid-Year Estimate with the 2011 alternative base and the 10 Year Average Migration data the following was produced. This scenario projected a population forecast for the LDP period of 10,833 people (125,713 (2008) rising to 138,330 (2026)) and 7,565 households (52,788 (2008) increasing to 61,354 (2026)). A full Components of Change (CoC) report is attached in Appendix 8.

12.9 Table 8 illustrates the differences between the Welsh Government Principal and 10-Year Average Migration projections and Alternative Scenarios. Table 8 reflects the key results for population, household and dwelling requirements for the LDP period.

Table 8 – Summary of Alternative Scenarios and the Welsh Government Principal and 10-Year Average Migration Projections

Type	Year	Scenario 1 - 2008-Based Principal (2008 data with 2011 Std Rates)	Scenario 2 - 2008-Based Option 1 (2008 data with 2011 Std Rates)	Scenario 3 - 2011-Based Alt Pop Base, Principal Mig, No Cons	Scenario 4 - 2011-Based Alt Pop Base, 10Yr Av Mig No Constraints	Scenario 5 - 2008-Based, Cons to 2011 Alt. Pop Base, 10Yr Av Mig	2011-based - WG Principal	2011-based - WG 10Yr Av Migration
Population	2008	124,123	124,123	-	-	125,713	-	-
	2011	126,703	125,815	127,497	127,497	127,497	126,679	126,679
	2016	131,190	130,192	128,944	131,323	131,308	128,944	130,190
	2021	135,915	134,836	130,978	134,960	135,059	130,978	133,490
	2026	140,311	139,184	132,529	138,024	138,330	132,529	136,281
	Change between 2011 - 2026 =	13,608	13,369	5,032	10,527	10,833	5,850	9,602
Households	2008	52,818	52,818	-	-	52,788	-	-
	2011	54,837	54,465	53,855	53,855	53,789	53,620	53,620
	2016	58,327	57,936	55,618	56,516	56,439	55,618	56,139
	2021	61,623	61,217	57,529	59,069	58,979	57,529	58,566
	2026	64,535	64,093	59,179	61,325	61,354	59,179	60,738
	Change between 2011 - 2026 =	9,698	9,628	5,324	7,470	7,565	5,559	7,118
Dwellings	2008	55,435	55,435	-	-	54,873	-	-
	2011	57,554	57,163	55,983	55,983	55,913	55,738	55,738
	2016	61,217	60,807	57,815	58,749	58,668	57,815	58,357
	2021	64,676	64,249	59,801	61,402	61,309	59,801	60,879
	2026	67,732	67,268	61,517	63,747	63,778	61,517	63,138
	Required between 2011 - 2026 =	10,178	10,105	5,534	7,764	7,865	5,778	7,399

13.0 Predictions of the 2011-based Welsh Government Household Projections for the Vale of Glamorgan

13.1 The Welsh Government 2011-based Household Projections indicate a household increase of 10% (5,559) over the LDP period. This equates to 42% (9,561⁶ / 5,559) fewer than the number of households predicted in the 2008-based projections.

13.2 Under the 2011-based household projections, the projected change is that the average household size will continue to decrease over the projection period. This decrease in average household size is lower than that predicted in the 2008-based projections, where the average household size at 2026 was predicted to be 2.13. Under the 2011-based projections, average household size is predicted to be 2.20 in the same period.

⁶ Page 5 - Section 3 – Paragraph 3.3 - of the Population and Housing Projections background Paper September 2013

- 13.3 The changes between the 2008-based and 2011-based household formations are demonstrated in Graph 2 and Table 3 of this paper.
- 13.4 Paragraph 9.6 demonstrates the predicted number of dwellings forecast through the 2011-based Principal Projections of 5,778 dwellings for the LDP Period. This equates to 57% (10,034⁷ / 5,778) fewer than the number of dwellings that were predicted in the 2008-based Principal Projections. However, when comparing the 2011-based 10-Year Average Migration projections to the deposit LDP Option 1, there are 34% (9,950⁸ / 7,399) fewer dwellings predicted (i.e. 2551 dwellings lower option 1). These figures will, therefore, be an important starting point, together with all other material factors, in the consideration of the overall dwelling requirement.
- 13.5 Notwithstanding this, the above projection figures demonstrate the significant effect of using different population trends and the impact this can have on the outcome of the overall projection predicted. Table 8 above summarise the differences between the various scenarios which also demonstrate the effect of using different population trends.
- 13.6 On balance it is considered the 2011-based 10 year average migration projections, summarised below, should provide the starting point for further consideration. The considerations set above, such as the limitations of using trend-based analysis, together with all other evidence and planning considerations for the Local Development Plan are set out in the following section this paper which uses these official projection figures as the starting point. This section sets out the Council's conclusion and recommendations for the Local Development Plan dwelling requirement figure.

Table 9 – Summary of 2011-based (10 Year Average Migration) Projections

Year	2011-based - WG 10Yr Av Migration		
	Population	Households	Dwellings
2008	-	-	-
2011	126,679	53,620	55,738
2016	130,190	56,139	58,357
2021	133,490	58,566	60,879
2026	136,281	60,738	63,138
Change between 2011 - 2026 =	9,602	7,118	7,399

⁷ Page 24 - Section 16 – Table 15 - of the Population and Housing Projections background Paper September 2013

⁸ Page 27 - Section 19 – Table 16 - of the Population and Housing Projections background Paper September 2013

Vale of Glamorgan Local Development Plan Housing Provision Considerations

14.0 Deposit LDP Representations

- 14.1 A number of Deposit LDP representations were made regarding Policy SP 3 (Residential Requirement). Of these, most objected and a few provided comment or support. Further representations were made to Policy MG1 (Housing Supply) which provided similar concerns regarding the identified levels of growth together with objection and comment on the flexibility, phasing and windfall allowance.
- 14.2 The majority of representations considered that the Deposit Plan overestimated the dwelling requirement. These objections raised concerns regarding the associated infrastructure required to deliver the identified levels of growth or were associated with site specific objections typically raising concerns related to the environmental impact of developments. These objections considered the figure should be revised downward in line with updated 2011 Population and Household Projections.
- 14.3 However, a number of objections considered the residential requirement figures should be considered as an absolute minimum whilst others considered it should be increased above the level identified in the Deposit Plan. These representations requested further clarification regarding how the level of growth identified supports delivery of the Plan's objectives. Others considered the residential requirement figure was not sufficiently robust as it did not take full account of the range of factors identified under national policy.
- 14.4 In addition to representations which commented on the planned publication of the 2011-based population projections, the following is a summary of the issues raised to the level of growth identified in the Deposit LDP:
- Housing requirement considered to be over-estimated (objections considered the Plan should identify lower levels of growth)
 - Residential requirement differs too drastically from previous projections
 - Residential requirement should consider current infrastructure issues and impacts on services
 - Household size should be considered as being no more than 2.05 as any more would risk overdevelopment (referring to an assumed higher population)

- Housing requirement of 9,950 considered to be too low to meet identified housing needs (for affordable housing)
- Council's assessment relies on demographic-led scenarios and consideration should be had to all other factors, including delivery of the Plan's objectives
- Insufficient consideration given to the potential increase in net migration resulting from increased employment in the area and the effect on housing requirements
- Housing requirement should factor in patterns of demand over long-term periods rather than short-term economic cycles such as the recent recession
- Housing requirement should be increased to align housing with planned employment growth, practically given the designation of the St Athan and Cardiff Airport Enterprise Zone (objections by the development industry considered the requirement should be between 10,150-13,750 dwellings, whilst others considered an increase of 3,000-4,000 dwellings would be required to align with economic development strategy)
- Given the scale of employment at the St Athan and Cardiff Enterprise Zone, consideration should be given to allocating additional homes in line with the strategy to enable sustainable communities and to reduce current levels of out-commuting.
- Housing requirement should align with national and regional plans for South East Wales. Further clarification is required to explain the role and function of the Vale of Glamorgan within its wider geographical context.
- Housing requirement should consider neighbouring local authorities provision such as Cardiff's LDP and population and household projections due to strong links based on commuting and migration patterns

14.5 With regards to the overall housing supply of the Plan set out under Policy MG 1 representations included objections to perceived inadequacy of the proposed 5% housing supply flexibility considering it should be amended to allow for at least 10% flexibility. These considered an increase in the flexibility allowance was required to allow for sites not being progressed as planned due to the range of identified site constraints on allocated sites. Concerns were also expressed regarding the over-reliance of windfall sites during the Plan period.

- 14.6 Objections were also raised to the phasing of sites over five year periods in the Plan and to the proposed reserve site at Sully allocated under Policy MG2 (46). These considered the phasing approach too restrictive and unrealistic and raised concerns regarding the Plan's ability to ensure a range and choice of deliverable sites throughout the lifetime of the Plan. Other representations considered a phasing mechanism was required to ensure prioritisation of brownfield development sites and delivery of associated infrastructure.
- 14.7 Objections to the reserve site considered this created unnecessary uncertainty and restricted what is otherwise a deliverable housing site within the LDP Strategy's South East zone from contributing towards the housing land supply and meeting local housing needs.

15.0 Other Factors in Considering the Plan's Housing Provision

- 15.1 Having set out the population and household projection scenarios above and accepted the 2011-based 10-year migration average as a starting point, this section considers the key statistical considerations and all other material factors before providing recommendations on the residential requirement for the LDP.
- 15.2 As population and household projections are based on past trends, the projections are only an indication of what may happen if the past trend used in the projection assumptions actually happens. It is a prediction and there are no guarantees that the predicted trend will materialise.
- 15.3 Trend-based projections do not make allowances for the effects of any local or central government policies such as those aimed at job creation (an example being the designation of Enterprise Zones), or socio-economic factors such as changes in household formation rates or future population levels which can be affected by many socio-economic factors. As the process of demographic change is cumulative, projections become increasingly uncertain the further ahead that is predicted.
- 15.4 The short-term 5 year trends used for the 2006 and 2008-based Welsh Government projections were produced during a period of significant economic growth and, therefore, utilised data which assumed correspondingly higher births, deaths and net migration and anticipated reduction of household sizes.
- 15.5 Since 2008, the unprecedented global recession has seen challenging economic conditions impacting across all sectors of

society. Significant impacts have been felt within the house building industry with the availability of credit and confidence amongst consumers impacting upon demand and movement within the housing market, therefore, causing the reduction of new households forming. The issue of suppressed households is important as the 2011-based projections provide forecasts for future housing based on these past trends which would not make any provision for the backlog household formation during the downturn years. The Vale of Glamorgan, like other areas, has experienced extremely low house completion rates when compared to that of the pre-recession years (based on observed housing supply rates).

- 15.6 This is considered to have had a notable impact on the latest Welsh Government projections as acknowledged by Welsh Government in their policy clarification letter to local planning authorities (Appendix 9). For example, in relation to household sizes, the Welsh Government 2008-based projections forecast household size to decrease from 2.27 in 2011 to 2.13 in 2026 and the latest 2011-based projections indicate that household sizes start at 2.32 in 2011 and only decrease to 2.20 in 2026. Therefore, the 2011-based projections have an overall higher household size, which would then predict a lower number of required households for the Plan period.
- 15.7 Whilst considering the new Welsh Government 2011 household projections and their implications for the LDP, it is prudent to recognise the context within which these latest sets of projections have been prepared.
- 15.8 Much of the underlying trend and components of the 2011 projections reflect a challenging economic period where growth and confidence has been severely affected. Therefore, caution must be taken when considering these projections within the wider economic and social aspirations of the Deposit LDP. It would not be responsible for a Plan covering the period to 2026 to not be in a position to respond positively to any changing economic and social circumstances. In this respect, representations on the Deposit LDP have sought clarification of how the LDP makes provision for and seeks to deliver on these socio-economic aspirations set out under the Plan's Strategy, LDP Objective 8 and Strategic Policies SP1 (Delivering the Strategy), SP2 (Strategic Sites), SP4 (Affordable Housing Provision) and SP5 (Employment Requirements). The Council has sought to clarify these links between the housing, employment and regeneration strategies set out in more detail below.
- 15.9 As the economy and the housing market recovers the LDP

should have sufficient employment and housing allocations to enable it to respond effectively to deliver the housing as required and to support economic growth. Any significant reduction in the number of housing or employment allocations could have the consequence of removing that ability to respond to local future needs and social circumstances, hindering the Vale's ability to be at the forefront of the economic recovery.

15.10 Having regard to PPW paragraph 9.2.2, it is necessary to consider the latest 2011 projections against all other relevant for the Vale of Glamorgan. The Welsh Government's clarification letter to all local planning authorities states that LPAs must seek to provide for the level of housing required as the result of the analysis of all relevant sources of evidence rather than relying solely on the Welsh Government's household projections.

15.11 Furthermore, PPW at paragraph 9.2.1 states that in planning the provision for new housing, local planning authorities must take account of the following:

- People , Places, Futures – The Wales Spatial Plan;
- Statutory Code of Practice on Racial Equality in Housing – Wales;
- the Welsh Government's latest household projections;
- local housing strategies;
- community strategies;
- local housing requirements (needs and demands);
- the needs of the local and national economy;
- social considerations (including unmet need);
- the capacity of an area in terms of social, environmental and cultural factors
- (including consideration of the Welsh language) to accommodate more housing;
- the environmental implications, energy consumption, greenhouse gas emissions and flood risk;
- the capacity of the existing or planned infrastructure; and
- the need to tackle the causes and consequences of climate change.

15.12 The following key factors have therefore been considered alongside the 2011-based projections:

16.0 Economic Factors

16.1 Probably the most important factor of why there is such a variation between the 2011-based household projections and the housing levels provided for through the LDP is the fact that the 2011 Projections are based on a period of unprecedented economic decline.

- 16.2 The 2011-based Welsh Government Principal projection, like previous Principal projections, is based on a short-term (5-years) trend. However, the latest short-term trend was compiled during a period of economic decline whilst the LDP is much more positive in seeking to provide a framework which provides for significantly more economic growth to 2026 through the allocation of housing and employment allocations, therefore enabling the Plan to respond to changing economic circumstances. Whilst use of the longer term migration averages includes some years of historic growth, and is considered to provide a more realistic projection when compared to the 2011-based Principal projection, the impact of these recessionary years on households remains a key concern.
- 16.3 In 2014 economic conditions in the Vale of Glamorgan started to improve significantly with confidence in the market being re-established. The LDP provides for enhanced economic growth and associated employment benefits through the Plan's vision, objectives, spatial strategy, employment and regeneration policies as well as accompanying house building opportunities.
- 16.4 The planning system is central to the delivery of continued economic growth, jobs and investment in an environmentally sustainable way. Economic growth generates wealth and raises living standards, and is driven by an increase in employment and productivity, which in turn, is determined by higher levels of investment, innovation, competition, skills and enterprise. Planning policy influences these drivers of productivity and facilitates economic growth and investment by providing certainty of land use, improvements in infrastructure and the enabling of wider economic objectives relating to housing, education, recreation, retail and other factors which contribute to quality of life. The Vale of Glamorgan wants to be at the forefront of this recovery and a place people want to invest in.
- 16.5 The links between housing and household numbers and jobs is recognised (and considered to be reflected in latest household projections). In this respect the LDP seeks to provide a balance between job creation and housing provision through its allocations. It is important to consider that if there was to be a significant lowering of housing, there would be a risk that this would constrain the delivery of the LDP's wider economic and social objectives within the Vale of Glamorgan as has been considered within representations on the Deposit LDP.
- 16.6 In relation to employment allocations the Council has commissioned BE Group to provide further economic advice on the impacts of the employment policies of the Plan on the dwelling requirement. Further details can be found in the Further

Advice on the Employment Land and Premises Study background paper (2015). This work has provided additional information on the potential number of jobs likely to be created during the Plan period and considers how this may affect the residential requirements of the Vale of Glamorgan, particularly given the designation of the St Athan and Cardiff Airport Enterprise Zone. Combining both local and strategic employment land allocations could yield some 7,610 to 10,610 new jobs. Importantly, the local jobs element and associated dwelling requirement is assumed to be contained within the local Population and Household Projections. The new jobs generated as a result of the Strategic employment land allocations and the resulting additional households would not be included within the local Population and Household Projections. Therefore the economic impact of the Council's Strategic Employment land allocations should be considered against the population and household projections. The strategic sites identified under Policy MG9 are estimated to generate a need for some 1,040 to 1,540 additional households.

17.0 The Wales Spatial Plan 'Capital Region' and emerging Cardiff City Region

17.1 It is considered that any significant reduction in housing or employment allocations would bring the LDP into conflict with the aspirations set out within the Wales Spatial Plan, the Council's Community Strategy and the strategic objectives for economic growth as part of the emerging City Region.

17.2 In regional planning terms, the South East Wales Region sets an agenda and strategic direction for economic growth. In setting a framework, it identifies the key high priority investments that local authorities in the region would wish to see implemented in order to secure sustained future prosperity for the South East Wales City Region. Whilst it is very much in its formative stages, the City Region has ambitious objectives for investment and growth, which includes settlements focused in and around the Vale of Glamorgan such as the key settlement of Barry, the Airport and St Athan Strategic Opportunity Area (SOA).

17.3 The Regional Strategic Framework for South East Wales: "Delivering a Future with Prosperity", prepared by the South East Wales Directors of Environment and Regeneration Board, provides the initial context and growth plan for the emerging City Region. This framework supports the LDP's objectives for economic growth and the regeneration opportunities at the designated St Athan and Cardiff Airport Enterprise Zone.

17.4 The importance of economic growth and investment is also

highlighted in the LDP Vision and through the inclusion of LDP Objective 8. This forms a key element informing the strategy which identifies development opportunities within Barry and the South East Zone, St Athan and Cardiff Airport and other sustainable settlements within the Vale of Glamorgan.

- 17.5 Furthermore, work is underway on preparing a Strategic Development Framework for the St Athan and Cardiff Airport Enterprise Zone which will be considered by the Enterprise Zones Board and Welsh Government. This will inform detailed development proposals for the strategic sites at the Enterprise Zone. The further economic advice considers that the Cardiff Airport 'Gateway Development' zone and St Athan Aerospace Business Park could create an additional 1,500 to 2,500 jobs within the Plan period to 2026 which would create an additional 700-1,200 households within the Vale of Glamorgan.
- 17.6 This would be in addition to the 3,110 jobs estimated to be created at Land South of Junction 34, M4 near Misquin as part of the land owner, Renishaw Plc's, development proposals currently under consideration (See Planning Statement for application 2014/00228/EAO). It is estimated this would result in an additional 340 households for the Vale of Glamorgan given existing travel to work patterns for this employment site.
- 17.7 In addition, whilst regard must be had to the Plans of adjoining local authorities. Cardiff's influence on the Vale of Glamorgan, such as the significant net flow of out commuters, and the connection western Vale communities have with neighboring Bridgend are acknowledged. In this respect, it is considered the Deposit LDP policies and allocations reflect this regional dynamic whilst containing objectives to reduce long term out commuting and ensuring the LDP provides for local needs. Therefore, the Vale's regional role should be considered within recommendations on future growth levels.

18.0 Affordable Housing

- 18.1 PPW (Paragraph 9.2.2) identifies the need for regard to be had to other sources of local evidence, including the need for affordable housing as identified by Local Housing Market Assessments (LHMA). In this regard, the LHMA at the time of the Deposit LDP identified a need for some 915 affordable homes per annum over a five year period. An updated LHMA is being prepared and is due to be published in spring 2015. Whilst it has been acknowledged that the planning system can only contribute to meeting part of this need, the system has a role to play and the LDP has sought to respond to this need both through the housing supply but also through an evidenced affordable housing target

under Deposit LDP Policy SP4 which makes provision for 2,694 affordable dwellings over the Plan period.

- 18.2 In seeking to make a positive contribution to affordable housing and to deliver on the requirements of PPW, the Plan has sought to maximise provision. In this respect, the LDP housing requirement strikes a balance by providing for the identified housing and employment needs whilst avoiding over-development and overheating in those areas of the Vale of Glamorgan. It should be noted that a significant reduction in housing allocations would have a detrimental impact on the Plan's ability to provide for affordable housing and this should be considered in recommendations in future housing provision. A significant reduction of general housing would also have wider implications for affordable housing need and the ability of people to meet their housing needs.

19.0 Deliverability and Local Infrastructure

- 19.1 In considering future growth and residential requirement figures national planning policy requires local authorities to assess the impact on local infrastructure and consider the deliverability of the levels of growth identified. As part of the LDP evidence base the Council has undertaken numerous assessments on local infrastructure related to education facilities, sustainable transport, highway impacts, open space, and community facilities. These have informed the allocations and policies of the Plan and are summarised in the Draft Infrastructure Plan.

- 19.2 In addition, detailed site assessments have been undertaken on the allocated sites and the Council considers these to provide a range and choice of deliverable sites. This has included extensive consultation with internal Council Departments and statutory consultees to identify any site constraints, which are detailed within the appendices of the LDP. With the exception of site specific infrastructure provisions that have been identified the development of allocated sites is not considered to be reliant on strategic infrastructure projects. Infrastructure is therefore not considered to be a key constraining factor in delivering the level of growth provided for in the Deposit LDP.

20.0 Conclusion and Recommendations

- 20.1 The LDP through its Strategy charts a direction of travel based on clear objectives centred on an understanding of the housing and regeneration needs for the Vale of Glamorgan and its wider regional role. In responding to representations on the Deposit LDP, the Council has provided additional supporting evidence and has sought to provide clarification on the provision the Plan makes for delivering its wider socio-economic objectives.

- 20.2 Therefore, it is considered that adoption of the Welsh Government 2011-based household projections to the levels suggested in their results alone would significantly impact on the Plan's Strategy.
- 20.3 The LDP's principal means of delivering housing growth is through the LDP's housing land and other mixed use allocations. In this regard, it is considered that the number of dwellings available through such sites should not be reduced. The Council, therefore, in seeking to maintain its objectives for sustainable growth, has considered the factors above (the economy, regeneration proposals, the Plan's ability to respond to economic growth, affordable housing need etc.) against the evidence provided through the 2011 projections which provide the starting point for assessing housing requirements.
- 20.4 In light of the factors above that local authorities are required to consider, and in recognising the divergence between the 2011-based population and household projections and those previously undertaken, the Council has considered the appropriateness of the Deposit LDP housing requirement level and whether a reduction is justified. In reaching this conclusion, the Council has considered the projections as a starting point for assessing housing requirements, the limitations of trend-based forecasting, and all other factors detailed in this paper.
- 20.5 This Council accepts the 2011-based population and household projections, although recognises the latest Welsh Government projections are lower than any of those previously published. It is important to note that the 2011-based projections start from a lower base than the previous projections as these figures are based on Census data and not inter-census estimates. It is considered that whilst a return to past trends (relating to average household size and migration for example) may well have a significant impact on the actual population and households realised, this is unlikely to result in the levels previously forecast under the 2008-based projections given the lower starting base provided by the 2011 Census. Therefore, consideration must be had to the impacts of policies and other factors identified which would not be included within the official projections. In particular, consideration has been given to the estimated additional 1,040 to 1,540 households resulting from the strategic employment sites, the affordable housing needs of the area and the regional role of the Vale of Glamorgan.
- 20.6 The housing land supply figure under Policy MG1 of the Deposit LDP was 10,450 and having reflected on all the above factors it is considered this level of housing provision remains appropriate to ensure the LDP is capable of delivering the Strategy, its key

socio-economic objectives and ensures maximum flexibility to respond to future economic growth. It is considered that any deviation from this housing supply provision would jeopardise the soundness of the Plan in being able to meet these objectives.

- 20.7 Notwithstanding this, the housing requirement figure (Policy SP3) under the Deposit LDP, proposed 9,950 dwellings. Having accepted the lower 2011-based 10-year average migration Population and Household Projections as a starting point for consideration against all the factors outlined above it is considered that a minor realignment in the actual requirement is justified in recognition of the lower population and household projections. A summary of the key considerations is provided in Table 10.
- 20.8 To ensure flexibility of the Plan and to assist in its ability to meet these objectives it is also recommended to remove the 'reserve site' designation so that the allocation forms part of the housing land supply of the Plan. This is considered to be required to provide certainty of the status of the allocation and to ensure the Plan can sufficiently respond to changes in economic growth and any unforeseen deliverability issues. The phasing of sites within the LDP is recommended to be retained as this provides an indication of housing land supply across the Plan period and assists in the planning for infrastructure and monitoring of the Plan.

Table 10 – Summary of Key Considerations for the Local Development Plan Housing Land Supply

	Dwellings
2011-based 10-year average migration Population and Household Projection	7,399
Potential economic growth impact – 1,540 households, multiplied by 1.04 household to dwelling conversion ratio	1,602
Allowance to maintain affordable housing provision and to reflect regional role	499
Housing requirement	9,500
Flexibility allowance of 10%	950
Total housing land supply	10,450

Appendices

Appendix 1 – Popgroup Software

Appendix 2 – Detailed Component of Change (CoC) for the Welsh Government 2011-based Principal Projection

Appendix 3 – Edge Analytics – How to move from version 3 to version 4

Appendix 4 – Scenario 1 - Detailed Component of Change (CoC)

Appendix 5 – Scenario 2 - Detailed Component of Change (CoC)

Appendix 6 – Scenario 3 - Detailed Component of Change (CoC)

Appendix 7 – Scenario 4 - Detailed Component of Change (CoC)

Appendix 8 – Scenario 5 - Detailed Component of Change (CoC)

Appendix 9 – Welsh Government Policy Clarification Letter - Use of 2011 household projections (CL140410)

Appendix 10 – Glossary of Terms and Acronyms

Local demographic forecasting with POPGROUP

POPGROUP is a family of software developed to forecast population, households and the labour force for areas and social groups. Now in its fourth version, it is the industry standard in the UK for demographic analysis within strategic planning.

POPGROUP itself provides models for population projections for one or more areas. Derived Forecasts provides models for household projections, labour force projections, and any other characteristics derived from an age-sex structure of population. The two sets of software are independent, but are designed to work together to assess the implications for population of housing and jobs investment.

POPGROUP is based on Excel to build on users' existing spreadsheet skills. Users develop alternative assumptions as scenarios. The user remains in control of the areas to be forecast, of data inputs, and can easily produce analytical outputs additional to the software's own flexible reporting and graphical routines.

The software implements authoritative methods that are also used by national and United Nations agencies, uses single years of age for population, and has published peer reviews.

In the UK, POPGROUP additionally provides Data Modules to replicate official projections for population and households, with plans for Data Modules for the labour force, illness and disability, ethnic groups and adult care.

While POPGROUP develops a new website, this page provides links to essential files

Appendix 2 - Detailed Component (CoC) for the Welsh Government 2011-based Principal Projection

Population Estimates and Forecasts - WG 2011-Based Principal Projections

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st												
	2011-12	2016-17	2021-22	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
Births													
Male	714	705	679	652	647	644	640	635	630	626	623	621	620
Female	680	671	646	621	617	613	609	605	600	596	594	592	590
All Births	1,394	1,376	1,325	1,274	1,264	1,257	1,249	1,239	1,230	1,222	1,217	1,213	1,211
TFR	1.98	1.94	1.88	1.84	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Births input													
Deaths													
Male	551	561	586	627	635	645	654	663	673	682	690	697	706
Female	597	594	599	623	631	639	648	659	668	677	687	697	709
All deaths	1,148	1,155	1,185	1,251	1,266	1,284	1,302	1,322	1,340	1,359	1,377	1,394	1,415
SMR: males	92.3	81.6	73.7	68.0	66.9	66.0	65.1	64.3	63.5	62.9	62.1	61.3	60.7
SMR: females	90.8	80.8	72.5	65.9	64.7	63.6	62.6	61.8	60.9	59.9	59.1	58.3	57.7
SMR: persons	91.5	81.2	73.1	66.9	65.8	64.8	63.8	63.0	62.2	61.4	60.6	59.8	59.2
Expectation of life: males	79.8	81.3	82.6	83.7	83.9	84.1	84.3	84.5	84.6	84.8	85.0	85.1	85.3
Expectation of life: females	83.7	84.9	86.1	87.3	87.5	87.7	87.9	88.0	88.2	88.4	88.6	88.7	88.8
Expectation of life: persons	81.9	83.2	84.5	85.6	85.8	86.0	86.2	86.4	86.5	86.7	86.9	87.0	87.2
Deaths input													
In-migration from the UK													
Male	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254
Female	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464
All	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718
SMigR: males	7.3	7.0	6.8	6.5	6.5	6.5	6.4	6.4	6.4	6.3	6.3	6.3	6.2
SMigR: females	7.7	7.4	7.2	7.0	7.0	7.0	6.9	6.9	6.9	6.8	6.8	6.8	6.8
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*	*
Out-migration to the UK													
Male	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168
Female	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341
All	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509
SMigR: males	3550.4	3480.6	3423.8	3385.1	3379.6	3374.9	3370.9	3367.6	3365.1	3363.3	3362.0	3361.3	3361.0
SMigR: females	3602.4	3547.0	3498.2	3461.5	3456.0	3451.1	3446.8	3443.4	3440.6	3438.5	3437.0	3436.1	3435.9
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*	*
In-migration from Overseas													
Male	176	170	170	169	170	169	169	170	170	169	169	169	169
Female	135	132	136	130	131	131	131	132	132	131	131	131	131
All	311	303	306	300	301	301	300	301	302	301	299	300	301

Appendix 2 - Detailed Component (CoC) for the Welsh Government 2011-based Principal Projection

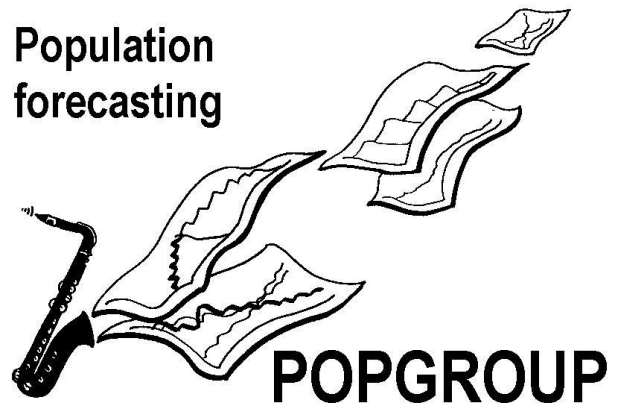
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Out-migration to Overseas														
Male	171	166	166	165	165	165	164	165	165	165	164	165	165	165
Female	136	133	136	131	132	132	132	132	133	132	131	131	131	132
All	307	299	302	296	297	297	296	298	298	296	295	296	296	297
SMigR: males	280.4	266.3	261.6	257.2	257.4	256.4	255.6	256.5	256.6	255.4	254.4	255.1	255.7	255.7
SMigR: females	208.7	201.5	203.7	193.6	194.4	194.4	193.7	194.9	195.1	193.7	192.9	192.8	193.6	193.6
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Migration - Net Flows														
UK	+209	+209	+209	+209	+209	+209	+209	+209	+209	+209	+209	+209	+209	+209
Overseas	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4
Summary of population change														
Natural change	+245	+221	+140	+23	-2	-27	-53	-83	-111	-137	-160	-181	-205	-205
Net migration	+213	+213	+213	+214	+213	+213	+213	+213	+213	+213	+213	+213	+213	+213
Net change	+459	+434	+353	+237	+211	+186	+160	+131	+103	+77	+53	+32	+9	+9
Crude Birth Rate /000	10.98	10.66	10.10	9.60	9.51	9.44	9.37	9.29	9.21	9.15	9.11	9.07	9.05	9.05
Crude Death Rate /000	9.05	8.94	9.04	9.43	9.53	9.65	9.77	9.91	10.04	10.17	10.30	10.43	10.58	10.58
Crude Net Migration Rate /000	1.68	1.65	1.63	1.61	1.61	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Summary of Population estimates/forecasts														
	<i>Population at mid-year</i>													
	2011	2016	2021	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
0-4	7,374	7,190	7,026	6,764	6,713	6,663	6,615	6,568	6,523	6,479	6,438	6,398	6,363	6,334
5-10	8,371	9,120	8,955	8,838	8,778	8,717	8,655	8,592	8,529	8,465	8,405	8,348	8,292	8,236
11-15	8,031	7,126	7,861	7,648	7,695	7,680	7,655	7,622	7,581	7,532	7,482	7,429	7,376	7,323
16-17	3,460	3,166	2,965	3,233	3,164	3,087	3,143	3,141	3,141	3,136	3,120	3,102	3,085	3,067
18-59Female, 64Male	71,830	71,453	70,020	68,398	68,055	67,767	67,403	67,134	66,873	66,598	66,446	66,335	66,263	66,190
60/65 -74	16,848	18,877	20,027	20,572	20,832	21,033	21,247	21,385	21,518	21,620	21,602	21,473	21,250	21,031
75-84	7,572	8,310	9,838	11,821	12,023	12,243	12,343	12,466	12,608	12,480	12,440	12,605	12,867	13,090
85+	3,193	3,703	4,286	5,255	5,505	5,786	6,102	6,413	6,680	7,245	7,700	7,995	8,222	8,455
Total	126,679	128,944	130,978	132,529	132,765	132,977	133,163	133,322	133,453	133,556	133,632	133,686	133,718	133,727
Dependency ratios, mean age and sex ratio														
0-15 / 16-65	0.30	0.30	0.31	0.30	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
65+ / 16-65	0.29	0.34	0.38	0.43	0.44	0.45	0.47	0.48	0.48	0.49	0.50	0.51	0.52	0.52
0-15 and 65+ / 16-65	0.59	0.64	0.69	0.73	0.75	0.76	0.77	0.78	0.79	0.79	0.80	0.81	0.82	0.82
Median age males	39.6	40.6	41.3	42.1	42.3	42.5	42.7	42.9	43.1	43.3	43.5	43.7	44.0	44.2
Median age females	42.6	44.2	45.4	46.3	46.5	46.7	46.9	47.1	47.2	47.3	47.5	47.6	47.8	48.0
Sex ratio males /100 females	95.1	95.5	95.8	95.9	95.9	95.9	95.9	95.8	95.8	95.8	95.8	95.8	95.8	95.8

Appendix 2 - Detailed Component (CoC) for the Welsh Government 2011-based Principal Projection

Population impact of constraint														
Number of persons		-5	-4	-4	-4	-4	-4	-5	-5	-4	-4	-4	-4	-4
Households														
Number of Households	53,620	55,618	57,529	59,179	59,447	59,695	59,923	60,138	60,329	60,508	60,667	60,808	60,944	61,052
Change in Households over previous year		+388	+350	+288	+268	+249	+227	+215	+191	+179	+159	+142	+136	+108
Household Change (2011-2026)	+5,559													
Number of supply units	55,738	57,815	59,801	61,517	61,795	62,053	62,290	62,513	62,712	62,898	63,063	63,210	63,352	63,464
Change in over previous year		+403	+363	+299	+278	+259	+236	+224	+199	+186	+165	+147	+142	+112
Dwelling Change (2011-2026)	+5,778													
Dwelling Change (2011-2026) incl 10% Contingency	+6,356													
Average Household Size = Private Pop (total Pop - Inst Pop) / total households														
Inst.Pop (Population in CE's - Census QS421EW)	2,077													
Private Population (total pop - Inst pop)	124,602	126,867	128,901	130,452	130,688	130,900	131,086	131,245	131,376	131,479	131,555	131,609	131,641	131,650
Average Household size	2.32	2.28	2.24	2.20	2.20	2.19	2.19	2.18	2.18	2.17	2.17	2.16	2.16	2.16
Special Populations														
arm for	883	883	883	883	883	883	883	883	883	883	883	883	883	883
pris	0	0	0	0	0	0	0	0	0	0	0	0	0	0

This report was compiled from a forecast produced on 20/03/2014 using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

How to move from version 3 to version 4



This guide explains what is different and better about POPGROUP version 4, and how users of version 3 can best move to using the new version.

Many POPGROUP users in the UK will wait until a Data Module is available for their local authority Districts of interest, and use it to create a set of POPGROUP files in version 4 that they can amend. A Data Module will be created after each release of a government sub-national population projection.

Population projections Data Modules are expected as follows:

Wales local authorities, 2011-based: end January 2014.

England local authorities, 2012-based: June/July 2014.

Scotland local authorities, 2012-based: June/July 2014.

All users who can wait with their projections for these Data Modules should do so, as the Data Module will make their transition to POPGROUP version 4 very smooth. The Data Modules will not be available for POPGROUP version 3, and for this reason too their release will be a stimulus for the first use of POPGROUP version 4 for most users.

However, some users will need to make or update their projections using information available now, without waiting for the next government sub-national projections. They may continue to use version 3, or choose to take the opportunity to move to version 4 now.

The purpose of this guide is to:

- Summarise the improvements in version 4 and the differences that users will note between the two versions (section 1).
- Give guidance to help those who are moving to version 4, including those who wish to transfer to version 4 the files and projection scenarios that they have developed in version 3 (section 2).

16th January 2014, prepared by Ludi Simpson, Comments and queries to ludi.simpson@manchester.ac.uk

1. What's new in POPGROUP v4?

A complete reference manual for the software is provided, and very many small improvements have been made to validation and comments on workbooks. Here we list the more substantial improvements to the new version.

Forecasting Calculations

Although the look and feel is very similar to version 3, the 'age-time framework' and the treatment of migration have been improved in version 4:

- The forecast calculations are more closely in line with practice by statistical agencies.
- The use of migrants' age at the end of an annual period is now the same as used in official population estimates and output from censuses. Input files for migrants do not have 'newborn' as these are age zero at the end of the year.
- The calculation of fertility now takes into account migration during the year. Because of this change, where there is net in-migration a fixed number of births results in a slightly lower estimated fertility rate than in version 3. Conversely, net out-migration will result in a slightly higher fertility rate from the same number of births.
- The first flow of in-migration, usually from the UK, is now defined appropriately as a rate from the UK population rather than a rate based on the population itself. The rates are therefore much smaller, and are applied to a UK population projection. The UK projection is provided on the files of standard rates for POPGROUP. For projections outside the UK, a user must provide the relevant reference population.
- The second flow of in-migration, usually from Overseas, must be provided as counts of migrants. The schedule is now an age-sex distribution, to distribute counts of migration to single years of age and sex.
- These changes to the treatment of migration have led to differences in the content of migration input workbooks, which are further explained in Section 2.

Model Inputs

- At model setup, the user supplies an ID which is used to create the three folders 'SKEL', 'INP', 'OUT' (as in DF).
- The maximum projection range has been increased from 50 to 100 years.
- In model setup, the Default 'Standard Files' folder is automatically identified (if it exists).
- Model setup is automatically saved after a successful setup.
- All columns referring to births, deaths or migrants are labelled explicitly with the year they refer to (e.g. 2010-11) on input and output files.
- On validation of mortality rates in the `mort` file, a log scale is used so that differences at young ages can be distinguished.
- On the '*Sched*' worksheet of the `fert` file, the default Boys per 100 girls has been changed to 105 from 106, following ONS practice.
- Limits on numbers of births, deaths, migrants, and base population have been removed.
- Male and female SMRs and SMigRs can be specified separately in input workbooks.
- Validation warnings have been limited to those that the user should seriously consider. Warnings about greyed data have been suppressed; a count of warnings of this type now

appears. Warnings when using migration profiles are also suppressed: these are recorded in the diagnostics table.

- The validation button is included on all sheets of every input file.
- On validation of the **fert** workbook, a warning message is provided if the ratios across a row in the mixed percentage table do not add within 0.001.
- Default for migration weights on the scenario has been changed to reflect common practice.
- When defining the Scenario ID, an on-screen note of which characters can/cannot be used is available and a warning will appear if illegal characters are used.
- Scenario files are now automatically saved only when the forecast has been successful.

Model outputs

- Unprotected output sheets allow easier manipulation of results by the user.
- Male and female expectation of life are reported separately in the **comp** workbook.
- Summary output and charts include crude birth death and migration rates, median age of each sex, sex ratio, dependency ratios.
- All-Groups output is hidden when the user's model includes only one group.
- Improved calculation of output TFR for All-Groups, by using a weighted average of Group TFRs according to population structure.
- Improved calculation of expectation of life.
- Migration age groups on a dump file have been changed so that they can be copied directly to an input file, and will be reproduced exactly.
- On the '*Charter*' worksheet, the 'active' chart is left as the 'Component chart'.

Model utilities

- The forecast comparison routine, **PGCompare**, is now a standalone routine (as in DF). This utility is known as **Comparison_summ** in version 3. Comparisons can be made with forecasts from files in different locations and from files with different base years. When double clicking, the current folder is the default.
- **PGUpdateModelFolder** operates with all version 4 files and automatically updates the locations of input and output folders in scenario files on the '*Run_Details*' worksheet.
- The **Transfer_data_PGV3_PGV4** routine reads from POPGROUP version 3 or 3.1 input files into version 4.
- A revised 'transfer data' routine (**Transfer_data_PGV4_PGV4**) that works with all version 4 files allows transfer of data from one model to another.

Annual Assumptions		Go to Migrants								
Migration		Options wizard		-----shortcuts-----						
VALIDATE		Population Group:		Leeds						
Migrants		Year beginning July 1								
Options		2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Provide total migrants		✓	✓	✓	✓	✓	✓	✓	✓	✓
Trend total migrants										
Provide age-sex mgt										
NOTE		Double click any option you wish to select (or de-select) for a year and then fill in the relevant data below								
Data		Total	9,627	11,544	11,380	17,886	15,533	13,546	9,164	10,360
Sex		Age								
male		0-4								

Figure 1: A section of a POPGROUP version 4 input file, with each year fully labelled

2. Moving to version 4 without a Data Module

This section takes a step by step approach to creating a projection in version 4, without waiting for Data Modules.

You will have to install version 4 (2.1 below) and set up a new model in version 4 (2.2 below).

Then fill the new model with data:

- a) If you are starting afresh, without transferring data from version 3, you will need to gather data for your assumptions, as described in 2.3 below. Files to help with the new migration schedules are available.
- b) If you are transferring data from version 3, follow the steps in 2.4 below. It is not all automated, but it is not difficult.

Running a forecast and comparing two or more forecasts are described at 2.5 and 2.6.

An appendix describes how closely version 4 can replicate the results of version 3, and the differences in output that should be expected in Version 4, which are a result of its improved treatment of each component of population change.

2.1. Install version 4

Version 4 is installed from a disc as described in the Reference Manual, Chapter 3.

As with previous versions, which may be kept on the same computer, installation creates folders for the program files and for national schedules of demographic rates, and the utilities including `MODEL_SETUP.xls`.

As with previous versions, POPGROUP version 4 will work with all issues of Excel from '2003' to '2010', and security settings must be set as described in the Reference Manual.

2.2. Set up a POPGROUP model in version 4

Use `MODEL_SETUP.xls` to define the areas or groups that you wish to forecast, together with any special populations or amendments to the names of migration flows. Refer to the Reference Manual, Chapter 5.



If you intend to replicate and develop a model already produced in version 3

- You should normally use the same short and long labels for each area or group on `MODEL_SETUP.xls` in version 4, and the same base year. However, the model ID to name the folders can be different if you wish, with no consequences.
- If you wish to give the areas or groups different labels from those used in version 3, or to have more or less areas in the model, then you may do so. You will be able to select which groups in version 3 correspond to which groups in version 4 when you transfer data (see 2.4.1 below). However, be aware that it will become difficult to use the utility `PGCompare.xls` to compare projections from versions 3 and 4, if the same groups have different short labels in each version. The short labels are used to name worksheets, and as headings for columns of results.

As in version 3, `MODEL_SETUP.xls` includes the option to name a workbook containing standard rates. These are used to copy into the skeleton files the UK national schedules and national fertility and mortality trends. The files of standard rates accompanying version 4 contain schedules from each of the UK countries, from the 2012-based national projections. Choose the country that your Districts have most affinity with (usually the country that they are within).

Running `MODEL_SETUP.xls` will produce skeleton files. These will be empty of data apart from the schedules read from files of standard rates. They are ready to be filled with further assumptions.

2.3. Fill the input files with data – without using version 3 files

If you are starting POPGROUP for the first time in version 4, or for any other reason are not copying from version 3 files, you will need to enter assumptions for the population base, births and fertility, deaths and mortality, and migration.

Use the Reference Manual to guide your entries. The User Guide from version 3 will also help. Updated user guides are being planned for later in 2014.

The in-migration files have changed in version 4 – guidance to find appropriate data for is given in the rest of this section.

2.3.1. In-migration schedules in version 4

This section describes the data suitable for the version 4 in-migration schedules, and where it can be found. POPGROUP offers a service to estimate these two schedules for local authority districts in Britain, available on request from popgroup@edgeanalytics.c.uk. The service is free for local authorities which have taken the annual service package.

Once these schedules are included, document each input file on its *Notes* sheet, *Validate* the file, and save it.

The following paragraphs specify the inputs for the in-migration schedules for UK areas, for those who need to make their own. Note that for local authority districts in Britain, schedules are available on request as above.

In-migration from the UK

The schedule is the rate of migration from the rest of the UK, for single years of age 0, 1, ..., 89, 90+, for males and females separately, with age of migrant at the end of the annual period. It is applied to the surviving population of that age at the end of the annual period.

For a local authority district it may be estimated as:

$$\frac{\text{(in-migration from the rest of the UK published for recent years)}}{\text{(UK population minus the local population, for the same years)}}$$

This calculation must be for each single year of age and sex, and refer to age of the migrant at the end of the year, and population of that age at the end of the year.¹

For England and Wales, data for in-migration from the UK with detail of single year of age are available from either (a) the ONS estimated matrix of migration for single year of age for [2008-09 to 2010-11](#) and for [2011-12](#), or (b) from the detailed outputs of the 2010-based sub-national population projections, or (c) from the user's own calculations when preparing migration files for POPGROUP version 3.

For Scotland, data for in-migration from the UK with detail of single year of age are available from either (a) the detailed outputs of the 2010-based sub-national population projections, or (b) from the user's own calculations when preparing migration files for POPGROUP version 3.

In-migration from overseas

The schedule is the distribution of overseas migrants to single year of age and sex. The total over both sexes and ages 0, 1, ..., 89, 90+ is 100%. It is not a schedule of *rates*, as it is for the other three flows of migration.

For a local authority district in Britain it may be estimated from (a) the data provided from Mid-Year Estimates, or (b) from the 2010-based sub-national population projections.

¹ Strictly speaking, the migrants should be those that have survived to the end of the period, and the population should be that which has survived to the end of the year before migration (including the out-migrants and excluding the in-migrants during the year). These exact data are not all available and the slight deviations from them will not have a detrimental impact on projections.

2.4. Fill the input files with data taken from a projection made in POPGROUP version 3

If you wish to use the data from a version 3 projection that you have already made, this section describes the process of doing so.


- (a) Transfer data from version 3 input files that with the utility provided (described in section 2.4.1).
- (b) Enter in-migration schedules (section 2.4.2).
- (c) Add counts of migrants to each migration file (section 2.4.3). It is not an automated process but it is not difficult.

You will be able to closely approximate the results of the version 3 projection, but not replicate it exactly. The differences to be expected are reviewed in the Appendix.

2.4.1. Transfer data from version 3 files with the utility

`Transfer_data_PGV3_PGV4.xls`

You will transfer data from version 3 input files into version 4 skeletons. The procedure uses a utility `Transfer_data_PGV3_PGV4.xls` that you can find in your version 4 model's skeleton folder. After opening it, enter the location of your version 3 input files by double clicking in the cells of Column E, until your screen looks similar to that in Figure 2. Read the tips in the box below before proceeding.

	Tips on transferring data from version 3 to version 4 using the utility
<ul style="list-style-type: none">• Decide which of your version 3 files you wish to replicate. There may be several files of the same type to represent different assumptions about fertility, migration, etc. Don't forget <code>constraint</code> files, and <code>DFSupply</code> files if you have made housing-led or employment-led projections.• You can transfer one file of each type at the same time. Repeat the transfer for extra files of the same type.• By default the new version 4 files will have the same name as the version 3 files. However, you will then not be able to have the version 3 and version 4 files open at the same time. For this reason you may choose to write in different names to the utility in Column G, for example adding characters to distinguish them as in Figure 2 below.	

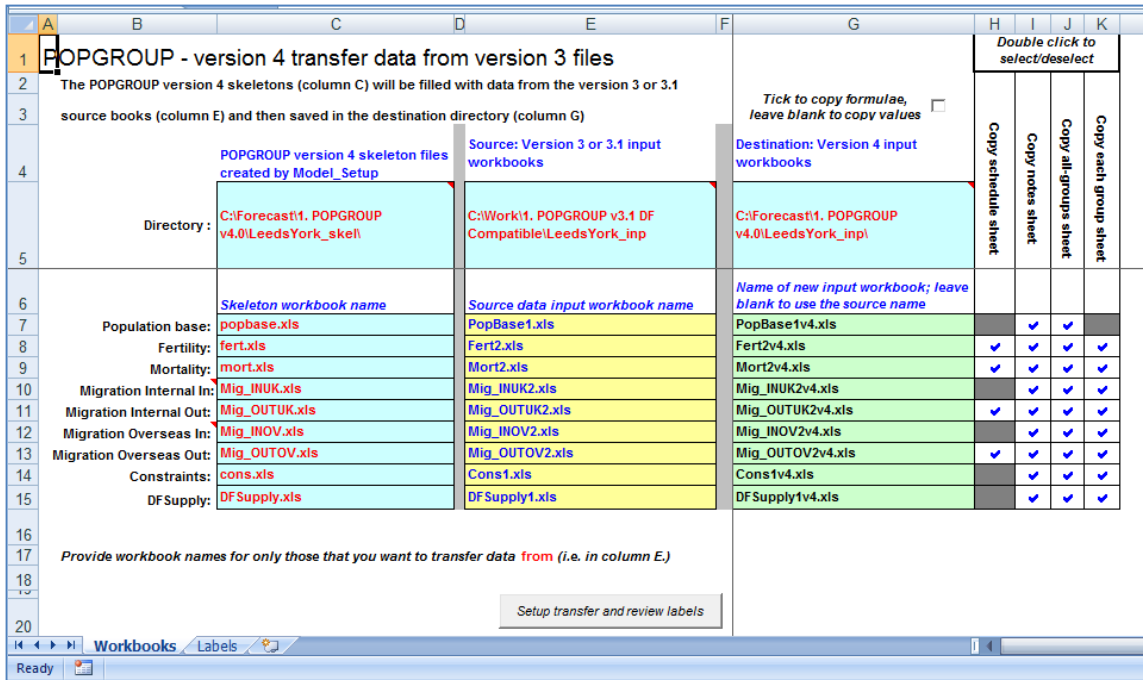


Figure 2: The 'Workbooks' worksheet in the Transfer_data_PGV3_PGV4 utility. The middle column E and column G have been filled in by the user; the other columns are default entries.

Follow the notes on the screens and if in doubt use the Reference Manual, Chapter 9.

The utility allows you to specify which parts of the files will be copied, by ticking or unticking the options at the right. Normally they will all be left ticked as in Figure 2. When happy with the files and options on this screen, you will click the button to 'Setup transfer and review labels'.

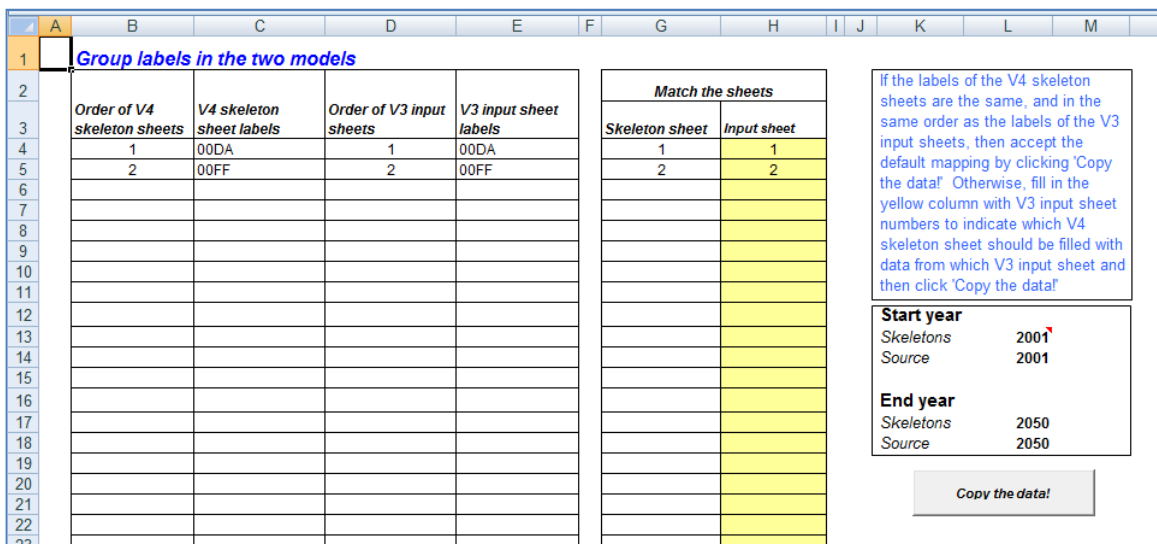


Figure 3: The 'Labels' worksheet in the Transfer_data_PGV4_PGV4 utility.

If the areas are the same in version 3 and version 4, you will accept the default settings on the screen (Figure 3), and click to copy the data.

2.4.2. In-migration schedules for version 4, and differentials

The improved treatment of migration in version 4 mean that the schedules for in-migration from the rest of the UK, and in-migration from overseas, take a different form than in version 3, and cannot be copied over directly. That is why the box for schedules on these two files is blocked out and cannot be chosen when copying version 3 files with the utility `Transfer_data_PGV3_PGV4` (see Figure 2).

POPGROUP offers a service to estimate these two in-migration schedules for local authority districts in Britain, available on request from popgroup@edgeanalytics.co.uk. The service is free for local authorities which have taken the annual service package. For other areas, follow the description at section 2.3.1.

It is likely that these v4 schedules will give a slightly different distribution of migrants at single years of age than the v3 schedules. It is likely to be a more accurate distribution.

If you used differentials in version 3, you should be able to leave them as they are in version 4. They simply raise or lower the migrant flows produced by the schedule.



If you are looking to replicate the results of a version 3 forecast

- In summary, it is recommended that you transfer counts as described in the next section, but that remaining differences are accepted as an improvement in version 4.
- It is important to put counts by age and sex in each migration input file, as described in the next section. The differences created by the v4 schedules of single year of age migration will then only make a difference within each age-sex group.
- You could replicate the exact population age structure projected by version 3, by copying single year of age and sex population each year from version 3 into a constraints file of version 4. But this constraint will not allow development of alternative assumptions for fertility, mortality and migration.
- You could create version 4 in-migration schedules from the outputs of a version 3 dump file. But they will still not recreate version 3's single year of age migration exactly in each year of the projection. It is likely that the differences within age-sex groups will be small enough to tolerate in all practical work. If you wish to investigate and discuss this further, contact popgroup@edgeanalytics.co.uk.
- The migration counts you have used in version 3 may already refer to age at the end of the year. This is the case for example in ONS PRDS systems, in census outputs, and in ONS output from population projections. In this case you may decide not to age the migration counts as described in the next section, and accept that version 4 results will be slightly different in age structure, but better than those from version 3.

2.4.3. Migration counts from version 3 files

Version 4 uses migrants' age at the end of the year, while version 3 used migrants' age at the start of the year.

To replicate the age composition of a version 3 forecast, you should take the migration counts by sex and age-group from the version 3 **dump** file, and put them in version 4 migration input files that have been prepared by the utility as above.

- Migration counts should be entered as described here, even for years when counts were not used in version 3.
- Migration counts should be entered as described here, for out-migration as well as for in-migration.
- Usually this means entering counts for all projection years on four migration input files.

To replicate the age composition of a version 3 forecast, the migrant counts should be aged from the dump file of the version 3 forecast, so that for example migrants aged 5-9 in version 4 are taken from those aged 4-8 in version 3. A file has been prepared to help with this adjustment, which can be achieved as follows:

- Open your version 3 dump file from the forecast you wish to replicate.
- Open the file **Version 4 migration from v3 dump file.xls**, and follow the instructions there to copy its formulae onto each sheet in your own dump file. This file is provided [here](#)
- Save your version 3 dump file with the added counts ready for version 4.
- On each version 4 migration file, tick the option to 'Provide age-sex migrants', for each population group and throughout the forecast. The data area will turn yellow to allow data entry.
- Copy from the version 3 dump file the aged counts of migrants, to the data area of the version 4 files.

Once these counts are included, document each input file on its **Notes** sheet, **Validate** the file, and save it.

The Appendix to this guide shows the increased accuracy achieved in replicating a version 3 forecast, when the appropriate migration counts are included from a version 3 projection.

2.5. Run a scenario

With input files created as above, run a forecast by completing a scenario file, as described in the Reference Manual, Chapter 7.



Creating a scenario

- Scenarios cannot be copied from version 3 with the utility described above. Open a new scenario from the version 4 skeleton folder. Fill it with your version 4 file names.
- If you have used a constraint in your scenario, check the 'Migration weights' in the box to the right of the migration files. The defaults have been changed (see the Reference Manual, 7.2.1). If you are replicating a scenario from version 3, make sure its weights are repeated here. If you have not used a constraint, these weights have no affect on the forecast.

2.6. Compare forecasts

Use the **PGCompare** utility to compare the results of forecasts in version 4. The utility is kept in the main forecast folder, independently of any model. It is no longer within the skeleton folder. See the Reference Manual, Section 8.2.



Tips for comparing forecasts with **PGCompare**

- Forecasts that have different base years and different projection ranges can be compared.
- Forecasts from version 4 and version 3 can be compared.
- Groups must have the same short label in each forecast in order to be compared using **PGCompare**. If the labels have been changed, the forecasts will all be read but the worksheet '*data*' would have to be amended by the user before comparisons can be made.
- **PGCompare** uses the summary results on **Summ** files in its comparisons. If more detailed comparisons are required, for example by single year of age, or individual migration flows, use the other output files from each forecast directly, such as **comp** and **dump**.

Appendix: How closely does version 4 replicate the results of version 3?

Section 2.4 of this guide has described how data from population forecasts made in POPGROUP version 3 can be transferred to POPGROUP version 4. It has suggested that some differences will remain in the results. Those differences are generally improvements in version 4. This Appendix describes the nature of the differences to be expected, as they affect fertility, mortality and migration.

The impact on the population forecast and its age structure will depend on each of the components, and greater when migration is high in net terms. The tests carried out so far suggest that after the transfer of data described in this guide, there will be a close match of a version 4 projection to the population total and its age structure from version 3, but that there will remain small differences. In a test of the 22 Unitary Authorities of Wales, The largest difference in total population after 25 years was 0.5% of the total population, in the student district of Ceredigion, although the student peak for each age between 18 and 26 was very closely replicated.

A1. Total Fertility Rate

The calculation of fertility now takes into account migration during the year. Because of this change:

- (a) For years in which no counts of births are given, the same fertility rates will produce more births in version 4 if there is net in-migration of women aged 15-44, and fewer births if there is net out-migration of women aged 15-44. The difference might make a difference of 1% to the births in areas of strong migration.
- (b) For years in which counts of births are provide, net in-migration of women aged 15-44 results in a slightly lower estimated fertility rate than in version 3. Vice versa, net out-migration will result in a slightly higher fertility rate estimated from the same number of births.

This section describes the second impact, which can make a difference of 0.02 in the Total Fertility Rate (TFR) if there is strong net in- or out-migration.

The Reference Manual, section 11.4, shows how the Total Fertility Rate (TFR) is calculated by POPGROUP version 4. If there is no count of births provided, this is simply the total of age-specific fertility rates as supplied by the user on the '*Schedule*' sheet of the **Fert** file, adjusted by any differentials supplied on the All-Groups and Group sheets. This is the same as in version 3.

However, if a count of births is provided by the user, then the TFR is adjusted by a ratio: the births provided divided by the births initially estimated by POPGROUP from all other information. This initial estimate uses not only the age-specific fertility rates but the population of women of childbearing age, averaged for those present at the beginning of the year, and those present at the end of the year after mortality and migration. In version 3 only the population of women at the beginning of the year was used. Mortality of women at these ages has little impact, but migration does make a difference.

In Version 4, if there has been net in-migration of women aged 15-49, then the estimated TFR to produce the given count of births will be slightly less than in version 3 as there were more women during the year than at the beginning. Vice versa, if there has been net out-migration of women aged 15-49, then the estimated TFR to produce the given count of births will be slightly more than inversion 3 as there were fewer women during the year than at the beginning.

The example Figure 4 below shows a forecast for Leeds District, with counts of births for the years 2001-02 to 2008-09. During those years there was net in-migration of between 0.5% and 1.9% of the total population each year, and peaking in 2004-05. The impact of the net in-migration to reduce the estimated TFR is clear. From 2009, when no counts of births were included in the forecast, both versions estimate TFR equally.

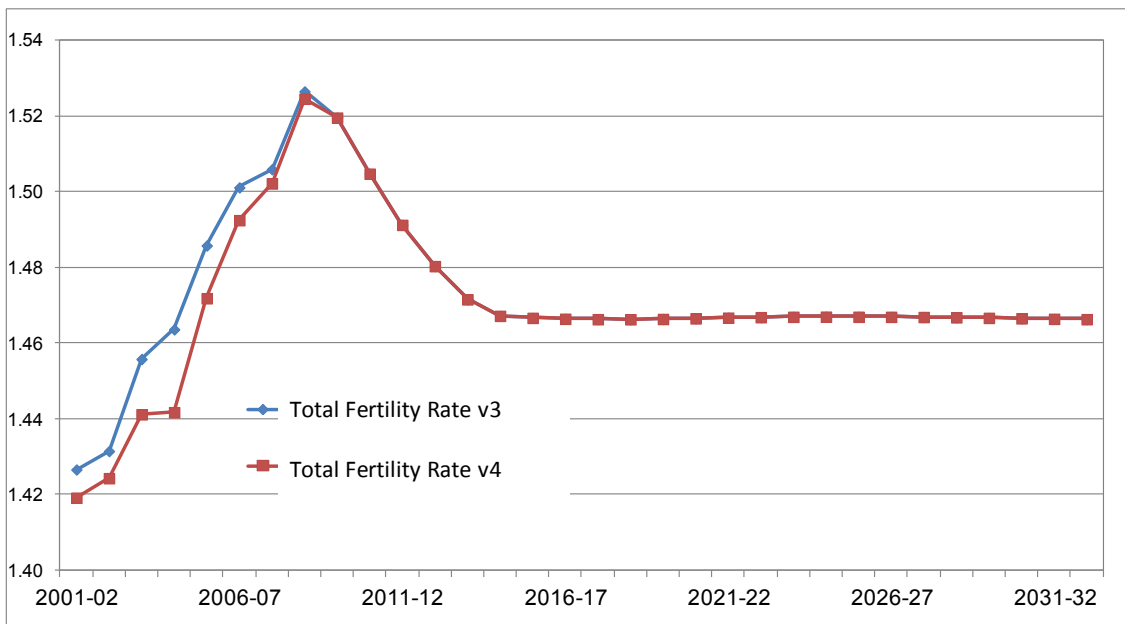


Figure 4: Total Fertility Rate in versions 3 and 4. Counts of births up to 2009, net in-migration. With net in-migration version 4 correctly estimates lower fertility for a given count of births. When a count of births is not given, the two versions give the same Total Fertility Rate but with net in-migration the number of births projected will be higher in version 4.

A3. Expectation of life at birth, e_0

An improved method of estimating the expectation of life at birth from a set of mortality rates has been implemented, as described in the Reference Manual at section 11.5.2. It remains an approximation because the final age group 90+ has one undifferentiated mortality rate. In version 3, a constant number of years remaining for those aged 90 was assumed, while version 4 takes into account the overall mortality rate at age 90+. There will be a slight rise in expectation of life from version 3 for low mortality – as in the UK in the future, and a slight decrease from version 3 for high mortality.

Figure 5 shows the impact of the change for a forecast for Leeds. The two methods produce the same expectation of life at birth for 2011-12, but version 4 projects (correctly) a higher value for future years, and a lower value for previous years.

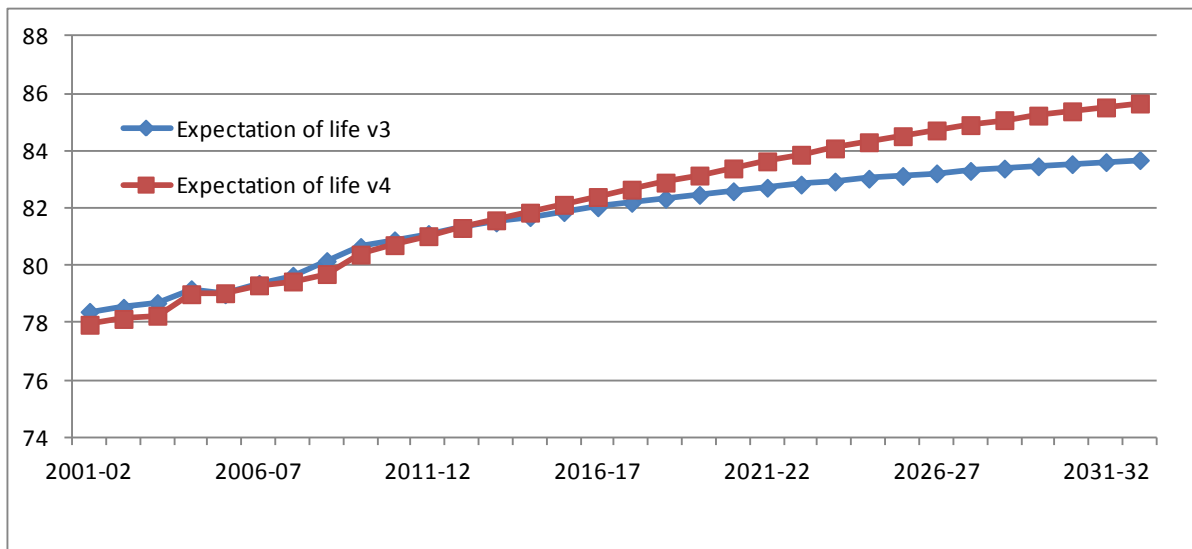


Figure 5: Expectation of life at birth in versions 3 and 4: persons, forecast for Leeds.

A3. Migration counts by sex and age-group

This guide has described how migrants are now counted with their age at the end of the year. Both versions of POPGROUP use estimates of migration at single year of age derived from the schedule of migration rates, to distribute the count of migrants from a 5-year age-group total to single years of age. If the same counts of migrants by five year age-group and sex are given in a POPGROUP forecast, a slightly different result will be obtained. The impact depends on the schedules of migration, and the number of migrants in each in-flow and out-flow of migration. This section gives an example, and shows how the difference can be minimised by using counts of migrants from a version 3 dump file that take account of age at the end of the year, as described at 2.4.3 above.

Figure 6 shows a population by single year of age, in 2021 after a forecast of 12 years, using POPGROUP version 3 and version 4. When the counts from version 3 are used directly in version 4 (the red line), there are noticeable differences in the forecasts at young adult ages because migration is high and it changes from one single year of age to the next. This is particularly emphasised in areas of higher education where many students arrive at a similar age, like Leeds in the example.

When the migrant counts from version 3 are aged one year as described in section 2.4.3, they take account of the different treatment of age in version 4. The results (the black line) are much more closely in line with those of version 3.

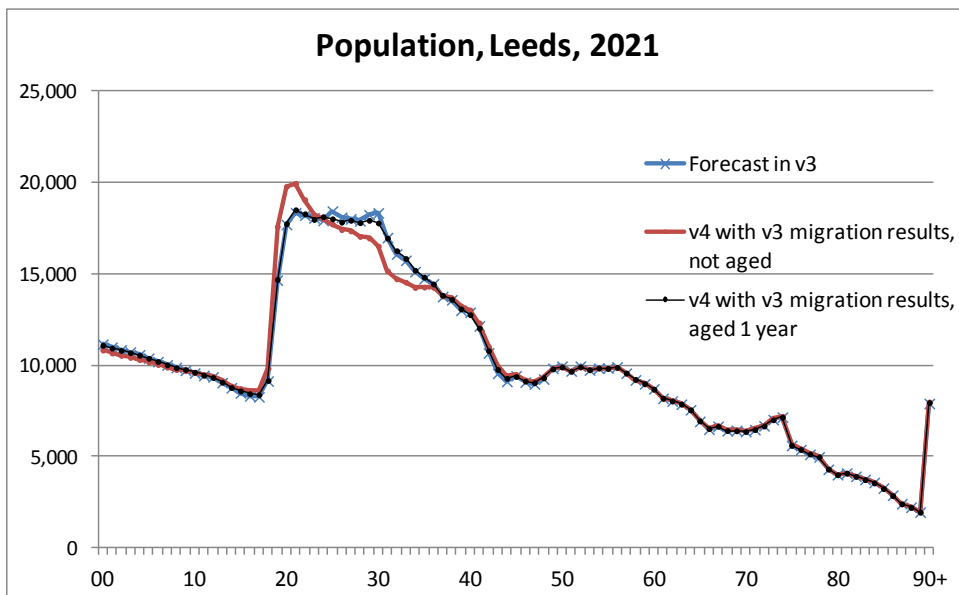


Figure 6: Population forecast in versions 3 and 4. When migration by sex and age-group from version 3 has been aged one year before being entered as an input on version 4 files, it closely reproduces the population structure forecast in version 3.

Figure 7 shows each of the four flows of migrants. It is clear that the migrants in a single year are forecast differently by version 3 and version 4. When the age-groups for migrant counts are constructed to take into account the change in treatment of migration in version 4, by ageing the counts from version 3 by one year, then the version 3 results are replicated very closely.

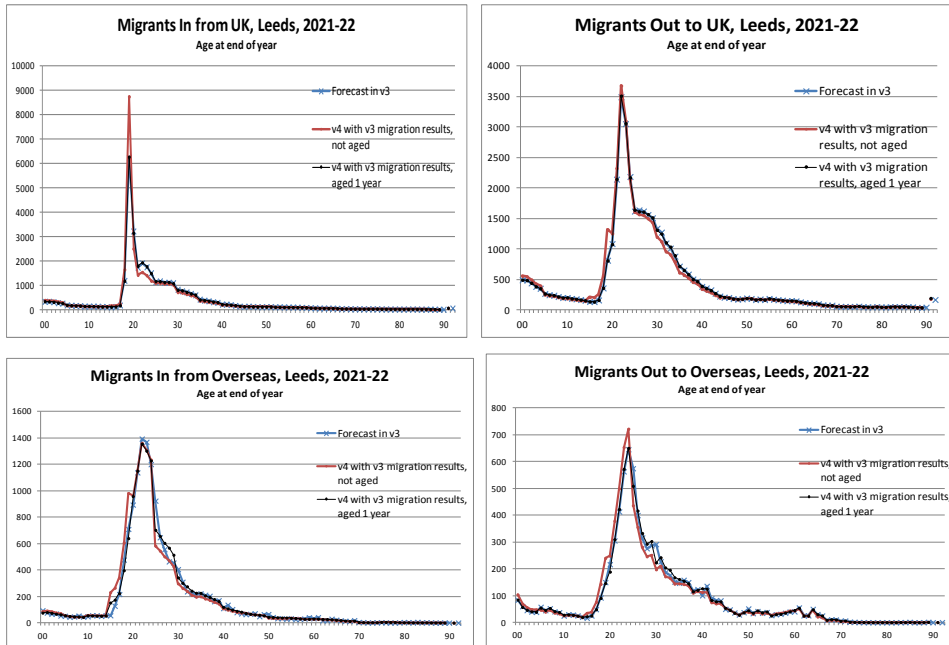


Figure 7: Forecast of migration in single years of age, in versions 3 and 4.

Population Estimates and Forecasts - Re-Run 2008-Based Principal Projections V4 - Scenario 1

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st											
	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Births												
Male	777	777	776	776	803	812	797	789	789	791	50,263	135,512
Female	740	740	739	739	765	773	759	751	752	753	47,870	129,059
<i>All Births</i>	1,517	1,516	1,515	1,516	1,569	1,585	1,556	1,540	1,541	1,544	98,133	264,572
TFR	2.14	2.12	2.10	2.08	2.05	2.05	2.05	2.05	2.05	2.05	2.18	2.18
Births input												
Deaths												
Male	572	568	566	564	567	594	641	693	704	1,224	790	18,776
Female	657	652	648	644	626	636	672	734	748	1,255	826	23,464
<i>All deaths</i>	1,229	1,220	1,215	1,208	1,194	1,230	1,313	1,427	1,452	2,479	1,617	42,240
SMR: males	79.2	76.5	74.3	72.0	62.7	56.4	52.5	49.9	49.6	84.4	55.8	55.4
SMR: females	87.7	85.6	83.6	81.5	71.8	64.3	59.0	55.7	55.3	90.4	60.5	60.0
SMR: persons	83.5	81.1	79.0	76.8	67.2	60.2	55.7	52.8	52.4	87.3	58.1	57.9
Expectation of life: males	79.1	79.5	79.8	80.2	81.8	83.1	84.2	84.9	85.0	78.4	83.9	84.1
Expectation of life: females	82.2	82.5	82.8	83.0	84.3	85.4	86.4	87.1	87.3	82.0	86.4	86.6
Expectation of life: persons	80.6	80.9	81.2	81.5	83.0	84.2	85.2	86.0	86.1	80.2	85.2	85.3
Deaths input												
In-migration from the UK												
Male	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	3,709,348	3,106,796
Female	2,699	2,699	2,699	2,699	2,699	2,699	2,699	2,699	2,699	2,699	3,673,584	3,038,937
<i>All</i>	5,119	5,119	5,119	5,119	5,119	5,119	5,119	5,119	5,119	5,119	7,382,931	6,145,733
SMigR: males	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100.0	100.0
SMigR: females	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100.0	100.0
Migrants input	*	*	*	*	*	*	*	*	*	*		
Out-migration to the UK												
Male	2,201	2,201	2,201	2,201	2,201	2,201	2,201	2,201	2,201	2,201	2,436	221,569
Female	2,371	2,371	2,371	2,371	2,371	2,371	2,371	2,371	2,371	2,371	2,633	261,800
<i>All</i>	4,572	4,572	4,572	4,572	4,572	4,572	4,572	4,572	4,572	4,572	5,069	483,368
SMigR: males	37.2	36.7	36.4	36.0	34.9	34.6	34.2	33.3	33.1	33.1	36.4	35.4
SMigR: females	37.6	37.3	37.0	36.8	36.0	36.0	35.4	34.4	34.2	34.1	37.7	39.8
Migrants input	*	*	*	*	*	*	*	*	*	*		
In-migration from Overseas												
Male	180	180	180	180	180	180	180	180	180	180	0	0
Female	153	153	153	153	153	153	153	153	153	153	0	0
<i>All</i>	334	334	334	334	334	334	334	334	334	334	0	0
Migrants input	*	*	*	*	*	*	*	*	*	*		

Population Estimates and Forecasts - Re-Run 2008-Based Principal Projections V4 - Scenario 1

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st											
	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Out-migration to Overseas												
Male	172	172	172	172	172	172	172	172	172	172	194	16,886
Female	143	143	143	143	143	143	143	143	143	143	159	15,389
All	316	316	316	316	316	316	316	316	316	316	353	32,275
SMigR: males	43.1	42.4	41.8	41.3	39.9	40.1	40.6	39.6	39.3	39.1	43.7	34.5
SMigR: females	34.4	34.0	33.6	33.3	32.5	32.7	33.1	32.5	32.3	32.2	35.5	31.7
Migrants input	*	*	*	*	*	*	*	*	*	*		
Migration - Net Flows												
UK	+547	+547	+547	+547	+547	+547	+547	+547	+547	+547	+7,377,862	+5,662,365
Overseas	+18	+18	+18	+18	+18	+18	+18	+18	+18	+18	-353	-32,275
Summary of population change												
Natural change	+288	+296	+300	+308	+375	+355	+243	+114	+89	-935	+96,517	+222,332
Net migration	+565	+565	+565	+565	+565	+565	+565	+565	+565	+565	+7,377,509	+5,630,090
Net change	+853	+861	+866	+874	+940	+920	+808	+679	+655	-369	+7,474,026	+5,852,421
Crude Birth Rate /000	12.18	12.09	12.00	11.92	11.91	11.62	11.06	10.67	10.62	10.67	25.28	25.09
Crude Death Rate /000	9.87	9.73	9.62	9.50	9.07	9.02	9.33	9.88	10.01	17.12	0.42	4.01
Crude Net Migration Rate /000	4.54	4.51	4.48	4.45	4.29	4.14	4.02	3.91	3.90	3.90	1900.83	533.94

Population Estimates and Forecasts - Re-Run 2008-Based Principal Projections V4 - Scenario 1

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st											
	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Summary of Population estimates/forecasts												
	<i>Population at mid-year</i>											
	2008	2009	2010	2011	2016	2021	2026	2031	2032	2033	2034	2035
0-4	7,052	7,338	7,537	7,757	7,935	8,190	8,145	8,021	8,006	7,996	7,992	632,800
5-10	8,924	8,681	8,585	8,515	9,722	10,132	10,413	10,403	10,372	10,339	10,304	469,887
11-15	8,390	8,362	8,321	8,242	7,317	8,294	8,675	8,918	8,952	8,968	8,949	311,969
16-17	3,641	3,487	3,387	3,327	3,198	2,973	3,416	3,486	3,511	3,539	3,533	139,422
18-59Female, 64Male	69,749	70,198	70,593	70,876	71,659	71,745	71,504	71,872	72,043	72,320	71,759	5,234,069
60/65 -74	15,804	16,214	16,579	16,994	18,923	19,809	20,344	21,503	21,602	21,599	21,433	361,230
75-84	7,564	7,607	7,611	7,662	8,607	10,299	12,231	12,828	12,687	12,646	12,425	218,989
85+	2,999	3,090	3,224	3,332	3,829	4,473	5,584	7,063	7,600	8,020	7,800	249,856
Total	124,123	124,976	125,837	126,703	131,190	135,915	140,311	144,094	144,773	145,428	144,196	7,618,222
Dependency ratios, mean age and sex ratio												
0-15 / 16-65	0.31	0.31	0.31	0.31	0.32	0.34	0.34	0.34	0.34	0.34	0.34	0.26
65+ / 16-65	0.28	0.29	0.30	0.30	0.34	0.38	0.42	0.46	0.46	0.47	0.47	0.14
0-15 and 65+ / 16-65	0.60	0.60	0.61	0.61	0.66	0.72	0.76	0.80	0.80	0.81	0.81	0.40
Median age males	39.5	39.6	39.8	39.8	39.7	39.5	40.0	40.8	41.0	41.2	41.4	26.1
Median age females	41.6	41.8	42.1	42.3	43.4	43.8	44.0	44.6	44.8	44.9	44.9	25.2
Sex ratio males /100 females	92.8	92.9	93.0	93.0	93.2	93.3	93.3	93.2	93.2	93.2	92.1	100.9
Households												
Number of Households	52,818	53,481	54,155	54,837	58,327	61,623	64,535	67,027	67,490	67,958	67,335	3,263,683
Change in Households over previous year		+663	+674	+682	+702	+626	+541	+482	+464	+467	-623	+3,196,348
Number of Dwellings (2001 Census Rates)	55,435	56,131	56,838	57,554	61,217	64,676	67,732	70,347	70,834	71,324	70,671	3,425,371
Change in Dwellings (2001 Census Rates) over previous year		+696	+707	+716	+736	+657	+568	+506	+487	+490	-653	+3,354,700
Household Change (20111-2026)	+9,698											
Dwelling Change (2011-2026)	+10,178											
Dwelling Change (2011-2026) incl 10% Contingency	11,196											
Special Populations												
Stud	31	31	31	31	31	31	31	31	31	31	0	0
arm for	831	831	831	831	831	831	831	831	831	831	0	0
pris	0	0	0	0	0	0	0	0	0	0	0	0

Population Estimates and Forecasts - Re-Run 2008-Based Principal Projections V4 - Scenario 1

Components of Population Change - The Vale of Glamorgan

Year beginning July 1st

2008-09 2009-10 2010-11 2011-12 2016-17 2021-22 2026-27 2031-32 2032-33 2033-34 2034-35 2035-36

This report was compiled from a forecast produced on 03/04/2014 using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

Population Estimates and Forecasts - 2008 Based (Option 1) Re-Run PPV4 - Scenario 2

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st									
	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34
Births										
Male	777	771	757	758	790	802	788	776	776	777
Female	740	734	721	722	752	764	751	739	739	740
All Births	1,517	1,505	1,479	1,481	1,542	1,566	1,539	1,516	1,516	1,517
TFR	2.14	2.12	2.10	2.08	2.05	2.05	2.05	2.05	2.05	2.05
Births input										
Deaths										
Male	572	567	561	559	564	592	638	691	703	1,222
Female	657	647	644	639	621	631	668	729	743	1,248
All deaths	1,229	1,214	1,205	1,199	1,185	1,223	1,306	1,420	1,446	2,470
SMR: males	79.2	76.5	74.2	71.9	62.7	56.4	52.5	49.9	49.6	84.4
SMR: females	87.7	85.6	83.6	81.5	71.8	64.3	59.0	55.7	55.3	90.4
SMR: persons	83.5	81.1	79.0	76.8	67.2	60.2	55.6	52.7	52.4	87.3
Expectation of life: males	79.1	79.5	79.8	80.2	81.8	83.1	84.2	84.9	85.0	78.4
Expectation of life: females	82.2	82.5	82.8	83.0	84.3	85.4	86.4	87.1	87.3	82.0
Expectation of life: persons	80.6	80.9	81.2	81.5	83.0	84.2	85.2	86.0	86.1	80.2
Deaths input										
In-migration from the UK										
Male	2,385	2,405	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420
Female	2,551	2,484	2,699	2,699	2,699	2,699	2,699	2,699	2,699	2,699
All	4,936	4,889	5,119	5,119	5,119	5,119	5,119	5,119	5,119	5,119
SMigR: males	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
SMigR: females	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Migrants input	*	*	*	*	*	*	*	*	*	*
Out-migration to the UK										
Male	2,240	2,230	2,201	2,201	2,201	2,201	2,201	2,201	2,201	2,201
Female	2,519	2,596	2,371	2,371	2,371	2,371	2,371	2,371	2,371	2,371
All	4,760	4,826	4,572	4,572	4,572	4,572	4,572	4,572	4,572	4,572
SMigR: males	37.9	37.2	36.4	36.1	35.0	34.7	34.4	33.5	33.3	33.3
SMigR: females	40.0	41.1	37.6	37.4	36.4	36.5	36.0	34.9	34.7	34.7
Migrants input	*	*	*	*	*	*	*	*	*	*
In-migration from Overseas										
Male	180	180	180	180	180	180	180	180	180	180
Female	153	153	153	153	153	153	153	153	153	153
All	334	334	334	334	334	334	334	334	334	334
Migrants input	*	*	*	*	*	*	*	*	*	*
Out-migration to Overseas										

Population Estimates and Forecasts - 2008 Based (Option 1) Re-Run PPV4 - Scenario 2

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st									
	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34
Male	172	172	172	172	172	172	172	172	172	172
Female	143	143	143	143	143	143	143	143	143	143
All	316	316	316	316	316	316	316	316	316	316
SMigR: males	43.1	42.3	41.8	41.3	40.0	40.2	40.8	39.9	39.6	39.4
SMigR: females	34.4	34.2	34.3	33.9	32.9	33.1	33.6	33.1	32.9	32.8
Migrants input	*	*	*	*	*	*	*	*	*	*
Migration - Net Flows										
UK	+176	+63	+547	+547	+547	+547	+547	+547	+547	+547
Overseas	+18	+18	+18	+18	+18	+18	+18	+18	+18	+18
Summary of population change										
Natural change	+288	+290	+274	+282	+357	+343	+233	+96	+69	-953
Net migration	+194	+81	+565	+565	+565	+565	+565	+565	+565	+565
Net change	+482	+371	+839	+847	+922	+909	+799	+661	+635	-387
Crude Birth Rate /000	12.20	12.06	11.79	11.73	11.81	11.58	11.03	10.58	10.53	10.57
Crude Death Rate /000	9.88	9.73	9.61	9.50	9.07	9.04	9.36	9.92	10.05	17.20
Crude Net Migration Rate /000	1.56	0.65	4.51	4.48	4.33	4.18	4.05	3.95	3.93	3.94

Population Estimates and Forecasts - 2008 Based (Option 1) Re-Run PPV4 - Scenario 2

Components of Population Change - The Vale of Glamorgan

	Year beginning July 1st										
	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	
Summary of Population estimates/forecasts											
	Population at mid-year										
	2008	2009	2010	2011	2016	2021	2026	2031	2032	2033	2036
0-4	7,052	7,188	7,417	7,625	7,785	8,073	8,061	7,922	7,899	7,882	1,197,803
5-10	8,924	8,639	8,499	8,429	9,565	9,950	10,269	10,299	10,271	10,239	894,694
11-15	8,390	8,376	8,279	8,150	7,253	8,170	8,522	8,794	8,834	8,858	598,764
16-17	3,641	3,532	3,449	3,371	3,159	2,932	3,375	3,429	3,456	3,485	241,015
18-59Female, 64Male	69,749	70,066	70,131	70,461	71,203	71,250	70,926	71,197	71,341	71,594	8,962,750
60/65 -74	15,804	16,159	16,448	16,871	18,889	19,796	20,295	21,420	21,528	21,526	687,960
75-84	7,564	7,575	7,561	7,625	8,544	10,223	12,195	12,824	12,677	12,636	413,696
85+	2,999	3,070	3,192	3,284	3,793	4,442	5,541	7,016	7,556	7,976	473,082
Total	124,123	124,605	124,976	125,815	130,192	134,836	139,184	142,901	143,562	144,196	13,469,764
Dependency ratios, mean age and sex ratio											
0-15 / 16-65	0.31	0.31	0.31	0.31	0.31	0.33	0.34	0.34	0.34	0.34	0.29
65+ / 16-65	0.28	0.29	0.29	0.30	0.34	0.38	0.42	0.46	0.47	0.47	0.15
0-15 and 65+ / 16-65	0.60	0.60	0.61	0.61	0.66	0.71	0.76	0.80	0.80	0.81	0.44
Median age males	39.5	39.6	39.8	39.8	39.8	39.5	40.0	41.0	41.1	41.3	26.9
Median age females	41.6	41.9	42.3	42.5	43.6	44.0	44.2	44.7	44.8	45.0	26.3
Sex ratio males /100 females	92.8	93.2	93.8	93.9	94.1	94.1	94.0	93.9	93.9	93.9	102.3
Population impact of constraint											
Number of persons		-371	-485								
Households											
Number of Households	52,818	53,328	53,785	54,465	57,936	61,217	64,093	66,527	66,978	67,432	5,808,532
Change in Households over previous year		+510	+456	+680	+697	+619	+535	+469	+451	+454	+2,545,301
Household Change (2011-2026)	+9,628										
Number of Dwellings (2001 Census Rates)	55,435	55,970	56,449	57,163	60,807	64,249	67,268	69,823	70,297	70,773	6,096,295
Change in Dwellings (2001 Census Rates) over previous year		+535	+479	+714	+731	+649	+561	+492	+474	+476	+2,671,400
Dwelling Change (2011-2026)	+10,105										
Dwelling Change (2011-2026) incl 10% Contingency	11,116										
Special Populations											
Stud	31	31	31	31	31	31	31	31	31	31	0
arm for	831	831	831	831	831	831	831	831	831	831	0
pris	0	0	0	0	0	0	0	0	0	0	0

This report was compiled from a forecast produced on 03/04/2014 using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

Population Estimates and Forecasts	Alternative 2011 Census Base (Principal) with HH								
	The Vale of Glamorgan								
	Year beginning July 1st								
Components of Population Change	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Births									
Male	739	705	679	652	630	626	623	621	620
Female	704	671	646	621	600	596	594	592	590
All Births	1,444	1,376	1,325	1,274	1,230	1,222	1,217	1,213	1,211
TFR	1.98	1.94	1.88	1.84	1.83	1.83	1.83	1.83	1.83
Births input									
Deaths									
Male	548	561	586	627	673	682	690	697	706
Female	592	594	599	623	668	677	687	697	709
All deaths	1,140	1,155	1,185	1,251	1,340	1,359	1,377	1,394	1,415
SMR: males	92.3	81.6	73.7	68.0	63.5	62.9	62.1	61.3	60.7
SMR: females	90.7	80.8	72.5	65.9	60.9	59.9	59.1	58.3	57.7
SMR: persons	91.5	81.2	73.1	66.9	62.2	61.4	60.6	59.8	59.2
Expectation of life: males	79.8	81.3	82.6	83.7	84.6	84.8	85.0	85.1	85.3
Expectation of life: females	83.7	84.9	86.1	87.3	88.2	88.4	88.6	88.7	88.8
Expectation of life: persons	81.9	83.2	84.5	85.6	86.5	86.7	86.9	87.0	87.2
Deaths input									
In-migration from the UK									
Male	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254
Female	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464	2,464
All	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718	4,718
SMigR: males	7.3	7.0	6.8	6.5	6.4	6.3	6.3	6.3	6.2
SMigR: females	7.7	7.4	7.2	7.0	6.9	6.8	6.8	6.8	6.8
Migrants input	*	*	*	*	*	*	*	*	*
Out-migration to the UK									
Male	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168
Female	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341
All	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509
SMigR: males	3527.8	3480.6	3423.8	3385.1	3365.1	3363.3	3362.0	3361.3	3361.0
SMigR: females	3575.7	3547.0	3498.2	3461.5	3440.6	3438.5	3437.0	3436.1	3435.9
Migrants input	*	*	*	*	*	*	*	*	*
In-migration from Overseas									
Male	876	170	170	169	170	169	169	169	169
Female	933	132	136	130	132	131	131	131	131
All	1,810	303	306	300	302	301	299	300	301
Migrants input	*	*	*	*	*	*	*	*	*
Out-migration to Overseas									

Population Estimates and Forecasts		Alternative 2011 Census Base (Principal) with HH									
Components of Population Change		The Vale of Glamorgan									
		Year beginning July 1st									
		2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36	
Male		1,263	166	166	165	165	165	164	165	165	
Female		1,419	133	136	131	133	132	131	131	132	
All		2,682	299	302	296	298	296	295	296	297	
SMigR: males		2055.3	266.3	261.6	257.2	256.6	255.4	254.4	255.1	255.7	
SMigR: females		2167.0	201.5	203.7	193.6	195.1	193.7	192.9	192.8	193.6	
Migrants input		*	*	*	*	*	*	*	*	*	
Migration - Net Flows											
UK		+209	+209	+209	+209	+209	+209	+209	+209	+209	
Overseas		-872	+4	+4	+4	+4	+4	+4	+4	+4	
Summary of population change											
Natural change		+303	+221	+140	+23	-111	-137	-160	-181	-205	
Net migration		-663	+213	+213	+214	+213	+213	+213	+213	+213	
Net change		-359	+434	+353	+237	+103	+77	+53	+32	+9	
Crude Birth Rate /000		11.34	10.66	10.10	9.60	9.21	9.15	9.11	9.07	9.05	
Crude Death Rate /000		8.96	8.94	9.04	9.43	10.04	10.17	10.30	10.43	10.58	
Crude Net Migration Rate /000		-5.20	1.65	1.63	1.61	1.60	1.60	1.60	1.60	1.60	
Summary of Population estimates/forecasts											
		Population at mid-year									
		2011	2016	2021	2026	2031	2032	2033	2034	2035	2036
0-4		7,335	7,190	7,026	6,764	6,523	6,479	6,438	6,398	6,363	6,334
5-10		8,388	9,120	8,955	8,838	8,529	8,465	8,405	8,348	8,292	8,236
11-15		8,125	7,126	7,861	7,648	7,581	7,532	7,482	7,429	7,376	7,323
16-17		3,381	3,166	2,965	3,233	3,141	3,136	3,120	3,102	3,085	3,067
18-59Female, 64Male		72,813	71,453	70,020	68,398	66,873	66,598	66,446	66,335	66,263	66,190
60/65 -74		16,767	18,877	20,027	20,572	21,518	21,620	21,602	21,473	21,250	21,031
75-84		7,535	8,310	9,838	11,821	12,608	12,480	12,440	12,605	12,867	13,090
85+		3,153	3,703	4,286	5,255	6,680	7,245	7,700	7,995	8,222	8,455
Total		127,497	128,944	130,978	132,529	133,453	133,556	133,632	133,686	133,718	133,727
Dependency ratios, mean age and sex ratio											
0-15 / 16-65		0.30	0.30	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30
65+ / 16-65		0.29	0.34	0.38	0.43	0.48	0.49	0.50	0.51	0.52	0.52
0-15 and 65+ / 16-65		0.58	0.64	0.69	0.73	0.79	0.79	0.80	0.81	0.82	0.82
Median age males		39.2	40.6	41.3	42.1	43.1	43.3	43.5	43.7	44.0	44.2
Median age females		42.3	44.2	45.4	46.3	47.2	47.3	47.5	47.6	47.8	48.0
Sex ratio males /100 females		95.0	95.5	95.8	95.9	95.8	95.8	95.8	95.8	95.8	95.8
Population impact of constraint											

Population Estimates and Forecasts	Alternative 2011 Census Base (Principal) with HH									
	The Vale of Glamorgan									
Components of Population Change	Year beginning July 1st									
	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36	
Number of persons		-5	-4	-4	-5	-4	-4	-4	-4	-4

Population Estimates and Forecasts	Alternative 2011 Census Base (Principal) with HH									
	The Vale of Glamorgan									
Components of Population Change	Year beginning July 1st									
	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36	
Households										
Number of Households	53,855	55,618	57,529	59,179	60,329	60,508	60,667	60,808	60,944	61,052
Change in Households over previous year		+388	+350	+288	+191	+179	+159	+142	+136	+108
Change in Households (2011-2026)	+5,324									
Number of supply units	55,983	57,815	59,801	61,517	62,712	62,898	63,063	63,210	63,352	63,464
Change in over previous year		+403	+363	+299	+199	+186	+165	+147	+142	+112
Change in Dwellings (2011-2026)	+5,534									
Dwellings Change plus 10%	6,087									
Special Populations										
arm for	883	883	883	883	883	883	883	883	883	883
pris	0	0	0	0	0	0	0	0	0	0

This report was compiled from a forecast produced on 26/09/2014 using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

Population Estimates and Forecasts

2011 Alternative Base with 10Yr Av Migration, No Constraints includes HH

Components of Population Change

The Vale of Glamorgan

Year beginning July 1st

	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Births									
Male	741	744	723	684	658	655	654	653	654
Female	705	709	688	652	626	624	622	622	623
All Births	1,446	1,453	1,411	1,336	1,284	1,279	1,276	1,276	1,277
TFR	1.98	1.94	1.88	1.84	1.83	1.83	1.83	1.83	1.83
Births input									
Deaths									
Male	548	566	594	637	684	695	704	712	720
Female	592	597	610	641	692	701	712	723	737
All deaths	1,140	1,163	1,204	1,278	1,376	1,396	1,416	1,435	1,457
SMR: males	92.3	81.7	73.6	67.9	63.5	62.8	62.0	61.3	60.6
SMR: females	90.7	80.8	72.5	65.9	60.9	59.9	59.1	58.3	57.7
SMR: persons	91.5	81.2	73.0	66.9	62.2	61.3	60.5	59.8	59.1
Expectation of life: males	79.8	81.3	82.6	83.7	84.6	84.8	85.0	85.1	85.3
Expectation of life: females	83.7	84.9	86.1	87.3	88.2	88.4	88.6	88.7	88.8
Expectation of life: persons	81.9	83.2	84.5	85.6	86.5	86.7	86.9	87.0	87.2
Deaths input									
In-migration from the UK									
Male	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375
Female	2,625	2,625	2,625	2,625	2,625	2,625	2,625	2,625	2,625
All	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001
SMigR: males	7.7	7.4	7.1	6.9	6.7	6.7	6.6	6.6	6.6
SMigR: females	8.2	7.9	7.7	7.5	7.3	7.3	7.3	7.2	7.2
Migrants input	*	*	*	*	*	*	*	*	*
Out-migration to the UK									
Male	2,185	2,185	2,185	2,185	2,185	2,185	2,185	2,185	2,185
Female	2,364	2,364	2,364	2,364	2,364	2,364	2,364	2,364	2,364
All	4,548	4,548	4,548	4,548	4,548	4,548	4,548	4,548	4,548
SMigR: males	3555.3	3446.1	3351.9	3280.3	3230.6	3222.8	3215.6	3208.7	3202.3
SMigR: females	3610.6	3510.7	3420.6	3348.3	3295.9	3287.5	3279.7	3272.5	3265.9
Migrants input	*	*	*	*	*	*	*	*	*
In-migration from Overseas									
Male	179	179	179	179	179	179	179	179	179
Female	135	135	135	135	135	135	135	135	135
All	314	314	314	314	314	314	314	314	314

Population Estimates and Forecasts

2011 Alternative Base with 10Yr Av Migration, No Constraints includes HH

Components of Population Change

The Vale of Glamorgan

Year beginning July 1st

	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Migrants input	*	*	*	*	*	*	*	*	*
Out-migration to Overseas									
Male	166	166	166	166	166	166	166	166	166
Female	136	136	136	136	136	136	136	136	136
All	302	302	302	302	302	302	302	302	302
SMigR: males	270.2	261.9	254.7	249.3	245.5	244.9	244.3	243.8	243.3
SMigR: females	208.3	202.6	197.4	193.2	190.2	189.7	189.3	188.8	188.5
Migrants input	*	*	*	*	*	*	*	*	*

Migration - Net Flows

UK	+452	+452	+452	+452	+452	+452	+452	+452	+452
Overseas	+11	+11	+11	+11	+11	+11	+11	+11	+11

Summary of population change

Natural change	+306	+290	+207	+57	-92	-117	-140	-160	-180
Net migration	+463	+463	+463	+463	+463	+463	+463	+463	+463
Net change	+769	+754	+671	+521	+371	+347	+323	+304	+284
Crude Birth Rate /000	11.31	11.03	10.43	9.66	9.14	9.08	9.04	9.01	9.00
Crude Death Rate /000	8.92	8.83	8.90	9.24	9.79	9.91	10.03	10.14	10.27
Crude Net Migration Rate /000	3.62	3.52	3.43	3.35	3.30	3.29	3.28	3.27	3.27

Summary of Population estimates/forecasts

	Population at mid-year									
	2011	2016	2021	2026	2031	2032	2033	2034	2035	2036
0-4	7,335	7,593	7,545	7,251	6,908	6,856	6,813	6,778	6,753	6,738
5-10	8,388	9,225	9,501	9,572	9,249	9,162	9,074	8,990	8,910	8,836
11-15	8,125	7,201	8,011	8,173	8,268	8,238	8,197	8,145	8,085	8,017
16-17	3,381	3,219	3,008	3,374	3,394	3,408	3,411	3,407	3,398	3,384
18-59Female, 64Male	72,813	73,072	72,436	71,470	70,990	70,939	70,971	71,065	71,180	71,343
60/65 -74	16,767	18,856	20,140	20,736	21,757	21,897	21,937	21,856	21,771	21,542
75-84	7,535	8,425	9,920	11,973	12,859	12,791	12,727	12,863	13,032	13,293
85+	3,153	3,732	4,399	5,476	6,895	7,401	7,909	8,258	8,538	8,797
Total	127,497	131,323	134,960	138,024	140,320	140,692	141,038	141,362	141,666	141,949

Dependency ratios, mean age and sex ratio

0-15 / 16-65	0.30	0.30	0.31	0.31	0.31	0.31	0.30	0.30	0.30	0.30
65+ / 16-65	0.29	0.33	0.37	0.42	0.46	0.47	0.48	0.49	0.49	0.50
0-15 and 65+ / 16-65	0.58	0.63	0.69	0.73	0.77	0.78	0.78	0.79	0.79	0.80

Population Estimates and Forecasts

2011 Alternative Base with 10Yr Av Migration, No Constraints includes HH

Components of Population Change

The Vale of Glamorgan

	Year beginning July 1st									
	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36	
Median age males	39.2	40.0	40.5	41.3	42.3	42.5	42.8	43.0	43.3	43.6
Median age females	42.3	43.7	44.7	45.4	46.3	46.5	46.7	46.9	47.1	47.3
Sex ratio males /100 females	95.0	95.3	95.4	95.4	95.4	95.4	95.3	95.3	95.3	95.3

Population Estimates and Forecasts

2011 Alternative Base with 10Yr Av Migration, No Constraints includes HH

Components of Population Change

The Vale of Glamorgan

	Year beginning July 1st									
	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36	
Households										
Number of Households	53,855	56,516	59,069	61,325	63,073	63,374	63,656	63,925	64,182	64,422
Change in Households over previous year		+547	+493	+410	+311	+301	+282	+269	+257	+240
Number of supply units	55,983	58,749	61,402	63,747	65,564	65,877	66,171	66,450	66,717	66,967
Change in over previous year		+569	+513	+426	+323	+313	+294	+280	+267	+250
Change in Dwellings (2011-2026)	+7,764									
Dwellings Change plus 10%	8,541									
Special Populations										
arm for	883	883	883	883	883	883	883	883	883	883
pris	0	0	0	0	0	0	0	0	0	0

This report was compiled from a forecast produced on 24/09/2014 using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

Population Estimates and Forecasts

2008 Base Year with 2011 Census Alternative Base & 10 Yr Av Migration Rates

Components of Population Change

The Vale of Glamorgan

Year beginning July 1st

	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Births												
Male	759	750	733	722	727	717	694	688	687	685	684	683
Female	723	714	699	688	692	683	661	656	654	652	651	650
<i>All Births</i>	1,482	1,464	1,432	1,410	1,419	1,401	1,356	1,344	1,341	1,338	1,335	1,333
TFR	2.06	2.05	2.02	1.98	1.94	1.88	1.84	1.83	1.83	1.83	1.83	1.83
Births input	*	*	*									
Deaths												
Male	590	571	583	551	563	592	636	684	694	703	711	720
Female	636	610	620	593	597	609	640	688	698	708	719	732
<i>All deaths</i>	1,226	1,181	1,203	1,143	1,160	1,201	1,276	1,372	1,391	1,411	1,431	1,453
SMR: males	103.6	98.2	98.5	92.2	81.6	73.6	68.0	63.5	62.8	62.0	61.2	60.6
SMR: females	102.2	96.9	96.7	90.8	80.8	72.5	65.9	60.9	59.9	59.1	58.3	57.7
SMR: persons	102.9	97.6	97.6	91.5	81.2	73.0	66.9	62.1	61.3	60.5	59.7	59.1
Expectation of life: males	78.3	79.0	79.0	79.8	81.3	82.6	83.7	84.6	84.8	85.0	85.1	85.3
Expectation of life: females	82.4	83.0	83.0	83.7	84.9	86.1	87.3	88.2	88.4	88.6	88.7	88.8
Expectation of life: persons	80.5	81.1	81.1	81.9	83.2	84.5	85.6	86.5	86.7	86.9	87.0	87.2
Deaths input	*	*	*									
In-migration from the UK												
Male	2,190	2,170	2,080	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375
Female	2,280	2,250	2,370	2,625	2,625	2,625	2,625	2,625	2,625	2,625	2,625	2,625
<i>All</i>	4,470	4,420	4,450	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001
SMigR: males	7.2	7.1	6.8	7.7	7.4	7.1	6.9	6.7	6.7	6.6	6.6	6.6
SMigR: females	7.2	7.1	7.4	8.2	7.9	7.7	7.5	7.3	7.3	7.3	7.2	7.2
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*
Out-migration to the UK												
Male	2,130	2,080	2,150	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168	2,168
Female	2,290	2,350	2,350	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341	2,341
<i>All</i>	4,420	4,430	4,500	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509	4,509
SMigR: males	3532.4	3435.1	3536.0	3529.0	3421.6	3325.3	3249.3	3190.3	3180.3	3170.9	3162.0	3153.6
SMigR: females	3534.6	3622.1	3623.4	3576.7	3477.1	3383.8	3306.1	3243.5	3232.8	3222.7	3213.2	3204.3

Population Estimates and Forecasts

2008 Base Year with 2011 Census Alternative Base & 10 Yr Av Migration Rates

Components of Population Change

The Vale of Glamorgan

Year beginning July 1st

	2008-09	2009-10	2010-11	2011-12	2016-17	2021-22	2026-27	2031-32	2032-33	2033-34	2034-35	2035-36
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*
In-migration from Overseas												
Male	179	179	1,510	179	179	179	179	179	179	179	179	179
Female	135	135	1,472	135	135	135	135	135	135	135	135	135
All	314	314	2,982	314	314	314	314	314	314	314	314	314
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*
Out-migration to Overseas												
Male	166	166	988	166	166	166	166	166	166	166	166	166
Female	136	136	991	136	136	136	136	136	136	136	136	136
All	302	302	1,979	302	302	302	302	302	302	302	302	302
SMigR: males	275.3	274.2	1624.7	270.3	262.0	254.7	248.8	244.3	243.6	242.8	242.1	241.5
SMigR: females	210.5	210.2	1527.7	208.4	202.6	197.2	192.6	189.0	188.4	187.8	187.2	186.7
Migrants input	*	*	*	*	*	*	*	*	*	*	*	*
Migration - Net Flows												
UK	+50	-10	-50	+492	+492	+492	+492	+492	+492	+492	+492	+492
Overseas	+11	+11	+1,004	+11	+11	+11	+11	+11	+11	+11	+11	+11
Summary of population change												
Natural change	+256	+283	+229	+267	+259	+200	+80	-28	-51	-73	-96	-120
Net migration	+61	+1	+954	+503	+503	+503	+503	+503	+503	+503	+503	+503
Net change	+317	+284	+1,183	+770	+762	+703	+583	+475	+452	+430	+408	+383
Crude Birth Rate /000	11.77	11.60	11.28	11.03	10.78	10.34	9.78	9.51	9.46	9.41	9.36	9.32
Crude Death Rate /000	9.74	9.36	9.48	8.94	8.81	8.87	9.21	9.71	9.82	9.92	10.03	10.16
Crude Net Migration Rate /000	0.49	0.01	7.51	3.93	3.82	3.72	3.63	3.56	3.55	3.54	3.53	3.52

Population Estimates and Forecasts

2008 Base Year with 2011 Census Alternative Base & 10 Yr Av Migration Rates

Components of Population Change

The Vale of Glamorgan

Year beginning July 1st

2008-09 2009-10 2010-11 **2011-12** 2016-17 2021-22 **2026-27** 2031-32 2032-33 2033-34 2034-35 2035-36**Summary of Population estimates/forecasts**

Population at mid-year

	2008	2009	2010	2011	2016	2021	2026	2031	2032	2033	2034	2035	2036
0-4	7,073	7,258	7,391	7,335	7,358	7,412	7,211	7,068	7,056	7,044	7,031	7,017	7,003
5-10	8,844	8,561	8,487	8,658	9,231	9,386	9,444	9,246	9,191	9,143	9,105	9,076	9,052
11-15	8,464	8,369	8,166	9,275	7,603	8,050	8,195	8,251	8,249	8,230	8,196	8,152	8,102
16-17	3,674	3,606	3,596	2,900	3,890	3,109	3,414	3,382	3,396	3,406	3,415	3,419	3,417
18-59Female, 64Male	71,349	71,519	71,582	71,874	72,253	72,680	71,900	71,617	71,576	71,630	71,719	71,879	72,028
60/65 -74	15,852	16,182	16,483	16,767	18,845	20,152	20,784	21,793	21,898	21,919	21,862	21,709	21,546
75-84	7,525	7,547	7,508	7,535	8,414	9,888	11,935	12,831	12,775	12,726	12,867	13,080	13,300
85+	2,932	2,989	3,101	3,153	3,715	4,383	5,446	6,850	7,373	7,865	8,199	8,470	8,738
Total	125,713	126,030	126,314	127,497	131,308	135,059	138,330	141,037	141,512	141,965	142,394	142,802	143,185

Dependency ratios, mean age and sex ratio

0-15 / 16-65	0.31	0.30	0.30	0.32	0.30	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.30
65+ / 16-65	0.28	0.28	0.29	0.29	0.33	0.37	0.42	0.46	0.47	0.48	0.48	0.49	0.49
0-15 and 65+ / 16-65	0.58	0.59	0.59	0.61	0.63	0.68	0.72	0.77	0.78	0.78	0.79	0.79	0.79
Median age males	39.1	39.2	39.3	39.2	40.0	40.6	41.3	42.3	42.5	42.7	42.8	43.0	43.2
Median age females	41.6	41.9	42.2	42.3	43.6	44.5	45.2	46.1	46.2	46.4	46.6	46.8	47.0
Sex ratio males /100 females	94.2	94.5	94.9	95.0	95.2	95.3	95.3	95.2	95.2	95.2	95.2	95.1	95.1

Population impact of constraint

Number of persons

+992

Population Estimates and Forecasts

2008 Base Year with 2011 Census Alternative Base & 10 Yr Av Migration Rates

Components of Population Change

The Vale of Glamorgan

Year beginning July 1st

2008-09 2009-10 2010-11 **2011-12** 2016-17 2021-22 **2026-27** 2031-32 2032-33 2033-34 2034-35 2035-36**Households**

Number of Households	52,788	53,016	53,262	53,789	56,439	58,979	61,354	63,324	63,664	63,983	64,288	64,581	64,863
Change in Households over previous year		+228	+246	+526	+543	+484	+442	+361	+341	+319	+305	+292	+282
Change in Households (2011-2026)				+7,566									

Number of supply units	54,873	55,110	55,366	55,913	58,668	61,309	63,778	65,825	66,179	66,511	66,828	67,132	67,425
Change in over previous year		+237	+256	+547	+564	+503	+460	+375	+354	+332	+317	+304	+293
Change in Dwellings (2011-2026)				+7,865									
Dwellings Change plus 10%				8,651									

Special Populations

arm for	883	883	883	883	883	883	883	883	883	883	883	883	883
pris	0	0	0	0	0	0	0	0	0	0	0	0	0

This report was compiled from a forecast produced on 24/09/2014 using POPGROUP software developed by Bradford Council, the University of Manchester and Andelin Associates

Carl Sargeant AC / AM
Y Gweinidog Tai ac Adfywio
Minister for Housing and Regeneration



Llywodraeth Cymru
Welsh Government

Ein cyf/Our ref SF/CS/1070/14

To all Local Authority:

Cabinet Members with Responsibility for Planning

CC Chief Executives & Chief Planning Officers

10 April 2014

Dear Colleagues

I am writing to you to remind you of the Welsh Government's policy and expectations relating to the use of household projections in the planning system. In February 2014 a new set of household projections for Wales, based on 2011 census, were published by the Welsh Government's Knowledge and Analytical Service. The assumptions underlying these projections are based on past trends, which have been significantly affected by recent past economic conditions resulting from the global economic crisis. As a consequence they may give rise to lower household projections and higher household sizes than in previous projections; it is important that this is borne in mind when using the projections for planning purposes.

Planning Policy Wales (PPW) sets out our policy on how projections should be used when planning for new homes and it makes it clear that the latest Welsh Government local authority level household projections should form the **starting point** for assessing housing requirements and are therefore not an end in themselves. PPW is clear that local planning authorities should consider the appropriateness of the projections for their area, based on all sources of local evidence.

The Planning and Compulsory Purchase Act requires that Local Development Plans are sound, and integral to this is the coherency and consistency of Plans. It is essential that LDP policies and allocations are informed by evidence and are mutually supportive of the Plan's strategy so that, for example, if a Plan has regeneration or economic aspirations there must be consideration of the associated levels of housing to accommodate this. The Plan should reflect all aspects of the evidence base, and it is not prudent for a Plan, looking 15-20 years ahead to replicate a period of exceptionally poor economic performance. In most instances this will result in an examination of the housing numbers, taking the Welsh Government's projections as the starting point.

Bae Caerdydd • Cardiff Bay
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Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)

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Llinell Ymholiadau Cymraeg 0845 010 4400
Correspondence: Carl.Sargeant@wales.gsi.gov.uk

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For the avoidance of any future doubt, local planning authorities must seek to provide for the level of housing required as the result of the analysis of **all** relevant sources of evidence rather than relying solely on the Welsh Government's household projections.

I am copying this letter to the Planning Inspectorate and expect full consideration of the relevant evidence before housing levels are agreed on at LDP Examinations.

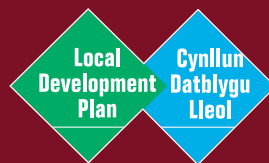
Yours sincerely,

A handwritten signature in black ink, appearing to read 'Carl Sargeant', written in a cursive style.

Carl Sargeant/AC / AM
Y Gweinidog Tai ac Adfywio
Minister for Housing and Regeneration

Glossary of Terms and Acronyms

WG	Welsh Government
LDP	Local Development Plan
WASP	Wales Sub-national Projections Working Group
ONS	Office for National Statistics
LA	Local Authorities
PPW	Planning Policy Wales
CoC	Components of Change – break down of the population components used within a projection
SE Wales	South East Wales region
SP	Draft Local Development Plan - Strategic Policy
B1.a	Welsh Government Representation – Category B – point B1. Scale and location of Growth, a) Housing Provision and Methodology – Policy SP3 and MG1
MG	Draft Local Development Plan – Managing Growth Policy
Ha	Hectares
HBF	House Builders Federation
p.a.	Per annum
LPAs	Local Planning Authorities
SOA	Strategic Opportunity Area
LHMA	Local Housing Market Assessment



The Vale of Glamorgan Council
Directorate of Development Services

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